GOVERNMENT ACCOUNTABILITY PROJECT
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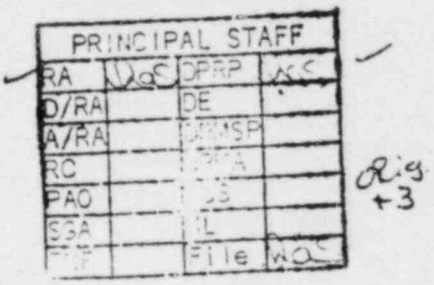
February 10, 1984

Honorable Chairman Nunzio Palladino
Honorable Victor Gilinsky
Honorable James Asseltine
Honorable Thomas Roberts
Honorable Frederick Bernthal
United States Regulatory Commission
Washington, D.C. 20555



Re: In the Matter of Consumers Power Company
Midland Nuclear Power Plant, Units 1 and 2
Docket Nos. 50-329/330 (10 C.F.R. 2.206)

Dear Commissioners:

On June 13, 1983, the Government Accountability Project (GAP) filed a Petition pursuant to 10 CFR 2.206 (Petition) on behalf of the Lone Tree Council and others (Petitioners), requesting specific items of relief regarding the Midland Nuclear Power Plant(Midland). The Petition has been granted in part and denied in part in Director's Decision DD 83-16 and DD 84-02. On January 27, 1984 pursuant to 10 CFR 2.772, the Commission extended the time within which the Commission may act to review the Director's Decision until February 10, 1984.

On the basis of the information provided in the Petition, and with the consideration of the additional facts and argument provided in this letter we request that the Commission take review of the Director's Decision.

Specifically, we renew our request for the Commission to:

(1) Reguire that all ongoing activity, including the "soils work" 1/ be included under the Order of Modification of Consumer's Power Companys'(CPCo) construction permit for the Midland Plant.(Petition, page 13 - 15.)

(2) Remove CPCo from managerial responsibility of the QA/QC function at the Midland plant, replacing them with an independent third-party with the responsibility to report simultaneously to both the NRC and CPCo. (Petition, page 20 - 22).

(3) Increase NRC staffing for the Midland Office of Special Cases(OSC). (Petition, page 22 - 23.)

1/"Soils work" in this letter refers to all activity, including underpinning of safety related buildings on the site, undertaken by CPCo following the December 1979 Stop Work Order issued by the Nuclear Regulatory Commission(NRC).

BASIS

The Government Accountability Project (GAP) filed a detailed request pursuant to 10 CFR 2.206 on June 13, 1983. The Inspection and Enforcement Manual, Chapter 0800, §0860-04 requires that, in order for a request to be granted, it must specify the action sought by the Petitioners and "set out the facts that constitute the basis for the request." 2/

GAP assumes that the Director did not see the need for an expansion by Petitioner of the factual basis for its requests, since no request for further information was received. Moreover, since the request has been substanially granted (except for the items enumerated in this letter for which we renew our request), we assume that the supporting documentation and/or explanations provided the Director with an accurate protrayal of the basis upon which submitted our request.

However, much has happened at the Midland Project since the Petition was filed.

In determining whether or not the Commission should take review of the two Director's decisions issued in response to the Petition we believe that it is necessary to update the factual basis upon which our original petition was based. (This submittal is not an appeal or request for review of items granted in DD 83-16 and 84-02, Petitioner recognizes that there is no procedure for appeal of Commission decisions under 10 CFR 2.206. Instances where the Directors' decision differs from our request which are not mentioned in this submittal can be construed as acceptable to Petitioners, unless stated otherwise in previous correspondence; i.e., our continuing skepticism toward Stone and Webster's competence and independence in their role as third-party overviewer.)

UPDATE SUMMARY

Since June, 1983, CPCo's Midland project has suffered from a series of financial, construction, legal, and regulatory setbacks. Petitioners believe that the cumulative effect of these setbacks, described below, provides additional basis for our original requests for (1) Institutionalizing all reinspection programs under the Construction Completion Program (CCP), (2) Removal of CPCo from primary responsibility for the QA/QC function at the plant, and (3) the assignment of more NRC personnel to the Midland OSC.

1. DOW PULLOUT

In July 1983 the Dow Chemical Corporation (Dow) cancelled its steam contract with CPCo, and brought legal action against CPCo in Midland County District Court. The Dow suit alleges that CPCo

made fraudulent misrepresentations and nondisclosures;
made material breaches of its contractual and fiduciary

2/ Nuclear Regulatory Commission Inspection and Enforcement Manual, Chapter 0800, Section 0860-04, "Guidance for Accepting or Denying Requests for Enforcement Action," November 15, 1978.

obligations to Dow; and demonstrated its inability to complete the Midland Nuclear Facility within any reasonable time or cost.

Allegations contained in the Dow complaint point to a "dual cost and schedule" kept by CPCo since 1978. The Dow allegations are the subject of a Atomic Safety and Licensing Board (ASLB) contention which is expected to be litigated in late spring 1984.

2. STOCKHOLDER SUITS

Four stockholders suits have been filed to date by shareholders of CPCo stock. These suits have been filed against CPCo pursuant to provisions of the Securities Exchange Act. Essentially they allege that CPCo made certain material omissions in prospectus, made false statements to its stockholders, and willfully concealed information about the cost and completion schedule for the Midland plant. They accuse CPCo of deceiving potential investors about the stability of its construction project and inducing them to purchase stock that they would not have bought had CPCo disclosed known to them, or that should have been known to them, at the time.

Of particular interest to the Commission should be the Weiland suit, included as Attachment 1, which relies in great part on information provided from CPCo to the NRC at its April Caseload Forecast Panel (CLFP) meeting. 3/

3. CASELOAD FORECAST PANEL CONTROVERSY

The NRC CLFP for Midland announced on December 20, 1983 that CPCo's schedule estimate (based on CPCo's April 1983 CLFP presentation) was "off" by at least 16 months. The December 20, 1983 letter from Thomas M. Novak, Assistant Director for Licensing of the Division of Licensing to Mr. J.W. Cook of CPCo designates that the NRC intends to use September 1986 as the "planning date for completing the Licensing review process for Unit 2." 4/

Internal disputes between the members of the CLFP and NRR management succeeded in keeping the NRC's knowledge about the expected delay from public disclosure for over seven months. Included as Attachment 2 to this letter is an affidavit from the undersigned, with exhibits, which detail the impropriety of the staff actions in withholding significant information regarding the incredulity of CPCo's completion schedule estimates given in April, 1983.

2/ The text of the suit confuses the CLFP and the CCP, particularly with respect to meetings. However, it should be obvious to a knowledgeable reader whether plantiff Weiland is referring to CCP activities or CLFP information.

3/ Richard A. Weiland versus Consumers Power Company, et al. (ED Michigan)

4/ U.S. NRC letter, Thomas M. Novak to J.W. Cook, CPCo, December 20, 1983.

Certain agency staff members "stonewalled" the release of the CLFP review, completed in mid-May 1983.(see Attachment 2, Exhibit 4) and prevented its disclosure to the Atomic Safety and Licensing Board (ASLB), and the public. CPCo management officials, however, did have knowledge of the CLFP's May estimates and successfully managed to get NRC release of the information quashed.

Had the CLFP information been disclosed at either the ASLB hearing or at the planned (but cancelled) public meeting CPCo would not have been able to portray false and misleading information to potential investors.

4. DIESEL GENERATOR BUILDING RE-REVIEW

A re-review of the acceptability of the Diesel Generator Building by a combined team of professional soils and geo-technical engineers from the Brookhaven National Laboratory, the NRC, and an outside consultant was conducted. It concluded, essentially, that the DGB could not meet federal regulatory standards for the Midland project, but that it would probably be acceptable.

The impasse continues over the DGB with a seemingly unresolvable controversy between numerous professionals. Of critical importance for the Commissioners consideration at this time in the non-negotiable position of the U.S. Corps of Engineers, who have refused to certify the building as safe.

The DGB review which was issued October 21, 1983 by the NRC, a December 2, 1983 Memorandum from J. Kane of the Division of Nuclear Reactor Regulation, and several drafts and supporting memorandum of the report issued to the undersigned under Freedom of Information Act (FOIA) request No. 83-____ give insight into the preposterousness of the "mysterious" sixth conclusion of the DGB Re-review in the final report.

That conclusion, which was added after several levels of internal dispute, states:

> While significant cracking has occurred in the DGB, it is our opinion that the structure will continue to fulfill its functional requirement. This conclusion is based on the fact that stresses induced in the structure by all other extreme loadings are small.

However, the original Brookhaven report contained a conclusion six that was totally opposite the final, publicly issued, version. That "bottom line" stated

> It is recommendedthat a repair program be developed and implemented.

It is our understanding that, in fact, several repair recommendations were in the development stage by the team that did the reanalysis. Those recommendations were, however, never disclosed or even discussed.

The ASLB OM hearings must also conclude that there is a reasonable assurance that the public health and safety of the Midland/Saginaw/Bay City area would be protected under any conditions. That may not be possible, regardless of how many staff "edits" are made of the truth about the DGB.

5. FAILURE OF CPCo TO MAP AUXILIARY BUILDING CRACKS

The NRC discovered in January 1984 that CPCo has not mapped all of the cracks in the Auxiliary Building (Aux Building), and that neither CPCo nor the NRC know the extent or the seriousness of the cracks in the building.

On February 8, 1984 CPCo provided the NRC OSC team with a package of documentation in an attempt to explain away the problems. At the monthly public meeting between Stone and Webster, the NRC, and CPCo Mr. J. Mooney gave a detailed presentation of the new crack monitoring program. They also presented a weak explanation of why the entire building had not been monitored for cracks for the past five years.

Their explanation, that certain "hairline cracks" weren't required to be mapped or included in the crack mapping, and that crack mapping was never intended to cover certain "inaccessible" parts of the Aux Building, defys reason.

A preliminary review of NRC/NRR time and effort that has gone into an evaluation of the Aux Building indicates that slightly over half of all recent efforts have gone into technical work on the Aux Building. The money spent by the agency is now largely wasted. Re-evaluations, more engineering analysis, more staff inspections will be required. All of that could have been avoided had CPCo demonstrated any regulatory responsibility

The ASLB OM hearings will probably now also have to be reopened into the Aux Building. (That motion is pending before the Board at this time.)

Other problems with the Aux Building as the underpinning effort continues plague CPCo. For example, the summary of an audit held on January 4 - 6, 1984(Report No. 50-329/84-01(OSC);50-330/84-01(OSC) concluded that upward building movement limits established by the contractor and proposed by CPCo in response to unanticipated upward building movement were unacceptable.

6. ENFORCEMENT ACTION, RE: VIOLATION OF BOARD ORDER/NRC STAFF

An Office of Investigations (OI) investigation into a July 1982 incident where CPCo deliberately drilled into a deep-Q duct bank, and removed soils in order to lay certain cables, concluded that CPCo had excavated the soil without the required prior NRC authorization.

As a result of those findings the Region recommended a civil penalty of $100,000.00 be levied on CPCo. That Enforcement Action was almost issued as

Enforcement Notice 83-69. However, after an unannounced meeting between the Director and CPCo Counsel M. Miller, and subsequent discussions between the Regional Director and the Director --but not with the RIII staff--the Civil Penalty was withdrawn.

Instead DD 84-02 was issued which incorporated an Order for CPCo to submit to an independent management audit. GAP vehemently protested the withdrawal of EN 83-69, and the misrepresentation that the management audit (which was first proposed in the Petition and which CPCo agreed to in October 1983) was an adequate response to the OI findings.

Our foremost complaint about the handling of the Violation of the Board Order is that the OSC team and regional management made a firm recommendation for a civil penalty. (Presumably this was based on their cumulative experience with CPCo's blatant disregard for regulatory requirements that are inconvenient to CPCo.) Then, exhibiting CPCo's infamous ability to seek out and find someone in the NRC who will agree with CPCo's best interests, a meeting was arranged between the lawyer (not management) who was responsible for litigating the very same issue in front of the ASLB and the Director. No opportunity was provided for factual rebuttal by the OSC team, even though members of the team were present to observe the actual violation of the order.

RENEWED REQUESTS

Petitioners requested six specific actions in the original June Petition. These were requested "to protect the future public health and safety of central Michigan residents..." For the same reason, and additionally based on information summarized above, we renew our request for three of the original six items.

1. Require that all ongoing activity, including the "soils work," be included under the Order of Modification of CPCo's construction permit for the Midland Plant. (Petition, page 13 - 15)

The Director's Decision, issued October 6, 1983, responded to that request as follows

> It should be noted that the CCP does not include the remedial soils program, nuclear steam supply system installation, HVAC installation, and the reinspection of pipe hangers and electrical cable. The remedial soils activities are being closely inspected under the conditions of the construction permits which implement the Atomic Safety and Licensing Board's April 30, 1982 order and work authorization procedure. Therefore, the staff does not consider it necessary to require the remedial soils activities to be included in the CCP. Controls over the soils work have been implemented under a separate program.

> Similarly, reinspection of the pipe hangers and electrical cable we were not included in Phase I of the CCP because that reinspection is being done under a separate commitment to the NRC...Nuclear Steam Supply System installation and HVAC installation were not drawn into question by the diesel generator building inspection. (DD 83-16, at 7.)

Since the decision was issued in October CPCo activities regarding the soils program, the HVAC installation, and pipe hanger and electrical cable reinspection programs have demonstrated that the staff's position was premature. In fact, the Decision should have clarified which part of the staff was being represented in that statement.

Each of the above listed systems and the soils work have undergone major reviews, and Petitioner acknowledges that construction completion will occur under the Construction Implementation Overview (CIO), however, given recent disclsoures and identified problems (such as the identification of cracks in the Aux building), it is no longer acceptable to "take CPCo's word for it," in regard to critical systems.

The HVAC reinspection program, and the NRC HVAC inspection, have been on-going for almost two years. Yet, new witnesses that GAP has interviewed who worked as field engineers on the system disclose that problems were being actively "covered up" by CPCo instead of being repaired. These witnesses would have talked to NRC inspectors, had they been independently interviewed, however -- no one contacted them. GAP investigators are in the process of reviewing their concerns and will submit affidavits upon the completion of the same. The message is clear, however, that CPCo continues to view the NRC as capable of identifying only a limited amount of the problems, and unless forced to by inclusion under DD 83-16 will not comply with the voluntary disclosure of hardware problems.

Both the pipe hanger and the electrical inspections conducted by CPCo also failed to disclose information given to the NRC by other sources, including several GAP witnesses.

GAP urges the Commission to re-review this request and include the information from the OSC team regarding problems in the exempted systems.

2. Remove CPCo from managerial responsibility of the QA/QC function at the Midland Plant, replacing them with an independent third-party with the responsibility to report simultaneously to both the NRC and CPCo. (Petition, page 20 - 22)

The Director's Decision responded to that request as follows:

> While it might be permissible under Appendix B to 10 CFR Part 50 for CPCo to retain an independent organization to execute the QA/QC program, the licensee remains ultimately responsible for the establishment and execution of the program. As stated above, the

staff considers the strengthening of MPQAD to be a positive step in improving CPCo's capability to assure the quality of construction of the Midland facility. In view of the relatively short existence of the MPQAD, there does not currently exist any justification for requiring CPCo to retain an outside organization to execute the QA/QC program. (Emphasis added)

That response was based upon the information contained in the June 1983 Petition. At that time, besides the historical references, there were three on going Office of Investigations investigations into deliberate misconduct by CPCo. Two of the three have now been completed, both which point the finger squarely at CPCo management for misleading the NRC regarding important safety related activities.

First, the Boos investigation, concluded that at least one CPCo official knew that the representation made at a Bethesda meeting between NRR/RIII and CPCo was not true. No enforcement action was taken as a result of that incident. Mr. Keppler, RIII Director, commented at a public meeting that this incident was the last time he would give CPCo the benefit of the doubt.

The second incident, drilling through the deep-Q duct bank in violation of the board order about work authorization permits was the next incident. As discussed previously in this letter, Mr. Keppler did recommend strong enforcement action after the OI investigation concluded that CPCo had violated the board order. Unfortunately, the Director decided to "give them one more chance," and dismissed the civil penalty recommendation.

The third investigation, still on-going, into CPCo's witholding of information about an internal quality assurance breakdown of the Zack Company is expected to be issued in the near future. Regardless of the technical findings it is unlikely that CPCo will be able to weasel out of the simple facts surrounding their failure to notify the NRC. They did not.

Finally, as also discussed previously in this letter, CPCo management has now conceded that no one, not even CPCo, knows the number or extent of the thousands of cracks in the Aux Building. This despite the fact that they have permitted the NRC to spend hundreds of thousands of taxpayer dollars on evaluations of the safety of the building.

Contained in the Dow and stockholder suits are numerous examples of CPCo deceit of shareholders, business partners, investment companies and the public at large. Discovery in these cases is revealing, on a daily basis, the extent to which CPCo has been willing to go to protect its survival as a company.

At Zimmer the NRC witheld approval of a reinspection program that contained a plan for the H.J. Kaiser company to continue as prime contractor because they were under investigation! Here the Company has been under investigation, and multiple investigations for the past two years. Some of those investigations have concluded that CPCo was guilty of what it was accused of. Surely the staff

cannot continue to pretend that there is not now justification for requiring CPCo to retain an outside organization to execute the QA/QC program.

At a minimum that responsibility should be transferred to a third-party until the completion of the management audit.

This request, the removal of CPCo management officials from the QA/QC function for the Quality Verification Program (QVP) is of immediate concern. The QVP is just beginning. At the February 9, 1984 public meeting Stone and Webster officials reported that the first QVP report was issued on February 3, 1984. Of the thirteen work packages reviewed by S&W three non-conformances were written and another eight findings were discovered. GAP, nor the NRC, have yet received that report. However, as S&W begin to step up their QVP operations this month it is critical that they (or another party) have an institutionalized responsibility for reportability under 10 CFR to the NRC.

If it were possible to indict one person or group of persons for the problems which CPCo has had over the past 15 years the solution would be a simple one. However, that is not the case. GAP's experience with the management audit of Cincinnati Gas and Electric (CG&E) officials gives some insight into the types of problems that can be discovered for the faults that CPCo has suffered from. Yet, the identification of the root of the problem of a poor managerial attitude and inadequate regulatory relationships cannot guarantee the single issue which the Commission is responsible for - certifying that the Midland Nuclear Power Plant if safe.

Any error in deciding this request should be made on the side of prudence towards public health and safety -- not concern for the corporate financial viability of CPCo.

3. The increase in NRC staffing for the Midland Office of Special Cases (Petition at 22 - 23.)

The Director's decision responded

> The fifth issue relates to a metter of internal Commission organization and staffing, namely the allocation of staff to inspection of facilities. The staff is expecting to augment inspect inspection personnel available to work on Midland. However, the creation of positions within the Office of Special Cases is a matter that will be determined by the Commission budget process. For these reasons, the staff is not considering this aspect of the request in this decision.

We renew our request for increased assignment of personnel to the OSC team. We understand that there has been the assignment of one additional inspector within the past week to the OSC team. We are relieved that the Commission recognizes the need for increased staffing and has appropriated funds for an additional inspector. However, there simply is much more work than even six inspectors can handle.

With recent events in Region III (i.e., the cancellation of Marble Hill and Zimmer) we assume that resources are currently available for designation to Midland. GAP staff did a review of the inspection-hours expended on the Marble Hill and Zimmer projects during the calendar year of 1983. According to the Regional inspection reports there were 2,989 inspection hours for Zimmer and 1,895 inspector hours for Marble Hill. A review of the assigned personnel indicated a full-time Project Manager for both plants in the Office of Nuclear Reactor Regulation and other technical resources not identified by Project in NRR. According to NRC files Zimmer had two resident inspectors and one senior resident inspector, and Marble Hill had one senior resident inspector.

By comparison, Midland has one senior resident inspector and one resident inspector, and also one Project Manager (NRR). At Midland during 1983 there were 2,501 inspection hours (that does not include the 734 inspector hours spent on the DGB inspection in late 1982). Those inspections were conducted when the majority of safety-related construction was halted (from December 1982 - through the end of 1983) 57

If, as the NRC Regional Director and the Director of IE maintain, the public confidence in the CCP should be based on the oversight of the NRC inspectors than there must be more inspectors. The S&W representative indicated at the February 9 public meeting that based on workload S&W would increase its personnel as the QVP operation increased. It is simply impossible for five or six inspectors, with limited technical resources, to keep up a regular regulatory program, deal with allegations and information provided by workers and others, overview a floating inspection program, continue oversight of the underpinning efforts, and monitor the most complicated construction program on going in the nuclear industry.

GAP has a great deal of confidence in the OSC team assigned to Midland. Yet we recognize the limitations of a 24-hour day, and a seven day week. We urge the Director to do the same

CONCLUSION

This submittal summarizes our renewed request for three items not responded to in DD 83-16 and DD 84-02. If the Commission does not take review of these items under the provisions outlined in this letter GAP requests that it be consider as a separate request filed pursuant to 10 CFR 2.206.

Our concern for the continuing deterioration of the Midland contruction project heightens every day. We recognize, as should the Commission, that this project is out of control. With the recent events in the nuclear industry that have occurred at plants with late-discovered quality assurance breakdowns it is inexcusable that troubled projects, such as Midland, not receive the extra measures of assurance that the agency is capable of providing.

We look forward to your response.

Sincerely,

Billie Pirner Garde

Billie Pirner Garde
Citizens Clinic Director

Attachments

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Billie Pirner Garde

*Hand-Delivered February 13, 1984.

ATTACHMENT . 1

The JS-44 civil cover sheet and the information contained herein neither r
pleadings or other papers as required by law, except as provided by loca
Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose
of initiating the civil docket sheet. (For more detailed instructions, see separate instructions sheet.)

FILED
'98 JUL 18 PM 12:25

PLAINTIFFS
RICHARD A. WEILAND, on behalf of himself and similarly situated

CHARLES W. JOINER

DEFENDANTS
CONSUMERS POWER COMPANY, JOHN D. SELBY, JAMES B. FALAHEE, RUSSELL C. YOUNGDAHL, WALTER R. BORIS, A. J. AYMOND, ROBERT E. DEWAR, JOHN C. SUERTH, DON T. McKONE, ROBERT B. WHITE, E. NEWTON CUTLER, JR., RICHARD M. GILLETT, WILLIAM M. HUBBARD, JR., JOHN W. HANNON, JR., PAUL S. MIRABITA, MORGAN, STANLEY & CO., INC.

COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF (EXCEPT IN U.S. PLAINTIFF CASES): Hamilton, Ohio

COUNTY OF RESIDENCE OF FIRST LISTED DEFENDANT (IN U.S. PLAINTIFF CASES ONLY): Jackson, Mich.
NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED

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ATTORNEYS (IF KNOWN)

BASIS OF JURISDICTION (PLACE AN X IN ONE BOX ONLY)
☐ 1 U.S. PLAINTIFF ☐ 2 U.S. DEFENDANT ☒ 3 FEDERAL QUESTION (U.S. NOT A PARTY) ☐ 4 DIVERSITY

IF DIVERSITY, INDICATE CITIZENSHIP ON REVERSE (28 USC 1332, 1441)

CAUSE OF ACTION (CITE THE U.S. CIVIL STATUTE UNDER WHICH YOU ARE FILING AND WRITE A BRIEF STATEMENT OF CAUSE)
Securities Act (15 U.S.C. §77k, 771(a), 770, 77p and 77v). Defendants by misrepresentations and omissions inflated the value of stock to plaintiff's detriment.

NATURE OF SUIT (PLACE AN X IN ONE BOX ONLY)

CONTRACT	TORTS	ACTIONS UNDER STATUTES: CIVIL RIGHTS	FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
☐ 110 INSURANCE ☐ 120 MARINE ☐ 130 MILLER ACT ☐ 140 NEGOTIABLE INSTRUMENT ☐ 150 RECOVERY OF OVERPAYMENT & ENFORCEMENT OF JUDGMENT ☐ 151 MEDICARE ACT ☐ 152 RECOVERY OF DEFAULTED STUDENT LOANS ☐ 153 RECOVERY OF OVERPAYMENT OF VETERANS BENEFITS ☐ 160 STOCKHOLDERS SUITS ☐ 190 OTHER CONTRACT ☐ 195 CONTRACT PRODUCT LIABILITY	PERSONAL INJURY ☐ 310 AIRPLANE ☐ 315 AIRPLANE PRODUCT LIABILITY ☐ 320 ASSAULT, LIBEL & SLANDER ☐ 330 FEDERAL EMPLOYERS LIABILITY ☐ 340 MARINE ☐ 345 MARINE PRODUCT LIABILITY ☐ 350 MOTOR VEHICLE ☐ 355 MOTOR VEHICLE PRODUCT LIABILITY ☐ 360 OTHER PERSONAL INJURY ☐ 362 PERSONAL INJURY-MED MALPRACTICE ☐ 365 PERSONAL INJURY PRODUCT LIABILITY	☐ 441 VOTING ☐ 442 JOBS ☐ 443 ACCOMMODATIONS ☐ 444 WELFARE ☐ 440 OTHER CIVIL RIGHTS	☐ 610 AGRICULTURE ☐ 620 FOOD & DRUG ☐ 625 LIQUOR LAWS ☐ 640 R.R. & TRUCK ☐ 650 AIRLINE REGS. ☐ 660 OCCUPATIONAL SAFETY/HEALTH ☐ 690 OTHER	☐ 422 TRUSTEE ☐ 423 TRANSFER (9/138) ☐ 423 APPEAL (801) PROPERTY RIGHTS ☐ 820 COPYRIGHT ☐ 830 PATENT ☐ 840 TRADEMARK SOCIAL SECURITY ☐ 861 HIA (1395ff) ☐ 862 BLACK LUNG (923) ☐ 863 DIWC (405 (g)) ☐ 863 DIWW (405 (g)) ☐ 864 SSID Title XVI ☐ 865 RSI (405 (g)) TAX SUITS ☐ 870 TAXES ☐ 871 IRS-THIRD PARTY 26 USC 7609 ☐ 875 CUSTOMER CHALLENGE 12 USC 3410 OTHER STATUTES ☐ 400 STATE REAPPORTIONMENT ☐ 410 ANTI-TRUST ☐ 430 BANKS AND BANKING	☐ 450 COMMERCE RATES, ETC ☐ 460 DEPORTATION ☐ 810 SELECTIVE SERVICE ☒ 850 SECURITIES/COMMODITY EXCHANGE ☐ 891 AGRICULTURAL ACTS ☐ 892 ECONOMIC STABILIZATION ACT ☐ 893 ENVIRONMENTAL MATTERS ☐ 894 ENERGY ALLOCATION ACT ☐ 895 FREEDOM OF INFORMATION ACT ☐ 900 APPEAL OF DETERMINATION UNDER EQUAL ACCESS TO JUSTICE ☐ 950 CONSTITUTIONALITY OF STATE STATUTES ☐ 890 OTHER STATUTORY ACTIONS
REAL PROPERTY ☐ 210 CONDEMNATION ☐ 220 FORECLOSURE ☐ 230 RENT LEASE & EJECTMENT ☐ 240 TORTS TO LAND ☐ 245 TORT PRODUCT LIABILITY ☐ 290 ALL OTHER REAL PROPERTY	PERSONAL PROPERTY ☐ 370 OTHER FRAUD ☐ 371 TRUTH IN LENDING ☐ 380 OTHER PERSONAL PROPERTY DAMAGE ☐ 385 PROPERTY DAMAGE PRODUCT LIABILITY	PRISONER PETITIONS ☐ 510 VACATE SENTENCE (2255) ☐ 530 HABEAS CORPUS ☐ 540 MANDAMUS & OTHER ☐ 550 CIVIL RIGHTS	LABOR ☐ 710 FAIR LABOR STANDARDS ☐ 720 LABOR/MGMT. RELATIONS ☐ 730 LABOR/MGMT. REPORTING & DISCLOSURE ACT ☐ 740 RAILWAY LABOR ACT ☐ 790 OTHER LABOR LITIGATION ☐ 791 EMPL. RET. INC. SECURITY ACT		

ORIGIN (PLACE AN X IN ONE BOX ONLY)
☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☐ 6 Multidistrict Litigation ☐ 7 Appeal to District Judge from Magistrate Judgment

UNITED STATES DISTRICT COURT

(Continued on Reverse Side)

JS 44C
(Rev. 11/83)

CIVIL COVER SHEET (Reverse Side)

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (For more detailed instructions, see separate instructions sheet.)

INSTRUCTIONS: After completing the front side of form JS 44C, complete the information requested below.

CITIZENSHIP OF PRINCIPAL PARTIES (IF DIVERSITY)

	PTF	DEF
CITIZEN OF THIS STATE	☐1	☐1
INCORPORATED THIS STATE	☐2	☒2
FOREIGN CORPORATION-PRINCIPAL PLACE OF BUSINESS IN ______ (STATE)	☐3	☐3
OTHER NON-CITIZEN OF THIS STATE	☒4	☐4

Check/Fill in if demanded in complaint:

CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23 ☒	DEMAND $	OTHER

RELATED CASE(S) IF ANY

JUDGE Joiner DOCKET NUMBER 83CV5448??

CIVIL CASES ARE DEEMED RELATED IF PENDING CASE INVOLVES:

☐ 1. PROPERTY INCLUDED IN AN EARLIER NUMBERED PENDING SUIT

☒ 2. SAME ISSUE OF FACT OR GROWS OUT OF THE SAME TRANSACTION

☐ 3. VALIDITY OR INFRINGEMENT OF THE SAME PATENT COPYRIGHT OR TRADEMARK

Check YES only if demanded in complaint:

JURY DEMAND: ☒ YES ☐ NO

DATE
11/18/83

SIGNATURE OF ATTORNEY OF RECORD
[signature]

COMMENTS (Use if additional space is required):

NOTICE TO ATTORNEYS FILING CASES WITH
UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

Pursuant to Local Rules 8(c)(3)(i) and (ii), the following certification is required when filing a case in this district:

PURSUANT TO LOCAL COURT RULE 8(c)(3)(i)

(a) IS THIS A CASE THAT HAS BEEN PREVIOUSLY DISCONTINUED OR DISMISSED WITHOUT PREJUDICE OR REMANDED TO A STATE COURT? ☐ YES ☐ NO

(b) IF YES GIVE THE FOLLOWING INFORMATION:

CASE NO: _____

COURT: _____

ASSIGNED JUDGE: _____

PURSUANT TO LOCAL COURT RULE 8(c)(3)(ii)

(a) OTHER THAN STATED ABOVE, ARE THERE ANY PENDING OR PREVIOUSLY DISCONTINUED OR DISMISSED COMPANION CASES (cases in which it appears substantially similar evidence will be offered at trial or the same or related parties are present and the cases arise out of the same transaction or occurrence) IN THIS OR ANY OTHER COURT, INCLUDING STATE COURT?
☐ YES ☑ NO

(b) IF YES GIVE THE FOLLOWING INFORMATION:

CASE NO: _____

COURT: _____

ASSIGNED JUDGE: _____

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

83CV74544AA

FILED
2003 NOV 18 PM 12:29
CHARLES W. SCHER

RICHARD A. WEILAND, on behalf of himself and all others similar situated,

Plaintiff,

-against-

CONSUMERS POWER COMPANY, JOHN D. SELBY, JAMES B. FALAHEE, RUSSELL C. YOUNGDAHL, WALTER R. BORIS, A. H. AYMOND, ROBERT E. DEWAR, JOHN C. SUERTH, DON T. McKONE, ROBERT B. WHITE, E. NEWTON CUTLER, JR., RICHARD M. GILLETT, WILLIAM M. HUBBARD, JR., JOHN W. HANNON, JR., PAUL S. MIRABITA, MORGAN, STANLEY & CO., INCORPORATED, Individually and as Representatives of a Defendant Underwriter Class,

Defendants.

Civil Action No.

JUDGE

COMPLAINT
(Class Action)

PLAINTIFF DEMANDS A TRIAL BY JURY

Plaintiff for his Complaint ("Complaint") alleges as follows:

1. All allegations made in this Complaint are based on information and belief, except as to those allegations which pertain to the named plaintiff and his counsel, which are based upon personal knowledge. Plaintiff's information and belief is based upon, inter alia, the investigation made by and through his attorneys.

JURISDICTION AND VENUE

2. This Court has jurisdiction of this action under:

(a) Section 22 of the Securities Act of 1933, as amended ("1933 Act"), 15 U.S.C. §77v.

(b) Section 27 of the Securities Exchange Act of 1934, as amended ("1934 Act"), 15 U.S.C. §78 aa.

3. Plaintiffs bring this action under and pursuant to:

(a) Sections 11, 12, and 15 of the 1933 Act, 15 U.S.C. §§77k, 771, and 77o et seq.

(b) Sections 10(b) and 20 of the 1934 Act, 15 U.S.C. §§78j(b) and 78t, and Rule 10b-5 of the 1934 Act, 17 C.F.R. 24; 10b-5 adopted by the Securities and Exchange Commission ("SEC").

4. Many of the acts charged herein, including the dissemination of a registration statement, prospectus and various SEC public filings which contained materially false and misleading statements and omitted to state material facts, occurred in the Eastern District of Michigan. In addition, defendants inhabited, transacted business, or resided in this judicial district during the Class Period as defined infra in paragraph 14. Moreover, many of the prospective witnesses to the acts alleged herein reside in this district.

5. In connection with the acts alleged in this Complaint, the defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including the mails and telephone communications and the facilities of the national securities exchanges.

PARTIES

6. Plaintiff Richard A. Weiland ("Weiland") is a resident of the State of Ohio. On June 22, 1983, during the Class Period as defined infra in paragraph 14, plaintiff Weiland purchased 200 shares of common stock of Consumers Power Company ("Consumers Power") issued pursuant to a June 22, 1983 registration statement and prospectus (the "Registration Statement" and the "Prospectus") and certain other materials incorporated by reference thereto.

7. Defendant Consumers Power is a Michigan corporation with its principal executive offices located at 212 West Michigan Avenue, Jackson, Michigan. Consumers Power is a public utility company engaged in the generation, purchase, transmission, distribution and sale of electricity, and in the purchase, production storage, transmission, distribution and sale of gas, in the Lower Peninsula of the State of Michigan.

8. Defendants John D. Selby ("Selby"), Russell C. Youngdahl ("Youngdahl") and Walter R. Boris ("Boris") are individuals who are and, at all relevant times have been, members of the Board of Directors and senior officers of Consumers Power. Defendant Selby signed the Registration Statement on behalf of Consumers Power as Chairman of the Board and President of the company.

9. Defendants Selby, Youngdahl, Boris, A. H. Aymond ("Aymond"), Robert E. Dewar ("Dewar"), John C. Suerth ("Suerth"), Don T. McKone ("McKone), Robert B. White ("White"), E. Newton Cutler, Jr. ("Cutler"), Richard M. Gillett ("Gillett"),

William M. Hubbard, Jr. ("Hubbard"), John W. Hannon ("Hannon"), and Paul S. Mirabita ("Mirabita") (collectively referred to as the "Defendant Directors"), are individuals who are, and at all relevant times were, members of the Board of Directors of Consumers Power and each, with the exception of defendant Hannon, signed the Registration Statement.

10. By reason of their management positions and/or membership on Consumers Power's Board of Directors, the defendant directors were controlling persons of Consumers Power within the meaning of Section 20 of the 1934 Act, and Section 15 of the 1933 Act, and had the power and influence to cause Consumers Power to engage in the unlawful conduct complained of herein. Because of their executive and/or managerial positions with Consumers Power and/or their positions as members of Consumers Power's Board of Directors, each of the Defendant Directors had access to adverse non-public information about the business, finances and future business prospects of Consumers Power. Each Defendant Director acted to conceal the same as particularized herein. All of the Defendant Directors participated in, aided and abetted, conspired to effect and/or consciously or recklessly pursued the unlawful conduct herein alleged.

11. Defendant Morgan, Stanley & Co., Incorporated ("Morgan, Stanley") is an investment banking company with its principal offices in New York City, New York. Defendant Morgan, Stanley was lead underwriter of Consumers Power's June 22, 1983 offering of 5 million shares of common stock at $20.625 per share (the

"Public Offering"). The public paid approximately $103 million to acquire shares in Consumers Power pursuant to such public offering. The proceeds of such offering were applied, inter alia, to payment of fee of over $3 million to the defendant underwriters, proceeds of $8 million received by Morgan, Stanley through a "piggy-back" sale of shares of Consumers Power common stock it had previously acquired and Consumers Power received the balance of approximately $92 million as the net proceeds of the said Public Offering.

12. Morgan, Stanley, in part through its counsel, conducted or participated in an investigation (known as a "due diligence" investigation) into the business operations and prospects, financial accounting and management control systems and the construction program of Consumers Power. In the course of such investigation defendant Morgan, Stanley and its counsel either obtained knowledge of or recklessly disregarded the facts set forth infra in paragraph 45. Defendant Morgan, Stanley pursued a conspiracy and common course of conduct with other defendants and aided and abetted the making of the false statements complained of herein in part to obtain $8 million as Selling Shareholder in the Public Offering of Consumers Power common stock and in part to obtain its share of the $3 million in underwriting fees from the Public Offering.

CLASS ACTION ALLEGATIONS

13. This action is brought as a class action pursuant Rule 23(b)(3) of the Federal Rules of Civil Procedure.

14. The class represented by plaintiff includes all pe and entities, other than defendants named herein and their im diate families, who purchased or otherwise acquired shares of the common stock of Consumers Power pursuant to the Registrat Statement and Prospectus and on the open market, from June 2: 1983 through November 9, 1983, inclusive (the "Class Period") The named plaintiff is a member of the Plaintiff Class.

15. Because several million shares of Consumers Power common stock were purchased during the Class Period, the mem of the class are so numerous that joinder of all members is impracticable. Although the exact number of class members c only be determined by appropriate discovery, plaintiff belie that class members number in the thousands.

16. Plaintiff's claims are typical of the claims of th members of the class. Plaintiff and all members of the clas sustained damages as a result of defendants' wrongful conduc complained of herein.

17. Plaintiff will fairly and adequately protect the interests of the members of the class and has retained couns competent and experienced in class and securities litigation

18. A class action is superior to other available methods for the fair and efficient adjudication of this controversy. Since the damages suffered by individual class members may be relatively small, the expense and burden of individual litigation makes it impossible for the class members individually to seek redress for the wrongful conduct herein alleged.

19. Common questions of law and fact exist as to all members of the class and predominate over any questions affecting solely individual members of the class. Among the questions of law and fact common to the class are:

(a) Whether the federal securities laws were violated by defendants' acts as alleged herein;

(b) Whether defendants participated in and pursued the concerted actions herein alleged;

(c) Whether documents, releases, prospectuses and statements disseminated to the investing public and the shareholders omitted and/or misrepresented material facts about the business affairs of Consumers Power;

(d) Whether the defendants acted willfully, recklessly or negligently in omitting to state and/or misrepresenting material facts, or in aiding and abetting the making of such omission and/or misstatements;

(e) Whether the offering price and/or market prices of Consumers Power common stock during the Class Period were artificially inflated due to the nondisclosures and/or misrepresentations of material facts complained of herein; and

(f) Whether the members of the class have sustained damages, and, if so, the proper measure of damages.

20. Plaintiff knows of no difficulty which will be encountered in the management of this litigation which would preclude its maintenance as a plaintiff class action.

UNDERWRITER CLASS ACTION ALLEGATIONS

21. With respect to Counts I and II herein, defendant Morgan, Stanley is sued both individually and as a representative of a defendant class consisting of all underwriters who, pursuant to a single Underwriting Agreement, participated in the Public Offering and sale of Consumers Power's stock on or about June 22, 1983 (the "Underwriter Class"), for which they were paid fees in excess of $3 million.

22. The members of the Underwriter Class are so numerous--approximately 118 underwriters--that joinder of all such class members is impracticable.

23. There are questions of law or fact common to members of the Underwriter Class, including whether the Registration Statement and Prospectus used in the Public Offering to disclose material facts or misrepresented material facts omitted and whether the lead underwriters exercised "due diligence" in investigating the financial condition, operating results, construction program and profitability reported by Consumers Power in said Registration Statement and Prospectus.

24. The defenses of the representative of the Underwriter Class will be typical of the defenses of all class members, and the named representatives will fairly and adequately protect the interests of the Underwriter Class.

25. A class action is superior to other available methods for the fair and efficient adjudication of this controversy.

26. As to plaintiff's claims for violation of Section 11 of the 1933 Act (Count I), the questions of law or fact common to the members of the Underwriter Class predominate over any questions affecting only individual members. As to claims for violation of Section 12(2) of the 1933 Act (Count II) plaintiffs will seek certification of a single issue defendant class to adjudicate the question whether the Registration Statement and Prospectus were materially misleading.

27. Plaintiff knows of no difficulty which will be encountered in the management of this litigation which would preclude certification of the defendant Underwriter Class.

FACTS UPON WHICH CLAIMS FOR RELIEF ARE BASED

28. In 1968, Consumers Power began construction of a nuclear power plant in Midland, Michigan (the "Midland plant"). At that time, completion was expected in seven years and at a cost of $349 million.

29. While the Midland plant was in the planning and design stage, prior to December 1966 Consumers Power began negotiations with Dow Chemical Co. ("Dow") concerning the supply of steam to Dow from the Midland plant. On or about December 13, 1967 Consumers Power and Dow executed an agreement under which Consumers Power agreed to supply steam to Dow on completion of the Midland plant (the "1967 Dow Agreement").

30. Thereafter the construction of the Midland plant encountered a number of delays. These delays resulted in promulgation of financing, quality controls and federal regulatory safety requirements by the Nuclear Regulatory Commission ("NRC"). As a result of these delays, a dispute between Consumers Power and Dow over the 1967 Dow Agreement arose and on or about June 21, 1978 a new agreement was entered into between Consumers Power and Dow which replaced the 1967 Dow Agreement (the "1978 Dow Agreement").

31. Under the 1978 Dow Agreement, Dow was to purchase as much as four million pounds of cogenerated steam an hour from the Midland plant beginning by the end of 1984. Pursuant to the 1978 Dow Agreement, if the Midland plant was not to be completed prior to December 31, 1983, Dow had the option to terminate the 1978 Dow Agreement. Consumers Power was obligated by the 1978 Dow Agreement to keep Dow currently informed of Consumers Power's construction schedules, the progress of engineering design and construction, and proposed changes in engineering design, construction, and operating and maintenance practices and procedures that would significantly affect the aggregate cost of process stem to Dow.

32. Prior to and during the negotiation of the 1978 Dow Agreement, Consumers Power had discovered, but failed to disclose material adverse information regarding the construction of the Midland plant, the material information which Consumers Power failed to disclose to Dow or the investing public, including the following:

(a) that the 30 feet of fill soil on which the Midland plant was being constructed was inadequate for construction of a nuclear power plant;

(b) that the administration building under construction at the Midland plant, a structure not subject to NRC safety reporting requirements, was experiencing sinking problems in 1977;

(c) that an informal investigation conducted by Consumers Power in 1977 had confirmed that the serious deficiencies in the fill soil was present throughout the Midland plant site;

(d) that Consumers Power was issuing false and misleading test results to the NRC certifying that the fill soil was meeting NRC standards;

(e) that at least three audits conducted by Consumers Power during the period 1974-1977 found numerous instances of failure to meet proper procedures or specifications in the laying and compacting of the fill soil; and

(f) that continued construction without first correcting these fill soil deficiencies would result in prolonged delay and substantial additional costs.

33. Thereafter in 1978, after a structure subject to NRC reporting requirements began sinking at the Midland plant, Consumers Power finally disclosed that a sinkage problem existed at the Midland plant.

34. As early as January 1980, Consumers Power knew or should have known that the 1984 completion date of the Midland plant and the cost of completion estimated to be $3.39 billion which Consumers Power was disseminating at the time to the public, could not be met, particularly in light of the following:

(a) that the NRC had rejected Consumers Power's plan for remedying its fill soil problems and had ordered a halt to the remedial fill soil work;

(b) that design and engineering changes had added significantly to the cost and time of the project;

(c) that construction and quality assurance problems were increasing, thus requiring substantial rework and reinspection of the facility;

(d) that the NRC was imposing new regulatory requirements as a result of the Three Mile Island incident in March, 1979 and was imposing delays in the licensing process for the Midland plant; and

(e) that a report generated by the Bechtel Corporation ("Bechtel"), the Midland plant construction company, had informed Consumers Power that the Midland plant could not be completed until 1985.

35. Notwithstanding Consumers Power's knowledge of the problems set out supra in paragraph 34, Consumers Power failed to disclose to the investing public until April 11, 1983 Consumers Power's inability to declare the Midland plant operational by the end of 1984 and that its expected costs to complete the construction of the plant would be substantially more than the previously estimated $3.39 billion.

36. In December, 1982 Consumers Power halted all construction on safety related portions of the Midland plant structure. Consumers Power modified its construction plans. These modifications were set forth in an internal plan, the Construction Completion Plan ("CCP"). During this same time, the NRC conducted an investigation of the Midland plant construction and determined that Consumers Power had failed to follow mandated construction procedures, that certain equipment and structural appendages were improperly installed and Consumers Power's quality control inspectors and supervisors had failed to examine properly some of the construction work which had been improperly done and that due to the excessive deficiencies in the installation, inspection and supervision of the Midland construction, levied a civil penalty of $120,000 against Consumers Power.

37. On April 11, 1983 Consumers Power, pursuant to its completed CCP, raised its cost estimates for completion of the Midland plant to $4.43 billion and moved the completion date of Unit 2, the first of the two generators scheduled for completion from December 1984 to February 1985 and the completion date of Unit 1 was moved back from July 1984 to August 1985.

38. In the same public announcement of the new cost and completion time estimates, defendant Selby stated the reasons for the delay were the discovery by Consumers Power in 1978 of the fill soil sinkage problems and delays in coming to an arrangement regarding these problems with the NRC.

39. The April CCP cost and completion time estimates allowed for an extremely narrow margin for delay or cost overruns (the April CCP referred to the allowance for such delays and overruns as the "float"). These estimates were unreasonably optimistic. In fact, the "float" was exhausted early in June 1983. Moreover, at the time the "float" was exhausted in June 1983, the NRC had not yet issued all the necessary approvals Consumers Power would require for completion of the fill soil repairs.

40. Contemplating that Consumers Power's April CCP predictions of the cost and completion time were overly optimistic, Dow began requesting information from Consumers Power regarding the construction and completion of the Midland plant, including the information upon which the April CCP was based. At the time, Consumers Power management organized a committee to report about the possible consequences of Dow's termination of the 1978 Dow Agreement and internally concluded that, inter alia, Dow would likely terminate the 1978 Dow Agreement. On July 14, 1983 Dow indeed terminated the 1978 Dow Agreement, refused to pay certain termination payments required by said contract and initiated a Declaratory Judgment action against Consumers Power for a sum in excess of $60 million alleging, inter alia, that:

(1) the 1978 Dow Agreement be discharged on account of Consumers Power's misrepresentations and non-disclosures; (2) that Consumers Power had breached the contract and its fiduciary duties to Dow; and (3) that Dow be discharged on the basis of frustration of performance and commercial impracticability. The claims set forth above are currently the subject of litigation, however, the facts set forth supra in paragraphs 31 through 39 above and infra in paragraphs 41 and 42 establish a strong likelihood that Dow's claims are meritorious and that Dow will prevail.

41. The April CCP also omitted to include a realistic estimate of the time required to solve the fill soil problem and omitted to forecast the additional costs that would be incurred in executing its planned solution of the fill soil problem, which included the following: (1) manual digging, often with pick and shovel type equipment, tunneling under existing buildings, some as long as three hundred yards; (2) placing the existing buildings on stilts; (3) filling the tunnels with cement; and then (4) dropping the buildings from the stilts. This plan was expected to be extremely time consuming, has been fraught with excessive delays, and substantially increased the cost of the Midland plant.

42. In December 1982 and numerous times thereafter, the NRC informed Consumers Power that the NRC would require a 100% reinspection of the Midland plant. Such reinspection was reasonably expected in light of both the NRC's comments and the history of Consumers Power safety unit construction design, inspection and supervision deficiencies. Nonetheless, the April CCP omitted to estimate delays or cost which would result from the NRC's planned reinspection of the Midland plant.

43. On February 19, 1983, Consumers Power announced that it had filed a preliminary registration statement with the SEC pursuant to obtain SEC approval to issue 5 million shares of common stock. Consumers Power stated the proceeds of such sale would be used primarily for construction costs related to the Midland plant. Pursuant to a final Registration Statement which became effective on or about June 22, 1983, Consumers Power commenced the Public Offering. The Registration Statement was prepared with the participation, acquiescence, encouragement or assistance of each of the defendants and their counsel.

44. Said 5 million shares were offered and sold to thousands of public investors nationwide, through a formal underwriting syndicate formed, managed and represented by Morgan, Stanley which realized some $8 million from the public offering as a selling shareholder in addition to its portion of the $3 million underwriting fees.

45. The Registration Statement and the Prospectus prepared and disseminated in connection with the June 22, 1983 Public Offering, as well as Consumer Power's Annual Report on Form 10-K for the year ended December 31, 1982, the company's quarterly report on Form 10-Q for the quarter ended March 31, 1983 and Consumer Power's current reports on Form 8-K dated February 15 and April 12, 1983, all of which were incorporated by reference in such Prospectus and were deemed to be a part thereof (collectively referred to as "Offering Materials") contained untrue statements of material fact and omitted to state material facts

necessary to make the statements made, in light of the circumstances in which they were made, not misleading. The Offering Materials were misleading in at least the following respects:

(a) Plaintiff and the Plaintiff Class relied upon the integrity of Consumers Power to make honest, fair and precise estimations with regard to the cost, completion time and operation of the Midland plant, but instead Consumers Power's April CCP cost estimate of $4.43 billion and scheduled completion for the year 1985, recited in numerous portions of the Offering Materials, were false and Consumers Power knew or should have known they were false in that:

(1) The "float" in the April CCP was unreasonably narrow in light of Consumers Power's previous history of delay and cost overrun. As such, the entire cost estimate was intentionally underestimated by Consumers Power in the Offering Materials.

(2) The "float" in the April CCP was exhausted or substantially exhausted in early June 1983, and Consumers Power knew or should have known as early as May 1983 that the $4.43 billion estimated cost of completion was inaccurate and substantially underestimated.

(3) The "float" in the April CCP was exhausted or substantially exhausted in early June 1983 and Consumers Power knew or should have known that the 1985 completion date was inaccurate, unrealistic for at least the following reasons:

i) The NRC had informed Consumers Power that it would conduct a 100% reinspection of the site and that such reinspection would substantially delay operation of the Midland plant.

ii) From the start, Consumers Power was experiencing delays in implementing its solution to the fill soil problem and such delays were at least partially responsible for exhausting the entire float in less than two months.

iii) Consumers Power knew or should have known in April 1983 that unresolved NRC construction safety and licensing problems were certain to delay completions and operation of the plant until well into 1986.

iv) Consumers Power knew prior to November 1983 that the NRC step by 100% reinspection program would substantially delay completion and operation and materially increase the costs of the Midland plant.

v) In June 1983, Consumers Power knew or should have known that there was a possibility that the plant's welds were under specifications and too weak to receive NRC approval and that repair of the weld problem would cause a substantial delay in completion and materially increase the cost of the Midland plant.

vi) In June 1983 Consumers Power knew or should have known that the Midland plant had problems with improper wiring and that repair of the wiring problem would cause a substantial delay in completion and materially increase the cost of the Midland plant.

vii) In June 1983 Consumers Power knew or should have known that the reactor cooling pipes were improperly braced and that redesign and reinstallation of the cooling braces would cause a substantial delay in completion and materially increase the cost of the Midland plant.

(4) Consumers Power knew or should have known that any substantial delay in completion of the Midland plant would materially increase the cost of completing the construction and that Consumers Power knew that the April CCP cost estimate was unrealistic in light of the certainty of additional construction and inspection delays as set forth in subparagraph 3 above.

(b) Statements on page of Consumers Power's March 31, 1983 10-Q, which is incorporated by reference into the Offering Materials, are false and misleading as follows:

(1) The statement that:

> In 1978, the Company discovered foundation soils problems at the Midland plant and reported the discovery to the Nuclear Regulatory Commission (NRC). Some remedial work related to the soils problems and to more stringent NRC seismic requirements began in April 1982. Additional cost attributable to this remedial work is included in the cost estimate for the Midland plant. On April 30, 1982, the Atomic Safety Licensing Board (ASLB) issued an order that the construction permits for the plant be amended to require specific NRC staff approval before proceeding with certain soils-related activities. Various issues relating to the soils work are the subject of contested public hearings before the ASLB. The Company estimates that the remedial soils work will be completed in February 1985,

is false and misleading in that:

i) Consumers Power discovered the fill soil problem in 1977 and concealed the existence of the problem from the public and the NRC until a safety related building subject to NRC reporting requirements began to sink in 1978.

ii) The statement implies that NRC regulations had delayed completion of the fill soil work, when, in fact, the Consumers Power's plan for solving the fill soil problem is so cumbersome and haphazard that a February 1985 estimated completion date was unrealistic and known by Consumers Power to be such.

iii) The reason for the NRC amending Consumer Power's construction permit was because NRC staff members had expressed doubts that Consumer

Power's plan for solving the fill soil problem would be effective and that the problem could be beyond repair.

iv) Consumers Power had doubts, based upon reports of engineers and construction professionals, that the fill soil problem could be solved in compliance with NRC construction and safety requirements.

v) The delays in construction and ensuing cost overruns were not attributable to stringent NRC safety regulations, but rather, as Consumers Power has admitted to the NRC, to Consumers Power, which was at fault because of a breakdown in control of construction design and inspection which necessitated NRC intervention.

(2) The statement that:

> The Company's decision to continue design and construction of the plant assumes that necessary regulatory approvals will be obtained. The Company is vigorously pursuing efforts to identify and favorably resolve matters which could cause delays and cost increases. There can be no assurance, however, that further delays and further cost increases will not occur.

is false and misleading in that:

i) Consumers Power, due to its long history of design, installation, inspection and construction deficiencies, could not reasonably assume it could obtain the necessary regulatory approvals for completion and operation of the Midland plant without considerable additional delays and costs.

ii) Consumers Power knew or should have known that design and construction deficiencies known to the company, but as yet undisclosed to the public or the NRC, would substantially delay completion and materially increase the cost of the Midland plant.

iii) Consumers Power knew or should have known that design and construction deficiencies known to the company, but as yet undisclosed to the public or the NRC, would substantially delay and/or jeopardize receiving the necessary regulatory approvals for completion and operation of the plant.

(3) The statement that:

> The Company's contract with Dow provides that if commercial operation of the plant for process steam service to Dow cannot begin until after December 31, 1984, Dow would have the right to terminate its agreement with the Company for such service; however, Dow would be obligated to pay an amount estimated to range from $410 million at March 31, 1983 to $640 million if the plant were completed at a cost of $4.43 billion. Should Dow terminate the agreement for such cause, the remaining portion of the investment in equipment allocable to process steam service may not be salvageable. That portion is estimated to range from $305 million at March 31, 1983 to $480 million if the plant were completed at a cost of $4.43 billion.

is false and misleading in that it omits to disclose that:

i) Dow had already begun requesting information regarding, inter alia, the basis upon which Consumers Power made its April CCP estimates.

ii) Consumers Power had already formed a committee to determine the effects on Consumers Power's future financial position if Dow terminated the contract, but Consumers Power failed to disclose the existence of such committee estimates or the findings of the committee.

iii) Consumers Power had already determined that Dow would, in fact, terminate the 1978 Dow Agreement.

(4) The statement on page 15 in Consumers Power's March 31, 1983 10-Q which is incorporated by reference into the Offering Materials which states:

> In April 1983, the Board of Directors approved new estimated completion dates and a new cost estimate for the Midland plant. Commercial operation for Unit 2, the first unit to go on-line, is scheduled for February 1985. Unit 1 is scheduled for commercial operation in August 1985. The cost of the project is now estimated at $4.43 billion.
>
> Previously, Unit 2 had been scheduled to go into commercial operation in December 1983 and Unit 1 in July 1984. The cost estimate based on that schedule was $3.39 billion.

is false and misleading in that it fails to disclose that, as set forth supra in paragraphs 32 to 34,

Consumers Power knew as early as January 1980 that the Midland plant could not be completed by 1984. Said omission is particularly misleading in that it induced the public, including plaintiff and the Plaintiff Class, into believing that Consumers Power's April CCP cost and completion time estimates were the product of a reliable and honest calculation made in good faith, when in fact Consumers Power had been disseminating intentionally false and misleading cost estimates since at least 1977. Additionally, the statement above regarding Consumers Power's April CCP updated cost and completion time estimates is misleading in that it expressly implies that the new estimates are a well considered and accurate approximation including all the relevant factors currently known to the company or substantially certain to occur. In fact, the April CCP failed to consider the impact of numerous delays and extra costs which Consumers Power was already aware would be encountered at the Midland plant.

(5) The discussion on pages 18 and 19 of the Consumers Power's June 30, 1983 10-Q concerning the litigation between Consumers Power and Dow is false and misleading in that:

i) Due to misrepresentations, concealments and generally negligent manner in which the Midland plant construction has been conducted by Consumers Power, it is likely Dow will prevail in its Declaratory Judgment actions against Consumers Power.

ii) Consumers Power does not and cannot expect to recover any sums of money from Dow and Consumers Power knows or should know that it expects a disastrous adverse effect on the company's financial future.

c) The Prospectus and Registration Statement disseminated in connection with the public offering omits any discussion whatsoever of the difficulties--past, present or future--which Consumers Power has encountered, or expects to encounter in regard to the construciton of the Midland plant. Instead, in small plain face type on page 2, the Prospectus states:

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The following documents, which have heretofore been filed by the Company with the Commission pursuant to the Securities Exchange Act of 1934 (the "1934 Act"), are incorporated by reference in this Prospectus and shall be deemed to be a part hereof:

(1) The Company's Annual Report on Form 10-K for the year ended December 31, 1982.

(2) The Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 1983.

(3) The Company's Current Reports on Form 8-K, dated February 15 and April 12, 1983.

> All documents filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14 or 15(d) of the 1934 Act subsequent to the date of this Prospectus and prior to the termination of the offering made by this Prospectus shall be deemed to be incorporated herein by reference and shall be deemed to be a part hereof from the date of filing of such documents.

(1) The above mentioned SEC filing documents were not included in the materials disseminated to prospective purchasers of Consumers Power shares, but were only available upon special request. By omitting from the materials generally available to prospective purchasers of Consumers Power Public Offering all relevant information regarding the problems in connection with the Midland plant, including without limitation, details of the fill soil problem, NRC regulatory difficulties and the foreseeable Dow litigation, Consumers Power succeeded in burying and hiding material adverse information from the plaintiff and the Plaintiff class.

(2) In any event, as described above, each of those documents which was incorporated by reference into the Offering Materials contained materially misleading statements and omitted to state material facts necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading.

46. On November 9, 1983, less than seven months after publication of the April CCP, Consumers Power disclosed that it could not complete the Midland plant until mid 1986 and that the cost of the Midland plant would rise well above the previous April CCP estimate of $4.43 billion to an amount not capable of estimation.

47. As a result of the dissemination of the aforementioned false and misleading Offering Materials and other communications, the market price of Consumers Power's common stock was artifically inflated throughout the Class Period. In ignorance of the adverse facts concerning Consumers Power's business and financial condition, in particular the problems relating to the Midland plant, which were concealed by defendants, plaintiff and the members of the Plaintiff Class purchased Consumers Power's common stock at such artificially inflated prices and were damaged thereby. Had plaintiff and the members of the Plaintiff Class known of the materially adverse information not disclosed by the defendants, they would not have purchased Consumers Power's common stock at the artificially inflated prices they did.

COUNT I

SECTION 11 OF THE 1933 ACT

48. Plaintiff incorporates by reference and realleges paragraphs 1 through 47 as though set forth fully herein.

49. This Count is asserted against all defendants, including the underwriter defendants, individually and in their representative capacity, and is based on Section 11 of the 1933 Act, 15 U.S.C. §77k.

50. The Defendant Directors, the underwriters and the Underwriter Class owed to those who acquired shares of common stock of Consumers Power, including plaintiff and the Plaintiff Class, the duty to make a reasonable and diligent investigation of the statements contained in the Registration Statement, to insure that said statements were true and that there was no omission to state a material fact required to be stated in order to make the statements contained therein not misleading. These defendants knew or, in the exercise of reasonable care, should have known of the misstatements and omissions contained in the Registration Statement, some of which are set forth in paragraph 45 supra. As such, these defendants are liable to plaintiff and the Plaintiff Class.

51. Defendant Consumers Power owed to those who acquired shares of common stock of Consumers Power, including plaintiff and Plaintiff Class, the duty to insure that the statements contained in the Registration Statement were true and that there was no omission to state a material fact required to be stated in order to make the statements contained therein not misleading. By virtue of the misrepresentations and omissions contained in the Registration Statement, some of which are set forth in paragraph 45 supra, defendant Consumers Power is liable to plaintiff and the Plaintiff Class.

52. Defendants negligently and/or recklessly issued, caused to be issued, participated in the issuance of and/or aided and abetted the issuance of materially false and misleading

written statements to the investing public which were contained in the Offering Materials including the Registration Statement and the Prospectus misrepresented or failed to disclose the facts set forth in paragraph 45 supra. By reason of the conduct herein alleged, each defendant violated Section 11 of the 1933 Act. As a direct and proximate result of defendants' wrongful conduct, the market price for Consumers Power common stock was artificially inflated, and plaintiff and the Plaintiff Class suffered substantial damage in connection with the purchase of Consumers Power common stock during the Class Period.

53. No securities issued pursuant to the Offering Material including the Registration Statement or Prospectus were bona fide offered to the public prior to the effective date of said Registration Statement, i.e., June 22, 1983. This action was commenced less than three years after the securities were first bona fide offered to the public, and the claims asserted herein were brought by plaintiffs within one year after discovery of the untrue statements and omissions alleged herein and omissions alleged herein and within three years after the securities were bona fide offered to the public.

COUNT II

SECTION 12(2) OF THE 1933 ACT

54. Plaintiff incorporates by reference and realleges paragraphs 1 through 53 as though set forth fully herein.

55. This Count is asserted against all defendants, including the underwriter defendants individually and in their representative capacity, and is based on Section 12(2) of the 1933 Act, 15 U.S.C. 771(2).

56. Each of the defendants were substantial, necessary participants and factors in the sale of Consumers Power common stock to the investing public and they conspired and aided and abetted one another in connection with the preparation of the false and misleading Offering Materials including the Prospectus and Registration Statement used in conjunction with the sale of Consumers Power common stock. Each of the defendants owed to the purchasers of said Consumers Power common stock, including plaintiff and members of the Plaintiff Class, the duty to make a reasonable and diligent investigation of the statements contained in the Offering Materials including the Prospectus and Registration Statement to insure that said statements were true and that there was no omission to state a material fact required to be stated in order to make the statements contained therein not misleading. These defendants knew or, in the exercise of reasonable care, should have known of the misstatements and omissions contained in the Prospectus and Offering Materials, including Registration Statement as set forth in paragraph 45 supra. As such, each of the defendants is liable to plaintiff and the members of the Plaintiff Class.

57. None of the false and misleading statements and omissions contained in the Offering Materials including the Prospectus and Registration Statement and described herein were known to plaintiff and the members of the Plaintiff Class at the time they acquired Consumers Power common stock.

58. Plaintiff, on behalf of himself and all those members of the Plaintiff Class similarly situated, does hereby offer to tender to the defendants the shares of Consumers Power common stock acquired through the Public Offering in return for the consideration paid for said shares with interest thereon.

COUNT III

SECTION 10(b) OF THE 1934 ACT AND RULE 10(b)-5

59. Plaintiff incorporates by reference and realleges paragraphs 1 through 58 as though set forth fully herein.

60. This Count is asserted against defendant, Consumers Power and the Defendant Directors and is based on Section 10(b) of the 1934 Act, 15 U.S.C. §78j(b) and Rule 10(b)-5 promulgated thereunder.

61. From or about June 22, 1983 through November 9, 1983 defendant Consumers Power and the Defendant Directors individually and in concert, directly and indirectly, engaged and participated in or aided and abetted a continuous course of conduct and conspiracy to conceal adverse material information about the financial condition and future business prospects of Consumers Power as specified herein. Defendants employed devices, schemes and artifices to defraud and engaged in acts, practices and a course of conduct as alleged herein in an effort to maintain an artifically high market price for the securities of Consumers Power. This included the formulation, making of and/or participation in making of untrue statements of material facts and omitting

to state material facts necessary to make the statements made about Consumers Power, its financial condition and future business prospects, in the light of the circumstances under which they were made, not misleading, and engaged in transactions, practices, and a course of business which operated as a fraud and deceit upon the purchasers of Consumers Power common stock during the class period.

62. During the class period, Consumers Power and the Defendant Directors issued the Offering Materials as well as other public reports, releases and statements, including the statements set forth herein, which were materially false and misleading in violation of §10(b) of the 1934 Act and the Rules promulgated thereunder. Said Offering Materials, reports, releases and statements were materially false and misleading in that they omitted to state material facts necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading. Some of the misstatements and omitted material facts not disclosed by defendants during the class period are set out in paragraph 45 supra.

63. As a result of the deceptive practices, false and misleading statements and omissions, plaintiffs and the class purchased Consumers Power common stock, relying on the integrity of the market and/or the statements made, and have and will sustain losses and damages therefrom.

64. Defendants had actual knowledge of the materially false and misleading statements and omissions set forth herein or acted with such reckless disregard for the truth that they failed to ascertain and disclose such facts.

65. By virtue of the foregoing, defendants have violated Section 10(b) of the 1934 Act and Rule 10b-5 promulgated thereunder and Section 20 of the 1934 Act.

66. Each of the defendants, by acting as hereinabove described, did so knowingly or recklessly. With knowledge or reckless disregard of the true financial and operating condition of Consumers Power, they caused the Offering Materials, reports, statements and releases to contain misstatements and omissions of material fact as alleged herein.

67. Each of the Defendant Directors is liable as a direct participant in and as an aider and abettor of the wrongs complained of herein. The Defendant Directors, because of their positions of control and authority as executives or operating officers and directors of the company were able to and did directly or indirectly, control the contents of the Offering Materials, reports, statements and press releases of the company. As officers and directors of a publicly-held company, the Defendant Directors had a duty to disseminate promptly accurate and truthful information with respect ot the company's operations, finances and future business prospects. The defendants participated in the wrongdoing complained of in order to continue and prolong the illusion of the company's continued growth and profitability, and to conceal the adverse facts concerning the company's operations, finances and future business prospects.

68. As a result of the dissemination of the aforementioned false and misleading statements and releases, the

market prices of Consumers Power's equity securities were artificially inflated throughout the class period. Plaintiff and the members of the class purchased Consumers Power common stock at those artificially inflated prices and relied upon the integrity of the market and/or upon the statements disseminated by Consumers Power and were damaged thereby.

69. Had plaintiffs and the members of the class known of the materially adverse information not disclosed by the defendants, they would not have purchased Consumers Power common stock at the artificially inflated price that they did.

WHEREFORE, plaintiff, on behalf of himself and the class and/or classes they seek to represent, demand judgment against defendants as follows:

(a) Declaring this action to be a proper plaintiff class action and a proper defendant class action;

(b) As to Count I, judgment against all of the defendants jointly and severally, in such amount as shall be proved by the plaintiff and by all mebmers of the class, in accordance with the formula prescribed in Section 11 of the 1933 Act;

(c) As to Counts II and III, judgment against all of the defendants, jointly and severally, for damages in an amount determined to have been sustained by plaintiff and the other class members;

(d) On all Counts, an award of appropriate interest, costs and disbursements of this action, including reasonable attorneys' and expert witness fees;

(e) For an award of punitive damages against each defendant; and

(f) For such other and further relief as the Court may deem just and proper.

Dated: Cincinnati, Ohio
November , 1983

Roger E. Craig, Esq.

CRAIG, FARBER & DOWNS, P.C.
Attorneys for Plaintiff

By: _____
A Member of the Firm

1217 First National Building
Detroit, Michigan 48226
(313) 963-8155

OF COUNSEL:

Gene Mesh
Richard S. Wayne
GENE MESH CO., L.P.A.
3133 Burnet Avenue
Cincinnati, Ohio 45229
(513) 221-8800

JURY DEMAND

Plaintiff requests a trial by jury on all counts.

_____

ATTACHMENT 2

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

AFFIDAVIT

I Billie Garde, being duly sworn, do depose and say:

1. I am Director of the Citizens' Clinic for Accountable Government of the Government Accountability Project ("GAP").

2. Based on conversations with Nuclear Regulatory Commission staff I was informed that the initial Caseload Forecast Panel meeting for Midland was requested for October, 1982. That meeting was cancelled at the request of CPCo and rescheduled to "three to four months later." (See Telecon Record dated October 5, 1983, attached and incorporated herein as Exhibit 1.) The meeting was rescheduled for April 19-20, 1983 in Midland, Michigan.

3. Although I did not personally attend that meeting I have had the opportunity to review in detail information about the meeting made available on the public record and through documents GAP obtained under the Freedom of Information Act ("FOIA"). The digest of these FOIA documents is attached and incorporated herein as Exhibit 2.

4. At that meeting Consumers Power Company revised its estimated cost and completion schedule for the Midland plants. It announced a revised cost of $4.43 billion, up from $3.39 billion, and completion dates of October, 1984 for Unit 2, and February, 1985 for Unit I. See meeting summary of April 20, 1983, attached and incorporated herein as Exhibit 3.

5. After this meetin the Case Load Forecast Panel completed its review of the schedule information provided it by Consumers. It then forwarded a draft memo to the Office of Nuclear Reaction Regulation ("NRR") by mid-May, 1983. By May 17, 1983, Darl Hood prepared a handwritten draft of a letter to be sent by Thomas Novak, Assistant Director of NRR, to James Cook, Consumers' Vice-President. See Handwritten Novak Letter, attached and incorporated herein as Exhibit 4.

6. On May 25, 1983, a typed copy of the same letter was prepared for signature by Mr. Novak. The concurrence blocks on this draft letter indicate that entire Caseload Forecast Panel concurred in the letter, including Darl Hood, J. Harrison, Ron Gardner and William Lovelace.

7. Upon information and belief the NRC Staff urged its attorney to inform the Atomic Safety and Licensing Board of its schedule estimates since they differed substantially from Consumers' projected schedule.

8. On June 3, 1983, the Dow Chemical Company ("Dow") sent a letter to Consumers indicating concern over the revised cost and schedule estimates that Consumers announced in April and requesting documents. See June 3, 1983 Dow Letter, attached

and incorporated herein as Exhibit 5.

9. The NRC scheduled a public meeting on the Caseload Forecast Panel schedules estimates for June 23, 1983, at the Quality Inn in Midland, Michigan. This meeting was postponed and rescheduled for July, 1983.

This tentatively-scheduled July meeting was later postponed until August.

No public meeting was held in August. An August 9, 1983, letter written by Mr. Novak to Consumers' Power indicated that a public meeting would be held in September but no meeting has been noticed up to this date.

10. Based on conversations with NRC Staff and Consumers' employees I understand that soon after receiving the June 3, 1983 Dow letter, Consumers' requested a meeting with NRC officials to discuss the upcoming June 23, 1983 public meeting and the wide divergence in NRC and Consumers' completion dates. Upon information and belief Consumers' also wished to lobby to change the members of the Caseload Forecast Panel.

Upon information and belief Consumers told the NRC that the Caseload Forecast figures were much less significant to the NRC than to Consumers. The NRC simply used the figures as a manpower management tool whereas public release of the completion dates would have serious financial consequences for Consumers.

11. Upon information and belief the NRC did not schedule a meeting but instead held a telecon in which Mr. Novak of NRR,

and other NRC staff participated. Subsequent to that telephone conversation the June public meeting was cancelled and rescheduled for August.

12. On July 11, 1983, I made a FOIA request for all documents related to the Caseload Forecast Panel April meeting. See FOIA request, attached and incorporated herein as Exhibit 6.

On August 8, 1983, I contacted the NRC FOIA Office and was informed that the documents would be released the following day. On August 9, 1983, I picked up the documents. I was informed by FOIA OfficerCarol Ann Reed that the NRC released all documents except an early draft of the Novak letter, prepared by the Caseload Forecast Panel members.

13. On August 9, 1983, Mr. Novak released a letter he wrote to Consumers in which he revised the Caseload Forecast Panel's estimated completion dates for the Midland plants. The completion dates cited in the August 9, 1983 Novak letter are 12 months earlier than the original estimates contained in the draft Novak letter concurred in by the panel in May, 1983.

In addition, the tone of the final, August 9, 1983 Novak letter differs from the draft in that it does not contain the statement: "The panel's estimate includes no provision for delay associated with future plant financing."

Billie Pirner Garde

District of Columbia

Subscribed and sworn before me this 5th day of Sept, 1983

Notary Public

My Commission Expires March 31, 1985

SAFETY & LICENSING DEPAI

EXHIBIT 1

TELECON RECORD - DATE Oct 5, 1982

Participants	Company	Copies to: UFI:
T J Sullivan	CP Co	JWCook
D Hood	NRC	MIMiller, IL&B
		PStreptoe, IL&B
		JEBrunner
		DBMiller BWMargug
		RAWells RWHuston
		JAMooney ARMollenh
		GSKeeley

Route to: DMBudzik/LSGibson/BLHarshe/DASommers File: 0505.18/0650

XC: W Paton, W. Forslace, J. Novak, E Adensam, R Herman, D. Eisenhut

SUBJECT: Independent Review Program - Caseload Forecast Panel Visit

DISCUSSION:

I called Darl Hood to discuss the scheduling of meetings on the subject topics. I informed him that our Independent Review Program Plan submittal would be to NRC by Oct 5. He said that he had discussed the need for a meeting within the Staff but would await our submittal to schedule a meeting. I emphasized the importance of an early meeting to allow us timely initiation of the program, particularly industry's commitment to complete INPO-type evaluations this year.

In response to D Hood's earlier proposal of a Caseload Forecast Panel visit on Nov 16 - 19, 1982, I pointed out a number of reasons why CP Co feels this is inappropriate:

(a) CP Co needs to receive and review the forthcoming soils SSER.

(b) The soils work is controlling however CP Co has not been released to initiate the work and this activity should take precedence for both CP Co and NRC.

(c) It would be beneficial to get into the soils work to better assess production rates, construction sequences, etc.

(d) The current situation is not amenable to normal Caseload Forecast Panel assessment and requires more preparation on the part of both NRC and CP Co and the key people who need to do this work are currently fully occupied trying to remove remaining constraints to initiate the soils remedial activities.

As an alternative I indicated that CP Co intends to notify the ASLB this month that the 7/83 fuel load date will not be met due to our inability to initiate the soils work and that the precise date is indeterminate pending issuance of the SSER, NRC release of the soils work, and CP Co's detailed review of production rates, construction sequences, etc, based on the above. CP Co would be prepared to support a Caseload Forecast Panel visit approximately three months following initiation of soils remedial measures (auxiliary building) and a more definite target fuel load date could be provided to the ASLB at that time.

Hood felt the Board might want a more definitive schedule but agreed that the proposed approa seems reasonable and that he should discuss it within the Staff. He indicated the soils SSER should issue this week.

Exhibit #2

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

AUG 0 8 1983

Docket Nos. 50-329/330

Ms. Billie Pirner Garde
Government Accountability Project
Institute for Policy Studies
1901 Que Street, N.W.
Washington, DC 20009

IN RESPONSE REFER
TO FOIA-83-397

Dear Ms. Garde:

This is in response to your letter dated July 11, 1983, in which you requested, pursuant to the Freedom of Information Act, all documents relating to the Caseload Forecast Panel meeting held April 19, 1983 regarding the Midland Nuclear Power Plant.

The documents listed on Appendix A are subject to your request. These documents, with the exception of item 3, are being placed in our Public Document Room, 1717 H Street, N.W., Washington, DC.

On August 5, 1983, you agreed to pay reproduction charges. The cost of reproducing documents is five cents ($0.05) per page, as specified in 10 CFR 9.14(a). Accordingly, the cost of reproducing 857 pages is $42.85. You will be billed for this amount by our Division of Accounting.

Document 3 on the Appendix is being withheld in its entirety from public disclosure pursuant to exemption (5) of the Freedom of Information Act (5 U.S.C. 552(b)(5)) and 10 CFR 9.5(a)(5) of the Commission's regulations. This draft was prepared as part of the agency's deliberative process for developing an independent estimate of construction completion for resource planning purposes. Disclosure of this draft would impede the future frank and candid exchange of views between members of the NRC staff in the development of these independent staff estimates of reactor construction completion. There are no reasonably segregable portions of this document.

Pursuant to 10 CFR 9.9 of the Commission's regulations, it has been determined that the information withheld is exempt from production or disclosure, and that its production or disclosure is contrary to the public interest. The persons responsible for this denial are the undersigned and Mr. Harold Denton, Director, Office of Nuclear Reactor Regulation.

This denial may be appealed to the Commission's Executive Director for Operations within 30 days from the receipt of this letter. As provided in 10 CFR 9.11, any such appeal must be in writing, addressed to the Executive Director for Operations, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and should clearly state on the envelope and in the letter that it is an "Appeal from an Initial FOIA Decision."

Sincerely,

J. M. Felton, Director
Division of Rules and Records
Office of Administration

Enclosures: As stated

APPENDIX A

1.	4/6/83	Memo for Elinor G. Adensam from Darl S. Hood re: NOTICE OF MEETING AND TOUR BY CASELOAD FORECAST PANEL TO ASSESS CONSTRUCTION COMPLETION SCHEDULES - MIDLAND PLANT, UNITS 1 AND 2 w/enclosure (8 pages)
2.	4/19/83	Handouts and Viewgraph Slides Remaining after preparation of meeting report (36 pages)
3.	Undated	Draft Letter to J. W. Cook from Thomas M. Novak re: CASELOAD FORECAST PANEL ESTIMATE OF CONSTRUCTION COMPLETION SCHEDULE (2 pages)
4.	5/17/83	Handwritten Note to J. Cook from T. Novak re: CASELOAD FORECASE PANEL ESTIMATE OF CONSTRUCTION COMPLETION (2 pages)
5.	4/15/83	Daily News Article by Paul Rau re: NRC TO MAKE OWN ESTIMATE ON N-PLANT (1 page)
6.	4/20/83	Midland Daily News Article by Lorie Shane re: SOILS, PIPE HANGER WORK CRITICAL TO N-PLANT COMPLETION (3 pages)
7.	4/83	Activity Schedule (1 page)
8.	6/29/83	Dialy News Article by Paul Rau re: UTILITY MAY BE FAR FROM NUCLEAR PLANT COMPLETION (1 page)
9.	Undated	Draft by Darl Hood re: SUMMARY OF APIRL 19-21, 1983 CASELOAD FORECAST PANEL MEETING w/enclosures (7 pages)
10.	5/16/83	Draft by Darl Hood (Handwritten) re: SUMMARY OF APRIL 19-21, 1993 CASELOAD FORECAST PANEL MEETING w/enclosures (9 pages)
11.	4/19/83	Handwritten Notes re: CASELOAD VISIT MEETING - MIDLAND 1 & 2 (13 pages)
12.	4/24/83	Handwritten Note to G. Bachi from Darl Hood re: CLEARANCES BETWEEN MIDLAND CONTROL CABINETS AND PANELS (1 page)
13.	4/19/83	Handwritten List re: Meeting Attendants (1 page)
14.	4/20&21/ 1983	Handwritten Notes re: Master Punch List Item Effect (7 pages)
15.	4/20/83	CASELOAD PANEL PRESENTATION DATA (138 pages)
16.	4/12/83	TEST PROGRAM STATUS AND REVISION 12 - TEST SCHEDULE (98 pages)

APPENDIX A

17.	3/22/83	MILESTONE CONSTRUCTION SCHEDULE - PRELIMINARY - CHART (1 page)
18.	4/14/83	MILESTONE CONSTRUCTION SCHEDULE - BASE SCHEDULE - CHART (1 page)
19.	6/21/83	Letter to J. W. Cook from T. M. Novak re: CLEARANCES BETWEEN CLASS 1E PANELS AND CABINETS (5 pages)
20.	9/22/82	Memo for Harold S. Bassett from Darrell G. Eisenhut re: REQUEST FOR CASELOAD PANEL VISIT FOR MIDLAND PLANT (1 page)
21.	4/19/83	Midland - List of Critical Systems w/chart (4 pages)
22.	4/83	April 1983 Appointment Calendar (1 page)
23.	6/1/83	Consumers Power Company - Midland Plant, Units 1 and 2, re: SUMMARY OF APRIL 19-21, 1983 CASELOAD FORECAST PANEL MEETING (111 pages)
24.	6/29/83	Midland Daily News Article re: Utility May Be Far From Nuclear Plant Completion by Paul Rau w/attached articles (3 pages)
25.	7/15/83	Preliminary Notification re: DOW CHEMICAL TERMINATES STEAM CONTRACT WITH MIDLAND NUCLEAR PLANT (1 page)
26.	6/16/83	Preliminary Notification re: WORKER LAYOFF (1 page)
27.	6/21/83	Preliminary Notification re: AUTHORIZATION OF FIRST MAJOR UNDERPINNING WORK UNDER SAFETY-RELATED BUILDING (1 page)
28.	6/29/83	Preliminary Notification re: RESUMPTION OF SAFETY-RELATED WELDING WORK ON HVAC SYSTEM (1 page)
29.	4/19&21/ 1983	MIDLAND PLANT UNITS 1 & 2 NRC CASE LOAD FORECASE PANEL SUMMARY AGENDA (1 page)
30.	4/14/83	CERTAIN HANDOUTS AT THE MEETING (30 pages)
31.	4/22/83	Letter to J. G. Keppler from James W. Cook re: CONSTRUCTION COMPLETION PROGRAM (18 pages)
32.	4/13/83	Ongoing Transmission Service Request to Kim Lovelace from Ron Cook re: NEWS RELEASE - CPCO MIDLAND CONST. SCHEDULE (3 pages)
33.	4/12/83	Memo to H. Denton et. al. from Darl Hood re: DAILY HIGHLIGHT w/enclosed Press Release (5 pages)

APPENDIX A

34. 3/24/83 Memo for The Atomic Safety and Licensing Board for the Midland Plant, Unit 1 and 2 from Thomas M. Novak re: NOTIFICATION OF CONSTRUCTION EVALUATION BY MANAGEMENT ANALYSIS COMPANY w/enclosures (4 pages)

35. 1/31/83 CONSTRUCTION PROJECT EVALUATION OF CONSUMERS POWER COMPANY MIDLAND ENERGY CENTER PROJECT - UNITS 1 AND 2 (199 pages)

36. 10/1/81 - 9/30/83 Schedule for Site Visits (1 page)

37. 3/22/83 Midland Review - Volume 2, Number 13, Operations Moves Into Control Room Area (1 page)

38. 3/14/83 Midland Review - Volume 2, Number 12, Pier 9 Excavation Begins w/attached Phase II of Aux. Bldg. Underpinning (2 pages)

39. 3/11/83 Memo for Elinor G. Adensam from Ronald W. Hernan re: NOTICE OF MEETING - MIDLAND PLANT, UNITS 1 AND 2 (2 pages)

40. 3/4/83 Letter to R. Gene Clark from A. R. Mollenkopf re: QUARTERLY PROGRESS REPORT ON STATUS OF REACTOR CONSTRUCTION (3 pages)

41. 2/23/83 Daily News Article - by Paul Rau (1 page)

42. 2/8/83 News Announcement 83-08 re: NRC STAFF PROPOSES $120,000 FINE FOR QUALITY ASSURANCE VIOLATIONS AT MIDLAND NUCLEAR POWER STATION (2 pages)

43. 1/20/83 Midland Review - Volume 2, Number 8 re: Hard Hat Protection in Containment (2 pages)

44. 2/3/83 Notification of Enforcement Action re: PROPOSED IMPOSITION OF CIVIL PENALTY - $120,000 (1 page)

45. 1/29/83 News Announcement 83-03 re: CONSTRUCTION COMPLETION PROGRAM (1 page)

46. 1/12/83 Letter to James W. Cook from C. J. Paperiello re: Inspection Report w/enclosure (7 pages)

47. 12/28/82 Daily News Article re: Test of Emergency Plans at N-Plant Postponed by Paul Rau w/attached articles (3 pages)

48. 12/3/82 Note to Darl Hood from Ron Cook re: Articles from the Midland Daily News w/attachments (6 pages)

49. 11/29/82 Article - High Court to Consider Waste Disposal Influence on Licensing w/attachments (3 pages)

APPENDIX A

50.	12/22/82	Midland Review,- Volume 2, Number 5 - Construction of Pier 12 East Initated (1 page)
51.	12/3/82	Midland Review - Voluem 2, Number 2 - Turnover Status (1 page)
52.	12/3/82	Preliminary Notification re: MAJOR REDUCTION IN SAFETY-RELATED WORK (3 pages)
53.	12/3/82	Draft re: Completion Plan at the Midland Nuclear Plant (2 pages)
54.	11/17/82	Article re: Underpinning Work Delays Scheduling by Lorie Shane (2 pages)
55.	11/10/82	Memo for H. Denton et. al. from Darl Hood re: Daily Highlight w/enclosed Press Release (5 pages)
56.	10/29/82	Preliminary Notification re: Potential 50.55(e) Report - Improper Cables (1 page)
57.	10/26/82	News Announcement 82-84 re: Resumption of the Midland Nuclear Power Station Operating License/Soil Settlement Hearings (1 page)
58.	9/82	Midland Reactor - Various Articles (10 pages)
59.	10/5/82	Telecon Record re: Independent Review Program - Caseload Forecast Panel Visit (1 page)
60.	9/27/82	Preliminary Notification re: Stop Work Order on Remedial Soils Work (1 page)
61.	9/20/82	Preliminary Notification re: Defective Radiation Monitoring Modules (1 page)
62.	9/22/82	IE Information Notice No. 82-40: Deficiencies in Primary Containment Electrical Penetration Assemblies (4 pages)
63.	9/17/82	Memo for Thomas M. Novak from Ronald W. Hernan re: Fire Protection Site Survey - Midland Plant (3 pages)
64.	8/19/82	Midland Review - Volume 1, Number 39 - Operating License Hearing Contentions Established (1 page)
65.	8/27/82	Midland Review - Volume 1, Number 40 - Following Procedures Properly - Goal for All Workers (1 page)
66.	9/2/82	Midland Review - Volume 1, Number 41, Saginaw/Bay Counties Moving Toward Full Siren System Approval (1 page)

APPENDIX A

67..	8/82	Midland Reactor - Volume 7, Number 8 - Various Articles (8 pages)
68.	8/19/82	Midland Review - Volume 1, Number 39 - Operating License Hearing Contentions Established (1 page)
69.	8/13/82	Letter to R. Gene Clark from A. R. Mollenkopf re: enclosed EI-254 "Quarterly Progress Report on Status of Reactor Construction" (2 pages)
70.	6/28/82	Preliminary Notification re: CONSTRUCTION HALT REQUESTED PENDING NRC INVESTIGATION OF ALLEGATIONS (1 page)
71.	5/10/82	Note to Darl Hood from Ron Cook re: Articles from the Midland Daily News (2 pages)
72.	Undated	Computer Printout- Revision 12 - Planning Schedule (52 pages)

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

EXHIBIT ?

June 1, 1983

Docket Nos. 50-329/330

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 & 2

SUBJECT: SUMMARY OF APRIL 19-21, 1983 CASELOAD FORECAST PANEL MEETING

On April 19 and 21, 1983, members of the NRC Caseload Forecast Panel met with Consumers Power Company (CPCo) and Bechtel to review construction completion schedules which CPCo completed February 18, 1983 and announced April 12, 1983 for Midland Plant, Units 1 & 2. On April 20, 1983 the Panel toured the plant to observe construction progress. The purpose of the meeting and tour is to provide for an assessment by the Panel of construction completion. Meeting attendees are listed in Enclosure 1. Enclosure 2 is the meeting and tour agenda. Enclosure 3 shows some of the slides used during CPCO's presentations.

CPCO's previous and revised estimates are:

	7/80 Estimate	4/83 Estimate	Difference (Mos.)
Unit 2	7/83	10/84	14
Unit 1	12/83	2/85	13

Overall plant completion is estimated by CPCo to be about 83% complete; engineering is about 76% complete; design 94%; and underpinning 4%.

CPCo finds there are three separate critical paths for construction completion: (1) a so called "aboveground" pathway, (2) auxiliary building underpinning, and (3) the licensing/hearing pathway.

Aboveground Pathway

This pathway is primarily based upon rework of large and small bore pipe supports. However, installation of three HVAC systems, penetration sealing, and installation of mirror type pipe insulation also presently have zero or negative schedule float.

A letter of March 29, 1983, notes CPCO's intent to reinspect all installed safety related pipe supports without regard to the time of their installation or turnover. CPCo estimated the new support reinspection procedure, training and certification of inspection personnel, QA program revisions, and other support activities would be in place in time to commence reinspections during the week of April 11, 1983. CPCo plans to use three inspection teams (about 50 inspectors) and expects to complete hanger reinspections in June 1983. Only two inspectors had been certified as of April 15, 1983 and had started hanger inspections. The hanger reinspection pathway is the critical path for the "Construction Completion Plan" (CCP) described in CPCo's letters of January 10 and April 6, 1983 (and subsequently on April 22, 1983).

CPCo noted that 544 of 850 total subsystems (64%) have been turned over and accepted. Some systems were accepted with multiple "exceptions" (punchlist open items such as design changes, and corrective actions). CPCo's schedule for preoperational testing, acceptance testing, flushing and specific tests for both units provides a total duration of 14 months. Forty-five percent of the systems have been initially checked out. About 4% of the total of 683 tests have been completed as of March 31, 1983. Of these 683 tests, CPCo plans to complete 95% of the 268 preoperational tests and 128 acceptance tests prior to the Unit 2 fuel load. Currently, no preoperational tests have been completed (two are in progress); one acceptance test has been completed and none are in progress. The testing program for about 134 systems were noted to be constrained by the CCP. The present schedule assumes little rework of hanger (about 850 out of 7000) will be needed for both units.

At least seven 50.55(e) reports are considered by CPCo to have some potential for schedule impact in that reviews and tests are not complete and cannot be fully assessed at this time. These seven are:

	50.55(e) Report No.	Management Corrective Action Report (MCAR) No.	Subject
1.	80-04	40	High-energy line break analysis (HELBA) pipe whip restraints
2.	80-09	45B	Low alloy quenched and tempered bolting
3.	82-12	63	Design of steel embedments that use tension bars and shear lugs
4.	81-01	46	Deficiencies of Limitorque valve operators
5.	82-01	55	Deficiencies in electrical components associated with main steam isolation valve actuators, and non-safety related equipment wired as Class 1E

6.	82-07	59	Safety related equipment cooled by non-safety related HVAC system
7.	83-02	67	Clearances between electrical control cabinets and panels

Auxiliary Building Underpinning Pathway

Six of the 57 underpinning piers have been installed since December 13, 1983, and a pier load test (pier W-11) was in progress. The construction sequence will utilize an existing Utility Access Tunnel (UAT) to gain early access beneath the southern corners of the Control Tower. The revised construction scheme utilizing the UAT is reflected in CPCO's current completion forecasts.

CPCO's schedule assumes NRC will approve loading of fuel immediately after transfer of the EPA load to the permanent wall (i.e. in advance of EPA and FIVP soil consolidation beneath the wall; pier lockoff and grouting; replacing of backfill beneath EPA and FIVP; and structural stiffening at critical elevation 659 feet). CPCo estimates that these latter activities will be completed by late January 1985.

Licensing/Hearing Pathway

CPCo considers that completion of the present soils "OM" hearing and "OL" hearing is also critical to the new Unit 2 fuel load estimate. CPCo's estimated need dates for the hearing are:

Complete "OM" hearing session	August 1, 1983
Initial Decision on "OM" matters	Mid October 1983
Completion of "OL" hearing session	Mid May 1984
Initial Decision on "OL" matters	Early July 1984

Staff Conclusions

The Caseload Panel noted that the information provided during the meeting and observations made during the site tour would be further reviewed before the Panel's completion estimates are reached.

Darl Hood, Project Manager
Licensing Branch No. 4
Division of Licensing

Enclosures:
As stated

cc: See next page

EXHIBIT 1

50-329/330 OM, OL

Subject: Caseload Forecast Panel Estimate of Construction Completion Schedule

On April 19-21, 1983 the NRC Caseload Forecast Panel visited the Midland Plant to evaluate construction completion schedules. The meeting discussed in detail the bases for Consumers revised estimates of October 1984 (Unit 2) and February 1985 (Unit 1). On April 20, 1983 the Panel conducted an extensive tour of both units to observe construction progress. The Panel has now completed its own evaluation of construction completion schedules for Midland Plant, Units 1 & 2.

The Panel concludes that some months beyond the second quarter of 1986 is the earliest date that completion of Unit 2 can reasonably be expected. The critical pathway involves reinspection and rework of pipe supports, followed by preoperational and acceptance testing.

The Panel believes that Consumers estimate of 14 months to complete preoperational and acceptance testing for both units is unduly optimistic. The record for a recent single unit to date has been about 24 months. Using a more realistic, but slightly optimistic, duration for two units, and Consumers present late date in the second quarter of 1986. However, the Panel also believes that Consumers forecast does not realistically account for large uncertainties in the work which must precede start of critical path testing, and that this can

Unit 1 is expected to be complete about 6 to 9 months later.

Docket Nos. 50-329/330 OM, OL

L PDR
NSIC
PRC System
LB#4 Rdg
MDuncan
DHood
OELD
ACRS (16)
ELJordan, IE
JMTaylor, IE

Mr. J. W. Cook
Vice President
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Cook:

Subject: Caseload Forecast Panel Estimate of Construction Completion Schedule

On April 19-21, 1983, the NRC Caseload Forecast Panel visited the Midland Plant to evaluate construction completion schedules. The meeting discussed in detail the basis for Consumer's revised estimates of October 1984 (Unit 2) and February 1985 (Unit 1). On April 20, 1983 the Panel conducted an extensive tour of both units to observe construction progress. The Panel has now completed its own evaluation of construction completion schedules for Midland Plant, Units 1 & 2.

The Panel concludes that some months beyond the second quarter of 1986 is the earliest date that completion of Unit 2 can reasonably be expected. Unit 1 is expected to be completed about 6 to 9 months thereafter. The critical pathway involves reinspection and rework of pipe supports, followed by execution of preoperational and acceptance testing.

The Panel believes that Consumer's estimate of 14 months to complete preoperational and acceptance testing for both units is unduly optimistic. The record for a recent single unit to date has been about 24 months. Using a more realistic, but slightly optimistic, duration for two units and Consumer's present status results in a completion date in the second quarter of 1986. However, the Panel also believes that Consumer's forecast does not realistically account for large uncertainties in the work which must precede start of critical path testing, and that this can be expected to add some months to Consumer's schedule. The Panel believes that completion of reinspections of large and small bore pipe hangers and the amount of rework resulting from this effort is a notable example of the items expected to delay start of critical path testing by some months.

OFFICE ▶							
SURNAME ▶							
DATE ▶							

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO 1981

The Panel's estimate includes no provision for delay associated with future plant financing.

Sincerely,

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

cc: See next page

OFFICE	LB#4	LB#4	RM	RIII	AD/L		
SURNAME	DHood:im	EAdensam	WLovelace	JHarrison	TMNOVAK		
DATE	5/ 5/83	5/ /83	5/ 5/83	5/ 5/83	5/ /83		

NRC FORM 318 (10-80) NRCM 0240

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USGPO: 1981

EXHIBITS

THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN 48640

June 3, 1983

Mr. James Cook
Vice President
Projects, Engineering and Construction
Consumers Power Company
1945 West Parnell Road
Jackson, Michigan 49201

Dear Mr. Cook:

As you might expect, Consumers Power Company's announcement of April 11, 1983 was, and still is, a shock and a source of deep concern to Dow. Although Consumers had previously given assurances that commercial operation of unit one would begin by July, 1984, it is now confirmed that commercial operation will not now occur until August, 1985 at the earliest, if then. The ultimate ability of Consumers to meet the Commercial Steam Operation deadline of December 31, 1984 was a fundamental assumption of the Consumers/Dow Agreement. Moreover, you have advised that the estimated cost of the project has increased by over $1 billion.

In light of these disturbing developments, Dow has been and is in the process of a thorough review of the project. In order to assist us in making such a review and evaluating our alternatives, we would like you to provide us with the information listed on the attached schedule. Our review is being undertaken on an expedited basis and accordingly ask that the requested information be made available to us, if at all possible by June 20, 1983.

Sincerely,

R. A. Gaska

R. A. Gaska, Manager
Inorganic Chemicals/Energy & Utilities
47 Building

kjl

SCHEDULE

1. Forecasts 1 through 7 prepared by Consumers and by Bechtel for Consumers Power Company, and the replanning forecast announced in April, 1983, including all adjustments to these forecasts, which primarily relate to total plant costs and plant completion projections.

2) All reports or studies prepared since January 1, 1977 by the Consumers Power Company Planning Group on the Midland Project primarily related to total plant cost and scheduling.

3) All monthly or other periodic reports prepared since January 1, 1977 by Bechtel for Consumers Power relating to plant cost and scheduling, inspections, rework, non-conformances at the Midland Project and all minutes of meetings between Bechtel and Consumers dealing with these subjects.

4) All reports prepared by Consumers Power, Bechtel, or U. S. Testing concerning the discovery and cause of soils-related and other CFR 50.55(e) problems experienced during plant construction.

EXHIBIT 6

GOVERNMENT ACCOUNTABILITY PROJECT
Institute for Policy Studies
1901 Que Street, N.W., Washington, D.C. 20009
(202) 234-9382

July 11, 1983

Director
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

To Whom It May Concern:

Pursuant to the Freedom of Information Act (FOIA), 5 U.S.C. §552, the Government Accountability Project (GAP) of the Institute for Policy Studies requests copies of any and all agency records and information, including but not limited to notes, letters, memoranda, drafts, minutes, diaries, logs, calendars, tapes, transcripts, summaries, interview reports, procedures, instructions, engineering analyses, drawings, files, graphs, charts, maps, photographs, agreements, handwritten notes, studies, data sheets, notebooks, books, telephone messages, computations, voice recordings, and other data compilations, interim and/or final reports, status reports, and any and all other records relevant to and/or generated in connection with the Case Load Forecast Panel Meeting held April 19, 1983 regarding the construction of the Midland Nuclear Power Plant. This includes all items above regarding preparation for the meeting, the meeting itself, and items made subsequent to the meeting.

Specifically, GAP requests all the documents (addressed above) between the Office of Nuclear Reactor Regulations (NRR) the Office of Inspection and Enforcement (IE) and the Region III office of Inspection and Enforcement, and Consumers Power Company regarding the Case Load Forecast Panel Meeting. This should include the drafts and any final --but unreleased--NRC analysis of the Consumers proposals, as well as any notes, letters, telephone logs, etc. generated by Consumers Power contacts with the NRC.

If any records have been destroyed and/or removed, please provide all surrounding records, including but not limited to a list of all records which have been or are destroyed and/or removed, a description of the action(s) taken, relevant date(s), individual, office and/or agency-wide policies and/or justification(s) for the action(s), identification of all personnel involved with the action(s), and any and all records relevant to, generated in connection with, and/or issued in order to implement the action(s).

Director of Administration
U.S. Nuclear Regulatory Commission

July 11, 1983

GAP requests that fees be waived, because "finding the information can be considered as primarily benefitting the general public." 5 U.S.C. §552(a)(4)(A). The Government Accountability Project is a non-profit, non-partisan public interest organization concerned with honest and open government. Through legal representation, advice, national conferences, films, publications and public outreach, the Project promotes whistleblowers as agents of government accountability. GAP requests the above information as part of an ongoing monitoring project on the adequacy of the NRC's efforts to protect public safety and health at nuclear power plants.

For any documents or portions that you deny due to a specific FOIA exemption, please provide an index itemizing and describing the documents or portions of documents withheld. The index should provide a detailed justification of your grounds for claiming each exemption, explaining why each exemption is relevant to the document or portion of the document withheld. This index is required under Vaughn v. Rosen (I), 484 F.2d 820 (D.C.Cir. 1973), cert. denied, 415 U.S. 977 (1974).

We look forward to your response to this request within ten days.

Yours truly,

BILLIE PIRNER GARDE
Director, Citizens Clinic for
Accountable Government

BPG/mv

NUCLEAR REGULATORY CO
WASHINGTON, D. C. 20555

AUG 0 9 1983

Docket Nos. 50-329/330 OM, OL

Mr. J. W. Cook
Vice President
Consumer Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Cook:

Subject: Construction Completion Schedule for Midland

On April 19-21, 1983, the NRC staff visited the Midland Plant to evaluate construction completion schedules. The meeting discussed the basis for Consumer's revised estimates of October 1984 (Unit 2) and February 1985 (Unit 1). On April 20, 1983, the staff conducted an tour of both units to observe construction progress.

The staff believes that your estimate of 14 months to complete preoperational and acceptance testing for both units ~~is~~ unduly optimistic. Recent experience for a single unit has indicated that this activity will require at least 24 months to complete. Moreover, the staff believes that your forecast does not realistically account for large uncertainties in the work that must precede start of critical path testing, and that this can be expected to add some months to your schedule. These factors alone would infer that your October 1984 projected completion date is optimistic by at least a year.

Since the staff's visit, you have requested an opportunity to meet with the staff to review the material previously provided as well as to provide any additional information for its further consideration in this matter. We also understand that you plan to reconsider your scheduling priorities between Units 1 and 2 in light of recent actions by Dow Chemical Company. At your request, we will be scheduling this meeting in September. A final staff position for Midland's construction completion date will be developed following this further meeting.

Sincerely,

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

cc: See next page

Consumers
Power
Company

James W Cook
Vice President - Projects, Engineering and Construction

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

PRINCIPAL STAFF

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A/RA		DRMSP	
		DETA	
		SCS	
SGA		PL	
ENF			

orig 3

February 6, 1984

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

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329, 50-330
RESPONSE TO CONFIRMATORY ORDER
FILE 0505.2 SERIAL 28406

Dear Mr DeYoung

This is in response to your letter of January 12, 1984 to Mr John Selby of Consumers Power Company and the attached Confirmatory Order. The Order confirms the Company's commitment, made during a meeting of October 25, 1983, to provide for an independent appraisal of management of the Midland project. Accordingly, the Company does not contest entry of the Order. We are currently in the process of developing a proposal for the required independent appraisal and of choosing a consultant to carry it out, and will submit a plan for such an independent appraisal by March 7, 1984, as required under Section 5 of the Confirmatory Order.

The Company's position as to the circumstances of the alleged Board Order violations discussed in the Confirmatory Order have previously been made known to you, and our position before the Licensing Board concerning the subject matter of the Confirmatory Order remains as stated in our recently submitted proposed findings of fact and conclusions of law, dated January 27, 1984.

Thank you for your attention.

James W. Cook

JWC/JEB/sib

CC JGKeppler, Administrator, Region III
RJCook, Midland Resident Inspector
DSHood, Project Manager, US NRC
SLewis, Region III
OM/OL Service List

8402090255

OC0184-0742B-MP04-TM30

FEB 9 1984

OM/OL SERVICE LIST

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Ms Lynne Bernebei
Government Accountability Project
1901 Q Street, NW
Washington, DC 20009

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

Letter Serial 28406 Dated February 6, 1984

At the request of the Commission and pursuant to the Atomic Energy Acts of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits a response to a Confirmatory Order of January 12, 1984.

CONSUMERS POWER COMPANY

/s/ James W Cook
James W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 6th day of February 1984.

/s/ Beverly A. Avery
Notary Public
Jackson County, Michigan

My Commission Expires January 16, 1985

(S E A L)

W Shafer

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

March 11, 1983

PRINCIPAL STAFF		
RA	ENF	
D/RA	SCS	
A/RA	PAO	
DPRP	SLO	
DRMA	RC	
DRMSP		
DE		
ML		
OL	FILE	

Docket Nos: 50-329 OM, OL
and 50-330 OM, OL

MEMORANDUM FOR: R. J. Mattson, Director, Division of Systems Integration
R. Vollmer, Director, Division of Engineering
R. F. Warnick, Director, Enforcement & Investigation Staff, Region III
J. M. Taylor, Director, Quality Assurance Safeguards and Inspection Programs, IE
T. Speis, Director, Division of Safety Technology

FROM: Thomas M. Novak, Assistant Director for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

SUBJECT: REQUEST FOR REVIEW OF TERA's ENGINEERING PROGRAM PLAN AND PROJECT QUALITY ASSURANCE PLAN FOR MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

Enclosures 1 and 2 are forwarded for your review and evaluation. Enclosure 1 is the Engineering Program Plan, Revision 1, being followed by the TERA Corporation for the Midland Independent Design and Construction Verification (ID/CV) Program. The TERA Plan is one part of a "Construction Completion Plan" (CCP) described in the Applicant's letter of January 10, 1983, which was the subject of a public meeting on February 8, 1983. The TERA Plan outlines the scope, philosophy of review, methodology, independence requirements, organization, control, documentation, reporting and quality assurance requirements for conducting the Midland ID/CV Program. The QA requirements (Section 6.1 of Enclosure 1) are being implemented, in part, by the QA/QC methods, procedures and instructions identified in the TERA Corporation QA Plan, Revision 3 (Enclosure 2).

Enclosure 3 lists lead NRC review assignments for the major elements of the TERA program. Designation of lead responsibility is primarily with respect to execution of the program. All parties are encouraged to comment on any portion of the enclosures with respect to establishment of a suitable program. Those designated for lead review should solicit support from other parties as they deem appropriate.

Enclosure 4 outlines a tentative review schedule for the TERA Program. The schedule provides for staff comments on the program and a meeting to discuss these comments. At the completion of staff review, the staff will issue an SSER describing the proposed Program. The schedule also provides support for the OM-OL April 1983 soils hearing session since the TERA study and its results will be a part of the on-going hearing issue to determine adequacy of Midland QA implementation.

MAR 16 1983

~~8303040015~~

Please contact the Project Manager (Darl Hood, 492-8474) should you have questions regarding these assignments or the proposed review schedule.

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/encl:
E. Goodwin
E. Adensam
J. Keppler
J. Gilray
J. Harrison
T. L. Harpster
J. H. Sniezek
W. Shafer
D. Eisenhut
L. Rubenstein
A. Thadani

REVIEW ASSIGNMENTS FOR MIDLAND IDCV PROGRAM

Enclosure/Section	Title	Lead NRC Reviewer
1.2	Technical (design) scope	DSI
	Interfacing of construction with design scope	RIII
1.3	Selection of 2nd System	DL
1.4	Independence	DL
2.0	Organization and Control	
	Design	IEHQ
	Construction interface	RIII
3.1	Design Methodology	
3.1.1	Review categories	DSI/DE*
3.1.2	Sampling plan	DST
3.1.3	Design Scope for AFW	DSI/DE*
3.1.4	Design Scope for Second System	DSI/DE*
3.1.5.1	IDV Design Criteria checklists	DSI/DE*
3.1.5.2	Implementing Document Checklists	DSI/DE*
3.1.5.3	Calculation Checklist	DSI/DE*
3.1.5.4	Drawing and Spec. Checklist	DSI/DE*
3.1.6	Additional Sampling or Verif.	DSI/DE*
3.2.1	ICV Review Categories	RIII
3.2.2	ICV Sample Selection	RIII
3.2.3	AFW Construction Review Scope	RIII
3.2.4	Second System Construction Review Scope	RIII
3.2.5	Checklists	RIII
3.2.6	Additional Sampling, Verification and Tests	RIII
4.0	Documentation	IEHQ
5.0	Reporting	DL
6.0	QA (Including referenced TERA QA Plan)	IEHQ

*Lead designation depends upon system/component/structure involved and corresponds to primary review responsibility designated by SRP.

MIDLAND ID/CV PROGRAM REVIEW SCHEDULE

Letter to Applicant on Selection of 2nd System	March 11
Staff Comments to PM	March 18
Meeting with TERA and Applicant on Staff Comments	March 22
File QA Testimony with ASLB (Includes staff evaluation of CCP, including ID/CVP)	March 25
QA session of OM-OL Soils Hearing	April 26 - May 3
Provide SSER #3 input to PM	May 13
Issue SSER #3	June 10
TERA completes evaluation and reports results to NRC	TBD
Update SSER with results	TBD (Results dependent)

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

February 22, 1983

Docket Nos: 50-329 OM, OL
and 50-330 OM, OL

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 and 2

SUBJECT: REVISION 1 OF TERA CORPORATION'S PROJECT QUALITY ASSURANCE AND ENGINEERING PROGRAM PLANS FOR THE MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

A letter of February 9, 1983, from the Tera Corporation transmits to the NRC copies of their Project Quality Assurance Plan, Revision 1, and Engineering Program Plan, Revision 1, for the Independent Design and Construction Verification Program to be performed on Midland Plant, Units 1 and 2. Revision 0 correction pages are also transmitted.

Copies of the February 9, 1983, letter and transmitted documents are enclosed for docketing and future reference purposes.

E. G. Adensam

for Darl S. Hood, Project Manager
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February 9, 1983

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Subject: Midland Independent Design Verification Program

We are pleased to transmit for your review controlled copies of the Project Quality Assurance Plan (PQAP), Revision 1 and Engineering Program Plan (EPP), Revision 1, for the subject program. Mr. Keppler has been assigned copy 017 and Mr. Eisenhut copy 018.

Revision 0 corrected pages for each of these documents is enclosed for your information.

Sincerely,

Howard A. Levin
Project Manager

Enclosure

cc: w/o enclosure
G. Keeley, CPC

HAL/sl

8303040024

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ENGINEERING PROGRAM PLAN
PROJECT INSTRUCTION PI-3201-009
MIDLAND INDEPENDENT
DESIGN AND CONSTRUCTION
VERIFICATION PROGRAM
PROJECT 3201

NOVEMBER 29, 1982
REVISION: 0

018
COPY NO.

PROJECT INSTRUCTION		
PI- 3201 -009	SUBJECT: Engineering Program Plan Midland Independent Design and Construction Verification Program	
REV.: 0 DATE: 11/29/82		
PAGE 1 of 80	PREPARED BY:	APPROVED BY:

1.0 GENERAL

1.1 BACKGROUND AND PURPOSE

The Nuclear Regulatory Commission (NRC) issued a letter on July 9, 1982 which requested that Consumers Power Company (CPC) provide for an independent assessment of the design adequacy of the Midland plant. CPC responded to this request on October 5, 1982 by submitting an outline of the scope of a proposed independent review program. A public meeting was held on October 25, 1982 at the NRC's Bethesda, Maryland offices to discuss details of the proposed program. During this meeting, the NRC requested that the scope of the independent design assessment program be expanded, including an assessment of the quality of construction.

TERA Corporation has been selected by CPC and approved by the NRC to scope, manage, and implement the Midland Independent Design and Construction Verification (IDCV) Program. The selection of TERA is based upon the firm's technical qualifications, experience, and independence from the Midland project including all individuals who may contribute to the IDCV Program.

This project instruction, or Engineering Program Plan (the Plan), has been established to outline the scope, philosophy of review, methodology, independence requirements, organization, control, documentation, reporting, and quality assurance requirements for the Midland IDCV Program.

The IDCV approach selected is a review and evaluation of a detailed "vertical slice" of the Midland project with a focus on providing an overall assessment of the quality of the design and the constructed plant. Therefore, the primary emphasis of the IDCV evaluation is on the end results of the design and

in Sections 1.3 and 3.1.2 of this Plan were incorporated to develop the initial matrix. The design areas of the IDV review matrix for the AFW system are divided into three major divisions: AFW system performance requirements, AFW system protection features, and structures that house the AFW system. The design areas addressed within each of these major divisions are discussed in Sections 3.1.3.1, 3.1.3.2, and 3.1.3.3 of this Plan, respectively. As previously mentioned, the identified review scope is subject to change depending upon the IDV program findings.

Because the AFW system sample selection interfaces with other systems, it is necessary to define the boundaries for items within the scope of the IDV. In general for the AFW system, the selection was made to include all components identified as being part of the AFW system on Bechtel P&ID drawing M439 sheets 3A and 3B, revision 9. Specific interface points are as follows:

AFW SYSTEM SAMPLE SELECTION BOUNDARIES

Interfacing System	Interface Point (component included in AFW)
Main Steam	Valves 074 and 077 [1]
NSSS	Steam Generator Nozzles
Service Water A	Valve 283
Service Water B	Valve 282
Unit 2 Condensate Tank (from)	Valve 008
Condenser Hotwells	Valve 006
Unit 1 Condensate Tank (return)	Valve 019
Cooling Pond (return)	Valve 017
ac/dc Power System [2]	Breaker or fuse interfacing AFW components with power source
ESFAS	AFW actuation system and FOGG
Main FW Loop A	Valve 303
Vents and Drains	First Valve
HVAC	

NOTES:

1. P&ID M-432, Sheet 1A, Revision

2. Power supplies dedicated to AFW system are within sample selection boundaries.

ENGINEERING PROGRAM PLAN
PROJECT INSTRUCTION PI-3201-009
MIDLAND INDEPENDENT
DESIGN AND CONSTRUCTION
VERIFICATION PROGRAM
PROJECT 3201

FEBRUARY 9, 1983
REVISION: 1

018
COPY NO.

TERA CORPORATION
QUALITY ASSURANCE PROGRAM

Midland Independent Design and Construction Verification Program

Engineering Program Plan 3201-009

DOCUMENT REVISION RECORD

REV	DATE	DESCRIPTION OF CHANGES
1	2/9/83	Pg. 1 - Update status of NRC approval of TERA Corporation: deleted "and approved by the NRC", replaced with, "subject to NRC approval" .
		Pg. 24- Update reference to P&ID M439: added, "revision 9" after 3A and changed rev. 9 to rev. 10 after 3B
		Pg. 25- Add System Selection Boundary for HVAC: add, "AFW pump room fan coolers and associated ductwork and supports"

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PROJECT INSTRUCTION		
PI- 3201 - 009	SUBJECT: Engineering Program Plan Midland Independent Design and Construction Verification Program	
REV.: 1 DATE: 2/9/83		
PAGE 1 of 80	PREPARED BY:	APPROVED BY:

1.0 GENERAL

1.1 BACKGROUND AND PURPOSE

The Nuclear Regulatory Commission (NRC) issued a letter on July 9, 1982 which requested that Consumers Power Company (CPC) provide for an independent assessment of the design adequacy of the Midland plant. CPC responded to this request on October 5, 1982 by submitting an outline of the scope of a proposed independent review program. A public meeting was held on October 25, 1982 at the NRC's Bethesda, Maryland offices to discuss details of the proposed program. During this meeting, the NRC requested that the scope of the independent design assessment program be expanded, including an assessment of the quality of construction.

TERA Corporation has been selected by CPC, subject to NRC approval, to scope, manage, and implement the Midland Independent Design and Construction Verification (IDCV) Program. The selection of TERA is based upon the firm's technical qualifications, experience, and independence from the Midland project including all individuals who may contribute to the IDCV Program. 1

This project instruction, or Engineering Program Plan (the Plan), has been established to outline the scope, philosophy of review, methodology, independence requirements, organization, control, documentation, reporting, and quality assurance requirements for the Midland IDCV Program.

The IDCV approach selected is a review and evaluation of a detailed "vertical slice" of the Midland project with a focus on providing an overall assessment of the quality of the design and the constructed plant. Therefore, the primary emphasis of the IDCV evaluation is on the end results of the design and

construction process and not on an evaluation of the process itself which is typical of the more common quality assurance audit. The "vertical slice" constitutes a carefully selected sample of two safety systems from which the results of the IDCV may be extrapolated to other similarly designed and constructed systems. Thus, the IDCV is intended to provide the necessary assurance to CPC, NRC, and the public that the Midland Plant is designed and constructed such that it is capable to function in accordance with its safety design bases and that applicable licensing commitments have been properly implemented.

1.2 OVERVIEW OF IDCV SCOPE

The Midland IDCV consists of two major components: the Independent Design Verification (IDV) Program and the Independent Construction Verification (ICV) Program. The Unit 2 auxiliary feedwater (AFW) system and the (second system - to be supplied) have been selected as applicable samples of the design engineering and construction efforts at the Midland plant. These systems were selected based upon the system selection criteria discussed in Section 1.3 of this Plan.

The scope of review corresponds directly to the design and construction chains, addressing major activities and outputs of the various contributing engineering and construction disciplines. Accordingly, the design and construction process, from concept to installation, hydros, functional and preoperational testing will be evaluated. Interfaces between CPC, Babcock and Wilcox (B&W), the nuclear steam system supplier (NSSS) vendor, Bechtel, the architect-engineer (A-E), and other contractors will be identified and evaluated relative to such items as the proper transfer and interpretation of design or construction information.

INTER-RELATIONSHIP BETWEEN THE MIDLAND DESIGN AND CONSTRUCTION PROCESS AND THE MIDLAND IDCV PROGRAM

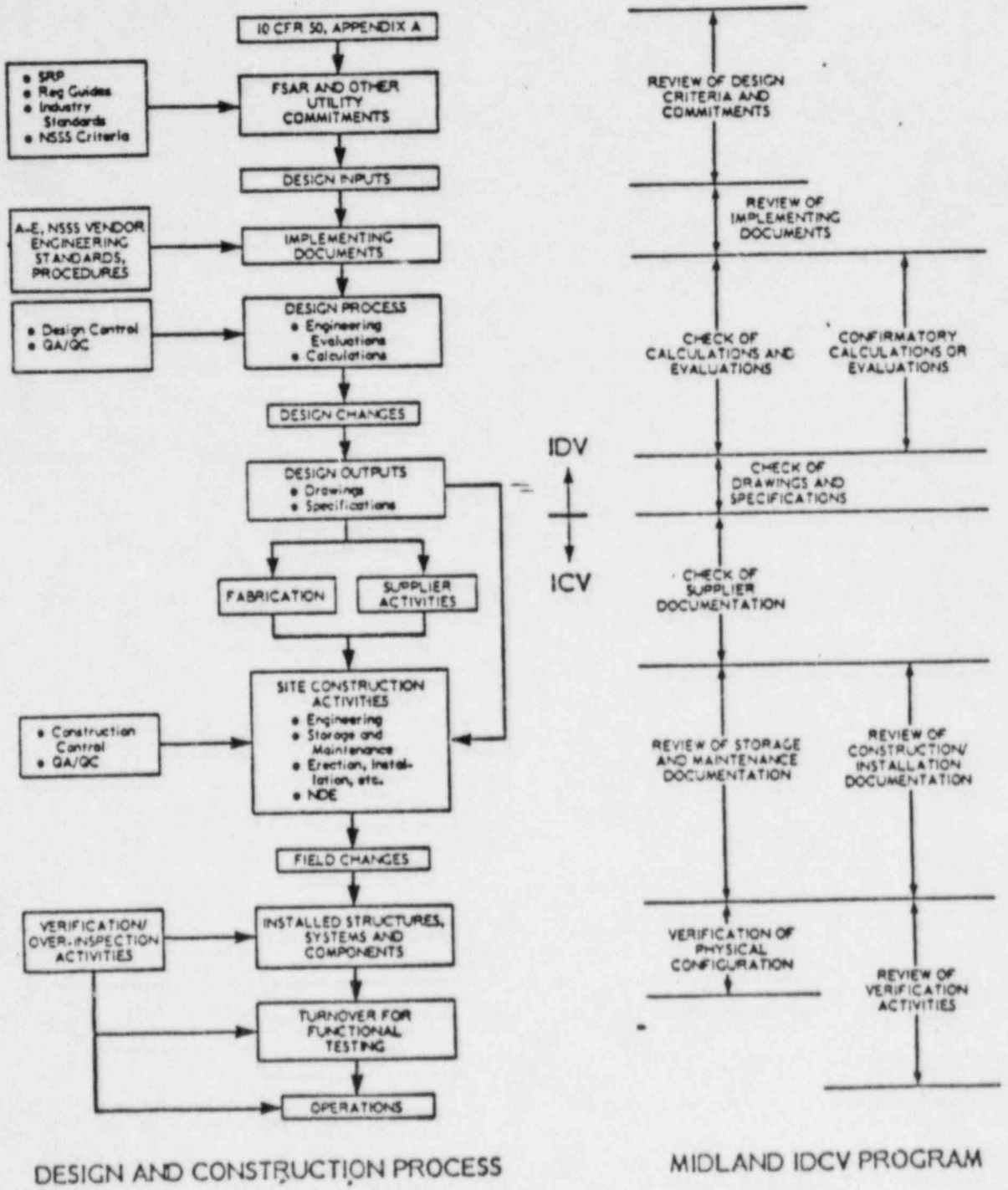


FIGURE 1.2-1

INITIAL SAMPLE REVIEW MATRIX FOR THE AUXILIARY FEEDWATER SYSTEM
MIDLAND INDEPENDENT DESIGN VERIFICATION PROGRAM

DESIGN AREA	SCOPE OF REVIEW				
	REVIEW OF DESIGN CRITERIA AND COMMITMENTS	REVIEW OF IMPLEMENTING DOCUMENTS	CHECK OF CALCULATIONS AND EVALUATIONS	CONFIRMATORY CALCULATION OR EVALUATION	CHECK OF DRAWINGS AND SPECIFICATIONS
I. AFW SYSTEM PERFORMANCE REQUIREMENTS					
SYSTEM OPERATING LIMITS	X	X	X		
ACCIDENT ANALYSIS CONSIDERATIONS	X				
SINGLE FAILURE	X	X	X		
TECHNICAL SPECIFICATIONS	X	X			
SYSTEM ALIGNMENT/SWITCHOVER	X	X			
REMOTE OPERATION AND SHUTDOWN	X				
SYSTEM ISOLATION/INTERLOCKS	X	X			
OVERPRESSURE PROTECTION	X				
COMPONENT FUNCTIONAL REQUIREMENTS	X	X	X		X
SYSTEM HYDRAULIC DESIGN	X	X	X		
SYSTEM HEAT REMOVAL CAPABILITY	X	X	X		
COOLING REQUIREMENTS	X				
WATER SUPPLIES	X	X			
PRESERVICE TESTING/CAPABILITY FOR OPERATIONAL TESTING	X				
POWER SUPPLIES	X	X			
ELECTRICAL CHARACTERISTICS	X				
PROTECTIVE DEVICES/SETTINGS	X	X			X
INSTRUMENTATION	X	X	X		X
CONTROL SYSTEMS	X	X	X		
ACTUATION SYSTEMS	X				
NDE COMMITMENTS	X				
MATERIALS SELECTION	X	X			

FIGURE 1.2-2a

INITIAL SAMPLE REVIEW MATRIX FOR THE AUXILIARY FEEDWATER SYSTEM
MIDLAND INDEPENDENT DESIGN VERIFICATION PROGRAM (CONTINUED)

DESIGN AREA	SCOPE OF REVIEW				
	REVIEW OF DESIGN CRITERIA AND COMMITMENTS	REVIEW OF IMPLEMENTING DOCUMENTS	CHECK OF CALCULATIONS AND EVALUATIONS	CONFIRMATORY CALCULATION OR EVALUATION	CHECK OF DRAWINGS AND SPECIFICATIONS
II. AFW SYSTEM PROTECTION FEATURES					
SEISMIC DESIGN	X				
• PRESSURE BOUNDARY	X	X	X	X	X
• PIPE/EQUIPMENT SUPPORT	X	X	X	X	X
• EQUIPMENT QUALIFICATION	X	X	X		X
HIGH ENERGY LINE BREAK ACCIDENTS	X				
• PIPE WHIP	X	X	X		X
• JET IMPINGEMENT	X				
ENVIRONMENTAL PROTECTION	X				
• ENVIRONMENTAL ENVELOPES	X	X	X	X	X
• EQUIPMENT QUALIFICATION	X	X	X		X
• HVAC DESIGN	X				
FIRE PROTECTION	X	X	X		
MISSILE PROTECTION	X				
SYSTEMS INTERACTION	X	X	X		
III. STRUCTURES THAT HOUSE THE AFW SYSTEM					
SEISMIC DESIGN/INPUT TO EQUIPMENT	X	X	X		X
WIND & TORNADO DESIGN/MISSILE PROTECTION	X				
FLOOD PROTECTION	X				
HELBA LOADS	X				
CIVIL/STRUCTURAL DESIGN CONSIDERATIONS	X				
• FOUNDATIONS	X	X	X		
• CONCRETE/STEEL DESIGN	X	X	X		X
• TANKS	X	X	X		

FIGURE 1.2-2b

INITIAL SAMPLE REVIEW MATRIX FOR THE AUXILIARY FEEDWATER SYSTEM
MIDLAND INDEPENDENT DESIGN VERIFICATION PROGRAM

SYSTEM/COMPONENT	SCOPE OF REVIEW				
	REVIEW OF SUPPLIER DOCUMENTATION	REVIEW OF STORAGE AND MAINTENANCE DOCUMENTATION	REVIEW OF CONSTRUCTION/ INSTALLATION DOCUMENTATION	REVIEW OF SELECTED VERIFICATION ACTIVITIES	VERIFICATION OF PHYSICAL CONFIGURATION
I. MECHANICAL					
• EQUIPMENT	X	X	X	X	X
• PIPING	X		X	X	X
• PIPE SUPPORTS	X		X	X	X
II. ELECTRICAL					
• EQUIPMENT	X	X	X	X	X
• TRAYS AND SUPPORTS	X				X
• CONDUIT AND SUPPORTS	X				X
• CABLE	X	X	X	X	X
III. INSTRUMENTATION AND CONTROL					
• INSTRUMENTS	X	X	X	X	X
• PIPING/TUBING	X				X
• CABLE	X				X
IV. HVAC					
• EQUIPMENT	X	X	X	X	X
• DUCTS AND SUPPORTS	X				X
V. STRUCTURAL					
• FOUNDATIONS	X		X		
• CONCRETE	X		X		X
• STRUCTURAL STEEL	X		X		X

FIGURE 1.2-3

Figure 1.2-1 shows the inter-relationship between the Midland design and construction process and the Midland IDCV program. Figures 1.2-2a, 1.2-2b and 1.2-3 present the IDCV scope in the form of matrices which identify the initial level of review and evaluation in each design or construction area respectively. It should be noted that the scope of review is dynamic and subject to change as more emphasis will be given to any items which are suspect to the review team or to identify the extent and root cause of identified findings. Accordingly, these matrices represent the initial IDCV "sample".

1.3 SYSTEMS SELECTION CRITERIA

The selection of the auxiliary feedwater system and the (second system - to be supplied) was based upon the following six criteria:

- Importance to Safety - The system should have a relatively high level of importance to the overall safety of the Midland Plant.
- Inclusion of Design and Construction Interfaces - The system should be one which involves multiple interfaces among engineering and construction disciplines as well as design and construction organizations, such as the NSSS vendor, architect engineer, constructor, and subtier contractors. The system should also be one where design or construction changes have occurred and thus provide the ability to test the effectiveness of the design and construction process exercised by principal internal and external organizations or disciplines in areas of design or construction change.
- Ability to Extrapolate Results - The system should be sufficiently representative of other safety systems such that the design criteria, design and construction control and change processes are similar so that extrapolation of findings to other systems can be undertaken with confidence.

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

- Sensitive to Previous Experience - The system should be one which includes design or construction 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 configuration should be sufficiently completed that the as-built configuration can be verified against design.

Each system was selected after consideration of a number of other candidate systems. The Midland Plant probabilistic risk assessment (PRA) was utilized as a tool to assess the importance to safety on the basis of the contribution to overall plant risk. The profile for this criterion as well as each of the other five criteria was sufficiently high for the auxiliary feedwater system and the (second system - to be supplied) to justify their selection.

1.4 INDEPENDENCE REQUIREMENTS

The Midland IDCV program will be conducted in accordance with the "independence" criteria documented in a letter from Nunzio J. Palladino, Chairman, NRC, to the Honorable John D. Dingell, Chairman, Committee on Energy and Commerce, United States House of Representatives, dated February 1, 1982. The following criteria are excerpted from Enclosure 3 of this letter:

"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 (Midland) 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 (CPC) to do similar seismic (delete seismic) design work.

2) Whether any individual involved had been previously employed by PG&E (CPC) (and the nature of the employment).

3) Whether the individual owns or controls significant amounts of PG&E (CPC) stock.

4) Whether members of the present household of individuals involved are employed by PG&E (CPC).

5) Whether any relatives are employed by PG&E (CPC) 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."

The individuals taking part in the Midland IDCV program meet the preceeding criteria and have signed a statement attesting to this fact.

TERA Corporation is under contract to CPC to provide the engineering services necessary to complete the Midland IDCV program. Prior to this contract, TERA has never been under contract to CPC.

The contract requires TERA to maintain an auditable record to document the process leading to findings as well as meetings to discuss findings. Section 4.0 of this Plan addresses documentation requirements which have been developed to meet obligations of the contract.

Section 5.0 of this Plan addresses the report generation process, during the IDCV program to report findings and at its conclusion as a final report. TERA will maintain an auditable record of all comments on the draft final report.

2.0 ORGANIZATION AND CONTROL

2.1 PROJECT ORGANIZATION

The project organization is addressed in Section 2.1 of the Project Quality Assurance Plan (PQAP), Midland Independent Design and Construction Verification Program, Project 3201. Figure 2.1-1 provides the project organization chart. Technical and administrative personnel (not shown) receive assignments directly from the Project Manager (PM). The PM serves as the point of contact with CPC. The Project Quality Assurance Engineers report to the Executive Vice President, TERA, but will work with the PM in resolving deficiencies or making recommendations.

PROJECT ORGANIZATION

MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

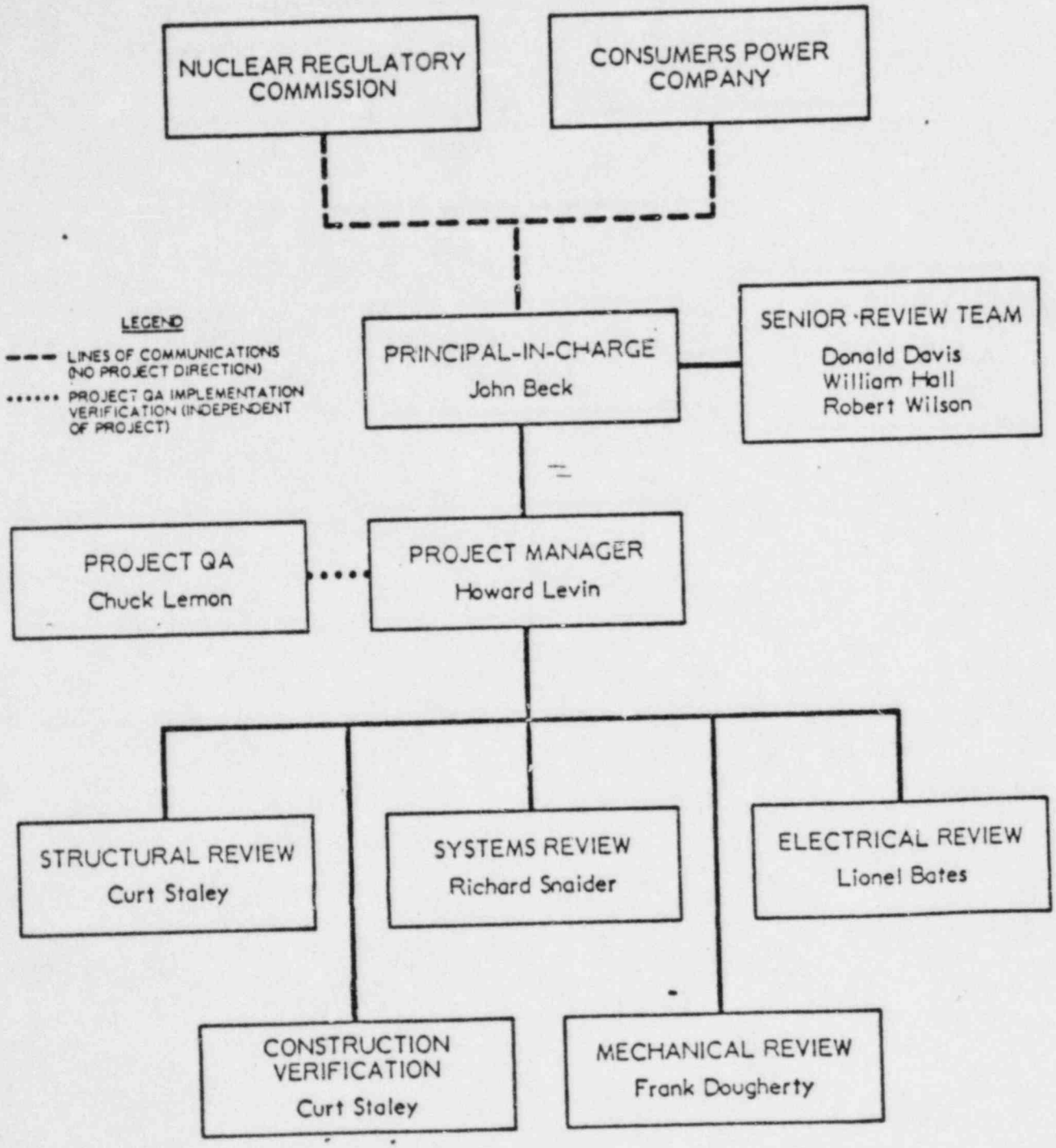


FIGURE 2.1-1

2.2 AUTHORITY AND RESPONSIBILITY

The project authority and responsibility is addressed in Section 2.2 of the PQAP, Project 3201, as augmented by various project instructions and engineering control procedures which are referenced in the PQAP.

The Principal-in-Charge (PIC) is responsible for helping establish the general philosophy of review, setting forth guidance to the Project Manager and the Lead Technical Reviewers (LTR), assisting as an interface with the Senior Review Team (SRT), NRC and Consumers Power Company and reviewing/concurring in all final reports.

The Project Manager is responsible for planning and direct supervision of all in-house activities undertaken as required to fulfill the contract requirements. All documentation, correspondence, reports, calculations, etc., issued to Consumers Power Company are to be issued under his signature or otherwise receive his approval as required by the applicable Engineering Control Procedure or Project Instruction.

The Project Manager is responsible for planning and overall management of all outside activities performed by subcontractors or Associates, but may delegate responsibility for supervision to other individuals within the project. This delegation of authority and responsibility is documented by issuance of a Project Instruction. Documentation may be issued to the subcontractor or Associate under the signature of the designated individual, but shall receive prior approval of the Project Manager.

As requested by the PIC, the Senior Review Team (SRT) is responsible for the review of Open, Confirmed or Resolved (OCR) Item Reports, Finding Reports, Finding Resolution Reports and Final Reports to assess the technical validity and

significance of project team conclusions and the proper classification of OCRs and Findings. (These reports are defined in Section 5.0 of this Plan). The SRT may at any time recommend to the Principal-in-Charge that the Project Manager expand the scope of review, provide clarification or reassess elements of the review.

The Lead Technical Reviewers (LTR) are responsible for management and implementation of all review activities within their discipline of review, including supervision of individuals on the project and outside activities performed by Associates. The LTRs report to the Project Manager. The LTRs are responsible for the classification of OCRs and Findings, the preparation of Finding Reports and Finding Resolution Reports.

The Project Quality Assurance Engineer is responsible for verification of the implementation of the PQAP and will perform audits of applicable procedures and instructions implementation in accordance with Section 6.3 and ECP-5.6.

2.3 ADMINISTRATIVE CONTROL

The project administrative control is addressed in Section 4.0 of the PQAP, Project 3201, as augmented by various project instructions and engineering control procedures which are referenced in the PQAP.

Procedures and instructions are addressed which will be implemented to control documentation generated on the Midland IDCV project which is subject to quality assurance and control measures or is required to provide an auditable record of the IDCV review process leading to Findings. The following documents are controlled; engineering evaluations, documents and reports, calculations, analyses, computer analyses, PQAP, quality assurance documents, personnel

qualifications, correspondence, Open, Confirmed and Resolved Item Reports, Finding Reports, Finding Resolution Reports, Engineering Program Plan and external communications.

3.0 ENGINEERING PROGRAM PLAN METHODOLOGY

This section provides the overall method of approach for the IDV and ICV portions of the IDCV with particular emphasis on those features of the methodology which are common to both. Specific details of the methodology for the IDV and ICV are addressed below in Sections 3.1 and 3.2, respectively.

The initial review step includes the identification and review of pertinent documents to permit an understanding of the design and construction chains including the interrelationships between the organizations and suborganizations participating in the Midland project. Next, the design bases in the form of regulatory requirements and design criteria are identified and reviewed in parallel with a review of project design and construction related experience. The design bases review will provide an overall understanding of the plant and system design. The project design and construction experience review will be conducted to ensure that the IDCV program encompasses previously identified problem areas to verify that these have been adequately addressed and that they do not exist elsewhere in the same or similar form.

For the systems, components, and structures identified in Sections 3.1.3 and 3.2.3, detailed information which documents the implementation of the design and construction commitments will be identified, reviewed, and evaluated. The IDCV review and evaluation process will be documented in accordance with the procedures addressed in Section 4.0 of this Plan. The reporting of findings

including the disposition of items potentially leading to findings will be reported in accordance with the procedures addressed in Section 5.0 of this Plan. The IDCV will be conducted in accordance with applicable provisions of 10 CFR 50, Appendix B, which are addressed in Section 6.0 of this Plan.

3.1 INDEPENDENT DESIGN VERIFICATION METHODOLOGY

ANSI N45.2.11 defines design verification as the "process of reviewing, conforming, or substantiating the design by one or more methods to provide assurance that the design meets specified inputs." Design inputs include design bases or criteria, regulatory requirements, codes and standards, and other design commitments. The IDV includes a determination of the design inputs; an evaluation of their accuracy, consistency, and adequacy; and an evaluation of the implementation of these commitments. The emphasis will be on making a determination of the overall quality of the design and an assessment of its compliance with licensing commitments. The review approach has been designed to be introspective in making this overall quality assessment by integrating the many design inputs and licensing commitments. This integrated assessment will ensure that all parameters have been considered which are important for the system in meeting its functional requirements.

The IDV methodology will utilize the applicable guidelines of ANSI N45.2.11. The methodology will include diverse approaches such as checking original calculations, conducting alternative confirmatory calculations, or checking design ouputs including drawings or specifications. Where independent calculations are utilized, the may incorporate methods which are either similar to or different from the original design. In certain instances these independent calculations will be "blind," in that the original design calculations will be

compared to the independent calculations upon their completion, without prior review by the IDV analyst.

The categories to be reviewed for certain design areas include review of design criteria and commitments, review of implementing documents, checks of calculations and evaluations, confirmatory calculations or evaluations, and checks of drawings and specifications. These categories are defined in Section 3.1.1. As a rule, all design areas will not be reviewed in each of the preceding categories. For example, a design area for the AFW system is "heat removal capability." This item would not typically have drawings and specifications associated with it as a direct output. In other instances, it may be the judgment of the review team based upon experience that emphasis is not needed in certain categories for each design area.

The bases for sample selection are presented in Section 3.1.2, and the definition of the scope of review is provided in Sections 3.1.3 and 3.1.4 for the AFW system and (second system - to be supplied), respectively. The IDV will be conducted utilizing detailed checklists which are described in Section 3.1.5. Additional sampling and verification that may be conducted as a result of the IDV are discussed in Section 3.1.6.

3.1.1 CATEGORIES OF REVIEW: THE DESIGN CHAIN

The categories of review selected include the major design activities identified in the design chain. The IDV review categories included are:

- Review of design criteria and commitments
- Review of implementing documents

- Check of calculations and evaluations
- Confirmatory calculations or evaluations
- Check of drawings and specifications

Each of these categories is described in detail in sections 3.1.1.1 through 3.1.1.5 respectively. Checklists have been prepared for each of these categories to aid IDCV reviewers in the implementation of their review. These checklists are discussed in section 3.1.5.

3.1.1.1 Review of Design Criteria and Commitments

An identification and review of the design criteria and commitments concerning each specific design area will be performed. This review category provides the assurance that all necessary design inputs are considered in the IDV. The results of this review of design criteria and commitments are then used in subsequent stages where appropriate. The review of design criteria and commitments begins with an identification of appropriate criteria for the system. Such criteria may be determined from sources such as the FSAR, the docket file, 10 CFR 50, Appendix A, criteria suppplied by the NSSS vendor, industry codes and standards, and other documents which provide criteria for system design.

3.1.1.2 Review of Implementing Documents

Implementing documents are those design documents which translate the design inputs into working level documentation. Typically, implementing documents include design criteria documents, project procedures, standard design practices, specific plant design basis documents, drawings, and calculations. Most fre-

quently, implementing documents are intermediate steps in the design process which are subsequently used to produce design outputs. It is important that design inputs are properly interpreted and documented in implementing documents. Therefore, the objective of the review is to determine the existence and general reasonableness of the documentation and whether the documentation correctly reflects the design inputs.

Design outputs are defined as documents such as drawings, specifications, and similar materials defining technical requirements for the fabrication, installation, or construction of the system. In some cases, the design process may reduce design outputs with intermediate documentation. In these cases, the design output documents are reviewed for the application of the design criteria and commitments as part of the check of drawings and specifications.

3.1.1.3 Check of Calculations and Evaluations

When specified, a detailed check of calculations and evaluations is made (i.e. inputs, assumptions, methodology, outputs, etc.). This activity follows the review of design criteria and commitments and the review of implementing documents. The check may take several forms, ranging from a number-by-number detailed mathematical check to a review and evaluation of outputs for reasonableness. The overall presentation of the sampled calculations and evaluations will also be reviewed to verify that all steps are clearly presented and consistent throughout. The IDV reviewer may, at his discretion, choose to conduct an alternative calculation as a means of confirming his judgment on the adequacy of the design calculation or evaluation. Where computer programs were used in the analysis, the reviewer will verify that appropriate inputs have been used in the calculation, and that the appropriate outputs have been identified. Additionally, it will be necessary to determine that the computer

programs used have been verified in accordance with appropriate verification procedures.

3.1.1.4 Confirmatory Calculations or Evaluations

For selected areas, confirmatory calculations or evaluations will be performed. Generally, these evaluations will be made to confirm judgements relative to the review of areas which are suspect to the IDCV reviewer; however, "blind" confirmatory calculations will be undertaken in pre-selected areas to independently verify the original design calculations. Such confirmatory evaluations will be performed by obtaining the necessary input data and independent specification of calculation or evaluation objective. The reviewer will select and apply the appropriate techniques to achieve the end results. Such calculation methods will be performed without benefit if first reviewing the existing design calculational method. In order to preserve the "blind" nature of this approach, it will be necessary that a person other than the reviewer of the implementing documents perform the confirmatory calculation or evaluation. The confirmatory calculation or evaluation will be performed under procedures appropriate for the type of calculation or evaluation being performed. To the extent appropriate, the calculation or evaluation will be equivalent to that initially performed. After completion of the confirmatory calculation or evaluation, a comparison between the original calculation and the confirmatory methods will be made to determine whether differences exist. If differences occur, a determination will be made to assess whether these differences are due to the inherent nature of the calculation methods chosen or due to errors.

For example, differences may result due to the selection by the originator of simplifying or conservative assumptions. In the event that the original calculation is more conservative than the confirmatory calculation and meets design

basis acceptance criteria, no further action will be necessary. On the other hand, if the confirmatory calculation uses more conservative methods, a check of the original calculation will be made to determine whether the difference in degree of conservatism is appropriate.

3.1.1.5 Check of Drawings and Specifications

Where appropriate, design outputs such as drawings and specifications will be reviewed and checked to assure that they accurately and consistently reflect that which has been called for in design documents such calculations. Drawings and specifications will also be reviewed to determine whether design change notices and field change notices have been incorporated. In cases where several related drawings exist, a cross-comparison among drawings will be made. Additionally, a review will be made of correspondence with vendors to determine the existence of deviations from the specifications and the approval by the design organization of such changes.

3.1.2 BASES FOR SAMPLE SELECTION

The criteria which have been applied to the selection of the AFW system and (second system - to be supplied) also apply to the selection of specific structures or components to be reviewed within each design area of the IDV, including the depth of review in each design area. As a rule, the selection is based upon engineering judgment, as statistical techniques are considered to be largely inappropriate for a design verification program. Senior members of the project team with requisite experience are responsible for selecting the sample and determining its size. This process provides greater assurance than a random sampling plan since the initial IDV sample is purposely biased towards typical problem areas. Furthermore, the initial sample is considered broad enough to

ensure that significant deficiencies could not propagate through the AFW system or the (second system - to be supplied) without being detected.

In the course of designing a nuclear power plant, numerous reviews and evaluations are typically performed. These reviews and evaluations may result in the identification of areas requiring additional work. These reviews and evaluations reflect the project's design experience and are a valuable input to the refinement of the IDV scope and sample selection. In order to make use of this information, a review was made of the ongoing inspection programs, 50.55e reports, NRC inspection reports, audit reports, and similar documentation. Three criteria are used to modify the initial sample. The first criterion is that areas experiencing repeated design related problems would receive an increased level of review in the IDV program in order to verify that these problems have been adequately addressed and that they do not exist elsewhere in the same or similar form. The second criterion is that those areas which have not previously received extensive review activities would also be subjected to a higher frequency of sampling in order to achieve a sufficient degree of assurance of the adequacy of the design. The third criterion is that those areas where potential findings have been identified, additional sampling would be considered if appropriate to fully assess the extent and root cause.

3.1.3 DEFINITION OF REVIEW SCOPE FOR THE AFW SYSTEM

Section 3.1.1 identified the categories of review which essentially correspond to major activities of the design chain. When combined with a listing of each of the design areas, a matrix is formed which can be utilized to direct the conduct of the IDV effort for each system in the program. This matrix is shown on Figures 3.1-1a and 3.1-1b for the AFW system. A set of "X" marks are shown which indicate the review scope applicable to each design area. The criteria discussed

INITIAL SAMPLE REVIEW MATRIX FOR THE AUXILIARY FEEDWATER SYSTEM
MIDLAND INDEPENDENT DESIGN VERIFICATION PROGRAM

DESIGN AREA	SCOPE OF REVIEW				
	REVIEW OF DESIGN CRITERIA AND COMMITMENTS	REVIEW OF IMPLEMENTING DOCUMENTS	CHECK OF CALCULATIONS AND EVALUATIONS	CONFIRMATORY CALCULATION OR EVALUATION	CHECK OF DRAWINGS AND SPECIFICATIONS
1. AFW SYSTEM PERFORMANCE REQUIREMENTS					
SYSTEM OPERATING LIMITS	X	X	X		
ACCIDENT ANALYSIS CONSIDERATIONS	X				
SINGLE FAILURE	X	X	X		
TECHNICAL SPECIFICATIONS	X	X			
SYSTEM ALIGNMENT/SWITCHOVER	X	X			
REMOTE OPERATION AND SHUTDOWN	X				
SYSTEM ISOLATION/INTERLOCKS	X	X			
OVERPRESSURE PROTECTION	X				
COMPONENT FUNCTIONAL REQUIREMENTS	X	X	X		X
SYSTEM HYDRAULIC DESIGN	X	X	X		
SYSTEM HEAT REMOVAL CAPABILITY	X	X	X		
COOLING REQUIREMENTS	X				
WATER SUPPLIES	X	X			
PRESERVICE TESTING/CAPABILITY FOR OPERATIONAL TESTING	X				
POWER SUPPLIES	X	X			
ELECTRICAL CHARACTERISTICS	X				
PROTECTIVE DEVICES/SETTINGS	X	X			X
INSTRUMENTATION	X	X	X		X
CONTROL SYSTEMS	X	X	X		
ACTUATION SYSTEMS	X				
NDE COMMITMENTS	X				
MATERIALS SELECTION	X	X			

FIGURE 3.1-1a

INITIAL SAMPLE REVIEW MATRIX FOR THE AUXILIARY FEEDWATER SYSTEM
MIDLAND INDEPENDENT DESIGN VERIFICATION PROGRAM (CONTINUED)

DESIGN AREA	SCOPE OF REVIEW: REVIEW OF DESIGN CRITERIA AND COMMITMENTS	REVIEW OF IMPLEMENTING DOCUMENTS	CHECK OF CALCULATIONS AND EVALUATIONS	CONFIRMATORY CALCULATION OR EVALUATION	CHECK OF DRAWINGS AND SPECIFICATIONS
II. AFW SYSTEM PROTECTION FEATURES					
SEISMIC DESIGN	X				
• PRESSURE BOUNDARY	X	X	X	X	X
• PIPE/EQUIPMENT SUPPORT	X	X	X	X	X
• EQUIPMENT QUALIFICATION	X	X	X		X
HIGH ENERGY LINE BREAK ACCIDENTS	X				
• PIPE WHIP	X	X	X		X
• JET IMPINGEMENT	X				
ENVIRONMENTAL PROTECTION	X				
• ENVIRONMENTAL ENVELOPES	X	X	X	X	X
• EQUIPMENT QUALIFICATION	X	X	X		X
• HVAC DESIGN	X				
FIRE PROTECTION	X	X	X		
MISSILE PROTECTION	X				
SYSTEMS INTERACTION	X	X	X		
III. STRUCTURES THAT HOUSE THE AFW SYSTEM					
SEISMIC DESIGN/INPUT TO EQUIPMENT	X	X	X		X
WIND & TORNADO DESIGN/MISSILE PROTECTION	X				
FLOOD PROTECTION	X	-			
HELBA LOADS	X				
CIVIL/STRUCTURAL DESIGN CONSIDERATIONS	X				
• FOUNDATIONS	X	X	X		
• CONCRETE/STEEL DESIGN	X	X	X		X
• TANKS	X	X	X		

FIGURE 3.1-1b

in Sections 1.3 and 3.1.2 of this Plan were incorporated to develop the initial matrix. The design areas of the IDV review matrix for the AFW system are divided into three major divisions: AFW system performance requirements, AFW system protection features, and structures that house the AFW system. The design areas addressed within each of these major divisions are discussed in Sections 3.1.3.1, 3.1.3.2, and 3.1.3.3 of this Plan, respectively. As previously mentioned, the identified review scope is subject to change depending upon the IDV program findings.

Because the AFW system sample selection interfaces with other systems, it is necessary to define the boundaries for items within the scope of the IDV. In general for the AFW system, the selection was made to include all components identified as being part of the AFW system on Bechtel P&ID drawing M439 sheets 3A, revision 9, and 3B, revision 10. Specific interface points are as follows: 1

AFW SYSTEM SAMPLE SELECTION BOUNDARIES

Interfacing System	Interface Point (component included in AFW)
Main Steam	Valves 074 and 077 [1]
NSSS	Steam Generator Nozzles
Service Water A	Valve 283
Service Water B	Valve 282
Unit 2 Condensate Tank (from)	Valve 008
Condenser Hotwells	Valve 006
Unit 1 Condensate Tank (return)	Valve 019
Cooling Pond (return)	Valve 017
ac/dc Power System [2]	Breaker or fuse interfacing AFW components with power source
ESFAS	AFW actuation system and FOGG
Main FW Loop A	Valve 303
Vents and Drains	First Valve
HVAC	AFW pump room fan coolers and associated ductwork and supports [1]

NOTES:

1. P&ID M-432, Sheet 1A, Revision 5 [1]
2. Power supplies dedicated to AFW system are within sample selection boundaries.

In view of the fact that the design process involves a great number of individuals and organizations who may have contributed to the project engineering activities, it is necessary to define a reasonable set of limits on the scope of the IDV. Criteria were established by the project team to define the end points of the design chain applicable to this project. The majority of the design was performed by Bechtel. However, portions of the design may have been performed or affected by work performed by other organizations including, but not limited to, Babcock & Wilcox (B&W), engineering contractors, and equipment vendors. For the purposes of the verification program, the following limitations were applied. The information obtained by Bechtel from B&W does not receive, as part of the IDV program, an independent evaluation of the process by which B&W developed its data. The verification program verifies that data obtained from B&W are consistent and reasonable based upon engineering judgment. Equipment vendors are reviewed to verify that the documents with which they were supplied are accurate and current and that the results of their design efforts conform with the specified requirements given to them by Bechtel or CPC. Vendor documentation will be reviewed to determine that his product does, in fact, meet applicable requirements of the specifications. In the event that deviations are determined to exist, the appropriate IDCV Program reporting procedures will be applied. For engineering contractors, the scopes of work applicable to these contractors will be determined and, in general, they will be treated as if they were part of the Bechtel design organization. That is, they will not be treated like a vendor who is given a specification and is expected to deliver a product in conformance with that specification. They will be treated as part of a design organization which has similar responsibilities to other parts of the Bechtel project organization.

The following sections discuss the initial scope of review for each of the design areas.

3.1.3.1 AFW System Performance Requirements

The AFW system will be reviewed to assess its capability to perform as required by the design criteria and commitments. Included in the scope of this portion of review are design areas such as system operating limits, single failure, component functional requirements, electrical, instrumentation and control, and hydraulic design.

3.1.3.1.1 System Operating Limits - Topic I.1-1

The specified system operating limits will be reviewed to determine whether they have been appropriately specified in consideration of functional performance requirements during normal (startup and shutdown), transient and accident conditions. These performance requirements will be generally based upon NSSS considerations. Specified limits such as heat removal requirements, pressure requirements, time constraints, and system logic will be reviewed. To accomplish the preceding, the review will consist of a design criteria and commitments review, a review of implementing documents, and a check of calculations and evaluations.

3.1.3.1.2 Accident Analysis Considerations - Topic I.2-1

The FSAR accident analyses will be reviewed to identify those accidents in which the AFW may be involved either as a contributor or as an engineered safety system which helps mitigate the consequences of an accident. An evaluation will be made to determine if the system has been appropriately considered in these analyses and also to provide feedback into Topic I.1-1 to assure that system operating limits appropriately reflect accident analysis considerations.

3.1.3.1.3 Single Failure - Topic I.3-1

All "active" components (e.g. pumps, motor-operated valves etc.) of the AFW system will be reviewed to determine whether the failure of one component can incapacitate the system or whether the system has sufficient redundancy, including power supplies, to withstand a single failure. (This will include a review of the flow logic "matrix" (FOGG system) that is designed to prevent AFW flow to a depressurized steam generator, and provide steam flow to the turbine-driven pump only from the "good" generator). Automatic and manual initiation of the system will be reviewed. To accomplish the preceding, the review will consist of a design criteria and commitments review, a review of implementing documents, and a check of design evaluations.

3.1.3.1.4 Technical Specifications - Topic I.4-1

The technical specifications will be reviewed to assure that important plant operating limits associated with the AFW system are appropriately and accurately specified, consistent with the intent of the NRC's Standard Technical Specifications.

3.1.3.1.5 System Alignment/Switchover - Topic I.5-1

System alignment criteria and commitments under all modes of operation will be reviewed along with P&IDs and other implementing documents. Additionally, since the AFW system incorporates substantial switchover capability between Units 1 and 2 available water sources, all switchovers and potential alignments will be reviewed against applicable procedures (if available) to determine whether the system can meet design objectives. Any switchovers designed to occur automatically will be reviewed against single failure criteria as discussed

previously. Switchovers requiring manual activities will be reviewed by determining time required versus time available to accomplish necessary actions.

3.1.3.1.6 Remote Operation and Shutdown - Topic I.6-1

The criteria and commitments for safe shutdown from outside the control room will be identified and reviewed. Selected components employed to meet the remote operation requirements will be reviewed as described under Topic I.9-1, Component Functional Requirements. Other design features applicable to remote operation will be reviewed under Topic I.16-1, Electrical Characteristics and Topic I.18-1, Instrumentation.

3.1.3.1.7 System Isolation/Interlocks - Topic I.7-1

The AFW system criteria, commitments, and implementing documents will be reviewed to determine the adequacy of all isolation requirements and interlocks which have been designed to implement system performance requirements. The single failure review in Topic I.3-1 will address these items as well.

3.1.3.1.8 Overpressure Protection - Topic I.8-1

The AFW system criteria and commitments will be reviewed to assess the need for and incorporation of protective devices which may be required to prevent system overpressurization for modes of operation. This review will serve as input into Topic I.10-1, System Hydraulic Design.

3.1.3.1.9 Component Functional Requirements - Topic I.9-1

Selected mechanical, electrical, instrumentation and control (E,I&C) components specified and used in the AFW system will be reviewed for compliance to

their functional requirements. The development of the functional requirements will be traced from the AFW system design criteria as dictated by licensing commitments, industry codes and standards, plant environmental conditions, and system performance requirements for the intended operating modes. The design criteria and commitments used for the AFW system will be checked to ensure the inclusion of all required design inputs. Component functional requirements design criteria include factors such as flow rate, allowable pressure drops, NPSH, voltage, device settings, and similar characteristics. The design process (calculations or analyses) used to translate the overall system design criteria into specific component specifications will also be reviewed. Finally, the validated component functional requirements will be compared to the component procurement specifications. Equipment seismic and environmental qualification will be considered separately.

3.1.3.1.10 System Hydraulic Design - Topic I.10-1

A review of criteria and commitments and implementing documents will be made for the system hydraulic design. The system hydraulic design review will also include a detailed check of calculations and evaluations of the system hydraulic parameters. This activity will incorporate results obtained from the configuration verification effort which is part of the ICV. For example, line sizes, lengths of pipe, and numbers of pipe fittings will be checked in the ICV effort. These quantities will then be compared against the basis for calculations of pressure drop in various portions of the AFW system.

3.1.3.1.11 System Heat Removal Capability - Topic I.11-1

Calculations and evaluations performed to demonstrate the adequacy of the system's heat removal capability will be checked. The scope includes a

comparison between the results of the hydraulic design evaluation and the system requirements for heat removal.

3.1.3.1.12 Cooling Requirements - Topic I.12-1

Cooling requirements for AFW mechanical and electrical components will be checked and a determination made that these heat loads have been considered as design criteria for the interfacing systems.

3.1.3.1.13 Water Supplies - Topic I.13-1

The criteria established for water supply, from both safety and nonsafety sources, will be identified. A review will be made of implementing documents for proper use of these criteria.

3.1.3.1.14 Preservice Testing and Capability for Operational Testing - Topic I.14-1

A determination will be made of the design criteria and commitments which exist for preservice testing and the capability for operational testing. The results of this determination will be used in the ICV portion of the IDCV, which will verify that the system has been constructed such that it can function in accordance with its design criteria and commitments.

3.1.3.1.15 Power Supplies - Topic I.15-1

The power supplies functional requirements will be reviewed as described under Component Functional Requirements. As defined by the sample selection boundaries described in section 3.1.3, the consideration of power supplies will be

limited to the sizing of circuit breakers, fuses and ac or dc power to AFW instrument loops. The power supply implementing documents will be checked to verify the proper consideration of system design criteria and commitments which dictate the required power supply ratings or sizing. The AFW system design requirements for separation, redundancy, and single-failure will also be determined for power supplies and the implementing documents reviewed for compliance.

3.1.3.1.16 Electrical Characteristics - Topic I.16-1

The AFW system electrical characteristics as determined by design criteria and commitments will be reviewed to verify that all required commitments and criteria have been addressed. This will include a consideration of rating and fire protection properties of cable, cable separation, system electrical separation, cable sizing and voltage drop, and the sizing of electrical motor starters.

3.1.3.1.17 Protective Devices/Settings - Topic I.17-1

Protective circuit breakers and fuses will be reviewed on a component basis as described above. The review process will identify the technical basis for fuse and selected breaker trip settings. The process will include a review of design criteria and commitments, component specifications, and implementing documents specifying the protective device settings for the selected protective devices.

3.1.3.1.18 Instrumentation - Topic I.18-1

The instrumentation and alarms required to operate, monitor, and protect the AFW system; as determined by design criteria, commitments and expected plant

operations, will be reviewed against that specified for the AFW system to verify adequacy. The calculations to determine instrument ranges and accuracies for normal plant operations, anticipated operational conditions, and for accident conditions will be checked for several representative instrument types to verify the adequacy of the specified ranges. Instrument circuit design will also be checked to verify proper circuit configuration for a sample of instrumentation loops.

Calculations for alarm set points or time delays for several representative devices (e.g. steam generator water level trip point) will be reviewed for compliance with design criteria. The implementing specifications or lists documenting the consideration of all the above factors will be reviewed to verify that the original design criteria are reflected in the devices chosen for review.

3.1.3.1.19 Control Systems - Topic I.19-1

Design criteria and commitments governing the steam generator water level and AFW turbine control systems will be checked to verify the inclusion of necessary regulatory, industry, system performance requirements. Design specifications or other implementing documentation will be reviewed to verify that the necessary requirements were used as input to the control system design. This review will include a check of calculations or evaluations relative to control system performance, time response, component characteristics, and separation from actuation systems. Failure Modes Effects Analyses will be reviewed to verify that system failures are in the safe direction. Control system circuitry design (voltages, currents, polarity) will be reviewed to verify that selected components will function as intended in the control circuit.

3.1.3.1.20 Actuation Systems - Topic I.20-1

The auxiliary feedwater actuation system (AFWAS - which includes FOGG, feed only good generator) design criteria and commitments will be reviewed to verify the proper consideration of regulatory commitments, industry codes and standards, plant operational requirements and operator actions. The criteria will be applied to the actuation system from the sensors required for inputs relative to the AFW system to the actuation system output devices (relays).

3.1.3.1.21 Nondestructive Examination Commitments - Topic I.21-1

A determination will be made of the design criteria and commitments which exist for NDE of AFW system piping, components, and structures. The results of this determination will serve as input to the ICV portion of the IDCV which will review NDE records to verify quality construction.

3.1.3.1.22 Materials Selection - Topic I.22-1

This activity will include the review of criteria and implementing documents related to establishing the basis for the material specification process of selected structural elements, components, and a portion of the AFW piping system. Included will be a review of material selection requirements related to such factors as strength, toughness, hardness, compatability, electrical insulation properties, protective coatings, corrosion resistance, fire protection, and other chemical and physical requirements appropriate to the particular structure, component, or system.

3.1.3.2 AFW System Protection Features

In addition to the review of the capability of the AFW system to perform its required functions, a review will be made of external factors which could affect the capability of the system to achieve these functions. Included in the scope of this portion of the review are factors such as seismic design, high energy line break accidents (HELBA), environmental protection, fire protection, missile protection, and systems interaction. The following sections address these and other design areas related to system protection.

3.1.3.2.1 Seismic Design - Topic II.1-1

Seismic design criteria and associated commitments related to the AFW system will be reviewed, and the establishment of the proper basis for the associated design process will be confirmed. Included will be the review of seismic design parameters and methodologies which were utilized in the seismic design process for structures, systems, and components associated with the AFW system.

3.1.3.2.2 Seismic Design--Pressure Boundary - Topic II.2-1

This activity will include a review of the commitments, implementing documents, calculations, drawings, and specifications associated with the seismic design of a selected portion of the AFW piping system. The utilization of the proper design input, such as response spectra, piping and component weights, and other piping characteristics, will be verified. The ASME code evaluations will be reviewed to verify that pertinent acceptance criteria are met. Drawings and specifications will be reviewed for consistency with design calculations. Included will be an independent confirmatory seismic analysis of a selected portion of the piping system based upon independently verified as-built

dimensions utilizing a verified computer program. Pipe stresses and support loads will be calculated. To preserve the "blind" nature of the confirmatory calculation, the individuals who perform the calculation will not have prior benefit or knowledge of the specific calculational approach followed by the original analysts. Upon completion, a comparison will be made between the original design and IDV calculated forces and stresses at key locations. Any discrepancies will be identified and their cause determined.

3.1.3.2.3 Seismic Design--Pipe/Equipment Support - Topic II.3-1

A review of a selected portion of the AFW system will be conducted to verify that selected pipe supports have been designed and specified in accordance with criteria and commitments. Included will be the review of design loads, load combinations, and the methods of analysis utilized. The associated design drawings and specifications will be reviewed for consistency. The support loads calculated during the confirmatory piping analysis of Topic II.2-1 will be compared to the design loads for all supports in the selected portion of the AFW system. Several support types (e.g., snubber, rigid restraint, anchor, spring hanger, etc.) will then be sampled, and an independent confirmatory analysis will be made to verify the capability of the original design organization to properly design and size these supports given the design loads. This analysis will be based upon independently verified as-built dimensions. In addition, the design calculations, drawings and specifications associated with the anchorage and support of selected AFW system equipment will be reviewed for conformance to requirements.

3.1.3.2.4 Seismic Design--Equipment Qualification - Topic II.4-1

This activity will include the review of commitments, implementing documents, calculations, drawings, and specifications associated with the seismic qualifica-

tion of selected equipment. Qualification requirements including response spectra, load combinations, and equipment functional criteria will be reviewed. The review will include the following types of AFW system equipment of representative complexity such as: electrical-motor control center, motor-operated valve, and electrical panel; mechanical-AFW pump, motor-operated valve and heat exchanger.

3.1.3.2.5 High Energy Line Break Accidents - Topic II.5-1

HELBA criteria and associated commitments related to the AFW system will be reviewed, and the establishment of the proper basis for the associated design process will be confirmed. Included will be a review of HELBA design parameters and the methodologies which have been utilized in the HELBA design process for structures, systems, and components associated with the AFW system.

3.1.3.2.6 HELBA/Pipe Whip - Topic II.6-1

Design criteria, implementing documents, calculations, drawings, and specifications associated with pipe whip resulting from postulated high energy line breaks will be reviewed. Included will be the review of the definition of the methodology employed in determining postulated pipe break locations, the magnitude of associated pipe whip loads, and the techniques utilized for pipe restraing design. In addition, calculations for selected AFW system pipe rupture restraints will be reviewed, including the associated drawings and specifications for consistency with these calculations.

3.1.3.2.7 HELBA--Jet Impingement - Topic II.7-1

The design criteria and commitments applicable to preventative protective measures taken to assure acceptable consequences due to postulated jets will be reviewed. This topic will be reviewed in conjunction with Topic II.6-1, Pipe Whip, and Topic III.4-1, HELBA Loads, and will be considered in the evaluation of Topic III.7-1, Concrete/Steel Design.

3.1.3.2.8 Environmental Protection - Topic II.8-1

The design criteria and commitments applicable to all issues related to the plant's environmental protection will be reviewed.The environmental protection review will consist of a determination of the appropriate environmental envelopes, the qualification requirements for equipment to these envelopes, and the HVAC design criteria which are necesary to assure that the environmental envelopes will not be exceeded.

3.1.3.2.9 Environmental Envelopes - Topic II.9-1

The environmental envelope design criteria will be determined by a review of existing criteria and commitments and a review of the system arrangement. These environmental envelopes will be verified by a review of implementing documents and a check of calculations and evaluations which were used to determine the environmental parameters. Drawings and specifications for AFW equipment will be checked for consistency with the environmental envelope specified. In addition, a confirmatory calculation or evaluation will be performed to verify the environmental envelope specification for one portion of the AFW system.

To preserve the "blind" nature of the confirmatory calculation, the individuals who perform the calculation will not have prior benefit or knowledge of the specific calculational approach followed by the original analysts. Upon completion, a comparison will be made between the original design and IDV environmental envelopes at key locations. Any discrepancies will be identified and their cause determined.

3.1.3.2.10 Environmental/Equipment Qualification - Topic II.10-1

Equipment qualification requirements will be reviewed to determine whether the correct enviornmental envelopes were specified and given these envelopes, whether the qualification methods specified were adequate to demonstrate that the component would meet its functional requirements. The review will include the following types of AFW system equipment of representative complexity such as electrical insulation, connectors, transmitters and motor-operated valves.

3.1.3.2.11 HVAC Design - Topic II.11-1

Requirements imposed upon the HVAC system design as a result of the need to meet evironmental envelope or equipment qualification parameters will be checked. This will be achieved by a verification of the design interface between the AFW system design and the HVAC's system design.

3.1.3.2.12 Fire Protection - Topic II.12-1

The applicable fire protection criteria will be determined for the AFW system. A review will be made of fire protection evaluations to determine whether the fire protection system meets the necessary requirements for the AFW system. Included in the review will be the designation of fire zones, rating of barriers,

combustible content of zones and the existence of detection and suppression capabilities for an AFW pump room. The scope of this review includes fires within the AFW room and fires external to the room which would effect the function of equipment in the room.

3.1.3.2.13 Missile Protecton - Topic II.13-1

A review of criteria and commitments will be made of the potential missiles which could affect the AFW system and the protection provided for those systems. The review includes missiles external to the AFW system and those that could be generated within the AFW system and will serve as input to Topic III.7-1, Concrete/Steel Design.

3.1.3.2.14 Systems Interaction - Topic II.14-1

As part of the overall systems review, the potential for systems interaction and means of prevention thereof will be reviewed. The review will include an examination of criteria utilized to analyze potential systems interactions, whether they be physical (electrical, mechanical, hydraulic), or spatial (thermal, fluid, mechanical, radiation). The procedures and results for the Midland systems interaction walkdowns will also be reviewed and, if possible, ongoing walkdowns will be observed. Human factors or inherent failure modes (common manufacturer, similar tech nology, equal aging or wear) will not be considered a part of the systems review.

3.1.3.3 Structures that House the AFW System

Many safety-related plant structures such as the containment, auxiliary and diesel generator buildings, and the intake structure support the functioning of

the AFW system or its support systems. The overall criteria and commitments applicable to the design of these safety related structures will be reviewed and evaluated. Selected features and design areas from one or more of these structures will be isolated for a more in-depth review in the following topics.

3.1.3.3.1 Seismic Design/Input to Equipment - Topic III.1-1

This activity will include the review of commitments, implementing documents, calculations, drawings, and specifications related to the development of seismic design input for a portion of the AFW system and components in the auxiliary building. Included will be a review of seismic input parameters such as seismic design spectra, damping, material properties, and boundary conditions, including soil-structure interaction. The methodology utilized for the location of the mass points and the computation of masses and equivalent member properties will be reviewed. Parameter variation studies will also be reviewed to verify that the variance of important input parameters and modeling assumptions has been appropriately considered. The scope of this activity will include the review of the dynamic analysis of the building, the time history analysis and the generation of floor response spectra for both horizontal directions and the vertical direction. The utilization of proper floor response spectra for the specification of selected AFW system components and the selected portion of the AFW system will be verified.

3.1.3.3.2 Wind and Tornado Design/Missile Protection - Topic III.2-1

Criteria and commitments for wind loading, tornado effects, and missile protection will be reviewed to verify the proper basis is established for the design process. Included will be the review of the criteria associated with wind pressure loading, tornado wind loading, tornado depressurization effects, tornado

missiles, and other related requirements. Loading combinations, methodologies of analysis, associated allowable stresses or conditions, and other specified criteria will be included in this review activity. The results of this review will be considered in evaluation of Topic III.7-I, Concrete and Steel Design.

3.1.3.3.3 Flood Protection - Topic III.3-I

This activity will include the review of criteria and commitments related to establishing the basis for flood protection from sources both external and internal to the plant. The criteria associated with the specification of the design flood level and the methods to be utilized to provide the necessary flood protection will be reviewed. Included will be the review of the criteria associated with the determination of postulated pipe break locations, the methodologies to be utilized in determining flow rates and resulting water levels, loading combinations, allowable stresses or conditions, and other related criteria. The results of this review will be considered in evaluation of Topic III.7-I, Concrete and Steel Design.

3.1.3.3.4 HELBA Loads - Topic III.4-I

Criteria and commitments for high energy line break accident loads will be reviewed to verify that the proper basis is established for the design process. Included will be the review of the criteria for jet impingement and pipe whip loading on structures and components related to the AFW system. The review will address loading combinations, methodologies of analysis, associated allowable stresses or conditions, and other related criteria. The results of this review will be considered in evaluation of Topic III.7-I, Concrete and Steel Design.

3.1.3.3.5 Civil/Structural Design Considerations - Topic III.5-1

Civil/structural design criteria and associated commitments related to the AFW system will be reviewed, and the establishment of the proper basis for the associated design process will be confirmed. Included will be the review of design parameters and the methodologies utilized in the design process for structures and affected systems and components associated with the AFW system.

3.1.3.3.6 Foundations - Topic III.6-1

Included in this activity will be the review of criteria, implementing documents, and calculations associated with the design of selected foundations associated with structures housing the AFW system. The review will address design criteria, methodologies of analysis and calculations associated with each type of foundation loading including dead, live, tornado and seismic loadings.

3.1.3.3.7 Concrete and Steel Design - Topic III.7-1

This activity will include the review of criteria, implementing documents, calculations, drawings, and specifications associated with the reinforced concrete and structural steel design of selected structural elements associated with the AFW system. Structural elements, including a major load bearing shear wall and a floor diaphram will be selected that require consideration of a broad spectrum of loadings such as dead, live, wind, tornado, seismic, flood, and HELBA loads. The review will address design criteria, methodologies of analysis and calculations associated with each type of loading with emphasis on a verification that these items have been considered in a realistic manner. Loading combinations, allowable stresses or conditions, and other applicable

criteria will be reviewed. Drawings and specifications for the selected structural elements will be reviewed against design calculations for consistency.

3.1.3.3.8 Tanks - Topic III.8-1

This activity will include the review of criteria, implementing documents, and calculations associated with the design of a selected AFW system tank. All applicable loadings will be reviewed, such as dead, live, wind, tornado, seismic (including fluid dynamics effects), flood, and HELBA loads, as applicable. The review will address tank design criteria, methodologies of analysis, and the associated calculations. Loading combinations, allowable stresses or conditions, and other applicable criteria will be reviewed.

3.1.4 DEFINITION OF REVIEW SCOPE FOR (second system - to be supplied)

3.1.5 DEVELOPMENT OF IDV PROGRAM CHECKLISTS

Generic checklists were developed for each of the review scope categories discussed in previous sections utilizing guidance contained in ANSI N45.2.11 and the construction review program guidelines published by INPO. For each of the scope design areas shown in Figure 3.1-1, the reviewer develops a specific checklist incorporating generic checklists as appropriate. In most cases, the specific checklist is derived from the generic checklist by addition of specific requirements applicable to the design area being reviewed. In some cases, it may be appropriate to use only a portion of the generic checklist or to develop a unique checklist.

In each case, the checklist prepared by the reviewer will be checked by the lead technical reviewer for the area. (Note that if the lead technical reviewer

prepares a checklist, it is permissible for him to both originate and check the contents of the checklist). During their review process, the lead technical reviewers examine the checklist for interfaces with other IDV areas and perform a general review of the completeness and adequacy of the proposed checklist. The LTR's review is to be coordinated with the project manager as necessary to resolve questions which cut across discipline lines. In the event that the Project Manager or Lead Technical Reviewers have comments on the checklist, the checklist preparer and those having comments will discuss the comments and reach an appropriate resolution. After reaching concurrence in the adequacy of the checklist, the LTR will indicate his approval and the checklist will be available for use by the reviewer.

The reviewer, having an approved checklist, can then proceed with the reveiw process for this specified area, in accordance with Project Instruction PI-3201-001, Engineering Evaluation Preparation and Control. In performing the engineering evaluation, the reviewer will document the information which he used in order to complete the checklist. Such information will include the data or revision number of the document, the document number, an indication of the source of the document (e.g., whether the document was obtained from an individual, a file, or the records center).

3.1.5.1 Development of Checklists for Review of Design Criteria and Commitments

The generic checklist for review of design criteria and commitments was developed considering questions such as:

- What are the design inputs for the design area under review?
- Do any of these design inputs affect other design areas?

- Do any of these design inputs affect systems outside the scope of AFW or vice versa?
- Are the design inputs for this design area complete?
- Are the identified design inputs for this design area consistent?
- Are the design inputs adequately defined to allow implementation for the design area?

For each design area the lead technical reviewer will supplement the generic checklist with appropriate additional questions.

3.1.5.2 Development of Checklists for Reviews of Implementing Documents

The generic checklist for reviews of implementing documents was developed considering questions such as:

- What is the identity of the implementing document being reviewed? (List document identification such as title, revision number, date, etc.)
- Which design inputs does the document implement?
- Are design interface requirements specified?
- Have the design inputs been correctly interpreted and incorporated in this implementing document?
- Is this implementing document consistent with other implementing documents being reviewed for this area?
- Are assumptions and limitations on the use of the document adequately defined?
- Were appropriate quality assurance requirements specified?

For each design area the lead technical reviewer will supplement the generic checklist with appropriate additional questions for each implementing document.

3.1.5.3 Development of Checklists for Checks of Calculations and Evaluations

The generic checklist for checks of calculations and evaluations was developed considering questions such as:

- What is the identity of the calculation or evaluation being checked?
- What is the purpose of the calculation or evaluation?
- Are the data sources identified?
- Are the assumptions listed?
- Have the assumptions been verified?
- Was the calculation or evaluation checked and approved within the originating organization in accordance with procedures?
- Are the equations and methods specified?
- Are the equations and methods appropriate for the intended purpose?
- Were verified computer programs used?
- Are the calculations or evaluation results reasonable?
- Have design outputs been compared to the acceptance criteria to allow verification that design requirements have been satisfactorily accomplished?

For each design area the lead technical reviewer will supplement the generic checklist with appropriate questions for each calculation or evaluation checked.

3.1.5.4 Development of Checklists for Checks of Drawings and Specifications

The generic checklist for checks of drawings and specifications was developed considering questions such as:

- What is the identity of the drawing or specification (e.g. number, revision number, date)?
- Does the drawing or specification reflect the design inputs?
- Is the drawing or specification consistent with related calculations or evaluations?
- Has this drawing or specification been checked by the originating organization in accordance with procedures?
- Is the drawing or specification complete?
- Where appropriate, have adequate handling, storage cleaning, and shipping requirements been specified?
- Where appropriate, has adequate allowance been made for inservice inspection, maintenance, repair, and testing?

For each design area, the lead technical reviewer will supplement the generic checklist with appropriate questions for each drawing or specification being reviewed.

3.1.6 PLAN FOR ADDITIONAL SAMPLING AND VERIFICATION

Additional sampling or verification within the scope of the IDV or outside the scope into other systems will be conducted if discrepancies are found. The level of additional sampling or verification will be based upon the nature of the discrepancy. In all cases when discrepancies are found, an introspective evaluation will follow to identify the extent and root cause. The root cause may either be random or systematic (generic). The additional review will attempt to verify whether the discrepancy is restricted to the specific system, component, or structure under review; restricted to work by a specific design organization; or if the discrepancy cuts across many interfaces and applies to similarly designed systems, components, and structures. As a rule, mathematical errors will not precipitate additional sampling and verification unless these are found in significant numbers, leading to significant deficiencies or a compounding of errors. Judgement in making this assessment will be required on case-by-case basis.

3.2 INDEPENDENT CONSTRUCTION VERIFICATION METHODOLOGY

The Independent Construction Verification (ICV) Program will consist of a review and evaluation of the quality of construction of selected components and structures associated with the AFW system and the (second system - to be supplied). The construction activities to be reviewed include the major activities of the construction chain. These include the fabrication, storage, maintenance, installation or construction, and verification activities associated with the acceptance of the system or component, as further defined in Section 3.2.1 herein. The emphasis will be on making a determination of the overall quality of construction and an assessment of its compliance with licensing commitments.

The review will be conducted to varying stages of construction completion depending upon the specific system, component, or structure under review. The methodology will include diverse approaches such as checking of records, hands-on inspection of hardware, or possibly confirmatory testing, if required. The basis for the sample selection is presented in Section 3.2.2, and the definition of the scope of review is provided in Sections 3.2.3 and 3.2.4 for the AFW system and (second system - to be supplied), respectively. In many instances, included will be a complete verification of the as-built configuration against design documents and other applicable requirements. Where possible, systems and components selected for the Independent Design Verification Program will be utilized for review in the ICV Program, thereby providing verification of the complete chain from criteria and commitments through to the constructed and verified product.

The ICV Program will be conducted utilizing detailed checklists described in Section 3.2.5. Additional sampling, verification, and testing activities that may be conducted as a result of the ICV Program are discussed in Section 3.2.6.

3.2.1 CATEGORIES OF REVIEW: THE CONSTRUCTION CHAIN

The categories of review include the major construction activities identified in the construction chain. The ICV review categories included are:

- Review of supplier documentation
- Review of storage and maintenance documentation
- Review of construction/installation documentation
- Review of selected verification activities

- Verification of physical configuration

Each of these review categories is described in further detail in the following sections.

3.2.1.1 Review of Supplier Documentation

For those components requiring fabrication or manufacture, selected supplier documentation and other associated information including shop inspection documentation will be reviewed against design output documents to ensure conformance with requirements. Supplier documentation will include such items as drawings, calculations, test reports, certified material property reports, storage and installation requirements, operations and maintenance requirements, and other major supplier documentation and data applicable to the component. For selected components, included will be the review of supplier seismic and environmental qualification documentation against requirements defined in the design process.

3.2.1.2 Review of Storage and Maintenance Documentation

A review of site documentation will be performed to verify that requirements related to storage, including both in-storage and in-place maintenance have been met. Included will be the review of receipt inspection documentation. Requirements to be reviewed will include such parameters as temperature and humidity, cleanliness, lubrication, shaft rotation, energization, etc. Where possible, existing warehousing and maintenance documentation will be reviewed and associated activities observed to provide additional verification that components have been properly stored and maintained during the construction process.

3.2.1.3 Review of Construction/Installation Documentation

A major factor in the evaluation of the quality of construction is the review of those items constructed or installed on site. The review of documentation associated with the construction/installation process will be conducted to verify that the applicable requirements have been met. Included in this review will be verification of the utilization of proper documents in the process such as design output requirements, erection specifications, installation requirements, construction procedures and other specified construction codes and standards, as applicable. Design changes, field modifications, and other input related to final as-built drawings will be reviewed. Included will be the review of documentation associated with such items as concrete materials, concrete, the welding process, bolting activities, NDE, etc. Inspection requirements, including personnel qualification and training, reports, and associated documentation will also be included in the review. Where possible, selected on-going construction/installation activities will be observed to provide additional information for the evaluation of this process.

3.2.1.4 Review of Selected Verification Activities

Verification activities conducted subsequent to the construction/installation/inspection activity will be reviewed and evaluated. Included will be over-inspection activities associated with cable separation verification, bolt hardness testing verification, the pipe support reinspection program, the Construction Completion Program; as well as routine cold hydro testing, functional and preoperational testing, and other specified preservice system and component testing programs. Associated requirements, plans, test reports, etc. will be reviewed and, where possible, these verification activities will be observed in order to provide additional information and data to support evaluations.

3.2.1.5 Verification of Physical Configuration

Field verification of the as-built configuration of selected components of a portion of the AFW system will be conducted to ensure conformance with requirements. Verification will address such aspects as identification, approximate physical dimensions, location, orientation, name plate data, grounding, use of proper materials, insulation, weld quality, and other features of the configuration as applicable to the component or system. Configuration verification will range from the review of general features for some components or systems to a 100% detailed dimensional verification of other selected components or systems, as defined further in subsequent sections herein.

3.2.2 BASES FOR SAMPLE SELECTION

The selection of a sample for the ICV will generally follow the criteria discussed in Section 3.1.2 of this Plan for the IDV; with the exception that certain ICV activities may utilize statistical methods. These methods may be applied in establishing sample sizes and statistical levels of confidence for the assessment of repetitive production activities such as concrete and steel properties or welding records. This program will be developed and documented during the preparation of the associated detailed review checklists.

The primary means of sample selection will be engineering judgment of the ICV reviewers. As with the IDV, the initial sample will be biased towards problems that have previously arisen in the industry. This sample will be refined by incorporating specific Midland project information to verify that the ICV encompasses previous problem areas and, thereby, serve as a verification that associated problems have been or are in the process of being adequately addressed and that they do not exist elsewhere in the same or similar form.

3.2.3 DEFINITION OF REVIEW SCOPE FOR THE AFW SYSTEM

The ICV review categories corresponding to the major activities of the construction chain were defined in Section 3.2.1. Presented in this section is an identification of the selected components and the associated level of construction completion of each to be reviewed. For the AFW system the scope of review is defined in the matrix in Figure 3.2-1, where the "X" designates the review scope applicable to each component. The criteria discussed in Sections 1.2 and 3.2.2 of the Plan were utilized to develop this initial matrix. The review areas of the ICV are divided into major divisions by component type: mechanical, electrical, instrumentation and control, HVAC and structural. The initial scope of review of each component within these major divisions is discussed in the sections that follow. As previously mentioned, the identified review scope is subject to change depending upon the ICV program findings.

3.2.3.1 Mechanical Systems and Components

An evaluation of the quality of construction of selected mechanical systems and components will be conducted. Included in the scope of this portion of the review are selected mechanical equipment, piping and pipe supports associated with the AFW system.

3.2.3.1.1 Mechanical Equipment - Topic I.1-Ic

A review of the complete construction chain including verification of the physical configuration will be conducted for the three major mechanical components selected for detailed review in the IDV. The fabrication documentation review will encompass all major supplier documentation, including functional requirement and environmental and seismic qualification documents.

INITIAL SAMPLE REVIEW MATRIX FOR THE AUXILIARY FEEDWATER SYSTEM
MIDLAND INDEPENDENT DESIGN VERIFICATION PROGRAM

SYSTEM/COMPONENT	SCOPE OF REVIEW				
	REVIEW OF SUPPLIER DOCUMENTATION	REVIEW OF STORAGE AND MAINTENANCE DOCUMENTATION	REVIEW OF CONSTRUCTION/ INSTALLATION DOCUMENTATION	REVIEW OF SELECTED VERIFICATION ACTIVITIES	VERIFICATION OF PHYSICAL CONFIGURATION
I. MECHANICAL					
• EQUIPMENT	X	X	X	X	X
• PIPING	X		X	X	X
• PIPE SUPPORTS	X		X	X	X
II. ELECTRICAL					
• EQUIPMENT	X	X	X	X	X
• TRAYS AND SUPPORTS	X				X
• CONDUIT AND SUPPORTS	X				X
• CABLE	X	X	X	X	X
III. INSTRUMENTATION AND CONTROL					
• INSTRUMENTS	X	X	X	X	X
• PIPING/TUBING	X				X
• CABLE	X				X
IV. HVAC					
• EQUIPMENT	X	X	X	X	X
• DUCTS AND SUPPORTS	X				X
V. STRUCTURAL					
• FOUNDATIONS	X		X		
• CONCRETE	X		X		X
• STRUCTURAL STEEL	X		X		X

FIGURE 3.2-1

Included will be the review of the stresses in equipment and supports, including anchorages, as applicable. Storage/maintenance and construction/installation documentation will be reviewed and, where possible, selected associated activities will be observed. Verification documentation associated with all major preservice equipment and related system testing programs will be reviewed and where possible verification activities including actual tests will be observed. The as-built configuration review will include verification of equipment identity, principal features, name plate data, location, orientation, and support characteristics, as applicable. Conformance with design documents (including P&ID's, isometrics and equipment location drawings), supplier documents and associated installation requirements will be verified.

3.2.3.1.2 Piping - Topic I.2-Ic

This activity will include the review of all major piping fabrication documentation associated with the portion of the AFW piping system selected for review in the IDV. Vendor drawings, material certification, shop welding and NDE documentation, as applicable will be reviewed. All major construction/installation documentation will be reviewed including installation specifications, welding and NDE documentation and all associated inspection reports. Verification documentation related to all preservice testing programs will be reviewed and where possible associated activities will be observed. A field survey of the as-built configuration of the selected portion of the AFW system will be conducted to verify routing, location (to tape measure accuracy), piping diameter, cleanliness and other major piping characteristics. Conformance with the applicable design, supplier and other installation requirements will be confirmed.

3.2.3.1.3 Pipe Supports - Topic I.3-Ic

A review of the quality of construction will be conducted for the pipe supports associated with the portion of the AFW piping system selected for detailed review in the IDV. For those supports selected for review in the IDV, fabrication and installation documentation will be reviewed. Verification documentation including that associated with the pipe support reinspection program will be reviewed and where possible these activities will be observed. Verification documentation associated with all major preservice system testing will also be reviewed and will be observed where possible. Physical verification will include a 100% verification of the identity, location, and orientation of all pipe supports within the selected portion of the AFW piping system. In addition, complete dimensional verification of design details will be made for those supports selected for detailed review in the IDV. Dimensional verification will encompass weld size, quality and location, base plate size and thickness, anchor bolt size and location, and other principal features, as applicable.

3.2.3.2 Electrical Systems and Components

An evaluation of the quality of construction of selected electrical systems and components will be conducted. Included in the scope of this review are selected electrical equipment, cable trays and supports, conduits and supports, and electrical cable associated with the AFW system.

3.2.3.2.1 Electrical Equipment - Topic II.1-Ic

A review of the complete construction chain including verification of the physical configuration will be conducted for the major electrical components (e.g. motor control center, motor operated valve, electrical panel) and cable

selected for detailed review in the IDV. The fabrication documentation review will encompass major supplier documentation, including functional requirement and environmental and seismic qualification documents. Included will be the review of the stresses in equipment and supports, including anchorages, as applicable. Storage/maintenance and construction/installation documentation will be reviewed and, where possible, selected associated activities will be observed. Verification documentation associated with major preservice equipment and related system testing programs will be reviewed and, where possible, verification activities including actual tests will be observed. The as-built configuration review will include verification of equipment identity, principal features, name plate data, location, orientation, and support characteristics, as applicable. Conformance with design documents (including single line diagrams, P&ID's, and equipment location drawings), supplier documents and associated installation requirements will be verified.

3.2.3.2.2 Cable Trays and Supports - Topic II.2-Ic

This activity will include a review of all major fabrication documentation and as-built verification of a selected portion of a cable tray and support system associated with a major AFW electrical system. Layout and installation drawings, material cerifications, and other applicable documentation will be reviewed. A field survey of the selected portion will be conducted to verify location (to tape measure accuracy) routing, tray characteristics, and support location and configuration. Conformance with applicable design, supplier and other installation requirements will be confirmed. Proper cable assignment to trays, tray cleanliness and tray fill will be selectively verified.

3.2.3.2.3 Conduits and Supports - Topic II.3-Ic

This activity will include a review of all major fabrication documentation and a field verification of a selected portion of a conduit and support system associated with a major AFW electrical system. The scope of review will be similar to that of the electrical tray and support review discussed in the preceding section. The conduit size and fill will be selectively verified.

3.2.3.2.4 Cable - Topic II.4-Ic

A review will be conducted of all major supplier documentation associated with the cable of a selected portion of a major AFW electrical system. The fabrication documentation review will encompass cable material certifications, insulation certifications, stranding and color coding characteristics and other applicable documentation. The as-built configuration of a selected portion of the system will be verified including identification, visual inspection, routing, separation, tiedown, terminations and other principal characteristics as applicable. The cable terminations will be reviewed for proper lugging and lugging tool documentation. Cable pull documentation will be reviewed to verify compliance with pull tension limits. Cable meggor and continuity checks will be reviewed to verify installed cable integrity. Conformance with applicable design, supplier and other installation requirements will be confirmed.

3.2.3.3 Instrumentation and Control Systems and Components

A review of the quality of construction of selected instrumentation and control (I & C) systems and components will be conducted. This review will include selected instruments, piping and tubing, and wiring associated with the AFW system.

3.2.3.3.1 Instruments - Topic III.1-Ic

A complete review of the construction chain including verification of the physical configuration will be conducted for selected instruments of a major AFW I&C system. All major documentation will be reviewed including that received from the supplier, storage/maintenance (including calibration) and installation instructions. In addition, the verification documentation associated with preservice I&C system testing programs (e.g. calibration, response time, circuit continuity, trip set points, etc.) will be reviewed and activities observed where possible. The as-built configuration will be verified including instrument identity, name plate data, location, mounting conditions, and other principal characteristics, as applicable. Conformance with design documents and specifications, supplier requirements and installation requirements will be verified.

3.2.3.3.2 Piping/Tubing - Topic III.2-Ic

This activity will include a review of all major fabrication documentation and an as-built verification of piping and tubing associated with a selected portion of a major AFW I&C system. Material certifications and other applicable documentation will be reviewed against design requirements. A field survey of the selected portion will be conducted to verify routing, supports, size, slope and valve types. Conformance with applicable design, supplier and other installation requirements will be verified. Preservice hydro test results will be reviewed.

3.2.3.3.3 Cable - Topic III.3-Ic

A review will be conducted of all major supplier documentation associated with the cable of a selected portion of a major AFW I&C system. The fabrication

documentation review will encompass cable material certifications, insulation certifications, stranding and color coding characteristics and other applicable documentation. The as-built configuration of the selected portion of the system will be verified including routing and terminations (correct tools for lugging, proper crimp and lug size). Conformance with applicable design, supplier and other installation requirements will be confirmed. Continuity test results will be reviewed to verify circuit integrity.

3.2.3.4 HVAC Systems and Components

An evaluation of the quality of construction of selected HVAC systems and components will be conducted. Included in the scope of this portion of the review are selected HVAC equipment, ducts and supports associated with the AFW system.

3.2.3.4.1 HVAC Equipment - Topic IV.I-Ic

A review of the complete construction chain including verification of the physical configuration will be conducted for a major HVAC component, one of the three major mechanical components selected for detailed review in the IDV. The fabrication documentation review will encompass all major supplier documentation, including functional requirement and environmental and seismic qualification documents. Included will be the review of the stresses in equipment and supports, including anchorages, as applicable. Storage/maintenance and construction/installation documentation will be reviewed and, where possible, selected associated activities will be observed. Verification documentation associated with all major preservice equipment and related system testing programs will be reviewed and where possible verification activities including actual tests will be observed. The as-built configuration review will include

verification of equipment identity, principal features, name plate data, location, orientation, and support characteristics, as applicable. Conformance with design documents (including P&ID's and equipment location drawings), supplier documents and associated installation requirements will be verified.

3.2.3.4.2 HVAC Ducts and Supports - Topic IV.2-Ic

This activity will include a review of all major fabrication documentation and as-built verification of a selected portion of a duct and support system associated with a major AFW HVAC system. Vendor drawings, material cerifications, and other applicable documentation will be reviewed. A field survey of the selected portion will be conducted to verify (to tape measure accuracy) routing, duct characteristics, and support location and configuration. Conformance with applicable design, supplier and other installation requirements will be confirmed.

3.2.3.5 Structural Components

The quality of construction of plant structures will be evaluated based upon a review of selected structural components. Included in the scope of this portion of the review are selected foundations, concrete structural elements and structural steel components of the structures which house the AFW system.

3.2.3.5.1 Foundations - Topic V.1-Ic

This activity will include the review of fabrication and construction/installation documentation associated with building foundations selected for detailed review in the IDV. The fabrication documentation review will encompass all major supplier documentation including material certifications, rebar placement drawings, and other applicable documentation. Construction/installation

documentation to be reviewed will include concrete materials documentation, concrete cylinder test results, inspection reports and other applicable documentation. Conformance with design documents, supplier requirements and associated construction/installation requirements will be verified.

3.2.3.5.2 Concrete Components - Topic V.2-Ic

A review of fabrication and construction/installation documentation will be conducted and the as-built configuration will be verified for major concrete structural elements selected for detailed review in the IDV. The documentation review will encompass all major supplier and construction/installation documentation associated with reinforcing steel, inserts and penetrations, and concrete documentation of a selected portion of each component. A field survey will be conducted to verify overall element dimensions (including thickness), location and size of major openings and selected penetrations, and principal characteristics of selected inserts. Conformance with applicable design, supplier and other installation requirements will be confirmed.

3.2.3.5.3 Structural Steel Components - Topic V.3-Ic

This activity will include the review of major fabrication and construction/installation documentation and an as-built verification of the structural steel components selected for detailed review in the IDV. The fabrication documentation review will encompass shop detail drawings, material certifications, welding documentation, and other major supplier documentation. Construction/installation documentation will address field welding, bolting (torque) and other applicable documentation. A field survey will be conducted to verify, where possible, major element characteristics including member size, plate thickness, weld size, and bolt pattern and size for a selected connection of

each member. Conformance with applicable design, fabricator and other installation requirements will be confirmed.

3.2.4 DEFINITION OF REVIEW SCOPE FOR THE (second system - to be supplied)

3.2.5 DEVELOPMENT OF ICV PROGRAM CHECKLISTS

Generic checklists were developed for each of the review scope categories discussed in previous sections utilizing guidance as applicable contained in applicable ANSI documents. the construction review program guidelines published by INPO and other industry standards. For each of the construction review scope areas shown in Figure 3.2-1, the reviewer develops a specific checklist incorporating generic checklists as appropriate. In most cases, the specific checklist is derived from the generic checklist by addition of specific requirements applicable to the construction area being reviewed. In some cases, it may be appropriate to use only a portion of the generic checklist or to develop a unique checklist.

In each case, the checklist prepared by the reviewer will be checked by the lead technical reviewer for the area. (Note that if the lead technical reviewer prepares a checklist, it is permissible for him to both originate and check the contents of the checklist). During their review process, the lead technical reviewers examine the checklist for interfaces with other ICV areas and perform a general review of the completeness and adequacy of the proposed checklist. The LTR's review is to be coordinated with the project manager as necessary to resolve questions which cut across discipline lines. In the event that the Project Manager or Lead Technical Reviewers have comments on the checklist, the checklist preparer and those having comments will discuss the comments and

reach an appropriate resolution. After reaching concurrence in the adequacy of the checklist, the LTR will indicate his approval and the checklist will be available for use by the reviewer.

The reviewer, having an approved checklist, can then proceed with the review process for this specified area, in accordance with Project Instruction PI-3201-001, Engineering Evaluation Preparation and Control. In performing the evaluation, the reviewer will document the information which he used in order to complete the checklist. Such information will include component identification, the date or revision number of the associated documents, the document number, and an indication of the source of the information (i.e., where data and any associated documents were obtained).

3.2.5.1 Development of Checklists for Review of Supplier Documentation

The generic checklist for review of supplier documentation was developed considering questions such as:

- What is the identity of the supplier documentation being reviewed (including P.O. number, supplier name, component name and identification number)?
- Has the documentation been reviewed and accepted by the appropriate organization in accordance with procedures?
- Is the documentation complete?
- Does the documentation comply with purchase specification requirements?

- Where appropriate, does seismic and environmental qualification documentation comply with purchase specification requirements?

- Have the necessary shipping, handling, storage, installation, and maintenance requirements been specified by the supplier and are these consistent with purchase specification requirements?

For each type of system, component or structural element the lead technical reviewer will supplement the generic checklist with appropriate additional questions, as applicable.

3.2.5.2 Development of Checklists for Review of Storage and Maintenance Documentation

The generic checklist for review of storage and maintenance documentation was developed considering questions such as:

- What is the identity of the storage and maintenance documentation being reviewed, including document type (receipt inspection, in-storage/in-place maintenance records, etc.) and document identification (document title, revision, date)?

- What is the identity of the component being reviewed (name, identification number)?

- Does the documentation for the receiving process include component review against purchase specification requirements?

- Are nonconforming items properly identified, processed and closed out?

- Does the maintenance program meet the necessary requirements specified for the component relative to humidity, cleanliness, lubrication, shaft rotation, energization, etc., as applicable?

For each type of system, component or structural element the lead technical reviewer will supplement the generic checklist with appropriate additional questions, as applicable.

3.2.5.3 Development of Checklists for Review of Construction and Installation Documentation

The generic checklist for review of construction and installation documentation was developed considering questions such as:

- What is the identity of the construction/installation documentation being reviewed, including type (concrete, welding, bolting, NDE, etc.) and identification (title, revision, date)?
- What is the identity of the system, component or element and its physical location in the plant?
- Are all appropriate construction/installation procedures and instructions identified?
- Are the current revisions of drawings, specifications and other requirements utilized in the work?
- Does the documentation include verification that the work has been performed by properly qualified personnel?
- For those activities observed, do the construction/installation activities conform to requirements?
- Have the necessary inspections been performed?
- Has the work been performed utilizing the proper tools/equipment? Have such tools/equipment been properly calibrated in accordance with procedures?
- Have the rework activities been performed in accordance with requirements?

- Have deviations from design/supplier requirements been properly documented, processed and closed out in accordance with procedures?

For each type of system, component or structural element the lead technical reviewer will supplement the generic checklist with appropriate additional questions, as applicable.

3.2.5.4 Development of Checklists for Review of Selected Verification Activities

The generic checklist for review of selected verification activities was developed considering questions such as:

- What is the identity of the verification activity being reviewed (cable separation verification, pipe support reinspection, bolting study, pre-service test, including type, etc.)?
- What is the identity of the system, component or element(s) included in the verification activity under review?
- What is the identity of the verification activity documentation being reviewed (program plan, procedures, instructions, etc.)?
- What is the quality-related objective of the verification activity and does the activity as specified/documented meet the objective?
- Where verification activities are observed, do the activities comply with requirements and are they properly documented?
- Are nonconformances properly identified, processed and closed out?

For each type of system, component or structural element the lead technical reviewer will supplement the generic checklist with appropriate additional questions, as applicable.

3.2.5.5 Development of Checklists for Review of Verification of Physical Configuration

The generic checklist for review of verification of physical configuration was developed considering questions such as:

- What is the identity of the system, component or structural element being reviewed (name, identification number, location in plant, reference design documents)?
- Has the system, component or element been properly tagged/marked for identification in accordance with requirements?
- On the basis of visual inspection, has the component been properly constructed/installed and has it been maintained and protected during the construction process in accordance with requirements?
- Does the configuration comply with design requirements, including physical dimensions, location, orientation, name plate data, grounding, use of proper materials, insulation, routing, etc., as applicable?
- Have deviations from design requirements been properly identified, processed and closed out in accordance with procedures?

For each type of system, component or structural element the lead technical reviewer will supplement the generic checklist with appropriate additional questions, as applicable.

3.2.6 PLAN FOR ADDITIONAL SAMPLING, VERIFICATION, AND TESTING

The initial sampling and verification within the scope of the ICV is based upon an evaluation of documentation to verify the quality of both inaccessible (e.g. rebar placement) and accessible systems, components and structures. The quality of accessible items will be further verified by visual inspection or measurement as appropriate.

Additional sampling or verification within the scope of the ICV or outside the scope into other systems will be conducted if discrepancies are found. The level of additional sampling or verification will be based upon the nature of the discrepancy. In all cases when discrepancies are found, an introspective evaluation will follow to identify the extent and root cause. The root cause may either be random or systematic (generic). The additional review will attempt to verify whether the discrepancy is restricted to the specific system, component, or structure under review; restricted to work by a specific construction organization; or if the discrepancy cuts across many interfaces and applies to similarly constructed systems, components, and structures.

At first, the additional sampling and verification will be directed at an evaluation of additional documentation; however, if this documentation is incomplete or insufficient to identify the extent and root cause of discrepancies; inspection or testing will be considered, as appropriate. If required to supplement internal resources, TERA may consider subcontracting a portion of any required inspection or testing services (e.g. non-destructive examination, materials testing, etc.) to a qualified organization that meets the independence requirements of Section 1.4 of this Plan.

4.0 DOCUMENTATION

Auditable records must be maintained to document substantive elements of the IDCV review and evaluation process, to document technical conclusions including the status of disposition of items associated with the review process leading to findings, to document the revision of records, and to establish quality assurance measures necessary to provide adequate confidence and assurance of the quality of services. The following sections establish documentation requirements for engineering evaluations, calculations, field verification, and external communications. Section 5.0 of this Plan establishes the requirements for reporting documentation. Section 6.0 of this Plan establishes the QA documentation requirements.

4.1 DOCUMENTATION OF ENGINEERING EVALUATIONS, CALCULATIONS, AND FIELD VERIFICATION RESULTS

Engineering evaluations, calculations, and field verification results provide the bases for all substantive conclusions reached in the IDCV. These items provide the "trail" of information which supports IDCV conclusions; both positive and negative, whatever the case may be. While the reporting mechanism established in Section 5.0 of this Plan addresses the documentation of reporting requirements which are generally applicable to negative conclusions, it is equally vital that positive conclusions be justified and documented in an auditable form as well.

The requirements for preparation and control of engineering evaluation documentation required for the Midland IDCV are contained in Project Instruction PI-3201-001, Engineering Evaluation Preparation and Control. Engineering

evaluations are required for tasks such as design criteria evaluation, commitment compliance evaluation, design evaluation, construction records evaluation, and field verification.

The requirements for preparation and control of calculation documentation, including computer analyses documentation, required for the Midland IDCV are contained in Engineering Control Procedure ECP-5.2, Calculation Preparation and Control. Calculations are prepared as required to verify designs, design parameters, design criteria, performance parameters, evaluate data, and otherwise provide quantitative information in accordance with accepted analytical and mathematical methods. Calculations are intended to assist IDCV reviewers in reaching necessary conclusions relative to the quality of the Midland plant design.

4.2 DOCUMENTATION OF EXTERNAL COMMUNICATIONS

The requirements for the preparation and control of documentation for external communications are contained in Project Instruction PI-3201-010, External Communications: Preparation of Contact Log Sheets. Under prescribed circumstances, oral communications and meetings that include discussions with parties external to the IDCV review organization must be documented to provide an auditable record of information which may have an impact on IDCV conclusions and the preservation of an independent process in reaching these conclusions. Accordingly, external communications which address the following subjects should be documented consistent with the provisions of PI-3201-010:

- IDCV scope of review
- Confirmed items (i.e., potential findings)

- Findings
- Findings resolution

Additionally, any information or data having a bearing or potential bearing on IDCV conclusions which may be obtained verbally during telecons or meetings should be documented consistent with the provisions of PI-3201-010; however, the IDCV reviewer is encouraged to subsequently seek written documentation to the same effect from the external party.

Findings and findings resolution shall not be discussed with external parties without the consent of the Project Manager. The project manager is responsible for notifying CPC at least one week prior to meetings where findings or findings resolution must be discussed. This is required so that NRC can be notified that such meetings will be taking place.

5.0 PROGRAM REPORTING

5.1 TYPES OF REPORTS

The following types of reports will be prepared in the IDCV:

- Open, Confirmed, and Resolved (OCR) Item reports
- Finding reports
- Finding resolution reports
- Final report

OCR reports document the disposition of the IDCV review process leading to either findings or the resolution of items which have surfaced during the review, but have been resolved after considering additional information.

Finding reports document verified deviations in the implementation of design criteria, design, or construction commitments and design or construction procedures in areas such as: quality assurance, design or construction control, analysis, design, engineering evaluation, specification, design or construction implementation or field installation. Findings may fall into two categories: those affecting the ability of systems, components, or structures to meet their intended safety function and those without an impact to safety functions.

Finding Resolution reports document the conclusions of the review process which has been undertaken to resolve findings and completely close out any concern about the findings. Finding resolution may require additional analysis, design, or construction changes or procedural changes. Full resolution requires the identification of root cause and extent and a plan for corrective action if required.

The IDCV Final report documents all substantive conclusions reached in the IDCV, including the process leading to these conclusions. Both positive and negative conclusions will be identified to provide a balanced perspective and to document a complete record. While the overall IDCV objective is to verify the quality of the Midland project design and construction efforts identifying any deficiencies, it is necessary to have a record which documents items that have been dismissed (i.e., positive conclusions) as the bases for these conclusions are equally important.

5.2 REPORTING PROCESS

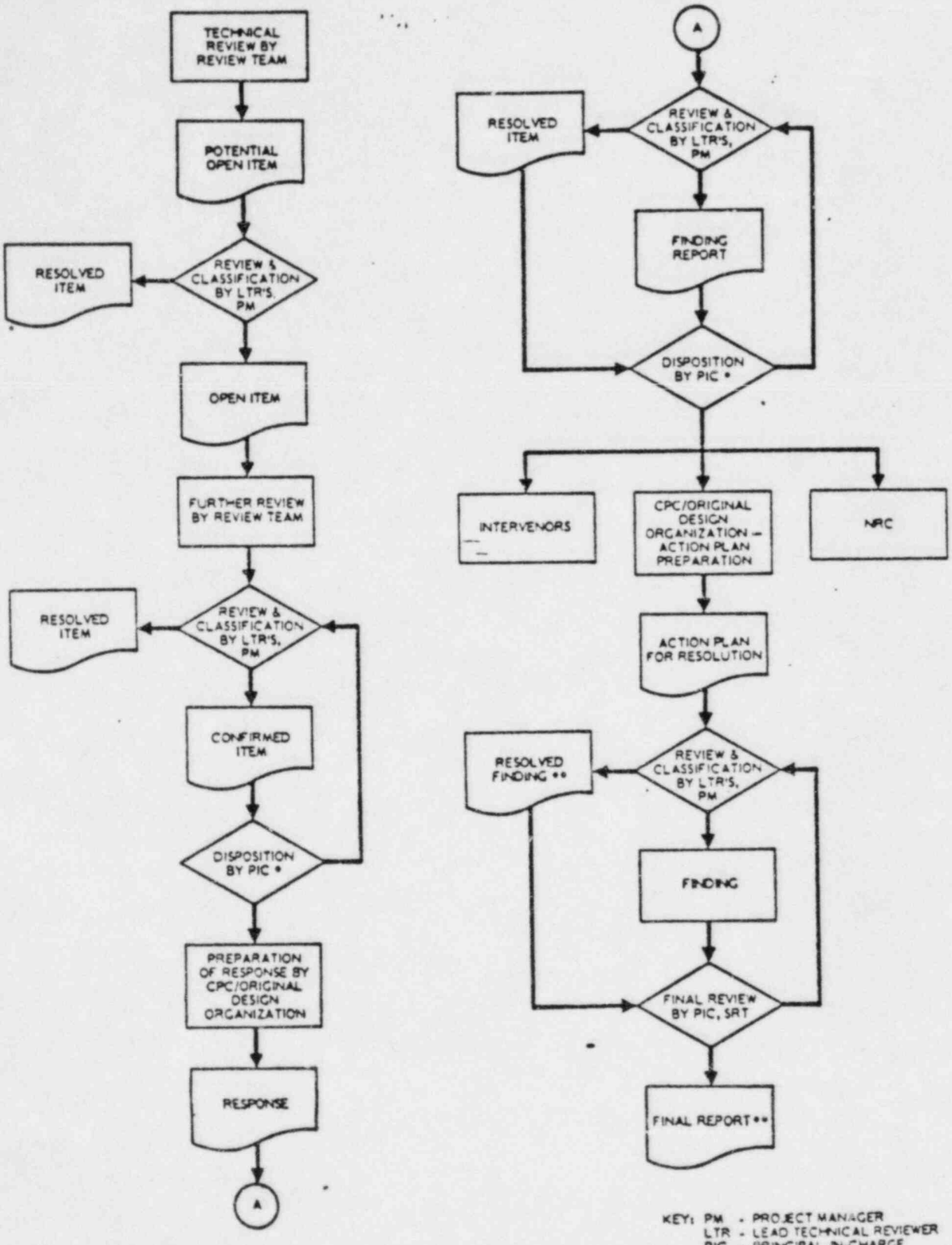
5.2.1 REPORTING SYSTEM

The system for IDCV reporting is shown graphically in Figure 5.2-1. This figure provides a diagram or flow chart of the report generation process and a summary of the sequence.

Upon initial technical review, Potential Open Items may be identified by an IDCV reviewer. This determination will be based upon his judgment that a potential deviation exists in implementation of design criteria, design or construction commitments, and design or construction procedures, thus requiring additional investigation or confirmatory analysis by the IDCV review team. Upon documenting his determination, the IDCV reviewer forwards a preliminary OCR report to his Lead Technical Reviewer (LTR) who reviews it with the project team (Project Manager and all LTRs). If the project team concurs with the reviewer's determination, the Potential Open Item becomes an Open Item which is formally controlled. The project team may resolve the Potential Open Item, thus requiring reclassification of the item as a Resolved Item and modification of the OCR report reflecting this change which is then formally controlled.

The Open Item will be reviewed further by the review team until such a point that available information has been depleted. At this time, the IDCV reviewer will prepare a Resolved Item report or a Confirmed Item report which documents his determination after further review. A Confirmed Item is judged to be an apparent finding by the review team and requires further action to provide documentation that may not have been available to the IDCV review team. His

REPORT FLOW CHART
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM



KEY: PM - PROJECT MANAGER
LTR - LEAD TECHNICAL REVIEWER
PIC - PRINCIPAL-IN-CHARGE
SRT - SENIOR REVIEW TEAM
CPC - CONSUMERS POWER COMPANY

NOTE: * PIC TO DETERMINE SRT REVIEW AND CONCURRENCE REQUIRED
** DISTRIBUTED TO CPC, NRC AND INTERVENORS

FIGURE 5.2-1

recommendation is forwarded to his LTR who reviews the classification and makes a recommendation to the project team. The project team may agree with the LTR's recommendation at which point the Resolved Item report or Confirmed Item report becomes final. Alternatively, the project team may review the classification and require further work by the IDCV reviewers. All final OCR reports are forwarded to the Principal-in-Charge (PIC) for his concurrence, disposition, and determination whether a formal review is required by the Senior Review Team (SRT). In all cases, the SRT receives a copy of the OCR report irrespective of whether they are requested to undertake a formal review.

The PIC may agree with the project team's classification and recommend that the Project Manager forward Confirmed Item reports to CPC with carbon copies to the appropriate design organizations, or he may request a review by the SRT to assist him in making his determination. Alternatively, or in parallel, he may request that the project team or review team conduct further review.

The LTRs and IDCV reviewers will then review the additional information received from CPC/original design organization and make a determination whether the item becomes a Resolved Item or a Finding. The LTRs will make the recommendation to the project team who will review the classification. The project team may agree with the LTR's recommendation, at which point the Resolved Item report or Confirmed Item report becomes final. Alternatively, the project team may review the classification and require further work by the IDCV reviewers. Upon completion of this process, the OCR report or Finding report is forwarded to the PIC by the Project Manager for a similar review process as has been previously described. After his review and any required review by the SRT, the PIC will direct the Project Manager to forward Finding reports to CPC/original design organization, recognized intervenors, and the NRC.

CPC/original design organization will respond with an action plan for resolution of the issues identified. The project team will review the response and determine whether the issue has been resolved. If so, a Finding Resolution report will be issued by the project team for review by the PIC in a similar fashion as has been previously described. Alternatively, the Finding may not be resolved, at which point it will remain open and documented in the Final report. It must be noted that this eventuality is not anticipated since closure must be sought by the involved organizations. The final report will document all IDCV conclusions as discussed previously.

5.2.2 REPORT PREPARATION AND DISTRIBUTION

The preparation and control of OCR reports, Finding reports, and Finding Resolution reports is addressed in Project Instruction PI-3201-008, Preparation and Control of Open, Confirmed, and Resolved Item Reports, Finding Reports, and Finding Resolution Reports. Section 3.0 of PI-3201-008 provides instructions for report preparation, and Section 5.0 addresses the distribution of these reports.

The Final report will include documentation of all conclusions, including references to applicable documents that support these conclusions. A draft Final report will be transmitted to CPC and NRC for their review. Resolution of their comments will be documented in an auditable manner. A copy of the draft Final report will be sent to recognized intervenors. It should be noted that CPC and NRC comments are intended to be of a clarification nature or to correct misinformation. Upon TERA resolution of the comments, the Final report will be issued and distributed to CPC, NRC, and recognized intervenors.

5.2.3 INTERCHANGE OF INFORMATION

The requirements of Section 4.2 are not intended to prohibit the informal interchange of information between IDCV personnel and external parties. These communications are essential to the IDCV review process. However, the items in Section 4.2 require documentation for the reasons cited. Furthermore, to preserve the independence of the IDCV reivew process, it is important that IDCV personnel maintain discretion in the dissemination of information bearing on findings to outside parties until such a time that this information is final. This procedure will prevent confusion and foster credibility to the IDCV review process.

5.3 IDENTIFICATION AND EVALUATION OF DESIGN/CONSTRUCTION PROBLEMS

It is the duty of all IDCV personnel to identify any deficiency known to him that may be significant to the public health and safety. He shall be permitted to conduct all reasonable evaluations necessary to make a determination of the significance of suspected items. IDCV personnel are responsible for presenting their conclusions in a manner that other technically qualified personnel may understand and independently verify. Furthermore, it is the responsibility of IDCV personnel to assess the significance of their conclusions and attempt to understand the extent and root cause of findings. Any deviation of the above should be brought to the attention of the Project Manager.

6.0 QUALITY ASSURANCE

6.1 APPLICABLE REQUIREMENTS

The Midland IDCV shall be performed in accordance with applicable quality assurance requirements of the NRC's regulation 10 CFR 50, Appendix B. Furthermore, the IDCV will comply with:

- NRC Regulatory Guide 1.28 (6/7/72) including Sections 1, 2, 3, 5, 7, 17, and 18 of ANSI N45.2-1971
- NRC Regulatory Guide 1.64 (Revision 1, 2/75) including Sections 1, 2, and 6 of ANSI N45.2.11-1974

These requirements are implemented by the TERA Corporate Quality Assurance Plan (QAP), Revision 3 (January 1, 1980) and the Midland IDCV Project Quality Assurance Plan (PQAP), Revision 0 (November 11, 1982).

6.2 VERIFICATION OF COMPUTER CODES

All computer codes utilized by IDCV analysts shall be verified as follows:

- Program Verification - The quality of the code should be determined from a comparison of the code generated solutions with known solutions of selected problems.
- Facility Verification - Given that the generic quality of the code has been determined, the capability to reproduce known results utilizing hardware and software available to TERA must be determined.

Program verifcation may be completed by external parties; however, facility verification is the responsibility of TERA and must be so demonstrated.

Consumers Power Company
CA23-1

AUDIT REPORT

DATE OF ISSUANCE: DEC 1 4 1981

QUALITY ASSURANCE DEPARTMENT

PAGE 1 OF 3

ISSUED TO: JARutgers, Bechtel-AA BWMarguglio, Midland (MPQAD) JNMooney, P-14-115A DReia, Bechtel (AA)-MPQAD(DQAE) ESmith, FQC(Bechtel-Site) DATaggart, JSC-206B Audit Team (Sect. II-AR)	AUDIT NO: MO1-72-1 FILE NO: MO1-72-1 Final DATE OF AUDIT: 11/2-6/81 4 days ORGANIZATION AUDITED: Bechtel QC-Site
AUDIT TEAM LEADER/DATE: WCCarr 12-4-81	APPROVED BY/DATE: Wayne C Carr 12-14-81
	VISIT & PROJECT: Midland

I. OBJECTIVES & SCOPE

The objective of this audit was to evaluate the adequacy and implementation of the Bechtel Site Quality Control Inspector training and certification program.

The scope of the audit included witnessing the inspection performance demonstrations and oral examinations of candidates for inspection certification to specific Inspection Plans for each discipline, reviewing personnel records and reviewing inspector training plans. (Level I & II)

II. AUDIT TEAM

The Consumers Power Company audit team consisted of the following personnel:

WCCarr, Group Supervisor-Quality Audit; Audit & Management Systems - Team Leader
RDDavis, MPQAD (Site) Welding - Auditor (Level II)
LRHowell. MPQAD (Site) Mechanical IE&TV Supervisor Auditor (Level III)
DEHorn, MPQAD (Site) Civil QA Section Head (Part-Time) Auditor Level III(G3, G4, C13a)
RESevo, MPQAD (Site) Civil, IE&TV Supervisor (Part-Time) Level III)
ELJones, MPQAD (Site) Electrical/I&C - IE&TV Supervisor (Level III)
GLRichardson, BPCo QA Staff-Auditor

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FIELD QUALITY ASSURANCE
MIDLAND, MICHIGAN

III. PERSONNEL CONTACTED DURING AUDIT

**MADietrich, PQAE/MPQAD, Bechtel (Site)
*RAMoray, QCE-BPCo (Site)
***RRSiple, Lead QC Services, Bechtel (Site)
***ESmith, PFQCE, Bechtel (Site)
**EUrbanawiz, QC Training Coordinator, Bechtel Site

In addition, various other Bechtel inspection personnel were contacted by the Audit Team.

*Attended Audit Entrance Meeting Only
**Attended Audit Exit Meeting Only
***Attended both Audit Entrance & Exit Meetings

IV. ENTRANCE MEETING

An Entrance Meeting was conducted on November 2, 1981 with those personnel identified in III above. During the meeting, the audit purpose and scope were discussed, the audit plan was presented, the audit sequence was discussed and the audit communication channels were established. WCC/KEH

V. AUDIT SUMMARY

A. Areas Audited

This audit was limited to the qualification and certification process of Bechtel's QC Inspectors, therefore, compliance to Procedure PSP G-8.1 was the only area audited.

B. Findings, Unresolved Items & Observations

Within the scope of the audit, there were no findings nor unresolved items identified, however, there were two (2) observations (recommendations) in the areas of certification oral examinations and training facilities. (Reference Attachment A for details).

C. Audit Evaluation

The Audit Team reviewed the records of Inspection Personnel for accuracy and completeness in compliance with the procedure PSP G-8.1. The following records were reviewed:

- Oral Examination
- Performance Demonstration
- Physical Examination
- Training
- Certification of Qualification
- Education & Experience
- Completed QCIR for Each Certification

The quantity of records reviewed for each disciplinary area were as follows:

- Civil - 12 (Level I)
- Electrical/I&C - 50 (40-Level I & 10 Level II)
- Welding - 11 (Level I)
- Mechanical - 10 (Level I)
  - 90 (Level I) - Oral/Performance Evaluations

There were no deficiencies identified in any of the records related to inspector qualifications. Does this mean they all have adequate education + experience

The Audit Team witnessed the Oral/Performance demonstration examinations as follows:

- Civil - 2 (Level I) - No failures
- Electrical/I&C - 10 (Level I) conducted by two Level II Examiners - 3 failed first test.
- Welding - 2 (Level I)
- Mechanical - 3 (Level I)

The Audit Team witnessed and agreed with the examiner's evaluation of all inspector candidates including the three (3) first attempt failures in the Electrical/I&C area.

The Audit Team witnessed some actual inspections by recently certified (within the last year) inspectors as follows:

- Welding - 2 (Level I) Inspectors performing two (2) inspections each
- Mechanical - 6 (Level I)

All inspectors adequately conducted the inspections in compliance with procedures and Inspection Plan requirements.*

The Audit Team also evaluated the Level II examiners while witnessing the Oral/Performance Demonstrations and concluded that they conducted comprehensive examinations and complied with all program requirements. [redacted]

The Audit Team recommends that MPQAD (Site) continue to overview the training/ certification program to assure that the certification of inspectors continues to be adequate to meet the Midland Project requirements.

VI. EXIT MEETING

An Exit Meeting with those personnel identified in Section III of this report was conducted on November 6, 1981. During this meeting, the results of the audit were presented.

VII. CLOSING ITEMS

Correspondence regarding this audit should be forwarded to:

D A Taggart, JSC-206B, Section Head-
Audit & Management Systems, in accordance
with the established communication
agreements.

VIII. ATTACHMENTS

Audit Observation(s) M01-72-1 Obs. 1 & 2

Audit Notification Letter (File Only)

Audit Plan (File Only)

Audit Checklists (File Only)

* BASED ON A REVIEW OF TREND ANALYSIS PERFORMED ON — BY — IT WAS DETERMINED ~~CONCLUDED~~ THAT [redacted] / MINOR/MAJOR/ # — CRITICAL DEFECTS WERE I.D. BY CPCo performing THEIR OVERVIEW OF BPCo QC INSPECTIONS. IT CAN BE CONCLUDED THAT THE BECO QC INSPECTORS ARE ADEQUATELY QUAL + TRAINED.

ATTACHMENT A

AUDIT OBSERVATIONS (OBS)

Audit observations are either:

(a) A condition which if allowed to continue may become a nonconformance, or

(b) A recommendation which may improve the Quality Assurance Program.

As a result of Audit MOI-72-1, 2 Audit Observation(s) ~~was~~/were identified and ~~is~~/are included with this attachment. No specific written response(s) ~~is~~/are required to ~~this~~/these observation(s).

OBSERVATIONS

1. The Audit Team recommends that a concerted effort be made to provide an area, free from interruptions and peer observations for Inspector Certification Oral Examinations.

2. The Audit Team recommends that Bechtel Quality Control and Midland Project Quality Assurance Department (Site) work together to obtain an area designated primarily for construction activities training. With the increased emphasis being applied to training, it is important to provide an atmosphere which will optimize the effectiveness of the training.

Consumers Power Company
QA74-0

AUDIT CHECKLIST

AUDITED ORGANIZATION:	PROJECT/PLANT:	AUDIT NO:
Bechtel Quality Control	Midland 1 and 2	M01-72-1
PREPARED BY/DATE:	REVIEWED BY/DATE:	COMPLETED BY - AUDITOR/DATE:

REFERENCE DOCUMENT - TITLE, NO, REV:
A) AAPD/PSPG-8.1, Revision 4
B) ANSI-N45.2.6-1973
C) AAPD/PSPG-6.1, Revision 6

PERSONNEL CONTACTED/TITLES:

NO.	REQUIREMENT/CHARACTERISTIC	REFERENCE	SAMPLE POP.	DOCUMENTATION REVIEWED	SAT.	UNSAT
1			1	OBSERVE CERTIFICATION ~~Select two inspectors (one level I and one level II) from the Certified Engineers list for _____ and observe a simulated oral and performance examination.~~		
1a	The oral examination shall cover the checkpoints entered in Figure 8.1-1 for each PQCI in which the candidate is to be evaluated. As a minimum, two questions covering each of the following areas of the instruction shall be asked; general instructions, prerequisities, inprocess inspection activities, final inspection activities, supplementary records, and exceptions. The examiner may expand the subject and number of questions to further evaluate the individual's understanding of the instruction.	(A) 6.2.2		Observe the conduct of the oral examination. Was the depth and accuracy of the questions and answer adequate to evaluate the Level I's understanding of the PQCI?		

This is a copy of the checklist used for the Audit.

Consumers Power Company

QA72-0

AUDIT CHECKLIST - CONTINUATION

REFERENCE DOCUMENT - TITLE, NO, REV:
A) AAPD/PSP G-8.1, Rev 4
B) ANSI N45.2.6, 1973
C) AAPD/PSP G-6.1, Rev 6

PERSONNEL CONTACTED/TITLE:

NO.	REQUIREMENT/CHARACTERISTIC	REFERENCE	SAMPLE POP.	DOCUMENTATION REVIEWED	SAT.	UNS
1 Q	The performance demonstration shall be conducted in such a manner (by actual demonstration or an oral description of the specific activity task during a physical walk through utilizing the actual equipment or material) as to allow the examiner to evaluate the Level I candidate's ability to implement the IR prepared in Section 6.2.1. The checkpoints entered in Figure 8.1-2 shall be used to evaluate the candidate's proficiency during the performance demonstration. The candidate will be required to prepare the IR for the PQCI. Also, as a minimum, two questions covering each of the following areas of the IR shall be asked: general information (IR identification, scoping, reference criteria) prerequisites, inspection tools and instruments inspection activities, supplementary records, exceptions and processing.	(A) 6.2.3		Observe the performance demonstration. Was the performance demonstration conducted in such a manner that the Level II could evaluate the Level I's ability to implement an IR for the PQCI?		
2				OBSERVE INSPECTIONS		
2a	"The lead discipline CQCEs shall be responsible for verbally assigning CQCEs to cover the work activities. The lead discipline CQCEs shall keep a record of current inspection assignments made to each of their CQCEs."	(C) 8.8		Request the current inspection assignment for a inspector from the lead discipline CQCEs records. Observe the performance of this inspection assignment.		
2b	"He shall be familiar with the tools and equipment to be employed and shall have demonstrated proficiency in their use."	(B) 3.2.2		Verify test equipment and inspection tools agree with instructions. Inspector demonstrates proficiency in their use.		
2c	"He shall be familiar with inspection and measuring equipment calibration and control methods and shall be capable of verifying that the equipment in proper condition for use."	(B) 3.2.2		Verify calibration status of test equipment and inspection tools and that the equipment is in proper condition for use.		

Power Company

QA72-0

AUDIT CHECKLIST - CONTINUATION

REFERENCE DOCUMENT - TITLE, NO, REV:
A) AAPD/PSP G-8.1, Rev 4
B) ANSI-N45.2.6-1973
C) AAPD/PSP G-6.1, Rev 6

PERSONNEL CONTACTED/TITLES:

NO.	REQUIREMENT/CHARACTERISTIC	REFERENCE	SAMPLE POP.	DOCUMENTATION REVIEWED	SAT.	UNS.
2d	"When inspect (I), witness (W), test (T), or review (R) activities are to be implemented by use of a sampling plan, the sample plan shall be identified in the PQCIs."	(C) 3.3.3(7)		Verify the adequacy of sampling plan and methods when used.		
2e	"The activitie(s) described in the PQCIs shall be inspected for conformance to the referenced inspection criteria by CQCEs certified to at least Level I in the applicable PQCI."	(C) 8.6		Verify the inspector performs activities as instructions direct. Does the inspector check instructions, material and set-up for adequacy?		
3	Each certification awarded shall be documented by entering the required information on the appropriate forms shown in the Figures section of this project special provision notice. The minimum documentation requirements for certification are as follows:	(A) 9.2		Check the certification package for the inspectors observed in items 1 and 2 for minimum documentation requirements.		
a.	Figure 8.1-1 or 8.1-8, Oral Examination					
b.	Figure 8.1-2, Performance Demonstration Record.					
c.	Figure 8.1-3, Physical Examination Record.					
d.	Figure 8.1-4, Training Record.					
e.	Figure 8.1-5, Certification of Qualification.					
f.	Figure 8.1-6, Education and Experience.					
g.	The QCIR completed for each certification, or for Level III, the PQCIs prepared for certification.					
h.	Any necessary additional supporting documents.					

3/12/82

supplemental

PRINCIPAL STAFF			
DIR		[illegible]	
D/D		[illegible]	
S/S		[illegible]	
BRAFT	[illegible]		
[illegible]			
DEPA/OS		[illegible]	[illegible]

TO: Distribution

FROM: MJSchaeffer, MPQAD

DATE: February 25, 1982

SUBJECT: SPECIAL ELECTRICAL OVERINSPECTION

Enclosed is the report on the results of the Special Electrical Overinspection requested by the NRC to support their testimony as to the adequacy of the certification/qualification process of Bechtel Electrical Quality Control Inspectors.

Distribution: WRBird, P14-418A
JWCook, P26-336B
RCook, NRC Inspector on Site
PCorcoran, Bechtel-Midland
MLCurland, Midland
LHCurtis, Bechtel-Ann Arbor
LEDavis, Bechtel-Midland
MADietrich, Bechtel-Midland
BWMarguglio, Midland
DBMiller, Midland
JARutgers, Bechtel-Ann Arbor
ESmith, Bechtel-Midland

MJS/da

bcc RGardner, NRC Region III

MAR 8 1982

RESULTS OF THE SPECIAL ELECTRICAL OVERINSPECTION REQUESTED BY NRC

I. Introduction

A. NRC requested that MPQAD perform special overinspections of the inspections made by 4 Bechtel Electrical Quality Control Engineers whose certifications were questioned by NRC because of the amount of training which was documented in their certification files.

B. NRC requested also that MPQAD perform special overinspections of the inspections made by any other Bechtel Electrical Quality Control Engineers whose original inspections were impacted by any then existing Nonconformance Reports originated by MPQAD. This resulted in the identification of 5 additional Bechtel Electrical Quality Control Engineers whose inspections were to be subject to the MPQAD special overinspection.

C. In a telephone conversation with Mr William Little of the NRC, it was agreed that 250 of these overinspections could be accomplished by Bechtel Electrical Quality Control Engineers, other than the 9 Engineers whose work was subject to this special overinspection.

D. MPQAD performed overinspections of 1,118 original inspections for cable pulls, cable terminations and cable tray supports. Each of these original inspections was documented on a Bechtel Quality Control Inspection Report (QCIR).

E. Bechtel Quality Control overinspected 250 cable pulls which were originally inspected by one Engineer. Each of these original inspections also was documented on a QCIR.

F. Therefore, 1,368 original inspections were overinspected by either MPQAD or Bechtel Quality Control.

II. Cable Pulls

A. For each cable pull, 24 characteristics were overinspected by either MPQAD or Bechtel Quality Control. These characteristics are enumerated in Table 1.

B. MPQAD overinspected 834 cable pulls and Bechtel Quality Control overinspected 250 cable pulls, for a total of 1,084.

C. Therefore, a total of 26,016 cable pull characteristics were overinspected (24 x 1,084).

D. There were 101 nonconforming via characteristics and 66 nonconforming recordings of cable reel numbers, for a total of 167 nonconforming characteristics. Therefore, 0.64 percent (167 ÷ 26,016) of the cable pull characteristics were nonconforming.

E. There were 61 misrouted individual cables in 1 or more vias, resulting in 5.6 percent (61 ÷ 1,084) of the cables being misrouted at 1 or more points.

III. Cable Terminations

A. For each cable termination, 12 characteristics were overinspected, as enumerated in Table 2.

B. MPQAD overinspected 282 cable terminations.

C. Therefore, a total of 3,384 characteristics (12 x 282) were overinspected.

D. There were 2 nonconforming characteristics, or 0.06 percent (2 ÷ 3,384).

E. Each of the termination nonconformances was on a different cable. Therefore, 0.71 percent (2 ÷ 282) of the terminations was nonconforming with regard to 1 characteristic.

IV. Cable Tray Supports

For each of the 2 cable tray support overinspections, there are 8 inspection characteristics, resulting in the overinspection of 16 characteristics. There were no nonconformances.

V. Totals

For all jobs overinspected, there were 169 individual nonconforming characteristics, from a total of 29,416 individual characteristics. Therefore, 0.57 percent (169 ÷ 29,416) of the characteristics were nonconforming.

VI. Disposition

A. Of the 169 individual nonconforming characteristics, 147 were dispositioned by Bechtel Project Engineering to be "used as is." The basis for this disposition for the cable routing nonconformances is that they have no impact on separation, segregation, physical loading and thermal loading and, therefore, no impact, whatsoever, on plant safety. The disposition of these cable routing nonconformances also calls for the drawings to be changed to reflect the "as built" conditions.

B. Twelve characteristics were dispositioned to be "reworked." Ten of these were for cable pulls involving 4 different cables. The other 2 were for cable terminations. In each of these cases, Bechtel Project Engineering stated that there was no public safety impact, ie, that these nonconformances could not have caused an accident or impeded the ability to emeliorate the consequences of an accident. As a matter of fact, in the opinion of Bechtel Project Engineering, it was doubtful that any of these nonconformances would have impaired the functionability of the circuits involved. Attachment A provides the specifics of the Bechtel Project Engineering disposition and the justification for that disposition.

VII. Conclusions

On the basis of the above information, the undersigned believe that the Bechtel certification process for the 9 Bechtel Quality Control Engineers was adequate. In the interest of further improvement, on-the-job training is now being documented and MPQAD, on a sampling basis, is overviewing the Bechtel Quality Control Engineer certification process. However, in each case for which the ANSI N45.2.6-1973 education and experience criteria are not met, MPQAD is now overviewing the Bechtel certifications.

M J Schaeffer
Electrical I&C Section Head, MPQAD

Date

E L Jones
Electrical/I&C IE&TV Group Supervisor
MPQAD

Date

TABLE 1 - CHARACTERISTICS ASSOCIATED WITH CABLE PULL

Type of Characteristic	Number of Each Type of Characteristic
Cable jacket color band	1
Cable jacket color stripe	1
Cable identification tagging at each end	2
Cable reel number	1
Minimum cable bend radius[a]	1[a]
Cable vias[b]	15[b]
Cable ties[a]	1[a]
Cable tray damage	1
Cable damage	1
TOTAL	24

[a] There are multiple points at which the cables are bent or at which the cables are tied but, in the interest of conservation, these are each counted as one characteristic.

[b] For each cable pull, it is estimated that there is an average of 15 vias. This is considered to be a conservative estimate, although it was not arrived at by an actual count of the vias for each of the jobs overinspected.

TABLE 2 - CABLE TERMINATION CHARACTERISTICS

Type of Characteristic	Number of Each Type of Characteristic
Cable scheme number identification	1
Cable type identification	1
Cable code identification	
Cable reel number	1
Cable minimum bend radius	1
Cable permanent identification tag	1
Plug integrity	1
Termination integrity	1
Crimp integrity	1
Correct termination per wiring diagram	1
Shield and drain wires	1
Insulation	1
TOTAL	12

ATTACHMENT A

Bechtel Associates Professional Corporation

777 East Eisenhower Parkway
Ann Arbor, Michigan

Mail Address: P.O. Box 1000, Ann Arbor, Michigan 48106

059360

BLC 12497

February 18, 1982

Consumers Power Company
P. O. Box 1963
3500 E. Miller Road
Midland, Michigan 48640

Attention: B. W. Marguglio

Subject: Midland Plant Units 1 & 2
Consumers Power Company
Bechtel Job 7220
Additional Response to CPCo
NCR M-01-9-2-016 and Bechtel
NCR 3996

References:
A) CPCo NCR M-01-9-2-016 dated February 17, 1982
B) Bechtel NCR 3996 dated February 17, 1982

As requested, the following is additional information to the response which we provided to the above-referenced NCRs.

Cables 1DQ157A, 1DQ396D, 1DQ396F, 1DQ396H, 1DQ396L, 1DQ396T, 1DQ177E, (NCR M-01-9-2-016) 1DQ403E, 1EQ403D, and 2BB5626A (NCR 3996) have been reviewed for control/power and instrument cables being routed together. Based on an induced voltage calculation for the power cable (2BB5626A), cable characteristics, and length of run, engineering has determined that if these cables were to have been left in the as-installed condition, they would not adversely affect the safety operation of the plant through its design life.

If you have any questions on the subject, please advise.

L. H. Curtis
Project Engineering Manager

LHC/PJC/GDW/sll

Written Response Required: No

cc: M. Schaffer
D. Turnbull
W. Bird
D. Taggart

ATTENTION: Mike Wilcove

TO: Distribution

FROM: MJSchaeffer, MPQAD

DATE: March 24, 1982

SUBJECT: SPECIAL ELECTRICAL OVERINSPECTION (REVISED REPORT)

Enclosed is the revised report on the results of the Special Electrical Overinspection requested by the NRC to support their testimony as to the adequacy of the certification/qualification process of Bechtel Electrical Quality Control Inspectors.

This report was revised to reflect that a total of 55 cables were misrouted, in lieu of 61, which was originally reported on the now superseded report dated February 25, 1982.

Distribution: WRBird, P14-418A
JWCook, P26-336B
RCook, NRC Inspector on Site
PCorcoran, Bechtel-Midland
MLCurland, Midland
LHCurtis, Bechtel-Ann Arbor
LEDavis, Bechtel-Midland
MADietrich, Bechtel-Midland
RGardner, NRC Region III
BWMarguglio, Midland
DBMiller, Midland
JARutgers, Bechtel-Ann Arbor
ESmith, Bechtel-Midland

APR 2 1982

RESULTS OF THE SPECIAL ELECTRICAL OVERINSPECTION REQUESTED BY NRC

I. Introduction

A. NRC requested that MPQAD perform special overinspections of the inspections made by 4 Bechtel Electrical Quality Control Engineers whose certifications were questioned by NRC because of the amount of training which was documented in their certification files.

B. NRC requested also that MPQAD perform special overinspections of the inspections made by any other Bechtel Electrical Quality Control Engineers whose original inspections were impacted by any then existing Nonconformance Reports originated by MPQAD. This resulted in the identification of 5 additional Bechtel Electrical Quality Control Engineers whose inspections were to be subject to the MPQAD special overinspection.

C. In a telephone conversation with Mr William Little of the NRC, it was agreed that 250 of these overinspections could be accomplished by Bechtel Electrical Quality Control Engineers, other than the 9 Engineers whose work was subject to this special overinspection.

D. MPQAD performed overinspections of 1,118 original inspections for cable pulls, cable terminations and cable tray supports. Each of these original inspections was documented on a Bechtel Quality Control Inspection Report (QCIR).

E. Bechtel Quality Control overinspected 250 cable pulls which were originally inspected by one Engineer. Each of these original inspections also was documented on a QCIR.

F. Therefore, 1,368 original inspections were overinspected by either MPQAD or Bechtel Quality Control.

II. Cable Pulls

A. For each cable pull, 24 characteristics were overinspected by either MPQAD or Bechtel Quality Control. These characteristics are enumerated in Table 1 (attached).

B. MPQAD overinspected 834 cable pulls and Bechtel Quality Control overinspected 250 cable pulls, for a total of 1,084.

C. Therefore, a total of 26,016 cable pull characteristics were overinspected (24 x 1,084).

D. There were 91 nonconforming via characteristics and 66 nonconforming recordings of cable reel numbers, for a total of 157 nonconforming characteristics. Therefore, 0.60 percent (157 + 26,016) of the cable pull characteristics were nonconforming.

E. There were 55 misrouted individual cables in 1 or more vias, resulting in 5.07 percent (55 + 1,084) of the cables being misrouted at 1 or more points.

III. Cable Terminations

A. For each cable termination, 12 characteristics were overinspected, as enumerated in Table 2 (attached).

B. MPQAD overinspected 282 cable terminations.

C. Therefore, a total of 3,384 characteristics (12 x 282) were overinspected.

D. There were 2 nonconforming characteristics, or 0.06 percent (2 + 3,384).

E. Each of the termination nonconformances was on a different cable. Therefore, 0.71 percent (2 + 282) of the terminations was nonconforming with regard to 1 characteristic.

IV. Cable Tray Supports

For each of the 2 cable tray support overinspections, there are 8 inspection characteristics, resulting in the overinspection of 16 characteristics. There were no nonconformances.

V. Totals

For all jobs overinspected, there were 159 individual nonconforming characteristics, from a total of 29,416 individual characteristics. Therefore, 0.54 percent (159 + 29,416) of the characteristics were nonconforming.

VI. Disposition

A. Of the 157 individual nonconforming characteristics, 145 were dispositioned by Bechtel Project Engineering to be "used as is." The basis for this disposition for the cable routing nonconformances is that they have no impact on separation, segregation, physical loading and thermal loading and, therefore, no impact, whatsoever, on plant safety. The disposition of these cable routing nonconformances also calls for the drawings to be changed to reflect the "as built" conditions.

B. Twelve characteristics were dispositioned to be "reworked." Ten of these were for cable pulls involving ten different cables. The other two were for cable terminations. In each of these cases, Bechtel Project Engineering stated that there was no public safety impact, ie, that these nonconformances could not have caused an accident or impeded the ability to ameliorate the consequences of an accident. As a matter of fact, in the opinion of Bechtel Project Engineering, it was doubtful that any of these nonconformances would have impaired the functionability of the circuits involved. Attachment A provides the specifics of the Bechtel Project Engineering disposition and the jurisdiction for that disposition.

VII. Conclusions

On the basis of the above information, the undersigned believe that the Bechtel certification process for the nine Bechtel Quality Control Engineers was adequate. In the interest of further improvement, on-the-job training is now being documented and MPQAD, on a sampling basis, is overviewing the Bechtel Quality Control Engineer certification process. However, in each case for which the ANSI N45.2.6-1973 education and experience criteria are not met, MPQAD is now overviewing the Bechtel certifications.

M J Schaeffer, Section Head
Electrical/I&C, MPQAD

3/26/82
Date

E L Jones, Group Supervisor
Electrical/I&C, MPQAD

3/26/82
Date

BWM/da

TABLE 1 - CHARACTERISTICS ASSOCIATED WITH CABLE PULL

Type of Characteristic	Number of Each Type of Characteristic
Cable jacket color band	1
Cable jacket color stripe	1
Cable identification tagging at each end	2
Cable reel number	1
Minimum cable bend radius[a]	1[a]
Cable vias[b]	15[b]
Cable ties[a]	1[a]
Cable tray damage	1
Cable damage	1
TOTAL	24

[a] There are multiple points at which the cables are bent or at which the cables are tied but, in the interest of conservation, these are each counted as one characteristic.

[b] For each cable pull, it is estimated that there is an average of 15 vias. This is considered to be a conservative estimate, although it was not arrived at by an actual count of the vias for each of the jobs overinspected.

TABLE 2 - CABLE TERMINATION CHARACTERISTICS

Type of Characteristic	Number of Each Type of Characteristic
Cable scheme number identification	1
Cable type identification	1
Cable code identification	
Cable reel number	1
Cable minimum bend radius	1
Cable permanent identification tag	1
Lug integrity	1
Termination integrity	1
Crimp integrity	1
Correct termination per wiring diagram	1
Shield and drain wires	1
Insulation	1
TOTAL	12

ATTACHMENT A

Bechtel Associates Professional Corporation

777 East Eisenhower Parkway
Ann Arbor, Michigan

Mail Address: P.O. Box 1000, Ann Arbor, Michigan 48106

059360

BLC 12497

February 18, 1982

Consumers Power Company
P. O. Box 1963
3500 E. Miller Road
Midland, Michigan 48640

Attention: B. W. Marguglio

Subject: Midland Plant Units 1 & 2
Consumers Power Company
Bechtel Job 7220
Additional Response to CPCo
NCR M-01-9-2-016 and Bechtel
NCR 3996

References: A) CPCo NCR M-01-9-2-016 dated February 17, 1982
B) Bechtel NCR 3996 dated February 17, 1982

As requested, the following is additional information to the response which we provided to the above-referenced NCRs.

Cables 1DQ157A, 1DQ396D, 1DQ396F, 1DQ396H, 1DQ396L, 1DQ396T, 1DQ177E, (NCR M-01-9-2-016) 1DQ403E, 1BQ403D, and 2BB5626A (NCR 3996) have been reviewed for control/power and instrument cables being routed together. Based on an induced voltage calculation for the power cable (2BB5626A), cable characteristics, and length of run, engineering has determined that if these cables were to have been left in the as-installed condition, they would not adversely affect the safety operation of the plant through its design life.

If you have any questions on the subject, please advise.

L. H. Curtis
Project Engineering Manager

LHC/PJC/GDW/s11

Written Response Required: No

cc: M. Schaffer
D. Turnbull
W. Bird
D. Taggart

ELJ
Dm T

James W Cook
Vice President - Projects, Engineering and Construction

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

November 2, 1981

Mr H R Denton
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND PROJECT -
DOCKET NOS 50-329 AND 50-330
RESPONSE TO QUALIFICATION OF INSPECTION, EXAMINATION AND TESTING AND AUDIT PERSONNEL (GENERIC LETTER 81-01)
FILE: 0.4.3 SERIAL: 14605
References: A. D G Eisenhut letter to All Licensees of Operating Plants and Holders of Construction Permits (Generic Letter 81-01), dated May 4, 1981

B. D P Hoffman letter to D M Crutchfield (NRR), Subject: "Dockets 50-155 & 50-255 - Licenses DPR-6 & DPR-20 - Big Rock Point & Palisades Plants - Response to Qualification of Inspection, Examination, and Testing and Audit Personnel (Generic Letter 81-01)", dated July 9, 1981

Reference A requested our statement of commitment to meet Regulatory Positions C.5, 6, 7, 8 and 10 of Regulatory Guide 1.58, Revision 1 and Regulatory Guide 1.146 or our alternative method of complying with 10CFR50 Appendix B regarding qualification of inspection, examination and testing and audit personnel.

Reference B inadvertently did not include the position for the Midland Nuclear Plants. The attachment to this letter provides our response for the Midland Plants. Our comments to Regulatory Guide 1.58, Revision 1 makes our position on this Reg Guide the same as our presently stated position in the Midland FSAR to the August 1973 version of the same Reg Guide.

James W. Cook

WRB/lr

JGKeppler, NRC Reg III
DHood, NRR

RCook, NRC Resident Inspector, Midland

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BCC: JWCook, P26-336B
WRBird, P14-418A
DMBudzik, P24-517A
NRC Corres File, P24-517
MADietrich, Bechtel-Midland
JFFirlit, JSC-236A
WDGreenwell, Bechtel AA
DPHoffman, P24-118A
GSKeeley, P14-113B
BWMarguglio, JSC-220A
DBMiller, Midland
JAMooney, P14-115A
JARutgers, Bechtel AA
ESmith, Bechtel-Midland
TJSullivan, P24-624A
[redacted]
RAWells, P14-113A