Cook

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

September 27, 1979

MEMORANDUM FOR: G. Fiorelli

FROM: R. C. Knop RCK

SUBJECT: MIDLAND NONCONFORMANCES AND RELATED DOCUMENTS

From time to time we have reviewed the nonconformance system at Midland in piece meal form and also as a system. During the past year we have accumulated a large number of these reports and it appears that we should again at this time do a concentrated review of the nonconformance area.

It is felt that this activity is significant enough to relieve our resident inspector from his program work for approximately 50% of the time for a two month period.

Additionally it is requested that other personnel be made available for approximately one man month of effort to assist the resident inspector in this effort.

The review will exclude areas heavily reviewed such as soils and will be centered on those NCRs which appear to have true safety significance.

Timeliness and generic consideration of the NCRs by the licensee will also be considered.

The overall nonconformance system including trending methods will be reviewed as well as individual nonconformance reports.

This memo is to inform you that during the performance of this review it is assumed that some parts of the regular inspection program will slip.

R. C. Knop

R. C. Knop, Chief
Projects Section 1

cc: J. G. Keppler
R. J. Cook
T. E. Vandel

DBM

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

December 6, 1979

Docket Nos. 50-329
50-330

Consumers Power Company
ATTN: Mr. Stephen H. Howell
Vice President
1945 West Parnall Road
Jackson, MI 49201

Gentlemen:

This letter transmits to you an Order Modifying Construction Permits No. CPPR-81 and No. CPPR-82. This action is being taken as a result of findings by inspectors from Region III, Office of Inspection and Enforcement made during the period of October 1978 to January 1979, and the conclusions of th NRC staff after reviewing responses to the 10 CFR 50.54(f) request of March 1979, regarding the proposed remedial work under and around safety-related structures and systems at the site, some of which is currently underway. Th Order pertains to the problems associated with the soil foundation materials at the site.

As part of the Order there are two Notices of Violation. The first Notice o Violation is Appendix A which contains information concerning four infractio with several examples, all of which relate to the soil foundation problems. The second Notice of Violation, Appendix B, contains information concerning ites of noncompliance which was determined to be a material false statement. Actions that Consumers Power Company may take as a result of this Order are described in the Order.

Sincerely,

Eason G. Case
Acting Director
Office of Nuclear Reactor
Regulation

Sincerely,

Victor Stello, Jr.
Director
Office of Inspection
and Enforcement

Enclosures:
1. Order Modifying Construction
Permits, CPPR-81 and CPPR-82
2. Appendix A
3. Appendix B

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~~DESIGNATED ORIGINAL~~
~~Certified Mail~~
~~Return Receipt Requested~~

UNITED STAT
NUCLEAR REGULATORY COMMISSI
Office of Public Af
Washington, D.C. 20

To: Jan Strasma, M-11?

No. 79-215
Contact: Frank Ingram
Tel. 301/492-7715

FOR IMMEDIATE RELEASE
(Mailed - December 6, 1979)

NRC MODIFIES CONSTRUCTION PERMIT AT MIDLAND NUCLEAR POWER STATION SITE

The Nuclear Regulatory Commission's staff has issued an order to Consumers Power Company suspending remedial work on substandard soil and fill beneath some safety related structure and systems and related work at the utility's Midland Nuclear Power Station at Midland, Michigan.

The order, issued December, 6, 1979, unless contested, will become effective and will continue in effect until the utility receives NRC staff approval of plans to correct soil and fill inadequacies under the plant's diesel generator building, water storage tanks, underground piping and other safety-related structures and systems.

In August and September 1978, Consumers Power Company reported to the NRC staff that excessive settling of the diesel generator building had been observed. The settling later was attributed to inadequate and poorly compacted fill material under the building and under other safety-related structures and systems at the plant.

In an investigation October 1978 through March 1979 NRC inspectors determined that design and construction specifications had not been followed during placement of the soil fill materials and that there was a lack of control and supervision of the fill activities by the utility and its contractors.

In addition, the NRC staff has determined that the utility application for an operating license for the Midland plant incorrectly described the type of fill material actually used for some safety-related structures.

Since the initial report of the fill inadequacies, the utility has continued to submit information to the NRC on the problem, both as part of the NRC reporting requirements and in response to specific requests from the NRC staff.

Based on the information submitted thus far, the NRC staff has not been able to conclude that the remedial action planned by the utility is acceptable from a safety standpoint or that there is reasonable assurance that the affected portions of the Midland facility can be constructed and operated without undue risk to the health and safety of the public.

The order, issued by Victor Stello, Director of the NRC's Office of Inspection and Enforcement, and Harold Denton, Director of the NRC Office of Nuclear Reactor Regulation, directs that the construction permits for the Consumers Power Company's Midland Units 1 and 2 be modified to prohibit further work on the placement, compaction or excavation of safety-related fill material under and around certain safety-related structures and systems until a construction permit amendment has been applied for and granted by the NRC. The order becomes effective after the period during which a hearing may be requested has expired or an order has been issued following any hearing on the matter.

The utility or any persons whose interest has been affected may request a hearing on the order within 20 days.

Appendix A

NOTICE OF VIOLATION

er Company

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

the investigation conducted by the Office of Inspection
at the Midland Nuclear Power Plant, Units 1 and 2, Midland,
ome offices in Jackson, Michigan, and at Bechtel Corporation,
higan of activities authorized by NRC License No. CPPR-81
82.

results of the investigation conducted during the period
1978 through January 25, 1979, it appears that certain of
ns were not conducted in full compliance with NRC require-
t below. These items are infractions.

I, Appendix B, Criterion III requires, in part, that measures
established and executed to assure that regulatory requirements
design basis as specified in the license application for
s are correctly translated into specifications, drawings,
s and instructions. Also, it provides that measures shall
lished for the identification and control of design inter-
for coordination among participating design organizations.

tal Report (PSAR), Policy No. 3, Section 3.4 states, in
e assigned lead design group or organization (i.e., the
ilder, A&E supplier, or CPCo) assure that designs and
are suitable and that they comply with design criteria and
y requirements."

committed to ANSI N45.2 (1971), Section 4.1, which states,
measures shall be established and documented to assure
applicable specified design requirements, such as a design
egulatory requirements . . . are correctly translated into
tions, drawings, procedures, or instructions."

to the above, measures did not assure that design bases
uded in drawings and specifications nor did they provide
dentification and control of design interfaces. As a
nconsistencies were identified in the license application
her design basis documents. Specific examples are set
ow:

FSAR is internally inconsistent in that FSAR Figure 2.5-45
cates settlement of the Diesel Generator Building to be on
order of 3" while FSAR Section 3.8.5.5 (structural acceptance
criteria) indicates settlements on shallow spread footings

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founded on compacted fill to be on the order of 1/2" or less. The Diesel Generator Building is supported by a continuous shallow spread footing.

b. The design settlement calculations for the diesel generator and borated water storage tanks were performed on the assumption of uniform mat foundations while these foundations were designed and constructed as spread footing foundations.

c. The settlement calculations for the Diesel Generator Building indicated a load intensity of 3000 PSF while the PSAR, Figure 2.5-47, shows a load intensity of 4000 PSF, as actually constructed.

d. The settlement calculations for the Diesel Generator Building were based on an index or compressibility of the plant fill between elevations 603 and 634 of 0.001. These settlement values were shown in PSAR Figure 2.5-48. However, PSAR, Table 2.5-16, indicates an index or compressibility of the same plant fill to be 0.003.

e PSAR, Amendment 3, indicated that if filling and backfilling operations are discontinued during periods of cold weather, all frozen soil would be removed or recompacted prior to the resumption of operations. Bechtel specification C-210 does not specifically include instructions for removal of frozen/ thawed compacted material upon resumption of work after winter periods.

f. PSAR Amendment 3 indicates that cohesionless soil (sand) would be compacted to 85% relative density according to ASTM D-2049. However, Bechtel specification C-210, Section 13.7.2 required cohesionless soil to be compacted to not less than 80% relative density.

2. 10 CFR 50, Appendix B, Criterion V requires, in part, that activities affecting quality shall be prescribed and accomplished in accordance with documented instructions, procedures or drawings.

CPCo Topical Report CPC-1-A, Policy No. 5, Section 1.0 states, in part, that, "Instructions for controlling and performing activities affecting quality of equipment or operation during design, construction and operations phase of the nuclear power plant such as procurement manufacturing, construction, installation, inspection, testing . . . are documented in instructions, procedures, specifications . . . these documents provide qualitative and quantitive acceptance criteria for determining important activities have been satisfactorily accomplished."

CPCo is committed to ANSI N45.2 (1971), Section 5 which states, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

a. Contrary to the above, instructions provided to field construction for substituting lean concrete for Zone 2 material did not address the differing foundation properties which would result in differential settlement of the Diesel Generator Building.

b. Also, contrary to the above, certain activities were not accomplished according to instructions and procedures, in that:

(1) The compaction criteria used for fill material was 20,000 ft-lbs (Bechtel modified proctor test) rather than a compactive energy of 56,000 ft-lbs as specified in Bechtel Specification C-210, Section 13.7.

(2) Soils activities were not accomplished under the continuous supervision of a qualified soils engineer who would perform in-place density tests in the compacted fill to verify that all materials are placed and compacted in accordance with specification criteria. This is required by Bechtel Specification C-501 as well as PSAR, Amendment 3 (Dames and Moore Report, page 18).

2. 10 CFR 50, Appendix B, Criterion X requires, in part, that a program for inspection of activities affecting quality shall be established and executed to verify conformance with the documented instructions, procedures and drawings for accomplishing the activity.

CPCo Topical Report CPC 1-A, Policy No. 10, Section 3.1, states, in part, that 'work activities are accomplished according to approved procedures or instructions which include inspection hold points beyond which work does not proceed until the inspection is complete or written consent for bypassing the inspection has been received from the organization authorized to perform the inspections.'

CPCo is committed to ANSI N15.2 (1971), which states, in part, 'A program for inspection of activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity.'

Contrary to the above, Quality Control Instruction C-1.02, the program for inspection of compacted backfill issued on October 18, 1976, did not provide for inspection hold points to verify that soil work was satisfactorily accomplished according to documented instructions.

4. 10 CFR 50, Appendix B, Criterion XVI requires, in part, that measures shall be established to assure that conditions adverse to quality such as failures, deficiencies, defective material and nonconformances are promptly identified and corrected. In case of significant conditions adverse to quality, measures shall assure that corrective action is taken to preclude repetition.

CPCo Topical Report CPC-1-A, Policy No. 16, Section 1.0 states, in part, "Corrective action is that action taken to correct and preclude recurrence of significant conditions adverse to the quality of items or operations. Corrective action includes an evaluation of the conditions that led to a nonconformance, the disposition of the nonconformance and completion of the actions necessary to prevent or reduce the possibility of recurrence."

Contrary to the above, measures did not assure that soils conditions of adverse quality were promptly corrected to preclude repetition. For example:

a. As of January 25, 1979, moisture control in fill material had not been established nor adequate direction given to implement this specification requirement. The finding that the field was not performing moisture control tests as required by specification C-210 was identified in Quality Action Request 50-40, dated July 22, 1977.

b. Corrective action regarding nonconformance reports related to plant fill was insufficient or inadequate to preclude repetition as evidenced by repeated deviations from specification requirements. For example, nonconformance reports No. CPCo QF-29, QF-52, QF-68, QF-147, QF-174, QF-172 and QF-199 contain numerous examples of repeated nonconformances in the same areas of plant fill construction.

APPENDIX B

NOTICE OF VIOLATION

Consumers Power Company

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

This refers to the investigation conducted by the Office of Inspection and Enforcement at the Midland Nuclear Power Plant, Units 1 and 2, Midland, Michigan, at your offices in Jackson, Michigan, and at Bechtel Corporation, Ann Arbor, Michigan, of activities authorized by NRC License No. CPPR-81 and No. CPPR-82.

During this investigation conducted on various dates between December 11, 1978 and January 25, 1979, the following apparent item of noncompliance was identified.

The Midland Final Safety Analysis Report (FSAR) contains the following:

Section 2.5.4.5.3, Fill, states: "All fill and backfill were placed according to Table 2.5-8."

Table 2.5-8, Minimum Compaction Criteria, contains the following:

Location	Zone (1) Designation	Soil Type	Compaction Criteria Degree	ASTM Designation
Support of structures	CFA/	95%	ASTM D 1557-68T (modified)(2)	

(1) For zone designation see Table 2.5-10.
(2) The method was modified to get 20,000 foot-pounds of compactive energy per cubic foot of soil."

Section 2.5.4.10.1, Bearing Capacity, states: "Table 2.5-14 shows the contact stress beneath footings subject to static and static plus dynamic loadings, the foundation elevation, and the type of supporting media for various plant structures."

Table 2.5-14, Summary of Contact Stresses and Ultimate Bearing Capacity for Mat Foundations Supporting Seismic Category I and II Structures, contains, in part, the following:

Unit	Supporting Soils
Diesel Generator Building	Controlled compacted cohesive fill."

- This information is false, in that materials other than controlled compacted cohesive fill were used to support the diesel generator building and information presented concerning the supporting soils influenced the staff review of the FSAR.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
CONSUMERS POWER COMPANY	)	Docket No. 50-329
(Midland Nuclear Power Plant, Units 1 and 2)	)	50-330
	)	

ORDER MODIFYING CONSTRUCTION PERMITS

I

The Consumers Power Company (the Licensee) is a holder of Construction Permits No. CPPR-81 and No. CPPR-82 which authorize the construction of two pressurized water reactors in Midland, Michigan. The construction permits expire on October 1, 1981 and October 1, 1982, for Unit 2 and Unit 1 respectively.

II

On August 22, 1978, the Licensee informed the NRC Resident Inspector at the Midland site that unusual settlement of the Diesel Generator Building had occurred. The Licensee reported the matter under 10 CFR 50.55(e) of the Commission's regulations by telephone on September 7, 1978. This notification was followed by a series of interim reports dated September 29, 1978, November 7, 1978, December 21, 1978, January 5, 1979, February 23, 1979, April 3, 1979, June 25, 1979, August 10, 1979, September 6, 1979, and November 2, 1979.

Following the September 1978 notification, inspectors from the Region III, Office of Inspection and Enforcement, conducted an investigation over the period of October 1978 through January 1979. This investigation revealed a breakdown in quality assurance related to soil construction activities under and around safety-related structures and systems in that (1) certain design and construction specifications related to foundation-type material properties

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and inspection requirements were not followed; (2) there was a lack of clear direction and support between the contractor's engineering office and construction sites as well as within the contractor's engineering office; (3) there was a lack of control and supervision of plant fill placement activities which contributed to inadequate compaction of foundation material; (4) corrective action regarding nonconformances related to plant fill was insufficient or inadequate as evidence by repeated deviations from specification requirements, and (5) the FSAR contains inconsistent, incorrect, and unsupported statements with respect to foundation type, soil properties and settlement values. The details of these findings are described in the inspection reports 50-329/78-12, 50-330/78-12 (November 14, 1978) and 50-329/78-20, 50-330/78-20 (March 19, 1979) which were sent to the Licensee on November 17, 1978 and March 22, 1979 respectively.

The items of noncompliance resulting from the NRC investigation are described in Appendix A to this Order. In addition, as described in Appendix B to this Order, a material false statement was made in the FSAR in that the FSAR falsely stated that "All fill and backfill were placed according to Table 2.5-9." This statement is material in that this portion of the FSAR would have been found unacceptable without further Staff analysis and questions if the Staff had known that Category I structures had been placed in fact on random fill rather than controlled compacted cohesive fill as stated in the FSAR.

As a result of questions raised during the NRC investigation of the Diesel Generator Building settlement, additional information was necessary to evaluate

the impact on plant safety caused by soil conditions under and around safety-related structures and systems in and on plant fill, and the licensee's related quality assurance program. On March 21, 1979, the Director, Office of Nuclear Reactor Regulation, formally requested under 10 CFR 50.54(f) of the Commission's regulations information concerning these matters to determine whether action should be taken to modify, suspend or revoke the construction permit. Additional information was requested by the Staff in letters dated September 11, 1979 and November 19, 1979. The licensee responded to these letters, under oath, in letters dated April 24, 1979, May 31, 1979, July 9, 1979, August 10, 1979, September 13, 1979, and November 13, 1979. The licensee has not yet responded to the November 19, 1979 requests.

Several of the Staff's requests were directed to the determination and justification of acceptance criteria to be applied to various remedial measures taken and proposed by the licensee. Such criteria, coupled with the details of the remedial action, are necessary for the Staff to evaluate the technical adequacy and proper implementation of the proposed action. The information provided by the licensee fails to provide such criteria. Therefore, based on a review of the information provided by the licensee in response to the Staff questions, the staff cannot conclude at this time that the safety issues associated with remedial action taken or planned to be taken by the licensee to correct the soil deficiencies will be resolved. Without the resolution of these issues the Staff does not have reasonable assurance that the affected safety-related portions of the Midland facility will be constructed and operated without undue risk to the health and safety of the public.

III

Under the Atomic Energy Act of 1954 as amended, and the Commission's regulations, activities authorized by construction permits or portions thereof may be suspended should the Commission find information which would warrant the Commission to refuse to grant a construction permit on an original application. We have concluded that the quality assurance deficiencies involving the settlement of the Diesel Generator Building and soil activities at the WPPSS Site, the false statement to the NRC, and the unresolved safety issue concerning the adequacy of the remedial action to correct the deficiencies in the soil construction under and around safety-related structures and systems are adequate bases to refuse to grant a construction permit and that, therefore, suspension of certain activities under Construction Permits No. CPPR-81 and No. CPPR-82 is warranted until the related safety issues are resolved.

IV

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 C.F.R Parts 2 and 50, IT IS HEREBY ORDERED THAT, subject to Part V of this Order, Construction Permits No. CPPR-81 and No. CPPR-82 be modified as follows:

(1) Pending the submission of an amendment to the application and approval of the remedial actions associated with the soil activities for safety-related structures and systems founded in and on that fill material and the issuance of an amendment to Construction Permits No. CPPR-81 and

and No. CPPR-82 authorizing the remedial action, the following activities are prohibited:

(a) any placing, compacting, or excavating soil materials under or around safety related structures and systems;

(b) physical implementation of remedial action for correction of soil-related problems under and around these structures and systems, including but not limited to:

(i) dewatering systems
(ii) underpinning of service water building
(iii) removal and replacement of fill beneath the feedwater isolation valve pit area
(iv) placing caissons at the ends of the auxiliary building electrical penetration areas
(v) compaction and loading activities;

(c) construction work in soil materials under or around safety-related structures and systems such as field installation of conduits and piping.

(2) Paragraph (1) above shall not apply to any exploring, sampling, or testing of soil samples associated with determining actual soil properties on site which has the approval of the Director of Region III, Office of Inspection and Enforcement.

V

The Licensee or any person whose interest is affected by this Order may within 20 days of the date of this Order request a hearing with respect to all or any part of this Order. In the event a hearing is requested, the issues to be considered will be:

(1) whether the facts set forth in Part II of this Order are correct; and

(2) whether this Order should be sustained.

This Order will become effective on the expiration of the period during which a hearing may be requested, or in the event a hearing is requested, on the date specified in an Order made following the hearing.

FOR THE NUCLEAR REGULATORY COMMISSION

Susan G. Case, Acting Director
Office of Nuclear Reactor
Regulation

Victor Stello, Jr., Director
Office of Inspection
and Enforcement

Attachments:
1. Appendix A
2. Appendix B

Dated at Bethesda, Maryland,
this 6th day of December, 1979.

Cook

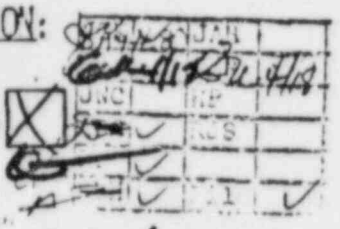
ATTACHED IS A PART 21 REPORT FROM IE MAIL UNIT - ROOM 359E/W

PART 21 IDENTIFICATION NO. 80-195-003 COMPANY NAME American Warming & Ventilating

DATE OF LETTER 4/8/80 DOCKET NO. _____

DATE DISTRIBUTED 4/14/80 ORIGINAL REPORT ☐ SUPPLEMENTARY ☒

DISTRIBUTION:



REACTOR(R) ☒ FUEL CYCLE & MATERIALS(M) ☐ SAFEGUARDS(S) ☐

NRR/DOR, DIRECTOR ~~Wallis~~ Knop	~~AD~~/FFMSI	AD/SG-IE
NRR/DPM DIRECTOR	NMSS/FCMS	AD/ROI
AD/ROI (2)	REGIONS	REGIONS
AD/RCI	IE FILES	NRR/DOR, DIRECTOR
REGIONS ✓	PDR	NMSS/SG SS-881
IE FILES (2)	LPDR	PDR
CENTRAL FILES	CENTRAL FILES-SS-396	LPDR
CENTRAL FILES (CHRON)	CENTRAL FILES(CHRON) (016)	TERA
PDR	TERA	IE FILES (2)
LPDR		CENTRAL FILES 016
TERA	LOEB/MPA MNB 5715	CENTRAL FILES (CHI
LOEB/MPA MNB 5715		CENTRAL FILES - SS
ACTION:		LOEB/MPA MNB 571

PRELIMINARY EVUALATION OF THE ATTACHED REPORT INDICATES LEAD RESPONSIBILITY FOLLOW-UP AS SHOWN BELOW:

IE ☒ NRR ☐ NMSS ☐ OTHER ☐ _____

(RCI)
ROI
SG
FFMSI

APR 16 1980

REV. 2/26/80

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american warming
and ventilating inc

April 8, 1980

80-195-00

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Director, Office of Inspection
and Enforcement

From: American Warming & Ventilating, Inc.
1310 Indian Wood Circle
Maumee, Ohio 43537

Subject: 10 CFR 21 Notification Dated February 6, 1890

Gentlemen:

As a follow up to my notification letter of February 6, 1980, AWV has been notified by ITT General Controls that the Data that was to be supplied by April 1, 1980 will not be in the mail to AWV until the week of April 14 thru 18, 1980. Upon receipt AWV will evaluate the subject Data for completeness, convert the actuator force values to torque and then compare the torque to the required damper torque values. It is estimated that this effort will take AWV several weeks to complete.

Please be advised that AWV has been at work gathering and compiling the damper data required to make the above comparison since the original February 6, 1980 notification date and every possible effort will be made to clear up this matter as quickly as possible.

Note: The attached listing of AWV's affected customers have also been notified of this developement.

Very truly yours,

Donald E. Sloan

Donald E. Sloan
Quality Assurance Manager

cc: W.B.B., R.L.B., R.L.A.,
J.M.T., R.J.M., D.S.L., S.F.G

P O BOX 279
1310 INDIAN WOOD CIRCLE
MAUMEE, OHIO 43537
(419) 893-5011

AMCA MEMBER

APR 16 1980

#8005020010

Title: Attachment to February 6, 1980 Letter to the N.R.C. concerning ITT AH90 series or NH90 series Actuators supplied by ITT General Controls.

The following is a listing of American Warming & Ventilating, Inc. Customers and Projects affected and notified:

1. Duke Power Company; Bahnson Services
   McGuire Nuclear Station
   AWV Job No. 80290

2. Cincinnati Gas & Electric Company
   Wm. H. Zimmer Pwr. Sta. - Unit I
   AWV Job No. 90083

3. Powers Regulator; Stone & Webster Engr. Corp.
   Shoreham Nuclear
   AWV Job No. 90084

4. Bahnson Services
   McGuire Nuclear Station
   AWV Job No. 90096

5. Powers Regulator
   Wm. H. Zimmer Nuclear Power Station
   AWV Job No. 90120

6. Powers Regulator
   LaSalle County Station
   AWV Job No. 90121

7. Bechtel Corp. (San Francisco)
   Susquehanna Steam Elec. Sta. Units 1 & 2
   AWV Job No. 90125

8. Tennessee Valley Authority
   Bellefonte Nuclear Plants Units 1 & 2
   AWV Job No. 90162

9. Tennessee Valley Authority
   Bellefonte Nuclear Plants Units 1 & 2
   AWV Job No. 90163

10. Ebasco Services
    Waterford Unit #3
    AWV Job No. 90181

11. Bechtel Corp. (San Francisco)
    Limerick Generating Station
    AWV Jon No. 90186

12. Ebasco Services
St. Lucie #2
AWV Job No. 90193

13. Stone & Webster Eng. Corp.; Duquesne Light
Beaver Valley Power Station - Unit No. 2
AWV Job No. 90216

14. Bechtel Corp. (Ann Arbor)
Midland Plant
AWV Job No. 90235

15. Bechtel Corp.
Midland Plant
AWV Job No. 90236

SIGNED: D. E. Sloan

TITLE: Q.A. Manager

DATE: 2/6/80

Revised 3/19/80 to Include:

16. Buffalo Forge Co.
St. Lucie
AWV Job No. 90263

SIGNED: D. E. Sloan

TITLE: Q.A. Manager

DATE: 3/19/80

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

April 30, 1980

MEMORANDUM FOR: G. Fiorelli, Chief, Reactor Construction and Engineering Support Branch

THRU: D. W. Hayes, Chief, Engineering Support Section 1

FROM: E. J. Gallagher, Reactor Inspector

SUBJECT: CONSUMERS POWER COMPANY MIDLAND UNITS 1 AND 2 ANSWER TO NOTICE OF HEARING

Ref: (1) NRC Order Modifying Construction Permits dated December 6, 1979

(2) Consumers Power Company Answer to Notice of Hearing

As per your request, the following are comments to Consumers Power Company (CPCO) submittal entitled "Answer to Notice of Hearing" regarding the Midland Unit 1 and 2 construction project:

1. CPCO response (pages 2-3) denies the statements made in the NRC order (pages 1-2) which states, ..."This investigation revealed a breakdown in quality assurance related to soil construction activities under and around safety-related structures and systems in that (1) certain design and construction specifications related to foundation-type material properties and compaction requirements were not followed; (2) there was a lack of clear direction and support between the contractor's engineering office and construction site as well as within the contractor's engineering office; (3) there was a lack of control and supervision of plant fill placement activities which contributed to inadequate compaction of foundation material; (4) corrective action regarding nonconformances related to plant fill was insufficient or inadequate as evidenced by repeated deviations from specification requirements; and (5) the FSAR contains inconsistent, incorrect, and unsupported statements with respect to foundation type, soil properties, and settlement values".

Comment:

A "breakdown in quality assurance" did substantially occur in the soil construction activities and the list of five items above were contributing factors to the failure of the licensee to control the backfill and its placement and compaction at the Midland site.

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2. CPCO response (Appendix, page 2) denies the findings with respect to the Borated Water Storage Tanks and states that, ..."The assumptions used for the borated tank settlement calculations are appropriate for the type of design utilized".

Comment:

A uniform rigid mat foundation will not behave in the same manner as a flexible circular ring wall foundation. The inspection finding indicated the lack of design control interface and verification between the geotechnical group who performed settlement calculations under the assumption of a uniform rigid mat foundation while the civil/structural group performed a design and analysis of the BWST using a flexible ring wall foundation.

3. CPCO response (Appendix, page 3) states, in part, that the .. "Licensee denies that instructions provided to field construction for substituting lean concrete for Zone 2 material were contrary to 10 CFR 50, Appendix B, Criterion V".

Comment:

Lean concrete material was permitted to be used indiscriminately by the Bechtel letter dated December 27, 1974 which states, "lean concrete backfill is considered acceptable for replacement of Zone 1 and 2". This instruction was given without proper consideration and coordination, and its effect on other design basis, i.e. settlement effects. The instruction which was implemented was therefore inadequate and contrary to Criterion V.

4. CPCO response (Appendix, page 4) states, in part, ..."Licensee denies that Quality Control Instruction C-1.02 is contrary to 10 CFR 50, Appendix B, Criterion X, CPCO Topical Report CPC 1-A, Policy No. 10, Section 3.1 or ANSI N45.2 (1971)".

Comment:

QCI 1.02 (quality control instruction for soil placement) did not provide a comprehensive and adequate program of inspection of activities affecting the quality of safety-related structures. The QCI permitted a random surveillance of an activity which required 100% inspection in order to verify soils material was placed and compacted to design requirements.

5. CPCO response (Appendix, page 4) states, in part, that the... "Licensee denies the general allegation that "measures did not assure that soils conditions of adverse quality were promptly corrected to preclude repetition". Licensee denies that its actions and measures were contrary to 10 CFR 50, Appendix B, Criterion XVI".

Comment:

Adequate measures were not taken by the licensee to preclude repetitive nonconforming condition adverse to quality by virtue of recurring deviations of moisture control and the erroneous selection of laboratory standard used in attempting to achieve the required compaction.

6. CPCO response (Appendix, page 8) states, in part, that the .."Licensee admits that "materials other than controlled compacted cohesive fill were used to support the Diesel Generator Building". Licensee alleges that only controlled and compacted fill was used to support the Diesel Generator Building".

Comment:

Material other than cohesive fill was used to support the Diesel Generator Building. The material was random fill, which was of any classification and consistency. However, controlled and compacted fill was not used. The compaction of material was not controlled by either its consistency or by the method of compaction. The equipment used in attempting to compact the fill was not qualified to a particular method of compaction, i.e., lift thickness, material type, and equipment used, and therefore not placed under controlled conditions. It was later determined that the method used could not be qualified to achieve the required density of the fill.

CPCO's response to the NRC order admits to a number of technical details of Appendix A of the order. The items admitted to are consistent with previous NRC findings.

If there are any questions regarding the above, please let me know.

E. J. Gallagher

E. J. Gallagher

cc:
J. G. Keppler
D. W. Hayes
R. C. Knop
T. Vandel
-> R. Cook

Pipe Whip Restraint problem

MANAGEMENT CORRECTIVE ACTION REQUEST/REPORT

PROJECTS, ENGINEERING AND CONSTRUCTION - QUALITY ASSURANCE DEPARTMENT

MCAR NO.	EPL-1
FILE NO.	16.14
PREPARED BY	[signature]
DATE	8-8-80
APPROVED	[signature]
DATE	8/11/80
RESPONSIBLE FOR ACTION	LADreisbach
FOR INFORMATION	RCBauman, JARutgers, WRBird, JWCook, TCCooke, JLCorley, LHCurtis, LEDavis, SHHowell, EWMarguglio, JMilandin, DEMiller

DEFICIENT QUALITY PROBLEM DESCRIPTION:

1. Paragraph 4.2 Procedure 10, Section 5 of the Bechtel Midland Nuclear Quality Assurance Manual requires that the client be notified immediately when a supplier notifies Bechtel of a 10CFR21 report.

(Contd on Page 2)

ROOT CAUSE:

The apparent root causes are:

1. A failure of Bechtel Field personnel to recognize or understand the NQAM requirement and,
2. A failure of Bechtel and NPSI to properly communicate, understand and comply with the reportability requirements of the procurement documents.

REQUESTED PROCESS CORRECTIVE ACTION:

Bechtel is requested to:

1. Determine why CPCo was not notified immediately of the 10CFR21 report.
2. Review the violation of the NQAM requirement with all Bechtel personnel who were aware of the 10CFR21 report.

(Contd on Page 2)

ORGANIZATION CORRECTIVE ACTION REPORT

IDENTIFICATION OF ROOT CAUSE:

PROCESS CORRECTIVE ACTION TAKEN:

DATE OF PROCESS CORRECTIVE ACTION COMPLETION:

EFFECTIVE DATE OF PROCESS CORRECTIVE ACTION:

ORGANIZATION(S) TAKING PROCESS CORRECTIVE ACTION:

VALIDATION OF PROCESS CORRECTIVE ACTION:

PROCESS CORRECTIVE ACTION EFFECTIVENESS VERIFIED BY: | DATE:

AGEMENT CORRECTIVE ACTION REQUEST
NIFICANT QUALITY PROBLEM DESCRIPTION:

ntd from Page 1)

On July 30, 1980 CPCo was informed by the USNRC that MPS Industries, Inc (MPSI) had issued a 10CFR21 report on the Midland Project pipe whip restraint broken bolt problem. Inquiry revealed that on June 13, 1980 Bechtel had been notified of MPSI's intent to file a report, on June 16, 1980 MPSI did make a submittal to the NRC and that MPSI had forwarded a copy of their report to Bechtel by a cover letter dated June 20, 1980. This transmittal to Bechtel was addressed to the Bechtel Site Manager with copies to the Project Field Engineer, the Lead Field Civil Engineer, and Field Procurement Supervisor. CPCo was first provided a copy of the 10CFR21 report on July 31, 1980. Attachment No 1 to this MCARR is a chronology of events related to the subject of reportability as ascertained to this date.

Revision 4 of Bechtel Purchase Order 7220-F-3107Q was issued to MPSI on February 22, 1978 and states, "This purchase order is subject to regulation 10CFR21 as per attached 'Exhibit A' which by this reference is incorporated into this PO". Attachment No 2 to this MCARR is the 'Exhibit A' currently used by Field Procurement. To date, Field Procurement has been unable to produce the actual 'Exhibit A' which was sent to MPSI.

Although Revision 4 to Order 7220-F-3107Q was acknowledged by MPSI on March 27, 1978, on May 13, 1980 MPSI told CPCo and Bechtel that their order from Bechtel did not contain 10CFR21 reporting requirements. The submittals to Bechtel made by MPSI on June 20, 1980 are not in accordance with the requirements of 'Exhibit A'. Specifically, the report was sent to the wrong Bechtel personnel. In addition, it appears that the deviation in question requires evaluation by Bechtel in order to determine if the deviation is indeed a defect. Paragraph (4) of 'Exhibit A' identifies the procedure for this case, but there is no evidence that Bechtel participated in the determination.

ESTED PROCESS CORRECTIVE ACTION:

d from Page 1)

Formally re-emphasize the NQAM requirement to all Bechtel personnel who may be involved with 10CFR21 or 10CFR50.55(e) reporting.

Determine why the Field Procurement files do not contain a complete record of the purchase order revision sent to MPSI.

Evaluate the adequacy of the field purchase order wording for 10CFR21 reportability requirements and make changes as necessary. Specifically, address clarity needed to:

- Insure the vendor recognizes his obligation under the law.
- Insure both Bechtel and supplier personnel understand the specific contractual requirements for reportability.
- Insure the participation of both the supplier and Bechtel when needed to make the determination of a defect in accordance with