



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

January 15, 1979

PN - Zimmer?
PN - McGuire?
SHEWMAKER

MEMORANDUM FOR: G. W. Reinmuth, Assistant Director, Division of Reactor Construction Inspection, IE

FROM: J. B. Henderson, Division of Reactor Construction Inspection, IE

SUBJECT: MEETING IN PREPARATION FOR MIDLAND HEARING


DATE: February 6, 1979

TIME: 9:00 AM

LOCATION: East/West Towers, Room 322B

PURPOSE: To discuss the current status of Midland 1, 2 inspection and IE input to the hearing.

PARTICIPANTS: S. Varga, NRR
D. Hood, NRR
W. Haass, NRR
J. Keppler, RIII
R. Heishman, RIII
D. Hayes, RIII
R. Cook, RIII
T. Vandell, RIII
W. Olmstead, ELD
R. Shewmaker, IE ✓


James B. Henderson
Division of Reactor
Construction Inspection
Office of Inspection and Enforcement

SUMMARY REPORT

FOR TOMORROW'S MTG

IS ATTACHED

Shewmaker dep Ex 21
1-19-81 WRB

MEMORANDUM OF CALL

TO:

YOU WERE CALLED BY— YOU WERE VISITED BY—

OF (Organization)

PLEASE CALL → PHONE NO. CODE/EXT. FTS
 WILL CALL AGAIN IS WAITING TO SEE YOU
 RETURNED YOUR CALL WISHES AN APPOINTMENT

MESSAGE

Midland int'l
Mid-June
Call him Sunday 5/17/79
to see what is finalized

RECEIVED BY: DATE: 5/17 TIME: 11:10

STANDARD FORM 63 (Rev. 9-78)
Prescribed by GSA
FPMR (41 CFR) 101-11.6

MEMORANDUM OF CALL

TO:

YOU WERE CALLED BY— YOU WERE VISITED BY—

OF (Organization)

PLEASE CALL → PHONE NO. CODE/EXT. 27831 FTS
 WILL CALL AGAIN IS WAITING TO SEE YOU
 RETURNED YOUR CALL WISHES AN APPOINTMENT

MESSAGE

5/24/79 ←
50.5a(f) response in

Follow-up meeting; CP would
be ready for a meeting the
end of week of 5/14

RECEIVED BY: DATE: TIME:

STANDARD FORM 63 (Rev. 9-78)
Prescribed by GSA
FPMR (41 CFR) 101-11.6

P-110

MEMORANDUM OF CALL

Rec'd call from

David Hood - Pres Midland

Re: whether IFE officials
want to NAR/Tech. (Hilder)
support at a meeting

being planned by the licensee
at the site in response to
RTH request to involve NAR.

Licensee (Cook) to call NAR
at 11AM today to arrange
a meeting on Nov 29 1978

Called Vassallo, mentioned
notification of Board & Vassallo
said it wasn't necessary
Greaves has indicated he thought
it was Board mit'l.
GWR thinks it's TALK mit'l.
said we should get a copy
of RTH to him.
D. Hayes

GWR 11/3/78

Shewmaker Dept Eng 20
11/9/81

Midland Mtg. 2/6/79

Midland being up coming

QA will be a major item per Myron Cherry

Our position has been:

- 1) things haven't been that much different there
- 2) QA program is still intact
- 3) totally error free construction is not required
- 4) QA performance on Palisades & Big Rock Pt
- 5) FSAR statements - false or not

The grading report just issued - Consumer's Power look poor as a result of Palisades

Cherry's contention will try to use comparisons; that NRC audit approach is not sufficient when you have non-responsive utility and one that has poor QA performance; how have Big Rock and Palisades been run.

Oriskany's approach - QA problems ended with the "how cause proceedings"

Oriskany wants to be sure the QA story is consistent from the NRC reflecting back on the

testimony,

- Koppert & Keby in
the slow case

2/

Papers on Resident Inspection Program development will
be asked for by Cherry

NRREG-410 A Tasks for SWR's will all be conducted
by Cherry

5/16/79

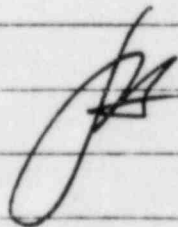
RES - Re Midland

Dave Hood called. He will be on leave for about 2 weeks, for minor (elective) surgery.

Carl Stahle will act for him. June 14 does not fit DSS tech staff schedule. Stahle is trying to find a better fit date - will keep you advised.

No substantive comments on draft letter you sent him.

Reply to 50.54 letter received. Dated 4/29. Describes remedial actions required for D & Bldg. & for other structures on-site. Copy in mail to you from Hood.



Shewmaker Depo Ex 22
1-19-81 WJS

6/5/79

Midland technical meeting is to be set up;
Jim Knight is involved

~~trip~~ at site on 6/7 Knight, Ljinski, Callaghan & RI-Cook

Enforcement Package

looks OK

as for NRR we can go ahead

call to RIII 6/5/79

~~Shover~~

Shover aka dep E23
1-19-81 URB

50-329/330

To +1D T 6/17/79

Shawmiller 6/6/79

Need ~~an~~ with then X 005 who will set up NRR/OELD with

Review of Midland Enforcement Package
Keyler to Thornburg 4/3/79

2.5.4
3.8.4
3.8.5

1. the ~~the~~ material false statement ~~it~~ ^{entitled} should be put into an Appendix A ^{an} Appendix B - Notice of Proposed Imposition of Civil Penalties should be drafted. The other items of non compliance should be addressed in an Appendix C - Notice of Violation

2. All ~~the~~ statements quoted should be described by SAR amendment no. & dates and we must look at the sequence in some cases since amendments were being submitted during the time the settlement problem was being investigated

24

3. 2 of the 5 ~~draft~~ ^{draft} false statements ~~are~~ ^{are} in my opinion definitely material false statements but we'll have to provide information on which to decide intent, careless disregard, deception etc in order to evaluate whether there is a civil penalty or a 2nd chance. They both appear to be a "careless disregard" of the facts. One needs additional documentation: Copy of calca

Shawmiller
1-19-80
copy of calca

4. 2 of the 5 draft false statements are in my opinion weak as they presently stand.

One needs add'l documentation - calc sheets and a finding as to the explanation of using 3 test vs 4 test for the settlement computation.

One needs add'l documentation - calc sheets and assumptions

5. The last of the 5 draft false statements in my opinion is not a nat'l false statement. It is stated in the ~~future~~ future tense.

6. We need to discuss with XDOOS ~~next~~ ^{and then} talk to Region to get the add'l mat'l we determine with XDOOS is needed. Then XDOOS should set up a meeting w/ NRR. I am not too sure the package sent to NRR (the same one I reviewed) got any attention higher than the CPM. XDOOS did not send it to Denton/Case level.



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

MEMORANDUM FOR: H. D. Thornburg, Director, Division of Reactor Construction
Inspection, IE

F. Schroeder, Acting Director, Division of Systems Safety

D. Skovholt, Assistant Director for Quality Assurance and
Operations, Division of Project Management

FROM: D. B. Vassallo, Acting Director, Division of Project Management

SUBJECT: REQUEST FOR FINDINGS REGARDING 10 CFR 50.54(f) REPLIES ON
MIDLAND 1 & 2 SOILS SETTLEMENT

On April 24, 1979, the NRR staff issued requests to Consumers Power Company regarding the Midland 1 & 2 soils settlement matter pursuant to 10 CFR 50.54(f).^{1/} These 10 CFR 50.54(f) requests on the adequacy of the fill and the applicant's quality assurance program were made in order to determine whether the Construction Permits for Midland should be modified, suspended or revoked. Your findings to this end are requested. Background documents are identified in Enclosure 1.

Because the various remedial actions proposed by the applicant are either under-way or are soon to be initiated, this matter requires our prompt attention. A reply by August 21, 1979, is requested. Should you desire a meeting to discuss your findings, contact the Licensing Project Manager, Darl Hood, on 492-8402.

D. B. Vassallo, Acting Director
Division of Project Management

Enclosure:
As stated

cc: H. Denton
J. Murray
J. Keppler, Region III

^{1/} 10 CFR 50.54(f) is made applicable to construction permits by 10 CFR 50.55(c).

*Shawaker Depo Ex 25
1-19-81 WFB*

ENCLOSURE 1

Background Documentation

Background documentation relevant to NRR's 10 CFR 50.54(f) requests include the following: The applicant's reply dated March 21, 1979, was revised May 31, 1979 (revision 1), and July 9, 1979 (revision 2). Further information was supplied by the applicant during meetings attended by both I&E and NRR on March 5 and July 18, 1979. In addition, certain information was requested by NRR technical branches as part of the FSAR review prior to issuance of the 10 CFR 50.54(f) requests and are replied to through FSAR amendments. Site visits by NRR staff to observe settlement were made March 6 and June 7, 1979, and December 3, 1978. NRR participation with I&E results from a transfer of lead responsibility forwarded by a technical assistance request dated November 27, 1978.

Background documentation directed to I&E includes a 50.55(e) notification by the applicant dated September 29, 1978, for which six interim reports have been issued to date (November 7, 1978; December 21, 1978; January 5, 1979; February 23, 1979; April 30, 1979; and June 25, 1979). I&E has conducted a preliminary investigation and has documented its summary findings, along with the applicant's discussion of these findings, in a letter to the applicant dated March 15, 1979. Enforcement actions due to potential material-false statements in the FSAR as may be applicable to some of these I&E findings are presently under internal review, assisted by NRR staff as appropriate.

Should you require copies of any of the above documents, contact Darl Hood (2-8402).

10/17/79 Phone call

Midland — Gallagher

wanted NRC to check the level I & level II people on prestressing system installation etc.

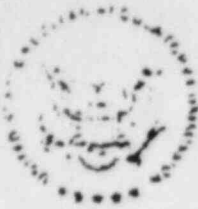
Qualifications
Training results

R III worked up a test on the QCI & CCP for prestressing gave it to CP who with Bechtel administered a test. Scores were failing.

Gallagher on R III position paper on Midland

Conclusions do not follow from all the listed problems; they are all supposed to sign the report; Gallagher will not state in hearing in any positive way, words about soil/foundation problem resolution or prestressing.

Shewmaker Dep Ex 26
1-19-81 1475



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

Oct 29, 1979

MEMORANDUM FOR: George C. Gower, Acting Executive Officer for Operations Support, IE

FROM: James G. Keppler, Director, Region III

SUBJECT: MIDLAND - RECOMMENDED CIVIL PENALTY

Attached for Headquarters use is a proposed letter to Consumers Power Company with attached Notice Of Violation and proposed civil penalty. The civil penalty is recommended only for the material false statement. Other items of noncompliance are also identified for which no civil penalty is proposed. This proposed civil penalty is patterned after and is consistent with the civil penalty action taken regarding the D. C. Cook facility in May 1978.

Please let us know if you have further questions.

James G. Keppler
James G. Keppler
Director

cc w/Attachments:
H. D. Thornburg, IE

*Shawmaker Depo Ex 27
1-19-81 cef*

~~8402060309~~

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

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

Gentlemen:

This refers to the results of an investigation conducted during December 1978 and January 1979 into the settlement of the diesel generator building and the adequacy of the plant area fill at Midland Nuclear Plant Unit Nos. 1 and 2. The findings of this investigation were discussed with you in meetings in our Region III office on February 23 and March 5, 1979. A copy of the investigation report was transmitted to you by Region III by letter dated March 22, 1979.

The investigation determined a statement made by the licensee regarding fill material was false. Furthermore, it has been determined that the information presented regarding the type of fill was material in that the fill is of the wrong type and was not sufficiently compacted. This matter is further described in Appendix A, and we propose to assess a civil penalty of \$5,000 for this item, as set forth in Appendix B.

In addition, there are two areas of concern. First, information and statements relative to load density calculations, index of compressibility calculations, the type of mat foundations and estimates of settlement were reviewed and incorrect information was found. While the incorrect

Consumers Power Company

- 2 -

information was a matter of concern to the NRC because the information furnished was false, it was not material because it did not affect a safety conclusion by the NRR staff.

Second, during this investigation four items of noncompliance were identified which are contained in Appendix C which is a separate Notice of Violation. This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty days of your receipt of this notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved.

It is recognized that there has been extensive communications between you and the NRC regarding the diesel generator building settlement since the conclusion of our investigation which may contain information pertinent to the items of noncompliance. Therefore, where appropriate, you may wish to include specific references to those communications as a means of facilitating your response to this notice.

Consumers Power Company

- 3 -

The NRC regulatory program is, of necessity, based on the premise that information provided by the licensees is factual, complete, and technically supported by data, records, calculations and judgments of technically qualified individuals. The review, evaluation and inspection processes involved in the regulatory program are therefore designed to function on that premise; that is, a program based on sampling and auditing techniques.

Inaccurate information could result in decisions which adversely affect the health and safety of the public. It is, therefore, imperative for licensees to exercise the utmost care in verifying information furnished to the NRC. This burden of accuracy must be stressed throughout licensee organizations.

We view material false statements as serious matters. In all cases where substantive material false statements are identified, we shall take strong enforcement action.

~~...to determine if further escalated enforcement action is required to assure future compliance.~~

determine if further escalated enforcement action is required to assure future compliance.

Sincerely,

Appendix ANOTICE 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 2.5-9."

Table 2.5-9, Minimum Compaction Criteria, contains the following:

<u>Function</u>	Zone (1) <u>Designation</u>	<u>Soil Type</u>	<u>Compaction Criteria</u>	
			<u>Degree</u>	<u>ASTM Designation</u>
Support of structures		Clay	95%	ASTM D 1557-66T (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 medium 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:

<u>Unit</u>	<u>Supporting Soils</u>
Diesel Generator Building	Controlled compacted cohesive fill."

This information is false, in that construction drawing C-45, Class I Fill Material Area, specifies the foundation material for Class I structure to be Zone 2 material which is identified in FSAR Table 2.5-10, Gradation Ranges for Fill Material, as Random Fill and is described as "Any material free of humus, organic or other deleterious material." It was ascertained that materials other than "clay" or "controlled compacted cohesive fill" were used for support of structures.

Appendix A

- 3 -

Contrary to Section 186 of the Atomic Energy Act of 1954 as amended, this false statement was made under oath in careless disregard of the true circumstance.

(Civil Penalty - \$5,000)

Appendix BNOTICE OF PROPOSED IMPOSITION OF CIVIL PENALTIES

Consumers Power Company

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

This office proposes to impose civil penalties pursuant to Section 234 of the Atomic Energy Act of 1954, as amended, (42 USC 2282), and to 10 CFR 2.205 in the amount of Five Thousand Dollars (\$5,000) for the specific item of noncompliance set forth in Appendix A to the cover letter. In proposing to impose a civil penalty pursuant to this section of the Act and in fixing the proposed amount of the penalty, the factors identified in the Statements of Consideration published in the Federal Register with the rule making action which adopted 10 CFR 2.205 (36 FR 16894) August 26, 1971, and the "Criteria for Determining Enforcement Action," which was sent to NRC licensees on December 31, 1974, have been taken into account.

The Consumers Power Company may, within twenty (20) days of receipt of this notice pay the civil penalty in the amount of Five Thousand Dollars (\$5,000) or may protest the imposition of the civil penalty in whole or in part by a written answer. Should Consumers Power Company fail to answer within the time specified, this office will issue an order imposing the civil penalty in the amount proposed above. Should Consumers Power Company elect to file an answer protesting the civil penalty, such answer may: (a) deny the item of noncompliance listed in the Notice of Violation in whole or in part, (b) demonstrate extenuating circumstances,

(c) show error in the Notice of Violation, or (d) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but you may incorporate by specific reference (e.g., giving page and paragraph numbers) to avoid repetition.

Consumers Power Company's attention is directed to the other provisions of 10 CFR 2.205 regarding, in particular, failure to answer and ensuing orders; answer, consideration by this office, and ensuing orders; requests for hearings, hearings and ensuing orders; compromise; and collection.

Upon failure to pay any civil penalty due which has been subsequently determined in accordance with the applicable provisions of 10 CFR 2.205, the matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Atomic Energy Act of 1954, as amended, (42 USC 2282).

Appendix CNOTICE 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. CFP-81 and No. CFP-82.

Based on the results of the investigation conducted during the period December 11, 1978 through January 25, 1979, it appears that certain of your activities were not conducted in full compliance with NRC requirements as noted below. These items are infractions.

1. 10 CFR 50, Appendix B, Criterion III requires, in part, that measures shall be established and executed to assure that regulatory requirements and the design basis as specified in the license application for structures are correctly translated into specifications, drawings, procedures and instructions. Also, it provides that measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations.

CPCo Topical Report CPC-1-A policy No. 3, Section 3.4 states, in part, "the assigned lead design group or organization (i.e., the NSSS supplier A&E supplier, or CPCo) assure that designs and materials are suitable and that they comply with design criteria and regulatory requirements."

CPCo is committed to ANSI N45.2 (1971), Section 4.1, which states, in part, "measures shall be established and documented to assure that the applicable specified design requirements, such as a design basis, regulatory requirements . . . are correctly translated into specifications, drawings, procedures, or instructions."

Contrary to the above, measures did not assure that design bases were included in drawings and specifications nor did they provide for the identification and control of design interfaces. As a result, inconsistencies were identified in the license application and in other design basis documents. Specific examples are set forth below:

- a. The FSAR is internally inconsistent in that FSAR Figure 2.5-4B indicates settlement of the Diesel Generator Building to be on the order of 3" while FSAR Section 3.8.5.5 (structural acceptance criteria) indicates settlements on shallow spread footings

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 FSAR, 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 of compressibility of the plant fill between elevations 603 and 634 of 0.001. These settlement values were shown in FSAR Figure 2.5-48. However, FSAR, Table 2.5-16, indicates an index of compressibility of the same plant fill to be 0.003.
- e. FSAR, Amendment 3, indicated that if filling and backfilling operations are discontinued during periods of cold weather, all

frozen soil would be removed or recompact 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 quantitative acceptance criteria for determining important activities have been satisfactorily accomplished.

CPCo is committed to ANSI N45.2 (1971), Section 6 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 16).

3. 10 CFR 50, Appendix B, Criteriaon 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 N45.2 (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 SD-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.

Fox
11/30/79

~~11/30~~

To: J. Lieberman, DECD

From: R. Shawmcker, RCI

Subject: Input for MIDLAND ORDER

1 page follows

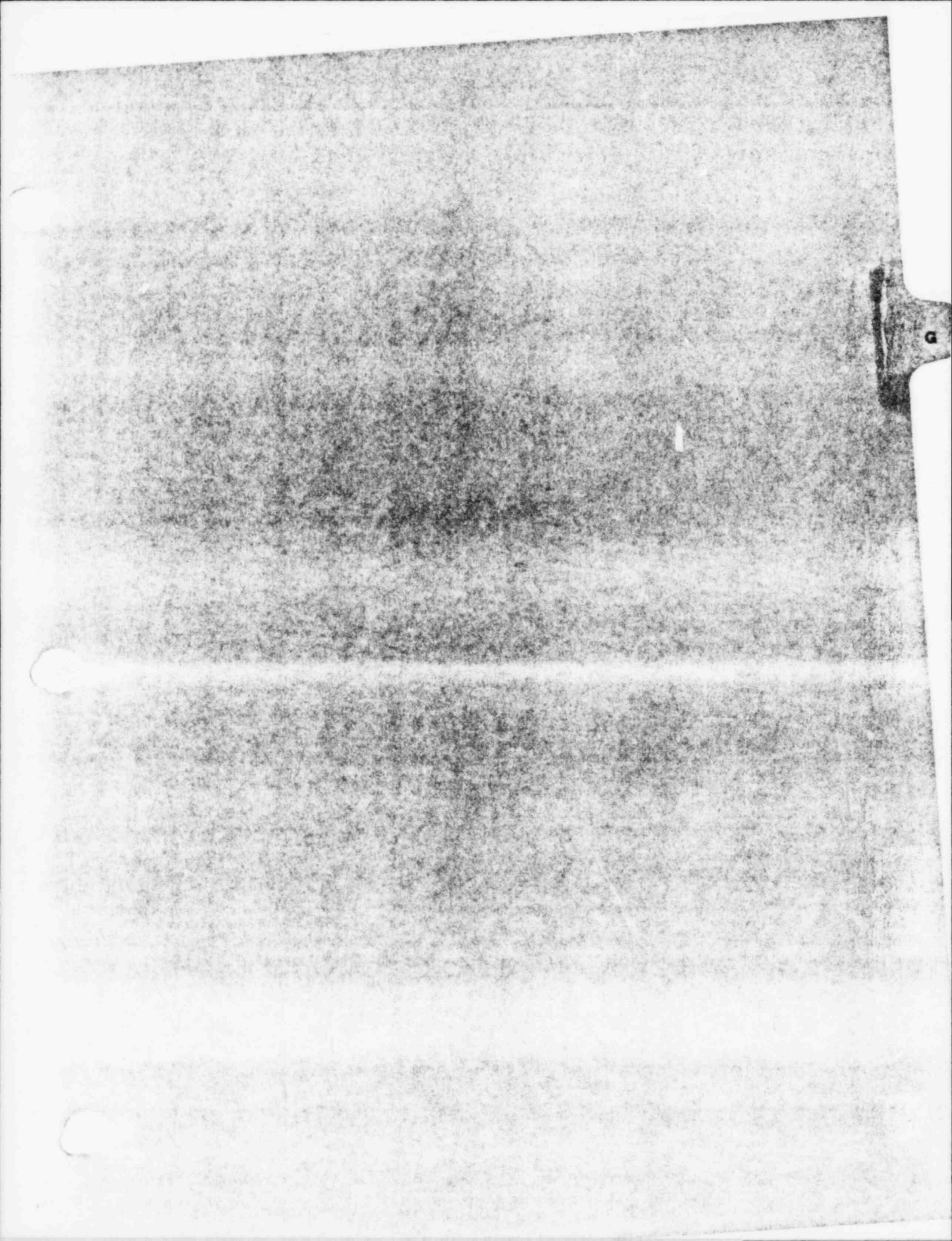
Shawmcker Depo 28
1-19-81 WFB

~~8101290025~~

Stop all work on;

1. any placing, compaction or excavating of safety related soils.
2. all construction work related to the Diesel Generator Building and the tank farm area. *by not new structure*
3. Physical implementation of any proposed solution for correction of soils ^{related} problem including such items as but not limited to:
 - . Dewatering system
 - . Underpinning of service water building
 - . Caissons in valve pit area
4. new construction work in safety related soils area such ^{as} field installation of conduits and piping.

The Order would not apply to any ^{Exploration, sampling, & testing of soil samples to} ~~exploratory work~~ associated with the ^{determine the actual soil properties on site} ~~soils work which has NRC concurrence~~ nor would it preclude any engineering work associated with the ^{proposed} ~~fix~~ of the soils problem.



W. P. Chen - Manager, Stress Analysis Unit, Energy Technology Engineering Center (ETEC)

EDUCATION

- B. Eng. Civil Engineering & Applied Mechanics, McGill University, 1959
M. Eng. Civil Engineering & Applied Mechanics, McGill University, 1962
Ph. D. Theoretical and Applied Mechanics, University of Illinois, 1965

EXPERIENCE

- 1965-1971 Simon Fraser University, Burnaby, B.C., Canada
Teaching and research in the Mechanics of Deformable Media with particular emphasis on problems of limit analysis and contained plastic flow of elastic-plastic media.
- 1972-1974 Basic Technology, Inc., Pittsburgh, Pa.
Thermal stress analysis of components.
- 1974-Present Energy Technology Engineering Center
ASME B&PVC compliance analysis of piping and components.
NRC LWR licensing support and snubber research activities.
Technical support for Solar Central Receiver and Ocean Thermal Energy Conversion projects.

PUBLICATIONS

1. A Complementary Linear Theory of Plasticity for Plane Strain, Arch. Mech. Stos., Vol 18, P. 731-749, 1966
2. On Classes of Complete Solutions for Rigid Perfectly Plastic Truncated Wedges in Plane Strain, Arch. Mech. Stos., Vol. 21, p. 469-494, 1969
3. On Uniqueness of the Limit Load for Unbounded Regions, Arch. Mech. Stos., Vol. 21, p. 679-699, 1969
4. On the Collapse of Rigid Perfectly Plastic Tapered Cantilever Beams Under End Shear, Acta. Mech., 1972
5. On Torsion of Elastic - Perfectly Plastic Cylinders of Polygonal Cross Section (In Preparation)

*Chen Dept Eng 1
1-21-81 WFB*