

MILWAUKEE: (1) Request for Environmental Report
(2) Inconsistencies in Spec
(3) Review of U.S. Testing Lab Results
(4) Bechtel Problem Alert -

8406120569 840517
PDR FOIA
RICE84-96 PDR



ORAL COMMUNICATIONS RECORD

PROJECTS, ENGINEERING
AND CONSTRUCTION -
QUALITY ASSURANCE DEPARTMENT
CROSS FILE NO. WRB 51-80
PAGE 1 OF 2

Handwritten initials/signature

DATE OF CONVERSATION 5/12/80 & 5/13/80 SA-PLAC PERSONNEL PARTICIPATED WRBird (DHorn 5/13/80 only)
TOPIC OF CONVERSATION _____ OTHER PARTY(S) G. Gallagher, NRC
PREPARED BY WRBird

PROJECTS AND/OR SUBJECTS DISCUSSED
DIESEL GENERATOR SETTLEMENT PROBLEM - 50.54(f) COMMITMENTS ON
EQUIPMENT QUALIFICATION

SUMMARY OF CONVERSATION

5/12/80 - Mr Gallagher asked my assistance in obtaining compaction equipment qualifications. NRC had asked for their submittal. The latest 50.54(f) response did not submit the data. He said he had talked to D Horn several times over the last weeks about the NRC concerns that the qualification records were not available. The following three points were made:
1) Qualifications are considered a permanent "Quality Record." 2) If they don't exist how can CP&C justify old work or justify continuing work? 3) Letters stating equipment is qualified is not good enough - a qualification report is needed.

I stated that I would investigate the situation and take appropriate action. Mr Gallagher stated that he would ask to see report on his next visit, and that there are other vehicles to accomplish their needs.

5/13/80 - We called Mr Gallagher back to give him a status of what my investigation revealed and what specific actions we had directed:
1) Bechtel will release an official design disclosure (most likely SCN to Specification C-211) which will list the equipment qualifications and the limits of the qualification.

(OVER)

- 2) Bechtel Engineering had completed their review of the qualification report and Consumers will be finishing up our review today.

Mr Gallagher wondered how we could have been placing soils since last summer if a qualification report had not been reviewed and approved by Quality. He stated it would be a very serious situation if the analysis of the report showed there was equipment deemed to be not qualified which had been used for soil placement. Don Horn stated that his review to date has resulted in some questions on qualifications for placement of clay but that no Q placements have been made with this equipment. The qualification of the equipment for placement of sands appear to be substantiated. To our knowledge, no Q placements had been made prior to Bechtel Project Engineering's release of the equipment in writing to the field.

We stated that the qualification report was planned to be submitted in a June submittal.

WRB/lr

Editorial Note - Neither our 50.54(f) response nor the Bechtel Program requirements require a Quality Assurance line involvement in the Engineering activities to certify the qualification of the compaction equipment. FIC 1.100 places the qualification and records for qualification of compaction equipment with Geotech.

CC: JWCook, P14-113A
JLCorley, Midland
LHCurtis, Bechtel AA
LEDavis, Bechtel-Midland
LADreisbach, Bechtel-Midland
~~XXXXXXXXXXXXXXXXXXXX~~
DEHorn, Midland
BWMarguglio, JSC-220A
JMilandin, Bechtel AA
DEMiller, Midland
JARutgers, Bechtel AA

E. Hellestien

Mixed sand

1. Question: With available information, provide the best estimate of the type and quantity of fill (i.e., lean concrete, sand, or clay) within the limits of E075 to E430 and S5225 to S5036. Also, provide plan and cross section sketch of such information.

Response: The engineering portrayal provided in the early cross section developed by Engineering provides the information requested above to the same level of accuracy which the field would provide if we were to generate a similar drawing. The only exception to the foregoing is the case of lean concrete where we note (via a review of personal records) that the attached amounts of lean concrete were placed.

SB 17596

DATE	LOCATION OF FILL	ELEV	CUBIC YARD
12/20/78	D/G BACKFILL @ DUCTBANK STUB BAY #4	628'	2
12/15/78	" " " " " " " "	"	3
12/13/78	D/G BACKFILL @ DUCTBANK STUBS BAYS 1, 2, & 3	628'	38
12/12/78	D/G BACKFILL @ DUCTBANK STUB BAY #4	628'	10
9/18/78	DUCTBANK MUDMAT S/E D/G	627'	2
8/17/78	DUCTBANK MUDMAT SE D/G	627'	12
8/7/78	DUCTBANK MUDMAT RUNS E-W S/W D/G	627'	29
8/1/78	" " S. D/G	627'	5
7/31/78	DUCTBANK MUDMAT RUNS E-W S/ D/G	627	11
7/14/78	MUDMAT S D/G	"	6
7/7/78	DUCTBANK MUDMAT SE D/G.	627	3
7/5/78	DUCTBANK MUDMAT SE D/G	627	26
4/18/78	DUCTBANK MUDMAT E D/G BLDG	630	1
4/14/78	SEWER ENCASMENT SW D/G	-	9
12/20/77	BACKFILL BAY #2 @ SE	628	5
11/25/77	MUDMAT @ D/G		42
11/15/77	MUDMAT @ D/G		144
10/19/77	MUDMAT FOR D/G FTGS		113
9/7/77	DUCTBANK MUDMAT @ D/G		18
8/18/77	MUDMAT @ D/G		57
6/10/76	BACKFILL @ S. T/B #1 (4.5-5.5 LINE)	603	16

552

E. Gallagher
I E - RII

Bechtel Power Corporation

777 East Eisenhower Parkway
Ann Arbor, Michigan

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



001315

JOB 7220	A R
ROUT	
Site Mgr.	
Proj. Sup.	
Gen. Sup.	
P.F. Eng.	
APP. Eng.	
APP. Eng.	
S.U. Furnc.	
Con. Svc.	
Inst. Eng.	
Civ. Sup.	
Civ. Eng.	
Mech. Sup.	
Mech. Eng.	
Elec. Sup.	
Elec. Eng.	
Weld. Eng.	
Civ. Eng.	
F B A	
P.C.	
Purch.	
Sub. Con.	
Doc. Con.	

BLC-8313

Mr. G. S. Keeley
Project Manager
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

October 18, 1979

RECEIVED

OCT 22 1979

BECHTEL POWER CORP
JOB 7220

PER 224225 05/D

Midland Units 1 and 2
Consumers Power Company
Bechtel Job 7220
TEMPORARY AIR LINE LEAK
IN TANK FARM AREA
File 2801/0626

- References:
- 1) CCBC-2100 (Serial CSC-4334) T. C. Cooke to J. F. Newgen dated 8/21/79.
 - 2) CCBC-1918 (Serial CSC-4066) T. C. Cooke to J. F. Newgen dated 5/17/79.
 - 3) CCBC-1914 (Serial CSC-4094) T. C. Cooke to J. F. Newgen dated 5/31/79.
 - 4) BCCC-4060 J. F. Newgen to T. C. Cooke dated 6-18-79.

Dear Mr. Keeley:

This letter is written to provide a complete and factual response to reference 1), an "Article 9" letter regarding the use of the permanent air piping due to the temporary air line leak in the tank farm area. Confirming previous discussions between Joel Newgen of Bechtel and Tom Cooke of Consumers, we identified this leak in the fall of 1978. We started excavating in early spring 1979 in an attempt to locate and repair the source of the leak in the air line. We stopped this effort shortly after it started because we were in a "stop work" mode on Q-listed soils work. We felt that continuing the excavation (to reach the leak) would only expose a larger area to weathering during the ground thawing and spring rains period with no quick recourse for refilling because

SB178157

JAN 14 1981

BLC-8313
Mr. G. S. Keeley
October 18, 1979
Page 2

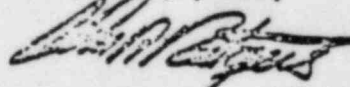
of the stop work. It is important to note that ⁰⁰¹³¹⁵ our decision to stop was also based on the feeling that the disruption to the soil was local and, in that respect, posed no great overall threat to the entire tank farm area. We believe that subsequent investigations have adequately substantiated that position. In stopping, we planned to resume our investigation in early summer.

When the NRC inspector, Mr. Gallagher, visited the site the week of May 14, 1979, he showed great concern over the presence of air bubbles in the tank farm area. He, in effect, demanded that the air line be shut down. Bechtel and Consumers Power Company worked very closely on this matter since shutting down this air line would require a cessation of many work activities in the auxiliary building which required construction air service. It was the project's considered decision that work must continue and, also, that the temporary air line be shut down. Tom Cooke's letter (reference 3) formalized this decision.

Reference 3) presented Consumers Power Company's concern over the fact that a portion of the permanent plant air system was used after the decision to shut off the leaking temporary line. Reference 4) was prepared to provide Bechtel's response to Consumers Power Company's concerns expressed in reference 3). In effect, our response in reference 4) acknowledges that we did not properly coordinate the use of part of the permanent plant air system with Consumers Power Company when we learned that it would take additional time beyond that originally estimated to tie in a new construction line. In making the decision to use a portion of the permanent system, Bechtel was acting purely in line with Consumers Power Company's overriding decision, namely, work in the auxiliary building must not be stopped because of a shut down of the temporary leaking line. Moreover, work did continue on a rerouting of the temporary air system with the work being completed in mid-June, 1979.

Based on the facts presented above, it is Bechtel's considered opinion that subsection B.3 of Article 9 does not apply to the contamination of the permanent plant air system, and that the limitation of liability in subsection A.2.c of Article 9 applies to the damage to property by contamination as encountered in this matter.

Very truly yours,



John A. Ruggers pp
Project Manager

JAR/AJB/kb

cc: D. B. Miller (CPCo-Mid)
P. A. Becnel (B-SF)

SB178158

Kis (11/2) 2121

QCFM-6209/AI-556

Bechtel Power Corporation

Inter-office Memorandum

Log No.	File No.		
Response Req'd	By	Date	
QA Action Item No.			
Issue	Info	Act	Comments
FOAE	W/O		
Resp. Cor.			
Elect (1)			
Elect (2)			
Out/In	204	X	
Proj/Spec			
Inst.			
Trn Ovr			
Trend			
Sent.			

To L. A. Dreisbach

Date June 27, 1979

Subject Midland Project, Units 1&2
QA AI 753, SD 190, QC-AI-556
Review of Soils Tests on Computer
Printout for Project Engineering

From W. L. Barclay
Quality Control

Copies to J. F. Newgen w/o
R. A. Simanek w/o

At Midland, Michigan
Job No. 07220

- References:
- a) Quality Action Request No. SD-190
 - b) Quality Assurance Action Item 753, dated 5/9/79

This is considered to be Quality Control's complete response to reference a) above.

Problem Statement:

Review the list attached to QAR SD-190 and identify those tests already dispositioned or identified as nonconforming and those that are in non "Q" areas.

Response:

A total of 253 identified by Project Engineering as "Failing Soils Tests" were reviewed per the action request in QAR SD-190.

- 1) A total of 156 Failing Tests were found to have been taken in non "Q" soils areas.
- 2) A total of 5 tests could not be located due to insufficient location data provided on the log sheets. These are listed as follows:

<u>Test No.</u>	<u>Date</u>	<u>Location</u>
a) D0017	8/21/74	330 10' R Wall
b) D1897	8/18/77	200'S. of "Q" 100' W of MH12
c) R0608	10/8/76	5'N of MH Centerline
d) R0535	9/2/76	30'S of A _A , 30" off wall
e) R0768	3/30/77	42'N of 7Line, 30" off wall of S.W.I. Bldg.

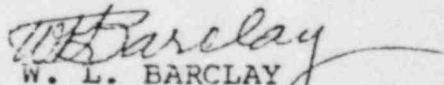
- 3) A total of 36 failing tests have been identified on 5 NCR's, Bechtel NCR's 324, 421, 510, 2294 and CCo NCR M-01-5-9-012.
- 4) Soil test failures numbered 2844 and 2862 were previously identified as failing on a Discrepancy Report (DR) attached to QCIR C-1.02-102. These tests were added to the below mentioned NCR addressing "Q" listed failing tests not previously addressed on NCR's.
- 5) Some failing tests have been previously addressed by either removing the material or by reworking and retesting. These tests are identified below.

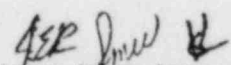
<u>Test No.</u>	<u>Remarks</u>
D0178	Cleared by D0179
D0873	Cleared by D0875
3118	Cleared by 3130
D0373	Material was removed from these areas
D0371	Material was removed from these areas
D0370	Material was removed from these areas
D0374	Material was removed from these areas

- 6) The remaining "Q" listed failing soils tests, including the 2 previously addressed on DR's are listed on NCR 2307 for engineering disposition.

See attached sheets 1 through 5 for additional information.

If you have any further questions concerning the above, please contact this office.


W. L. BARCLAY
PROJECT FIELD QUALITY CONTROL
ENGINEER


WLB/JER/SMW/SDK/jmk

Attachments

Response Required: NO

LISTING OF ALL FAILING TESTS FOR WHICH NO CLEARING TEST IS RECORDED, NO NCR INDICATED, AND THE SOIL IS NOT RECORDED TO HAVE BEEN REMOVED, OR THE TEST IS LABELLED AS NON-Q

- D0017 - NO LOC.
- D0163 - E 367/S 4710 - ESEA - 1/2 RD 24
- D0164A - NO LOC.
- D0164B
- D0165B
- D0166A
- D0166B
- D0178
- D0201
- D0202
- D0309
- D0370
- D0371
- D0372
- D0373
- D0374
- D0512
- D0513
- D0515
- D0516
- D0517
- D0518
- D0520
- D0523
- D0524
- D0525
- D0526
- D0527
- D0530
- D0531
- D0532
- D0533
- D0534
- D0535
- D0536

DENSITY
CLAY (73)

- D0537
- D0539
- D0873
- D0909
- D0938
- D1032
- D1050
- D1116
- D1153
- D1155
- D1191
- D1194
- D1321
- D1337
- D1393
- D1398
- D1404
- D1415
- D1491
- D1498
- D1509 *W. H. H. H.*
- D1546
- D1871
- D1875
- D1897
- D1949
- D2008
- D2078
- D2079
- D2176
- D2249
- D2253
- D2359
- D2373
- D2380
- D2461
- D3029
- D3160
- R0015
- R0016
- R0017
- R0019
- R0020
- R0022
- R0024

R.D.

R0059
R0214
R0255
R0308
R0319
R0322
R0366
R0367
R0368
R0369
R0370
R0404
R0466
R0467
R0468
R0469
R0470
R0498
R0532
R0535
R0604
R0607
R0608
R0625
R0663
R0664
R0667
R0680
R0682
R0688
R0734
R0736
R0737
R0738
R0739
R0740
R0741
R0744
R0746
R0768
R0785
R0799
R0826
R0843
R0845

2648
2650
2677
2678
2680
2681
2683
2684
2717
2718
2720
2721
2722
2723
2729B
2730A
2730B
2731
2732A
2732B
2745A
2745B
2746B
2747A
2747B
2748B
2749A
2749B
2752B
2754A
2754B
2756
2763A
2764A
2792A
2820
2827A
2827B
2828B
2834B
2839B
2841A
2844
2847A
2847B

LIST OF FAILED, NOT CLEARED, NOT REMOVED

...CONT...

PAGE 10

- 2848A
- 2848B
- 2852A
- 2852B
- 2853
- 2855A
- 2856A
- 2856B
- 2857
- 2862
- 2877
- 2878
- 2883
- 2889
- 2901
- 2904
- 2910
- 2913
- 2919
- 2920
- 2925
- 2931
- 2946
- 2961
- 2964
- 3003
- 3035
- 3036
- 3054
- 3078
- 3087
- 3105
- 3110
- 3116
- 3118
- 3120
- 3123
- 3136
- 3213

~~_____ 177~~
~~_____ 131~~

~~_____ 11/28~~

CR#S	TEST NO.	DATE	EAST	SOUTH	ELEV.	MOISTURE CONTENT	IN-3170 DRY DENSITY	CLASSIFIED
	✓DC0017	06/21/74	LOC. ?		0581	0001	000115	P005
	✓DC0103	06/09/75	367	4710 Q	0581	0004	000111	P024-93.4%
	✓DC0164A	06/10/75	-26'E OF B.7/12'W"	Q	0581	0005	000113	P024-94.6%
	✓DC0164B	06/10/75	-30'N OF "A" / 18'E OF 7.4	Q	0581	0005	000111	P024-92.9%
	✓DC0164C	06/10/75	-26'E OF B.7/12'W"	Q	0581	0007	000113	P024-94.6%
	✓DC0165B	06/10/75	-8.7/25'N. OF "A"	Q	0581	0005	000113	P024-94.5%
	✓DC0166F	06/10/75	-30'N OF "A" / 18'E OF 7.4	Q	0581	0005	000112	P024-93.6%
	✓DC0178	07/02/75	306	4686 Q	0592	0017	000102	B170-92.0% <small>cleared by DC0179</small>
32A	✓DC0202	07/08/75	365	4674 Q	0595	0014	000110	B170-16.7% (mod)
32A	✓DC0201	07/08/75	250	4692 Q	0593	0018	000103	B170-92%
	✓DC0309	10/02/75	186	4672 NON Q	0602	0009	000103	P030
	✓DC0372	10/18/75			NON Q	0016	000114	F255
	✓DC0373	10/18/75	-327° CW / 26' OFF WALL	Q	0603	0013	000124	E260-13.3% (mod)
	✓DC0371	10/18/75	-345° CW / 46' OFF CONT. WALL	Q	0606	0013	000127	E260-13.4% (mod)
	✓DC0370	10/18/75	-355° CW / 23' OFF CONT.	Q	0604	0013	000131	E263-11.5% (mod)
	✓DC0374	10/18/75	-327° CW / 26' OFF CONT.	Q	0603	0013	000112	B262-70.0%
421	✓DC0512	11/13/75	490	4715 Q	0610	0014	000125	B261-19.2% (mod)
421	✓DC0513	11/13/75	466	4667 NON Q	0614	0014	000125	E261
	✓DC0516	11/14/75	396	4625 NON Q	0618	0013	000128	E261
	✓DC0515	11/14/75	-105' N OF "W" / 12' OF 7.6	Q	0621	0013	000127	E261-12.6% (mod)
	✓DC0518	11/14/75	481	4705 Q	0613	0013	000121	F261-13.4% (mod)
	✓DC0517	11/14/75	472	4650 NON Q	0616	0013	000128	E261
421	✓DC0526	11/17/75	351	4625 Q	0624	0015	000118	F261-93.0% (mod)
421	✓DC0525	11/17/75	276	4635 Q	0627	0015	000124	B261-15.2% (mod)
421	✓DC0524	11/17/75	214	4620 Q	0630	0014	000123	B261-14.4% (mod)
421	✓DC0527	11/17/75	470	4655 NON Q	0619	0015	000124	E261
	✓DC0523	11/14/75	340	4636 Q	0614	0007	000119	F040-50.0%
	✓DC0520	11/14/75	341	4621 Q	0614	0015	000123	E262-14.7% (mod)
	✓DC0532	11/18/75	319	4602 Q	0628	0017	000117	F220-16.6% (mod)
421	✓DC0534	11/18/75	351	4642 Q	0624	0017	000116	F220-16.7% (mod)
421	✓DC0539	11/19/75	401	4713 Q	0615	0012	000123	B261-11.7% (mod)
421	✓DC0537	11/18/75	528	4625 NON Q	0610	0015	000121	E261
421	✓DC0536	11/18/75	450	4715 Q	0615	0015	000120	B261-15.1% (mod)
421	✓DC0535	11/18/75	451	4675 Q	0620	0015	000124	F261-14.8% (mod)
421	✓DC0531	11/18/75	226	4622 Q	0632	0014	000125	B261-4.3% (mod)
421	✓DC0530	11/18/75	147	4632 Q	0632	0014	000123	F261-13.9% (mod)
421	✓DC0533	11/18/75	351	4621 Q	0624	0015	000122	F261-14.5% (mod)
	✓DC0873	06/11/76	236	4692 Q	0630	0017	000111	E200-15.7% (mod)
	✓DC0909	06/19/76	515	4663 Q	0603	0003	000105	F043-75.0%
	✓DC0938	06/24/76	52	5000 NON Q	0610	0013	000124	F279
	✓DC1032	06/04/76	581	4678 NON Q	0620	0013	000121	E271
	✓DC1050	06/04/76	511	5064 NON Q	0603	0004	000102	P037
	✓DC1110	10/21/76	474	5048 NON Q	0610	0001	000104	P041
	✓DC1153	10/21/76			NON Q	0011	000102	P043
	✓DC1155	10/21/76			NON Q	0010	000105	P043
	✓DC1154	11/22/76			NON Q	0004	000117	P058
	✓DC1181	11/23/76			NON Q	0007	000117	P058
	✓DC1321	05/09/77			NON Q	0011	000117	F262
	✓DC1337	05/17/77	264	5035 NON Q	0604	0011	000120	F278
	✓DC1398	06/03/77	418	5005 NON Q	0614	0011	000123	F277
	✓DC1393	06/03/77	37	5017 NON Q	0624	0011	000116	F277
	✓DC1404	06/03/77			NON Q	0011	000116	F277
	✓DC1415	06/07/77			NON Q	0011	000121	F277
	✓DC1494	06/11/77			NON Q	0011	000112	F269
	✓DC1491	06/11/77			NON Q	0011	000113	F269
	✓DC1504	06/11/77			NON Q	0011	000114	F278
	✓DC1541	06/21/77	-375' N OF "W" / 5' W OF "A" WALL	Q	0611	0001	000102	F055-67.0%

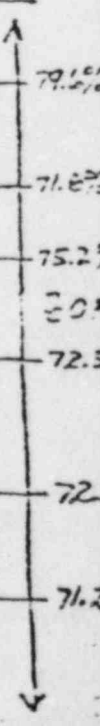
SOILS REMOVED FROM THESE AREAS

cleared by DC0375

1871	08/16/77	181	5151 Q	0610	0007	000102	F054
1897	08/18/77	200'S. OF Q	100' W. OF M.H. Q	0610	0007	000101	F055
1949	08/29/77			0627	0007	000099	F055
2008	09/12/77			0621	0020	000113	E270
2079	09/27/77			0613	0013	000128	F269
2078	09/22/77			0613	0017	000119	E270
2178	10/05/77			0617	0018	000115	E277
2249	10/15/77	324	5155 Q	0630	0010	000119	E255-9.7% (CALC)
2253	10/16/77	280	5163 Q	0632	0013	000125	E271-13.0% (CALC)
2353	10/28/77			0632	0014	000120	E271
D2373	10/29/77	104	5406 NON Q	0630	0014	000127	E276
D2380	10/31/77			0631	0012	000104	F055
E2461	12/29/77			0632	0011	000116	E270
E3029	07/25/78	210	5165 Q	0633	0018	000112	E271
E3160	09/20/78	30	4880 NON Q	0630	0018	000116	E271
F0019	09/24/74	99	4814 Q	0584	0008	000111	R011-49.0%
F0015	09/27/74	128	4770 Q	0586	0011	000113	R015-75.4%
F0016	09/27/74	119	4775 Q	0587	0009	000109	R015-57.7%
F0017	09/27/74	96	4837 Q	0587	0013	000111	R015-66.7%
F0020	09/24/74	111	4867 Q	0584	0007	000111	R011-70.2%
F0022	09/27/74	118	4876 Q	0584	0012	000108	F015-54.5%
F0024	09/27/74	111	4887 Q	0586	0014	000112	F015-71.1%
F0059	12/13/74	530	4711 Q	0583	0012	000113	F016-71.9%
F0214	04/12/75	3' N. OF A	207.5 DINE Q	0597	0007	000112	E024-65%
F0255	10/01/75	10' W. OF S. 3	2'S. OF H.V. Q	0593	0005	000108	R024-44%
F0308	10/23/75	224	4872 Q	0602	0004	000123	R040-77%
F0319	10/28/75	199	4878 Q	0608	0008	000121	F040-53.0%
F0322	10/29/75	133	4750 Q	0603	0008	000122	F040-67.0%
F0366	06/15/76	185	4875 Q	0611	0007	000118	F044-50.0%
F0367	06/16/76	184	4870 Q	0611	0009	000116	F044-38.0%
F0368	06/16/76	194	4878 Q	0610	0008	000132	F044-76.0%
F0369	06/16/76	30' W. OF 4.55	12'S. OF A Q	0608	0008	000119	F044-53.0%
F0370	06/16/76	B' N. OF A	5'E. OF 4.55 Q	0610	0008	000116	R044-51.0%
70' F0404	06/28/76	460	4839 Q	0613	0008	000120	R044-65.0%
F0468	07/23/76	103	5034 NON Q	0600	0006	000119	R052
F0466	07/23/76	108	5034 NON Q	0600	0007	000121	F052
F0467	07/23/76	98	5034 NON Q	0602	0008	000118	F052
F0469	07/23/76	100	5034 NON Q	0600	0009	000122	R052
F0470	07/23/76	108	5034 NON Q	0602	0010	000119	R052
F0491	08/11/76	428	4785 Q	0622	0008	000118	F045-54.2%
F0530	08/02/78	422	4777 Q	0622	0005	000121	P054-73.0%
F0535	09/02/78	30'S. OF A	30' OFF WALL ?	0622	0008	000119	F054-59.0%
F0604	10/04/78	201	5043 Q	0615	0001	000116	F042-77.5%
F0607	10/08/78	188	5011 Q	0611	0001	000100	F037-60.2%
F0608	10/08/78	5' N. OF ELECT. M.H. Q	?	0614	0001	000097	F037-48.3%
F0628	10/10/78	122	5041 NON Q	0611	0001	000117	R045
F0667	11/11/78	48	4938 NON Q	0623	0001	000120	F058
F0668	11/11/78	48	4938	0623	0001	000121	F058
F0669	11/11/78	48	4938	0623	0001	000118	F054
F0682	11/24/78	48	4951	0630	0001	000120	F054
F0683	11/23/78	48	4951	0630	0001	000119	F054
F0684	11/24/78	48	4948 ?	0630	0001	000121	F054
F0736	03/18/77	758	5058 NON Q	0601	0001	000122	F054
F0737	03/18/77	758	5058 Q	0601	0007	000116	F054-41.9%
F0738	03/18/77	758	5058 NON Q	0601	0001	000121	F054
F0739	03/18/77	758	5058 Q	0601	0001	000120	F054-70.6%
F0740	03/17/77	32'S. OF S. END OF SWAB	30' OFF / STABING CWT	0595 - NON Q	0001	000114	F059
F0740	03/18/77	758	5058 NON Q	0601	0001	000120	R054
F0741	03/21/77	758	5053 Q	0601	0001	000122	F054-77.8%

F0766	03/21/77	588	5114Q	0659	000118	F054-52.2%
F0746	03/21/77	588	5114Q	0659	000118	F054-54.9%
F0768	03/30/77	428	5001NONQ	0624	000120	F054-60.9%
F0765	04/07/77	18'S.Q	5001NONQ	0607	000120	F054-69.3%
F0799	04/12/77	87	5001NONQ	0629	000122	F059
PC828	04/19/77		NONQ	0613	000120	PC81
F0843	04/28/77	721	5001Q	0612	000120	F061-66.8%
F0845	04/29/77		NONQ	0612	000120	F061
F0885	05/13/77	428	5001NONQ	0624	000118	F061
F0914	05/24/77		NONQ	0615	000120	F262
F0922	05/26/77	358	5001NONQ	0604	000121	F061
F0920	05/25/77	634	5001Q	0620	000120	F061-79.3%
F0925	05/27/77	11	5001NONQ	0617	000115	F278
F0938	06/09/77	145	5001NONQ	0615	000115	F051
F0953	06/25/77	428	5001NONQ	0624	000118	F051
F1146	08/31/77	248	5001NONQ	0624	000120	F061
F1148	08/31/77	248	5001	0624	000119	F061
F1149	09/01/77	248	5001	0621	000121	F061
F1150	09/01/77	248	5001	0621	000121	F061
F1257	10/07/77	41	5001NONQ	0623	000121	F061
F1477A	09/27/78	550	4375 NONQ	0629	000110	F066
F1477B	09/27/78	550	4375	0629	000118	F066
F1477C	09/28/78	160	4280	0629	000120	F067
F1477D	09/28/78	160	4280	0629	000111	F067
F1477E	09/28/78	140	4290	0631	000109	F068
F1480F	09/28/78	520	4300	0632	000121	F069
F1480G	09/28/78	520	4300	0632	000115	F069
F1481A	09/29/78	475	4275	0632	000117	F070
F1482B	09/29/78	250	4280	0630	000116	F071
F1483C	09/29/78	160	4280	0631	000115	F072
F3057	08/03/78	320	4630	0624	000109	F066-71.0%
2500	09/27/78	550	4375 NONQ	0629	000118	F066
2525	09/28/78	160	4280 NONQ	0629	000120	F067
2538	09/28/78	520	4300 NONQ	0632	000121	F069
2549	09/29/78	1000	4700 NONQ	0631	000119	U001
2562	09/30/78	0	4650 NONQ	0631	000120	U003
2565	09/30/78	40	4720 NONQ	0621	000129	U005
2568	09/30/78	40	4720	0633	000120	U006
2598	10/02/78	40	4720	0633	000118	U007
2608	10/02/78	460	5280 NONQ	0619	000119	F080
2609	10/02/78	300	5280 NONQ	0629	000110	F081
2612	10/02/78	120	4720 Q	0626	000119	F084
2614	10/02/78	480	5280 NONQ	0621	000118	F086
2617	10/02/78	80	4600 NONQ	0623	000113	F088
2622	10/03/78	200	4700 Q	0624	000118	F089
2623	10/03/78	470	5280 NONQ	0620	000120	F090
2625	10/03/78	120	4720 Q	0627	000118	F091
2626	10/03/78	480	5280 NONQ	0623	000118	F092
2627	10/03/78	80	4600 NONQ	0623	000119	F093
2628	10/03/78	180	4650 Q	0617	000116	F094
2631	10/04/78	27	4657 NONQ	0627	000119	F095
2635	10/04/78	20	4657 NONQ	0627	000119	F098
2647	10/04/78	80	4600 NONQ	0622	000119	F103
2648	10/04/78	190	4675 Q	0620	000118	F104
2650	10/04/78	330	4280 NONQ	0625	000118	F106
2677	10/05/78	475	5280 NONQ	0629	000119	F115
2678	10/05/78	190	4675 Q	0623	000120	F116
2680	10/05/78	50	4600 NONQ	0623	000121	F118
2681	10/05/78	30	4600 NONQ	0623	000121	F119
2682	10/05/78	475	5280 NONQ	0630	000120	F120

↑ ZONE
↓ ZONE



294	10/06/78	190	4575 QV 0628	0001	000119	F121-72.6%
	10/06/78	50	4600 NONQ 0625	0005	000119	F128
	10/06/78	30	4600 NONQ 0625	0001	000119	F129
294	10/06/78	230	4575 QV 0628	0004	000119	F131-79.8%
	10/06/78	475	4555 NONQ 0630	0006	000119	F132
	10/06/78	220	4610 QV 0628	0004	000118	F133-76.0%
	10/07/78	190	4575 QV 0628	0005	000118	F134-STR
	10/07/78	W4	4503 NONQ 0625	0010	000123	U011-62.0%
	10/07/78	40	4603 NONQ 0625	0010	000126	U012
	10/07/78	44	4603 NONQ 0625	0010	000129	U012
394	10/07/78	240	4560 QV 0631	0005	000118	F137-STR
	10/07/78	2	4587 NONQ 0625	0010	000127	U013-75.6
	10/07/78	2	4587 0625	0010	000130	U013
	10/08/78	0	4583 0625	0009	000117	U015
	10/08/78	W4	4583 0625	0009	000115	U016
	10/08/78	49	4583 NONQ 0625	0010	000111	U017
	10/08/78	49	4579 0625	0009	000124	U018
	10/08/78	45	4579 0625	0009	000118	U018
	10/08/78	W4	4579 NONQ 0625	0009	000128	U019
	10/08/78	W5	4595 0625	0010	000127	U020
	10/08/78	0	4595 0625	0010	000127	U020
	10/08/78	45	4595 NONQ 0625	0009	000121	U021
	10/08/78	42	4611 0625	0010	000131	U022
	10/08/78	42	4611 0625	0009	000130	U022-68.2
394	10/08/78	220	4560 QV 0630	0005	000117	F143-STR
	10/09/78	46	4603 NONQ 0628	0008	000131	U028
	10/09/78	0	4603 NONQ 0628	0009	000128	U029
	10/09/78	46	4571 NONQ 0628	0009	000131	U031
	10/09/78	100	4510 NONQ 0630	0009	000129	U033
	10/09/78	42	4611 0627	0009	000123	U034
	10/09/78	42	4611 0627	0009	000121	U034
	10/09/78	2	4611 NONQ 0627	0010	000125	U035
	10/10/78	W4	4587 NONQ 0627	0010	000129	U036
	10/10/78	48	4587 NONQ 0627	0009	000107	U038
	10/10/78	0	4571 NONQ 0627	0005	000128	U039
10	10/10/78	190	4625 QV 0630	0007	000117	F152-STR
02-102	10/10/78	W3	4595 NONQ 0628	0009	000129	U041
	10/10/78	0	4595 0628	0008	000124	U041
	10/10/78	48	4595 NONQ 0628	0011	000120	U042
	10/10/78	44	4595 0628	0011	000128	U042
	10/10/78	46	4579 0628	0009	000128	U044
	10/10/78	44	4579 0628	0009	000127	U044-71.6%
394	10/10/78	150	4575 QV 0627	0004	000120	F153-STR
	10/10/78	W2	4553 NONQ 0628	0009	000128	U046
	10/10/78	41	4553 NONQ 0628	0010	000125	U047
	10/10/78	41	4553 0628	0011	000129	U047
294	10/10/78	151	4640 QV 0627	0001	000117	F154-69.7%
	10/11/78	200	4550 QV 0631	0001	000115	F155-73.1%
294	10/11/78	230	4630 QV 0627	0001	000117	F162-68.7%
	10/11/78	20	4620 NONQ 0629	0010	000127	U050
294	10/11/78	220	4626 QV 0628	0005	000126	F164-79.3%
	10/12/78	550	4600 NONQ 0628	0012	000131	U053
	10/12/78	231	4600 QV 0628	0006	000119	F168-72.8%
	10/12/78	28	4555 NONQ 0630	0010	000128	U054
	10/12/78	0	4603 NONQ 0631	0012	000128	U055
	10/12/78	235	4610 QV 0631	0001	000117	F174-67.7%
	10/13/78	150	4575 QV 0631	0001	000115	F176-79.2%
394	10/13/78	230	4620 QV 0630	0004	000119	F177-78.4%
	10/13/78	W4	4611 NONQ 0627	0012	000124	U058
394	10/13/78	230	4620 QV 0634	0007	000118	F183-70.2

2961	10/17/78	705	4465 NONQ 0E32	0004	000115	F185-75.5%
2964	10/17/78	310	4615 Q 0E28	0006	000118	F196
3003	10/18/78	250	4575 NONQ 0E31	0007	000119	F197-79.6%
3035	10/21/78	925	4675 NONQ 0E22	0015	000119	P202
3039	10/21/78	925	4650 NONQ 0E22	0011	000120	U066
3054	10/23/78	940	4680 NONQ 0E25	0010	000116	U066
3076	10/26/78	925	4655 0E30	0009	000128	U074
3087	10/27/78	935	4700 0E31	0009	000132	U079
3105	10/28/78	283	4440 NONQ 0E30	0004	000131	U080
3110	10/30/78	65	4665 NONQ 0E32	0006	000119	F234 - STRV
3118	10/30/78	280	4640 Q 0E28	0005	000131	U082
3120	10/31/78	40	4670 NONQ 0E31	0008	000120	P239-73.0%
3123	10/31/78	40	4670 0E31	0008	000131	U085
3136	11/01/78	940	4680 0E32	0010	000128	U085
3213	11/20/78	W5	4400 NONQ 0E34	0010	000126	U087
						U097

cleared by
3130

CELE



CONSUMERS
 POWER
 COMPANY
 QAT7-0

NONCONFORMANCE REPORT

PROJECT NAME: Midland 1 & 2	7. NONCONFORMING PART NO: NA	8. NONCONFORMING PART NAME: Compaction Equipment as stated in Block 12	1. NCR SERIAL NO: M-01-9-0-038
9. SERIAL NUMBER: NA	10. ORG. COMPETING NO: Bechtel Project Engineering	11. AREA/LOC. OF NO: Midland Nuclear Plant	2. DATE: 5-15-80
12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS: See Pages 3-5.			3. DATE OF REV: NA
13. CA RECOMMENDATION FOR PART CA: See Pages 5 and 6.			4. FILE NO: 16.3.1
DESIGN/PROJECT ENG. DISPOSITION REQUIRED <input checked="" type="checkbox"/> NOT REQUIRED <input type="checkbox"/>			5. DISTRIBUTION ACTION COPY: LADreisbach
14. HOLD TAGS APPLIED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> NUMBER, LOCATION & TYPE OF HOLD TAGS APPLIED: 4-Hydrant, SE Corner Oily Waste Bldg (2) & W Outside Wall DG Bldg, 638 elev (2)			INFO COPY: WLBarclay JMilandin WRBird DBMiller RBCherba RLRixford JWCook JARutgers TCCooke(2) DATaggart JLCorley LEDavis PKHansen SHHowell GSKeeley BWMarguglio
IS PROCESS CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, ENTER JUSTIFICATION BELOW:			
16. DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	17. IS NC REPORTABLE PER 50.55(e): YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
18. IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	19. IF YES, DATE & TIME OF REPORT TO NRC: NA		
20. IF YES, WHO MADE REPORT TO NRC: NA	21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: NA		
22. NCR ORIGINATED BY: RG Wolbrey for DE Nuhn	23. WRITTEN REPLY REQUIRED BY: 5-30-80 TO ESTABLISH CA COMPLETION DATE	24. SUPERVISOR'S SIGNATURE/DATE: <i>[Signature]</i> 5/15/80	
25. PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:			
26. DESIGN/PROJECT SIG. AUTH. DISP.:	27. PMO SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.: NA	29. SIG. OF ORG. RESP. FOR C/A:
30. FAB/CONST. SIG. AUTH. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION: NA	32. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.: NA	33. QA AUTH. SIG. TO IMPLEMENT DISP.:
34. METHOD OF PART CA VERIFICATION:			
35. SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION:	36. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE:	37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)	



NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

38. QA ASSESSMENT OF ROOT CAUSE(S):

(A) - (D) Unknown, to be determined.

39. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

40. PROCESS CA REQUIRED FROM:

DESIGN FABRICATION CONSTRUCTION PROCUREMENT INSPECTION
OTHER _____

41. QA RECOMMENDATION FOR PROCESS CA:

(A) - (D) Unknown, to be determined.

42. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 41 & DATE OF COMPLETION:

43. METHOD OF PROCESS CA VERIFICATION:

44. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

45. PROCESS CA COMPLETION VERIFIED BY/DATE:

NCR SERIAL NO: M-01-9-0-038
 DATE: 5-15-80
 DATE OF REV: NA
 FILE NO: 16.3.1

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

(A) Specification C-211 Revision 9, Section 8.5.1 states, "Selection and approval of all of the proposed compaction equipment shall be on the basis of demonstrated ability to accomplish adequate compaction..."

Specification C-211 Revision 9, Section 8.7.1 states in part, "Cohesionless material under structures shall be compacted to not less than 85% relative density. All other areas where cohesionless material is used shall be compacted to 80% relative density".

TXW 5283 (BEBC-3162) from Project Engineering to Construction states in part, "THIS TWX LISTS WHICH EQUIPMENT IS QUALIFIED FOR Q-LISTED AND NON-Q-LISTED FILL PLACEMENT, AS REQUIRED.

EQUIPMENT TYPE	APPLICABLE MATERIAL	REQUIRED PASSES & THICKNESS
M-B-W VIBROTARY (MODEL GP 7000)	STRUCTURAL AND RANDOM SAND	4" LIFT, 6 PASSES
VIBRO PLUS SELF-PROPELLED (MODEL CA-25D)	STRUCTURAL AND RANDOM SAND	6" LIFT, 10 PASSES"

Contrary to these requirements, the Test Fill Program Report dated March 1980 indicates:

1. Test Fill No 3A using 4" lift of Structural Backfill material and 6 passes/lift with the M-B-W Vibrotary (Model GP 7000) 10 out of 14 tests met or exceeded the 85% requirement.
2. Test Fill No 4B using 4" lifts of Random Sand and 6 passes/lift with the M-B-W Vibrotary (Model GP 7000) 5 out of 14 tests met or exceeded the 85% requirement.
3. No Test Fill has been prepared for Structural Backfill material using the Vibros Plus Self-Propelled (Model CA-25D).

(B) Specification C-211 Revision 9, Section 8.5.1 states, "Selection and approval of all of the proposed compaction equipment shall be on the basis of demonstrated ability to accomplish adequate compaction..."

Specification C-211 Revision 9, Section 8.7.2 states in part, "Cohesive material shall be compacted to not less than 95% maximum dry density, except as required by Section 8.7.3," and 8.7.3 states, "Cohesive materials placed in non-Q areas approved in advance by project engineering shall be compacted to not less than 90% maximum density determined in accordance with ASTM D 1557, Method D".

No Documents

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

NCR SERIAL NO: M-01-9-0-038

DATE: 5-15-80

DATE OF REV: NA

FILE NO: 16.3.1

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

(Contd from Page 3)

(B) (Contd)

IOM dated September 4, 1979 from S S Afifi to L H Curtis states in part,

"The following compaction equipment is qualified for use based on test fills and field results as monitored by Geotech..."

B. Clays...

3. Vibro plus dynapact (model CF-43)

(a) all areas requiring 90% compaction

(b) 8" lifts and 6 passes per lift..."

= - Nm Q

Contrary to these requirements, the Test Fill Program Report dated March 1980 indicates Test Fill No 5 using 8" lifts of clay and 6 passes/lift with the Vibro Plus Dynapact (Model CF-43) 2 out of 10 tests met or exceeded the 90% requirement.

(C) Specification C-211 Revision 9, Section 8.5.1 states, "Selection and approval of all of the proposed compaction equipment shall be on the basis of demonstrated ability to accomplish adequate compaction..."

Specification C-211 Revision 9, Section 8.7.2 states in part, "Cohesive material shall be compacted to not less than 95% maximum dry density, except as required by Section 8.7.3," and 8.7.3 states, "Cohesive materials placed in non-Q areas approved in advance by project engineering shall be compacted to not less than 90% maximum density determined in accordance with ASTM D 1557, Method D".

TWX 5560 (BEBC-3301) from Project Engineering to Construction states in part,

"THE RAMMER-TYPE COMPACTOR (POGO STICK) RV4B HAS BEEN SATISFACTORILY QUALIFIED FOR USE IN COMPACTING SOILS REQUIRING THE FOLLOWING:

2) 90% AND 95% DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557 METHOD D FOR CLAYEY SOILS WITH 4 INCH LAYERS AND 8 PASSES..."

Contrary to these requirements, Test Fill No 11 in the Test Fill Program Report dated March 1980 indicates only one density test was taken on the clayey soils material to justify qualification of the Pogo Stick.

Why
in Ref

Same as A

NCR SERIAL NO: M-01-9-0-038

DATE: 5-15-80

DATE OF REV: NA

FILE NO: 16.3.1

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

(Contd from Page 4)

- (D) Specification C-211 Revision 9, Section 8.5.1 states, "Selection and approval of all of the proposed compaction equipment shall be on the basis of demonstrated ability to accomplish adequate compaction..."

Specification C-211 Revision 9, Section 8.7.1 states in part, "Cohesionless material under structures shall be compacted to not less than 85% relative density. All other areas where cohesionless material is used shall be compacted to 80% relative density".

TWX 5560 (BEBC-3301) from Project-Engineering to Construction states in part,

"THE RAMMER-TYPE COMPACTOR (POGO STICK) RV4B HAS BEEN SATISFACTORILY QUALIFIED FOR USE IN COMPACTING SOILS REQUIRING THE FOLLOWING:

- 1) 80% AND 85% DENSITY FOR STRUCTURAL BACKFILL SAND AND RANDOM SANDS WITH 4 INCH LAYERS AND 8 PASSES..."

Contrary to these requirements, Test Fill No 11 in the Test Fill Program Report dated March 1980 indicates:

1. Only two density tests were taken on the Structural Backfill material to justify qualification of the Pogo Stick.
2. Only two density tests were taken on the Random Sand material to justify qualification of the Pogo Stick.

13. QA RECOMMENDATION FOR PART CA:

1. Review all correspondence for 1979 and 1980 concerning equipment qualification for soil work from Geo Tech to Project Engineering and Project Engineering to Construction for similar problems.
2. Review all Project Quality Control Instructions C-1.02 "Compacted Backfill" Inspection Records for 1979 and 1980 for reference to correspondence identified in (A) - (D) in Block 12 and correspondence identified in 1. above having similar problems and document all Q-material placed using this correspondence.
3. Receive a Project Engineering disposition on any Q-material documented in 2. above.

NCR SERIAL NO: M-01-9-0-038

DATE: 5-15-80

DATE OF REV: NA

FILE NO: 16.3.1

13. QA RECOMMENDATION FOR PART CA:

(Contd from Page 5)

4. ✓ Revise the correspondence identified in Block 12 (A) - (D) and 1. above having similar problems, specifically calling out the equipment type, applicable material, maximum loose lift thickness of the material to be compacted, compactive effort and the density the equipment is qualified to (ie, 90% or 95% Compaction, 80% or 85% Relative Density) and supplement Specification C-211 with the revised equipment qualification information.
5. ~~4~~ Make additional qualification tests for the Pogo Stick for Structural Backfill, Random Sand, and clay materials and documentation of this additional qualification prepared by the on-site geo-technical soils engineer.

To R. L. Castleberry
Subject Plant Area Fill
Midland Units 1 & 2
Job 7220-001

Date 13 September 1974

From ~~S. S. Affitt~~
Of Geotechnical Services

Copies to J. H. Allen
H. H. Burke/W. R. Ferris
J. C. Hink
R. L. Rixford
J. O. Wanzeck
1320,3410

At Ann Arbor - E

This memo is intended to assist in preparing your formal response to Item 3 of BCBE-370 regarding compaction requirements for the plant area. Herein, we address recommendations given in the soils reports prepared by Dames & Moore for the Midland project and compare them with our earthwork specifications. The material in this memo confirms our previous discussions with your group.

The evaluation here pertains to plant area fill supporting and surrounding structures, any Category I slopes in the plant area, and the berm fill.

In-Situ Clays

Tables 1 & 2 attached (taken from Dames & Moore's soils report of June 28, 1968, Page 15 and its supplement of March 15, 1969, Page 16) present compaction recommendations for fill and backfill. In the June 28, 1968 report, the minimum clay compaction is recommended to be 95% for support of critical structures, 90% for support of non-critical structures, and 90% adjacent to structures, respectively; all percent compaction values are according to ASTM D 1557 Method D (about 56,000 ft-lb compaction energy). In the March 15, 1969 report, the minimum clay compaction is recommended to be 100% for support of structures, 95% adjacent to structures, and 90% for area fill (not supporting or adjacent to structures); all percent compaction values are according to Bechtel Modified Compaction (BMC: 20,000 ft-lb compaction energy).

Specification 7220-C-210 (Section 13.7) requires 95% of ASTM D 1557 Method D for in-situ clay in the plant area and berm.

In comparing the reports with the specification for in-situ clay supporting structures, it is seen that the specification and the 1968 Dames & Moore report are identical. Also, the specification and the 1969 report are consistent since 95% of ASTM D 1557 Method D is approximately equivalent to 100% BMC in some soils. However,

the requirement of 95% of ASTM D 1557 Method D given in the specification is the applicable criteria for compacting clay to support structures. Further assurance by conducting shear strength tests is required (see Section 12.4.8, Specification 7220-C-210). Compressibility tests may also be required.

The berm fill must be compacted to 95% of ASTM D 1557 Method D to insure adequate seepage protection and stability.

Category I fill placed within the failure zone of a slip circle may require a degree of compaction higher than 95% of BMC, because of design for the full SSE. However, it is conceivable that in-place fill compacted to 95% of the BMC will be adequate if strength and permeability properties are shown to be adequate.

Similarly, in-place fill supporting light structures may be adequate at 95% of BMC provided its strength and compressibility are shown to be adequate.

Fill in the plant area which will not support structures or pipes or be placed within the failure zone of Category I slopes may be compacted to a lesser degree than 95% of ASTM D 1557 Method D (e.g. 95% of BMC). This agrees with Dames & Moore's 1969 report and is consistent with their 1968 report which requires only 90% of ASTM D 1557 Method D.

✓ In-Situ Sands

The Dames & Moore June 1968 report presents recommendations for compacting sand in terms of maximum density while their March 1969 report presents recommendations in terms of relative density. The later report is considered more applicable for sands since relative density is one of the basic parameters required to control liquefaction. Therefore, in-situ sands supporting structures must be compacted to a relative density of 85% (ASTM D 2049). For well-graded sands around structures, the 80% relative density specified in 7220-C-211 is adequate.

Key Accordingly, any in-situ clay which will be supporting structures or be involved in Category I slopes and the berm must be compacted to 95% of ASTM D 1557 Method D.

If the fill is already in place according to BMC, it may be adequate for some structures, pipes, or slopes, provided it is shown by sufficient testing that its strength, compressibility and seepage

R. L. Castleberry
13 September 1974
Page Three

characteristics are adequate. This requires sampling and laboratory shear strength and consolidation testing. Section 12.4.8 of the earthwork specification addresses this issue for any in-place fill. Compaction curves using both ASTM D 1557 Method D and Bechtel Modified Method must also be developed and correlated with shear strength and consolidation test results on the compacted soil to evaluate the compressibility and shear strength achieved from both methods of compaction for the in-place fill.

This information will allow a complete evaluation of any in-place fill for its proposed function, in addition to providing information which will be needed for the FSAR. It should also clear up any questions as to how fill should be placed in the future.

We will be happy to discuss this matter further with you at your convenience.

Sheif S. Joffe
S. S. Afili

SSA:lab

Attachments

SBS00235

TABLE 1

Minimum Compaction Criteria from Dames & Moore

June 1968 Report**

<u>Purpose of Fill</u>	Recommended Minimum Compaction Criteria Percent of Maximum Density*	
	<u>On-Site Cohesive Soils</u>	<u>On-Site Granular Soils</u>
Support of Critical Structures	95	100
Support of Non-Critical Structures	90	95
Adjacent to Structures	90	95

* Maximum density and optimum moisture content should be determined by the ASTM Test Designation D 1557 Method D.

** Report, Foundation Investigation and Preliminary Explorations for Borrow Materials Proposed Nuclear Power Plant, Midland, Michigan, June 28, 1968.

SBS00236

TABLE 2

Minimum Compaction Criteria from Dames & Moore

March 15, 1969 Report***

<u>Purpose of Fill</u>	Recommended Minimum Compaction Criteria	
	<u>On-Site Sand Soils</u> Percent Relative Density*	<u>On-Site Clay Soils</u> Percent of Maximum Dens.
Support of Structures	85	100
Adjacent to Structures	75	95
Area Fill (not supporting or adjacent to structures)	70	90

* Maximum and minimum density of sand soils should be determined in accordance with ASTM Test Designation D-2049.

** Maximum dry density and optimum moisture content should be determined in accordance with ASTM Test Designation D-698, modified to require 20,000 foot-pounds of compactive energy per cubic foot of soil.

*** Supplement to Report, Foundation Investigation and Preliminary Explorations for Borrow Materials, Proposed Nuclear Plant, Midland, Michigan March 15, 1969.

SBS00237

MINIMUM COMPACTION CRITERIA
PLANT AREA FILL AND BERM

<u>Function of Fill</u>	<u>Minimum Compaction Criteria</u>	
	<u>In Situ Sand</u> ⁽¹⁾	<u>In Situ Clay</u> ⁽²⁾
Support of Structures ⁽³⁾	85%	95%
Adjacent to structures (Gradation specified in 7220-C-211)	80%	-
Category I Slopes	-	95%
Berm	-	95%
Area Fill (not supporting or adjacent to structures)	-	95%

- (1) All sand compaction is in terms of relative density as determined from ASTM D 2049 test.
- (2) All clay compaction is in terms of maximum density as determined by ASTM D 1557, Method D except for area fill not supporting or adjacent to structures. In these areas, ASTM D 1557 may be altered such that only 20,000 ft-lb/ft³ of energy would be required.
- (3) Strength and compressibility testing may be required to confirm adequacy of fill.



Consumers
Power
Company

10-30-80
(affi)

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 780-0550

October 22, 1979

OCT 22 1979
Evo Mgr.
Midland Project

DIV	_____
TAS	_____
CAK	_____
JSK	_____
MHM	_____
W'S	_____
SNA	_____
URS	_____
GJD	_____
JES	_____
WJB	_____
EPF	_____
CVH	_____
MF3	_____
JSS	_____
JJD	_____
CMO	_____
DRR	_____
RLB	_____
PKW	_____
ASP	_____
SEC	_____
CLK	_____
FILE	_____

Mr J A Rutgers
Project Manager
Bechtel Power Corporation
PO Box 1000
Ann Arbor; MI 48106

MIDLAND PROJECT -
REMOVAL OF LOOSE SAND -
FILE 0130 UFI 08*06 SERIAL 7802

- Reference:
- 1) Consumers Power Company Letter, Serial 3478, Dated October 6, 1978
 - 2) Bechtel Letter, BCCC-3587, Dated October 23, 1978
 - 3) Bechtel Letter, BLC-8167, Dated September 17, 1979

We have reviewed Bechtel letter, BLC-8167, (Reference 3) and disagree with the conclusion that Bechtel is not responsible for the additional costs associated with efforts to resolve NRC Question 362.2. We disagree for the following reasons:

1. The NRC raised the loose sand question in early 1970. On Page 8.00-1 of the PSAR, Bechtel provided the NRC with a discussion of how the sands would be treated. The Bechtel intentions as stated in the PSAR were as follows:
"For example, in those areas of the turbine building adjacent to the emergency diesel generator building, existing sand will be removed if further tests show relative density of this sand is less than 75%." It is obvious that in place density testing was intended to be performed in order to verify the natural sand densities.
2. Bechtel Engineering communicated this commitment to construction in 1975 by placing a note on Drawing C-44 indicating that sands with less than 75% relative densities must be removed.
3. The loose sand commitment was also delineated in FSAR Section 2.5.4.5.1. This was a statement that the design drawing (C-44) was issued to require removal of loose sands with relative densities less than 75%.

4. In mid-1978, Bechtel Engineering asked both the Bechtel Construction and Consumers Power Company Field Engineers if they had any knowledge of density tests taken for the purpose of clearing areas where natural sands had existed. Consumers Power Company civil field personnel spent several days looking at records in Jackson to identify any field tests performed to document the densities of the sand. All efforts by Bechtel and Consumers Power Company were unable to identify any documented field density tests which would resolve this question. In mid-1978 when the investigation occurred, all of the areas in question had been covered by approximately 30' of backfill.

It seems obvious to us that although field density tests were to be performed to approve areas where natural sands existed, they were not performed or if performed, they were not documented. Based on the inability to show by documentation that the commitment had been adequately addressed, borings were ordered by Bechtel Engineering to resolve the NRC question. If density test had been performed and documented initially, the recent borings and engineering analysis would not have been required. Failure to properly meet PSAR and FSAR commitments, and the requirements of Drawing C-44, has resulted in significant costs to Consumers Power Company.

Therefore, we do not accept the argument that because the recent borings showed natural sands which had relative densities greater than 75%, Bechtel has no liability for additional costs. It is our contention that no borings or analysis would have been necessary if Bechtel had properly executed drawing, FSAR and PSAR requirements.


G S Keeley
Project Manager

GSK/cg

BCC DEMiller, Midland (3)
JLBacon, M-1085A
DGPandolph, P-14-422
JEFelber, Midland-Accounting

PROBLEM: "UNCOMPACTED BACKFILL" Plant Area-does not Include Dikes

W
H
A
T
?

<u>IS</u>	<u>IS NOT</u>	<u>DISTINCTION</u>	<u>CHANGES</u>
D/G Bldg.	Power Block	Recent Plant Area Fill	Use of both C-210, C-211 Prior - used only C-210
X-Former Pads	Evaporator Bldg	Not part of Dike/ North Plant Area Fill	Sand & clay vx clay alone
Condensate Tanks	Cooling Tower	Fill placed during different time periods	Two contractors - Bechtel & Canonie
Radwaste Bldg*	Steam Tunnel	Last area to be backfilled	Bechtel used C-211
Tank Farm*	Service** Water	Settlements seem to occur in spread type footings	Large equipment to large & small equipment
*Not as significant or wide spread as other areas	Circulating Water **Problem exists with sands around structure but not under	Excavation/Re-excavations (significant areas)	Use of ramps/temporary fill
Guard House			
<u>Occurred After 1975</u>	<u>Prior to 1975</u>	<u>Slowdown of 75 with personnel changes</u>	<u>Specification interpretations by different individuals</u>
		Late in jobless emphasis on civil work	deletion of 4" lift requirement
		Cooling Pond Filled	Urgent need to see work completed
			Sand/structural fill used together with clays
			Qualification of personnel may have changed
			Differing weather conditions
			Rebar problems occurred

W
H
E
N
?

PROBLEM: "UNCOMPACTED BACKFILL" Limited to Plant Area - does not Include Dikes

	<u>IS</u>	<u>IS NOT</u>	<u>DISTINCTION</u>	<u>CHANGES</u>
E X T E N S I V E ?	Plant Area Fill After 1975	Plant Area Fill prior to 1975	Sand incorporated in fill	Sand/clay interfaces - softening of clays due to watering
	elev 612' & above	Below elev 612'	Smaller areas of fill	Larger lift thickness for equipment and harder to control lift thickness
	Most signifi- cant problem area south & southeast of Turb Bldg		Most extensive examination re-excavations	Introduction of smaller equipment
W H E R E ?		Glacial Till Undisturbed	Require handling & Placement by Equip- ment	
	Backfill (clay) (sands)	Natural sands	Clays - N/W Plant dike sand/clay rest of area	More mixing & material interfacing
		Backfill Concrete	Area exposed the longest during construction	More winters
		North/West Plant Fill		

Possible Causes

Test	Possible Causes			Cause
	Yes	No	?	
Use of different Specification	X			Problem is only associated with areas which used Spec C-211
Recent Work		X		
Not Part of Dike/Plant (N/W) Area			X	
Placement of Fill during different periods	X			Different personnel different equipment
Last Areas to be Backfilled	X			Schedule pressures
Occurs on spread FIGS	X			Design may be deficient
Excavations Re-Excavation	X			Most significant problem in area where most excavation/re-excavation occurred
Introduction of C-211	X			Differing requirements/people/interpretations
Different Materials	X			Differing methods for construction - addition of water to sands
Use of small equipment	X			Not able to compact as effectively (no test pads for small equipment qualifications)
75 Slow Down	X			Changes in personnel and discontinuing of work
Filled Cooling Pond		X		Designed to be in saturated condition
Less emphasis on civil work	X			Less supervision and inspection
Specification interpretation	X			Relates to personnel
Larger lifts per spec.	X			Coupled with small equipment

Test	Yes	No	?	Cause
Schedule pressures	X			Complete work hastily
Personnel qualifications	X			No soils engineer on site
Smaller fill areas	X			Relates to equipment and lifts
More Freeze-thaw cycles	X			These areas filled during several winters
Weather (dry or wet) also when material was placed			X	
Removal of temporary ramps and fill	X			Uncompacted materials placed and left in large amounts
Rebar Problem occurred	X			Deals - priorities for inspection/ extent of inspection

ACTION PLAN

1. Define problem areas better by boring logs and TOPO's (PMO - work on this).
2. Define problems by elevations (use boring logs) (PMO - OA later).
3. Define difference between C-211 and C-210 (QA).
4. Define what work was done by Bechtel and Canonie (PMO).
5. Define where trenches were made (excavations) (photos, TOPO's, etc) (PMO - QA).
6. List all equipment used by a) Bechtel
b) Canonie
(photos, rental sheets).
7. Look at changes in personnel/qualifications (QA, PMO).
8. Look at assignments of supervision to earthwork by period.
9. Look at telecons/FCR's to spec, DR's (QA).
10. Look at specs and also photos.
11. Look at rate fill in areas where there was problems (PMO).
12. Check problem areas with completion of the year's work (freeze - thaw) do with 4.
13. Look at number of QC people assigned to soils, their time involved with soils (IR's, FE Reports).
14. Ramps - Check photos, TOPO's, compare with borings (also gravelly areas in borings)
(can do in conjunction with 12, 4) (QA, PMO).
15. Review weather data for periods of problems (PMO).

DATE: 7/3/80

SOILS QA AUDIT

NAME: _____

CITY: ANN ARBOR

ATTENTION: L. H. Curtis

FROM: P. J. Corcoran

NUMBER OF PAGES 15 + cover

GEOTECH ANN ARBOR DISTRIBUTION			
DISC	ACT	INFO	W/A
MGR		1	
ADMIN			
DRFT			
SOILS		2	
GEOL			
H&H			
WT			
CE			
Proj Mgr			
Proj Eng			
JOB			
REC'D			

MIDLAND, MI

Stair Blue - Findings 1, 11, 12, 13

are the primary ones affecting Geotech
JHC

JOB 7220			
	ACT	INFO	W/A
ENGR		1	
ASST PE DES			
ASST PE T			
ASST PE ULS			
ASST PE P/C			
ASST PE RES			
LIC & SAFETY			
MECH			
M/C SYSTEM			
PLANT DES			
ELECT			
CVTL SYS			
CONSTR			
ADMIN			
CTR ENGR			
ENGRS MON			
PROG MGR			
PROJ MGR			
WELD			
CONST COORD			
ADMIN			
FILE NO			

2/15

FINDING NO. 1

PQCI SC-1.05 Rev. 9 - Activity Test 2.2a9 states: "Field density tests resulting in 105 and over of maximum laboratory density of proctors and/or relative densities, retested." This is a witness point. Contrary to this requirement SC-1.05-180 was signed off for activity 2.2a9 on 6/9/80 - 6/13/80 as NA scoped for 6/9/80 through 6/13/80 and test 6182 taken 6/3/80 and test 6184 taken 6/5/80 had 108.1 and 106.6 percent relative density respectively. The Compacted Fill Density Test Report containing test 6/82 and 6/84 was signed off by responsible QC engineer 6/11/80.

INVESTIGATION

- A. There is no requirement in the specification for retest at more than 105%.
- B. This item was incorporated in the QCI at client QA insistence, based on a 50.54(f) response commitment to this effect.
- C. The QCI requirement was overruled by the GeoTech personnel instructing U. S. Testing personnel that retests will not be required. This review was conducted on all tests subsequent to the Rev. 8 of QCI SC-105 from the period of December 3, 1979, through the current period.
- D. The GeoTech engineer is reputed to have given his direction to U. S. Dtesting under the authority of Paragraph 8.3.5 of Spec. C-211, which says that all soils work shall be performed under the direction of a qualified soils engineer.

RECOMMENDED SOLUTION

The recommended solution for this item is for QC to implement the existing quality program. That is, when a test is recorded with greater than 105% of the theoretical, a retest will be performed. QC will not accept or approve the U. S. Testing Report that identifies a test of 105 or greater.

CAR will be issued for corrective action. NCR 3041 has been issued to document areas where retests were not performed.

ADDITIONAL ACTION

Since this requirement is not a spec. requirement, a retest that results in 105 or greater would allow acceptance of the area without further test.

FINDING NO. 2

QCIR No. C-1.02-140 dated 1/2/80 for the first shift, Area "E" indicates test 6083 was taken at elevation 626.5. Contrary to this, Compacted Fill Density Test Report for 6083 indicates elevation 627.5.

INVESTIGATION

It has been determined that there was an error in the elevation recorded by U. S. T. personnel. Daily sheet by Q.C. and F.E.R. by GeoTech indicates El. 626.5 for elevation. Referenced density test #6083 was failing. The area was reworked and retested on 1/4/80, by density #6086, which was also at elevation 626.5. The retest exceeded minimum density requirements, and clears #6083.

FINDING NO. 3

Daily Soil Placement Report for C-1.02-140 dated 12/31/79, first shift, Area "A", indicates coordinates South 5035 to 5056. Contrary to this, it only indicates the width to be 8 feet.

For Area "B", the East coordinates 255 to 295 does not correspond with the length of 36 feet.

Area "C" has East coordinate 295 to 335. Contrary to this, a length of 36 feet is given.

For Area "D" South coordinates are given as 5165 to 5185. Contrary to this, the width indicated is only 12 feet. East coordinates are 345 to 390, but the length indicated is only 32 feet.

For Area "E", South coordinates are 5140 to 5156. Contrary to this, the width is given as 12 feet. East coordinates are 330 to 390. Contrary to this, the length is given as 58 feet.

INVESTIGATION

Sketches and locations of backfill operations, required by Instruction #5 on daily sheets, indicates the approximate work areas. These are showing excavated areas, which are often irregular in shape. The length and width data recorded is used to calculate quantities of fill placed as opposed to extent of excavations.

4910

FINDING NO. 4

Daily Soil Placement Report dated 12/31/79 first shift, QCIR No. C-1.02-140 for Area "A" indicates two lifts were placed and only one series of 8 passes observed. Area "D" indicates two lifts placed and only one series of 8 passes was observed for two pieces of equipment. Area "E" same as area "D" above.

Daily Placement Soil Report dated 1/4/80 for the first shift for QCIR No's C-1.02-140, for area "C" indicates four lifts placed and only one observed for 8 passes. Area "D" same as area "C" above. Cannot tell which lift was observed. Not all lifts were observed for compaction.

INVESTIGATION

Instructions for #8 on the daily sheet says check the method used to compact soil and the number of passes required. That has been followed on all daily soil reports. The instructions say nothing about recording that information per lift of material placed. This was not the intent of the requirement. All lifts placed have complied with the data indicated in #8.

PRELIMINARY
7229

FINDING NO. 5

The Daily Soil Placement Reports do not indicate what elevation the placement began at and what the final elevation of the placement was at the end of each shift.

INVESTIGATION

Block 9 of the daily Soil Placement Report indicates the lift thickness with start and finish elevation of each lift. The finish elevation on the last lift place is the finish elevation of placement after compaction.

All packages (40) reviewed show no deficiencies in this area.

PRELIMINARY
7220

6 of 15

FINDING NO. 6

C-1.02 has not been signed off by Level II in a timely manner.

C-1.02-118 scoped 8/2/79 - 8/4/79 is through.

C-1.02-163 scoped 6/9/80 - 6/14/80 have not been signed off by a Level II.

PRELIMINARY

INVESTIGATION

- A. QC recognizes that a number of QCIR's have not been reviewed by a Level II.
- B. The daily QC soil placement reports are reviewed and signed off by a Level II. The daily soil test reports include the detail calculations and data of the tests and are supplemental to the IR.
- C. Paragraph 8.9 of PSP G-6 indicates that the QC Engineer confirms his acceptance of the activities described in the QCI by initialing and dating the appropriate sign-off blocks in the inspection record. Paragraph 8.10 of the same PSP indicates that completeness and acceptance of the recorded data is accomplished by a Level II in the same discipline.
- D. There is apparently no requirement written for a timely review of the data by a Level II. In addition to the daily soil placement reports being reviewed by the Level II Civil QC Engineer, the U. S. Testing Field Density Report Test results are also reviewed and signed off by the corresponding subcontract QC Engineer, Level II.

SUMMARY

The apparent lack of timeliness of a Level II review of this data does not appear to constitute a quality problem in the acceptability of the soils work, but indicates a lack of available manpower in the Quality Control organization for clearing up quality control inspection records.

1071-

FINDING NO. 7

Daily Soil Placement Report for Area "D" dated 1/16/80 first shift for QCIR No. C-1.02-142 states on Line 6, "Subgrade was removed to suitable material, moistened and compacted with 8 passes prior to start of backfill." However, this does not state the elevation at which the subgrade was removed.

INVESTIGATION

The first elevation shown in Block #9 is the starting elevation, or subgrade, for that day's work. As indicated on daily soil report, 1/16/80, subgrade was el. 630'-8", it was moistened and compacted, prior to placement of fill. On report for 1/15/80, the same information is given for an area just west of the 1/16/80 area. This work consisted of backfilling diesel fuel oil lines.

8 of 15
PRELIMINARY

FINDING NO. 7A

QC inspection assignment record for C-1.02-153 on line 3 indicates through 2/28/80. This should be 3/31/80 through 4/4/80.

INVESTIGATION

Scope of work as shown in Block #6 of QCIR C-1.02-153 shows correct date of work operations. IAR is not a permanent record, is only used to indicate review of inspection criteria.

9 15

PRELIMINARY

FINDING NO. B.

Daily Soil Placement Report for 4/14/80 first shift for Area "A", GCIR No. C-1.02-155 on line 5 indicates test frequency required. One per backfill location and indicates the actual as "none taken".

INVESTIGATION

Frequency for referenced area was set on 4/16/80 by test #6142. Frequency per that backfill location or area was 1 test per 3 cubic yards placed. None taken on 4/14/80 as indicated on daily report.

10 of 15

PRELIMINARY

FINDING NO. 9

Daily Soil Placement Report dated 5/2/80 for Area "A"; QCIR No. C-1.02-157 indicates in line 9 that material was placed in two lifts over an area that had test 6160 fail compaction. It should be noted that the test was taken 5/1/80 and results were given to the QC Inspector on 5/2/80 at 9:00.

INVESTIGATION

There is no requirement to stop backfill operation after a density test is taken; however, backfilling operations are stopped when failing results are obtained from U. S. Testing, as they were on 5/2/80 in the A.M. Two feet of material had since been placed and compacted in 4" lifts. A retest was taken at the same elevation, as the failing test and results of 6165 were acceptable. Backfill operations commenced the following Monday in that area.

11 of 15

PRELIMINARY
722

FINDING NO. 10

Field Engineer Report dated 5/14/80 states, in part, "backfill in progress, pipe excavation south of oily waste building and tank from S 4665 E 405 to S 4665 E 500." Contrary to this, the Daily Soil Placement Report for 5/14/80 indicated on line 13 "No 'Q' Backfill Placed Today."

Field Engineer Report dated 5/21/80 indicated soil placement E of Oily Waste @ S 4673 E 510 to S 4673 E 550. Contrary to this, the Daily Soil Placement Report for 5/21/80 indicated soil placement South 4665 ± to 4680 ± East 515 ± to 540 ± Length 25' ± Width 12' ±.

Field Engineer Report dated 5/6/80 indicated soil placement south of Turbine Building bounded by S 5035 to S 5042 E 320 to E 379.

Contrary to this, the Daily Soil Placement Report for 5/6/80 indicated on line 13 "No 'Q' Backfill Placed Today."

INVESTIGATION

A review of the Field Engineers Report Form, and the Daily Soil Placement Report for the days in question shows evidence that the reports are correct as written. The apparent discrepancy is caused when soil is placed in an area, but no tests are taken. This is possible because tests are not required for each placement lift, but rather the frequency of tests is determined by the number of cubic yards of material placed, and/or at the discretion of the GeoTech on-site engineer additional tests above the required frequency may be taken.

12 of 15

PRELIMINARY
7225

FINDING NO. 11

Specification C-211 Rev. 10 section 8.6 states:

"8.6 COMPACTION EFFORT

The onsite geotechnical soils engineer shall verify that the equipment used for compacting the backfill material is capable of obtaining the desired results and obtaining the same acceptable compaction effort achieved in the test pad area. This verification shall include, but not limited to, the following:

- 8.6.1 Number of passes
- 8.6.2 Speed
- 8.6.3 Revolutions per minute (frequency)
- 8.6.4 Overlap per pass
- 8.6.5 Lift thickness requirements and uniformity."

Contrary to this requirement, there is no evidence in the Field Engineer Reports that this compaction effort has been verified. (The onsite geotechnical soils engineer does not have a copy of the "Test Fill Program.")

INVESTIGATION

Item No. 11 related to the fact that per paragraph 8.6 of Specification C-211, the on-site GeoTech soils engineer shall verify that equipment used for compacting the backfill is capable of obtaining the desired results and obtaining the same acceptance compaction effort achieved in the test pad area. The auditors finding states that contrary to this requirement, there is no evidence in the field engineer records that compaction effort has been verified. The on-site GeoTech soils engineer does not have a copy of the test fill program. Results of Investigation (based on conversations with Jim Wonzak and Rao) follows.

RESULTS OF INVESTIGATION

A. Wonzak and Rao expressed their opinion that the intent of this section of the specification was not to provide documented evidence that this verification had been accomplished, but rather that the on-site GeoTech engineer was familiar with the soils compaction equipment capabilities and verified that they were properly used. The precise wording in the specification is not being adhered to.

FINDING NO. 11

Page 2.

PRELIMINARY

7220

- B. It is apparent that the on-site GeoTech soils engineer does not have to have the results, the test program, etc., that would be implied to be available to him to verify that the equipment being used is being properly used.
- C. It should be noted that J. Wonzak makes frequent trips to the jobsite and reviews the use of the equipment. Jim Wonzak was the original conductor of the qualification testing on the soils compaction equipment.
- D. It is also not apparent that the original intent here was to burden a professional GeoTech soils engineer with a degree of recordkeeping which is commensurate with quality control record-keeping in an area where he is assigned because of his training and experience to verify that the process is under control. Resolution of this item indeterminate at this time.

Added in Rev 6 in
5/18/79

14 of 15

PRELIMINARY

7220

FINDING NO. 12

Specification C-211 Rev. 10, paragraph 8.11 states, in part, "The onsite geotechnical soils engineer shall review and approve each soils test report." Contrary to the above, there is no objective evidence that the geotechnical soils engineer "reviews and approves" each soils test report.

① where did spec req originate
②

INVESTIGATION

The GeoTech on-site engineer does review and approve each soils test report. There is no procedural requirement for him to sign the report indicating his review and approval. All tests are performed at his, and under his direction, and test results are sent to him for his review. The GeoTech on-site engineer does sign his Field Engineers Report Form in which any tests taken are listed. The report also states that he has observed the soils test to be performed satisfactorily and in accordance with ASTM Specifications.

no!

SB802402

PRELIMINARY

FINDING NO. 13

Spec. C-211 Rev. 10, section 8.12, states:

*The process by which
completion?*

"FAILING TEST

All material represented by failing tests are to be reworked until the specified density and/or moisture is obtained. No material shall be placed on any known failing material until satisfactory tests are obtained."

Contrary to this requirement, it appears the top surface of the existing fill is reworked, but not all the material represented by the failing tests.

INVESTIGATION

Item #13 identified in the audit was that records indicate that for failing tests only the top layer of an area is being reworked. Results of Investigation:

A. This finding is apparently a lack of understanding on the part of the auditor in that tests are normally conducted one to two feet below the surface of the soil as it is installed. Those additional compaction efforts which are required to rework the soil in the area where the test indicates a failure can, in the opinion of the GeoTech experts, best be accomplished by performing additional compaction effort at the top level of the surface, that is, one to two feet above the level of the tests. The concept of considering that a failed soils test at one level that would indicate all of the compacted soil between that point and the previous acceptable test results to be improperly compacted is incorrect. The concept of using controlled equipment and controlled frequency of tests versus the amount of soil placed and compacted would be destroyed. The failing tests as such represent the material at that elevation and rework can be accomplished by compaction at the existing top surface and subsequently retested. The concept of all soils underneath that being unacceptable is not in context with the soils program, that is, with the use of qualified equipment and controlled procedures.

B. Mr. Rao indicated that intent of this section was for the GeoTech engineer to advise the QCE as to the equipment requirements per Section 8.6 depending upon the location and type of material involved.

*To the bottom of the
test that failed*

[Handwritten scribbles and marks]

REFERENCE COPY

UNCONTROLLED
DO NOT BE USED
FOR CONSTRUCTION

FIC 1.100 (Q)
Rev. 3
8-15-80

BECHTEL POWER CORPORATION

Field Instruction

FIC - 1.100 (Q)

Q-Listed Soils Placement Job Responsibilities Matrix

This supersedes FIC 1.100 Revision 2 Dated 2/25/80

TO: All Civil Field Engineers & Civil Craft Superintendents.

1.0 PURPOSE

This field instruction is written to provide a definition of job responsibilities for Q-Listed soils placement pursuant to Field Procedure FPG-3.000.

2.0 SCOPE

This field instruction applies to all Q-listed placement on the Midland Nuclear Project.

3.0 REFERENCES

Field Procedure FPG-3.000; Job Responsibilities of Field Engineers, Superintendents, and Field Subcontract Engineers.

Specification 7220-C-211; Technical Specification for Backfill.

PQC1 C1.02-SC-1.05 Instructions for QC inspection for compacted backfill and U.S. Testing activities.

4.0 RESPONSIBILITIES

The duties and responsibilities of the following individuals are defined in this instruction:

- a. On-Site Geo-Tech Soil Engineer
- b. Field Soils Quality Control Engineer
- c. Lab Quality Control Engineer
- d. Project Geo-Tech Soils Engineer
- e. United States Testing Co. Lab Technician

5.0 INSTRUCTION

This instruction provides job responsibilities instructions for Q-listed soils placement. It is provided as an amplification to FPG-3.000 and is complimentary to the directions provided in Specification 7220-C-211 and Quality Control Record Instructions C-1.02 and SC-1.05. Any questions on this instruction should be referred to the Lead Civil Field Engineer.

Prepared By: Paul A. Dugan 8/14/80
Date

Project Field Engineer: [Signature] 8/14/80
Date

Reviewed By:

PFQCE: ⁵⁹ [Signature] 8-15-80
Date

LQAE: R.C. Hollan 8-15-80
Date

Approved By:

Consumers Power Company: [Signature] 8/15/80 [Signature] 8-15-80
Date

Site Manager: [Signature] 8/15/80
Date

ATTACHMENTS

- Appendix A Summary of on Site Geo-Tech Soils Engineers duties and responsibilities. (Note: See correction TWX dated 8/15/80 attached.)
- Attachment 1 MATRIX
- Attachment 2 IOM - L. H. Curtis to L. E. Davis, BEBC-3633, dated January 30, 1980.
- Attachment 3 IOM - L. E. Davis to L. H. Curtis, BCBE-2772, dated February 13, 1980

Bechtel Associates Professional Corporation
Inter-office Memorandum

To Karl A. Kleinhart Date 13 August 1980
Subject Duties and Responsibilities of the Onsite-Geotech Soils Engineer From S. S. Afifi
Of Geotechnical Services
Copies to S. L. Blue At Ann Arbor 10 D 5
S. S. Afifi
L. H. Curtis
A. Boos
J. Rutgers
S. Rao
1320, 3100

Attached is a summary of the Onsite Geotech Soils Engineer duties and responsibilities. This attachment supercedes the one transmitted to you on August 8, 1980.

If you have any questions, please call S. S. Afifi or J. O. Wanzek.

Jawanzek For/SSA
S. S. Afifi

Jaw
JOW/aka
Attachment

SUMMARY OF ONSITE
GEOTECHNICAL SOILS ENGINEER
DUTIES AND RESPONSIBILITIES

POSITION: Onsite Geotechnical Civil Soils Engineer

PROJECT: CPCo Midland Plant Units 1 and 2

REPORTS TO: Field lead civil engineer for administrative direction
and project geotechnical soils engineer for technical direction

GENERAL JOB REQUIREMENTS:

1. Notify the project geotechnical soils engineer and quality control engineer of any onsite soil-related activity not in accordance with the specifications, drawings, or engineering practice.
2. Prepare a daily report in accordance with the attached outline on the field engineer's report form (attached). These daily reports shall be prepared at the completion of each day's work and shall be submitted to the project geotechnical soils engineer at the end of each work week.
3. Notify project superintendent of construction and/or project field engineer or other appropriate construction personnel of any construction activity detrimentally affecting the quality of soil-related work.
4. Provide pertinent information to project engineering personnel as required.

DAILY RESPONSIBILITIES:

1. Excavation: Observe foundation excavations to ensure that foundations and other facilities are constructed in accordance with applicable specifications and drawings.
2. Backfill: Observe backfill operations to ensure conformance to specifications.
3. Compaction testing: Observe onsite testing operations to ensure the requirements of Specifications 7220-C-211 and C-208 are met. Observe selected laboratory tests daily to ensure compliance with specifications. Review all testing reports and notify project geotechnical soils engineer of any problems.
4. Soils work: Ensure that all soils work conforms to requirements of Specification 7220-C-211(Q).

Summary of Onsite Geotechnical Soils Engineer
Duties and Responsibilities (Continued)

- 5. Compaction equipment: Ensure that the proposed compaction equipment is qualified and listed in the specification and can deliver the required degree of compaction for the proposed backfill area (i.e. under the structures, around the structures, Q-listed areas and non-Q listed areas). Establish if the proposed backfill area is confined and if the speed of advancement of compaction equipment cannot be accurately measured. Advise quality control engineer of the in-place density testing frequency. The speed of advancement in such areas need not be documented.
- 6. Inprocess testing: Observe at least once a day the inprocess testing operations. These testing operations shall include field density tests and moisture tests, laboratory proctor tests, gradation tests, plotting zero airvoids curves, etc. For further details see BEBC-3633 and BCBE-2772 (copies attached).
- 7. Specification clarification: If clarification to the specification is required, request such clarifications in writing by memorandum or TWX. The clarifications will be furnished by project engineering by a specification change notice or by revising the specification.
- 8. Testing frequency: Determine if the backfill location is a confined area and establish the frequency of testing based on Specification 7220-C-211(Q). These requirements are minimum. If additional tests are required, advise appropriate personnel and document such requests. Ensure that all soil placement is uniform, consistent and select the number of tests using professional and technical judgement.
- 9. Reworking areas represented by failing tests: If a failing test is reported, review the calculations for gross errors. If the calculations are correct and the failing test is confirmed, advise appropriate personnel to rework the area represented by the failing test. The rework should include additional compacting, disking, moisture conditioning, or removing materials to the elevation at which the test was taken. The test elevation is usually 1 foot or 6 inches below the surface for cohesionless and cohesive materials, respectively. Direction for such rework shall be documented. Location for the retest shall be chosen within the same proximity (approximately 3-foot radius) and approximately at the same elevation (+3").
- 10. Test fill program: Ensure that soil placement activities are compatible with those performed in the test fill program. Get familiarized with the reports on the test fill program.

DAILY REPORTS OUTLINED:

1. Backfill

Observations of backfill operations should be recorded each day of Q activity with the following items reported, when observed:

Summary of Onsite Geotechnical Soils Engineer
Duties and Responsibilities (Continued)

- a. Backfill area
- b. ~~Compaction~~ Compaction equipment types
- c. Loose lift thickness
- d. Number of passes, speed, frequency and overlap.
- e. Discussions with construction, engineering or contractor personnel of any problems.
- g. Any fill being placed without adequate compaction.

2. Excavations

Record any observations made including:

- a. Area location
- b. Approximate excavation dimensions
- c. Acceptance of the excavation

3. Compaction Testing

Record any deviance from specified testing procedures and attach the affected test results. Deviances which cannot be resolved by the onsite geotechnical soils engineer will be identified as an action item in accordance with Item 4.

4. Action Item List

A list of action items shall be attached to the field engineer's report (FER) defining action items resulting from the onsite soils engineer's observations and those personnel responsible for these items. Tracking and closure of all identified items is the responsibility of the onsite geotechnical soils engineer. It is not intended that all FERs will result in action items.

DAILY REPORT SUBMITTAL:

1. FER
2. Action Items

NOTE: The daily FER and attachments shall be routed to quality control and the field lead civil engineer.

DAILY FER:

The following are to be recorded by the onsite geotechnical soils engineer as applicable on the daily FER.

1. Perform as the "Contractor" when Specification 7220-C-210(Q) is referenced.
2. Observe selected tests or portions of tests on a daily basis to include but not be limited to the following: ASTM D 1557-70 Method D; ASTM D 422-63; ASTM D 2049-69; and ASTM D 2216-71.

Summary of Onsite Geotechnical Soils Engineer
Duties and Responsibilities (Continued)

3. Check to see if materials below and beyond the required excavation limits were distributed because of excavation methods used. Advise appropriate personnel to remove such disturbed material and document.
4. Approve foundation subgrade by performing visual examination to ensure that the foundation is cut to firm material, and is free of loose and wet materials. Request and review laboratory tests such as moisture, and in place density when deemed necessary.
5. Prior to resumption of backfill operations, each spring approve all areas in which backfill material is to be placed. Determine type and number of tests to be taken in the layer upon which the fill is to be placed.
6. Determine suitability of the structural backfill material in accordance with Section 8.8 of Specification 7220-C-211(Q) for the proposed backfill location.
7. Determine that, except for sand from offsite sources, materials used for plant area backfill are in accordance with the material portion of Section 13.3 of Specification 7220-C-210.
8. Where applicable, approve the use of Zone 4A material for the top 6 inches of area fill.
9. Approve sand from offsite sources.
10. Approve locations of lean concrete in lieu of backfill.
11. Determine exceptions to the requirements of Section 8.3.2. of Specification 7220-C-211 (i.e. free from lenses, pockets, streaks, or other imperfections).
12. Approve exceptions to requirements of Section 8.3.6 of Specification 7220-C-211(Q) (i.e., suspension of soils work when ambient temperature is 32F and falling). Document if heating cover inside building or other means of protection are used.
13. Determine compatibility of rapid moisture determination methods with results obtained using ASTM D 2216, if required.
14. Record that the specified compaction equipment is being used.
15. Provide information to project engineering regarding proposed compaction equipment and locations if other than hand held equipment is to be used within 3 feet of structure walls. Use memorandums, TWX or FAX, but document.
16. Visually inspect and approve material to be used from stockpile. Provide direction and document any exceptions that take place to the specified daily inspection and testing requirements.

Summary of Onsite Geotechnical Soils Engineer
Duties and Responsibilities (Continued)

Q

17. Determine all density test locations and testing frequency including additional tests.
18. Review and approve each test report. Review and initial all acceptable test report sheets from U.S. Testing and document on FBRs the test reports reviewed.
19. Determine the necessity for benching into previously compacted areas in accordance with Section 8.3.4 of Specification 7220-C-211(Q).
20. Verify equipment acceptability for parameters such as speed, frequency, lift thickness, number of passes and overlap in accordance with Attachment 1 to Specification 7220-C-211(Q).
21. Record the method of rework used and document retest results.

Attachments: 1. Field Engineer's Report Form
 2. BEBC-3633
 3. BEBC-2772



FIELD ENGINEER'S REPORT FORM

MIDLAND UNITS 1 & 2

JOB 7220

DATE _____

PAGE _____ OF _____

ITEM NO.	INSPECTION DESCRIPTION	ACTION REQUIRED/TAKEN

REMARKS:

ROUTE

SIGNATURE

FILE



Ann Arbor Area Office

Teletype Message

TYPE DOUBLE SPACE - BE BRIEF

TELETYPE USE ONLY

MESSAGE NUMBER		OPR. INL		DATE	
DBG	TELEX	TWX	TELEX	OTHER	

CHECK APPROPRIATE BOX:

CHARGE ACCT. CODE:

Night Ltr:

Full Rate:

Report Delivery:

YES NO

NUMBER TO BE CALLED

MESSAGE ADDRESSED TO

ADDRESSEE

ADDRESS

LOCATION (CITY, STATE OR COUNTRY)

K. KLEINHARDT

BECHTEL POWER CORP.

MIDLAND

3500 EAST MILLER ROAD

MICHIGAN

MESSAGE SECTION - If additional addressees are required continue to list below:

SUBJECT: CPCO MIDLAND PLANT UNITS 1 & 2

DUTIES AND RESPONSIBILITIES OF ONSITE GEOTECHNICAL

SOILS ENGINEER

BECHTEL JOB: 7220

FILE: 1320, 3100

REFERENCE: MEMO FROM S. S. APIPI TO K. KLEINHARDT DATED AUGUST 13, 1980.

THE REFERENCE MEMORANDUM TRANSMITTED A COPY OF THE DUTIES AND RESPONSIBILITIES

OF ONSITE GEOTECHNICAL SOILS ENGINEER. PLEASE CORRECT THE FOLLOWING

TYPOGRAPHICAL ERRORS ON THE FOLLOWING PAGES OF THE SUBJECT MATTER.

PAGE 3: INCLUDE ITEM F TO READ - WEATHER CONDITIONS AFFECTING THE BACKFILL OPERATIONS.

PAGE 4: ITEM 3, FIRST SENTENCE CORRECT THE WORD TO READ DISTURBED INLIEU OF DISTRIBUTED.

PAGE 5: ITEM 20 ADD THE WORDS WHEN OBSERVED AT THE END OF THE SENTENCE.

THE CORRECTED COPY WILL BE FORWARDED TO YOU IN THE NEAR FUTURE. IF THERE ARE ANY QUESTIONS PLEASE CONTACT J. O. WANZECK OR ME.

J: S. L. BLUE, S. S. APIPI, J. O. WANZECK, A. BOOS, P. COGUEN, L. H. CURTIS,

B. DHAR

DATE

SIGNATURE

LOCATION & EXT.

ORGANIZATION CODE:

8/15/80

Sheep 8704

10 D 5 7029

THE-2102

WORK OPERATION	1	2	3	4	5	6	7
<p>MATRIX FOR Q-LISTED SOILS PLACEMENT</p>	<p>SELECTION OF AREA TO BE FILLED</p> <p>COORDINATES WITH CRAFT SUPT. AND NOTIFIES Q.C.</p>	<p>AREA STRIPPED AND/OR PREPARED</p> <p>MONITORS SUB-GRADE QUALITY AND/OR PREPARATION. CALLS FOR TESTING AS REQUIRED. DOCUMENTS THIS ACTIVITY ON A FIELD ENGINEERS REPORT (DOCUMENTATION TO INCLUDE APPROVAL OF SUBGRADE & ANY TEST PERFORMED).</p>	<p>SELECTION OF FILL MAT'L EQUIP., AND SIZE DETERMINATION</p> <p>COORDINATES WITH CRAFT SUPT. & QC. EVALUATES SIZE OF FILL AREA TO DETERMINE TESTING FREQUENCY. ENSURES THAT COMPACTION EQUIP IS QUALIFIED TO SPECIFICATION REQUIREMENTS.</p>	<p>MATERIAL DELIVERY AND PLACEMENT</p> <p>SAND: MONITORS MAT'L (FREE OF ORGANICS, ETC.) & LIFT THICKNESS PLACEMENT</p> <p>CLAY: CALLS FOR TEST IN BORROW AREA (AS REQ'D) & MONITOR MAT'L QUALITY & LIFT THICKNESS</p>	<p>CONDITION AND COMPACT</p> <p>MONITORS COMPACTION PROCESS INCLUDING MOISTURE CONTROL FOR CLAY</p>	<p>TEST FILL</p> <p>CALLS FOR TEST AT PROPER FREQUENCY & AT LOCATION HE DESIGNATES. OBSERVES TESTING OPERATION IN ACCORDANCE WITH WEBC-3633 AND UCBE-2772 (ATTACHED)</p>	<p>REVIEW TEST</p> <p>REVIEWS TEST RESULTS. IN CASE OF FAILING TEST WORK WITH CRAFT SUPT. QC TO EFFECT REMEDIAL ACTION</p>
<p>QUALITY CONTROL LAB ENG. & FLD. QUALITY CONTROL</p>	<p>FIELD Q.C. INITIATES QCIR C-02 & REVIEWS FOR OPEN HCR'S & DR'S - LAB OPERS C-1.05 IR WEEKLY</p>	<p>FIELD Q.C. INITIATES A DAILY SOIL REPORT ON EACH AREA OF PLACEMENT - SUB-GRADE APPROVAL IS DOCUMENTED ON DAILY SOILS REPORT & ON QCIR. FIELD Q.C. VERIFIES THAT THE SUBGRADE IS PREPARED AND THAT ALL NECESSARY TESTS BY U.S.T. HAVE BEEN TAKEN.</p>	<p>FIELD Q.C. VERIFIES THAT EQUIP. IS QUALIFIED, VERIFIES THAT MAT'L SELECTED MEET GRAD. REQUIREMENTS (IF APPLIC.) & IS CORRECT FOR AREA BEING PLACED.</p>	<p>FIELD Q.C. MONITOR INSTALLATION OF MAT'L - LIFT THICKNESS, CHECK EQUIP. BEING USED TO LIFT THICKNESS - VERIFIES MAT'L IS NOT FROZEN, FREE OF ORGANICS & FREE OF TRASH & DEBRIS - VERIFIES THAT MOISTURE TESTS ARE TAKEN FOR CLAY AS REQUIRED</p>	<p>FIELD Q.C. MONITORS COMPACTION PROCESS & DOCUMENTS METHOD & EQUIP. USED. VERIFY THAT COMPACTION IS UNIFORM IN ALL AREAS OF PLACEMENT. VERIFIES THAT MOISTURE TESTS ARE TAKEN FOR CLAY AS REQUIRED.</p>	<p>FIELD QC VERIFIES TEST FREQ., MASSES TEST & VERIFIES LOCATIONS. LAB QC VERIFIES PROPER METHODS ARE EMPLOYED WHEN RUNNING R.D.'S & PROCEDURES IN LAB.</p>	<p>1/2 & FIELD QC REVIEW TEST RESULTS FOR PASS/FAIL & LOCATIONS. IDENTIFY REWORK AND/OR RE-TEST AS REQUIRED.</p>
<p>GEO-TECH SOILS ENGINEER</p>	<p>TAKES TESTS AS REQUESTED BY ON-SITE GEO TECHNICAL SOILS ENGINEER</p>	<p>PROVIDES OVERVIEW AND INPUTS TECHNICAL ASSISTANCE AS JOB CONDITIONS WARRANT</p>	<p>PERFORM MOISTURE TEST AS REQUESTED BY ON-SITE GEO-TECHNICAL SOILS ENGINEER</p>	<p>PERFORM MOISTURE TEST IN BORROW AREA WHEN REQUESTED BY ON-SITE GEO-TECHNICAL SOILS ENGINEER</p>	<p>PERFORM TEST AT LOCATION REQUESTED BY ON-SITE GEO-TECHNICAL SOILS ENGINEER</p>	<p>FURNISH TEST RESULTS TO QC & ON-SITE GEO-TECHNICAL SOILS ENGINEER</p>	<p>UNITED STATES TESTING CO.</p>

Bechtel Associates Professional Corporation

Inter-office Memorandum

BEBC-

3633

To L.E. Davis
Date January 30, 1980

Subject Midland Plant Units 1 & 2
Job 7220
Response to 10 CFR 50.54
Questions
From L.E. Curtis
Of Engineering

Copies to File: 0274, C-211PR, C-0465
At Ann Arbor

W. Barclay
S. Blue
P. Corcoran
L. Curtis
L. Dreisbach
R. Rixford
J. Wanzeck

Reference: Response to NRC Question 23, Part (3),
Section 5, Action Item 22

The referenced action item requires that project engineering and geotechnical services develop guidelines for surveillance of testing operations by the onsite geotechnical soils engineer.

It is requested that field engineering incorporate the following guidelines into the appropriate field instruction and forward a copy of the revised field instruction to project engineering by February 22, 1980.

Guidelines for Surveillance of Testing Operations:

The onsite geotechnical soils engineer shall observe the testing operations at least once a day while testing is in progress. The testing operations to be observed shall include field density and moisture tests, laboratory proctor tests, gradation tests, plotting of zero airvoid curves, etc. Tests to be observed will be selected by the onsite geotechnical soils engineer. The selection will be random, based on tests being conducted on a particular day and varied to his satisfaction such that all phases of testing are being conducted correctly and are providing the necessary control of the earthwork operations. The onsite geotechnical soils engineer shall inform appropriate authorities if the operations are carried out incorrectly and/or if there are any other methods or tests that could be utilized to improve the control or provide increased assurance that testing operations are carried on correctly and effectively.

Bechtel Associates Professional Corporation

IOM to L.E. Davis

BEBC- 3633

Page 2



The onsite geotechnical soils engineer's daily report should show what testing operations were observed and any recommendations for improvements which may have been made.

for M. K. Howell
L.E. Curtis

SR/ht
12/5/1

Bechtel Power Corporation

TELECOPY

Interoffice Memorandum

<p>To L. H. Curtis</p> <p>Subject Job 7220 Midland Project Onsite GeoTech Soils Engineer Surveillance of Testing Operations BCBE-2772</p> <p>Copies to P. J. Corcoran J. P. Betts</p>	<p>File No.</p> <p>Date February 13, 1980</p> <p>From L. E. Davis</p> <p>Of Construction</p> <p>At Midland, MI Ext</p>
---	--

Reference: BEBC-3633, dated January 30, 1980

The referenced memorandum was received by Field Engineering on February 5, 1980. This memo includes the following directions:

"The onsite GeoTechnical soils engineer shall observe the testing operations at least once a day while testing is in progress. The testing operations to be observed shall include field density and moisture tests, laboratory proctor tests, gradation tests, plotting of zero airvoid curves, etc. Tests to be observed will be selected by the onsite GeoTechnical soils engineer. The selection will be random, based on tests being conducted on a particular day and varied to his satisfaction such that all phases of testing are being conducted correctly ..."

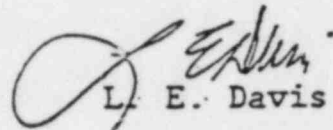
Based upon discussion among field personnel and telephone conversations with Project Engineering, the field interprets this to mean that not all backfill related tests conducted each day must be observed but that at least one of the test procedures on any day of testing must be observed.

We also interpret this direction to mean that all test procedures related to backfill operations must be observed often enough so that the onsite GeoTechnical soils engineer can be satisfied as to the correctness and efficiency of testing operations and can document such observation.

L. H. Curtis
BCBE-2772
February 13, 1980
Page Two

Q

As directed by the reference, the field will incorporate the reference in Field Instruction FIC-1.100 (Q) by February 22, 1980, including the above interpretation, unless direction to the contrary is received from Project Engineering.


L. E. Davis

LED/GK/jrh

DEPOSITION: EMILY B. V. OF
E. CALLENDER

EXHIBIT
CPCo 1
11-18-80 MG

7

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
Before the Atomic Safety and Licensing Board

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

II
Paton Jones
Olmstead
FF

NOTICE OF DEPOSITION

PLEASE TAKE NOTICE that Consumers Power Company shall take the deposition on oral examination of the following named persons at the times, dates and locations indicated.

1:00 p.m.	Nov. 17, 1980	Isham, Lincoln & Beale, Suite 4200 One 1st Natl. Pl. Chicago, IL 60603	Gene Gallagher NRC Inspection & Enforcement, Region III
1:00 p.m.	Nov. 19, 1980	Isham, Lincoln & Beale, Suite 4200 One 1st Natl. Pl. Chicago, IL 60603	James W. Simpson Corps of Engineers

Each deponent is requested to make available, prior to his deposition, the documents described in Appendix A of the Notice of Deposition dated September 22, 1980, as modified by agreement of the parties.

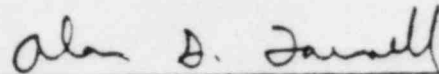
The subject matter of the depositions shall be all matters relating to the issues set forth in the Order Modifying

NOV 26 1980

~~841114442~~ 2pp

Construction Permits, dated December 6, 1979 and the contentions set forth in the Appendix to the Prehearing Conference Order Ruling on Contentions and on Consolidation of Proceedings (October 24, 1980) and the contentions of Intervenors Marshall and Sinclair.

Sincerely,



Alan S. Farnell
Counsel for Consumers Power Company

ISHAM, LINCOLN & BEALE
One First National Plaza
Suite 4200
Chicago, Illinois 60603
312/558-7500

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))	
_____)	

CERTIFICATE OF SERVICE

I, Alan S. Farnell, hereby certify that a copy of Consumers Power Company's Notice of Deposition and Notice of Continuation of Depositions was served upon all persons shown in the attached service list by deposit in the United States mail, first class, this 5th day of November, 1980.

Alan S. Farnell

Alan S. Farnell

SERVICE LIST

Frank J. Kelley, Esq.
Attorney General of the
State of Michigan
Stewart H. Freeman, Esq.
Assistant Attorney General
Gregory T. Taylor, Esq.
Assistant Attorney General
Environmental Protection Div.
720 Law Building
Lansing, Michigan 48913

Myron M. Cherry, Esq.
One IBM Plaza
Suite 4501
Chicago, Illinois 60611

Mr. Wendell H. Marshall
RFD 10
Midland, Michigan 48640

Charles Bechhoefer, Esq.
Atomic Safety & Licensing Bd. Pnl.
U.S. Nuclear Regulatory Com.
Washington, D.C. 20555

Dr. Frederick P. Cowan
6152 N. Verde Trail
Apt. B-125
Boca Raton, Florida 33433

Mr. Gustave A. Linnenberger
Atomic Safety & Licensing Bd.
U.S. Nuclear Regulatory Com.
Washington, D.C. 20555

Carroll E. Mahaney
Babcock & Wilcox
P. O. Box 1260
Lynchburg, Virginia 24505

James E. Brunner, Esq.
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Grant Merritt, Esq.
Thompson, Nielsen, Klaverkamp & James
4444 IDS Center
80 South Eighth Street
Minneapolis, Minnesota 55402

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

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

Ms. Mary Sinclair
5711 Summerset Street
Midland, Michigan 48640

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

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

Barbara Stamiris
5795 North River Road
Route 3
Freeland, Michigan 48623

Sharon K. Warren
636 Hillcrest
Midland, Michigan 48640