Documents Produced by

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Staff Engineer with Consumers Power Co.

for Oral Deposition 12/11/80

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011616

BLC-9728 Consumers Power Company 1945 West Parnall Road Jackson, Michigan 49201

Attention:

Mr. J.W. Cook Vice President Midland Project



# **Bechtel Power Corporation**

777 East Eisenhower Parkway Ann Arbor, Michigan

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

September 12, 1980



Subject:

Midland Plant Units 1 & 2 Consumers Power Company Bechtel Job 7220

50.54(f) August Status Report

Attached is the August Status Report giving the status of commitments made in the responses to NRC 50.54(f) Questions and supplementary questions from letters, meetings, etc. The following is a summary of the attached report:

| Status Codes: (1) | Ques 1-22 <sup>(1)</sup> | Ques 23(1) | Ques 24-35 <sup>(1)</sup> | Supp. Ques. (1) |
|-------------------|--------------------------|------------|---------------------------|-----------------|
| Code 1            | 59                       | 29         | 0                         | 0               |
| Code 2            | 5                        | 9          | 5                         | 2               |
| Code 3            | 18                       | 5          | 0                         | 2               |
| Code 4            | 23                       | 13         | 7                         | 3               |
| Code 5            | 6                        | 0          | 0                         | 2               |
| Total Actions     | 111                      | 56         | 12                        | 9               |

(1) See first page of status report

The September Status Report will be submitted by October 10, 1980.

tuly yours

John A. Rutger

Project Manage

JAR/VDP/bc

9/9/80

50.54(f) August Status Report Attachment:

cc: W.R. Bird w/a

D.E. Horn w/a

G.S. Keeley w/a

G.R. Eagle (CPCo/AA) w/a

Response Requested: No

#### MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES

RESPONSIBLE ORGANIZATIONS:

| Status | Codes:  |   |          |  |
|--------|---|---|----------|--|
| 1      | Complete, verified by quality assurance   | PD Plant design<br>PS Pipe stress<br>LS Licensing | CPCo QA  | Consumers Power Company<br>Consumers Power Company quality |
| 2      | Reported complete, not yet verified   | GT Geotechnical<br>services                       | CPCo PMO | Consumers Power Company project management organization    |
| 3      | Due, but not complete   | CE Civil engineering                              | ig       |  |
| 4      | Not yet due   | FE Field engineering<br>QA Quality assurance      |          |  |
| 5      | Insufficient documentation in quality assurance files to establish or verify status | QE Quality engi-<br>neering                       |          |  |

#### Notes:

LEGEND

- Commitment dates for action items indicated by asterisks (\*) have been transmitted to the NRC. These dates will not be changed without a formal transmittal to the NRC.
- Questions 1 through 22 action item numbers are basically the same as those used by the diesel generator building task group, but have been modified to acknowledge action items/commitments made in all revisions of the responses.
- 3. Question 23 action item numbering is based on the Response to Question 23 submitted to Consumers Power Company via via BLC-8460, J.A. Rutgers to G.S. Keeley, dated November 14, 1979. These action item numbers have been modified to acknowledge action items/commitments made in all revisions of the responses.
- 4. Questions 24 through 35 action items were identified for the first time in the April issue of this status report and will be referred to by the action item numbers established in that issue.

## References (applicable to Part II only):

011616

- A. Letter from G.S. Keeley to J.A. Rutgers, CPCo Serial 8548, 3/27/80
- B. Commitments made in February 1980 meeting with NRC, Midland, Michigan

# MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES

PART 1: COMMITMENTS FROM QUESTIONS 1 to 35

| Item  | Description  | Page       | Rev | Nesp<br>Org | Responsible<br>Engineer | Due    | Status | Status Remarks           |
|-------|--|------------|-----|-------------|-------------------------|--------|--------|--------------------------|
| 1-1*  | Perform a final review and update of<br>PSAR commitment list                       | 1-3        | 1   | LS          |                         | 800101 | 1      |                          |
| 1-2*  | Review sections of the FSAR determined to be inactive                              | 1-4        | 1   | LS          |                         | 800101 | 1      | Superseded by Item 23-44 |
| 1-3*  | Review EDP 4.22  | 1-4        | 0   | QE          |                         | 790629 | 1      |                          |
| 1-4   | Audit action items 1-3   | 1-4        | 0   | QA          |                         | 801101 | 4      |                          |
| 1-5*  | Review specifications not included in the specificity study initially              | 1-5<br>I-8 | 0   | QE          |                         | 790629 | 3      |                          |
| 1-6*  | Complete review of the Dames and Moore report                                      | I~6        |     | GT          |                         | 790629 | 1      |                          |
| 1-7*  | Complete review of pertinent portions of FSAR Sections 2.5 and 3.8                 | I-6        |     | GT, CE      |                         | 790629 | 1      |                          |
| 1-8   | Correct settlement calculations  | I-6        |     | GT          |                         | 791101 | 1      |                          |
| 1-9   | Schedule audits of the geotech sections on a 6-month basis                         | 1-7        |     | QA          |                         | 790504 | 1      |                          |
| 1-10* | Review drawings for possible effect of vertical duct bank restrictions             | 1-7        |     | CE          |                         | 790106 | 1      |                          |
| 1-11* | Complete actions in response to DRVCL audit  | 1-7/8      |     | QE          |                         | 790518 | 1      |                          |
| 1-12* | Revise EDP 4-49 to incorporate clarifi-<br>cations and instructions for use of SCN | 1-8        |     | QE          |                         | 790504 | 1      |                          |
| 1-13  | Schedule audits of each design disci-<br>pline calculations on a yearly basis      | I-8/9      | ,   | QA          |                         | 790504 | 1      |                          |
| 1-14  | Reevaluate construction equipment used for compaction                              | 1-11       |     | FE          |                         | 791204 | 1      | See Item 23-20           |
| 1-15  | Assign field soils engineer and soils engineer from design section                 | i-11       |     | FE          |                         | 790501 | 1      |                          |

### MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item  | Description  | Page | Rev | Resp     | Responsible 6 | 6 Due<br>Date | Status | Status Remarks                             |
|-------|--|------|-----|----------|---------------|---------------|--------|--|
| 1-16* | Review construction specifications and procedures to identify equipment requiring qualification                    | I-11 |     | FE       |               | 790629        | 1      | See Item 23-8                              |
| 1-17* | Review field procedure FPG-3.00 to ensure clarity and completeness   | 1-11 |     | FE       |               | 790531        | 1      |  |
| 1-18  | Revise PQC1 C-1.02 to provide inspection<br>rather than surveillance and to record<br>inspections                  | 1-16 |     | QC       |               | 800801        | 1      |  |
| 1-19* | Complete in-depth review of soil test results  | 1-17 |     | GT       |               | 790731        | 1      |  |
| 1-20* | Perform in-depth audit of U.S. Testing   | 1-18 |     | QA       |               | 790531        | 1      |  |
| 1-21* | Review all active QCIs for surveillance callouts   | I-18 |     | QC       |               | 790629        | 1      |  |
| 1-21A | Modify QCIs based on Item 1-21   | NA   |     | QC       |               | 800901        | 3      | See Item 23-41                             |
| 1-22* | Evaluate documentation (review) call-<br>outs on QCIs  | I-18 | 1   | QC       |               | 790629        | 1      | See Item 23-19                             |
| 1-23  | Incorporate scientific sampling plans for inspection   | 1-20 |     | QC       |               | 791019        | 3      | Committed statements not yet complied with |
| 1-24* | Complete in-depth review of the Bechtel trend program  | I-22 |     | QA       |               | 790601        | 1      | See Items 23-35 and 23-36                  |
| 1-25* | Conduct QA training  | 1-22 |     | QA       |               | 790601        | 1      |  |
| 2-0   | No Action Item   |      |     |          |               |               |        |  |
| 3-1*  | Clarity the Response to Question 362.12 in FSAR Revision 18  | 3-1  | 0   | LS       |               | 790531        | 1      |  |
| 4-1*  | Provide criteria for permissible residual settlement   | 4-1  | 3   | GT<br>CE |               | 791231        | 1      |  |
| 4-2*  | Provide details of treatment of loose sands  | 4-2  | 0   | GT<br>CE |               | 790831        | 1      |  |
| 4-3   | Take dynamic modular measurements upon<br>removal of preloads for diesel generator<br>building and other buildings | 4-3  | 3   | GT       |               | 791031        | 1      |  |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item | Description   | Page | Rev | Resp     | Re   | Engineer 6     | 1 6 Due | Status | Status Remarks   |
|------|---|------|-----|----------|------|----------------|---------|--------|--|
| 4-4  | Use data of Item 4-3 to evaluate the seismic response of the structures   | 4-3  | 3   | CE       |      |                | 791130  | 1      | Partial Requirement of<br>Items 13-6, 13-11, 13-16                   |
| 4-5  | Prepare additional response to NRC for Items 4-1 and 4-2  | NA   |     | CE       |      |                | 790831  | 1      |  |
| 4-6  | Monitor the non-Seismic Category I con-<br>densate storage tanks  | 4-4  | 5   | GT<br>CE | -    | Wanzeck<br>Rao | 801130  | 4      | Load test ongoing; results will be evaluated by geotech and civil    |
| 4-7  | Remove unsuitable material in the tank<br>farm and replace by compacted fill  | 4-3  | 3   | GT       | -    | Wanzeck<br>Rao | 791130  | 3      |  |
| 4-8  | Fill the BWST with water to perform a full-scale test of subsurface material  | 4-3  | 3   | GT<br>CE | 75.7 | Wanzeck<br>Rao | 801130  | •      | Dwg C-1148 issued for<br>construction. Load test<br>to start in 9/80 |
| 4-9  | Fill the diesel fuel oil tank with water<br>to perform a full-scale test of the<br>foundation soil  | 4-2  | 0   | GT       |      |                |         | 1      |  |
| 5-1  | Monitor the settlement of the structures<br>(which were subjected to preload) during<br>the life of the plant to provide a<br>record of performance | 5-1  | 0   | GT       |      |                |         | 1      | Ongoing activity, requirements in Dwg C-994,<br>Spec C-76            |
| 6-1  | Construct and fill the borated water tank<br>to make a full-scale test of the founda-<br>tion soils   | 6-1  | 0   | GT<br>CE |      |                |         | 1      | See Item 4-8   |
| 6-2  | Delay the piping connections to the BWST until most of the settlement has taken place under the test load   | 6-1  | 0   |          |      |                |         | 1      |  |
| 6-3  | Use settlement data from BWST to allow conservative piping connection design  |      | 0   | NA       |      |                |         | 2      | Included in Item 6-6   |
| 6-4  | Evaluate the load test result of the diesel fuel oil tank and provide precise corrective measures if required                                       | 6-2  | 0   | GT       |      |                |         | 1      |  |
| 6-5  | Monitor the piping between the BWST and the auxiliary building  | 6-1  | 1   | CE       |      |                |         | 5      | Ongoing activity   |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

PART I: COMMITMENTS FROM QUESTIONS 1 to 35 (Continued)

| Item | Description  | Page | Rev | Resp | Responsible<br>Engineer | Due    | 0il6<br>Status | Status Remarks  |
|------|--|------|-----|------|-------------------------|--------|----------------|---|
| 6-6  | Evaluate the settlement from Item 6-3 in accordance with the procedure described in Question 17                  | 6-1  | 1   | PS   |                         |        | 5              | Complete monitor upon load test   |
| 6-7  | Remove all unsuitable material in the tank farm area and replace with suitable compacted fill                    | 6-1  | 3   | GT   |                         |        | 1              | See Item 4-7  |
| 6-8  | Monitor the non-Seismic Category I con-<br>densate storage tanks   | 6-2  | 3   | GT   |                         |        | 1              | See Item 4-6  |
| 6-9  | Determine long-term settlement based on<br>the measured settlement of the loaded<br>tanks                        | 6-2  | 3   | GT   |                         |        | •              | Geotech to review load<br>and predict long-term<br>settlement based on Items<br>4-6, 4-8, and 4-9 |
| 7-1* | Perform continuity check on duct banks after completion of preload program                                       | 7-3  | 3   | FE   |                         | 791130 | 1              |   |
| 7-2  | Make results of continuity checks and settlement surveys available   |      |     |      |                         |        | 5              | Included in Item 7-1  |
| 7-3  | If further corrective action is required, determine corrective measures  |      |     |      |                         |        | 5              | Included in Item 7-1  |
| 8-1  | Establish a requirement to realign diesel generators if manufacturer's tolerance for pitch and roll are exceeded | 8-2  | 0   | CE   |                         | 800304 | 1              | Requirement shown in<br>Dwg C-1011, Note 4  |
| 8-2  | Monitor the diesel generator pedestal markers on a 60-day cycle throughout the construction phase.               | 8-2  | 0   | CE   |                         | NA     | 1              | Ongoing activity. Requirements in Dwg C-994 and Spec C-76. Included in Item 5-1                   |
| 8-3  | Review and modify the monitoring frequency for the diesel generator pedestal markers after 1 year of operation   | 8-2  | 0   | CPCo |                         | 850101 | 5              |   |
| 9-0  | No Action Item   | NA   |     |      |                         |        |                |   |
| 10-0 | No Action Item   | NA   |     |      |                         |        |                |   |
| 11-0 | No Action Item   | NA   |     |      |                         |        |                |   |
| 12-1 | Complete one additional boring in the middle of diesel fuel oil tank area  | 12-1 | 0   | GT   |                         | 790423 | 1              |   |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| enna a. | COMMITMENTS FROM QUESTIONS 1 to 35 (Cont   |                     |     | Resp | Responsible | Biel 6 | 516    |   |
|---------|--|---------------------|-----|------|-------------|--------|--------|---|
| Item    | Description  | Page                | Rev | Org  | Engineer    | Date   | Status | Status Remarks                                  |
| 12-2    | Complete three additional borings in the auxiliary building control tower area   | 12-1                | 0   | GT   |             | 790531 | 1      |   |
| 12-3    | Complete Table 12-1 for soils investi-<br>gation and planned remedial measures;<br>respond to NRC  | Tb1<br>12-1         | 1   | CE   |             | 790531 | 1      |   |
| 12-4    | Provide supporting soil condition for<br>Seismic Category I utilities  | Tb1<br>12-1         | 0   | CE   |             | 790531 | 1      |   |
| 12-5    | Pressure grouting of void below the mud<br>mat of the control tower as required  | Tb1<br>12-1         | 0   | CE   | R. Zao      | 801231 | 4      | Drawing C-1167 issued                           |
| 12-6    | Provide a detailed description of<br>planned corrective actions in Interim<br>Report 6 of MCAR 24  | Tb1<br>12-1         | 1   | CE   |             | 790630 | 1      |   |
| 12-7    | Perform a continuity check on one con-<br>duit in each duct bank made with a hard-<br>fiber rabbit prior to cable pulling  | Tbl<br>12-1<br>Pg 4 | 1   | FE   |             | 800630 | 1      | Ongoing activity. See field procedure FIE 4.500 |
| 12-8    | Measure the gaps between embedded<br>sleeves and pipes entering the service<br>water valve pits when the surcharge<br>is removed   | Tbl<br>12-1<br>Pg 5 | 3   | CE   |             |        | 1      |   |
| 13-1    | Complete seismic reanalysis of diesel generator building to account for current lack of compaction   | 13-1                | 0   | CE   |             | 791031 | 1      | Superseded by Items 13-6 and 13-7               |
| 13-2    | Review diesel generator building design<br>and Seismic Category I equipment piping,<br>and electrical systems to the enveloped<br>seismic responses  | 13-                 |     | CE   |             | 791231 | 1      | Superseded by Items 13-8<br>through 13-10       |
| 13-3A   | Conduct a seismic reanalysis to account for revised soil structure interaction of service water pump structure;  | 13-2                | 0   | CE   |             | 791231 | 1      | Superseded by Items 13-11<br>through 13-15      |
| 13-3B   | Review structural design and Seismic<br>Category I equipment, piping, and<br>electrical systems and incorporate<br>the seismic responses of the reanalysis<br>for the service water pump structure | 13-2                | 0   | CE   |             | 791231 | 1      | Superseded by Items 13-11<br>through 13-15      |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

|                 |   |      |     | Resp | R  | esponsible | pflei 1 | 616    |  |
|-----------------|---|------|-----|------|----|------------|---------|--------|--|
| :tem            | Description   | Page | Rev | Org  |    | Engineer   | Date    | Status | Status Remarks                             |
| 13-4A           | If significant change of foundation properties of the auxiliary building result, conduct a seismic rearelysis;  |      |     | CE   |    |            | 791231  | 1      | Superseded by Items 13-16<br>through 13-20 |
| 13-4B           | Review structural design and Seismic<br>Category I equipment, piping, and<br>electrical systems and incorporate<br>the seismic response of the reanalysis<br>for the auxiliary building |      |     | CE   |    |            | 791231  | 1      | Superseded by Items 13-16<br>through 13-20 |
| 13-5            | Underground utilities - Investigate the change in differential displace- ment separately for buildings founded on fill pending results of second recordlysis                            |      |     | 1    |    |            | 791231  | 1      | Superseded by Item 13-21                   |
| 13-6 (13-1)     | Conduct a seismic reanalysis for the diesel generator building  | 13-2 | 0   | CE   | c. | Chuang     | 801015  | 13/    |  |
| 13-7<br>(13-1)  | Review structural design for seismic response from Item 13-6  | 13-2 | 0   | CE   |    |            | 801031  | 14. 8  |  |
| 13-8<br>(13-2)  | Review Seismic Category I equipment for seismic response from Item 13-6   | 13-2 | . 0 | CE   | В. | McConnel   | 801231  | 4      |  |
| 13-9<br>(13-2)  | Review piping system for seismic response from Item 13-6  | 13-2 | 0   | PD   | Α. | Patel      |         | 4      |  |
| 13-10<br>(13-2) | Review electrical system for seismic response from Item 13-6  | 13-2 | 0   | CE   | В. | McConnel   | 801231  | 4      |  |
| 13-11 (13-3)    | Conduct a seismic reanalysis for the service water pump structure   | 13-2 | 0   | CE   | C. | Chuang     | 801031  | 4      |  |
| 13-12<br>(13-3) |   | 13-2 | 0   | CE   |    |            | 200831  | 4      |  |
| 13-13 (13-3)    | Review Seismic Cacegory I equipment for seismic response from Item 13-11  | 13-2 | 0   | CE   | В. | McConnel   | 801231  | 4      |  |
| 13-14<br>(13-3) | Review piping system for seismic response from Item 13-11   | 13-2 | 0   | PD   |    |            |         | 4      |  |
| 13-15 (13-3)    | Review electrical system for seismic response from Item 13-11   | 13-2 | 0   | CE   | В. | McConnel   | 801231  | 4      |  |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item            | Description  | Page | Rev | Resp     | R  | esponsible<br>Engineer | Due<br>Date | 0116<br>Status | 16<br>Status Remarks     |
|-----------------|--|------|-----|----------|----|------------------------|-------------|----------------|--------------------------|
| 13-16<br>(13-4) | Conduct a seismic reanalysis for the auxiliary building  | 13-3 | 0   | CE       | c. | Chuang                 | 800815      | 4              |                          |
| 13-17<br>(13-4) | marked accomment according tor persones  | 13-3 | 0   | CE       |    |                        | 800930      | 4              |                          |
| 13-18 (13-4)    | ne   | 13-3 | 0   | CE       | В. | McConnel               | 801231      | 4              |                          |
| 13-19<br>(13-4) | Review piping system for seismic response from Item 13-16  | 13-3 | 0   | PD       |    |                        |             | 4              |                          |
| 13-20<br>(13-4) | Review electrical system for seismic response from Item 13-16  | 13-3 | 0   | CE       | В. | McConnel               | 801231      | 4              |                          |
| 13-21<br>(13-5) | Investigate the effect on underground utilities for differential building displacement resulting from Items 13-6, 13-11, 13-16   | 13-5 | 0   | CE<br>PS | к. | Lee                    | 810131      | 4              |                          |
| 14-1            | Review the estimated settlement upon completion of the load test program of the BWST   | 14-1 | 5   | GT       |    |                        | 810131      | 4              | See remarks for Item 4-8 |
| 14-2            | Analyze flexible buildings for differential settlement based on stiffness at the time of distortion. Evaluate forces due to arching or distortion according to Question 15 | 14-2 | 0   | CE       |    |                        |             | 1              | Superseded by Item 14-6  |
| 14-3*           | Map significant cracks in auxiliary building, feedwater isolation valve pits, and ring foundation for the BWSTs  | 14-3 | 0   | CE       |    |                        | 790630      | 1              |                          |
| 14-4*           | Analyze buildings affe ted by differential settlement for observed differential settlement plus predicted differential settlement  | 14-4 | 0   | CE       |    |                        | 790831      | 1              |                          |
| 14-5            | Prepare additional response to the NRC   | 14-  |     | CE       |    |                        | 790831      | 2              |                          |
| 14-6*           | Analyze the diesel generator building for variable foundation properties by finite element model   | 14-2 | 3   | CE       |    |                        | 791231      | 1              |                          |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

PART 1: COMMITMENTS FROM QUESTIONS 1 to 35 (Continued)

| Item  | Description  | Page | Rev | Resp | Responsible<br>Engineer | Due 0  | Status | Status Remarks  |
|-------|--|------|-----|------|-------------------------|--------|--------|---|
| 14-7  | Analyze the BWST foundation for variable foundation properties   | 14-2 | 5   | CE   | R. Zao                  | 800831 | 3      | Analysis ongoing  |
| 4-8   | Compare allowable versus calculated forces and moments at critical sections for auxiliary building electrical penetration area and service water pump structure                                      | 14-5 | 5   | CE   |                         | 800831 | 3      | Analysis ongoing  |
| 15-1* | Evaluate the differential settlements<br>in accordance with provisions of ACI<br>318-71 for Seismic Category I structures<br>founded partially upon natural soil and<br>partially upon fill material | 15-1 | 0   | CE   |                         | 791231 | 2      | Rev 3 identified diesel<br>generator building is the<br>only affected structure,<br>this item is same as<br>Item 14-6 |
| 15-2  | Expand the Midland project structural design criteria for Seismic Category I structures to include the differential settlement effect.   | 15-2 | 0   | CE   | D. Reeves               | 800831 | 3      |   |
| 15-3  | Prepare additional response to the NRC   |      |     |      |                         | 791231 | 5      |   |
| 16-1* | Perform soil borings in areas of buried pipes  | 16-1 | 0   | GT   |                         | 790831 | 1      | Deleted in Rev 5. Requirement to perform borings in Dwg C-1146  |
| 17-1* | Evaluate impact of the failure of buried<br>non-Seismic Category I piping on safety-<br>related structures, foundations, and<br>equipment  | 17-1 | 0   | CE   |                         | 790629 | 1      | Deleted in Rev 2. Evaluation was not requested by NRC.  |
| 17-2  | If future profiles show any extreme conditions, analyze the piping system and make necessary repairs   | 17-3 | 0   | CE   |                         | 790901 | 2      | Superseded by Item 17-5   |
| 17-3  | Prepare additional response to the NRC   |      |     |      |                         | 790629 | 1      |   |
| 17-4  | Profile the borated water lines by optical means   | 17-1 | 2   | CE   |                         |        | 4      | Tracked by Item 6-5   |
| 17-5  | Analyze buried piping considering the probable ultimate settlement. Provide unique resolution for any unacceptable stress conditions for the portion of the system                                   | 17-3 | 5   | PS   | J. Legette              | 800801 | 3      | Report on method for analysis being reviewed  |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item  | Description   | Page        | Rev | Resp | Re | sponsible<br>Engineer | Due    | 01161<br>Status | Status Remarks         |
|-------|---|-------------|-----|------|----|-----------------------|--------|-----------------|------------------------|
| 17-6  | Investigate the excess rounding of profile data   | Tb1<br>17-2 | 2   | PS   | J. | Legette               | 800801 | 3               | Same as Item 17-5      |
| 18-1  | Perform reexamination of the stresses in all Seismic Category I connecting piping between buildings as a normal iteration of design. Consider stresses induced by differential settlement after connecting pipe and anticipated future settlement | 18-1        | 0   | PS   | J. | Legette               | 800801 | 3               | Same as Item 17-5      |
| 18-2  | Perform final analyses to demonstrate<br>the margin of acceptability for addi-<br>tional differential settlement beyond<br>that expected for the life of the<br>plant   | 18-2        | 5   | PS   | J. | Legette               | 800801 | 3               | Same as Item 17-5      |
| 18-3  | Design piping connecting from the diesel generator building to the pedestals which will accommodate the expected future settlement  | 18-2        | 5   | PS   | J. | Legette               | 800801 | 3               | Dependent on 17-5      |
| 19-1  | Profile pipes in the vicinity of diesel generator building after removal of preload and evaluate as described in the Response to Question 17  | 19-1        | 0   | PS   | J. | Legette               | 800801 | 3               | Dependent on 17-5      |
| 19-2  | Take additional gap measurements between<br>embedded sleeves and pipes when surcharge<br>is removed. Coordinate this information<br>with the profile data   | 19-2        | 0   | CE   |    |                       |        | 2               | Closed by Rev 5        |
| 19-3* | Perform a complete evaluation of safety-<br>related piping after completion of the<br>preload program   | 19-3        | 0   | PS   | J. | Legette               | 800801 | 3               | Dependent on Item 18-1 |
| 20-1  | Analytically check the Seismic Category I systems affected by settlement for pump and nozzle loadings and verify that they are within specified or vendor-accepted limits   | 20-1        | 5   | PS   | J. | Legette               | 800801 | 3               | Dependent on Item 18-1 |
| 20-2  | Verify piping support loads for systems subjected to settlement-induced loads   | 20-1        | 5   | PS   | J. | Legette               | 800801 | 3               | Dependent on Item 18-1 |
| 20-3  | Prepare additional response to the NRC  |             |     |      |    |                       | 800801 | 3               |                        |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

The two Bechtel QA audit findings reported in our April 24, 1979, response (Paragraph D.1, Page I-8) have been closed.

| PART I: | COMMITMENTS FROM QUESTIONS 1 to 35 (Cont   | Page      | Rev | Resp | Responsible<br>Engineer | Due<br>Date | 01161<br>Status | Status Remarks        |
|---------|--|-----------|-----|------|-------------------------|-------------|-----------------|-----------------------|
| 20-4    | Evaluate active valves affected by settlement for imposed loads and reactions; compare to the allowable for operability  | 20-1      | 5   | PS   | J. Legette              | 800801      | 3               | Dependent on Item 18- |
| 21-0    | No Action Item   |           |     |      |                         |             |                 |                       |
| 22-0    | No Action Item   |           |     |      |                         |             |                 |                       |
| 23-1*   | Consultant reports other than Dames & Moore were considered in accordance with the guidelines provided in NRC Regulatory Guide 1.70, Revision 2. Consultant reports were not attached to the FSAR, but portions of consultant reports were extracted and incorporated into the FSAR text itself. Those portions incorporated into the FSAR become commitments. Therefore, disposition of recommendations in consulting reports has been adequately accounted for in the preparation of the FSAR. | 1-8, 23-7 | 4   | PE   |                         | 790518      | 1               |                       |
|         | Verification that those portions of consultant reports determined to be commitments and incorporated into the FSAR have been adequately reflected in project design documents is being accomplished via the FSAR rereview program described in the response to Ouestion 23, Part 2.  |           |     |      |                         |             |                 |                       |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

PART 1: COMMITMENTS FROM QUESTIONS 1 to 35 (Continued)

| Item | Description  | Page                   | Rev | Resp | Responsible<br>Engineer | Date   | 1616<br>Status | Status Remarks |
|------|--|------------------------|-----|------|-------------------------|--------|----------------|----------------|
| 1-2* | On April 3, 1979, Midland project engineering group supervisors in all disciplines were reinstructed that the only procedurally correct methods of implementing specification changes are through the use of specification revisions or specification change notices. This was followed by an interoffice memorandum from the project engineer to all engineering group supervisors on April 12, 1979.   | 23-8,<br>23-24         | 4   | PE   |                         | 790312 | 1              |                |
| 3-3* | Engineering Department Project Instruc-<br>tion 4.49.1 was revised in Revision 2<br>to state, "Under no circumstances will<br>interoffice memoranda, memoranda,<br>telexes, TWXs, etc be used to change<br>the requirements of a specification."   | I-8,<br>23-9,<br>23-24 | 4   | PE   |                         |        | 1              |                |
| 3-4* | A review of interoffice memoranda, memoranda, telexes, TWXs, and other correspondence relating to specifications for construction and selected procurements of Q-listed items will be initiated.   | 23-5,<br>23-9          | 4   | PE   |                         |        | 1              |                |
|      | The purpose of the review will be to identify any clarifications which might reasonably have been interpreted as modifying a specification requirement and for which the specification itself was not formally changed. An evaluation will be made to determine the effect on the technical acceptability, safety implications of the potential specification modification, and any work that has been or may be affected. If it is determined that the interpretation may have affected any completed work or future work, a formal change will be issued and remedial action necessary for product quality will be taken in accordance with approved procedures.  The foregoing procedure will be followed |                        |     |      |                         |        |                |                |
|      | The foregoing procedure will be followed for all specifications applying to construction of Q-listed items.  |                        |     |      |                         |        |                |                |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item  | Description   | Page                               | Rev | Resp | Responsible<br>Engineer | Dilei  | 616<br>Status | Status Remarks |
|-------|---|------------------------------------|-----|------|-------------------------|--------|---------------|----------------|
|       | For specifications concerning the procurement of Q-listed items, the foregoing procedure will be implemented on a random sampling basis. The sample size has been established and the specification selection has been made.  |                                    |     |      |                         |        |               |                |
| (21)  | Review and acceptance criteria for the specifications will be defined by March 14, 1980.  |                                    |     |      |                         |        |               |                |
| (47)  | The review of construction and selected procurement specifications is scheduled to be completed by October 1980.  |                                    |     |      |                         |        |               |                |
|       | If the acceptance criteria are not met, the review will be expanded to include other specifications for Q-listed items. At that time, a revised completion date will be established.  |                                    |     |      |                         |        |               |                |
| 23-5* | A study was completed which examined current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department procedures. This action is scheduled to be completed by January 31, 1980. | 23-11                              | 5   |      |                         | 800131 | 1             |                |
| 23-6* | An interoffice memorandum dated April 12, 1979, was issued by geotechnical services to alert personnel of the need to revise or annotate calculations to reflect current design status.   | 23-13                              | 4   | GT   |                         | 790312 | 1             |                |
| 23-7* | Field Instruction FIC 1.100, Q-listed Soils Placement Job Responsibilities Matrix, has been prepared and establishes responsibilities for performing soils placement and compaction.  | I-11,<br>23-18,<br>23-20,<br>23-30 |     | FE   |                         |        | 1             |                |
| 23-7A | Review Field Procedure FPG 3.000 to ensure clarity and completeness   | I-11                               |     | FE   |                         |        | 2             |                |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item   | Description   | Page           | Rev | Resp | Responsible<br>Engineer | Due 0 1 1 6 1 6 Date Status | Status Remarks |
|--------|---|----------------|-----|------|-------------------------|-----------------------------|----------------|
| 23-8*  | Construction specifications, instruc-<br>tions, and procedures were reviewed<br>to identify any other equipment requiring<br>qualification which had not yet been<br>qualified. No such equipment was<br>identified.  | I-11,<br>23-18 | 5   | FE   |                         | 1                           |                |
| 23-9*  | A dimensional tolerance study was com-<br>pleted using the reactor building spray<br>pump and ancillary system as the study<br>mechanism.   | 1-8            | 4   | PE   |                         | 1                           |                |
| 23-10* | Engineering reviewed specifications not previously reviewed for the specificity or tolerance studies.   | 1-8            |     |      |                         | 1                           |                |
| 23-11* | A specific review of the FSAR and specification requirements for the qualification of electrical and mechanical components has been made as part of the corrective action relating to CPCo's 50.55(e) report on component qualification.  | 1-8            |     |      |                         | 1                           |                |
| 23-12* | Quality assurance will schedule yearly audits of the design calculational process for techniques and actual analysis in each of the design disciplines.   | 1-8            |     |      |                         | 1                           |                |
| 23-13* | Audits of ITT Grinnell hanger design and CPCo relay setting calculation have been conducted.  | 1-8            |     | QA   |                         | 1                           |                |
| 23-14* | Bechtel project engineering will review design drawings for cases where ducts penetrate vertically through foundations. The possibility of the duct being enlarged over the design requirements and the effect this enlargement may have upon the structure's behavior will be evaluated by June 1, 1979. Proper remedial measures will be taken if the investigation shows potential problems. | I-7            |     |      |                         | 1                           |                |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item   | Description  | Page  | Rev | Resp | Responsible<br>Engineer | Due    | Status | 0 1 1 6 1 6<br>Status Remarks   |
|--------|--|-------|-----|------|-------------------------|--------|--------|---|
| 23-15* |  | 1-18  |     | QA   |                         |        | 1      |   |
| 23-16* | An in-depth training session will be given to Midland QA engineers covering the settlement problem and methods to identify similar conditions in the future  | I-22  | 4   | QA   |                         | 791130 | 1      |   |
| 23-17* | An in-depth training session will be given to all CPCo and Bechtel QA engineers and auditors to increase their awareness of the settlement problem and discuss auditing and monitoring techniques to increase audit effectiveness. | I-22  | 4   | QA   |                         | 800229 | 1      |   |
| 23-18* | An in-depth review of the Bechtel trend program data will be undertaken by Bechtel QA management to assure the identification of any other similar areas that were not analyzed in sufficient depth in the past reviews.           | I-22  | 4   | QA   |                         |        | 1      |   |
| 23-19* | Quality control instructions will be<br>evaluated to ensure that the documen-<br>tation characteristics which are to be<br>inspected (i.e., surveillance and<br>review callouts) are clearly specified.                            | I-18  | 4   | QC   |                         |        | 1      |   |
| 23-19A | This action modified to include neces-<br>sary revision to QCIs resulting from<br>evaluation of surveillance and review<br>callouts  | I-18  |     | QC   |                         | 800901 | 4      | To be completed when 23.41 is completed   |
| 23~20* | Field Instruction 1.100 will be supplemented by establishing requirements for demonstrating equipment capability, including responsibility for equipment approval, and providing records identifying this capability.              | 23-18 | 5   | FE   |                         | 791204 | 3      | Awaiting equipment qualifi-<br>cation report from geotech-<br>nical services based on<br>CPCo NCR |

# MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item   | Description  | Page           | Rev | Resp | Responsible<br>Engineer | Due<br>Date      | Ol   6   1 | Status Remarks  |
|--------|--|----------------|-----|------|-------------------------|------------------|------------|---|
| 23-21* | See Item 23-4  |                | 5   | FE   |                         | 800314           | 1          |   |
| 23-22* | Guidelines for surveillance of testing operations will be developed and included in field instructions for the onsite soils engineer. Engineering/geotechnical services will develop the guidelines by November 30, 1979.  | 23-27          | 5   | GT   |                         | 791130           | 1          |   |
| 23-23* | Engineering will revise Engineering Department Procedure 4.22 by December 1, 1979, to clarify that engineering person- nel preparing the FSAR will follow the requirements of Regulatory Guide 1.70, Revision 2, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (September 1975). Speci- fically, Regulatory Guide 1.70 (Pages iv and v of the Introduction) requires that such consultant reports only be refer- enced with the applicable commitments and supporting information included in the text (third paragraph, Page v). Such a requirement would preclude repe- tition of this circumstance. | 23-7,<br>23-46 | 5   | PE   |                         | 791130           | 1          |   |
| 23-24* | To preclude any future inconsistencies between the FSAR and specifications, Engineering Department Project Instruction 4.1.1 will be revised to state that all specification changes, rather than just "major changes," will be reviewed for consistency with the FSAR.  | 23-11          | 5   | PE   |                         | 791130           | 1          |   |
| 23-25* | Quality assurance will issue a Nuclear<br>Quality Assurance Manual amendment to<br>clarify the requirement that procedures<br>include measures for qualifying equip-<br>ment under specified conditions.   | 23-18          |     | QA   |                         | 800715<br>800902 |            | Awaiting issuance of NQAM procedures needed for the CPCo/Bechtel QA integration |
| 23-26* | In view of Item 6, geotechnical services will revise Procedure FP-6437 by December 31, 1979, to require that calculations be annotated to reflect current design status.   | 23-13          | 5   | GT   |                         | 800328           | 1          |   |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item   | Description   | Page                     | Rev | Resp  | Responsible<br>Engineer | Due    | Status | 1616 Status Remarks                     |
|--------|---|--------------------------|-----|-------|-------------------------|--------|--------|---|
| 23-27* | Engineering Department Procedure 4.37 will also be revised by December 31, 1979, to require that calculations be annotated to reflect current design status.  | 23-13                    | 5   | QA    |                         | 791227 | 1      |   |
| 23-28* | Civil/Structural Design Criteria 7220-<br>C-501 will be modified to contain the<br>requirements that a duct bank penetra-<br>tion shall be designed to eliminate the<br>possibility of the nonspecific size duct<br>interacting with the structures.  | 23-15                    | 5   | CE    | D. Reeves               | 800831 | 3      |   |
| 23-29* | The civil standard detail drawings will<br>be revised to include a detail showing<br>horizontal and vertical clearance re-<br>quirements for duct bank penetrations.<br>The detail will address any mud mat re-<br>strictions.  | 23-15                    | 5   | CE    |                         | 791231 | 1      | Shown on civil Dwg C-14                 |
| 23-30* | Engineering will clarify specifications<br>and construction will prepare procedures<br>(governing the soils compaction equip-<br>ment) to implement the requirements of<br>the Nuclear Quality Assurance Manual as<br>stated in Item 25   | 23-18                    | 5   | CE/FE |                         | 800912 | •      | Dependant on compaction report and NQAM |
| 23-31* | Design documents, instructions, and pro-<br>cedures for those activities requiring<br>inprocess controls will be reviewed to<br>assess the adequacy of existing proce-<br>dural controls and technical direction.<br>Engineering review is scheduled for<br>completion by October 24, 1980.         | 1-11,<br>23-20,<br>23-30 | 5   | PE    |                         | 801024 | •      |   |
| 23-32* | Guidelines for surveillance of testing operations will be developed and included in field instructions for the onsite soils engineer. Engineering/geotechnical services will develop the guidelines by November 30, 1979, and field engineering will prepare the instructions by February 29, 1980. | 23-27                    | 5   | FE    |                         | 800229 | 1      |   |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Description  | Page   | Rev  | Resp  | Responsible<br>Engineer   | Due  | Status  | 0   1   0   0   Status Remarks   |
|--|--|--|---|---|--|---|--|
| The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach. | 23-35  | 5  | QA  |   | 800912   | 4   | Action completed except<br>developing audit training<br>program  |
| Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  |  |  | QC  |   | 800915   | 3   | SF/PSP G-6.1 has been submitted for publication  |
| Control Document SF/PSP G-3.2. Control of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  | 23-33  | 5  | QC  |   | 800815   | 3   |  |
| Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions   | 23-33  | 5  | QA  |   | 800124   | •   |  |
| Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  | 23-33  | 5  | QA  |   | 801231   | •   |  |
| A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department procedures.   | 23-11  | 5  | LS  |   | 791130   | 1   |  |
|  | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. Control of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. 23-23  Control Of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-33  Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for 23-22, inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. 23-23 5 Control of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. 23-23 5 QC control of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. 23-24  Control Document SF/PSP G-3.2. 23-33 5 QC  Control Of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. 23-22. 23-23. Control of Nonconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive non-conforming conditions.  Control Document QADP C-101, Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-35 and 23-36, QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department | The quality assurance audit and monitoring program will be revised to emphasize and increase attention to the need for evaluating policy and procedural adequacy and assessment of product quality. A specialized audit training program will be developed and implemented to ensure guidance for this revised approach.  Control Document SF/PSP G-6.1 will be revised to provide requirements for inspection planning specificity and for the utilization of scientific sampling rather than percentage sampling.  Control Document SF/PSP G-3.2. Control of Monconforming Items, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Control Document QADP C-101. Project Quality Assurance Trend Analysis, is being revised to improve the definition of implementing requirements for identifying repetitive nonconforming conditions.  Consistent with the intent of Items 23-35 and 23-36. QA will review nonconformance reports which were open as of November 13, 1979, or became open prior to implementation of the improved Project Quality Assurance Trend Analysis program as stated in Item 36.  A study was completed by October 31, 1979, to examine current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

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| Item                   | Description  | Page                     | Rev | Resp         | Responsible<br>Engineer | Due    | Status | 011616<br>Status Remarks   |
|------------------------|--|--------------------------|-----|--------------|-------------------------|--------|--------|--|
| 23-39*                 | Engineering will clarify specifications and construction will prepare procedures (governing the soils compaction equipment) to implement the requirements of the Nuclear Quality Assurance Manual as stated in Item 25.  | 23-18                    | 5   | FE           |                         | 801017 | 4      |  |
| 23-40*                 | Design documents, instructions, and procedures for those activities requiring inprocess controls will be reviewed to assess the adequacy of existing procedural controls and technical direction. Engineering review is scheduled for completion by October 24, 1980, and field engineering and quality control review is scheduled for completion by November 2 1980.   | 23-20,                   | •   | FE, QC       |                         | 801128 | •      | Project engineering to<br>provide list of design<br>documents to FE and QC to<br>start this item |
| 23-41*                 | QCIs in use will be reviewed to ascer-<br>tain that provisions have been included<br>consistent with the revised control docu-<br>ment, SF/PSP G-6.1, Quality Control<br>Inspection Plans.   | 1-18,<br>23-22,<br>23-25 |     | QC           |                         | 801115 | •      | See Item 23-34   |
| 23-42*<br>(31)<br>(40) | Design documents, instructions, and procedures for those activities requiring inprocess controls will be reviewed to assess the adequacy of existing procedural controls and technical direction. Engineering review is scheduled for completion by October 24, 1980, and field engineering and quality control review is scheduled for completion by November 28, 1980. Any revisions required will be completed by January 23, 1981. |                          |     | PE,<br>FE,QC |                         | 810123 |        |  |
| 23-43*                 | The impact of Item 41 on com-<br>pleted work will be evaluated, and appro-<br>priate actions will be taken as<br>necessary.  | 23-22<br>- 23-25         |     | QC           |                         | 810115 |        |  |
| 23-44                  | FSAR sections are being rereviewed as discussed in the Response to Question 23 Part 2.   | 23-7.<br>, 23-11         |     | PE           |                         | 800931 | 4      |  |

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| Item   | Description   | Page                     | Rev  | Resp                         | Responsible<br>Engineer | Due    | Status 1 | 6   Gtatus Remarks     |
|--------|---|--------------------------|------|------------------------------|-------------------------|--------|----------|------------------------|
| 23-44A | The audit committed to in our response to Question 1, Part b and described in Part 2, Section 5.0 will be conducted once during the FSAR rereview (commencing March 17, 1980) and again after completion of the releview (commencing September 1, 1980).  |                          | •    | QA                           |                         | 800901 | •        |                        |
| 23-45* | U.S. Testing will be required to demonstrate to the cognizant engineering representative that testing procedures, equipment, and personnel used for quality verification testing (for other than NDE and soils) were, and are, capable of providing accurate test results in accordance with the requirements of applicable design documents. | 1-18,<br>23-27,<br>23-31 | 1000 | CE                           |                         | 801001 | 2        | Report submitted to QA |
| 23-46* | A sampling of U.S. Testing's test reports (for other than NDE and soils) will be reviewed by the cognizant engineering representative to ascertain that results evidence conformance to testing requirements and design document limits.  | 23-28,<br>23-31          | 5    | CE                           |                         | 801001 | 2        | Report submitted to QA |
| 23-47* | See Item 23-4   | 23-9,<br>23-25           | 4    | PE                           |                         | 801031 | 4        |                        |
| 23-48* | CPCo will implement overinspection for soils placement, utilizing a specific overinspection plan.   | I-11,<br>I-16            | 4    | CPCo-<br>QA                  |                         | NA     | 2        | (1)Ongoing activity    |
| 23-49* | CPCo will perform overinspection of the U.S. Testing soils testing activities and reports, utilizing a specific overinspection plan.  | 1-17                     | 4    | CPCo-<br>QA                  |                         | NA     | 2        | (1)Ongoing activity    |
| 23-50* | CPCo project management and QA review field procedures (new and revised) and CPCo QA reviews QCIs (new and revised) in line with Bechtel before release.  | 1-19                     | 4    | CPCo-<br>QA,<br>CPCo-<br>PMO |                         | NA     | 2        | (1)Ongoing activity    |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

|        |  |       |     | Resp        | Responsible | Due    | 011    | 616                   |
|--------|--|-------|-----|-------------|-------------|--------|--------|-----------------------|
| Item   | Description  | Page  | Rev | Org         | Engineer    | Date   | Status | Status Remarks        |
| 23-51* | In 1978, CPCo implemented an overin-<br>spection plan to independently verify<br>the adequacy of construction and the<br>Bechtel inspection process, with the<br>exception of civil activities. Rein-<br>forcing steel and embeds were covered<br>in the overinspection. | I-19  | 4   | CPCo-<br>QA |             | NA     | 2      | ("Ongoing activity    |
| 23-52* | CPCo reviews onsite subcontractor QA manuals and covers their work in the audit process.   | I-19  | 4   | CPCo-<br>QA |             | NA     | 2      | (1)Ongoing activity   |
| 23-53* | An ongoing effort is improving the "surveillance" mode called for in the QCIs by causing more specific accountability as to what characteristics are inspected on what specific hardware and in some cases changing "surveillance" to "inspection."                      | I-19  | 4   | QC          |             | NA     | 2      | See Item 23-19A       |
| 24-1   | Determine final number of observation wells  | 24-21 | 5   | GT          |             | 811031 | 4      | Ongoing activity      |
| 24-2   | Develop frequency for monitoring the observation wells   | 24-21 | 5   | GT          |             | 810131 | 4      | Ongoing activity      |
| 24-3   | Develop system and schedule for monitoring sand removal  | 24-22 | 5   | GT          |             | 810131 | 4      | Ongoing activity      |
| 24-4   | Evaluate results of temporary dewatering system to verify design bases   | 24-8  | 5   | GT          |             | 801031 | 4      | Ongoing activity      |
| 25-1   | Revise seismic analysis for diesel<br>generator building using the soil<br>properties determined by the recent<br>investigation and any foundation modi-<br>fications  | 25-3  | 5   | CE          |             |        | 2      | Tracked by Item 13-6  |
| 25-2   | Revise seismic analysis for auxiliary<br>building using the soil properties deter-<br>mined by the recent investigation and<br>any foundation modifications  | 25-3  | 5   | CE          |             |        | 2      | Tracked by Item 13-16 |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

| Item | Description  | Page        | Rev | Resp  | Responsible<br>Engineer | Due    | Status | 1 1 6 1 6<br>Status Remarks                                     |
|------|--|-------------|-----|-------|-------------------------|--------|--------|---|
| 25-3 | Revise seismic analysis for service water<br>pump structure using soil properties<br>determined by the recent investigation<br>and any foundation modification             | 25-5        | 5   | CE    |                         |        | 2      | Tracked by Item 13-11   |
| 26-1 | Analyze the effect of differential settlement of the diesel generator building in accordance with ACI 349 as supplemented by Regulatory Guide 1.142                        |             | 5   | CE    |                         | 800930 | 4      |   |
| 26-2 | Incorporate in the Midland project<br>standard design criteria the effect of<br>differential settlement of structures<br>which are founded partially or totally<br>on fill | 26-1        | 5   | CE    |                         |        | 2      | Tracked by Item 15-2  |
| 27-1 | Prohibit final piping connection to the diesel generator building before 12/31/81  | Fig<br>27-9 | 5   | PD    |                         | 800731 | •      |   |
| 28-0 | No Action Item   |             |     |       |                         |        |        |   |
| 29-0 | No Action Item   |             |     |       |                         |        |        |   |
| 30-0 | No Action Item   |             |     |       |                         |        |        |   |
| 31-1 | Perform full-scale load test by filling the BWST with water  | 31-2        | 5   | CE CE |                         | 801130 | 2      | Tracked by Item 4-8   |
| 32-0 | No Action Item   |             |     |       |                         |        |        |   |
| 33-1 | Fill the diesel fuel oil tanks with oil prior to preoperational testing  | 33-2        | 5   | CE    |                         | 800829 | 4      | Will be accomplished just<br>prior to preoperational<br>testing |
| 34-0 | No Action Item   |             |     |       |                         |        |        |   |
| 35-0 | No Action Item   |             |     |       |                         |        |        |   |

MASTER LIST OF COMMITMENTS TO NRC ON 10 CFR 50.54(f) RESPONSES (Continued)

PART II: COMMITMENTS FROM SUPPLEMENTARY QUESTIONS

| Item | Description   | Ref | Rev | Resp     |    | sponsible<br>Engineer | Due<br>Date | stale | 6   6 Status Remarks   |
|------|---|-----|-----|----------|----|-----------------------|-------------|-------|--|
| S-1  | Advise Bechtel to commence dewatering and underpinning activities   | A   |     | CrCo     |    |                       |             | 4     | After favorable SER  |
| S-2  | Develop settlement time rate criteria<br>for all Seismic Category I structures  | A   |     | GT       |    |                       | 810331      | 4     |  |
| S-3  | Monitor concrete cracks for service water<br>pump structure and auxiliary building<br>electrical penetration areas and the<br>feedwater isolation valve pits before and<br>after installation of piles and caissons |     |     | CE       |    |                       | 801031      | •     | Due date is for incorpora-<br>ting requirement into draw-<br>ing |
| S-4  | Monitor concrete cracks in the BWST<br>valve pits and repair any observed crack<br>exceeding the ACI code limits  | В   |     | CE       |    |                       | 800630      | 3     | Due date is for incor-<br>porating requirement into<br>drawing   |
| S-5  | Grout the local gaps between diesel generator building footing and mud mat  | В   |     | CE       |    |                       | 800437      | 2     | Grouting requirement in Dwg C-1147                               |
| S-6  | Continue involvement of CPCo/Bechtel consultants for reviewing remedial actions   | В   |     |          |    |                       |             | 5     |  |
| S-7  | Monitor service water pump structure<br>and pile displacement during jacking<br>operation to verify pile dynamic stiff-<br>ness used in seismic analysis  | В   |     | GT<br>CE | c. | Chuang                |             | 5     |  |
| S-8  | Envelope pile stiffness for the seismic analysis of service water pump structure  | В   |     | CE       | c. | Chuang                |             | 2     | Completed seismic model.<br>See Item 13-11.                      |
| S-9  | Check the limited clearance between the service water pipe at the building penetration  | В   |     | PD<br>CE |    |                       | 800731      | 3     |  |

<sup>&</sup>quot;Bechtel verification of this item is not required

50.54(f) CORE 815 7220-901-09/List of Consits/5s/6-18-80-------215-020 215-020 02 Betl 12c 100 CRSTORES +2150 GPERATOR 020 07220 \*\*\*\* BATE, STORED 04/18/80 1013 1CB11'S BATE 06/19/80 C BIDTE 134 BEPTB 60 

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. PRINT POSITION OF LINE 03

able 1980 ended tradeline !!

· Notes: Demmittems dates for suttens items indicated by asternits (4) have been transmitted to water. These dates will not be changed without fromt from with to water

(6) status codes are explosed a complete, and god mited.

3. One 3.5 mt en-plate

4. Intelligation of midence or ferromaticities to survive or and status.

Ref A :- Letter from 6.5 Hearly to 3.A. Ratjers, and a .. commenced week in after muching ( Completed with the his the which or

with mac at mixtend.

HIDLAND ONITS 1 AND 2

### MASTER LIST OF COMMITMENTS TO MAC ON 10 CFR 50.54(1) RESPONSES

|   | Ites. | Description   | Zest. Ber | Beab<br>deed | Responsible<br>fngipest | Dos _Pais_ | Status | States_Beserks | :        |
|---|-------|---|-----------|--------------|-------------------------|------------|--------|----------------|----------|
|   | 1-1   | Perform a final review and undate of  | 1-3       | LS           |                         | 800101     | 1      |                | 27       |
|   | 1-2   | Berier sections of the FSAS determined to<br>be inactive  | 1-4       | 15           |                         | e0090#     | *      | See 21-49      | 1 32     |
|   | 1-3   | Berlew EDP 4.22   | 1-4       | QE           |                         | 790629     | 1      |                | 35       |
|   | 1-4   | Sedit action items 1-3  | 1-0       | QA           | 14. Ch ->               |            | 24     |                | 37       |
|   | 1-5   | Beeing specifications not included in the specificity study initially                           | 1-5       | QE           |                         | 100629     | 84     |                | **       |
|   | 1-6   | Complete review of the Damer and Moore report   | 1-6       | CT           |                         | 790629     | •      |                | **       |
|   | 1-7   | Complete review of pertinent portions of FSAB Sections 2.5 and 3.8                              | 1-6       | CT,CE        |                         | 790629     |        |                | 1 **     |
|   | 1-8   | Correct settlement calculations and spdate FSAR   | 1-6       | CT           |                         | 791101     | •      |                | 52       |
| þ | 1-9   | Schedule audits of the geotech sections on a 6-month basis                                      | 1-7       | QA           |                         | 79050*     | 1      |                | 1 56     |
|   | 1-10  | Beview drawings for possible effect of<br>vectical duct bank restrictions                       | 1-7       | CE           |                         | 790106     |        |                | 61       |
|   | 1-11  | Complete actions in response to DEVCL audit   | 1-7/0     | 90           |                         | 790518     | ,      |                | 65       |
|   | 1-12  | Berise EEP 8-49 to Incorporate classifi-<br>cations and instructions for use of SCB             | 1-0       | 98           |                         | 790504     | ,      |                | **       |
|   | 1-13  | Schedule audits of each dealen disci-<br>pline calculations on a yearly basis                   | 1-0/9     | 0.8          |                         | 790504     |        |                | 72       |
|   | 1-14  | Reevaluate construction equipment used for compaction   | 1-11      | **           |                         |            |        | 7              | 1 76     |
|   | 1-15  | lesign field soils esgineer and colls eagineer from design section                              | 1-11      | FE           |                         | 790501     |        | 1 21-2. 9      | *c       |
|   | 1-16  | Beriew construction specifications and procedures to identify equipment requiring qualification | 1-11      | re           |                         | 790629     | •      | see es-r J     | 85<br>85 |

Sheet 1 13 6/16/80 14

### RIDLAND ONITS 1 AND 2

# BASTED LIST OF CORNITRENTS TO PRC ON 10 CFR 50.54(f) RESPONSES (Continued)

|       | lies. | Description  | ture. | Res | _QE9  | <br>_Pate_ | Status | Status_Beseths                                    | 20<br>22          |
|-------|-------|--|-------|-----|-------|------------|--------|---|-------------------|
|       | 1-17  | Sevies field procedure FPG-3.00 to ensure clarity and completeness   | 1-11  | •   | FE    | 790531     | ,      |   | 1 **              |
|       | 1-10  | Beside PQCI C-1.62 to provide inspection<br>rather than serveillance and to record<br>inspections                  | 1-16  |     | 0c    | 800801     | 1      |   | 93<br>98<br>95    |
|       | 1-19  | Complete in-depth peries of soil test  | 1-17  | 44  | 67    | 790236     | •      |   | **                |
|       | 1-26  | Perform in-depth audit of U.S. Testing   | 1-18  |     | GR    | 790424     | 1      |   | 162               |
|       | 1-21/ | Series all active QCI's for surveillance callosts  | 1-18  | i   | 0¢    | 790627     | 1      | Coffee  | 105 -             |
| ashid | Lan   | Rodify Simbless of 1-21  | N4    | 1   | gc    | 800901     | 31     | Sec 21-41   | 1 109 -           |
| i i i |       | Tealeste documentation callouts on QCIs  | 1-18  | 1   | 0C    | 790628     | 22     | sec 21-19   | 112               |
|       | 1-23  | Incorporate scientific asseling plans for inspection   | 1-20  | 1   | QC    | 79 10 19   |        |   | 114<br>115        |
|       | 1-24  | Complete in-depth review of the Bechtel trend program  | 1-22  | 1   | 0.8   | 790528     | ,      |   | 11e<br>119        |
|       | 1-25  | Conduct QA training  | 1-22  |     | QA    | 79 0 6 0 1 |        |   | 122               |
|       | 3-10  | No 4crow ETEM<br>Clarify the Beaponse to Question 362.12<br>in FSIR Berision 18                                    | 3-1   |     | LS    | 790531     |        |   | 125<br>126        |
|       | 4-14  | Provide criteria for persissible residual settlement   | 4-1   | 3   | CE    | 79 1231    | *      |   | 130<br>131        |
|       | 4-2*  | Provide details of treatment of loose  | 4-3   | •   | CE CE | 790831     | 1      | Closed by Sev 3                                   | 134<br>135        |
|       | 4-3   | Take dynamic modular measurements upon<br>removal of preloads for diesel generator<br>beilding and other buildings | 4-3   | 3   | GT.   | 74/01      | 1 1    |   | 138<br>139<br>140 |
|       | 4-4   | See date of Item 8-3 to evaluate the seismic response of the structures  | 4-3   | ,   | CE    | 791110     | ,      | Partial Requirement of<br>Items 13-A, 13-K, 13-14 | 143               |
| ind's | 4-5   | Prepare additional response to BBC for<br>Items 8-1 and 8-2  | Sua   | )   |       | 79083/     | )'     | • " "   | 147               |

Sheet 2 11 6/16/80 14

### MIDLAND BRITS 1 AND 2

# . MASTER LIST OF CONMITMENTS TO MMC ON to CFB 50.54(f) BISPONSES (Continend)

| See Personable Dee Deep Deep Deep Deep Deep Deep Dee  | 121                      |
|--|--------------------------|
| densate storage tasks  1-7 Remove ensultable seterial in the tank fairs and replace by connected fill  1-8 Fill the BEST with mater to perform a full-scale test of sebsurface saturial  1-9 Fill the dissel fuel oil task with mater 1-1 South respective of the foundation oil  1-1 South removed to preload during 1-1 South respective to preload during 1-1 South removed to preload during 1-1 Itelia of the plant to provide a 1-2 Construct and fill the borated vater task 6-1 0 CT 1-1 Tracked by Ites 8-7  1-2 South removed to preload vater task 6-1 0 CT 1-3 South removed to preload vater task 6-1 0 CT 1-4 Tracked by Ites 8-7  1-5 South removed to preload vater task 6-1 0 CT 1-5 South removed to preload vater task 6-1 0 CT 1-6 South removed to preload vater task 6-1 0 CT 1-7 South removed to preload vater task 6-1 0 CT 1-8 South removed to preload vater task 6-1 0 CT 1-9 Tracked by Ites 8-7  1-1 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed to preload vater task 6-1 0 CT 1-9 South removed tasks removed to preload vater task 6-1 0 CT 1-9 South removed tasks removed to preload vater task 6-1 0 CT 1-9 South removed tasks removed to preload vater task 6-1 0 CT 1-9 South removed tasks removed to preload vater task 6-1 0 CT 1-9 South removed tasks removed to preload vater task 6-1 0 CT 1-9 South removed tasks removed to preload vater tasks removed to preload vater tasks removed to preload vater removed tasks removed to preload vater removed tasks removed to preload vater removed tasks removed tasks removed to preload vater removed tasks | 153                      |
| ferm and replace by compacted fill  8-8 Fill the BBST with vater to perform a fell-acale test of anhearface material cf.  8-9 Fill the diesel feel oil test with mater to perform a fell-acale test of the feest of the feest feel oil test of the feest of the part of the precised during the life of the plant to provide a record of performance  8-1 Censtruct and fill the horated vater test to the feest of the  | 224 175                  |
| ### Trecked by Item ####################################   |                          |
| to perform a full-scale test of the foundation soil  1-1 Bonitor the mattlement of the structures 5-1 0 CT [subick were subjected to preload) during tive life of the plant to provide a record of performance  1-1 Construct and fill the borated water tenk 6-1 0 CT to make a full-scale test of the foundation of the scale test of the foundation soils  1-2 Selected   | 160                      |
| fublich were ambjected to preload) during the life of the plant to provide a record of performance  6-1 Construct and fill the borated vater tank 6-1 0 CT to make a full-scale test of the founda- tion soils  6-2 Deleted  | 163                      |
| to make a fell-scale test of the founda- tion soils  . 4-2 beleted   | 170<br>170<br>171<br>172 |
| . And married also weller ist date the most to   | 176<br>177<br>178        |
| - 4-3 solvetet use wetthen est date then ower to   | 100                      |
|  | 162                      |
| 6-FL Delay the piping connection of the SSST 6-1 0  4 Separated in For 1 setil most of the mottlement has taken place under the test load  | 185<br>166<br>187        |
| 6-FF Employee the load test result of the 6-2 0 CT F1 Closed by Response to dissel fuel oil tank and provide precise corrective seasones of required   | 190<br>191<br>192        |
| 6-67 Nomitor the piping between the PUST and 6-1 1 CE 800407 4 the auxiliary building  | 195                      |
| 6-66 Evaluate the settlement from item 6-7 in 6-1 1 PS accordance with the procedure described in Question 17  | 959<br>200<br>201        |
| 6-67 Beauve all unsuitable material in the 6-1 3 CT #1 Tracked by Item 4-87 tank farm area and cuplace with suitable compacted fill  | 204<br>205<br>206        |
| . e-61 Remitor the non-Selenic Category I con- 6-2 3 GT / Tracked by Item 4-96 deamate storage tanks   | 209<br>216               |

Sheet 3 13 6/16/80 10

### . BESTER LIST OF CORRETRERTS TO MEC OR 10 CFB 50.54(f) RESPONSES (Continued)

|       | Jim.   | iescrictios   | Zuus.               | Ber  | Ses       | Responsible Engineer. | Dais.  | Status | States Perache   | 20                |
|-------|--------|---|---------------------|------|-----------|-----------------------|--------|--------|--|-------------------|
|       | - 304  | Determine long-term settlement based on<br>the seasured settlement of 'se loaded<br>tasks                                 | 6-2                 | ,    | CT        |                       |        | ٠      | Gratest to review hand to                                      | 213<br>V21 4-     |
|       | 3-1-   | Perform continuity check on duct banks after completion of preload program  | 7-3                 | 3    | FE        |                       | 751130 | *L     | CIANT WEST SERVICE   | 219<br>220        |
|       | 7-2    | Included to Letter Item t make mught of a   | wheit               | : 06 | for med ! | attent any            | ,,     | * 1    | Enchant is to them then 9-1                                    | 222               |
|       | 7-3-   | factored to botton Hen 1 - Ef R. He core  | Au ac               | hi . | regum     | I bekomi              |        |        | such ted is takes them 2-1                                     | 224               |
|       | 1-1    | Establish a requirement to realign dierel generators if manufacturer's tolerance for pitch and roll are exceeded          | The second second   |      | CF        |                       | 800304 | **     | dequire ment is the  | 229<br>229<br>230 |
|       | . 0-2  | Bonitor the diesel generator pedestel narrars on a 60-day cycle throughout the construction phase.                        | 8-2                 | •    | ce.       |                       | MA     |        | Ongoing activity. Begaire-<br>ments in Deg C-998,<br>Spec C-76 | 23<br>234<br>235  |
|       | 1-3    | Buries and modify the monitoring fre-<br>quancy for the diesel generator pedestal<br>markets after 1 year of operation    | 8-2                 | ۰    | CPCo      |                       | Open   | *      |  | 238<br>239<br>240 |
| 1     | 12-1   | Complete one additional boring in the middle of dissel feel oil tank area   | 12-1                | •    | CT        |                       | 79.461 |        | Closed by Fer 1  | 246<br>245        |
| 1 .   | 12-2   | Complete three additional borings in the saxiliery building control tower area  | 12-1                | ۰    | 61        |                       | 79.511 |        | Closed by Ber 1  | 248<br>249        |
| 9-51  | (SAME) | Complete Table 12-1 for solls javesti-<br>gation and planned tomedial measures;<br>respond to ERC                         | 161                 | *    | c 1       |                       | 79.531 |        |  | 252<br>253<br>254 |
| 1 , 7 | 12-0   | Provide amposting soil condition for<br>Salmaic Category 1 stillies   | Tb1<br>12-1         | •    | CE        |                       | 790531 | *1     | Closed by Ber 1  | 257<br>258        |
| 1     | 12-5   | Presence growting of sold below the med and of the control tower as required  | T11<br>12-1         |      | CE        |                       | 601231 |        |  | 261<br>262        |
| 1     | 12-6   | Provide a detailed description of<br>pleased corrective actions in lateria<br>Report 6 of PCAB 24                         | 751<br>12-1         | •    | ct        |                       | 790630 | ,1     |  | 265<br>266<br>267 |
| (:    | 12-1   | Perform a continuity check in one con-<br>duit in each duct bank made with a bord-<br>fiber rabbit prior to cable pulling | 161<br>12-1<br>Pe 4 | •    | "         |                       | 800630 | ٠      | see first procedure  | 270<br>271<br>272 |
|       | 4.     | No action item  | **                  |      |           |                       |        |        |  |                   |
|       | 24-4   | we setten item  | ~*                  |      |           |                       |        |        | Sheet 4  | 13                |
|       | 12-0   | No seller item  | ~*                  |      |           |                       |        |        | 6/16/80  | **                |

|   |       |   | RIDLA               |      | 175 1        | AND 2       |                     |        |  | 16                       |
|---|-------|---|---------------------|------|--------------|-------------|---------------------|--------|--|--------------------------|
| • |       | LIST OF CONSIDERES TO MEC OF 16 CFR 50.54   | (f) BES             | 1085 | S (Con       | (inned)     |                     |        |  | 18                       |
| - | J189. | Percription   | Isss.               | 212  | Sesp<br>_019 | Responsible | Des<br>_Dete_       | Stetus | States Breechs                                   | 20<br>27                 |
| - | 12-8  | Resours the gaps between embedded sleeves and pipes entering the service mater raine pits shen the sercharge is removed   | Tb1<br>12-1<br>Pg 5 | 3    | CE           |             |                     | ×2     | Closed by Response to<br>Question 19, Rev 5      | 275<br>276<br>277<br>278 |
| - | 19-1  | Complete select resnelysis of diesel generator beliding to account for current lack of compection   | 11-1                |      | c£           |             | 79 101/             | ~1     | Superseded by Jtems 13-6<br>and 13-7             | 262<br>283<br>284        |
|   | 13-2  | Beries diesel generator beilding design<br>and Seiseic Category I equipment piping,<br>and electrical systems to the enveloped<br>seiseic responses   |                     |      | **           |             | 7912.51             | *1     | Superseded by Items 17-8<br>through p40 /1-/0    | 287<br>288<br>289<br>290 |
| _ | 13-34 | for revised soil strecture interaction  | 13-L                | •    | CE           |             | 79 10 1/<br>.30 12- | *      | (Superaeded by Items 13-11<br>through -42 / 3-16 | 253<br>298<br>295        |
|   | /1-16 | Agrica sater pass structures  Agrica structural design and Selasic  Category I equipment, piping, and electrical systems and incorporate the selasic responses of the resnelysis for further making young income. | 13- L               | •    |              |             | 24123/              | ×I     | •          | 296<br>297<br>298<br>299 |
|   | 13-44 | If significant chaspe of foundation properties of the assiliary building  |                     |      | ce           |             | 791257              | *1     | Supermeded by Items 13-16 through -20 /1-20      | 362<br>303               |
| 5 | 13-44 | Review etractoral design and Selanic<br>Category I equipment, piping, and<br>electrical systems and incorporate<br>the selanic temponia of the reanalysis   |                     |      | ce           |             | 7111                | 11     |  | 305<br>306<br>307<br>308 |
|   | 13-5  | Underground stillties - Investigate the change in differential displace- ment separately for balldings founded on fill pending results of selesic reassizate  |                     |      |              |             | 79 12 8/            | 21     | Supermeded by Item 13-21                         | 312<br>313<br>314<br>316 |
| - | 13-6  | Conduct a seissic resselysis for the  | 13-2                | •    | ct           | (Any trik)  | 801015              | *4     | media.   | 319                      |
| • | 13-7  | Berier atractoral dealgn for solumic response from Item 13-6  | 13-2                | •    | CE           | (skyy       | 801031              |        |  | 327<br>373               |
| • | 13-0  | Besiev Selsmic Category 1 equipment for /selsmic response from Item 13-6  | 13-2                |      | CE           |             | *****               |        | 7  | 326<br>327               |
| - | 13-9  | Barles picing system for selamic response from Item 13-6  | 13-2                | •    | 10           |             |                     | ) .    | To be contined with 0.7 s                        | 330<br>331               |
|   |       |   |                     |      |              | 1,          |                     |        |  |                          |

Sheet 5 6/16/60

### \_ BASTER LIST OF CORRITTENTS TO INC OR 10 CFR 50.54(f) RESPONSES (Continued)

| - | _ltee_          | Description.   | 2151 | 812 | -010<br>Best | lesponsible | Cue            | S10199 | States Berachs            | 2 |
|---|-----------------|--|------|-----|--------------|-------------|----------------|--------|---------------------------|---|
| - | 13-10           | Barles electrical system for selectic response from Pies 13-6  | 13-2 |     | CE           |             | 80 1145        |        | ter ile to                | 3 |
| - | 13-11           | Conduct a selemic respelyais for the service vater pasy structure  | 13-2 |     | CE           |             | *00434         | •      |                           | 3 |
| - | 13-12           | Review atractural design for selectic response from Item 13-8  | 13-2 |     | CE           |             | 800831         |        |                           | 3 |
| - | 13-13           | Beview Seissic Category I equipment for<br>seissic response from Item 13-4   | 13-2 |     | CE           |             | 803431         |        |                           | 3 |
| ~ | 13-14           | Beries pigung system for seismic response from Item 13-4   | 13-2 |     | 10           |             |                | •      | To be combined with 0.2 g | 1 |
|   | 13-15           | Berier electrical system for selemic response from Item 13-4   | 13-2 |     | CE           |             | #0 ie31        | •      | 11-1-1-1                  | 1 |
| - | 13-16           | Conduct a seissic resnelysis for the expiliery building  | 13-3 |     | CE           |             | 800815         | •      |                           |   |
| - | 13-17           | Beview attactatel design for selsoic<br>response from Item 13-16   | 13-3 |     | CE           |             | 800930         | *      |                           |   |
| - | 13-18           | Berjew Seismic Category I equipment for seismic response from Item 13-16   | 13-3 |     | ct           |             | 601231         |        |                           |   |
| - | 12-19           | Besies piping system for selenic response from Item 13-16  | 13-3 |     | 20           |             |                |        | To be combined with 0.2 g |   |
| - | 13-20<br>643-41 | Berlev electrical system for melanic<br>response from Item 13-16   | 13-3 |     | CE           |             | 80 123 1       | ٠      |                           |   |
| - | 13-21           | Investigate the effect on underground stilities for differential beilding displacement resulting from Items 13-6, 13-6, 13-6,  | 13-5 | •   | PS           |             | <b>0</b> 10131 | •      |                           |   |
| _ | 14-1            | Review the entire ted settlement open completion of the lead test program of the BUST  | 14-1 |     | CT           |             | 810131         | •      | see removes for item      |   |
|   | 14-2            | Inelyse flexible buildings for differ-<br>ential settlement bared on stiffness<br>at the time of distortion. Evaluate<br>forces due to arching or distortion<br>according to Question 15 | 18-2 |     | CE           |             |                | rt     | Seperanded by Item 1836   |   |

5h+et 6 15 6/11/80 14

#### RIDIAND DRITS 1 AND 2

### \* BESTED LIST OF CONSITRESTS TO MEC ON 10 CFB 50.54(f) BESPONSES (Continued)

| - |       |  |       |     |      |   | - Aug   |        |  | 26 6                            |
|---|-------|--|-------|-----|------|---|---------|--------|--|---------------------------------|
|   | _ltm_ | Description  | Zuss. | lar | -618 |   | _Dais_  | States | Stetes_Benede  | 22                              |
| * | 14-3/ | Bop significant cracks in assiliery<br>building, feedester isolation salve pits,<br>and ring foundation for the BUSTs  | 14-3  | •   | cz   |   | 790630  | 1      | Closed by Per 3  | 397<br>394<br>399               |
|   | n-d   | Analyze twildings offected by 43 fer-<br>ential settlement for observed 4 fer-<br>ential settlement plus predicted<br>differential settlement  | 19-9  | •   | CE   |   | 790831  | *1     | See Talirach in 1-4  | 402<br>463<br>404<br>405        |
| * | 14-5  | Prepare additional response to the RBC   |       |     |      |   | 7906 57 | 4      |  | *67                             |
| r | 11-4  | Enalyze the diesel generator beliding<br>for variable foundation properties by<br>finite element sodel   | 14-2  | ,   | cı   |   | 79 1231 | 13*    | Closed by New 5  | *11<br>*11<br>*12               |
| • | 14-7  | inelyze the BWST foundation for recieble foundation properties   | 14-2  | *   | CE   |   | 800831  | *      |  | ***                             |
| c | 14-8  | Compare allowable versus calculated forces and moments at critical sections for semiliary beliding electrical penetration area and service mater pump atracture                                      | 18-5  | 5   | CE   |   | 800831  |        |  | *15<br>*20<br>*21<br>*22<br>*23 |
| c | 15-13 | Evaluate the differential settlements<br>in accordance with provisions of ACI<br>318-71 for Seismic Category I strectures<br>franded partially upon satural soil and<br>portially upon fill material | 15-1  | *   | ct   |   | 791231  | *1     | generator building in the only affected structure, this ites is sare as Item 10366 | 427<br>428<br>429<br>430<br>431 |
| • | 15-2  | Espand the Ridland project structural<br>design criteria for Seissic Category I<br>attactures to include the differential  | 15-2  |     | CE   |   | 80083/  | *      |  | 4 34<br>4 35<br>4 36            |
| • |       | settlesest effect.   |       |     |      |   |         |        |  | *37                             |
|   | 15-3  | Propers additional response to the BBC   |       |     |      | ( | 7912    |        | appointment to perform   | 1.39                            |
| 1 | 16-1g | Perform soil borings in areas of burjed pipes  | 16-1  | •   | C1   |   | 790831  | . (    | and the training of the  | F see commit                    |
|   | 17-1/ | Evaluate impact of the failure of buried<br>aon-Seissic Category I piging on safety-<br>related structures, foundations, and<br>equipment  | 17-1  | •   | CE   |   | 790630  | •      | believed in and and and and and and and and and an                                 | 15 mas hu                       |
|   |       |  |       |     |      |   |         |        |  |                                 |

Sheet 7 13 6/1/80 14

#### #101480 09115 1 480 2

| ١, | _Itee_ | - Precrieties   | žess. | Baz | _918 | fesponeible | _1010. | Status | States_dreethe            |  |
|----|--------|---|-------|-----|------|-------------|--------|--------|---------------------------|--|
|    | 17-2   | If fetere profiles above any estress conditions, analyze the piping eyetes and make decreasery repairs                      | 17-3  | •   | CE   |             |        | •      | Supermeded by Item 17-2-5 |  |
| >  | 17-3   | Propers additional response to the SEC  |       |     |      |             | 790629 |        |                           |  |
|    | 17-4   | Profile the borsted ester lines by optical areas  | 17-1  | 2   | CE   | 1           |        |        | Tracked by Ites 4-X45     |  |
|    | 17-5   | Analyze butled piping considering the<br>probable ultimate settlement. Provide<br>unique resolution for any unacceptable    | 17-3  | •   | FS   |             | 800801 |        |                           |  |
|    |        | stress conditions for the portion of the system   |       |     |      |             |        | å.     |                           |  |
|    | 17-5   | Investigate the excess rounding of  | Thi   | 2   | PS   | 1000        | 800801 |        |                           |  |
|    |        | profile data  | 17-2  |     |      |             |        | 44     |                           |  |
|    | 18-1   | Perform reasonization of the stresses in<br>all Sejamic Category I connection piping  | 18-1  |     | PS   |             | 800801 | **     |                           |  |
|    |        | between buildings as a normal iteration -   |       |     |      |             |        |        |                           |  |
|    |        | of design. Consider stresses induced<br>by differential settlement after con-   |       |     |      |             |        |        |                           |  |
|    |        | secting pipe and anticipated future   |       |     |      |             |        |        |                           |  |
| h  |        | eettlesest  |       |     |      |             |        |        |                           |  |
|    | 18-2   | Perform final analyses to descentrate<br>the margin of acceptability for addi-  | 18-2  | 5   | 2.5  |             | 800801 |        |                           |  |
|    |        | tional differential settlement beyond   |       |     |      |             |        |        |                           |  |
|    |        | that expected for the life of the<br>plant  |       |     |      |             |        |        |                           |  |
|    | 10-5   | Besign piging connecting from the dissel  | 18-2  | 5   | 95   |             | 800801 |        |                           |  |
| 6  |        | generator building to the pedestals which   |       |     |      |             |        |        |                           |  |
|    |        | will accommodate the expected fature<br>settlement  |       |     |      |             |        |        |                           |  |
|    | 19-1   | Profile pipes in the vicinity of diesel   | 19-1  |     | FS   |             | 800801 |        |                           |  |
|    | 1000   | generator building after resonal of   |       |     |      |             |        |        |                           |  |
|    |        | preload and evaluate as described in<br>the Response to Question 17   |       |     |      |             |        |        |                           |  |
|    | 19-2   | Take additional gap pressurements between embedded alerres and piper when surcharge is removed. Constitute this information |       |     | CE   |             |        | **     | Closed by Ber 5           |  |
|    |        | with the profile fats   |       |     |      |             |        |        |                           |  |
|    |        |   |       |     |      |             |        |        |                           |  |
|    |        |   |       |     |      |             |        |        |                           |  |

Sheet # 13 6/16/86 18

| · BAST | ER LIST | OF | COMMITMENTS | 70 | ERC | CH | 50 CT 8 | 55 | SHEER | S PEPOWEES | (Continued) |
|--------|---------|----|-------------|----|-----|----|---------|----|-------|------------|-------------|
|--------|---------|----|-------------|----|-----|----|---------|----|-------|------------|-------------|

| ****   |  |        | <u>.                                    </u> | Bess | Responsible | See    |        |                |
|--------|--|--------|--|------|-------------|--------|--------|----------------|
| _lies_ | Prestleties  | Esst.  | Eas  | -919 | Ingiperi    | .Pais. | Status | Status Berecks |
| 18-3-  | Parform a complete evaluation of sefety-<br>related piping after completion of the<br>preload program  | 19-3   | •  | 12   |             | *00*01 | 44     |                |
| 79-1   | Inalytically check the Sejanic Category 1 agaters affected by antilement for purp and maggie loadings and verify that they are within suncified or rendor-accepted lists   | 20-1   |  | 13   |             | *00201 | 14     |                |
| 20-2   | Terify piping support loads for systems subjected to setfineent-induced loads  | 70-1   | *  | PC . |             | *00801 | 24     |                |
| 20-5   | Preserv affitional response to the BCB   |        |  |      |             |        | 24     | 1 30.1 1x-1    |
| 28-4   | freinste active values affected by<br>antilement for impessed loads and<br>reactions; compare to the allowable for<br>aperability  | 20-f   | *  | *5   |             | 800801 | -4     |                |
| 22-1   | Conceller: superise that then Oseen & Boare wars considered in accordance with the guidelites stortded in ERC Regula-  | 91.61- | T .  | **   |             | 790518 | •      |                |
|        | Perification that three possions of communitary reports determined to be commitments and incorporated into the FSAR have been adequately reflected in project design documents in being accommission via the FSAR receives program described in the response to Question 23, Fact 2. |        | \  | \    |             |        |        |                |
| *      | The two Becktel QR audit findings reported in our April 24, 1979, response (Paragraph C.1, Page 1-8) have been closed out.   |        |  |      | 1           |        |        |                |
|        |  |        |  |      | 1           |        |        |                |
|        |  |        |  |      | 1           |        | _      | Sheet          |

tory Guide 1.70, Bertaion 2. Consultent reports were not attached to the FSAB, but porisons of consultant reports sere extracted and incorporated into the | 548 FS18 test itself. Those portions incorporated into the FSAF become consitments. Therefore, disposition of recommendations in consulting reports \*\*2 has been adequately accounted for in the preparation of the FSH. 

# RESTER LIST OF CORRESPONDED TO REC CR 10 CFR 50.58(f) BISPORSES (Continued)

| Ť | _lim_ | beccieties   | ture. Ber                                       | Pear<br>_919 | *esponsible | tue<br>Pate | States | States Presthe | 20   |
|---|-------|--|---|--------------|-------------|-------------|--------|----------------|--|
|   | 21-2  | On April 3, 1979, Hidland project engineering group sepervisors in all disciplines were relastracted that the only procederally correct methods of implementing specification changes are through the was of specification change notices. This was followed by an interoffice memorandes from the project engineer to all engineering group | 923.pt. *                                       | **           |             | 790312      | •      |                | 1 573<br>574<br>575<br>576<br>577<br>578<br>579<br>1 566<br>581<br>582 |
|   | 23-3  | Engineering Department Project Instruc-<br>tion 8.09.1 was revised in Sevision 2<br>to state, "Ender so circumstances will<br>interoffice sessreads, meacrands,<br>telexes, 191s, etc be used to change<br>the requirements of a specification."   | 95-01-8 :<br>925- 09<br>924- 17-9<br>924- 17-19 | **           |             |             |        |                | 542<br>543<br>1 546<br>1 547<br>1 548<br>549<br>590<br>591             |
|   |       | A review of interoffice seworeade, semo-<br>rands, teleres, 791s, and other corres-<br>posiesce relating to specifications for<br>construction and selected procurements<br>of Q-listed Items will be initiated.   | 11-1,5  | "            |             |             | •      |                | 591<br>592<br>593<br>594<br>597<br>598                                 |

Not hope

| Sheet 10<br>6/16/80                      | Life. |
|--|-------|
| tory Caide 1.19: Teripion 2. Concul-     | 585   |
| teat reports fere not attached to the    | 546   |
| FSAR, but portions of consultant reports | 547   |
| eers extracted and incorporated into the | 1 540 |
| ISAN Tout Miself Thora sertions          | 509   |
| Incorporated ato the ISAR becore         | 510   |
| consituents. Therefore, discouttion      |       |
| of recommendations is convalting reports | 552   |
| has been adequately accounted for in     | 553   |
| the preteration of the felt.             | 554   |

|          |  | RIDLANI | D 0 # | 115 1    | AND 2       |               |           |   | 16   |
|----------|--|---------|-------|----------|-------------|---------------|-----------|---|--|
| HASTER ! | 1154 OF CONSTRESTS TO FRC OF 10 ( - 50.54)   | 1) RESP | ONSE  | s (Con   | tinued)     |               |           |   | 10   |
| _1100_   | - Description  | Pegg_   | REX   | Resp_CIS | Responsible | Lue<br>_Pais_ | Status    | Status Beseths  | 20 22  |
|          | The purpose of the review will be to identify any clarifications which might reasonably have been interpreted as modifying a specification requirement and for which the specification itself was not formally changed. An evaluation will be made to determine the effect on the technical acceptability, safety implications of the potential specification modification, and my work that has been or may be affected. If it is determined that the interpretation say have affected any completed work or future work, a formal change will be issued and remedial action necessary for product availity will be taken in accordance with approved procedures. |         |       |          |             |               |           |   | 601<br>602<br>603<br>608<br>605<br>606<br>607<br>608<br>609<br>610<br>1 612<br>613<br>614<br>615<br>616<br>617 |
|          | The foregoing procedure will be followed for all specifications applying to construction of O-listed items.  For specifications concerning he procurement of O-listed items, the foregoing procedure will be implemented on a random sampling basis. The sample size has been established and the specification selection has been made.   |         |       |          |             |               |           |   | 620<br>621<br>622<br>625<br>626<br>627<br>678<br>629<br>630  |
| (21)     | Review and acceptance criteria for the specifications will be defined by Harch 14, 1980.   | *****   | _     |          |             | 80031         |           |   | 634<br>1 635   |
| (47)     | The review of construction and selected procurement specifications is scheduled to be completed by October 1980.   | -       |       | -36-     |             | 8010          | -         |   | 639<br>640   |
|          |  |         |       |          |             |               |           | Sheet 11 6/16/80  | 5+3<br>  5+4<br>  5+5  |
|          |  |         |       |          |             | FSAR          | , but por | e 1.70, Division 2. Consul-<br>tts very lot attached to the<br>ctions of consultant respets<br>ed and succeptorated and the<br>test itself. Those positions | 546<br>547<br>1 546<br>549<br>550  |
|          |  |         |       |          |             | of r          | ecospend  | orated into the ISAR pecone nts. Therefore, disposition ations in consulting reports adequately accounted for in the presention of the ISAR.                | 550<br>551<br>552<br>553<br>554  |

|   |        |   | RIDLAS                     | D 81  | BITS 1 A    | #D 2            |            |          |  | 16  |   |
|---|--------|---|----------------------------|-------|-------------|-----------------|------------|----------|--|---|---|
| c | HASTER | LIST OF CONNITRENTS TO MAC ON 10 CFR 50.54  | (f) RESI                   | PORSI | ES (Cont    | in wed)         |            |          |  | 10  |   |
| r | _1192_ | Percription   | Zage_                      | Rex   | Pest<br>Org | Responsible<br> | Due _Pais_ | 210125   | [1a199_Beeachs   | 2C<br>22  |   |
|   |        | If the acceptance criteria are not met,<br>the review will be expanded to include<br>other specifications for 0-listed items.<br>It that time, a revised completion date<br>will be established.  | 21-11                      |       |             |                 |            |          |  | 643<br>  644<br>  645<br>  646<br>  647                     |   |
|   | 21-5   | A study was completed which examined current procedures and practices for the preparation and control of the FSAR in view of these experiences. Procedural changes will be initiated by the revision of or addition to the engineering department procedures. This action is scheduled to be completed by January 31, 1980. | 023++1                     |       |             |                 | 000131     |          |  | 650<br>651<br>652<br>653<br>654<br>655<br>656<br>657<br>658 |   |
|   | 21-6   | An interoffice memorandem dated April 12, 1979, was issued by geotechnical services to alert personnel of the need to revise or annotate calculations to reflect current design states.   |                            |       | CŢ          |                 | 790312     | •        |  | 662<br>663<br>668<br>665                                    |   |
|   | 23-7   | Field Instruction FIC 1.100, C-listed Soils placement Job Responsibilities Matrix, has been prepared and establishes responsibilities for performing soils placement and compaction.  | 01.01-<br>023-41<br>20. 30 | 0,15  | 18,20,30    | <i>,</i> ,      |            | •        |  | 668<br>  669<br>  670<br>671<br>672                         |   |
|   | 23-4   | Construction specifications, instruc-<br>tions, and procedures were reviewed<br>to identify any other equipment requiring<br>qualification which had not yet been<br>qualified. Fo such equipment was<br>identified.  | 94:1-1<br>023/p1<br>11-1   | 1 5   | rı          |                 |            | •        |  | 675<br>  676<br>  677<br>  678<br>  679<br>  680            |   |
|   |        |   |                            |       |             |                 |            |          |  |   |   |
|   |        |   |                            |       |             |                 |            |          | Sheet 12<br>6/16/80  | 1 543   |   |
|   |        |   |                            |       |             |                 | FSAR,      | but pot  | 1.70, hevision 2. Consul-<br>to were not attached to the<br>tion of consultant recets<br>d and incorporated into the | 546<br>546  |   |
|   |        |   |                            |       |             |                 |            | Incor:   | ext tself. Those port ons corated into the PSAR become its. Therefore disposition tions in consulting reports        | 549<br>550<br>551   |   |
| _ |        |   |                            |       |             |                 |            | s been . | deque bely recounted for in the preparation of the ISAR.   | 5:1   | , |

|   |        |   | HIDLAND    | BRITS 1  | AND 2       |     |   | 10         |
|---|--------|---|------------|----------|-------------|-----|---|------------|
| - | HASTER | LIST 02 CONNETHENTS TO PRC OR 10 CFR 50.54  | (r) RESPON | ISES (Co | ntineed)    |     |   | 10         |
| - |        |   |            | Resp     | Responsible | Due |   | 20         |
|   | _1198_ | Bercilotica   | Pagt_ Re   |          | Ingineer    |     | SteinsSteins Beseths                          | 22         |
| • | 23-9   | A dimensional tolerance study was com-<br>pleted using the coactor building spray<br>pump and ancillary system as the study | A 1-0 1    | PE       |             |     |   | 1 663      |
| • |        | sechaniss.  |            |          |             |     |   | ***        |
| • | 23-10  | Engineering reviewed specifications not previously reviewed for the specificity or tolerance studies.                       | 04+91-8    |          |             |     |   | 690<br>690 |
| • | 23-11  | A specific review of the TSAR and speci-<br>fication requirements for the qualifi-  | 94yr1-8    |          |             |     |   | 1 698      |
|   |        | cetion of electrical and mechanical com-  |            |          |             |     |   | 1 196      |
| - |        | ponents has been made as part of the<br>corrective action relating to CPCo's  |            |          |             |     |   | 598        |
| - |        | 50.55(e) report on component qualifi-   |            |          |             |     |   | 700        |
| , |        | cation.   |            |          |             |     |   | 71.0       |
|   | 23-12  | Quality assurance will schedule yearly<br>audits of the design calculational pro-   | 01-91-8    |          |             |     |   | 703        |
|   |        | cess for techniques and actual analysis   |            |          |             |     |   | 1 765      |
| • |        | is each of the design disciplines.  |            |          |             |     |   | 706        |
|   | 23-13  | Audits of ITT Crimnell hanger design and  | 9-14-10    | 0.8      |             |     |   | 1 709      |
| • |        | CPCo relay setting calculation have been conducted.   |            |          |             |     |   | 710        |
| - | 23-19  | Bechtel project engineering will review   | Q4+p1-7    |          |             |     |   | 1 714      |
|   |        | design drawings for cases where ducts panetrate vertically through foundations.   |            |          |             |     |   | 715        |
|   |        | The possibility of the duct being en-   |            |          |             |     |   | 1 717      |
|   |        | larged over the derign requirements and to  |            |          |             |     |   | 719        |
| _ |        | structure's behavior will be eve mated  |            |          |             |     |   | 720        |
|   |        | by Jone 1, 1979. Proper remedie.  |            |          |             |     |   | 721        |
|   |        | nessures will be taken if the investiga-  |            |          |             |     |   | 723        |
|   |        |   |            |          |             |     |   |            |
|   |        |   |            |          |             |     |   |            |
|   |        |   |            |          |             |     | Sheet 13                                      |            |
|   |        |   |            |          |             | to  | 6/16/80<br>ty Guide 1.70, Revision 2. Consul- | 545        |
|   |        |   |            |          |             | ter | nt reports very not ettached to the           | 546        |
| - |        |   |            |          |             |     | but portions of consultant Apports            |            |
|   |        |   |            |          |             |     | TSAR pert Maeli. These portions               | 549        |
|   |        |   |            |          |             |     | incorporated into the FSA become              |            |
|   |        |   |            |          |             |     | consulting to consulting toports              |            |
|   |        |   |            |          |             |     | been edequately accounted for in              | 353        |
| - |        |   |            |          |             |     | the preparation of the FSAR.                  | 554        |

| Lian  | 20<br>22<br>1 726<br>727<br>1 720<br>729<br>1 730 |
|---|---|
| tions, covering testing and implementation of its QA program, will be conducted in late April or early May 1979, by Bechtel project QA and engineering.  C. 23-16 In in-depth training mession will be Q+; A QA 7911 1 given to Ridland QA engineers covering 71-22 the mattlement problem and methods to | 727<br>1 720<br>729<br>1 730                      |
| gives to Ridland OR engineers covering /1-22 the settlement problem and methods to  | 733   |
| - search season countries in the lateral  | 736   |
| 23-17 An in-depth training sension will be 047 4 01 8002 1  C given to all CPCo and Bechtel 08 engineers and auditors to increase their swareness of the settlement problem and discuss auditing and monitoring techniques to increase audit effectiveness.   | 739<br>1740<br>1741<br>742<br>1743<br>1744        |
| C. 23-18 An in-depth review of the Bechtel trend Q-7 4 QA program data will be undertaken by \$1-27 Bechtel QA memorement to assure the identification of any other similar areas that were not analyzed in suffi- cient depth in the past reviews.   | 747<br>1 740<br>749<br>750<br>751<br>752          |
| 23-19 Quality control instructions will be etc. 4 QC 2-1  evaluated to ensure that the documentalion of the characteristics which are to be inspected (i.e., review callouts) are clearly specified.  | 755<br>1 756<br>757<br>750<br>759                 |
| 23-20 Field Instruction 1.100 vili be sapple- Q28-pet 5 FF sented by establishing requirerer e for 21-19 demonstrating equipment capacity, including responsibility for equipment approval, and providing records identifying this capability.  | 1 762<br>763<br>764<br>1 765<br>766<br>1 767      |
| + es-194 Hodify to include necessary revision   | -   |
| to get resulting from the state of torr Golde 1.70, Revision 2. Consultant tent reports agre not attached to the  | 505   |
| FSAR, but portion of consultant reports  vere extracted and incorporated into the  FSAR lest itself. Those portions  incorporated into the FSAR become  | 1 546<br>549                                      |
| constrent. Therefore, disposition of recommendations in consulting reports har been adequately accounted for in the greparation of the ISAR.  | 551   |

#### HIDLAND UNITS 1 AND 2

#### MASTER LIST OF CORRESPONDED TO BRC OF 10 CFR 50.54(f) RESPONSES (Continued) 18 Pasconsible Fue. 20 Itan Percrietion Pace Per Cro \_ Ingineer \_ Date Status \_\_ Status Berarks\_ 21-21 See Action Item 4 1 77c Guidelines for surveillance of testing -923-p27 5 CT 860130 1 772 operations will be developed and included 15-17 773 in field instructions for the onsite 1 774 soils engineer. Engineering/geotechnical 1 775 services will develop the guidelines by 776 -Hovester 30 1939-777 23-23 Engineering will revise Engineering 023,p7 5 PE 791130 1 7tc Department Procedure 4.22 by December 1, 13-7 761 1979, to clerify that engineering person-782 nel preparing the FSAR will follow the 783 requirements of Regulatory Cuide 1.70, 704 Bevision 2, Stondard Forest and Content 1 765 of Safety Analysis Reports for Buclear 706 Power Plants (September 1975). Speci-1 707 ficelly, Regulatory Guide 1.70 (Pages iv 7.8 and v of the Introduction) requires that 769 such consultant reports only be refer-796 enced with the applicable consisteents 791 and supporting information included 792 in the text (third paragraph, Page v). 793 Such a requirement would preclude repe-794 tition of this circustance. 795 To preclude any feture inconsistencies 033-014 5 PE 791130 1 790 between the ISAR and specifications, 25-11 799 Engineering Department Project Instruc-900 tion 4.1.1 will be revised to strte ... that all specification changes, Lather 802 than just "major changes," will be .03 reviewed for consistency with the FSAR. ...

| Sheet 15                                 | 1 1 | 543  |
|--|-----|------|
| 6/16/20                                  | 1 : | 544  |
| tery Cuide 1.76, Revision 2. Consel-     | - 1 | 545  |
| tent reports were not at sched to the    |     | 546  |
| FSAR, but portions of consult reports    |     | 547  |
| were extracted and incorporated fano the | 1   | 548  |
| FSAL Lest itself   Those portions        |     | 509  |
| incorporated into the FSAF become        |     | 5*0  |
| continents. Therefore, dierosition       |     | 5:1  |
| of recommendations in consetting reports |     | 552. |
| hey been adequately accounted for in     |     | 553  |
| the preparation of the fSAF.             |     | 554  |

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#### MIDLAND USITS 1 AND 2

| _1199_        | Pescilition  | Page_            | Bay | -OTO  | Responsible<br>Epglnect | _Pais_  | Status    | Status_Benerbs   | 5.0                                      |
|---------------|--|------------------|-----|-------|-------------------------|---------|-----------|--|--|
| 23-25         | Quality assurance will issue a nuclear<br>quality assurance manual amendment to<br>clarify the requirement that procedures<br>include measures for qualifying equip-<br>ment under specified conditions.   | 23-11            |     | OA.   |                         | 800715  | 24        |  | 1 4C<br>8C<br>80<br>81                   |
| 23-26         | In view of Action Item 6, geotechnical services will revise Procedure FP-6437 by December 31, 1979, to require that calculations be annotated to reflect current design states.  | 2 ; -1 1         |     | CT    |                         |         | 1         |  | *  |
| 23-27         | Engineering Department Procedure 4.37 will also be revised by December 31, 1979, to require that calculations be annotated to reflect current design status.   | 123-043<br>21-13 |     | QA    |                         | 79 1227 | •         |  | 1 82<br>82<br>82<br>62<br>62             |
| 23-20         | Civil/structural Design Criteria 7220-<br>C-501 will be modified to contain the<br>requirements that a duct bank penetra-<br>tion shall be designed to eliminate the<br>possibility of the scuspecific size duct<br>interacting with the structures. | 23-11            |     | CE    |                         | 800800  | +4        |  | 1 82<br>62<br>63<br>63<br>63             |
| 23-19         | The civil standard detail drawings will be revised to include a detail showing horizontal and vertical clearance requirements for duct bank penetraons. The detail will address any and mat restrictions.  | 033,p15          |     | cŧ    |                         | 791231  | •         | very natur   | 1 6 3<br>6 3<br>6 3<br>6 3<br>6 4<br>6 4 |
| 23-30<br>(39) | Engineering will clarify specifications and construction will prepare procedures (governing the solis compaction equipment to implement the requirements of the Suclear Quality Assurance Hennal as stated in Action Item 25                         | 693yp46          | 5   | CE/FE |                         | 800912  | +4        |  | ***                                      |
|               |  |                  |     |       |                         |         |           | Sheet 16<br>6/16/60<br>1.70, Revision 2. Consul-<br>s were not attached to the                           | 1 50                                     |
|               |  |                  |     |       |                         | FSAR,   | stracted  | ons of consultant reports and incorporated into the it itself. Those portions rated into the PCAF Dacone | 1 54                                     |
|               |  |                  |     |       |                         | of ry   | onnendati | Therefore, disposition to conculting reports quately accounted for in                                    | 5:<br>5:                                 |
|               |  |                  |     |       |                         | 96.     |           | preparation of the FSAR.   |  |

### MIDLAND BRITS 1 AND 2

| _liss_ | Description  | Page_ E                  |     | -OT& | Responsible | _stel_  | Status | Status Beserks                            | 20         |
|--------|--|--------------------------|-----|------|-------------|---------|--------|---|------------|
| 23-31  | Design documents, instructions, and pro-<br>cedures for those activities requiring<br>improcess controls will be reviewed to | 94,<br>p1-11<br>023,020, |     | PE   |             | 80 1024 | +4     |   | 052        |
|        | dural controls and technical direction. Engineering review is scheduled for  | 30-13-10                 |     |      |             |         |        |   | 850        |
|        | completion by October 24, 580.   |                          |     |      |             |         |        |   | 851        |
| 23-32  | Guidelines for serveillance of testing operations will be developed and included in field instructions for the onsite        | 023-p27<br>= 3 - 47      |     | 11   |             | •       | '      |   | 862        |
|        | soils engineer. Engineering/geotechni-<br>cal services will develop the guidelines<br>by November 30, 1979, and field engi-  |                          |     |      |             |         |        |   | 86         |
|        | nearing will prepare the instructions by February 29, 1980.  |                          |     |      |             |         |        |   | 86         |
| 21-33  | The quelity assurance audit and noni-<br>foring program will be revised to empta-<br>aize and increase attention to the need | 23-935                   |     | OA   |             | 80912   | 44     | for developing andit to training program. | 872<br>872 |
|        | for evaluating policy and procedural<br>adequacy and assessment of product qual-<br>ity. A specialized sudit training pro-   |                          |     |      |             |         |        |   | 875        |
|        | gres will be developed and implemented<br>to ensure guidance for this revised<br>approach.                                   |                          |     |      |             |         |        |   | 876        |
| 23-36  | Control Document SF/PSP G-6.1 will be<br>revised to provide requirements for   | Q-T,                     |     | 5    | 00          | 800701  | 24     |   | 1 06       |
|        | inspection plenning specificity and<br>for the utilization of scientific zamp-   | 023- 123                 | 221 | v    | 1           |         |        |   | **         |

| Sheet 17                                 | 1   | 503  |
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| 6/16/80                                  | 1   | 544  |
| tery Guide 1.70, Pevision 2. Consul-     | - 7 | 545  |
| tent reports warf lot attached to the    |     | 5 46 |
| FEAR, but portions of consultent reports |     | 547  |
| were extracted and incorporated anto the |     | 546  |
| FEAR Arat It welf. These portions        |     | 549  |
| increporated into the FIAR become        |     | 550  |
| constacts. Therefore, discortion         |     | 551  |
| of receptendations in consultano reports |     | 5:2  |
| her/been adequately accounted for in     |     | 553  |
| the preparation of the ILAR.             |     | 554  |
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| MASTER LIST OF | CORNITHENTS | 10 MBC CR | 10 CFR 50.54(f) | RESPONSES (Continued) |
|----------------|-------------|-----------|-----------------|-----------------------|
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|        |   |  | es teen |              |                |  |   | 10  |
|--------|---|--|---------|--------------|----------------|--|---|---|
| •      |   |  | Ress    | Responsible. | Due            |  |   |   |
| 13-40  | Percrisiion   | Pags_ Per                              |         | Insibret     | _Pess_         | Status   |   | 20  |
| (11)   | Design documents, instructions, and procedures for those activities requiring inprocess controls will be reviewed to assess the adequacy of existing procedural controls and technical direction. Engineering review is scheduled for cospletion by October 28, 1960, and field engineering and quelity control review is scheduled for cospletion by November 28, 1980.  | 040 4<br>y1-11<br>023,024,<br>30 L1-10 | FE.00   |              | 801128         | 34   | Project beginning to provide of during document to find and the state of the state | 1d1 931 W   |
| - 23-4 | OCIs in use will be reviewed to ascertain that provisions have been included consistent with the revised control document, SF/PSP G-6.1, Quality Control Inspection Plans.  | 01/105                                 | QE      |              | 800901         | 4  |   | ****<br>****  |
| - 100  | Design documents, instructions, and pre- cedures for those activities requiring improcess controls will be reviewed to assess the adequacy of existing pro- cedural controls and technical direction. Engineering review is scheduled for completion by October 24, 1980, and field engineering and quality control review is scheduled for completion by Rowenber 28, 1980. Into revisions required will be completed by January 23, 1981. | W1-19<br>023:870.<br>30<br>21-20,1     | ##,#E.  |              | <b>8</b> 10123 | ٠  |   | 947<br>  950<br>  951<br>  952<br>  953<br>  954<br>  955<br>  176<br>  957<br>  959<br>  960   |
| . 23-4 | The impact of Action Item at on com-<br>pleted work will be evaluated, and appro-<br>priate actions will be taken as<br>accessary.  | 925; 4<br>p32725<br>11-11,16           | 00      |              | 801101         | 4  |   | 961<br>  964<br>  965<br>  966  |
| • 22-4 | FSAB sections are being rereviewed as discussed in the Response to Question 73, Part (2).   | 023-p7, 4<br>11-<br>23-7, 11           | PE      |              | 8609           | 4  |   | 967<br>1 970<br>571<br>1 972  |
|        |   |  |         |              | FSAR, I        | tracted<br>fracted<br>fracted<br>fracted<br>incorpor<br>tracted<br>to the<br>to<br>the<br>to<br>the<br>to<br>the<br>to<br>the<br>to<br>the<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to<br>to | Sheet 19 6/16/80 1.70, Revision 7. Consultant reports and incorporated into the attitude to the ions of consultant reports and incorporated into the 15th become at incorporate, discosition ions in consultang reports agustely accounted for in a granately accounted for in a granately of the FSIR.   | 503<br>  500<br>  505<br>  506<br>  507<br>  506<br>  509<br>  550<br>  551<br>  562<br>  563<br>  563<br>  563<br>  564<br>  565<br>  506<br>  507<br>  506<br>  507<br>  506<br>  506 |

| MASTER LIST OF | COMMITMENTS   | TO | MRC  | CE | 10 | CFR | 50.58665 |           | (Continued) |
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|                | Count theu 13 |    | mm.c | -  |    | CIP | 11100.00 | RESPUESES | (Lontinged) |

| 7725  | tescription   | Page_                                   | Paz | Peep<br>019 | Responsible<br>Ingipest | Due _Pais_ | Status   |          | Presths   | 26<br>22   |
|-------|---|---|-----|-------------|-------------------------|------------|----------|----------|-----------|--|
| 23-9  | W.S. Testing will be required to demonstrate to the cognizant engineering representative that testing procedures, equipment, and personnel used for quality verification testing (for other than KEE and soils) were, and are, capable of providing accurate test results in accordance with the requirements of applicable design documents. | 04,<br>#1-18<br>923, #91<br>14<br>15-27 |     | CE          |                         | 801001     | ٠        |          |           | 975<br>  976<br>  977<br>  977<br>  576<br>  979<br>  560<br>  961<br>  962<br>  963 |
| 27-9  | A sempling of U.S. Testing's test reports<br>(for other than MPF and soils) will<br>be reviewed by the cognizent engineering<br>representative to ascertain that results<br>evidence conformance to testing require-<br>ments and design document limits.   | 21-19                                   | 31. | CE          |                         | 801001     | ٠        |          |           | 1 5 6 6<br>9 8 7<br>1 9 8 8<br>9 8 9<br>9 5 0  |
| 23-4  | See Action Item 4   | \$23774 1                               | 5   | PE          |                         | 801000     |          |          |           | 1 094  |
| 23-9  | CFCo will implement overingpection for soils placement, utilizing a specific overingpection plan.   | 91-11)<br>1-16)                         | ٠   | CFCo-(      | ).                      |            | Complete | on 11.17 | activity. | 1 996  |
| 23-9  | CPCo will perform overing ection of the U.S. Testing soils testing activities and reports, utilizing a specific overing pection plan.   | 94,<br>91-17                            | •   | CPCe-(      | 18                      | **         | ۳        |          | •         | 1 1003   |
| 21-36 | CFCo project management and OF review field procedures (new and revised) and CPCo OA reviews OCIs (new and revised) in line with Fechtel before release.  | D4.<br>#1-19                            | •   | рc          |                         | **         | ٧        |          |           | 1 1005<br>1 1016<br>1011<br>1012   |

| Sheet 20                                 | 543 |
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| tery Cuide 1.70, Sevision 2. Consul-     | 501 |
| tant reports was not attached to the     | 546 |
| ISAR, but portions of consultant reports | 547 |
| vere extracted and iscorporated into the | 500 |
| ISAP text itell. Those politions         | 549 |
| incorporated linto the TSAB become       | 556 |
| constinents. Therefore, disposition      | 551 |
| of recommendations in Consulting reports | 552 |
| had been adequately accounted for in     | 5:3 |
| the preparation of the FSAR.             | .54 |

|        |   | MIDLA        |       | ITS 1 APD 2      |               |          |   | 16   |
|--------|---|--------------|-------|------------------|---------------|----------|---|--|
| MASTER | LIST OF COMMITMENTS TO MRC ON 10 CFR 50.54  | (f) RES      | PORSE | S (Continued)    |               |          |   | 10   |
| 1199   | - Description   | Pags.        | ter   | Pesp Responsible | Lue<br>_Doig_ | Status   | Status Reports  | 20<br>27   |
| 21-345 | In 1978, CPCo implemented an overin- spection plan to independently verify the adequacy of construction and the Bechtel inspection process, with the exception of civil activities. Rein- forcing steel and embeds were covered in the overinspection.                  | 04.<br>#1-19 | ٠     | CPCc-QA          |               | ٠        | ongoing activity.   | 1 1015<br>1 1616<br>1017<br>1618<br>1619<br>1020<br>1021 |
| 23-26  | CFCo reviews onsite subcontractor OA sanuals and covers their work in the audit process.  | ₽1-19        | •     | C1Co-QA          | "             | 4        |   | 1 1026<br>1 1026   |
| 23-26  | In ongoing effort is improving the "aur-<br>veillance" mode called for in the OCIs<br>by causing more specific accountability<br>as to what characteristics are inspected<br>on what specific hardware and in some<br>cases changing "surveillance" to<br>"inspection." | 91.<br>#1-19 | ٠     | cc .             | **            | 4        |   | 1 1029<br>1 1030<br>1031<br>1032<br>1033<br>1634<br>1035 |
| 24-1   | Determine finel number of observation wells   | 24-21        | 5     | CT .             | 811031        | 4        |   | 1039   |
| 24-2   | Develop frequency for schittoring the observation wells   | 24-21        | 5     | CT CT            | 810131        | 4        |   | 1043   |
| 24-3   | Develop system and schedule for moni-<br>toring mend removal  | 24-22        | 5     | 67               | 810131        | 4        |   | 1047   |
| 24-4   | Evaluate results of temporery devatering  | 24-6         | 5     | CT               | 801031        | 4        |   | 1051   |
| 25-1   | Bevise seissic analysis for diesel<br>generator building using the roil<br>properties determined by the tecent<br>investigation and any foundation modi-<br>fications   | 25-3         | •     | cı               |               | 1        | Tracked by Ites 13-6  | 10:6<br>10:57<br>10:58<br>10:59<br>10:66                 |
|        |   |              |       |                  |               |          | Sheet 21  | 1 543  |
|        |   |              |       |                  |               | nt repet | ts vere of attached to the  | 545<br>546<br>547  |
|        |   |              |       |                  | ****          | FSAR     | ed and incorporated into the<br>text its it. Those portions<br>porated into the ISAL Decome | 1 54t  |
|        |   |              |       |                  | of re         | commitme | nts. Therefore Tsposition   | 511<br>552<br>553  |
|        |   |              |       |                  |               | r been   | adequately accounted for in<br>the preparation of the ISAR.                                 | 114  |

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|           |                  |  |               |     | Rest | Kesponsit le | Due    |        |                         |                                      |
|-----------|------------------|--|---------------|-----|------|--------------|--------|--------|-------------------------|--------------------------------------|
|           | -1118_           | Percription  | 2.22          | REY |      | Engineer     |        | Status | Status Ecrecks          | 56                                   |
|           | 25-2             | Bevise seissic analysis for auxiliary<br>building using the soil properties deter-<br>nised by the recent investigation and<br>any foundation modifications                | 25-3          | 5   | CF   |              |        | '      | Tracked by Item 13-11   | 1063<br>1064<br>1065<br>1066         |
|           | 2!-3             | Revise reismic analysis for service water<br>pump attracture using soil properties<br>determined by the recent investigation<br>and any foundation modification            | 25-5          | 5   | CE   |              |        | 1      | Tracked by Item 13-6    | 1065<br>1670<br>1671<br>1072         |
|           | 26-1             | Analyze the effect of differential settlement of the diesel generator building in accordance with ACI 349 as supplemented by Regulatory Guide 1.142                        | 26-2          | 5   | cr   |              | 80093C | 4      |                         | 1076<br>1077<br>1078<br>1079         |
|           | 26-2             | Incorporate in the Midland project<br>standard design criteria the effect of<br>differential settlement of structures<br>which are founded partially or totally<br>on fill | 26-1          | 5   | CF   |              |        | '      | Tracked by Item 15-2    | 1082<br>1683<br>1684<br>1685<br>1086 |
|           | 27-1             | Prohibit final piping connection to the diesel generator building before 12/31/81  | F10<br>27-9   | 5   | PD   |              | 8007   | 4      |                         | 1090<br>1091<br>1092                 |
| 1114      | 31-1             | Perform full-scale load test by filling the BBST with mater  | 31-2          | 5   | CE   |              | 801130 |        | Tracked by Item 4-27    | 1696                                 |
| NEXT PAGE | 33-1<br>-11 OF 6 | Fill the diesel fuel oil tenks with oil prior to preoperational testing  | 33-2<br>A . F |     | CE   |              | 8008   | 4 ;    | will be accomplished jo | 1101<br>1102                         |
|           | 5-1              | Advise Pechtel to commence devetering and underpinning activities  | ٨             |     | CFCo |              |        | y ^    | ther fermale sta        | 1106                                 |
|           | 5-2 .            |  |               |     | GT   |              | 810331 | 4      |                         | 1110                                 |

| Sheet 22                                 |   | 543 |
|--|---|-----|
| 6/16/8C                                  | i | 544 |
| tory Guide 1.70, Revision 2. Consul-     |   | 5.5 |
| tant reports were not attached to the    |   | 546 |
| FSAR, but portions of consultant reports |   | 547 |
| vere extracted and incorporated into the |   | 548 |
| ISAN text itself. Those portions         | 3 | 549 |
| ipcorporated lato the Seal become        |   | SEC |
| confitments. Therefore, disposition      |   | 551 |
| of recommendations (neonsulting reports) |   | 5.2 |
| has been adequately accounted for in     |   | 5:3 |
| the preparation of the FSAR.             |   | .54 |

## RASTER LIST OF COMMITMENTS TO MRC ON 10 .. 8 50.58(f) RESPONSES (Continued)

| _1199_ | Percriptice   | REF<br>FREE | Ber | Feet -CIS | ResponsibleInginest | tue<br>_tsts_ | StatusStatus fereths     | 26<br>22                         |
|--------|---|-------------|-----|-----------|---------------------|---------------|--------------------------|----------------------------------|
| 5-3    | Monitor concrete cracks for service water<br>pump structure and auxiliary building<br>electrical penetration areas and the<br>feedwater isolation valve pits before and<br>after installation of piles and caissons |             |     | CE        |                     | 601031        | of our date is for our   | h 1114<br>h 1115<br>1116<br>1117 |
| S-4    | Ponitor concrete cracks in the PMST<br>valve pits and repair any observed crack<br>exceeding the BCI code limits  |             |     | ct        |                     | 80063C        | 4                        | 1121<br>1122<br>1123             |
| 5-5    | Groat the local gaps b an dierel generator building footing and aud est   |             |     | CE        |                     | 800407        | y Graning requirement is | 1126<br>1127                     |
| 5-6    | Continue involvement of CPCo/Pechtel consultants for reviewing remedial actions   | ×           |     |           |                     |               | 4                        | 1130<br>1131<br>1132             |
| 5-7    | Momitor service water pump strecture and pile displacement dering jacking operation to verify pile dynamic stiffness used in seismic analysis   | •           |     | CF CF     |                     |               | 4                        | 1135<br>1136<br>1137<br>1138     |
| 5-8    | Envelope pile stiffness for the seispic analysis of service water purp structure  | •           |     | CE        |                     |               | y seed of model. See the | - 1101<br>1102                   |
| 5-9    | Check the limited clearance between the service water pipe at the building penetration  |             |     | ED CE     |                     | 860731        | 4 11-11                  | 1105                             |
| REF    | A. Letter from G.S. Keeley to J.A. Rutgers, Serial 85st, 3/27/66 B. Counitments made in 2/80 seeting with BRC at Midland site   | 1           |     |           |                     |               |                          | 1147<br>1149<br>1150<br>7 51     |
|        |   |             |     |           |                     |               |                          |                                  |

| Sheet 23                                 | 543  |
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| f/16/E0                                  | 540  |
| tory Guide 1. 107 herision 2. Consel-    | 505  |
| tent records were not attached to the    | 546  |
| FSAR, but portions of consultant reports | 547  |
| were extracted and incorporated into the | . 45 |
| PEAR test Itefit. Thore portion          | 545  |
| Incorporated into the Fill become        | 5:0  |
| founitments. Therefore, discoritien      | 5:1  |
| of fecommendations to consulting reports | 552  |
| hen been adequately accounted for in     | 513  |
| the preparation of the Fiak.             | 510  |
|  |      |

# **Bechtel Corporation**

Engineers - Constructors

Fifty Beale Street
San Francisco, California 94119
August 22, 1969



Dames & Moore 309 West Jackson Blvd. Chicago Illinois 60606

Attention: Mr. George D. Leal

Subject:

Consumers Power Company Midland Plant Units 1 & 2 Job No. 7220 Soils Investigation File: 0120, 1700, C-1Y

Gentlemen:

Referring to your letter of July 8, 1969, on the subject of plant excavation slopes, we have the following comments on which we would appreciate your response:

It is our opinion that in accordance with normal practice, the minimum factor of safety during construction should not be less than 1.25 for conditions where failure could endanger life or cause considerable financial losses. However, stability analysis should be based on realistic, rather than on excessively conservative assumptions.

For the case 2a, "western soil profile", the reported factor of safety of only 1.1 is less than the minimum 1.25 which we consider acceptable, particularly as the slope may be standing for as long as a year. However, the assumption of phreatic surface extending to the surface of fill at elevation 634 is ultraconservative, and we see no reason for this to be higher than the existing water table assumed at elevation 604. On the other hand, a tension crack along which there is no contribution to the shearing resistance should be assumed in the cohesive fill. These two factors will have opposite effects on the stability.

Please comment on whether more realistic assumptions for stability analysis for the "western soil profile", may justify a lower phreatic surface (el. 604 instead of 634), but inclusion of a tension crack extending to a depth consistent with the assumed properties of the fill. If you agree with this, then please recalculate the factor of safety for these adjusted assumptions.

The text appended to your letter (Part 1 - "General Description") is a general method of stability analysis based on published literature. No indication is given of how the method was applied to the present problem. It would be useful for our review and for record purposes if you would submit an illustration showing the location of the slip circles analysed and the corresponding factors of safety, together with the assumptions made

August 22, 1969

in the analysis. This would assist us in forming a judgement on the significance of "minor sloughing" which, as you indicated, may take place.

Regarding the stability at the "eastern soil profile", you indicated that the factor of safety is dependent on the location of the phreatic surface. Please provide a description, more precise than that given in paragraph D-4 of your letter, of the minimum distances from the soil surfaces to the phreatic line. This is required in order that these distances can be included in the dewatering specification.

It may be assumed that the maximum rate of excavation could be about 500 cy/day applied to either of the reactor buildings or the auxiliary building.

In addition, as a separate subject, please advise your approximate charges and schedule for the following:

1. Furnishing to us complete details of calculations of total and differential settlements of the major plant structures. The maximum and minimum settlements should be stated. The estimated settlements should be given for the centers of the reactor and auxiliary buildings, such as required to determine the maximum and minimum differential settlements. The relatively small differential settlements were queried by the AEC. Information is required as to whether single or double drainage was assumed in the settlement analysis, details of rate of settlements, and whether artesian condition in underlying aquifer was allowed for.

As you are aware, these analyses should be thorough and by methods which would be acceptable to AEC personnel and their consultants. It is important that the short term elastic and the long term consolidation type of settlement should be given separately and that the effects of the deep excavations and the area load to El. 634 be taken into account. The timing of these phases of unloading and loading should also be considered.

We note that consolidation test results contained in the reports submitted to date do not include data on the time rate of consolidation such as coefficient of consolidations which normally are a part of consolidation test results. Will you please furnish this missing information as part of our original agreement.

2. Recommendations as to the criteria such as relative density of sand and strength of clay, or glacial till, which would determine what materials can be retained in foundations and what materials must be removed for stability under seismic conditions of Class I structures. (The operating Basis Barthquake is 0.05 g and the Design Basis Earthquake is 0.10 g). Mr. George D. Leal

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- 3. Recommendations or comments on seismic stability of the dense clay till type soil which will be supporting the reactor and auxiliary buildings and in particular of silt and sand inclusions of this soil as indicated on the borehole logs.
- 4. The overconsolidation ratio of the soils supporting the reactor and auxiliary buildings.
- 5. Providing us full design, including plan, illustration, description, and specification, for the installation of the piezometer monitoring system around the plant excavation which you recommend in your July 17 letter.

We would appreciate receiving your initial response to this letter outlining anticipated charges for points 1, 2, 3, 4 and 5 by August 29, 1969.

Very truly yours,

J. H. Blasingame
Project Engineer
Bechtel Company

PAM:ea (In dup.)

cc: Consumers Power Company (3)