FEB 5 1982

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

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 and 2

SUBJECT: SUMMARY OF OCTOBER 1, 1981 MEETING ON REMEDIAL MEASURES FOR THE MIDLAND AUXILIARY BUILDING

On October 1, 1981 the NRC staff met in Bethesda, Maryland with Consumers Power Company, Bechtel, and consultants, to discuss the design and construction aspects of the underpinning planned beneath the Auxiliary Building at Midland Plant, Units 1 and 2. Because the underpinning scheme presented was a significant change from the previously proposed remedial measure, a briefing was also provided to NRC management. Enclosure 1 is a summary of the meeting and includes a compilation of the handouts and visual aids used in the course of the meeting.

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

Enclosure:
As stated

cc: See next page

OFFICE	DL:LB#4	LA:DL:LB#4	DL:LB#4				
SURNAME	DHood:eb	MDuncan	EAdensam				
DATE	2/4/82	2/4/82	2/5/82				

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

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To File

From GSKeeley, P-14-113B

Date October 27, 1981

CONSUMERS POWER COMPANY

Subject MIDLAND PROJECT
DISCUSSION WITH STAFF ON -
REMEDIAL FIXES FOR AUXILIARY BUILDING -
ON OCTOBER 1, 1981
FILE 0485.16 SERIAL 14705

Internal Correspondence

CC JWCook, P-26-336B w/o att
WRBird, P-14-418A w/att
JBrunner, M-1079 w/att
ABoos, Bechtel 4 copies w/att
DMBudzik/TJSullivan, P-24-624A w/att
DBMiller, Midland w/att
RSevo, Midland w/o att
TRThiruvengadam, P-14-400 3 att
RZamarin, IL&B w/o att
RHuston, copies w/att

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1. Introduction -

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Also make staff aware of the interfacing of the various groups involved in performing the work.

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B. Parties Involved -

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Bechtel - design of structures

Mueser - Rutledge - advisor on construction methods including instrumentation, review of tech spec, and geo tech advice during design and construction.

Mergentime - Construction

2. Design and Construction Schedule (See attachment)

   44 Permanent Wells - Complete before underpinning starts January 1, 1982. Can't develop wells during underpinning since have to dewater. Can be used to support underpinning.

3. (a) Presented and explained slides. Mentioned that prestressed tendons for temporary support of wing walls during dewatering and FW Valve Pit is being supported by beams. Will analyze structure to account for underpinning activities at critical points during construction. New structure analyzed for 50% additional seismic load. Will monitor cracks in area effected by jacking and construction.

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   Use rotary drill for casing installation. Use brine for cooling. Ethelyne Glycol has been used. Freeze wall layout may not be exactly as shown along admin building side.

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   (e) Jim Gould - Discussed sample pictures of borings taken by WCC and that it is very uniform fill (COE 17 & 18) and some samples. Feels it's a black and white case of knowing you're in good fill and it's a common sense decision. It's not a sensitive material to being disturbed. Application of load by jacking will be basic proof test. Consolidation tests for fill shows 30-80 kips/ft^2. Feels 80 is more applicable. 6 - 7 UU kips/ft^2 (shear strength). Feels its insensitive plastic material. Not as firm as at SWPS but are us ng low bearing pressure. To monitor - penetrometer is only a device to help make a judgement evaluation. Will also use torvane device.

   Is pleased that site is being ringed to prevent water from going to fill. Load of 6.8 and 8.8 kips/ft^2 for elec pen and control tower. 5 to 8 factor of safety and 4 to 4.5 on elec pen and control tower. They estimate settlement values of 0.6" with 0.4" on jacking to 0.9" with 0.6" jacking so 0.2" and 0.3" for penetration area and control tower.

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(f) Bob Sevo presented QA program. (See attachments) QA will be obtaining a person with underpinning experience.

BQAM controls procurement, design and construction. CP Co Topical controls MPQAD QA Activities.

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Attendees
12/11/81

Name	Organization
Darl S. Hood	LB#4 / NRR
Lyman Heller	NRC - HGEB (Part time attendance)
JOHN GRUNDSTROM	CORPS OF ENGINEERS, DETROIT
Joseph Kane	NRC, HGEB, GES
Hari N. Singh	U.S. Army Engineers Division (NCD) Chicago
ROSS B. LANDSMAN	NRC - RIII - IE
Wm D PATON	NRC - Midland Counsel
Edmund Burke	Mueser, Rutledge, Johnston & DeSimone
ROBERT SEVO	CPCO - MPQAD
MALAY DASGUPTA	BECHTEL - ANN ARBOR
FREDERICK WILLIAMS	ISHAM, LINCOLN + BEALE, WASHINGTON
Alan Farnell	Isham, Lincoln + Beale, Chicago
Don Bartlett	Hanson Engineers, Springfield, ILL
LUDWIG GOULD	MERGENTIME CORP, FLEMINGTON NJ
AL BOOS	BECHTEL - ANN ARBOR
T.E. JOHNSON	" " "
G.S. Keeley	Consumers Power Co.
K.B. Razban	"
Burial Dhar	Bechtel
FRANK RINALDI	NRC / SEB
THIRU THIRUVENGADAM	CONSUMERS POWER
Ann Hodgdon	OELD, NRC
JOHN P MATRA Jr	NRC - CONSULTANT
W. Hoaxe	QAB / NRR
J. Gilray	QAB / NRR

AUX BLDG REMEDIAL ACTIVITIES

1. Introduction
   - A) Purpose of meeting
   - B) Parties envolved in Remedial Activities
2. Design and Construction Schedule
3. Presentation of Technical Report
   - A) Structural considerations (Post tensioning and Temporary Supports)
   - B) Dewatering (effects to date on structure)
   - C) U/P Method
   - D) Instrumentation
   - E) Geo Technical Discussion
   - F) Quality Program
4. General Discussion

September 29, 1981

SCHEDULE FOR AUX BUILDING
UNDERPINNING & SUPPORT ACTIVITIES

10/15/81	Drill & Develop Additional 44 Permanent Plant Dewatering Wells. (Memo to Denton 9/16/81)
11/ 1/81	Start Recharge Test (2 Months Duration)
11/ 1/81	Start Holes & Installation of Freeze Piping (5 Weeks)
12/ 1/81	Mobilize & Start Installation of Access Ramps or Shafts
12/ 7/81	Start Freezing Ground (3 Weeks)
1/ 1/82	Start Excavation Work, Construct Underpinning, Transfer Load, Etc. (61 Weeks)

September 29, 1981

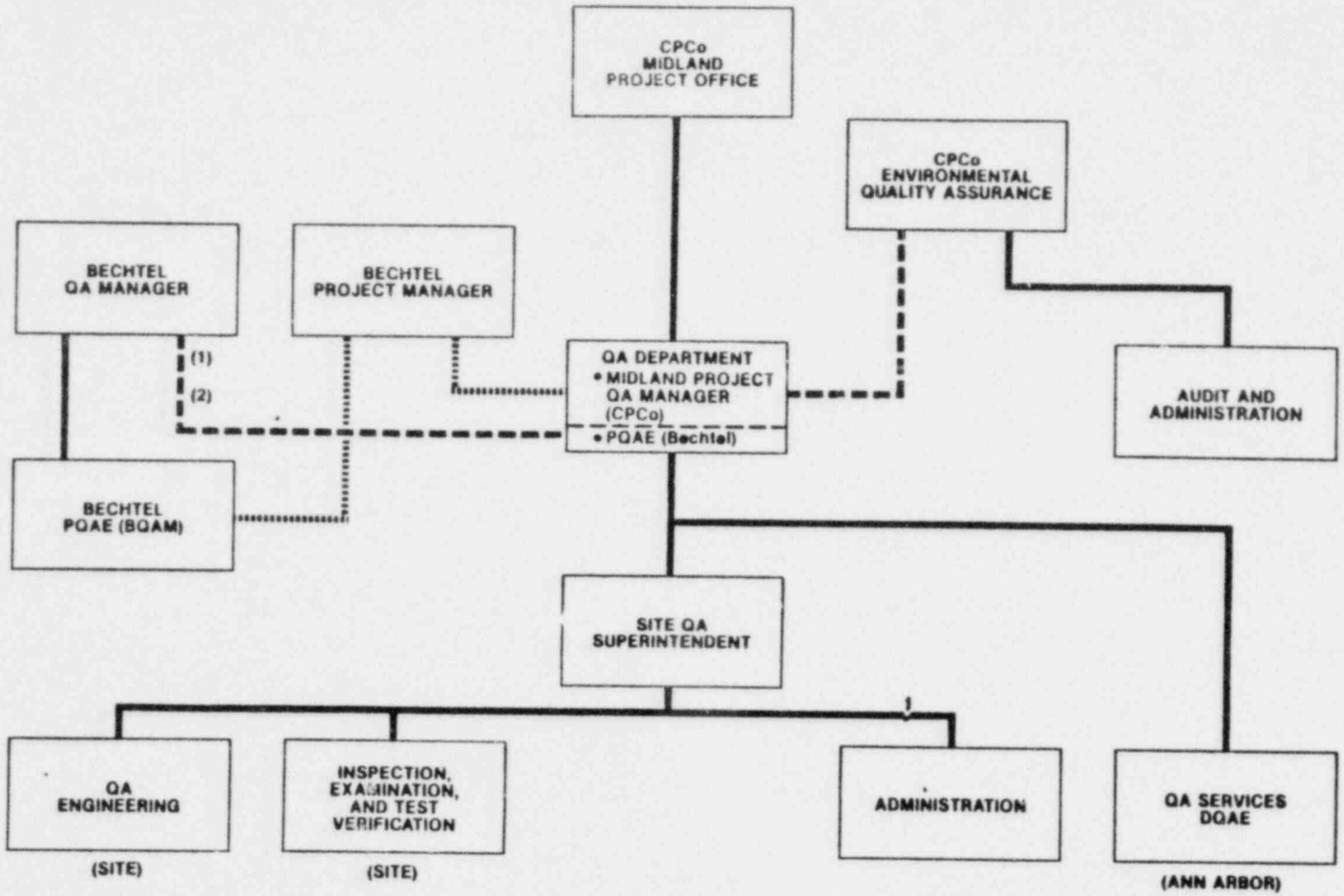
REMEDIAL SOILS WORK QUALITY PROGRAM

- CPCo QUALITY ASSURANCE PROGRAM MANUAL FOR NUCLEAR POWER PLANTS
  - Volume I - Policies (Topical CPC-1-A)
  - Volume II - Procedures for Design and Construction

- BQ-TOP-1, REVISION 1A
  - Bechtel Nuclear Quality Assurance Manual

MIDLAND PROJECT

QUALITY ASSURANCE ORGANIZATION



LEGEND

——— TECHNICAL & ADMINISTRATIVE DIRECTION

– – – QUALITY COORDINATION

····· QUALITY POLICY

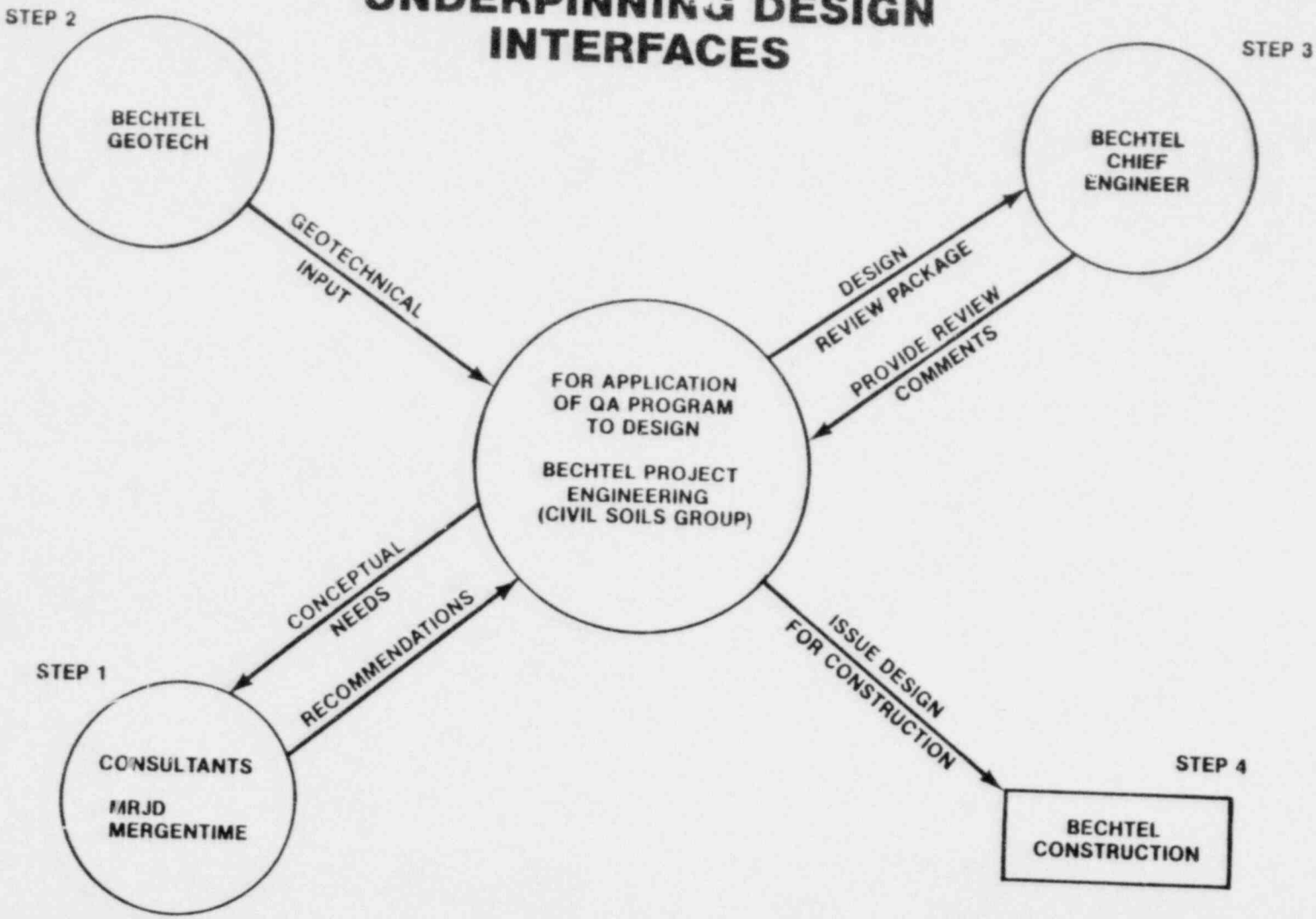
NOTES (1) INCLUDES ADMINISTRATION OF BECHTEL PERSONNEL ON LOAN

(2) INCLUDES TECHNICAL SUPPORT

G 1864 03

MIDLAND UNITS 1 AND 2
REMEDIAL SOILS WORK 9-25-81

UNDERPINNING DESIGN INTERFACES



G-1864 21

4-A

QUALITY RELATED ACTIVITIES

- DESIGN CONTROL
  - Temporary Underpinning Supports and Load Transfer
  - Permanent Underpinning Supports and Load Transfer
- DETECTION OF MOVEMENT OF STRUCTURES AND LOAD MEASUREMENTS
  - Instrument Calibration
  - Procedures
- CONSTRUCTION PRE-DRAINAGE
  - Fines Monitoring
- EXCAVATION
  - Location, Size, Sequence, Protection of Utilities

4-17

QUALITY RELATED ACTIVITIES
(cont'd)

- SUBGRADE INSPECTION
- PROCUREMENT (Q list items)
  - Structural Concrete and Grout
  - Rebar/Connectors
  - Miscellaneous Steel
  - Dowels
  - Weld Rod

QUALITY RELATED ACTIVITIES
(cont'd)

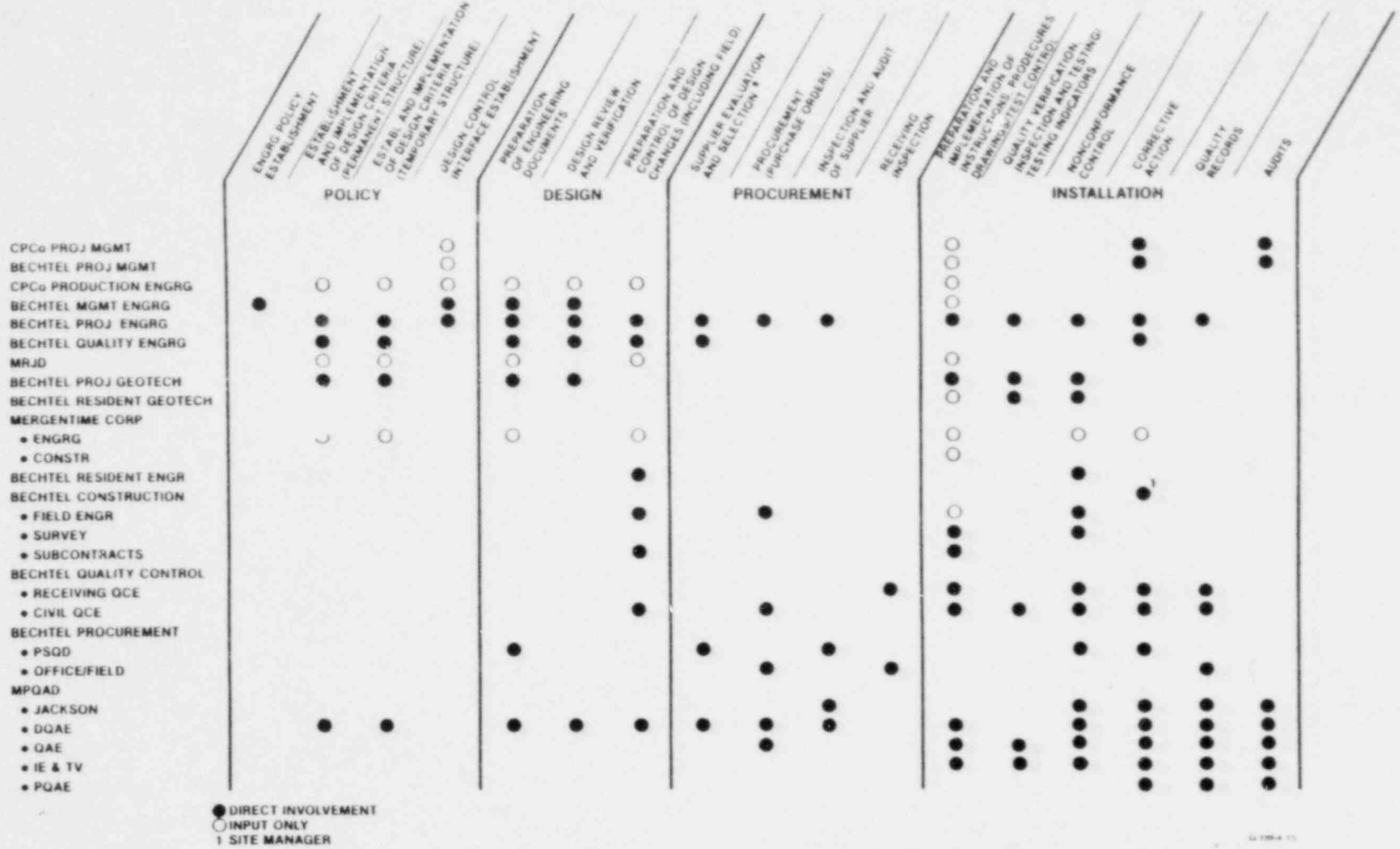
- INSTALLATION OF TEMPORARY AND PERMANENT UNDERPINNING SUPPORTS
  - Forming (location, size, sequence)
  - Structural Concrete (production, placement)
  - Rebar/Connectors
  - Welding
  - Miscellaneous Steel
  - Joint Preparation
  - Drypack
  - Dowels

4-1

QUALITY RELATED ACTIVITIES
(cont'd)

- LOAD TRANSFER
  - Calibration of Jacking System
  - Procedures
- QA INDOCTRINATION

PROJECT FUNCTIONAL MATRIX



MEETING SUMMARY DISTRIBUTION

Docket File
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Local PDR
TIC/NSIC/TERA
LB #4 r/f
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R. Purple
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A. Schwencer
F. Miraglia
J. Miller
G. Lainas
R. Vollmer
J. P. Knight
R. Bosnak
F. Schauer
R. E. Jackson
Attorney, OELD
OIE (3)
ACRS (16)
R. Tedesco

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bcc: Applicant & Service List

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Z. Rosztoczy
W. Haass
D. Muller
R. Ballard
W. Regan
R. Mattson
P. Check
O. Parr
F. Rosa
W. Butler
W. Kreger
R. Houston
W. Gammill
L. Rubenstein
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R. Hernan
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R. Baer
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E. Adensam
Project Manager D. Hood
Licensing Assistant M. Duncan
R. Landsman
J. Gilray
J. Kane
F. Rinaldi
L. Heller

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Darl Hood/md

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MIDLAND

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To File

From GSKeeley, P-14-113B

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Attendees
12/1/81

Name	Organization
Darl S. Hood	LB#4 / NRR
Lyman Heller	NRC - HGEB (Part time attendance)
John Grundstrom	Corps of Engineers, Detroit
Joseph Kane	NRC. HGEB. GES
Hari N. Singh	U.S. Army Engineers Division (NCD) Chicago
Ross B. Landsman	NRC - RIII - IE
Wm D. Paton	NRC - Midland Counsel
Edmund Burke	Mueser, Rutledge, Johnston & DeSimone
Robert Sevo	CPCO - MPQAD
Malay Dasgupta	Bechtel - Ann Arbor
Frederick Williams	Isham, Lincoln + Beale, Washington
Alan Farnell	Isham, Lincoln + Beale, Chicago
Don Bartlett	Hanson Engineers, Springfield, Ill
Lindrum Gould	Mergentime WRF, Flemington NJ
Al Boos	Bechtel - Ann Arbor
T.E. Johnson	" " "
G.S. Keeley	Consumers Power Co.
K.B. Razdan	"
Bimal Dhar	Bechtel
Frank Rinaldi	NRC / SEB
Thiru Thiruvengadam	Consumers Power
Ann Hodgdon	OELD, NRC
John P. Matra Jr	NRC - Consultant
W. Haas	QAB / NRR
J. Gilray	QAB / NRR

AUX BLDG REMEDIAL ACTIVITIES

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   - A) Purpose of meeting
   - B) Parties envolved in Remedial Activities
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3. Presentation of Technical Report
   - A) Structural considerations (Post tensioning and Temporary Supports)
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4. General Discussion

September 29, 1981

SCHEDULE FOR AUX BUILDING
UNDERPINNING & SUPPORT ACTIVITIES

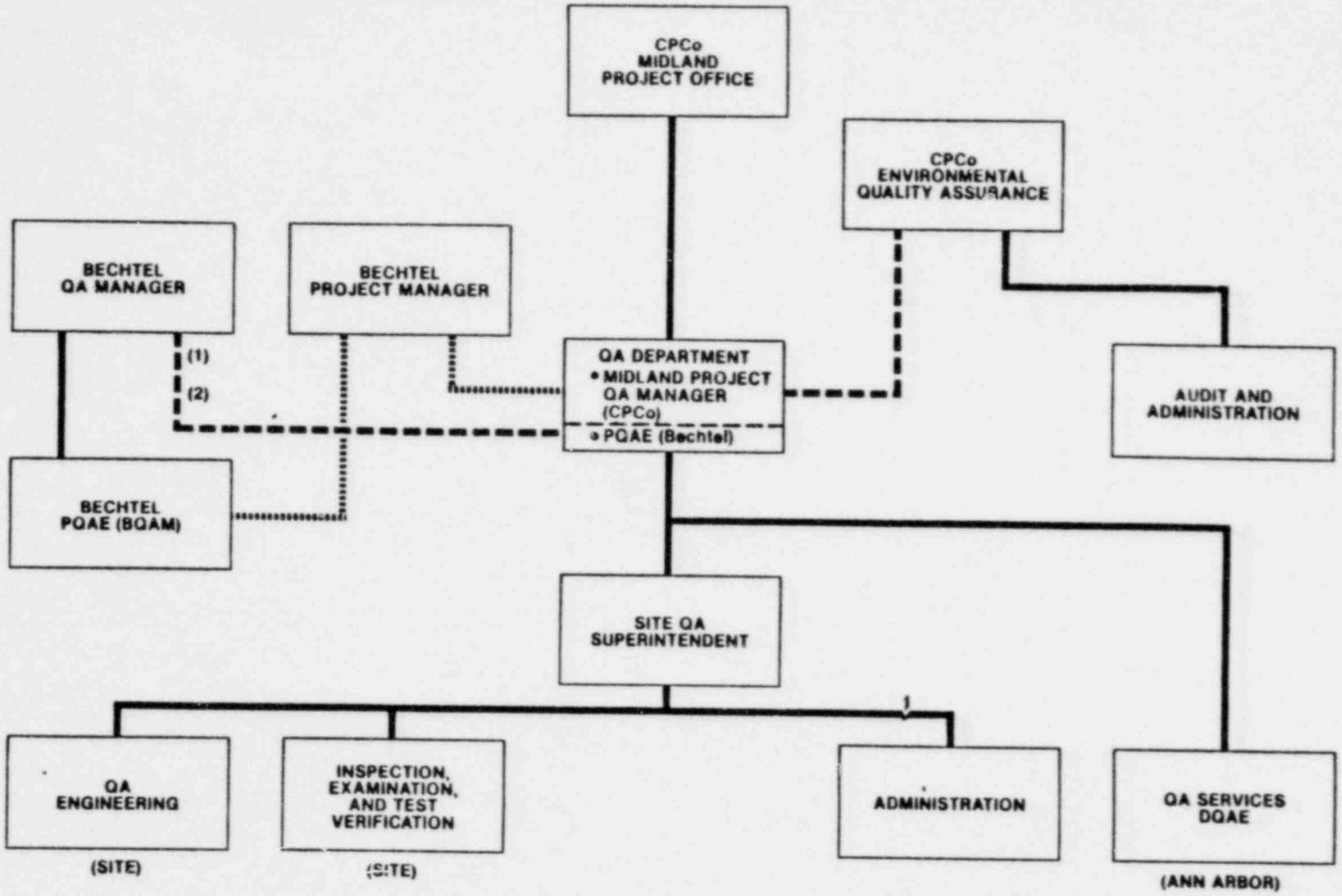
10/15/81	Drill & Develop Additional 44 Permanent Plant Dewatering Wells. (Memo to Denton 9/16/81)
11/ 1/81	Start Recharge Test (2 Months Duration)
11/ 1/81	Start Holes & Installation of Freeze Piping (5 Weeks)
12/ 1/81	Mobilize & Start Installation of Access Ramps or Shafts
12/ 7/81	Start Freezing Ground (3 Weeks)
1/ 1/82	Start Excavation Work, Construct Underpinning, Transfer Load, Etc. (61 Weeks)

September 29, 1981

REMEDIAL SOILS WORK QUALITY PROGRAM

- CPCo QUALITY ASSURANCE PROGRAM MANUAL FOR NUCLEAR POWER PLANTS
  - Volume I - Policies (Topical CPC-1-A)
  - Volume II - Procedures for Design and Construction
- BQ-TOP-1, REVISION 1A
  - Bechtel Nuclear Quality Assurance Manual

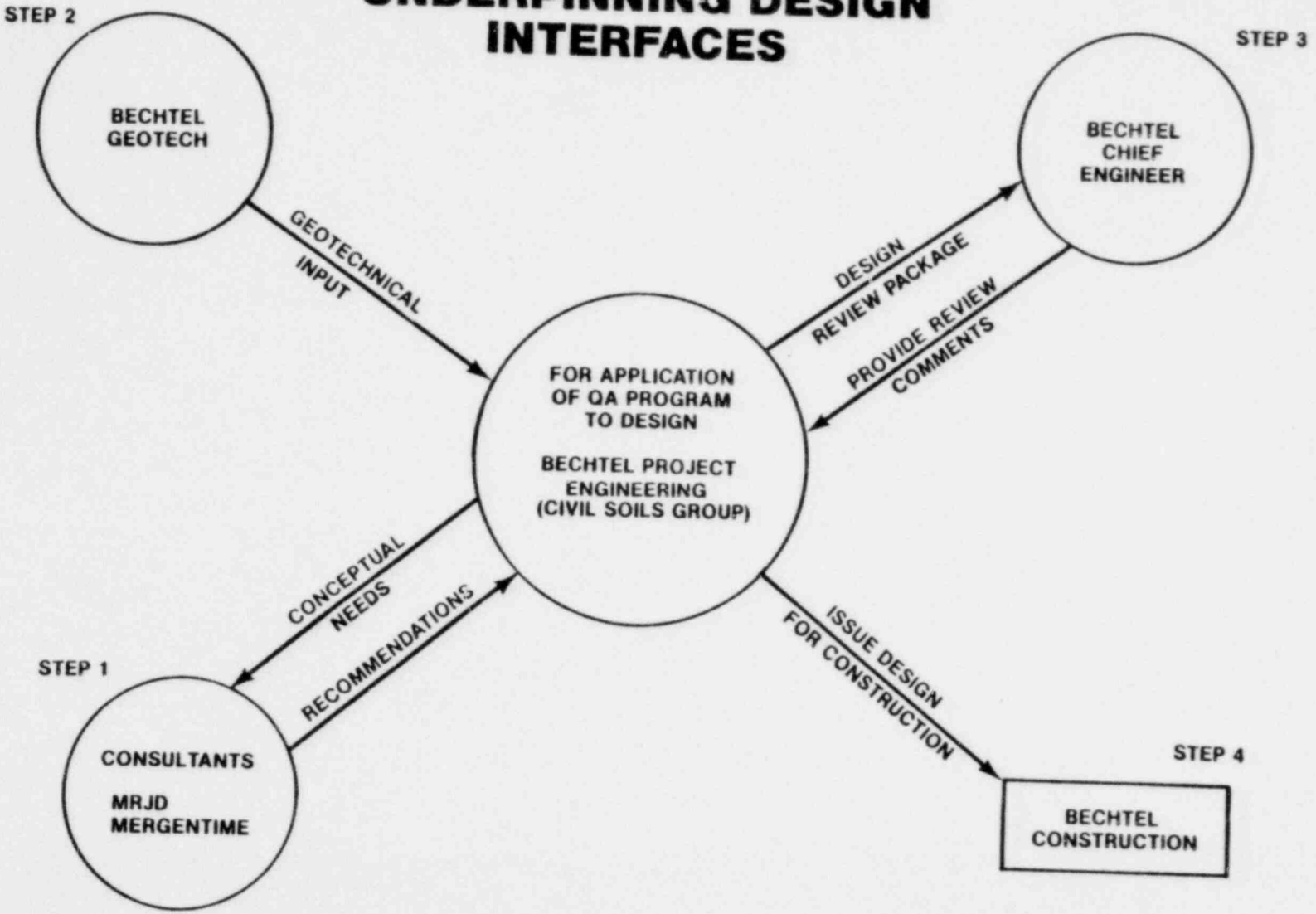
MIDLAND PROJECT
QUALITY ASSURANCE ORGANIZATION



MIDLAND UNITS 1 AND 2
REMEDIAL SOILS WORK 9-25-81

G 1864 03

UNDERPINNING DESIGN INTERFACES



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QUALITY RELATED ACTIVITIES

- DESIGN CONTROL
  - Temporary Underpinning Supports and Load Transfer
  - Permanent Underpinning Supports and Load Transfer
- DETECTION OF MOVEMENT OF STRUCTURES AND LOAD MEASUREMENTS
  - Instrument Calibration
  - Procedures
- CONSTRUCTION PRE-DRAINAGE
  - Fines Monitoring
- EXCAVATION
  - Location, Size, Sequence, Protection of Utilities

QUALITY RELATED ACTIVITIES
(cont'd)

- SUBGRADE INSPECTION

- PROCUREMENT (Q list items)
  - Structural Concrete and Grout
  - Rebar/Connectors
  - Miscellaneous Steel
  - Dowels
  - Weld Rod

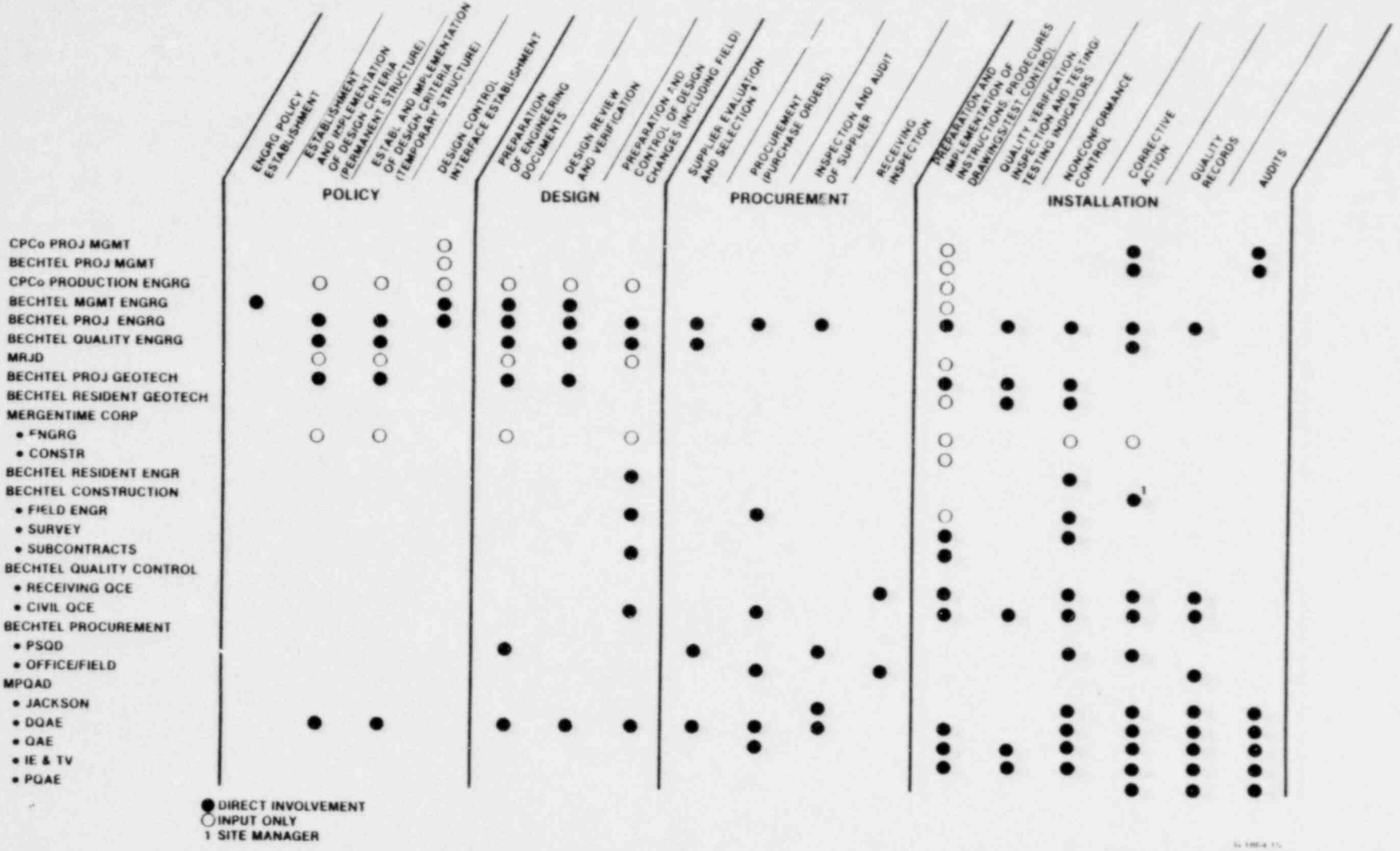
QUALITY RELATED ACTIVITIES
(cont'd)

- INSTALLATION OF TEMPORARY AND PERMANENT UNDERPINNING SUPPORTS
  - Forming (location, size, sequence)
  - Structural Concrete (production, placement)
  - Rebar/Connectors
  - Welding
  - Miscellaneous Steel
  - Joint Preparation
  - Drypack
  - Dowels

QUALITY RELATED ACTIVITIES
(cont'd)

- LOAD TRANSFER
  - Calibration of Jacking System
  - Procedures
- QA INDOCTRINATION

PROJECT FUNCTIONAL MATRIX



● DIRECT INVOLVEMENT
○ INPUT ONLY
1 SITE MANAGER