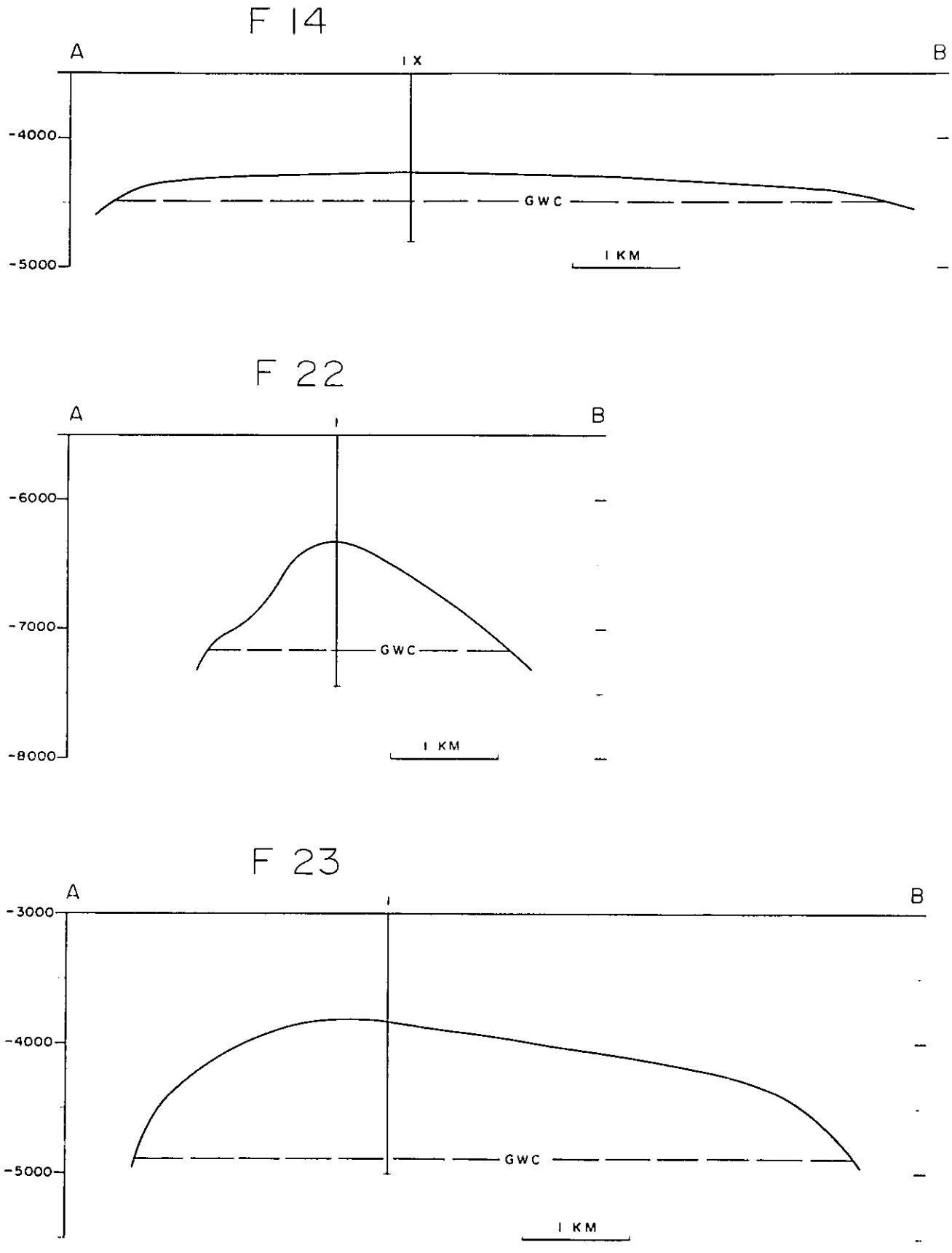


Fig. 12-2-16 STRUCTURAL CROSS-SECTION, CENTRAL LUCONIA F14, F22 AND F23
Vol. IV

CENTRAL LUCONIA K-4 STRUCTURE CONT.MAP,TOP CARBONATES

1KM

N 1560000

N 1550000

N 1540000

E 660000

E 670000

B

A

4400

4300

4200

4100

4077

1

GWC

Fig. 12-2-17 STRUCTURE CONTOUR MAP, CENTRAL LUCONIA K4, TOP CARBONATES
Vol. IV

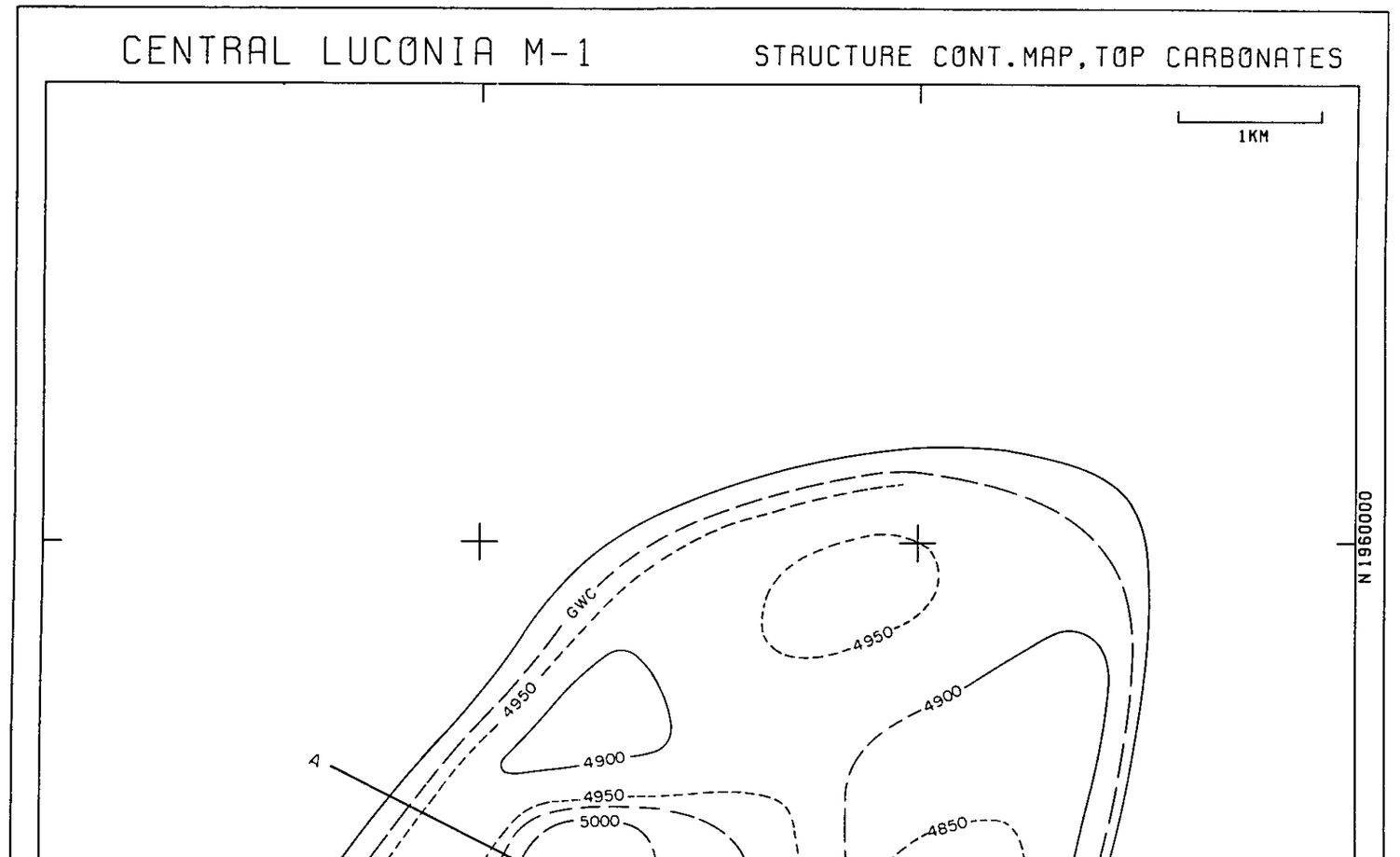


Fig. 12-2-18 STRUCTURE CONTOUR MAP, CENTRAL LUCONIA M1, TOP CARBONATES
Vol. IV

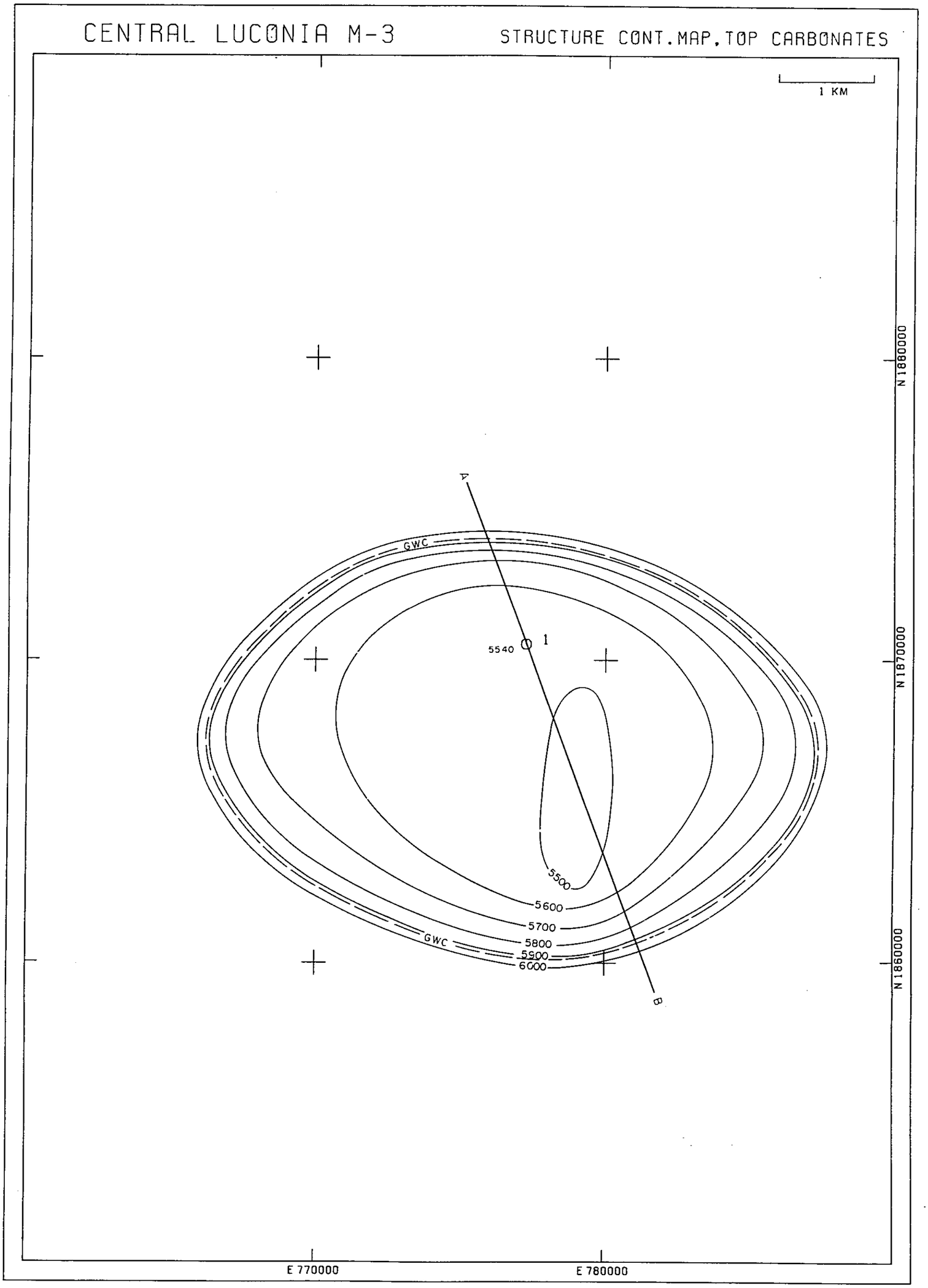


Fig. 12-2-19 STRUCTURE CONTOUR MAP, CENTRAL LUCONIA M3, TOP CARBONATES
Vol. IV

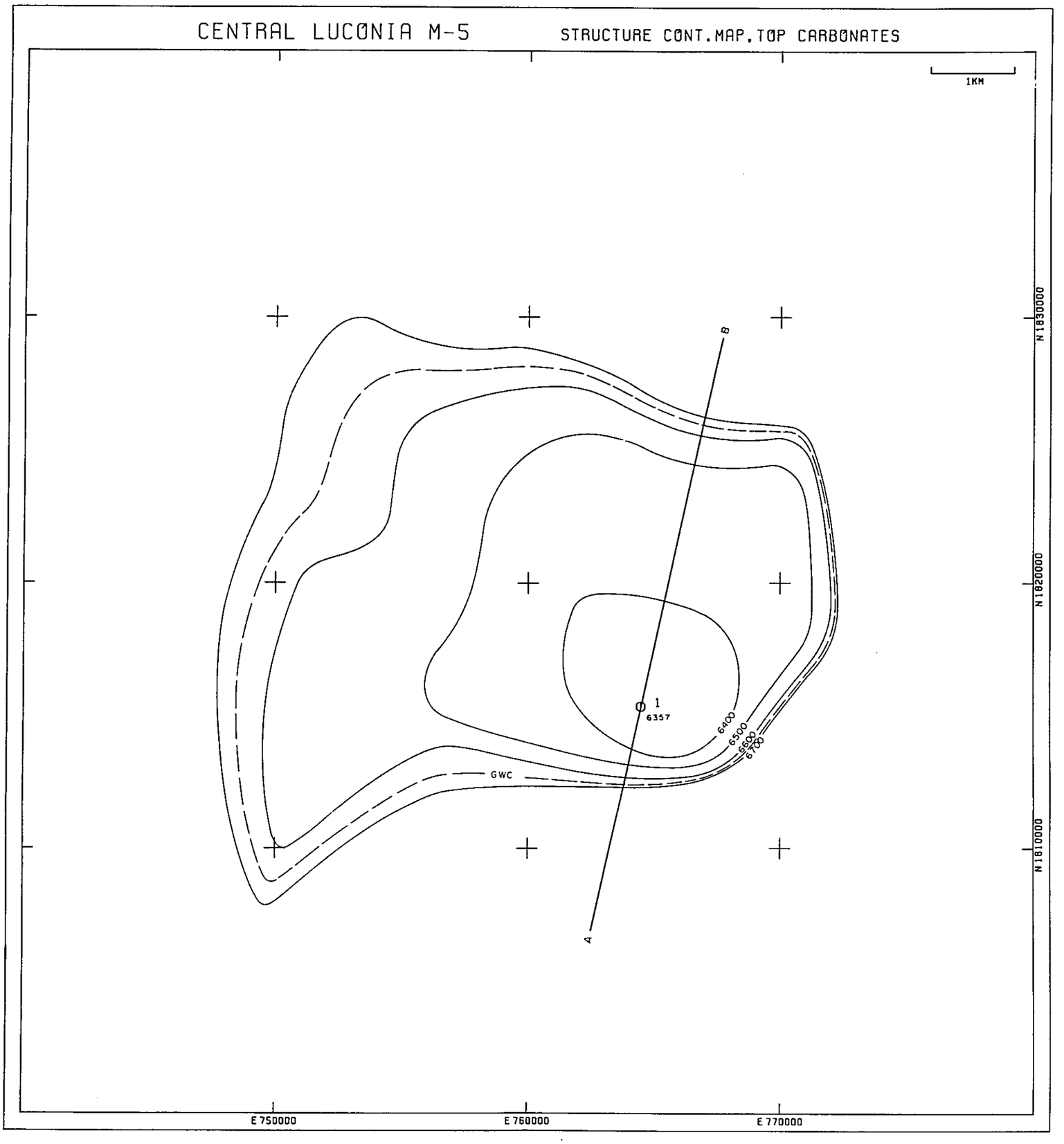


Fig. 12-2-20 STRUCTURE CONTOUR MAP, CENTRAL LUCONIA M5, TOP CARBONATES
Vol. IV

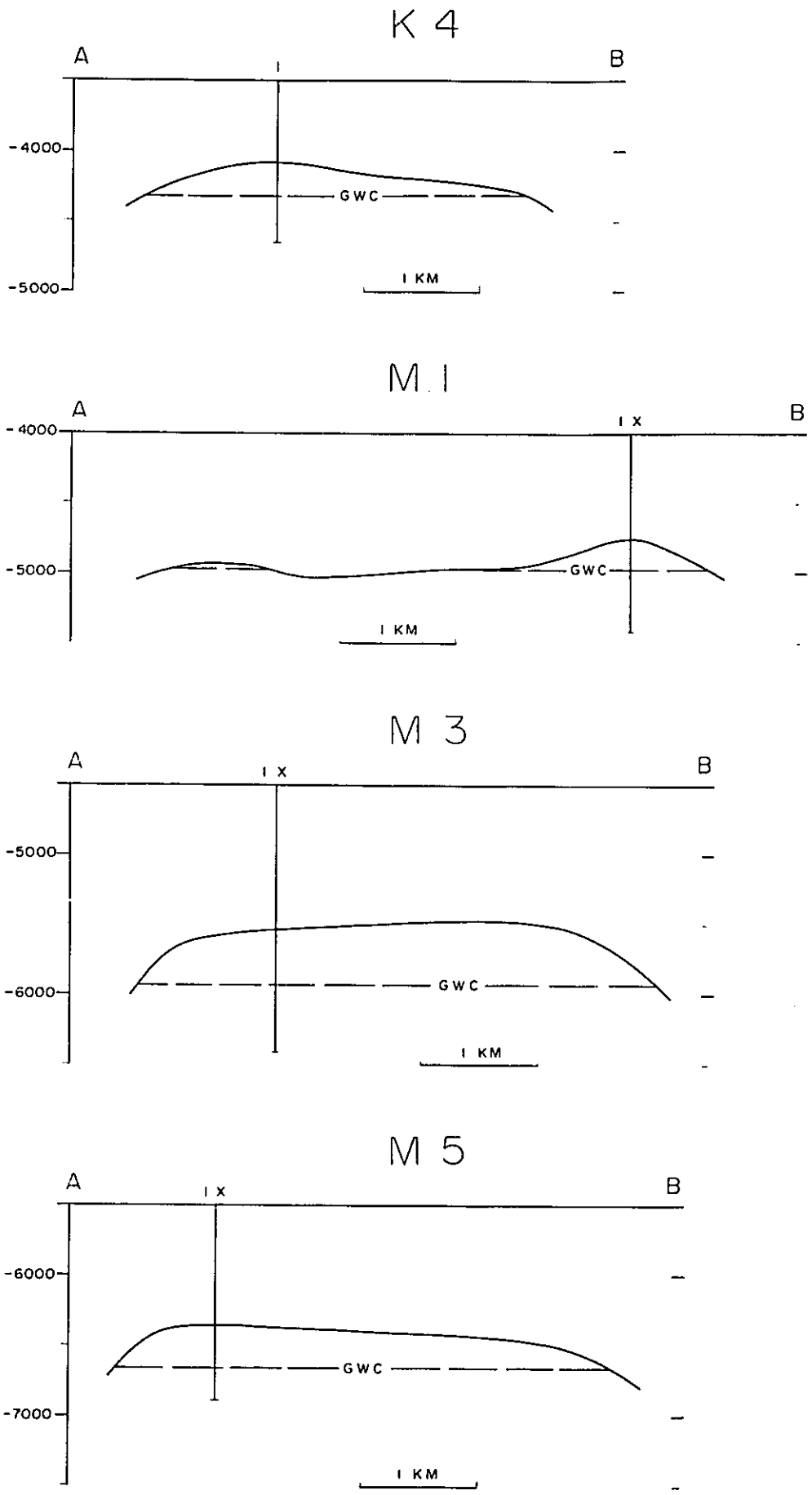


Fig. 12-2-21 STRUCTURAL CROSS-SECTION, CENTRAL LUCONIA K4, M1, M3 AND M5
Vol. IV

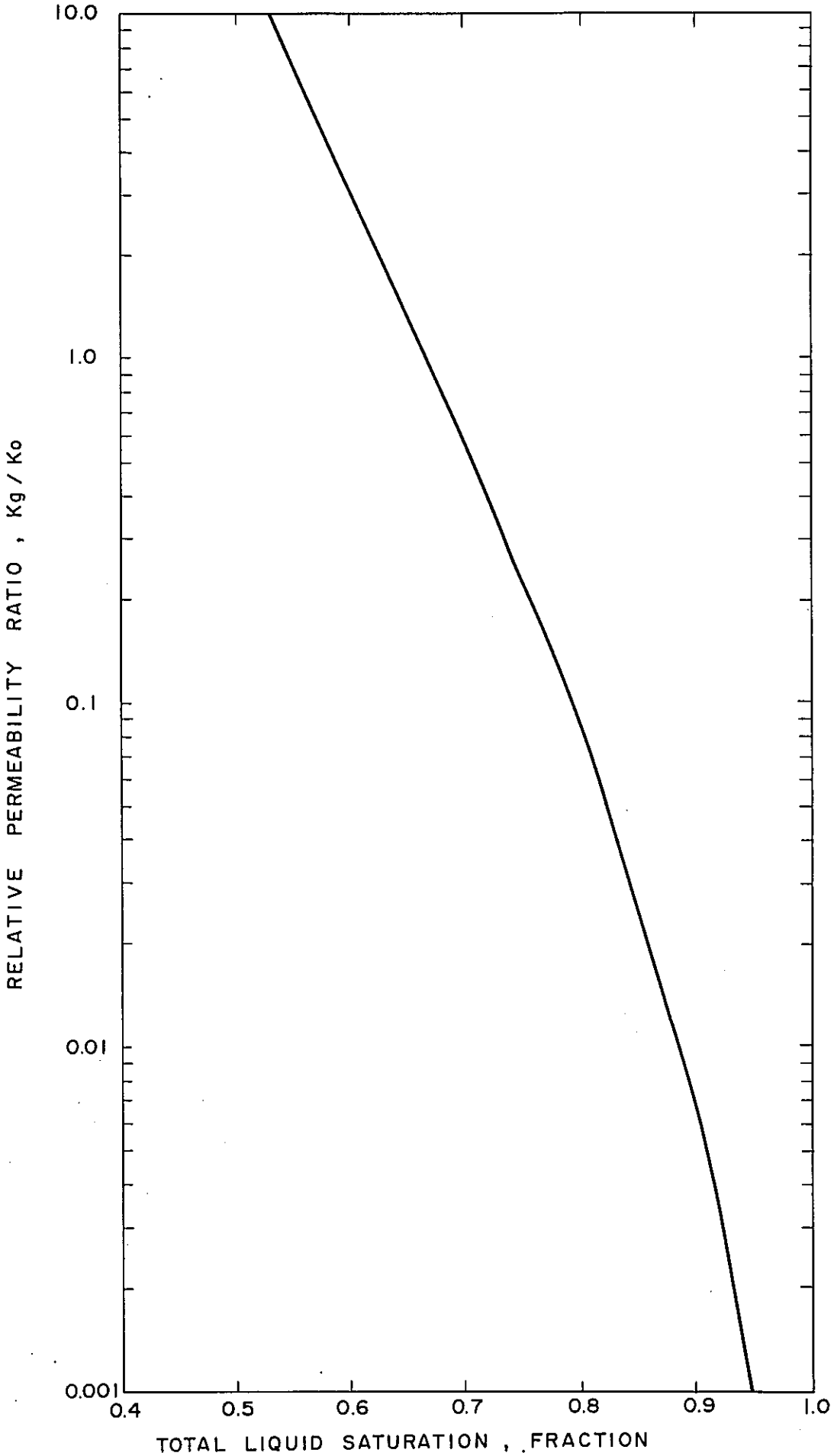


Fig. 12-3-1 GAS-OIL RELATIVE PERMEABILITY RATIO OF CENTRAL LUCONIA FIELD, E 6
Vol. IV

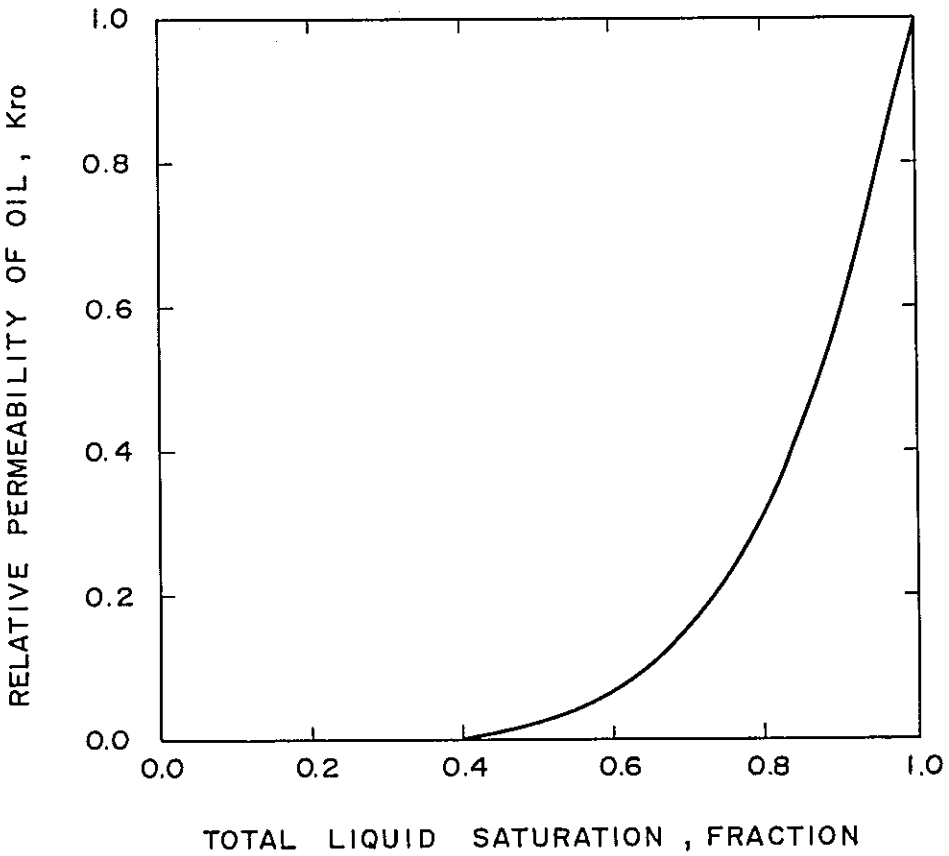


Fig. 12-3-2 Vol. IV OIL RELATIVE PERMEABILITY CURVE OF CENTRAL LUCONIA FIELD, E 6

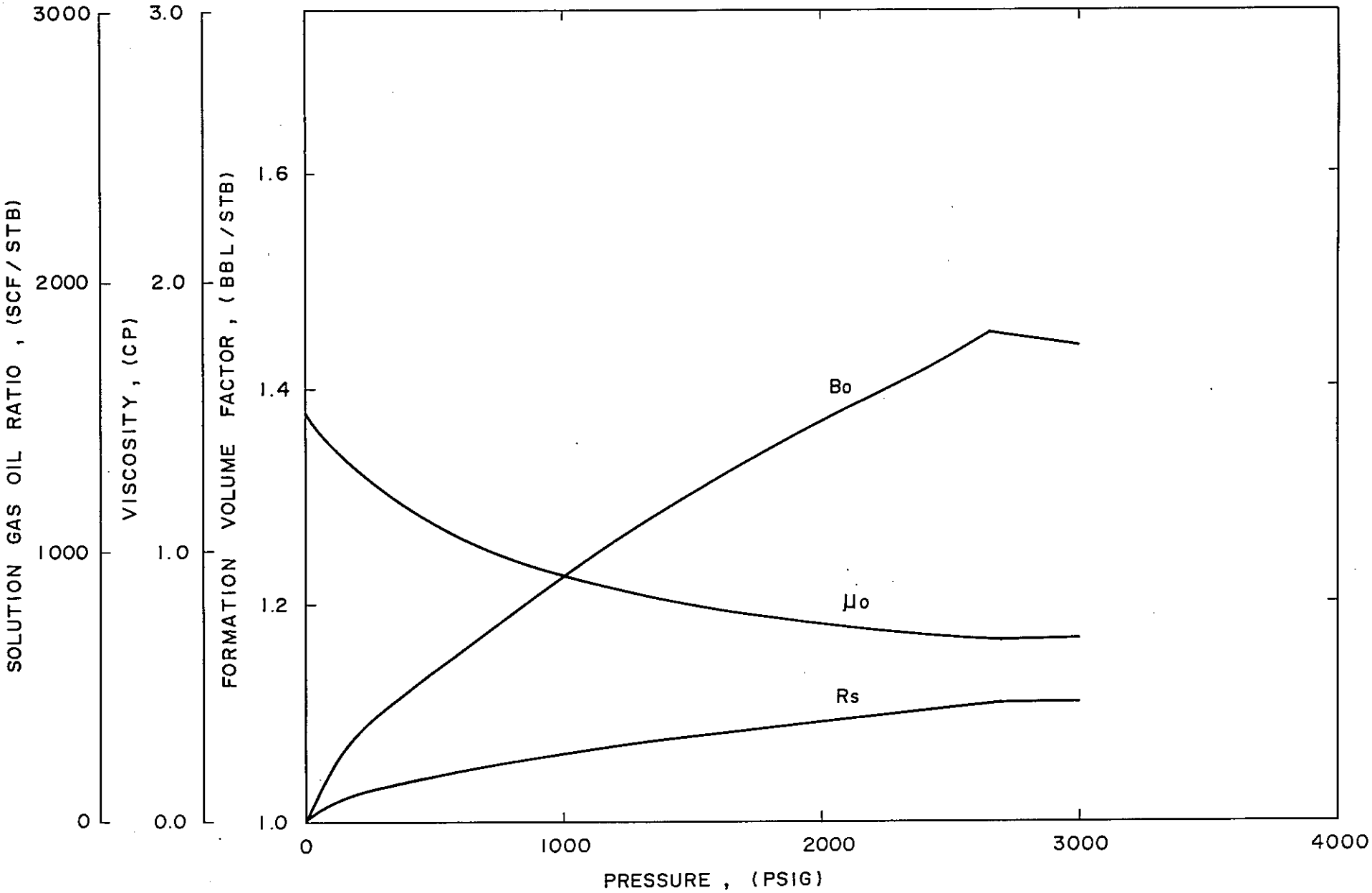


Fig. 12-3-3 OIL PROPERTIES OF CENTRAL LUCONIA FIELD, E 6
Vol. IV

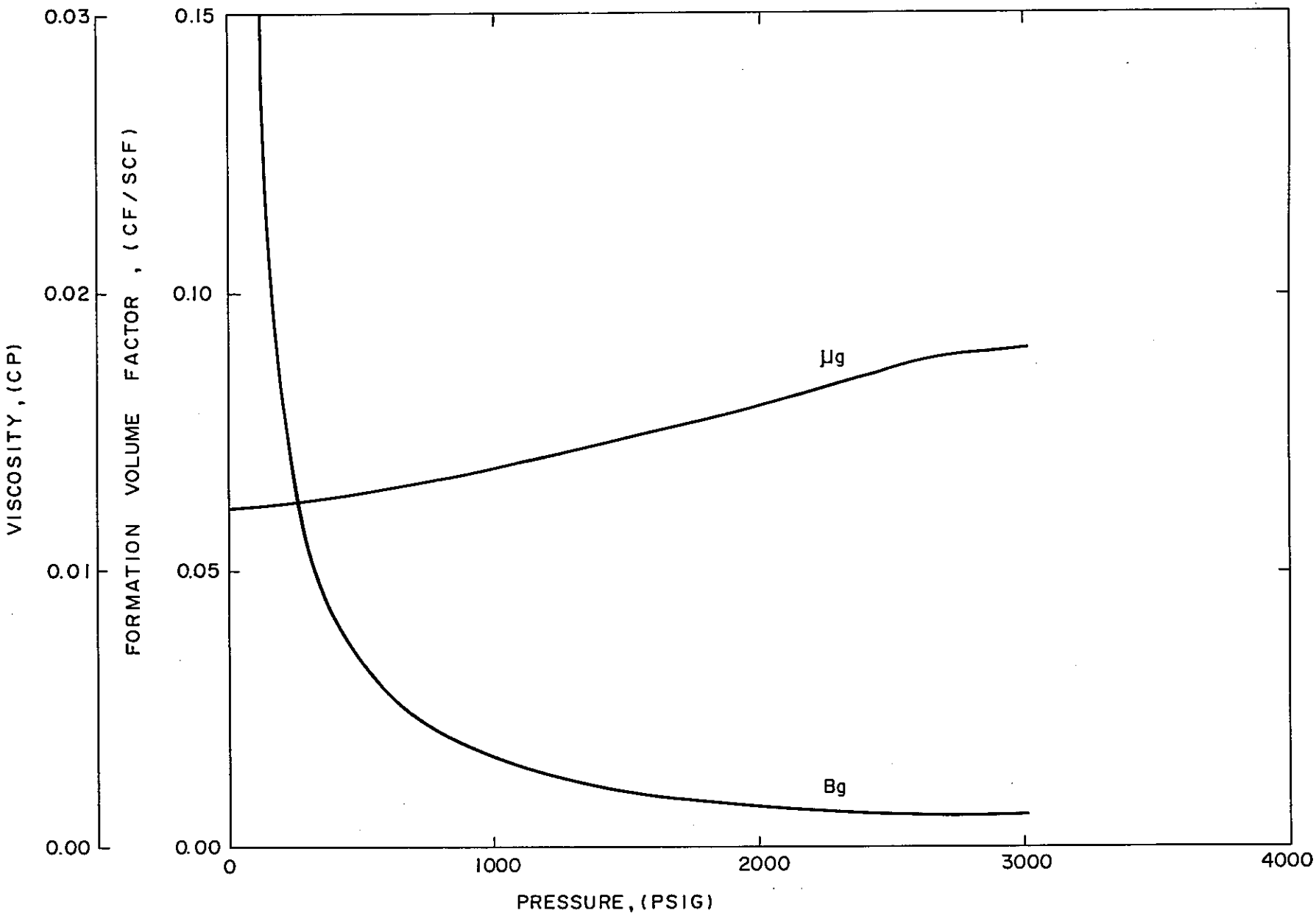


Fig. 12-3-4 GAS PROPERTIES OF CENTRAL LUCONIA FIELD, E 6
Vol. IV

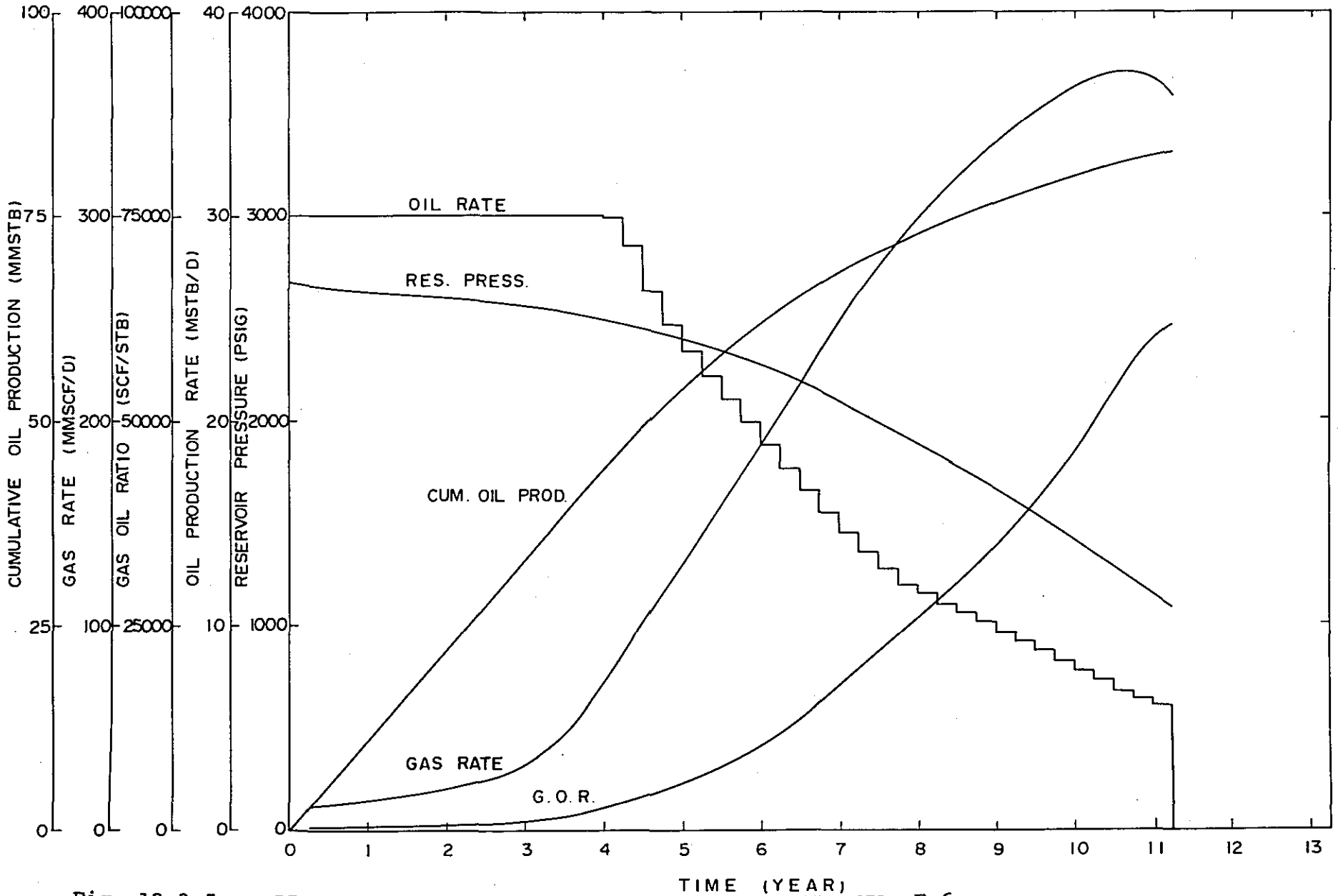


Fig. 12-3-5 PREDICTED PERFORMANCE CASE-1 OF CENTRAL LUCONIA, E 6
Vol. IV

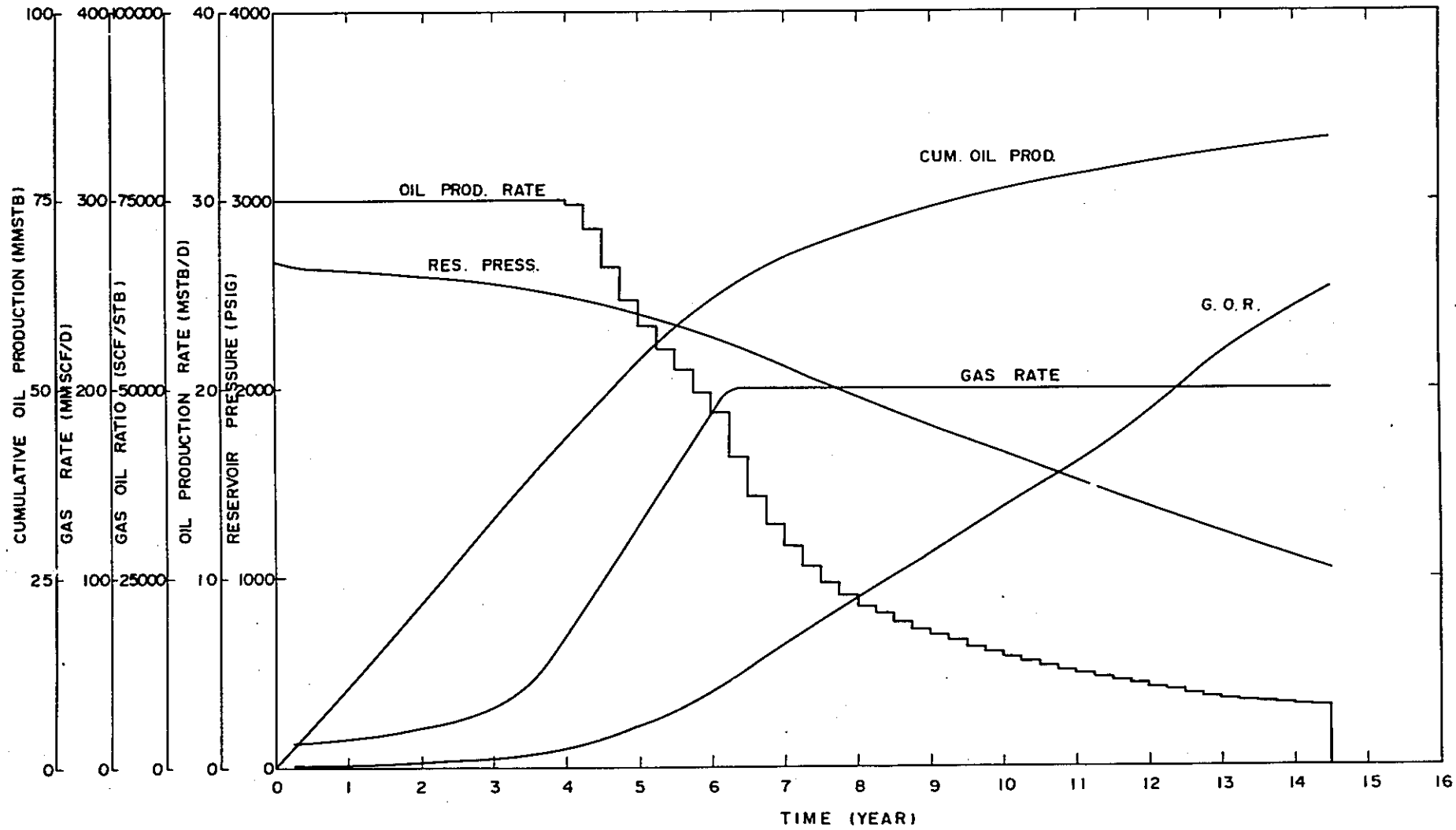


Fig. 12-3-6 PREDICTED PERFORMANCE CASE-2 OF CENTRAL LUCONIA, E 6
Vol. IV

Fig. 12-3-7
Vol. IV

BOTTOM HOLE FLOWING PRESSURE VS. CUMULATIVE PRODUCTION OF CENTRAL LUCONIA, E 8

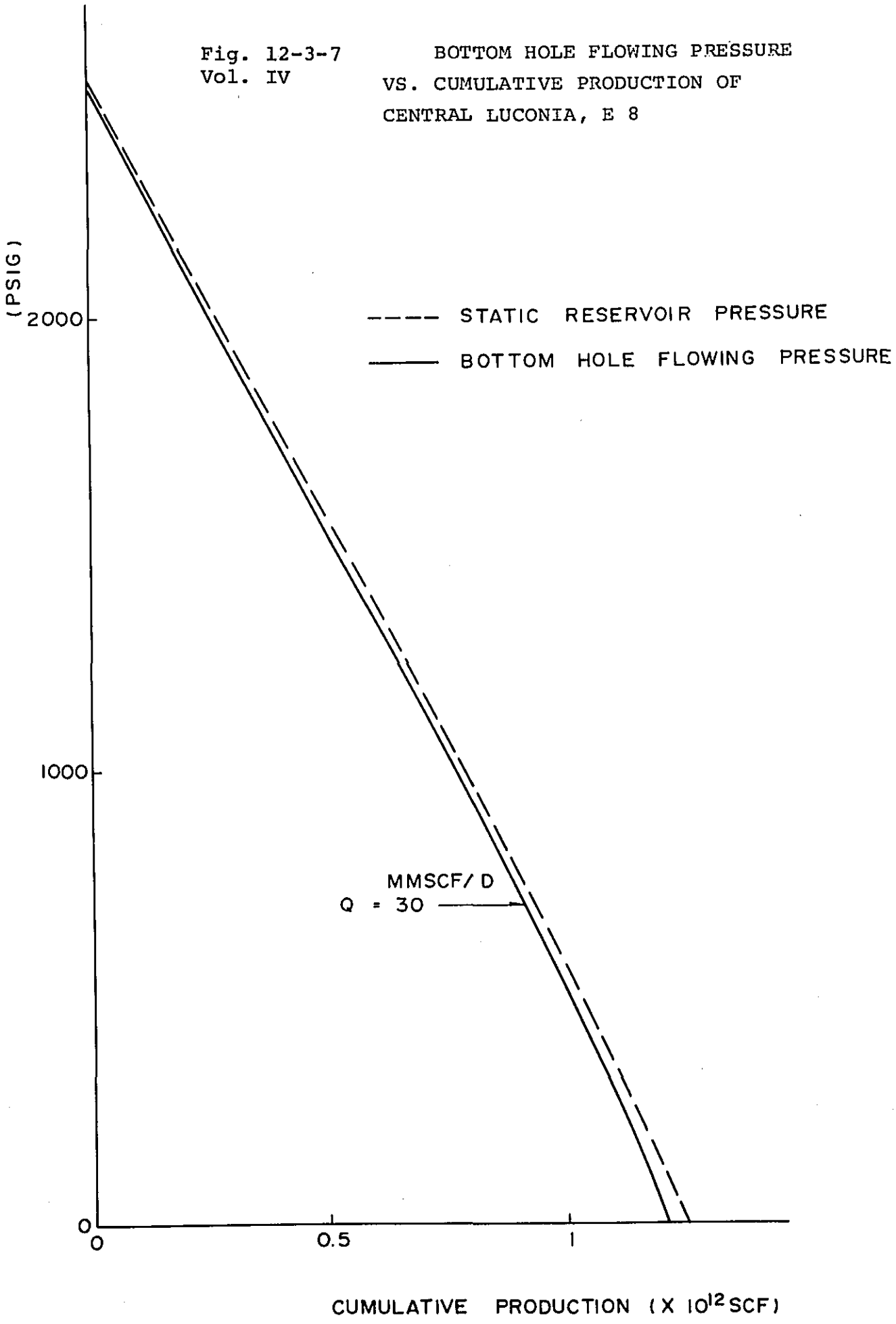


Fig. 12-3-8
Vol. IV

BOTTOM FLOWING PRESSURE VS. CUMULATIVE PRODUCTION
CENTRAL LUCONIA, E11

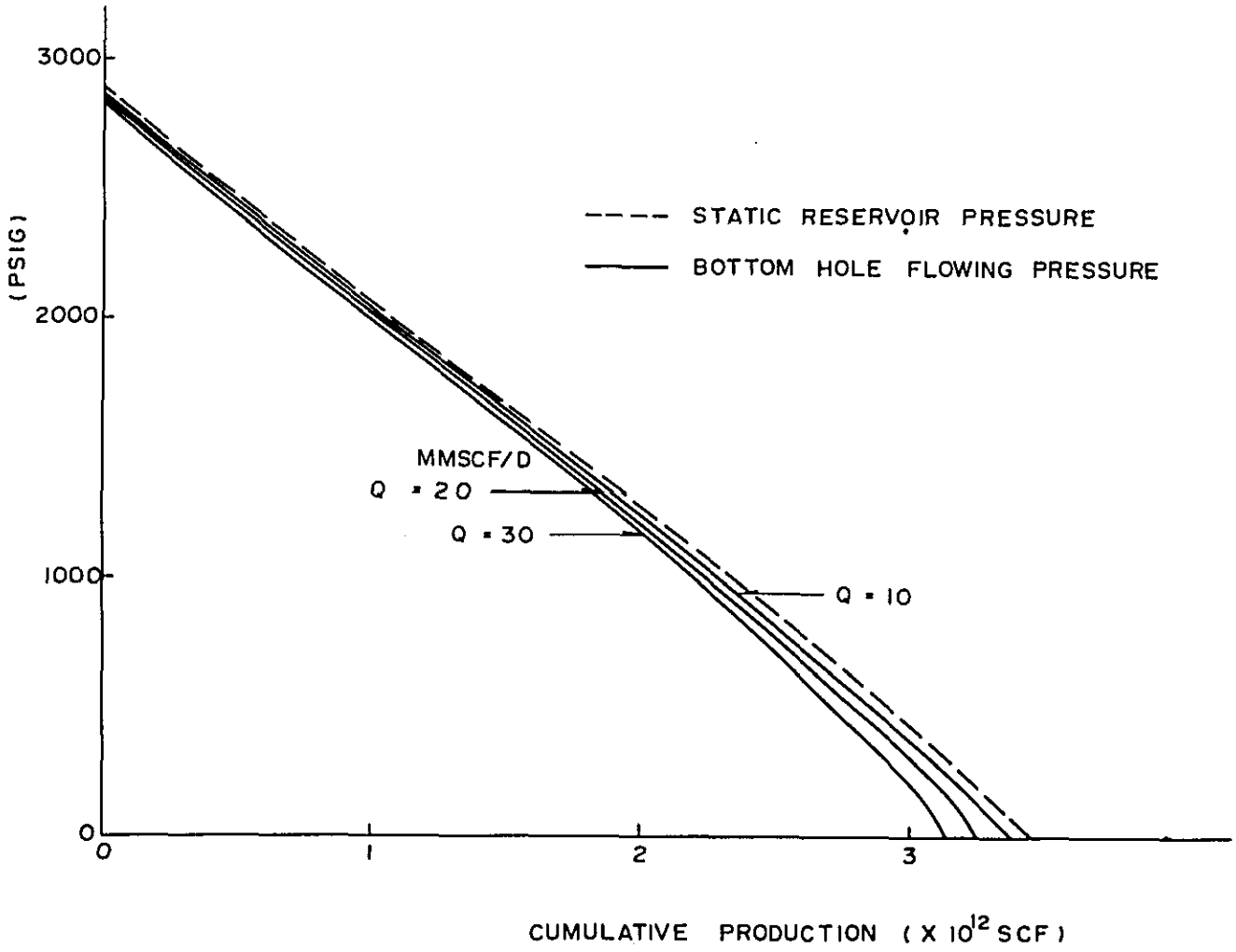


Fig. 12-3-9
Vol. IV

BOTTOM FLOWING PRESSURE
VS. CUMULATIVE PRODUCTION
OF CENTRAL LUCONIA, F 6

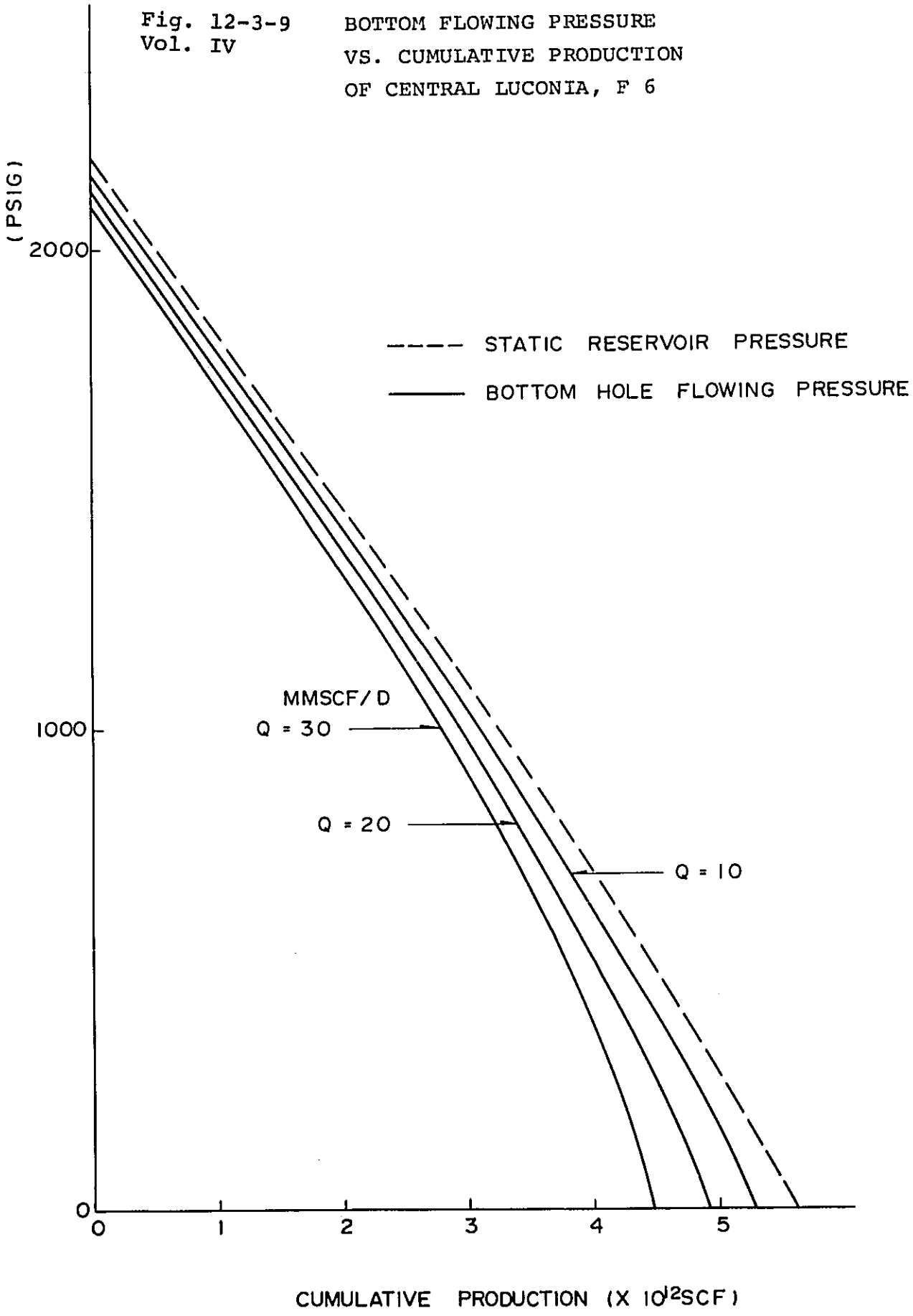


Fig. 12-3-10
Vol. IV

BOTTOM FLOWING PRESSURE
VS. CUMULATIVE PRODUCTION
OF CENTRAL LUCONIA, F13

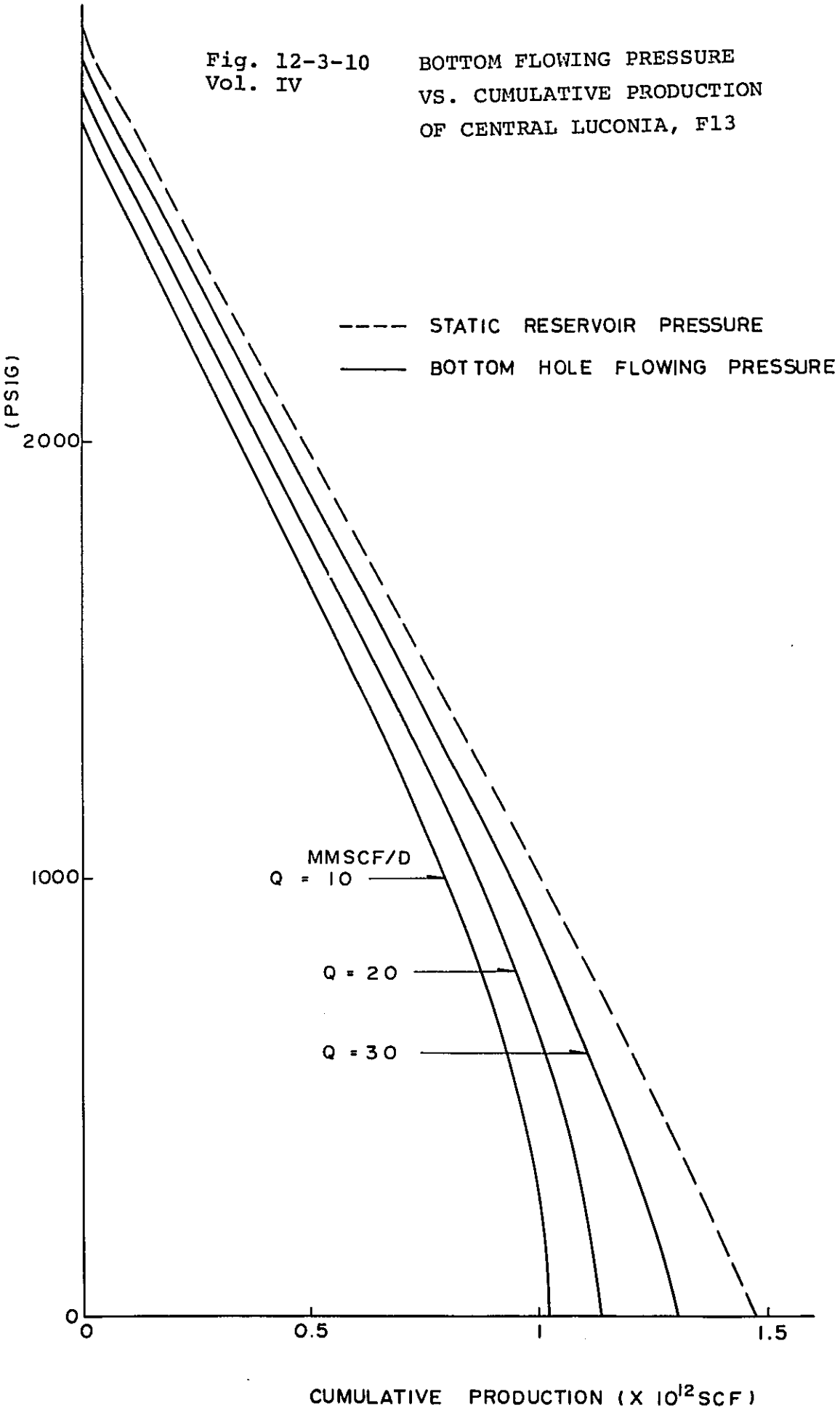


Fig. 12-3-11
Vol. IV

BOTTOM FLOWING PRESSURE
VS. CUMULATIVE PRODUCTION
OF CENTRAL LUCONIA, F14

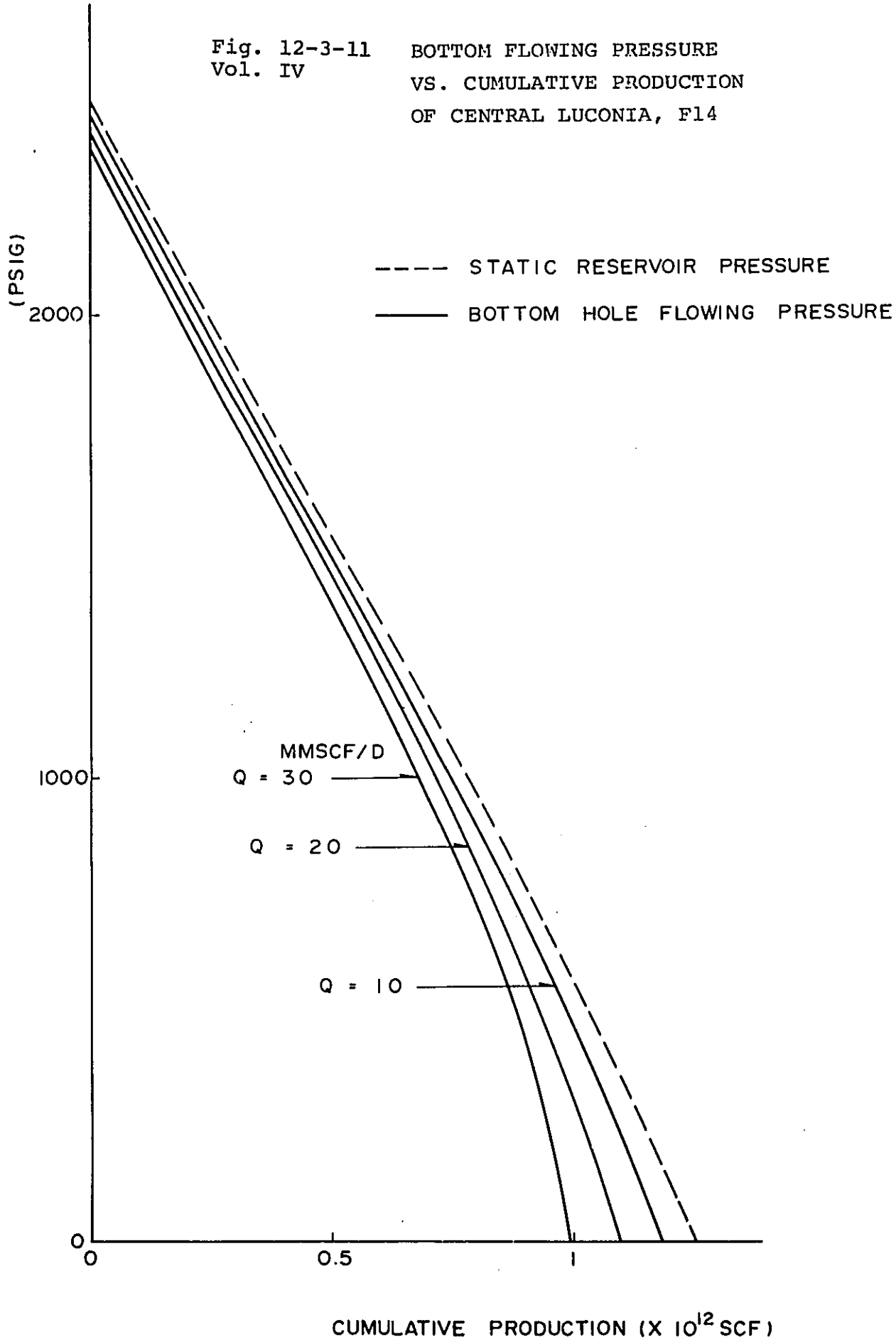
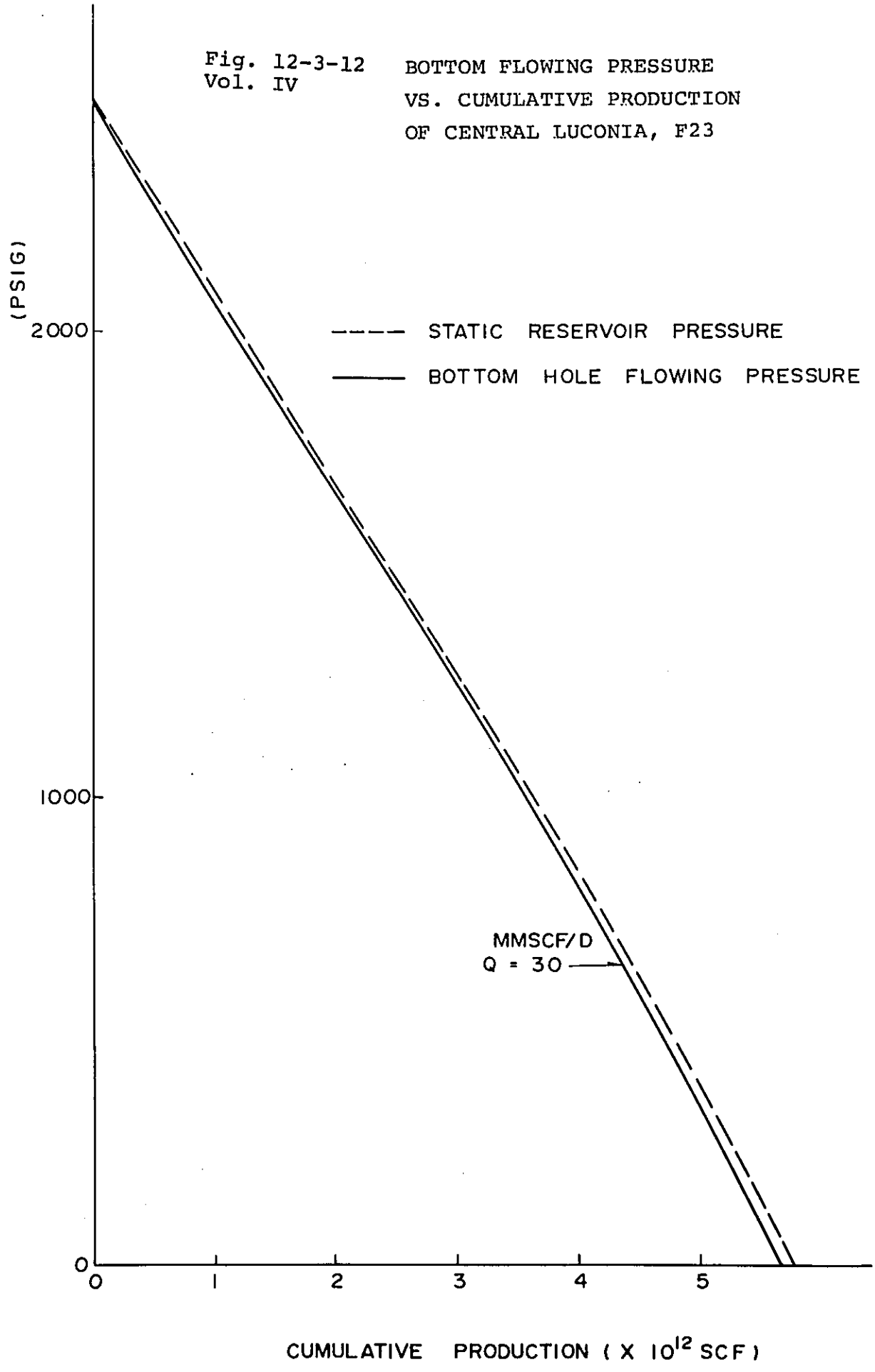


Fig. 12-3-12
Vol. IV

BOTTOM FLOWING PRESSURE
VS. CUMULATIVE PRODUCTION
OF CENTRAL LUCONIA, F23



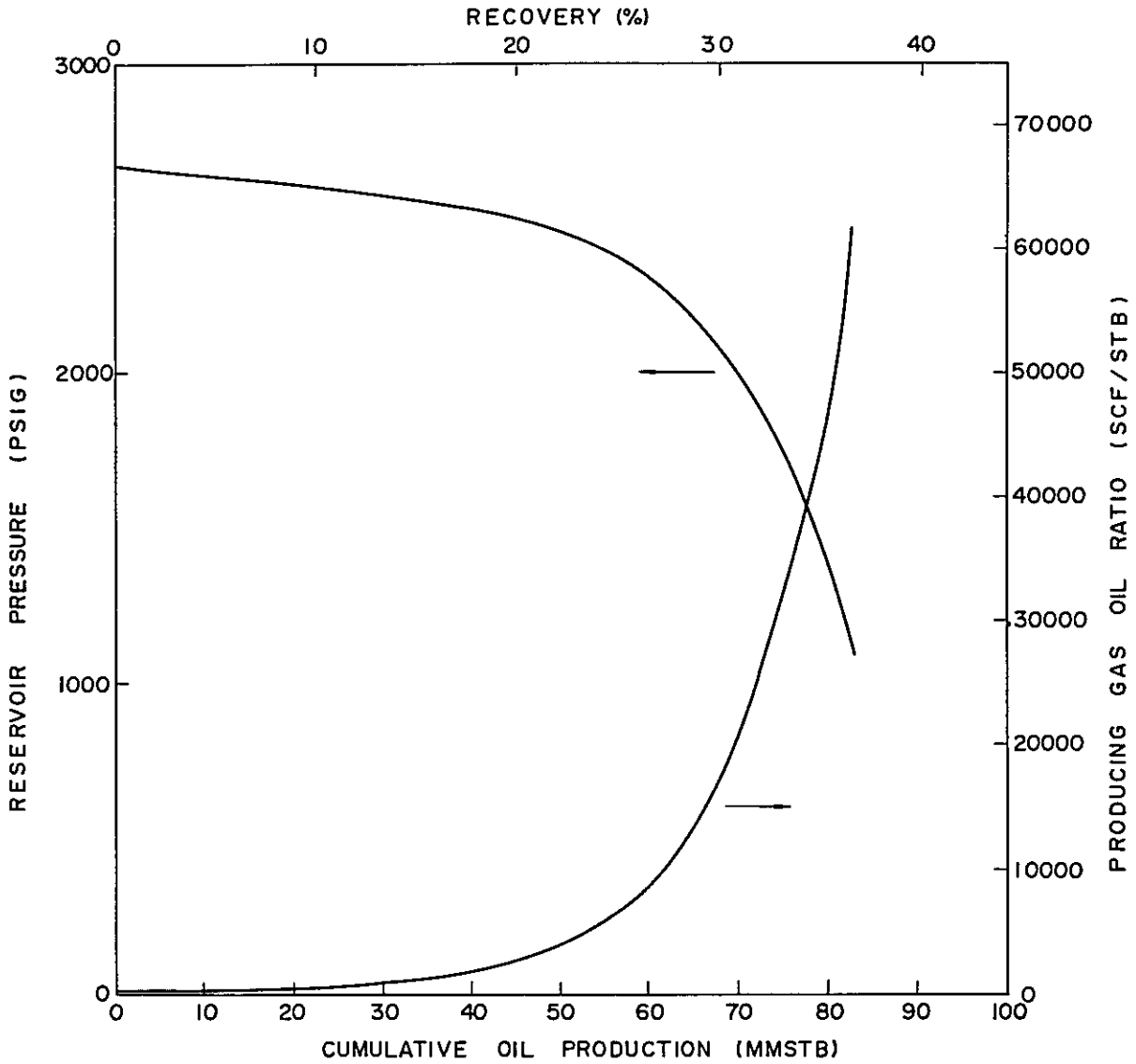
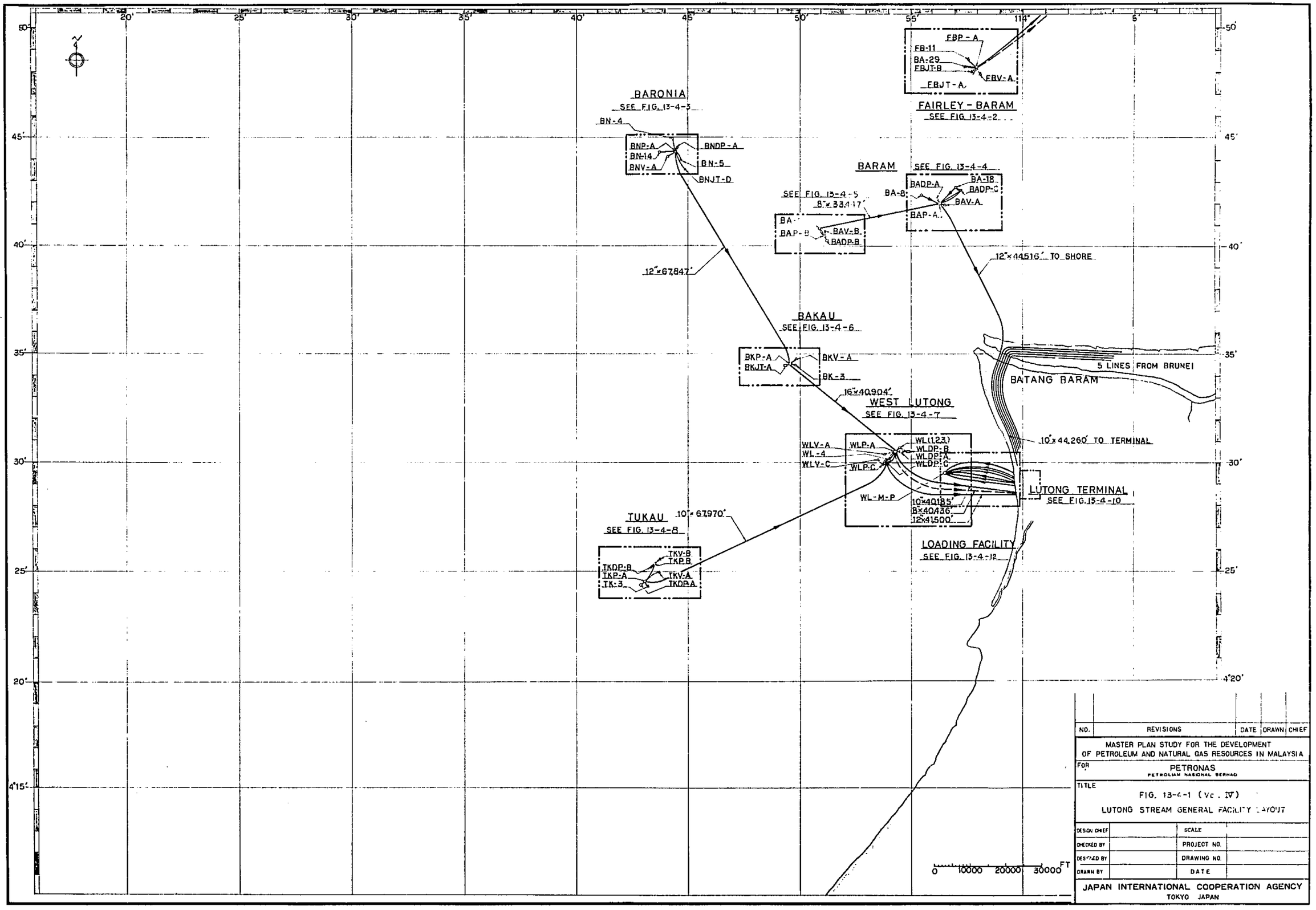


Fig. 12-3-13 Vol. IV CUMULATIVE OIL PRODUCTION VS. RESERVOIR PRESSURE AND PRODUCING GAS OIL RATIO OF CENTRAL LUCONIA E6 (CASE-1 AND CASE-2)



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MASTER PLAN STUDY FOR THE DEVELOPMENT
OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIUM NASIONAL BERHAD

TITLE
FIG. 13-4-1 (Vc. IV)
LUTONG STREAM GENERAL FACILITY LAYOUT

DESIGN CHIEF		SCALE	
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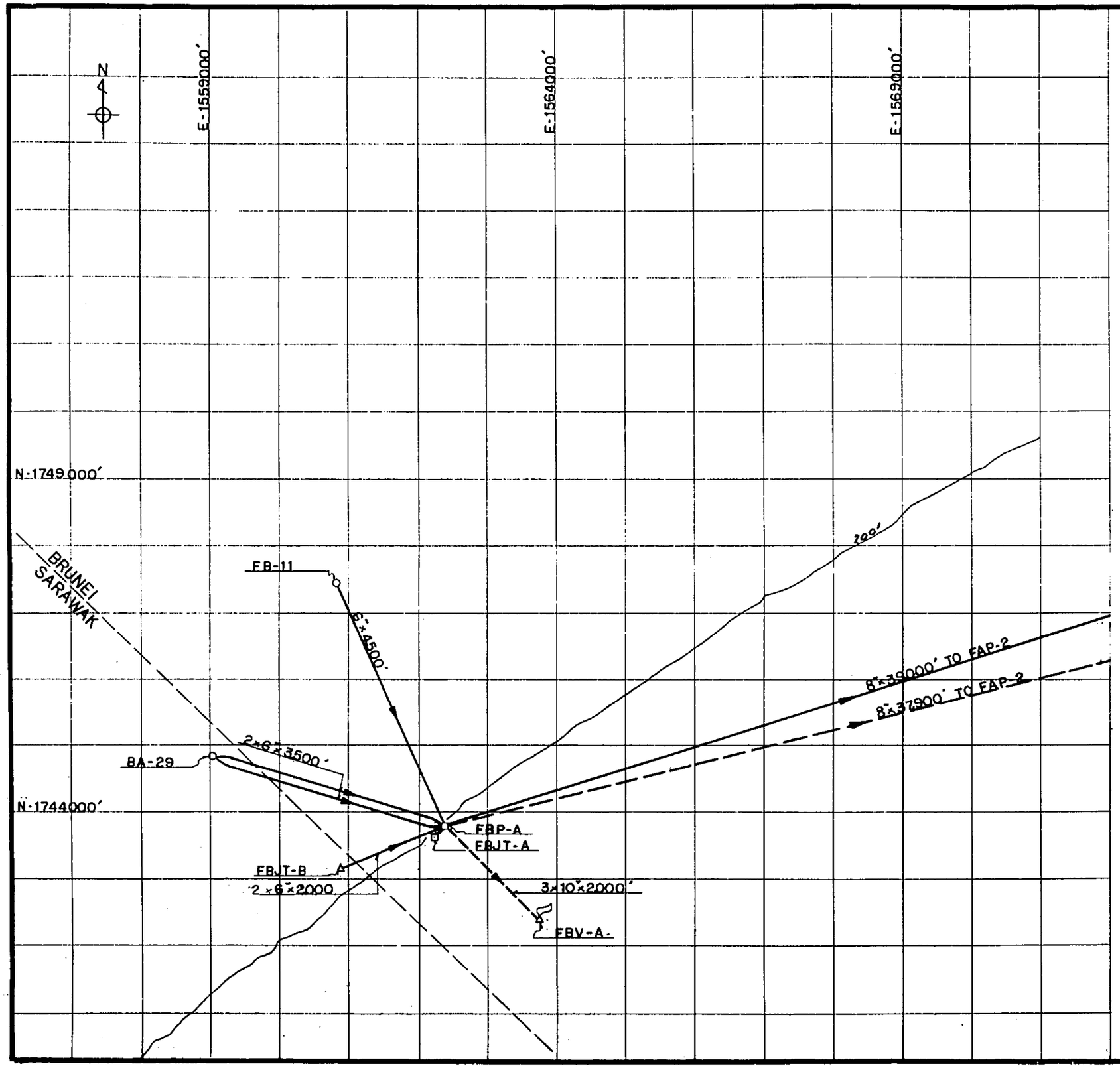

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MASTER PLAN STUDY FOR THE DEVELOPMENT
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FIG. 13-4-2 (Vol. IV)

FAIRLEY-BARAM FIELD FACILITY LAYOUT

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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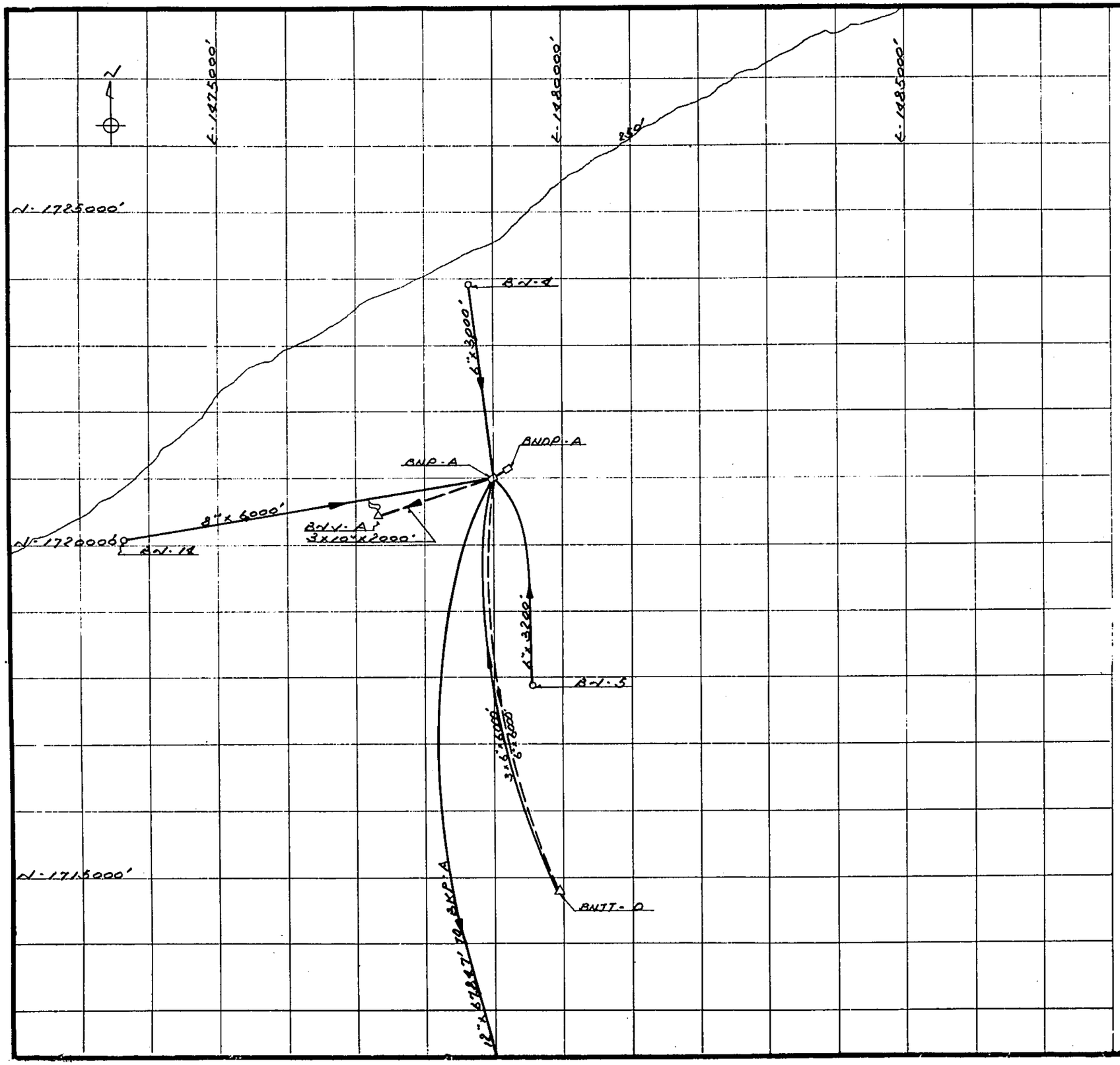

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MASTER PLAN STUDY FOR THE DEVELOPMENT
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FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 13-4-3 (Vol. IV)
BARONIA FIELD FACILITY LAYOUT

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE.	

JAPAN INTERNATIONAL COOPERATION AGENCY
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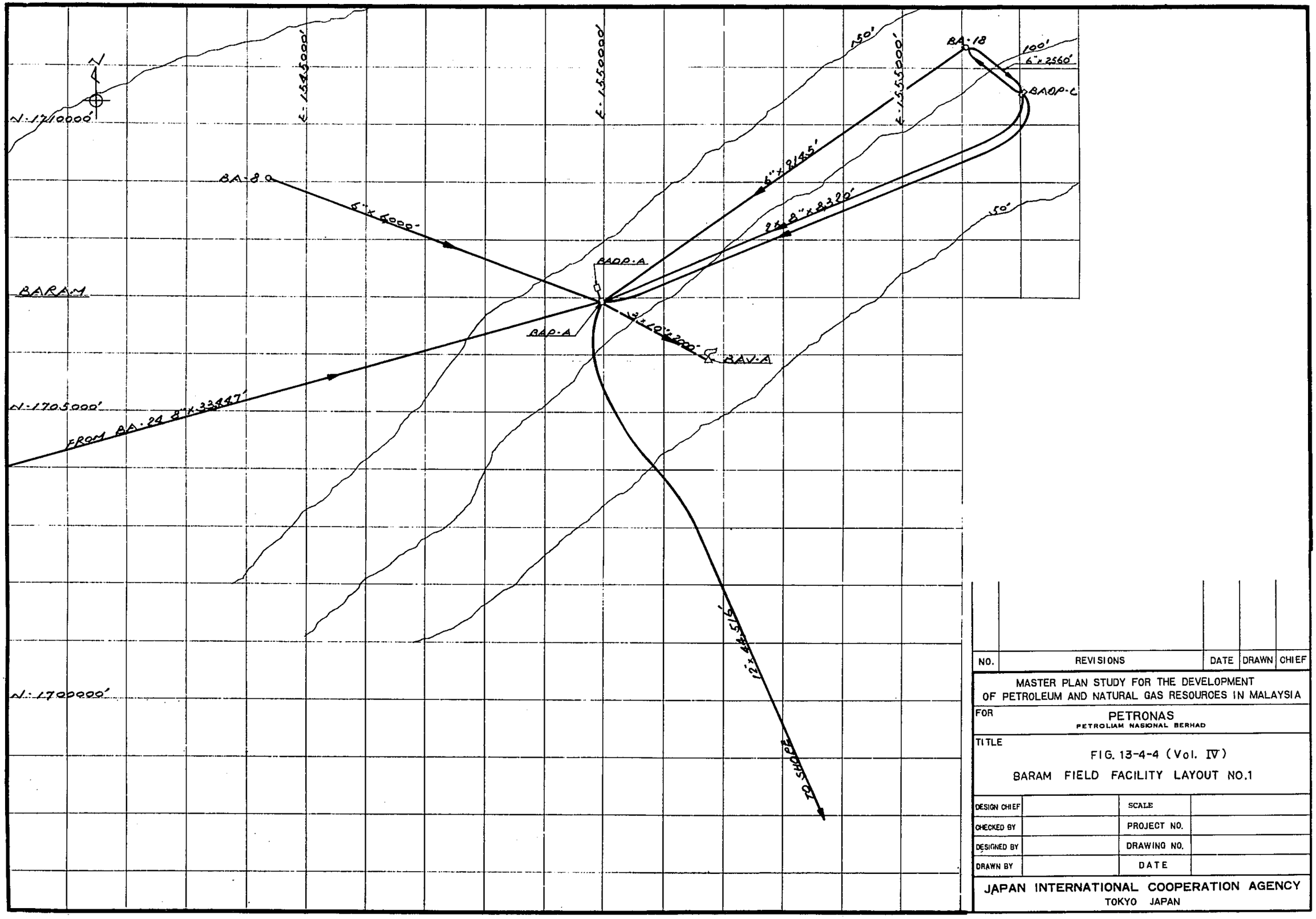

NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT
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FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 13-4-4 (Vol. IV)
BARAM FIELD FACILITY LAYOUT NO.1

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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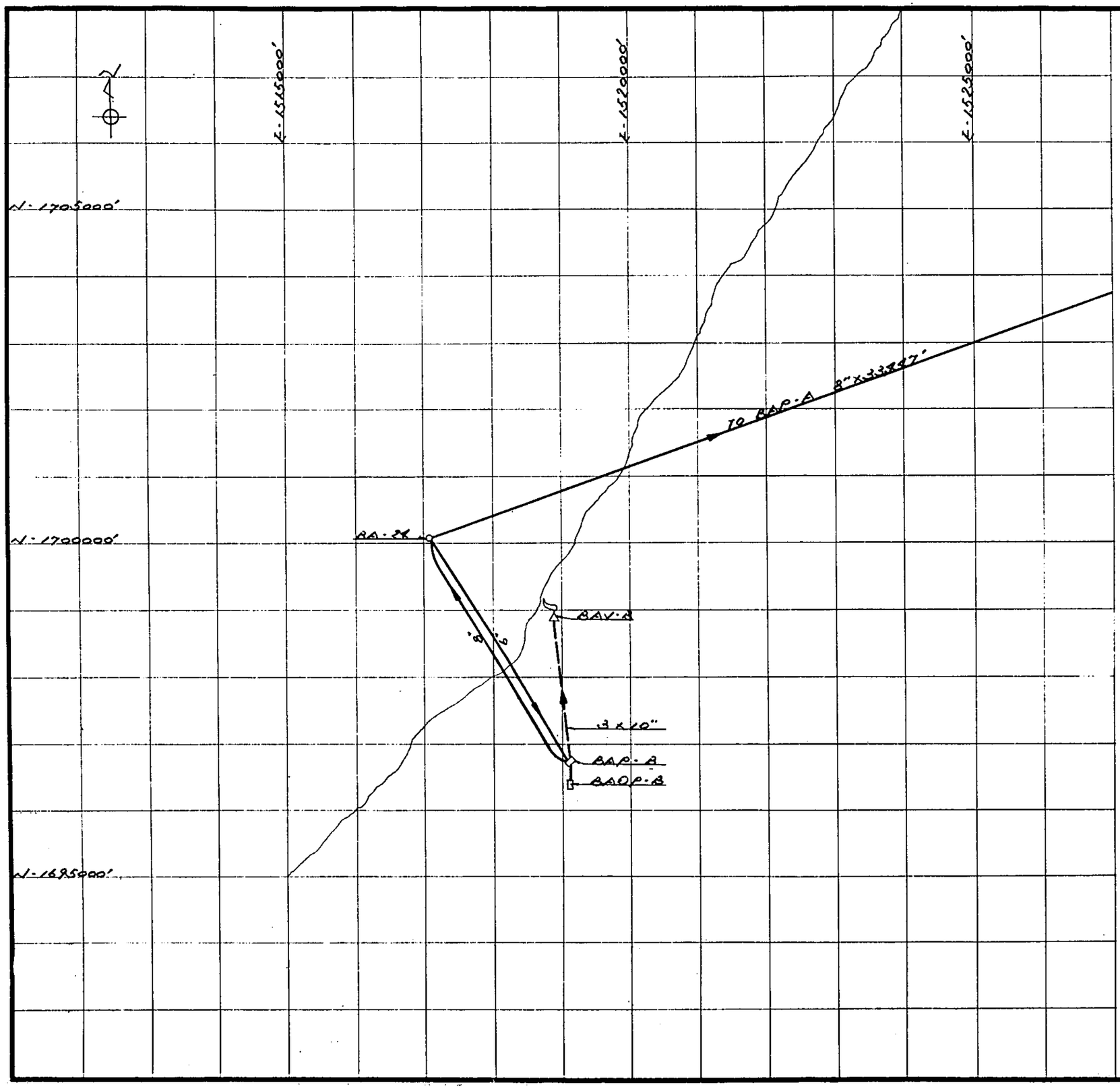

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MASTER PLAN STUDY FOR THE DEVELOPMENT
OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
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FIG. 13-4-5 (Vol. IV)
BARAM FIELD FACILITY LAYOUT NO. 2

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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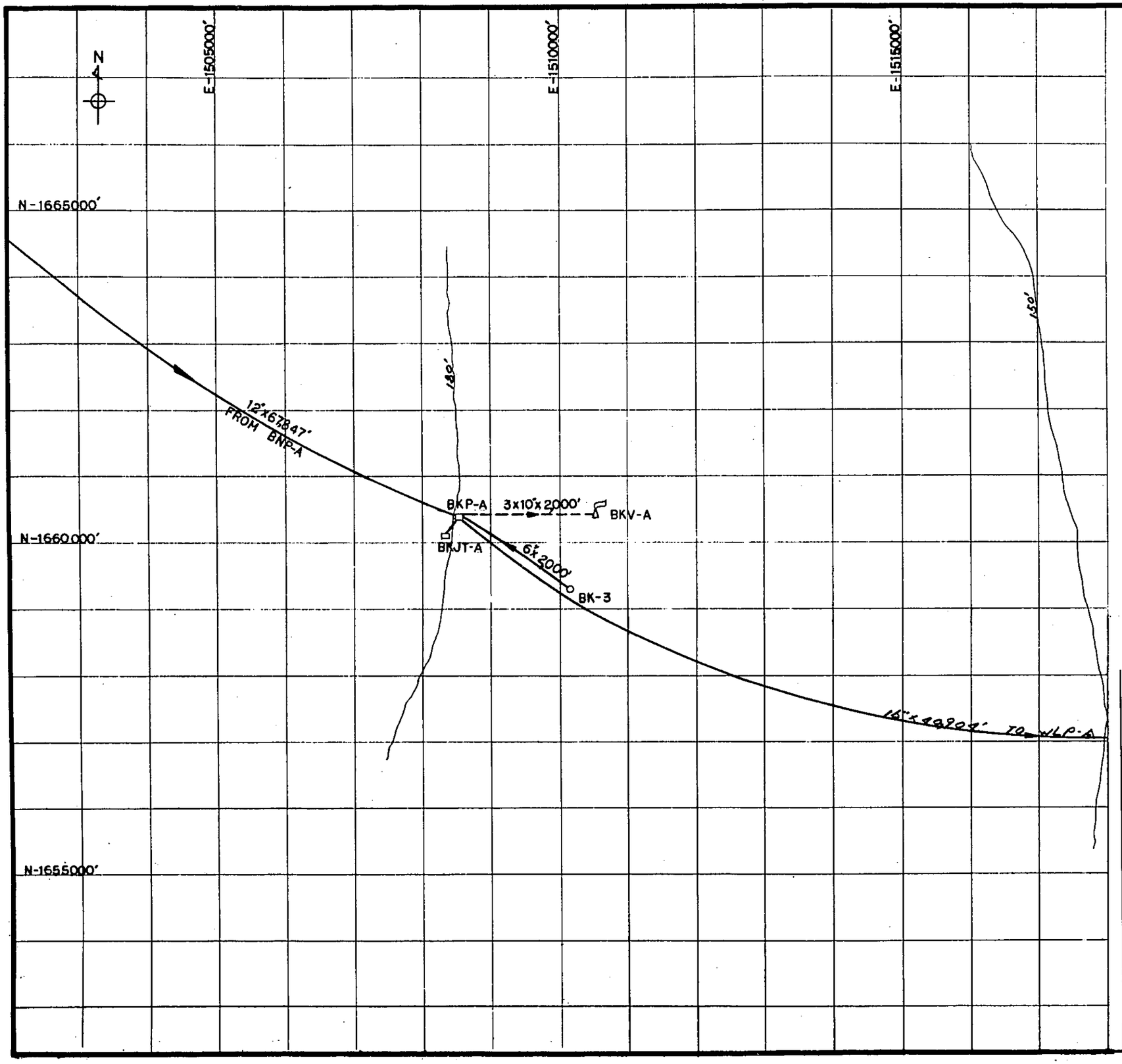

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FIG. 13-4-6 (Vol. IV)

BAKAU FIELD FACILITY LAYOUT

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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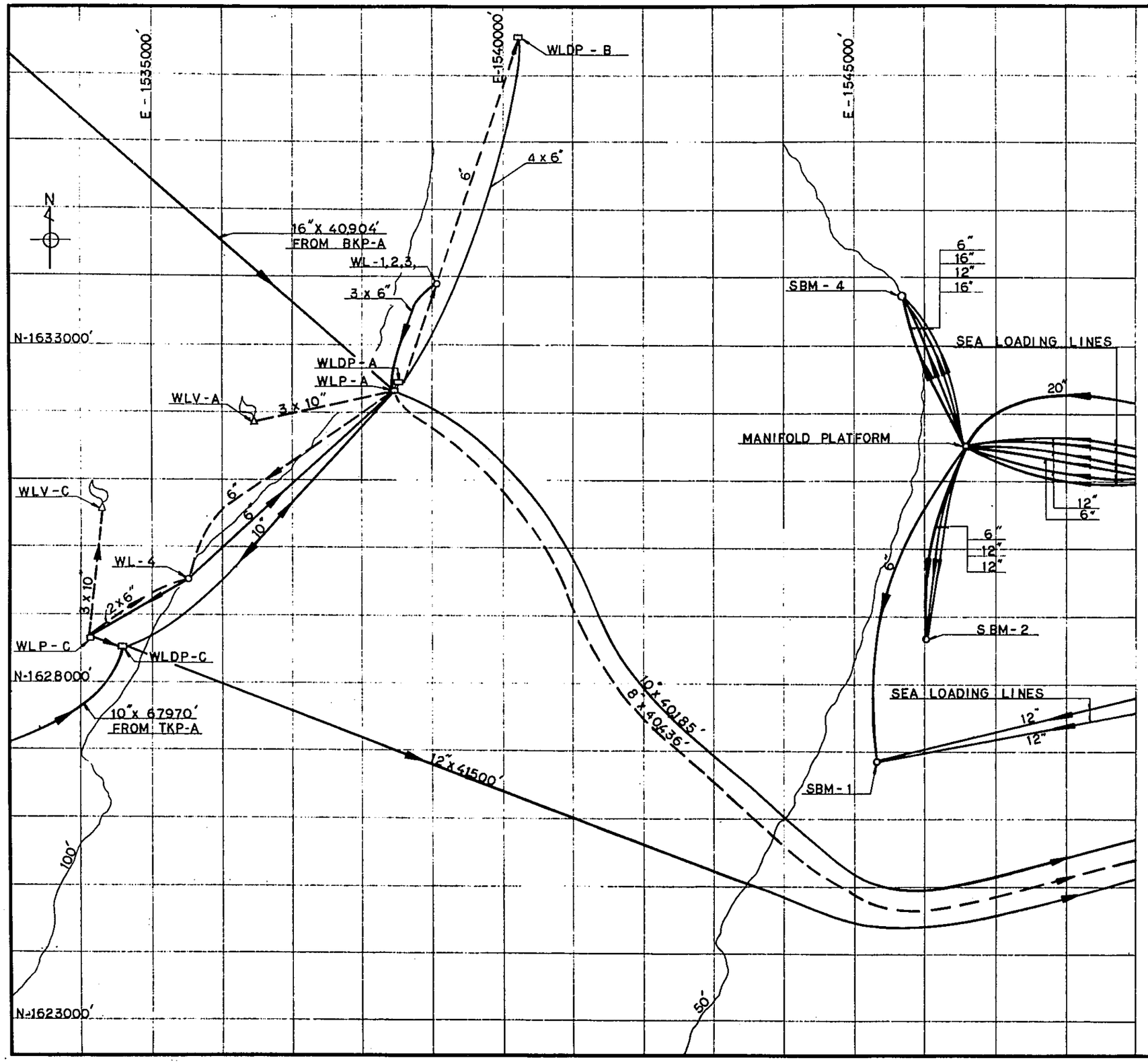

NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT
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FOR
PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 13-4-7 (Vol. IV)
WEST LUTONG FIELD FACILITY LAYOUT

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
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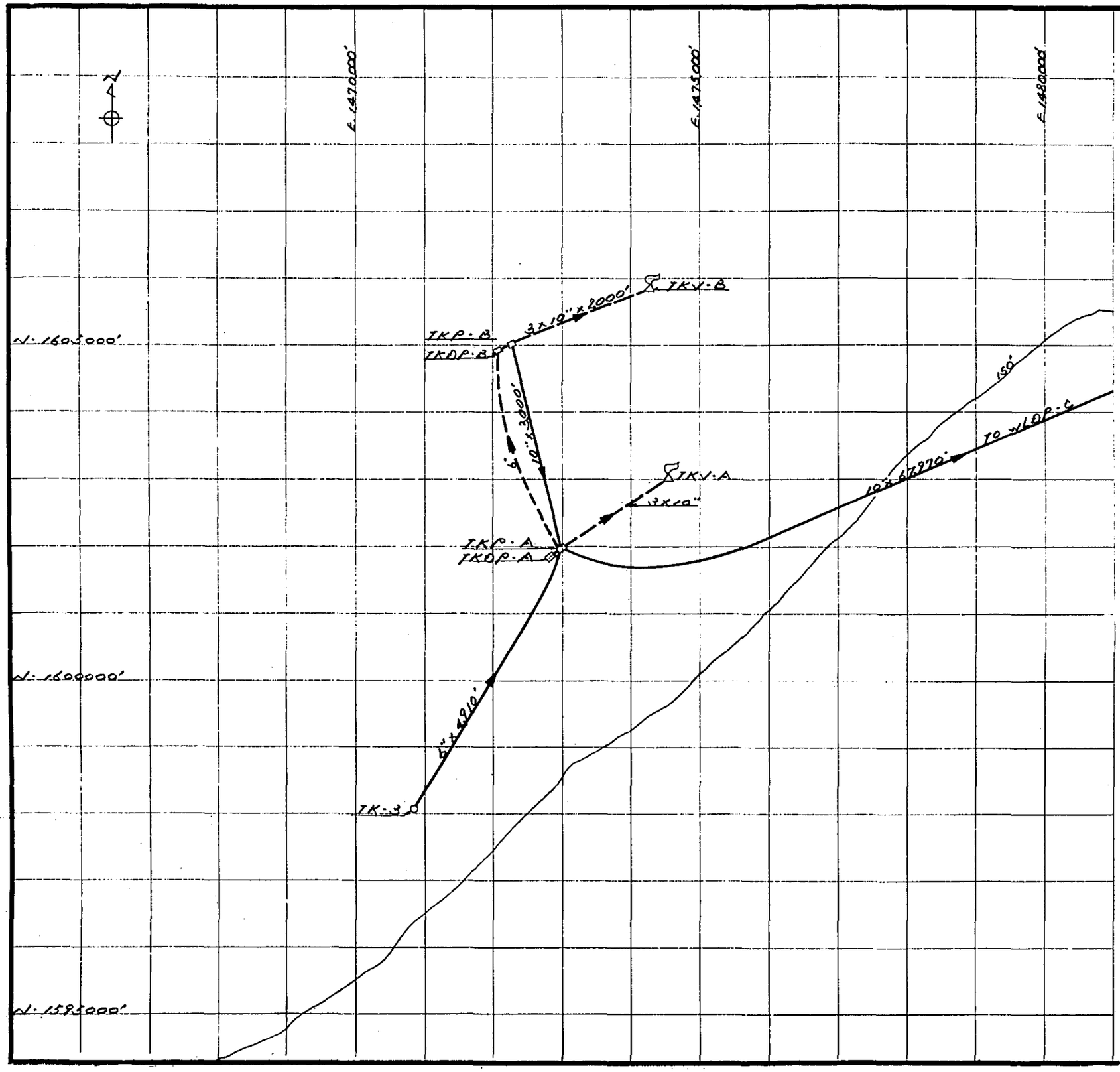

NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT
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FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 13-4-8 (Vol. IV)
TUKAU FIELD FACILITY LAYOUT

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
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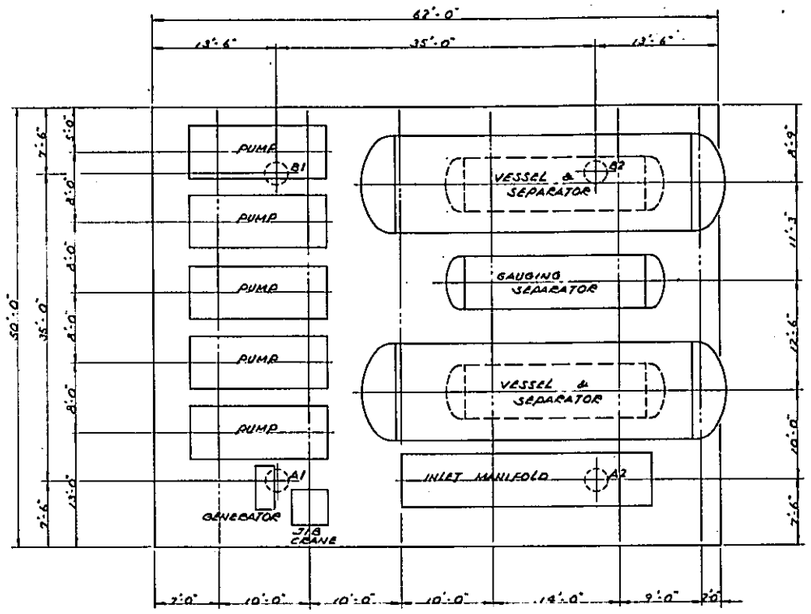

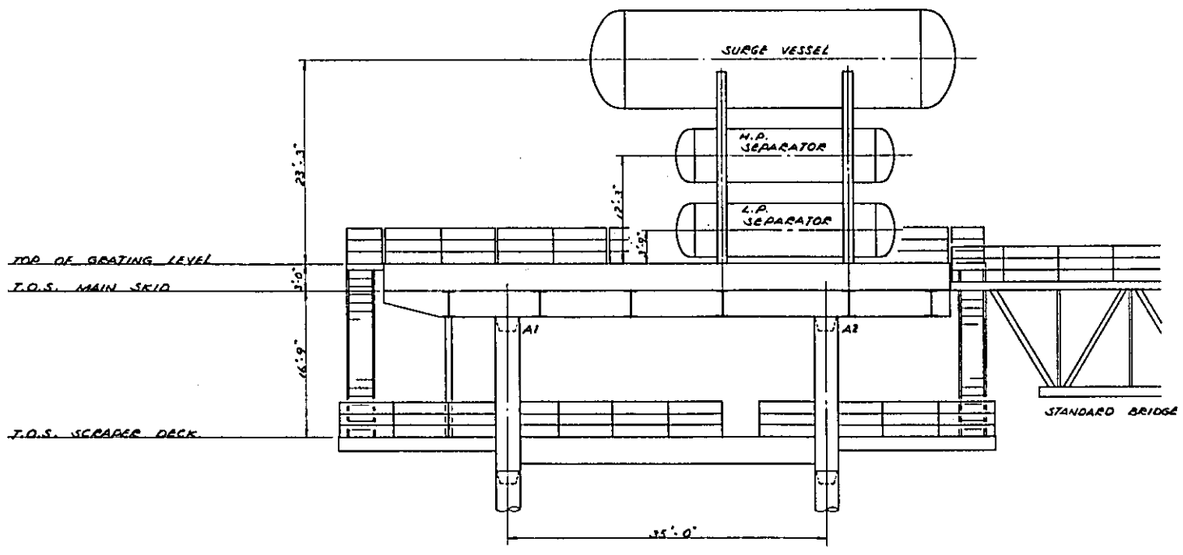

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 13-4-9 (Vol. IV)
MAJOR EQUIPMENT ARRANGEMENT OF STANDARD PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
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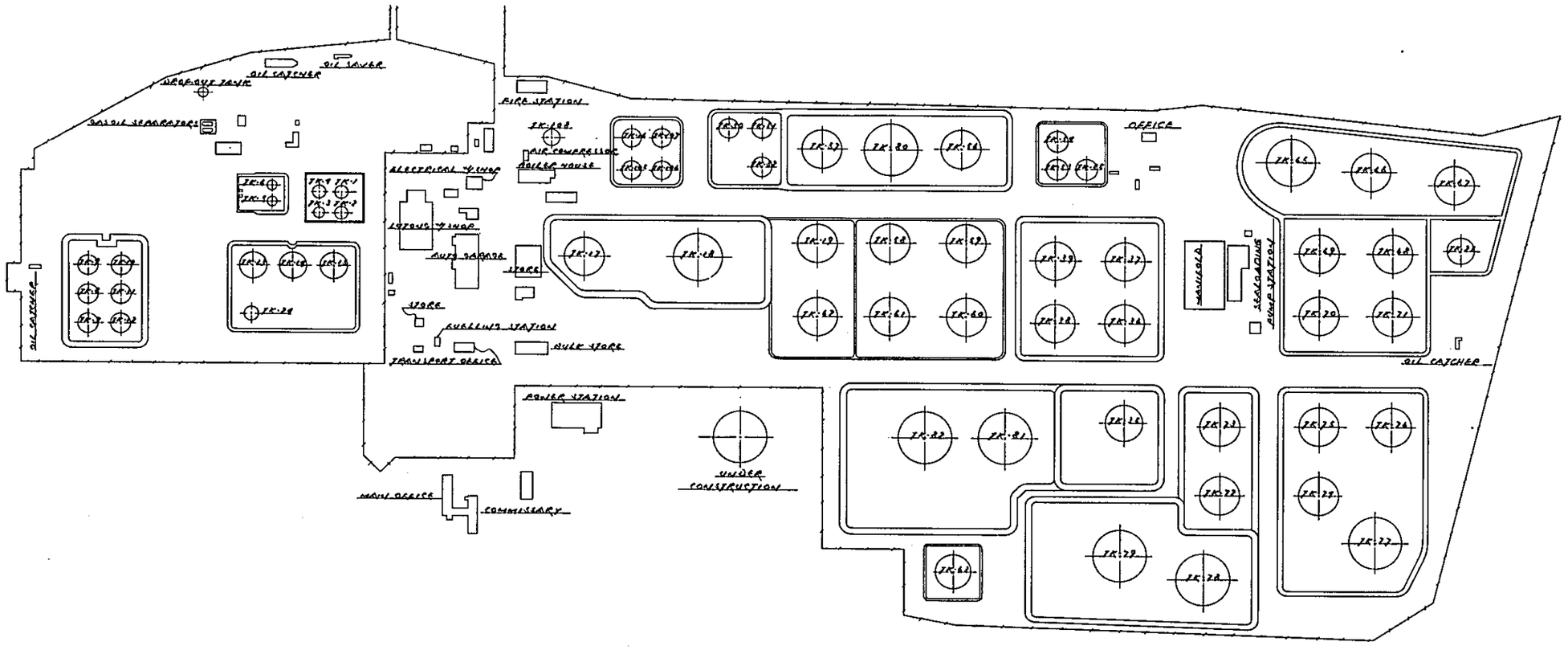

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MASTER PLAN STUDY FOR THE DEVELOPMENT
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FIG. 13-4-10 (Vol. IV)
LUTONG TERMINAL FACILITY LAYOUT

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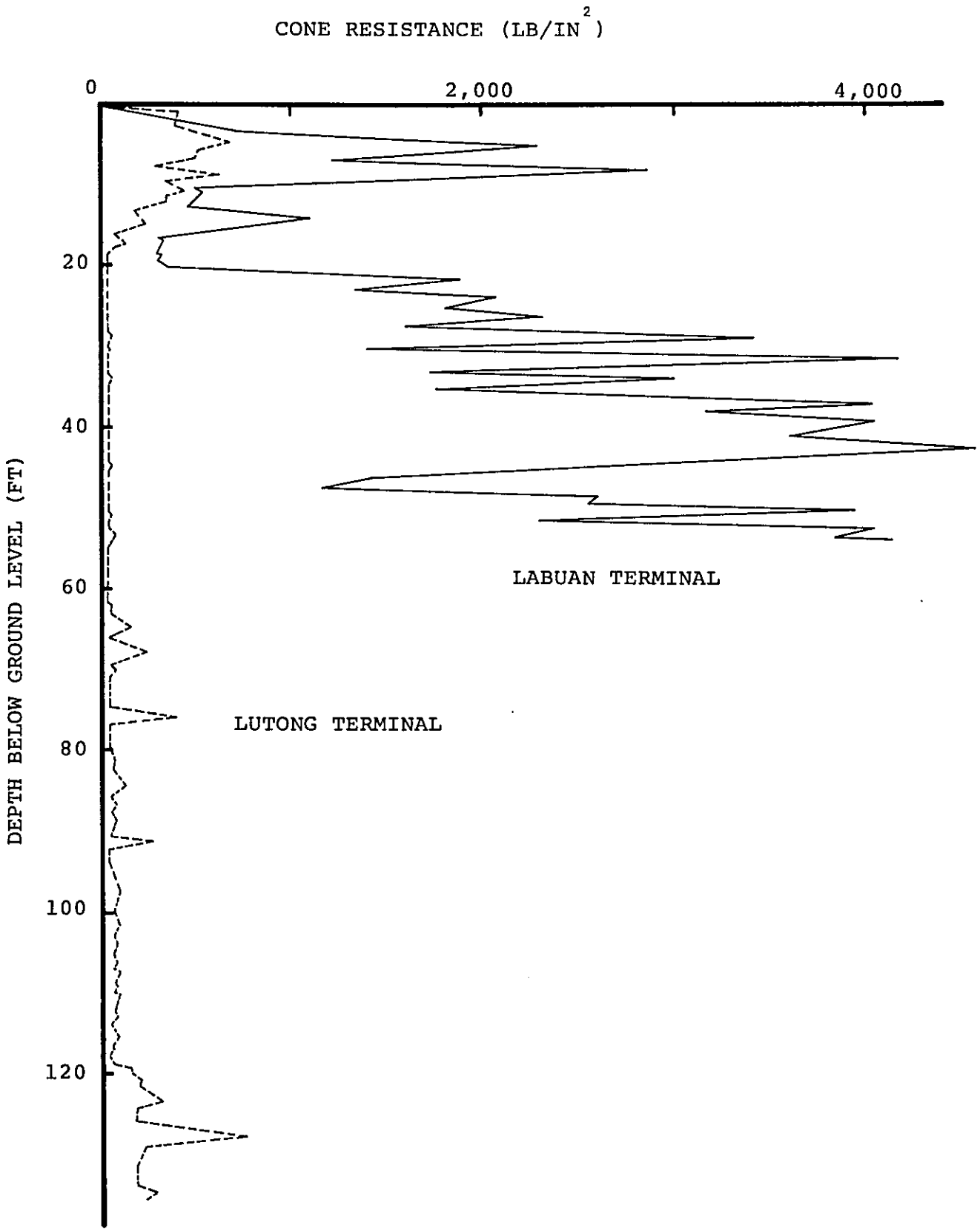
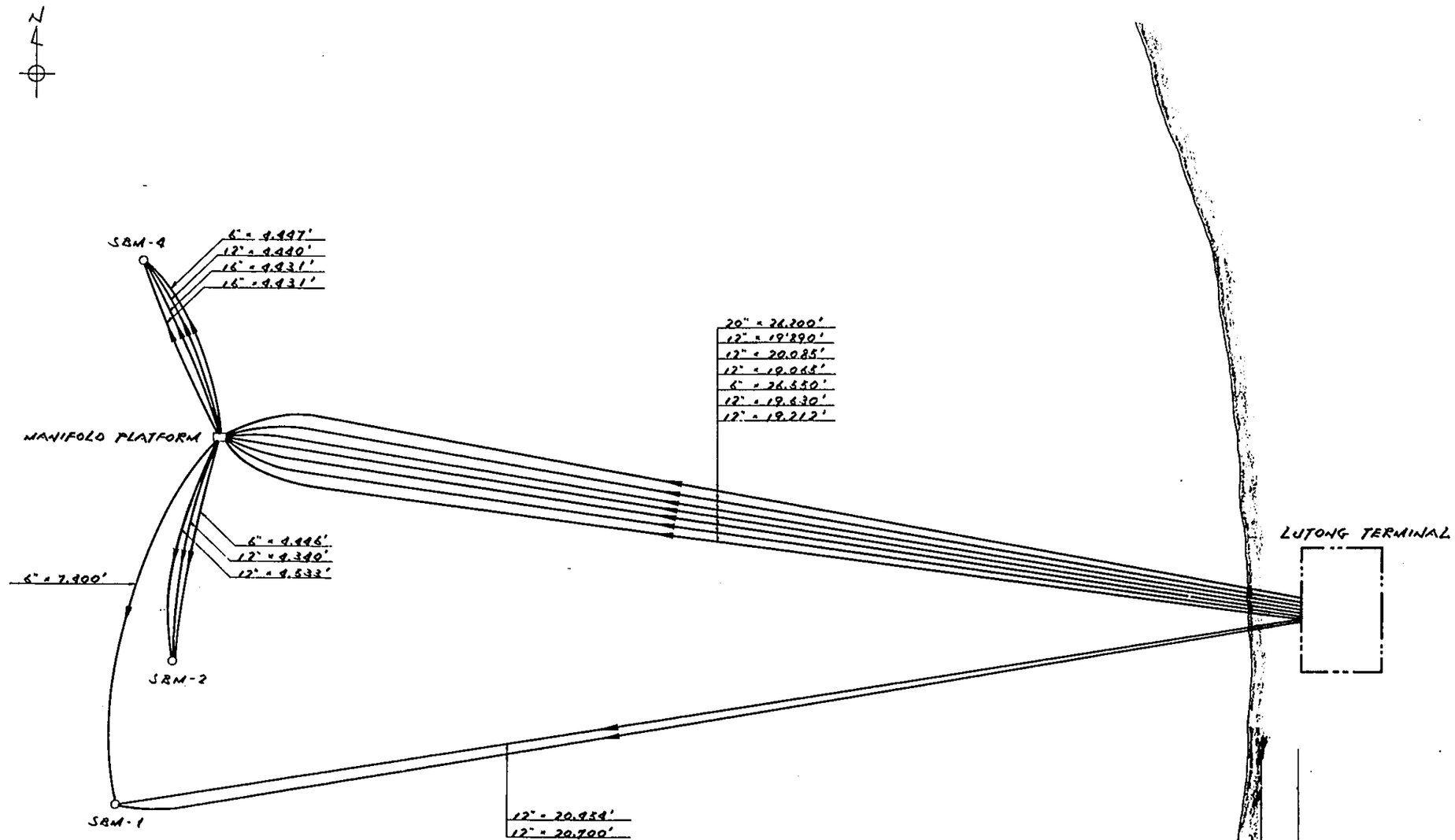
Fig. 13-4-11
(Vol. IV)

CONE PENETRATION TEST

LUTONG AND LABUAN TERMINAL





NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT
OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
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TITLE
FIG. 13-4-12 (Vol. IV)
LOADING FACILITY LAYOUT OF LUTONG TERMINAL

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CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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Fig. 13-4-13
(Vol. IV)

LUTONG STREAM PRESSURE BALANCE

AT PRESENT PRODUCTION RATE

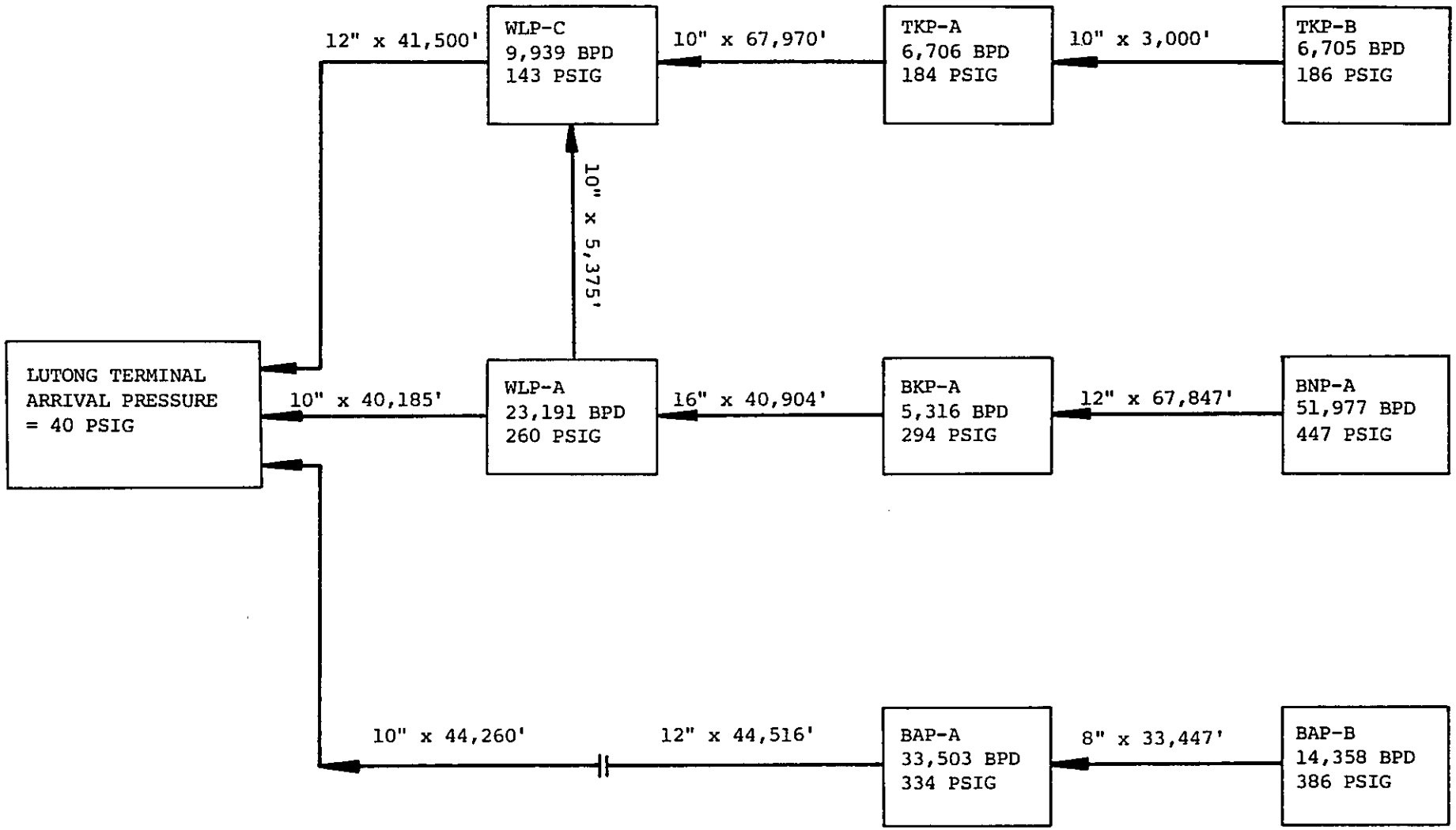


Fig. 13-4-13
(Vol. IV)

LUTONG STREAM PRESSURE BALANCE

AT PRESENT PRODUCTION RATE

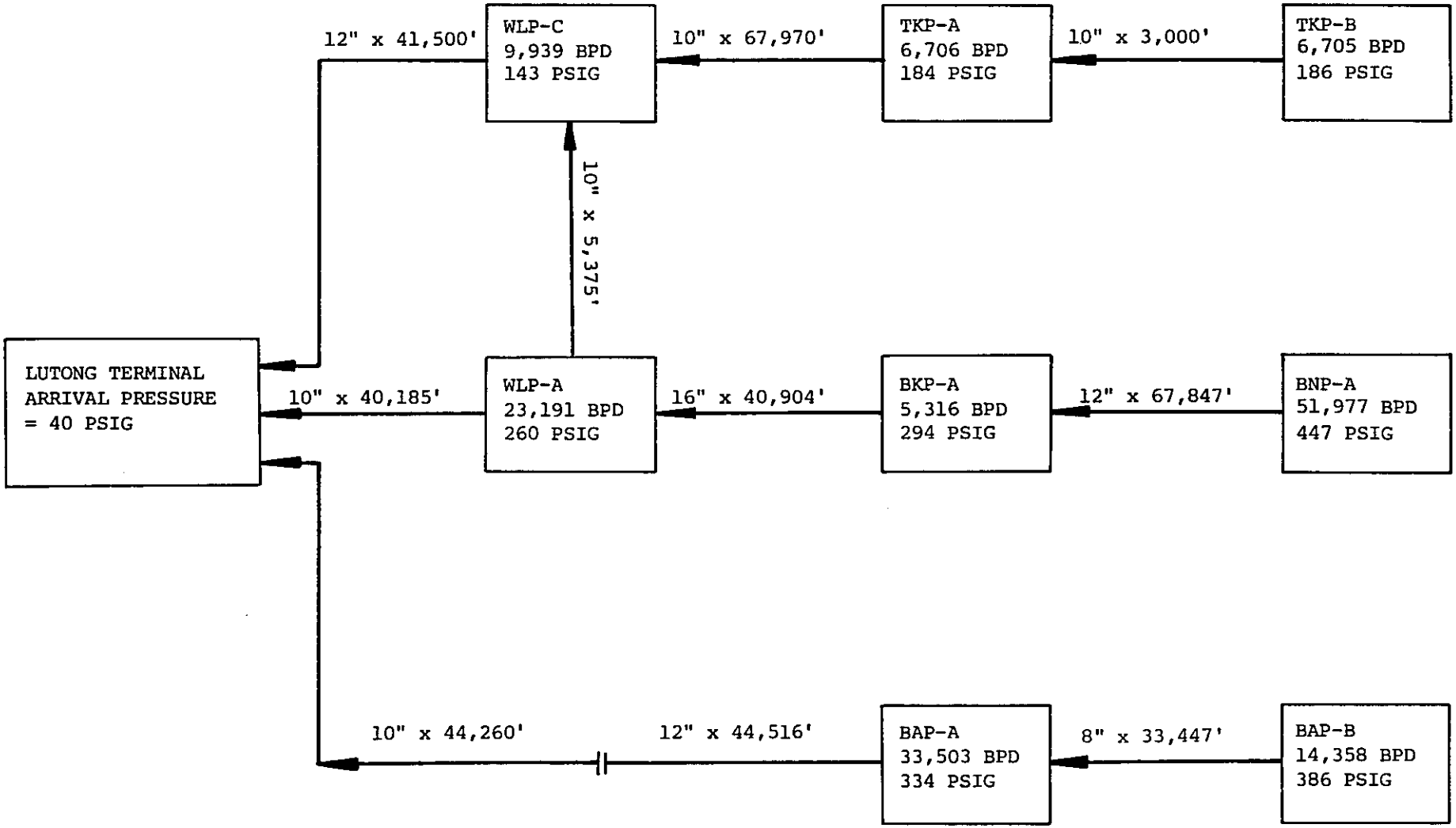


Fig. 13-4-14
(Vol. IV)

LUTONG STREAM PRESSURE BALANCE

AT MAXIMUM HANDLING CAPACITY OF PRODUCTION PLATFORMS

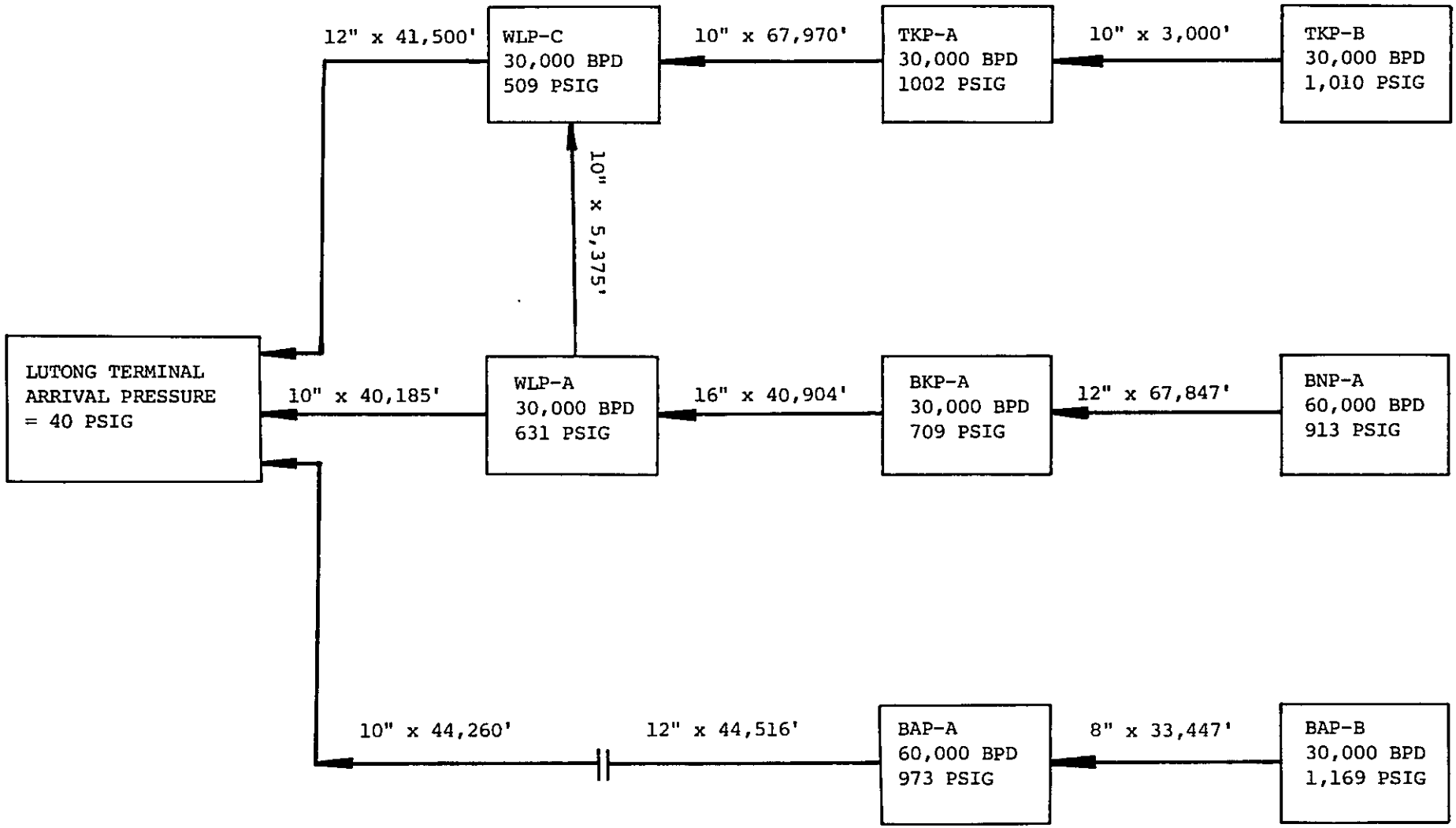


Fig. 13-4-15
(Vol. IV)

COMBINATION OF LOADING LINES

FOR BERTH NO. 2

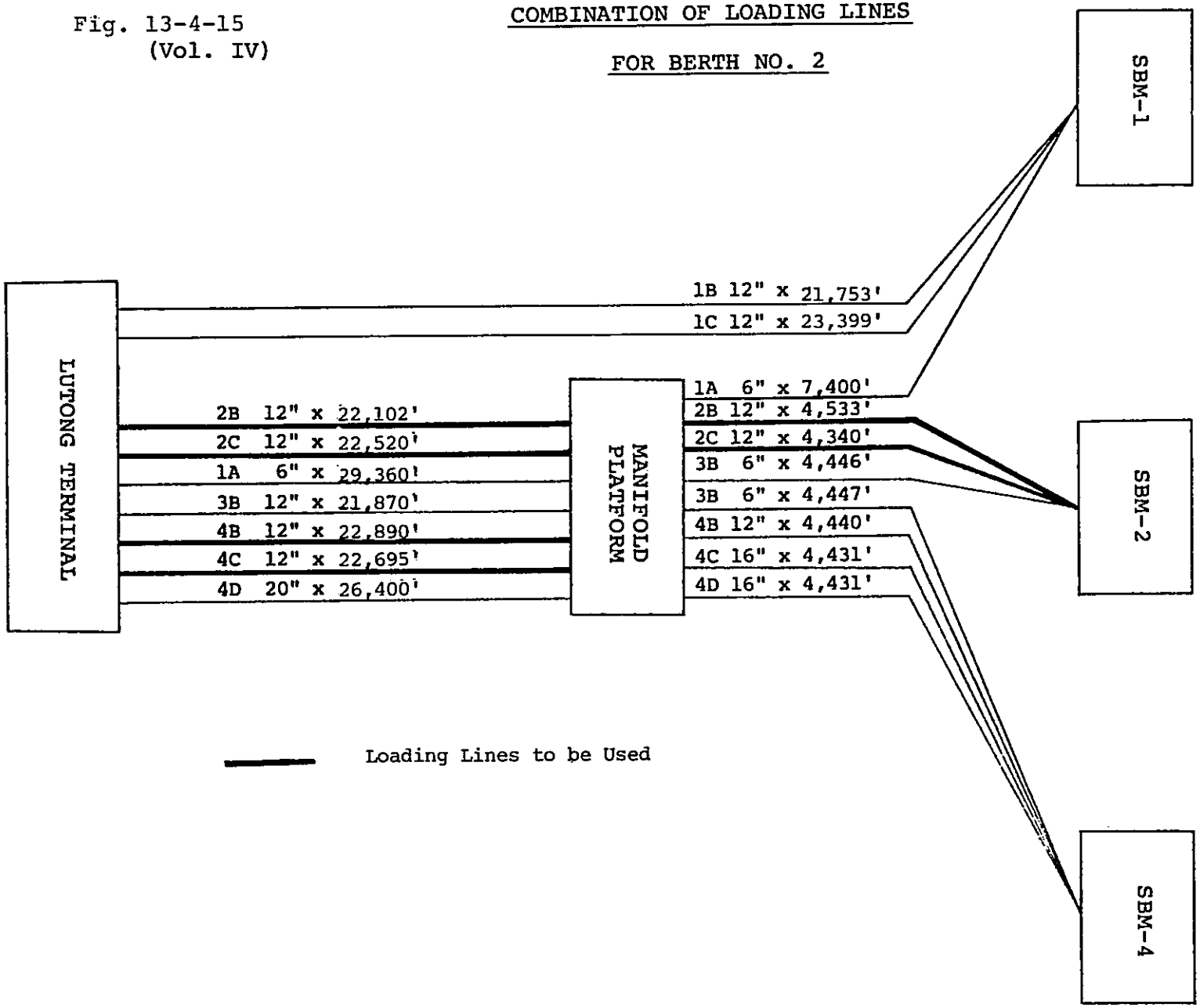


Fig. 13-4-16
(Vol. IV)

COMBINATION OF LOADING LINES

FOR BERTH NO. 4

(CASE 1)

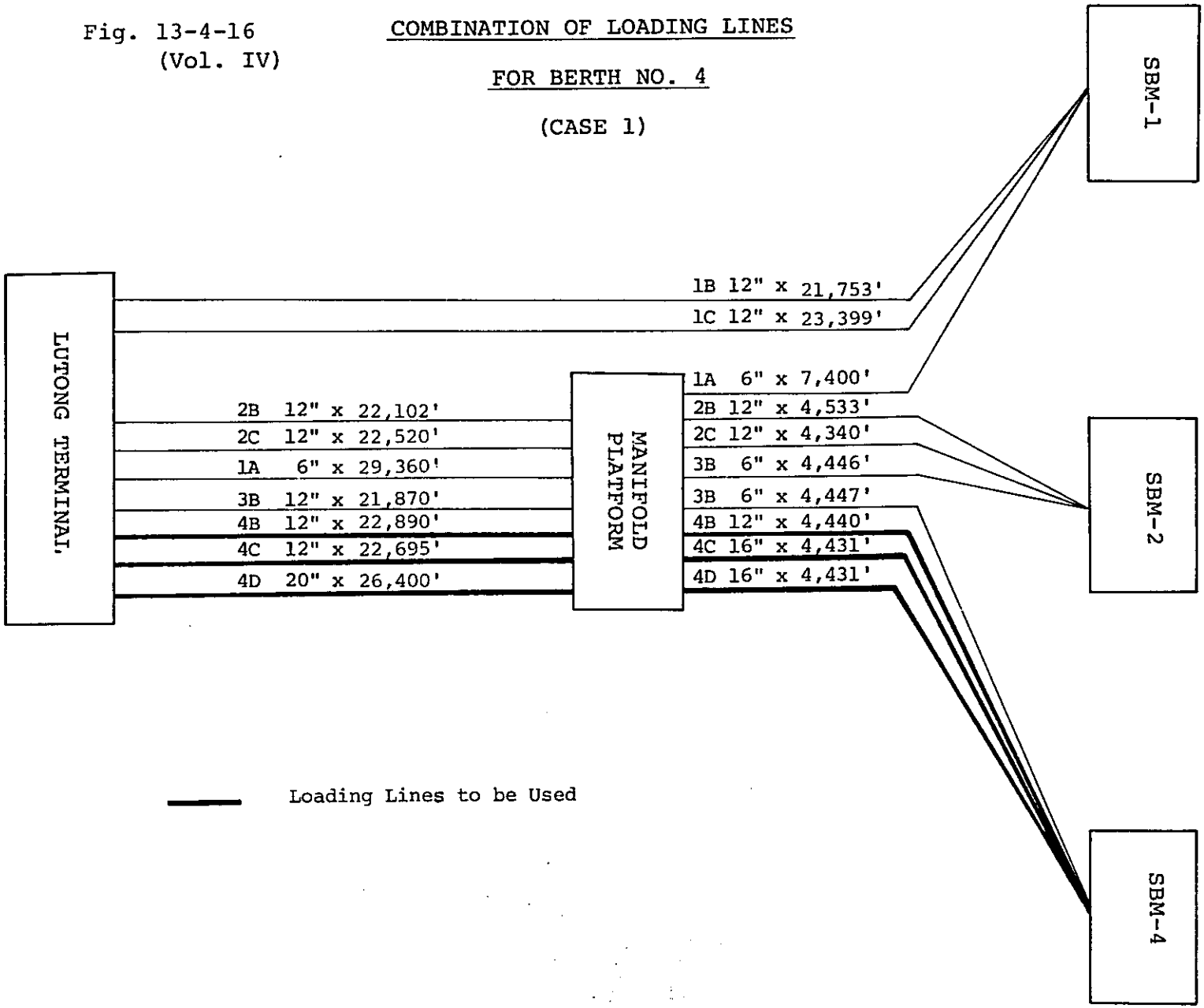


Fig. 13-4-17
(Vol. IV)

COMBINATION OF LOADING LINES

FOR BERTH NO. 4

(CASE 2)

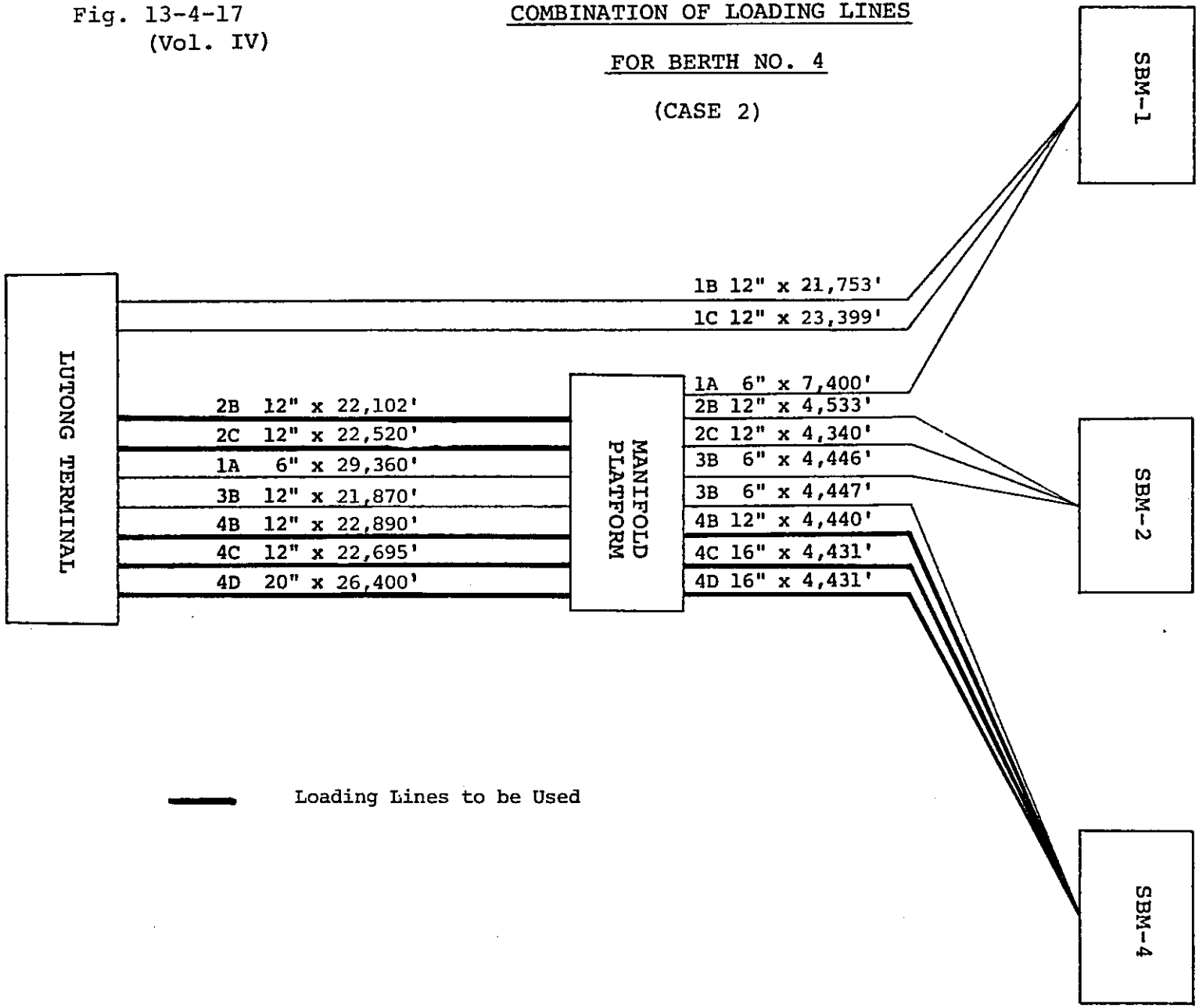
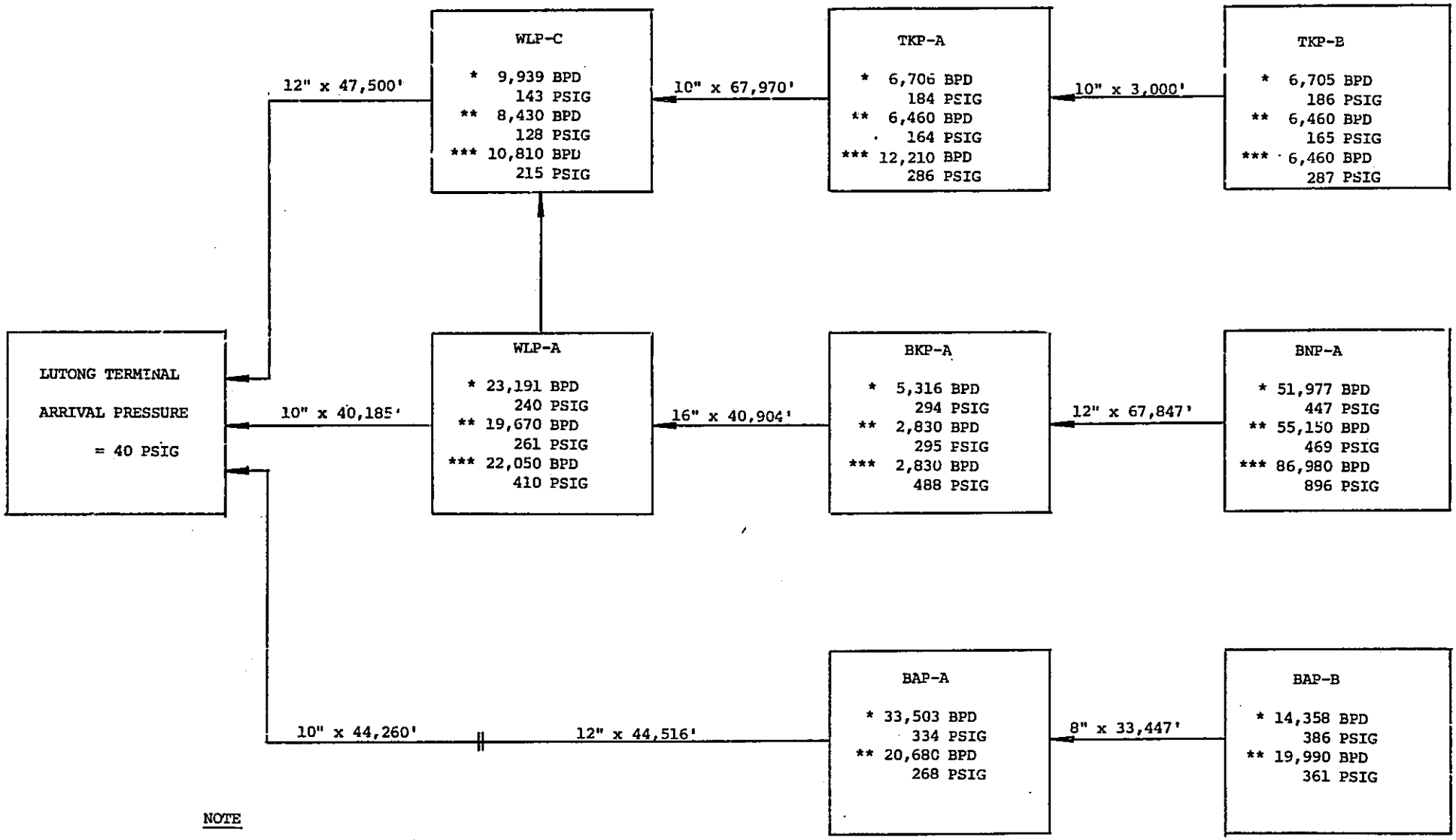


Fig. 13-4-18 PRESSURE BALANCE FOR THE PRESENT AND MAXIMUM
(Vol. IV) PREDICTED PRODUCTION RATE IN LUTONG STREAM



NOTE

* VALUE AT PRESENT PRODUCTION RATE
** VALUE AT PREDICTED MAXIMUM PRODUCTION RATE
*** VALUE AT PREDICTED PRODUCTION RATE OF ADDITIONAL WELL CASE

Fig. 13-4-19
(Vol. IV)

LUTONG STREAM PRESSURE BALANCE

IN THE CASE OF OFFSHORE DEHYDRATION

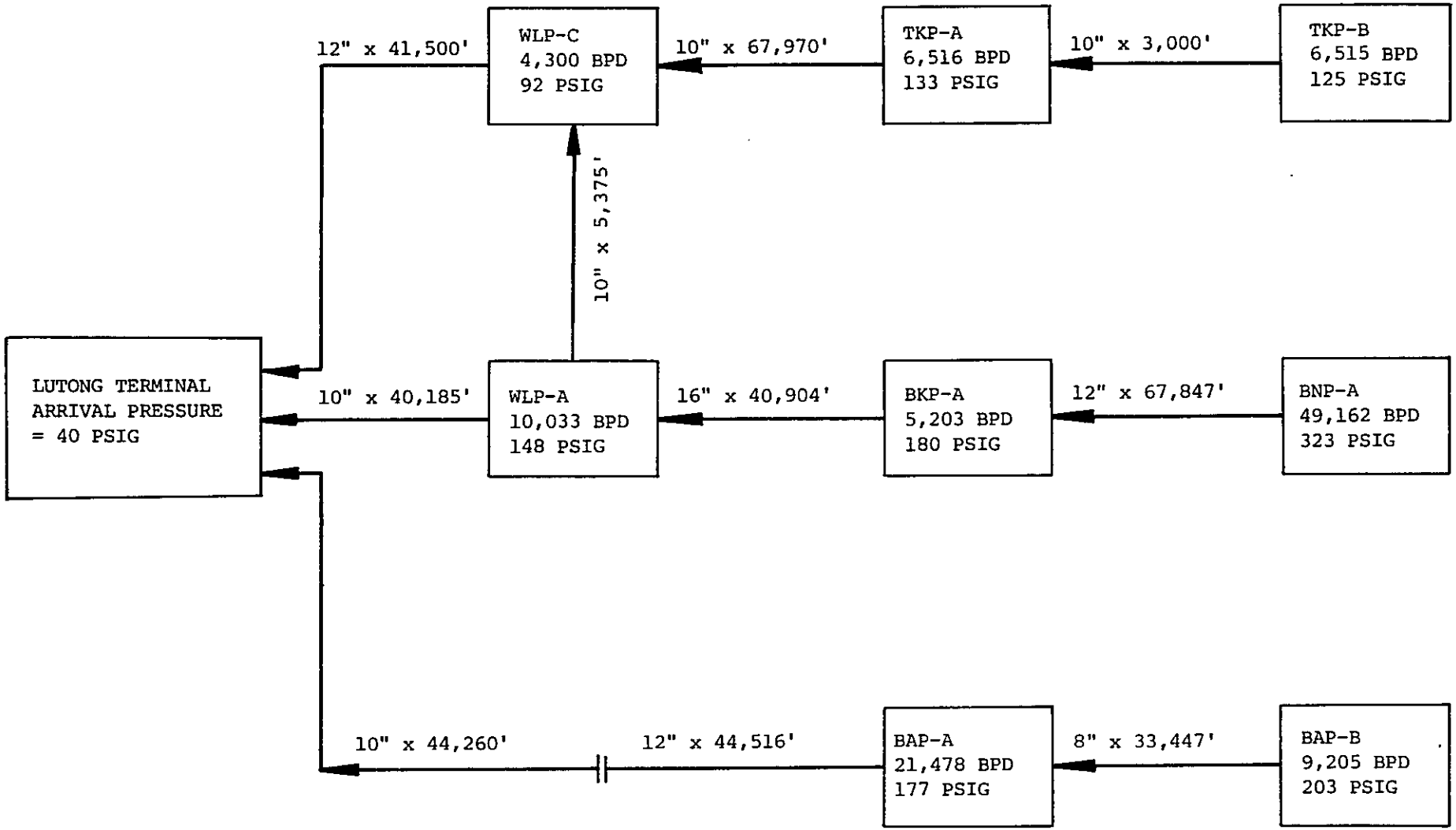


Fig. 13-4-20 FLOW SHEET OF WASH TANK
(Vol. IV)

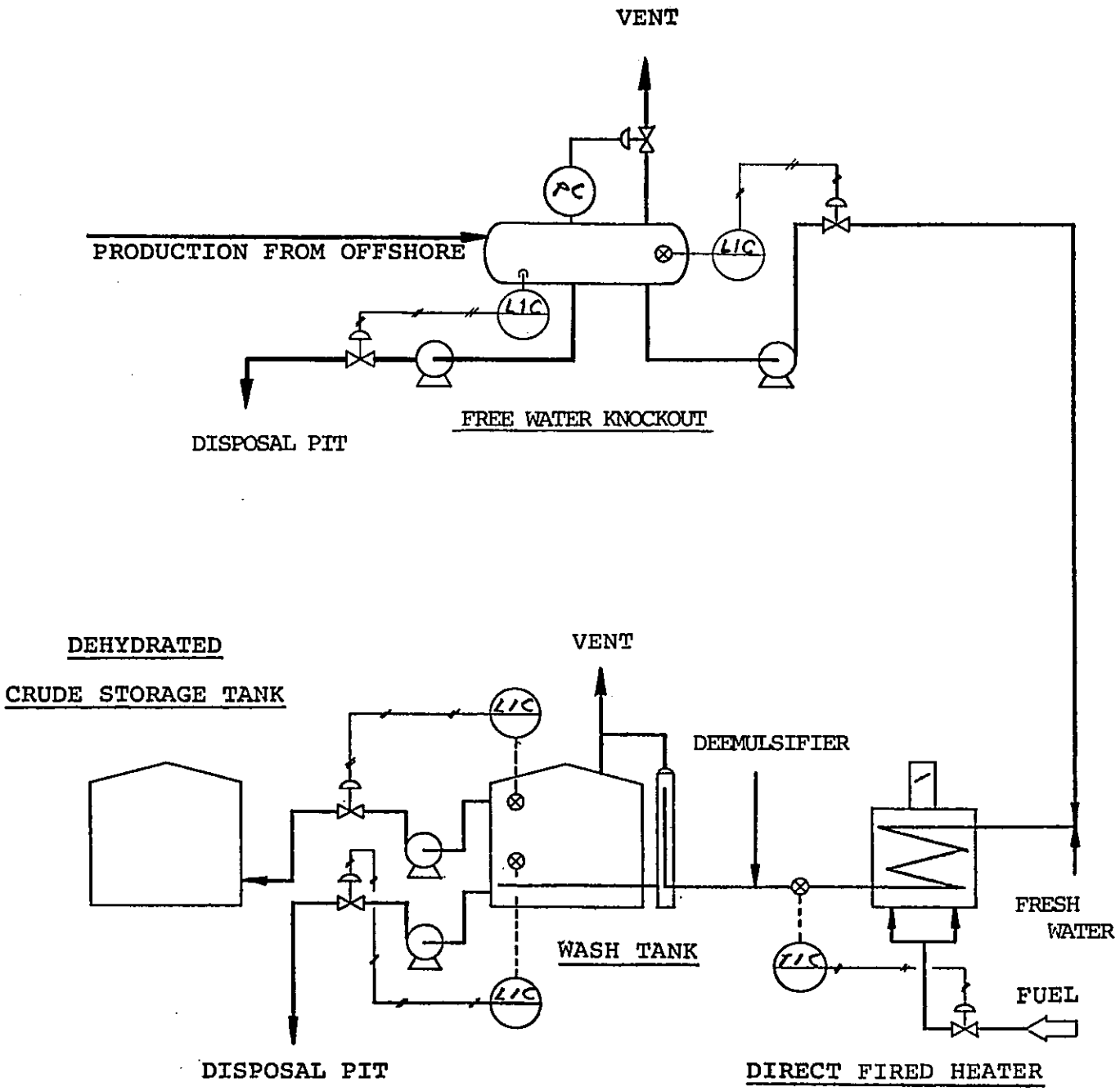


Fig. 13-4-21 (Vol. IV) BEARING CAPACITY OF SOIL AT LUTONG TERMINAL AND STRESS FOR 200,000 & 100,000 BBL TANK

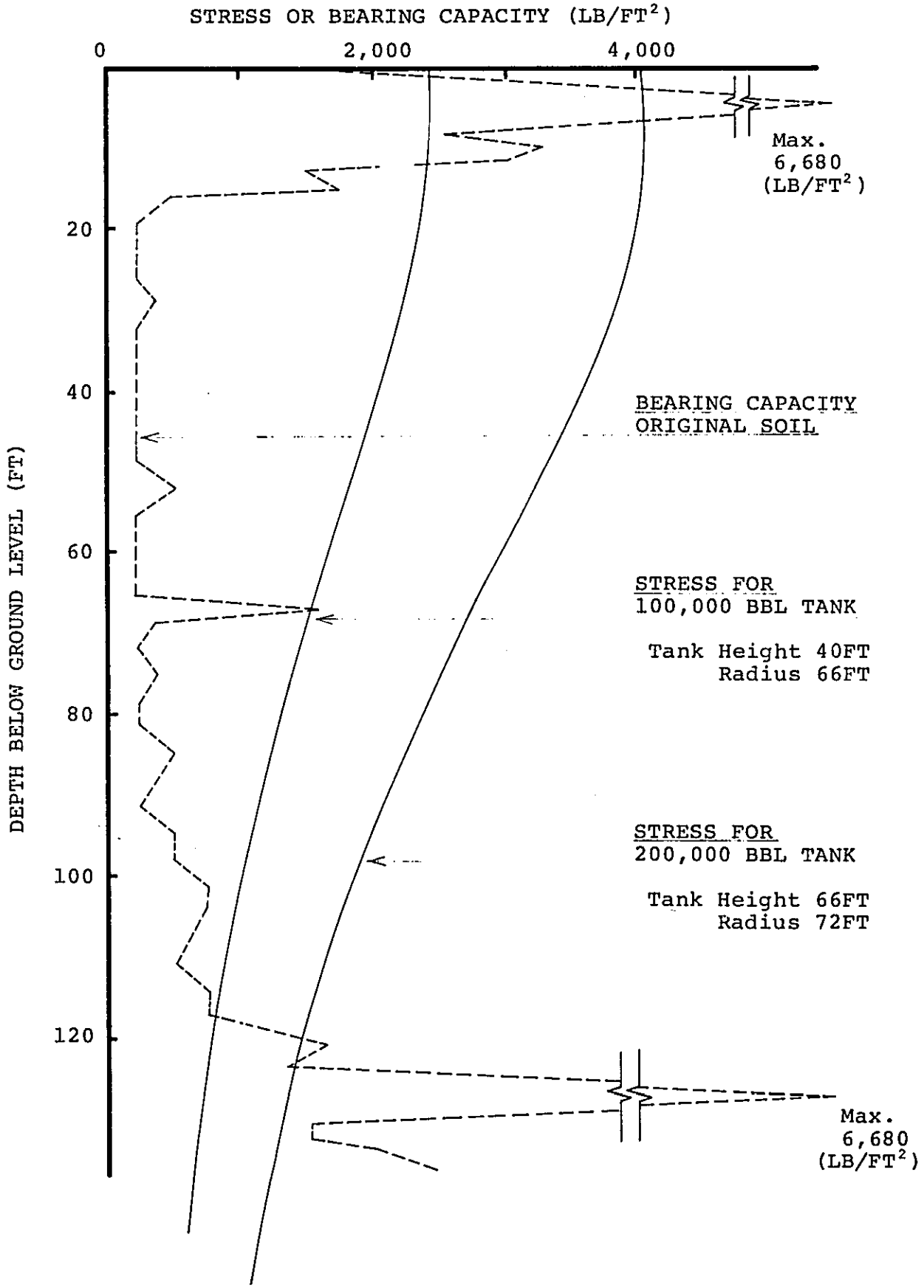


FIG. 14-5-1 (VOL. IV)

FACILITIES ARRANGEMENT

FOR BARONIA OIL FIELD AND B-12 GAS FIELD GAS UTILIZATION - CASE I A

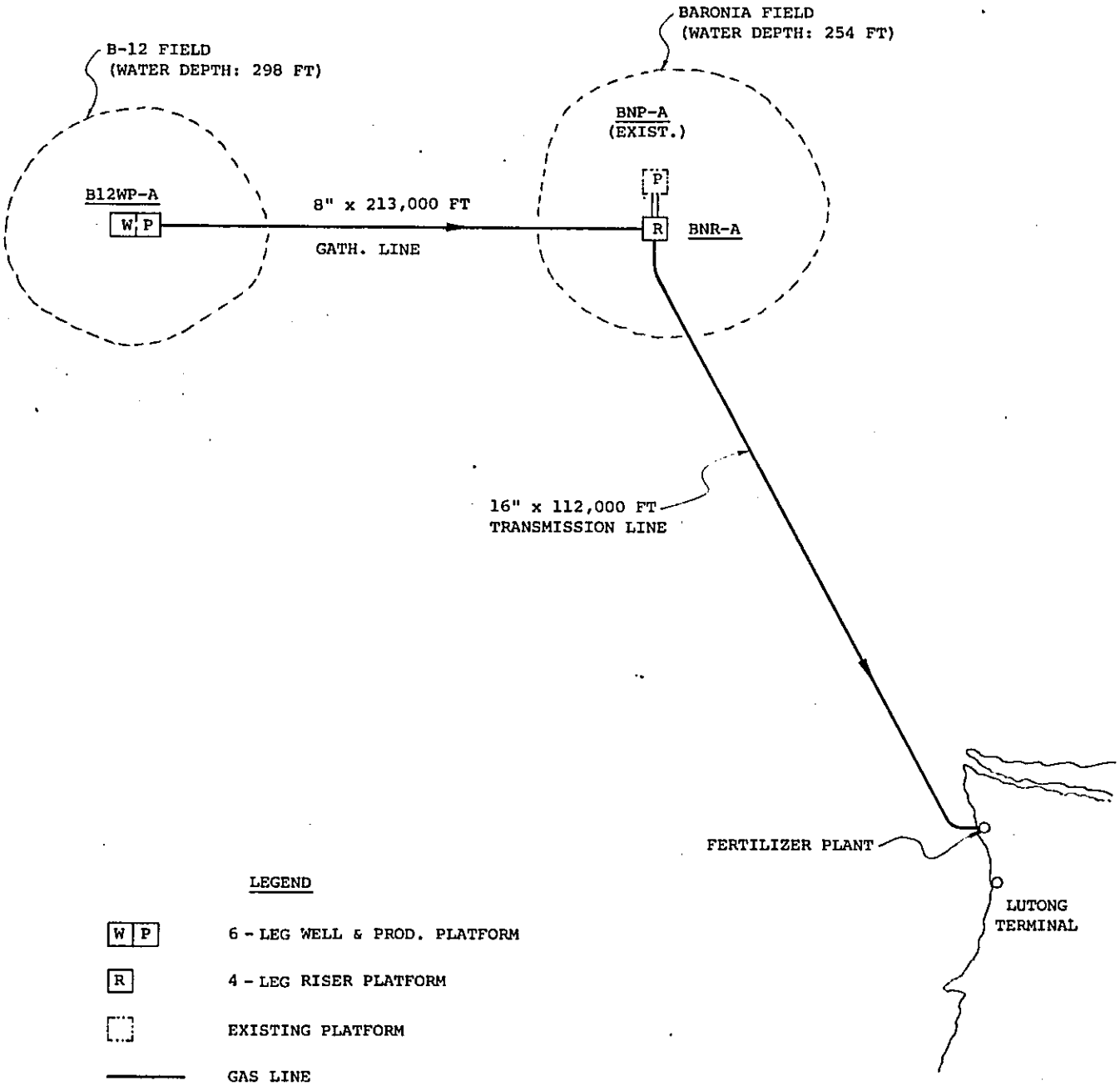
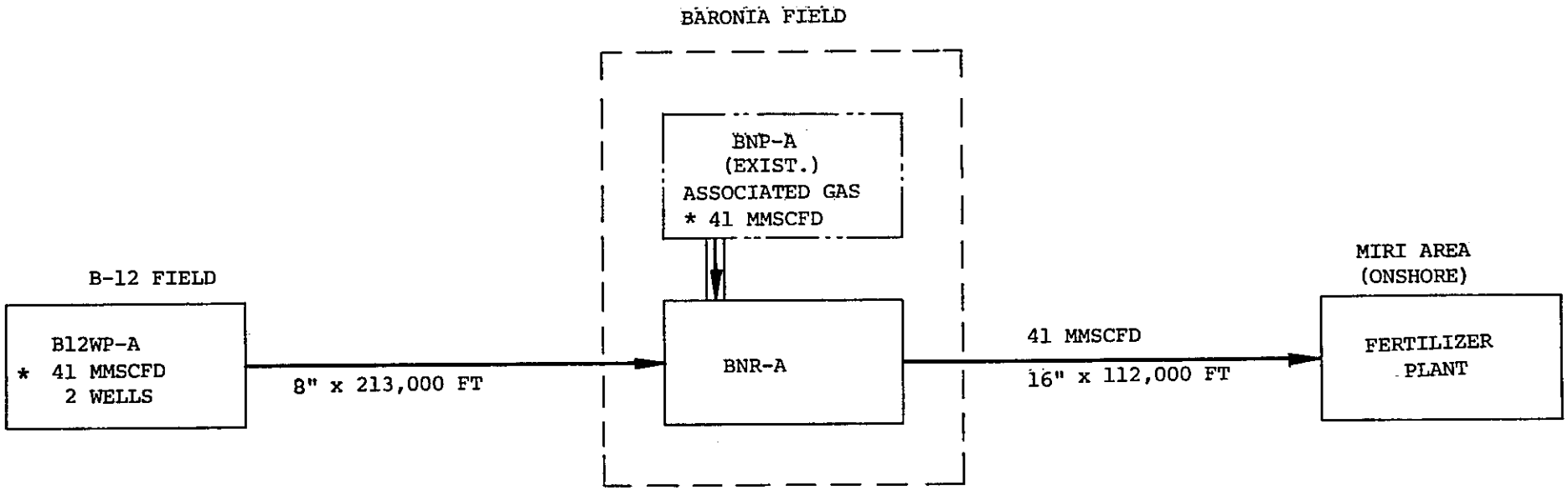


FIG. 14-5-2 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR BARONIA OIL FIELD AND B-12 GAS FIELD GAS UTILIZATION - CASE I A



* Note: B-12 field gas backs up just in case of shut down or drop below 41 MMSCFD of Baronia associated gas production to supply the gas continuously to the fertilizer plant for 20 years.

FIG. 14-5-3 (VOL. IV)

FACILITIES ARRANGEMENT

FOR BARONIA OIL FIELD AND B-12 GAS FIELD GAS UTILIZATION - CASE I B

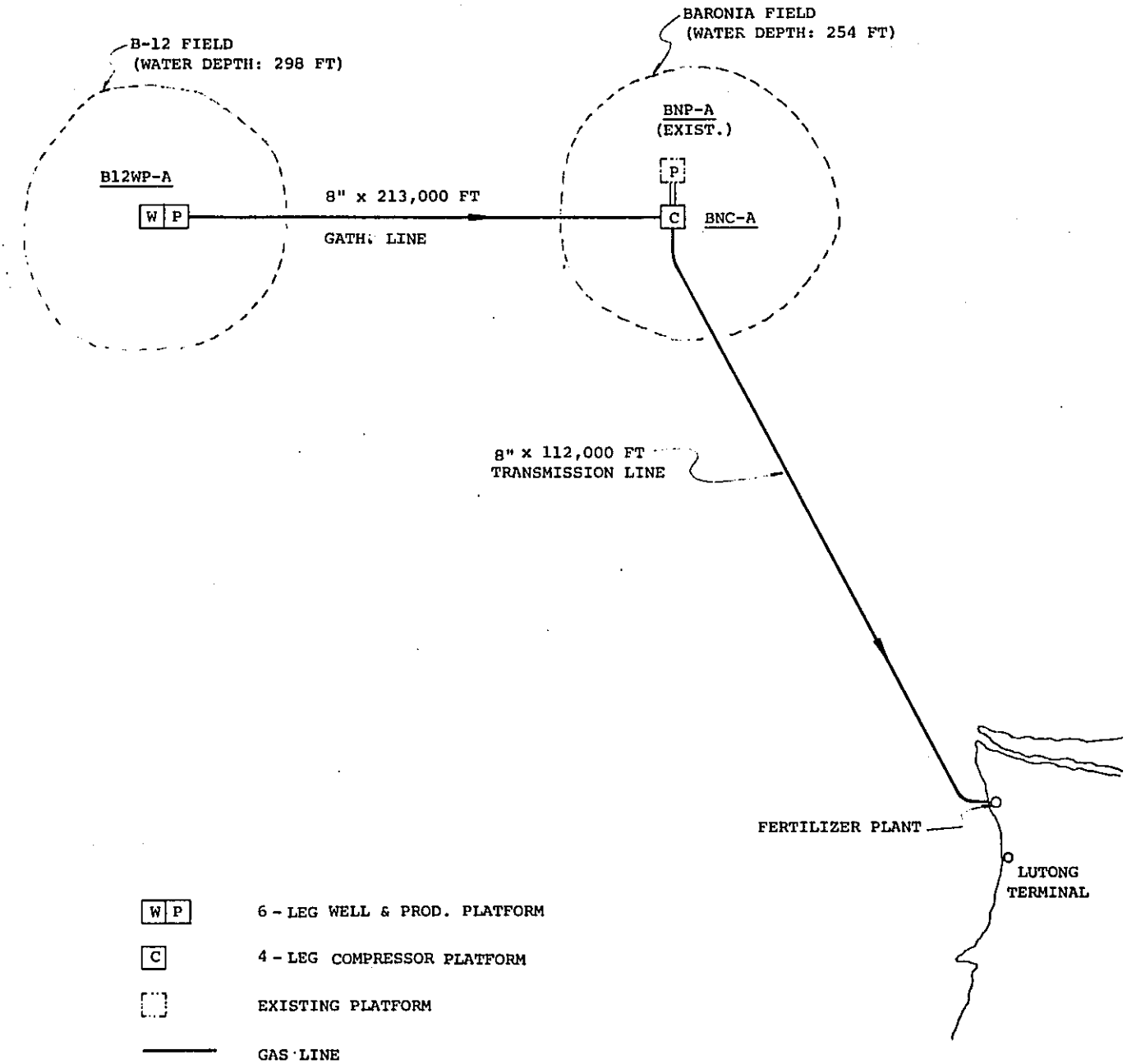
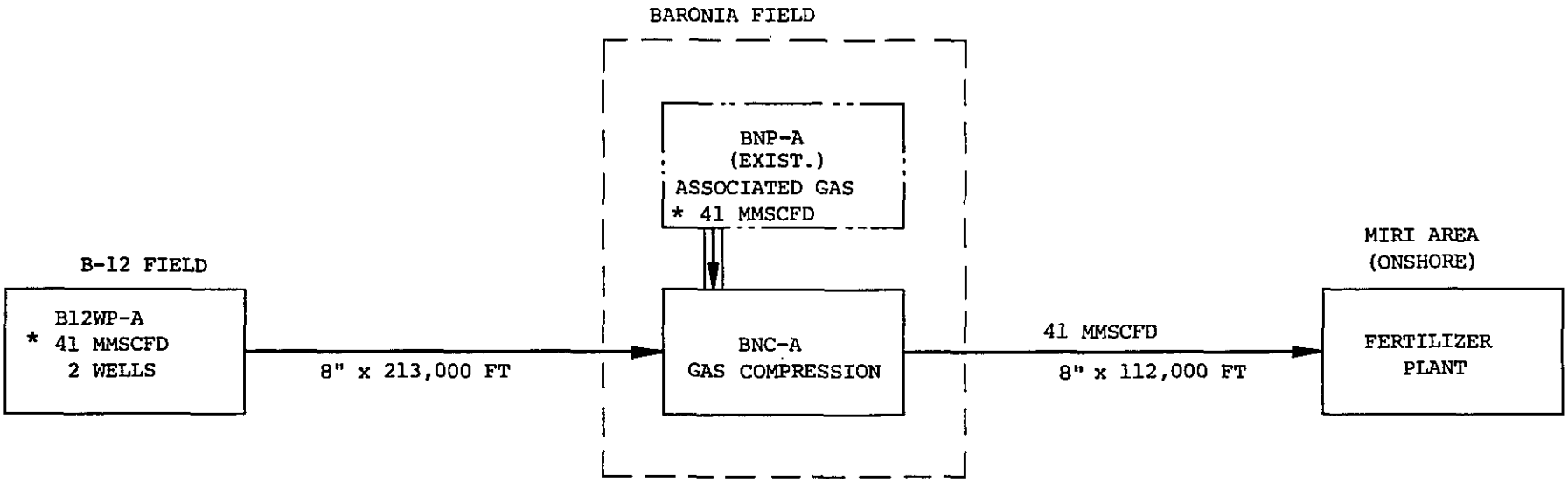


FIG. 14-5-4 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR BARONIA OIL FIELD AND B-12 GAS FIELD GAS UTILIZATION - CASE I B



* Note: B-12 field gas backs up just in case of shut down or drop below 41 MMSCFD of Baronia associated gas production to supply the gas continuously to the fertilizer plant for 20 years.

Fig. 14-6-1 (Vol. IV)

PROJECT SCHEDULE

BARONIA OIL FIELD AND B-12 GAS FIELD
GAS UTILIZATION CASE I A

Item \ Year		1st												2nd											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1. Engineering		═	═	═	═	═	═	═	═	═	═	═	═												
2. Baronia																									
Riser Platform	4-leg								═	═	═	═	═	═	═	═	═								
Submarine Pipeline	16"x112,000'											═	═	═	═	═	═	═	═						
3. B-12																									
Development Well	2 Wells															═	═	═							
Well & Production Platform	6-leg							═	═	═	═	═	═	═	═	═	═								
Submarine Pipeline	8"x213,000'													═	═	═	═	═	═	═	═	═	═	═	═
4. Start - up																									═

FIG. 15-5-1 (VOL. IV)

FACILITIES ARRANGEMENT

FOR BETTY AND BOKOR OIL FIELDS - CASE I

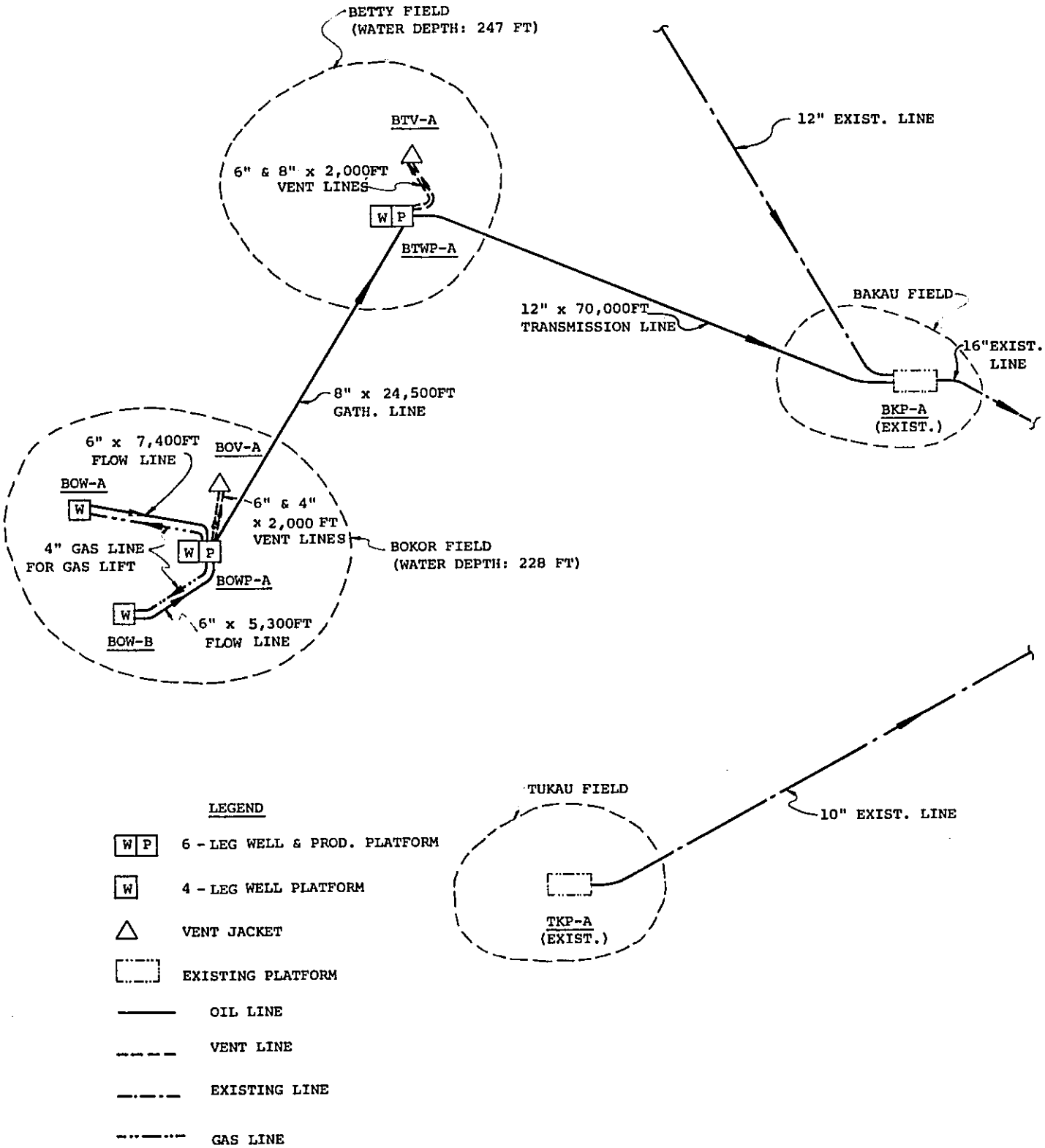


FIG. 15-5-2 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR BETTY AND BOKOR OIL FIELDS - CASE I

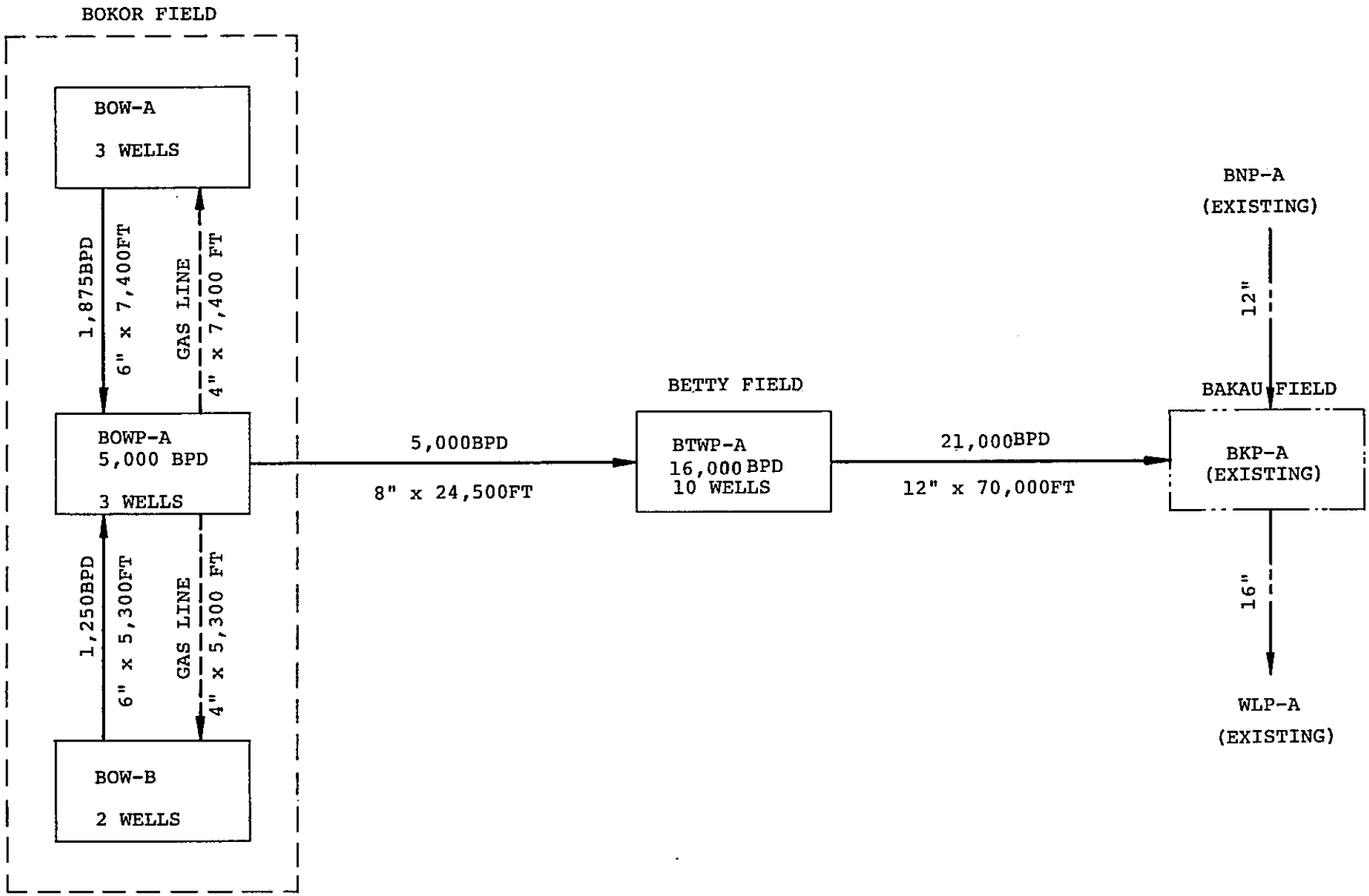


FIG. 15-5-3 (VOL. IV)

FACILITIES ARRANGEMENT

FOR BETTY AND BOKOR OIL FIELDS-CASE II

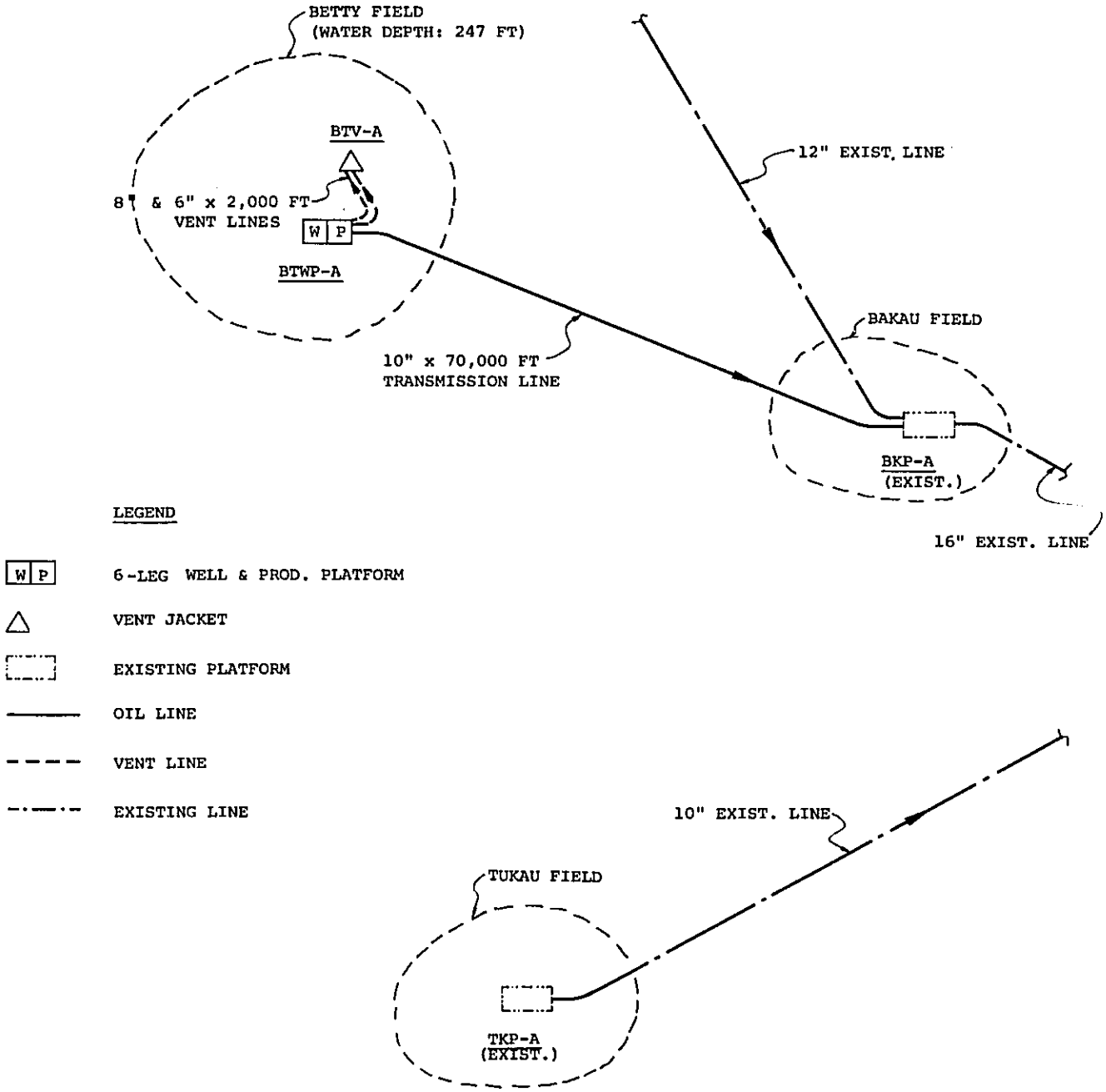


FIG. 15-5-4 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR BETTY AND BOKOR OIL FIELDS - CASE II

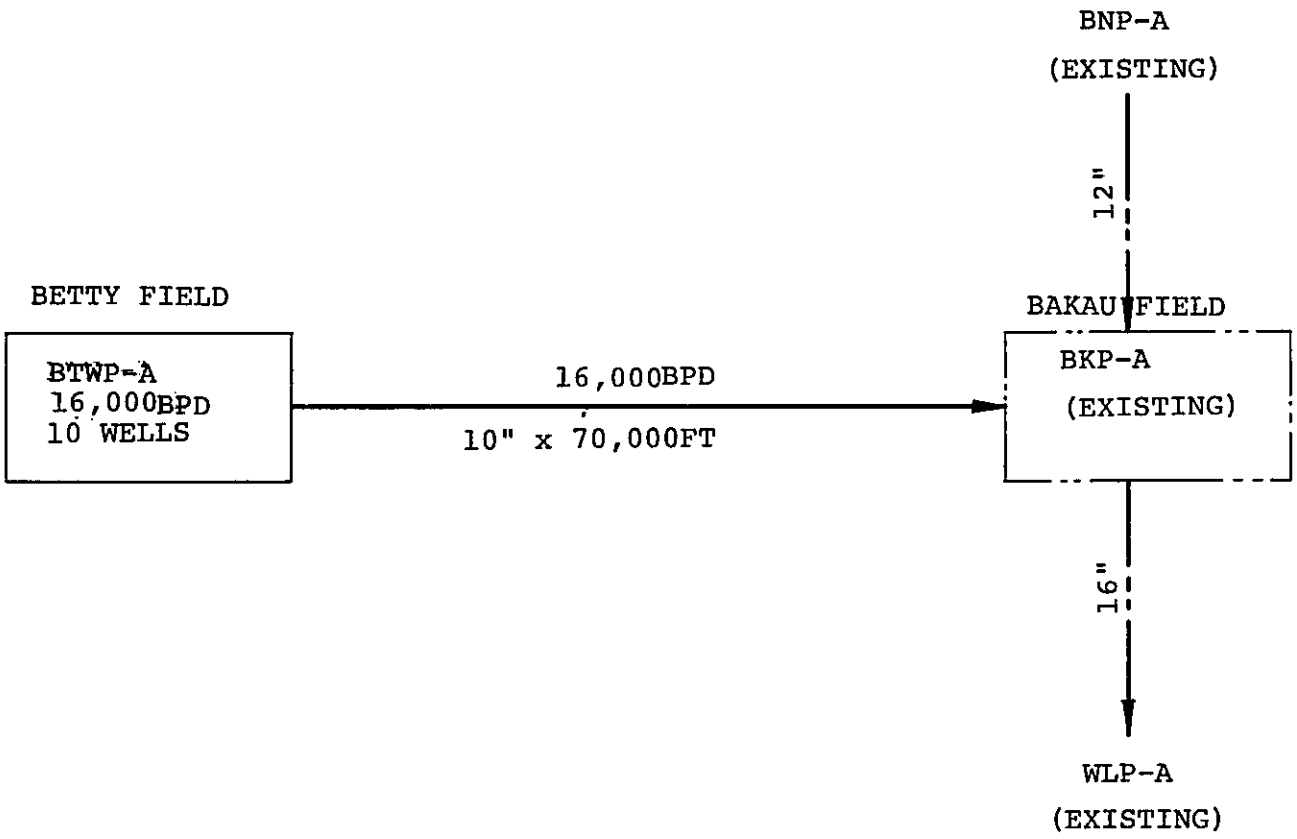
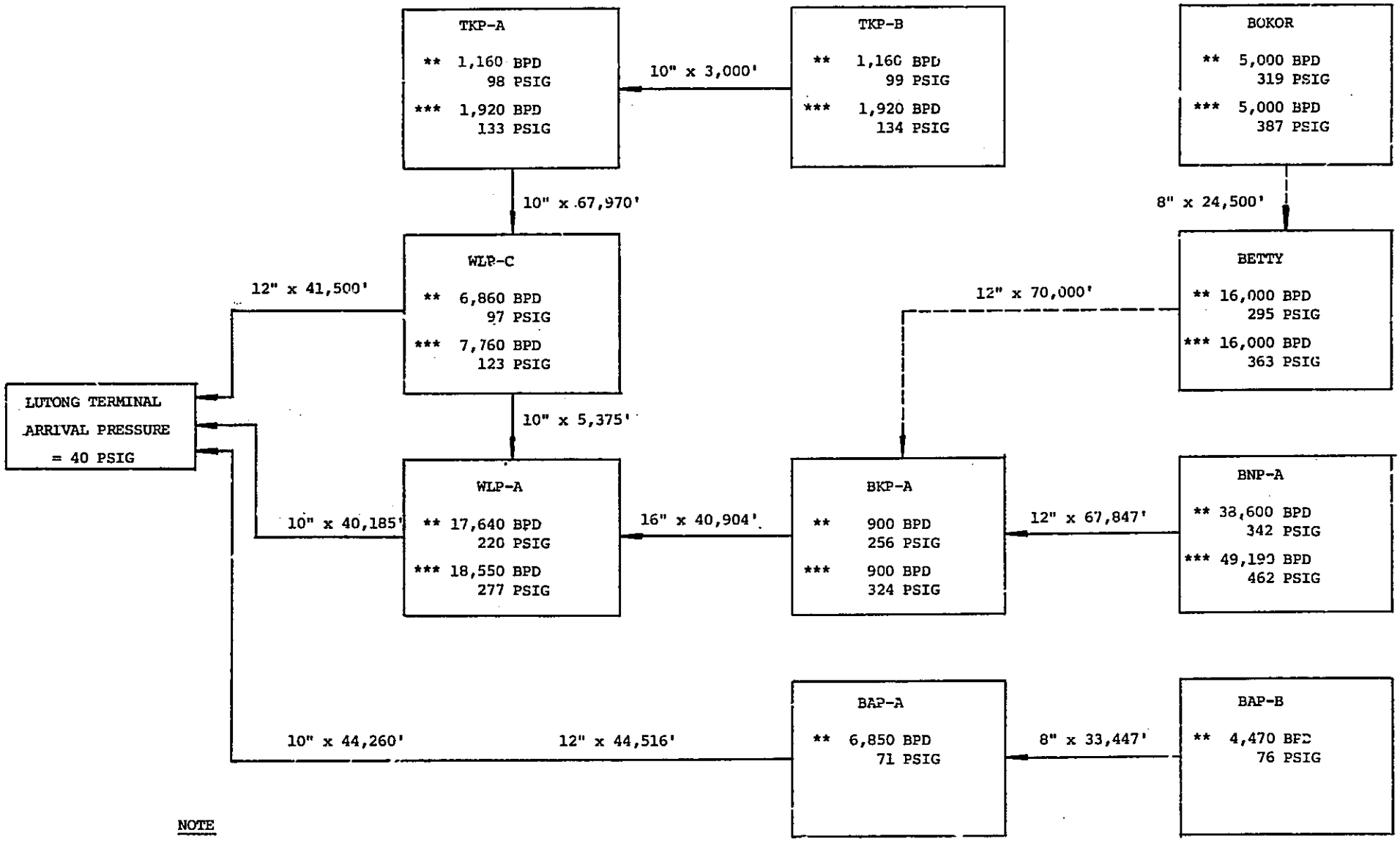


Fig. 15-5-5
(Vol. IV)

LUTONG STREAM PRESSURE BALANCE AT THE PREDICTED PRODUCTION RATE IN 1981, CASE I (DEVELOPMENT CASE)

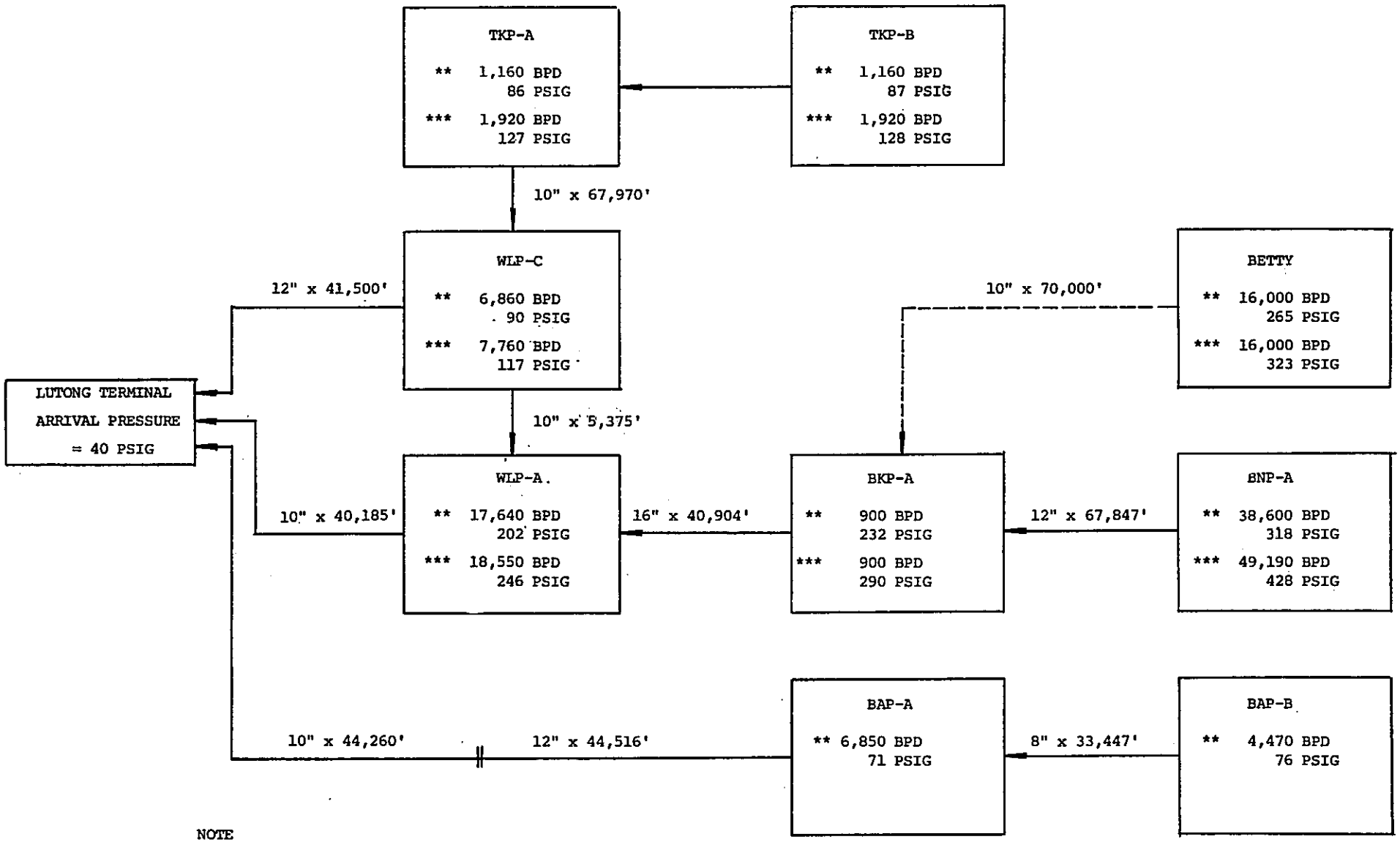


NOTE

** VALUE OF THE PREDICTED PRODUCTION RATE IN 1981
*** VALUE OF THE PREDICTED PRODUCTION RATE OF ADDITIONAL WELL CASE

Fig. 15-5-6
(Vol. IV)

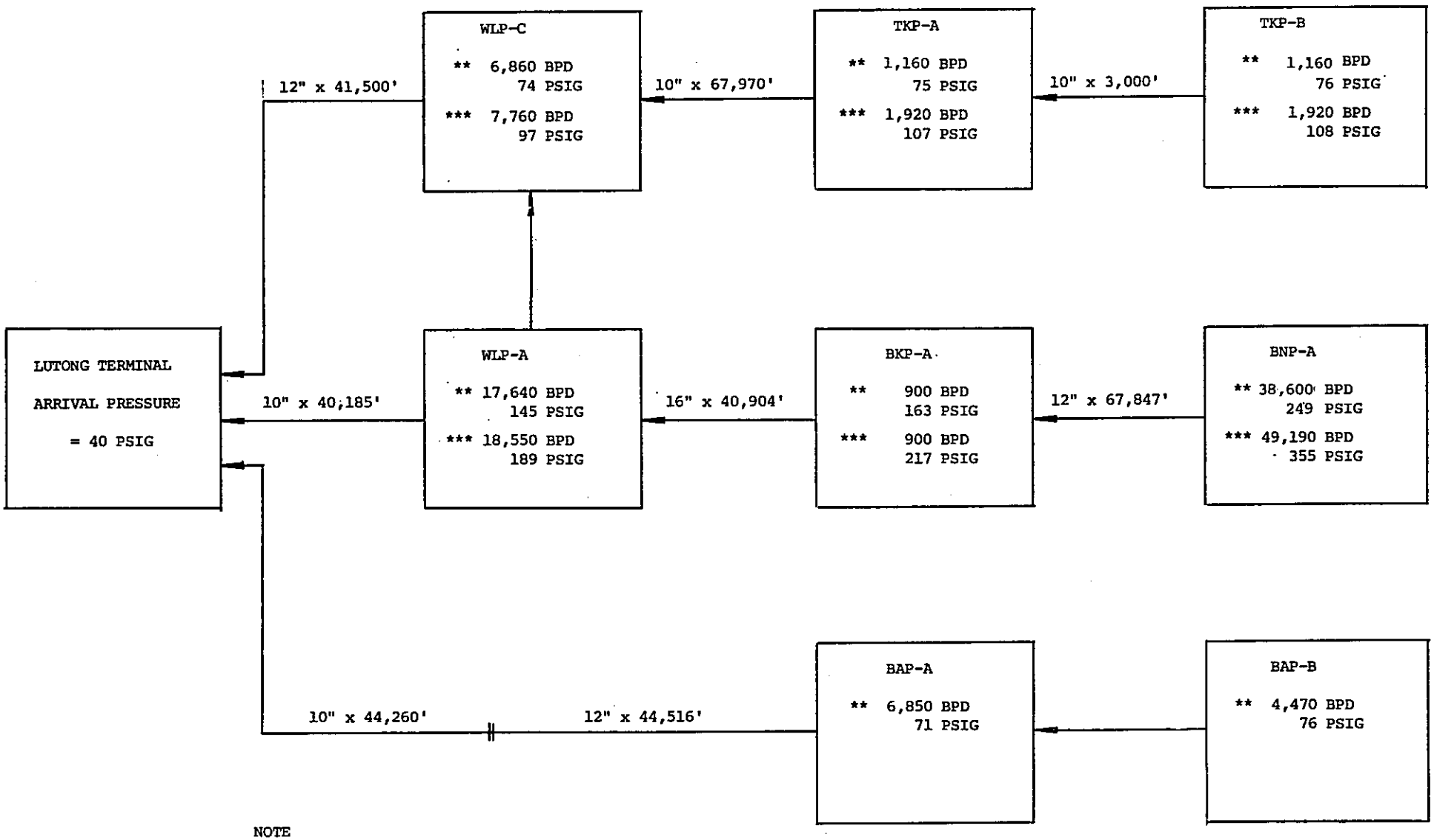
LUTONG STREAM PRESSURE BALANCE AT THE PREDICTED PRODUCTION RATE IN 1981, CASE II (DEVELOPMENT CASE)



NOTE

** VALUE AT PREDICTED PRODUCTION RATE IN 1981
*** VALUE AT PREDICTED PRODUCTION RATE OF ADDITIONAL WELL CASE

Fig. 15-5-7 LUTONG STREAM PRESSURE BALANCE AT THE PREDICTED
(Vol. IV) PRODUCTION RATE IN 1981, EXISTING FIELDS CASE



NOTE

** VALUE AT PREDICTED PRODUCTION RATE IN 1981

*** VALUE AT PREDICTED PRODUCTION RATE OF ADDITIONAL WELL CASE

Fig. 15-6-1 (Vol. IV)

PROJECT SCHEDULE

BETTY AND BOKOR OIL FIELDS CASE II

Item \ Year		1st												2nd												3rd											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1. Engineering																																					
2. Betty																																					
Development Well	10 Wells																																				
Well & Production Platform	6-leg																																				
Vent Jacket	3-leg																																				
Submarine Pipeline	10"x70,000'																																				
	8"x2,000'																																				
	6"x2,000'																																				
3. Start - up																																					

FIG. 16-5-1 (VOL. IV)

FACILITIES ARRANGEMENT

FOR WEST TEMANA AND E-6 OIL FIELDS - CASE I

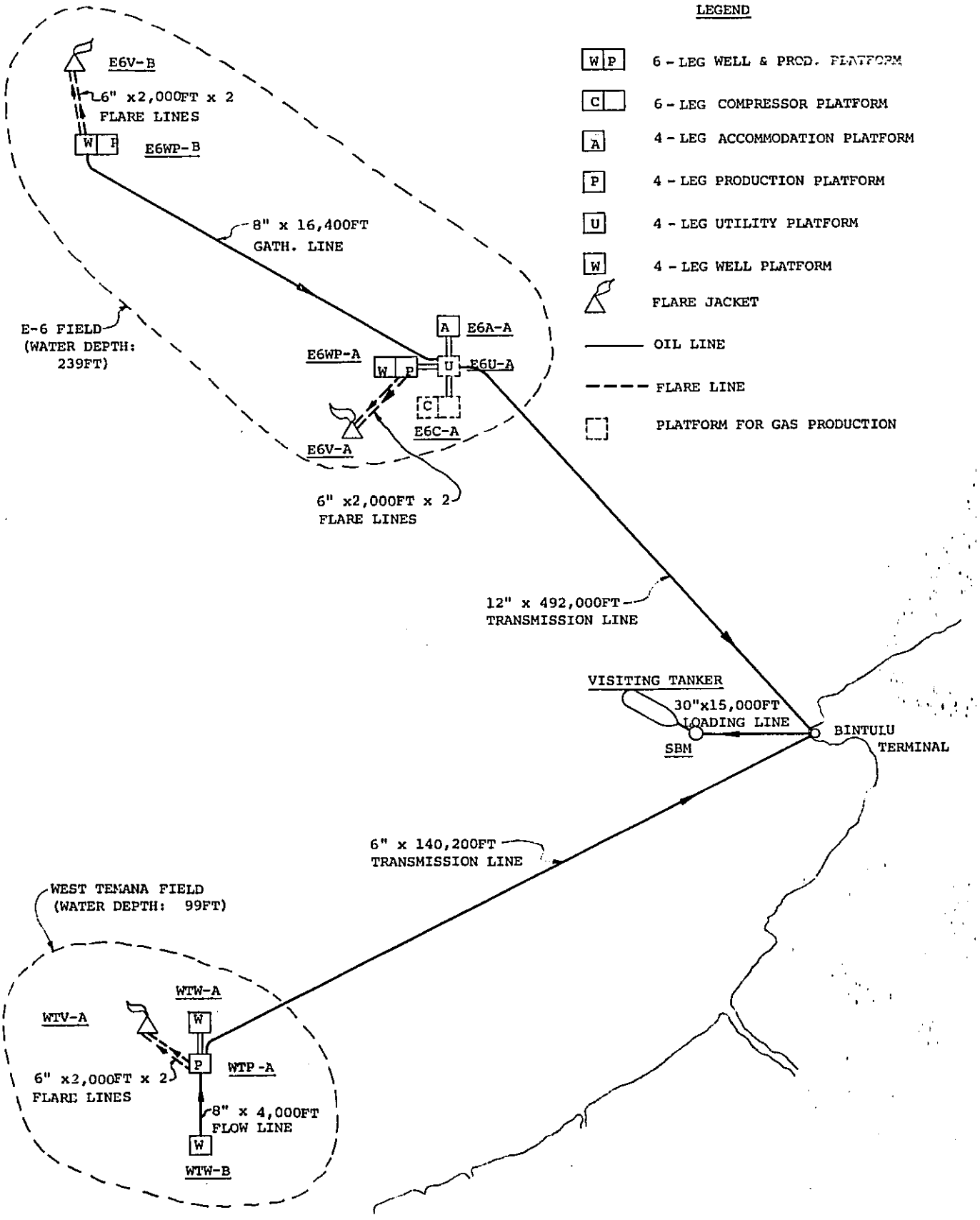


FIG. 16-5-2 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR WEST TEMANA AND E-6 OIL FIELDS-CASE I

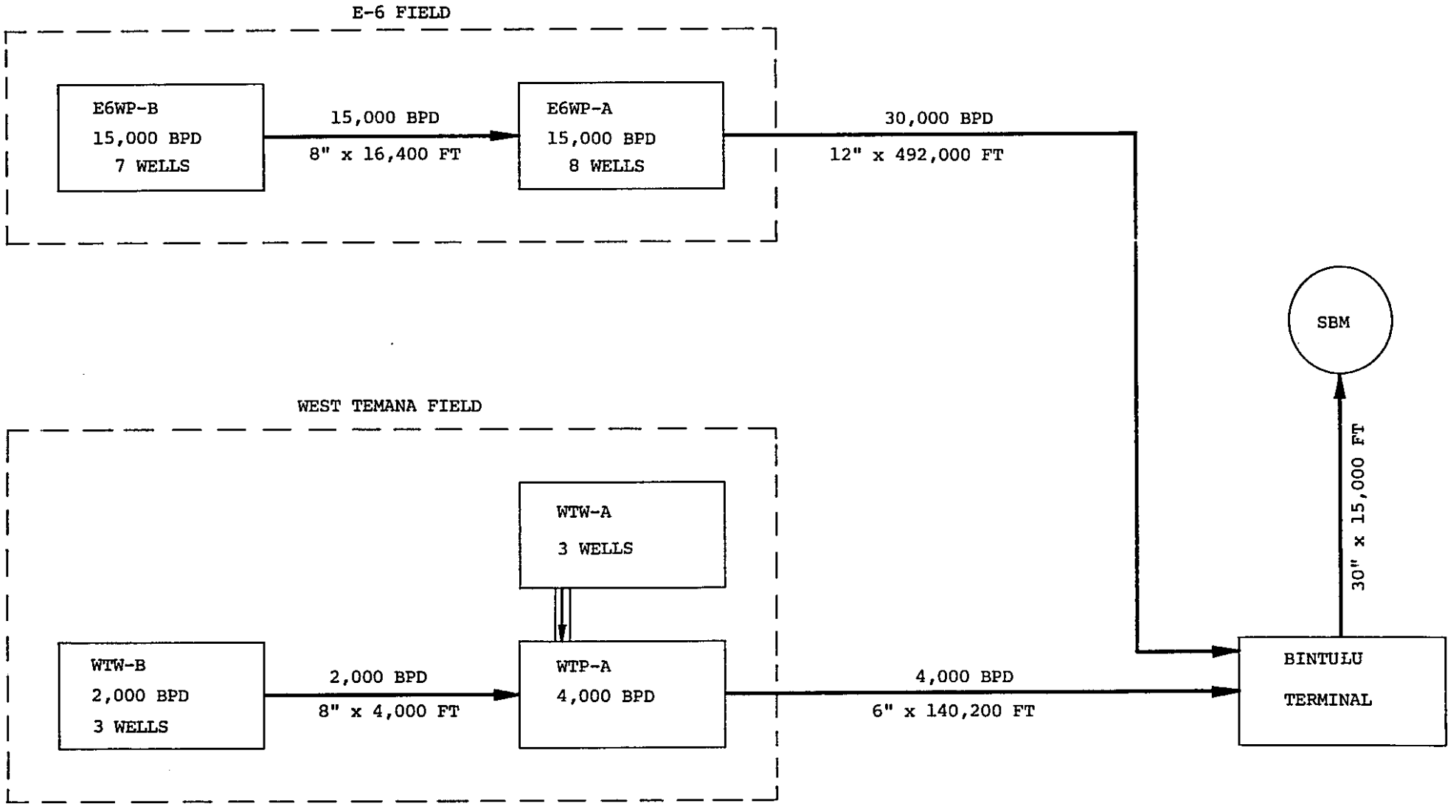


FIG. 16-5-3 (VOL. IV)

FACILITIES ARRANGEMENT

FOR WEST TEMANA AND E-6 OIL FIELDS - CASE II A

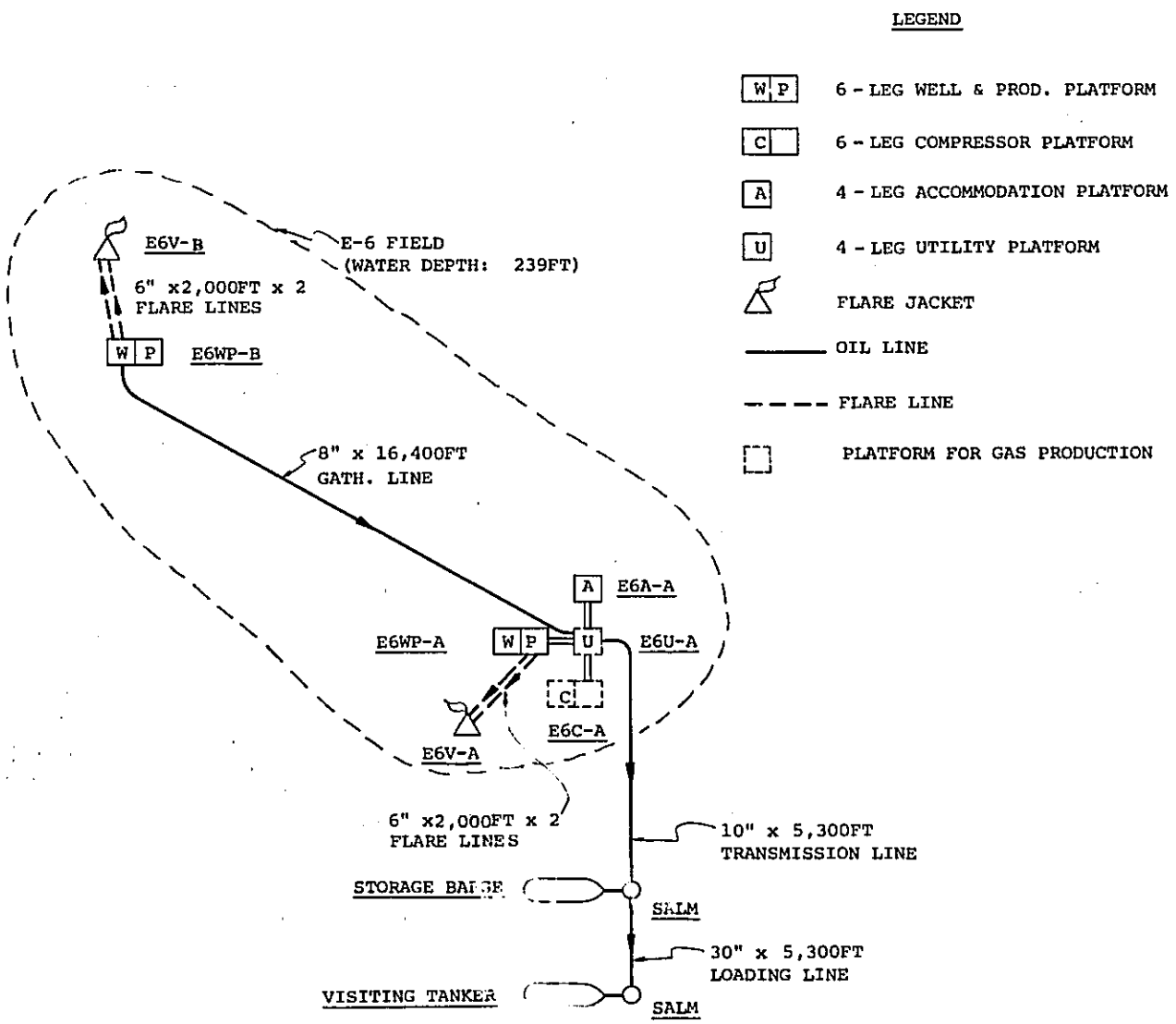


FIG. 16-5-4 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR WEST TEMANA AND E-6 FIELDS - CASE II A

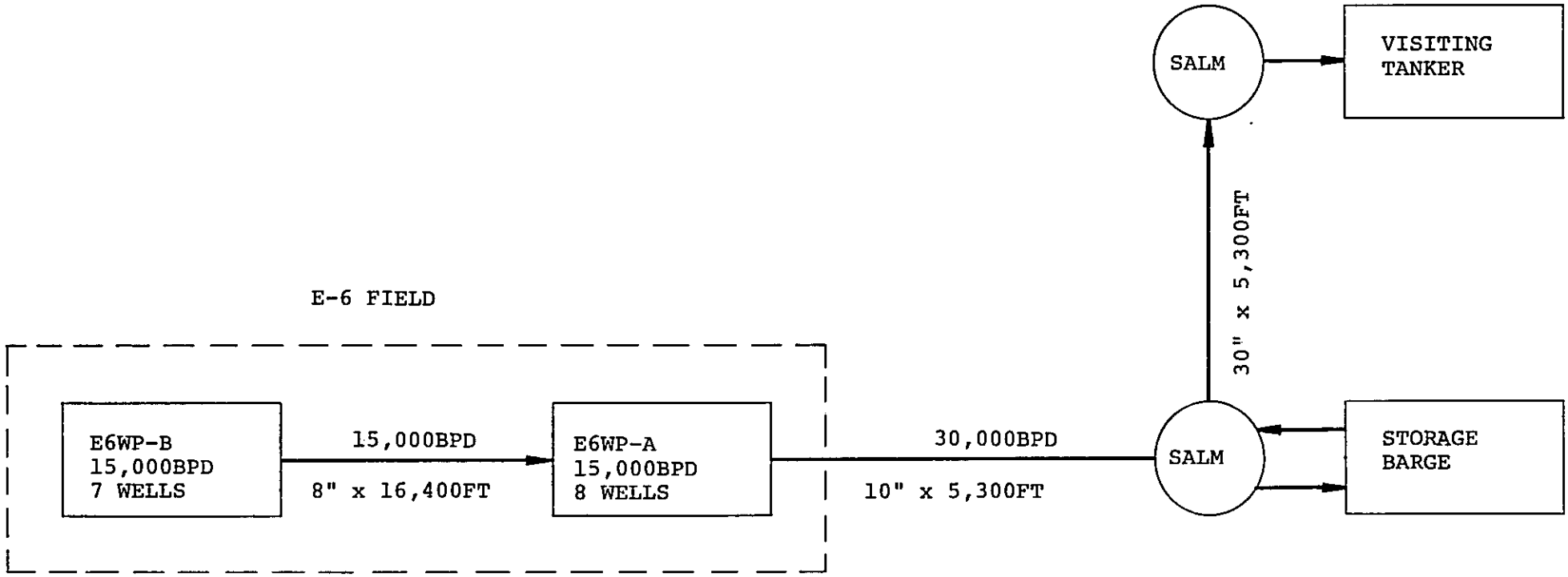


FIG. 16-5-5 (VOL IV)

FACILITIES ARRANGEMENT

FOR WEST TEMANA AND E-6 OIL FIELDS - CASE II B

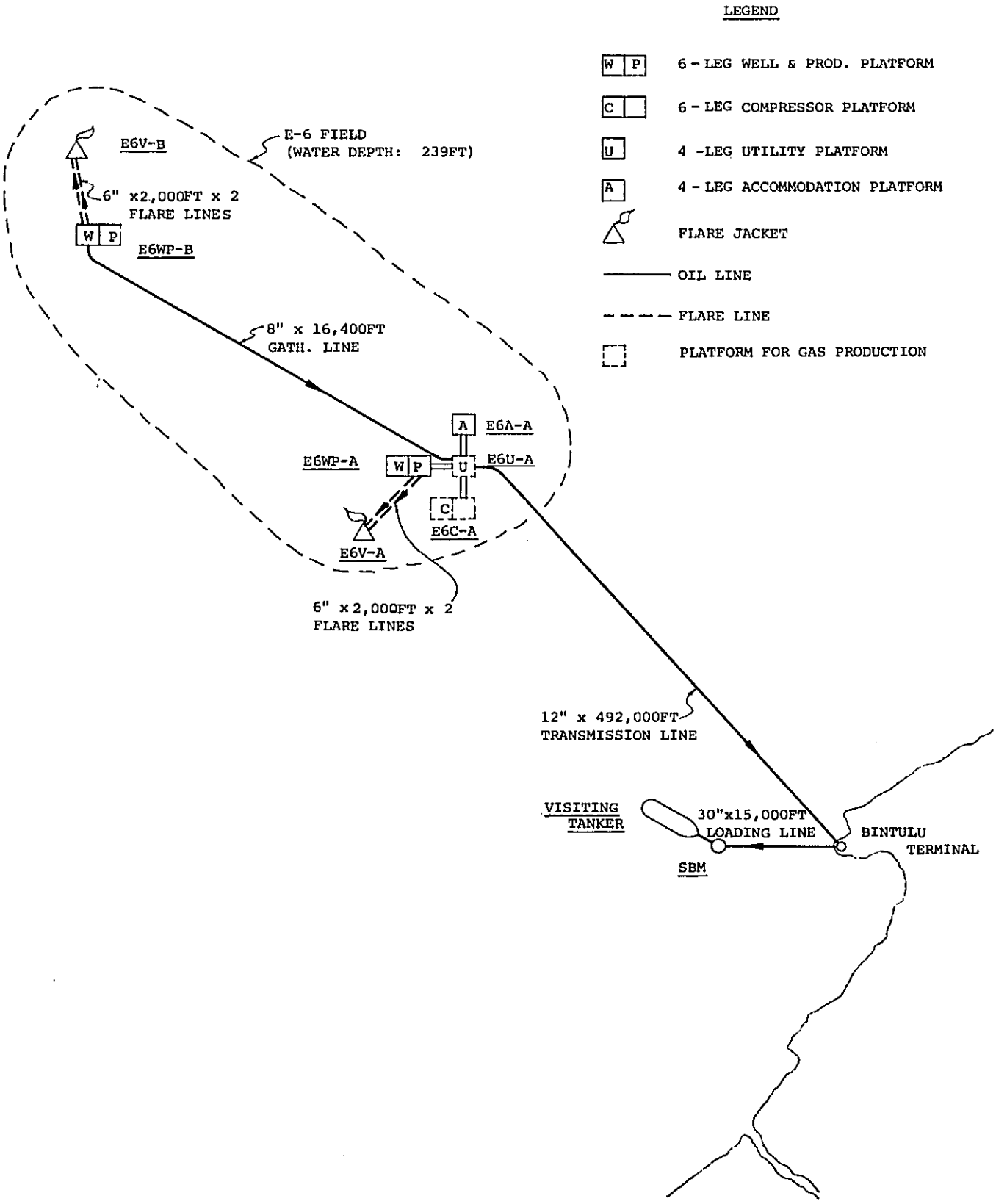


FIG. 16-5-6 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR WEST TEMANA AND E-6 OIL FIELDS - CASE II B

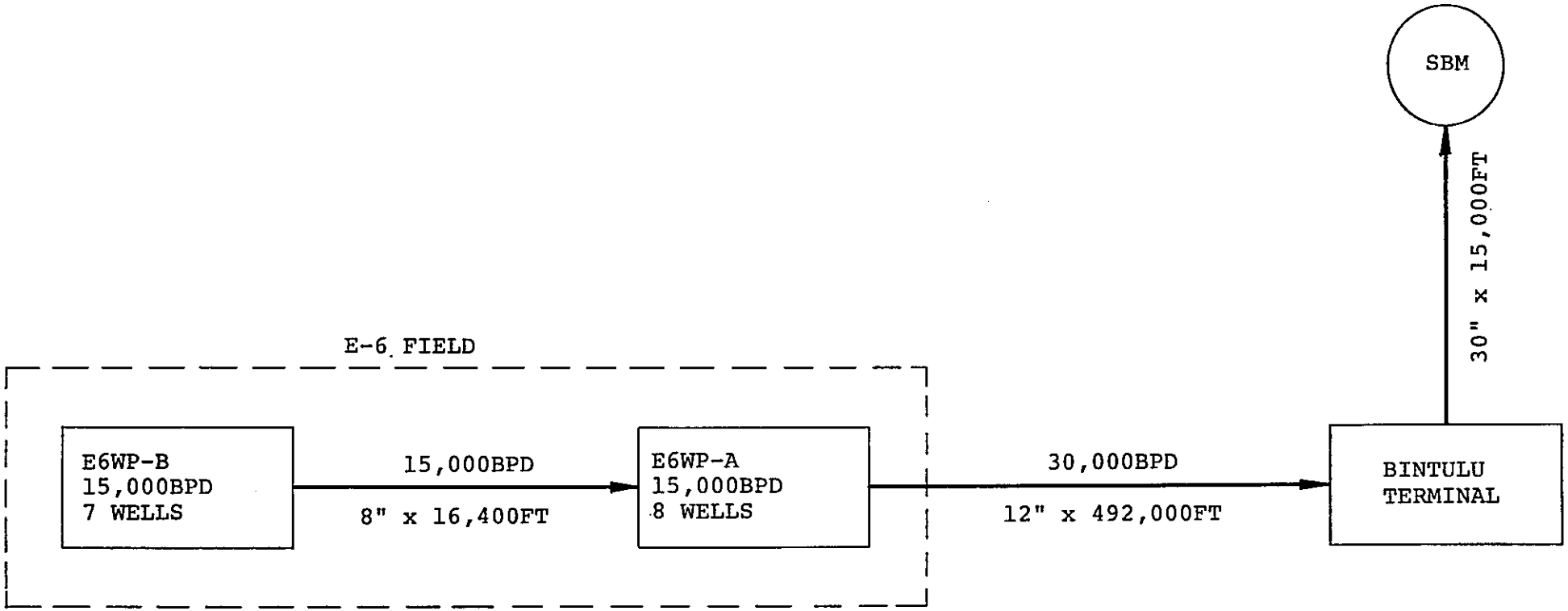


Fig. 16-6-1 (Vol. IV)

PROJECT SCHEDULE

WEST TEMANA AND E-6 OIL FIELDS CASE II B

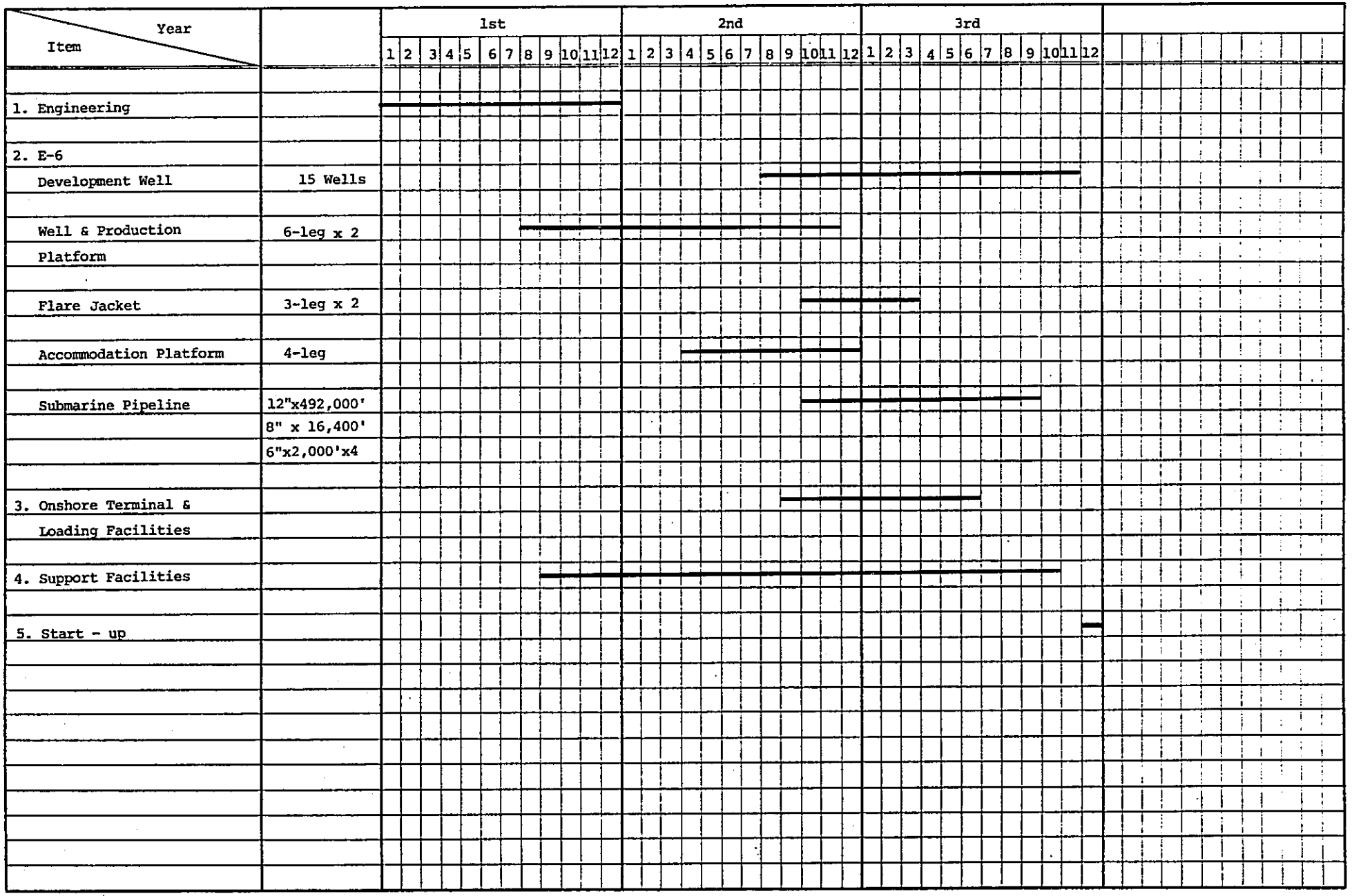


FIG. 17-5-1 (VOL. IV)

FACILITIES ARRANGEMENT

FOR CENTRAL LUCONIA GAS FIELDS- CASE I A

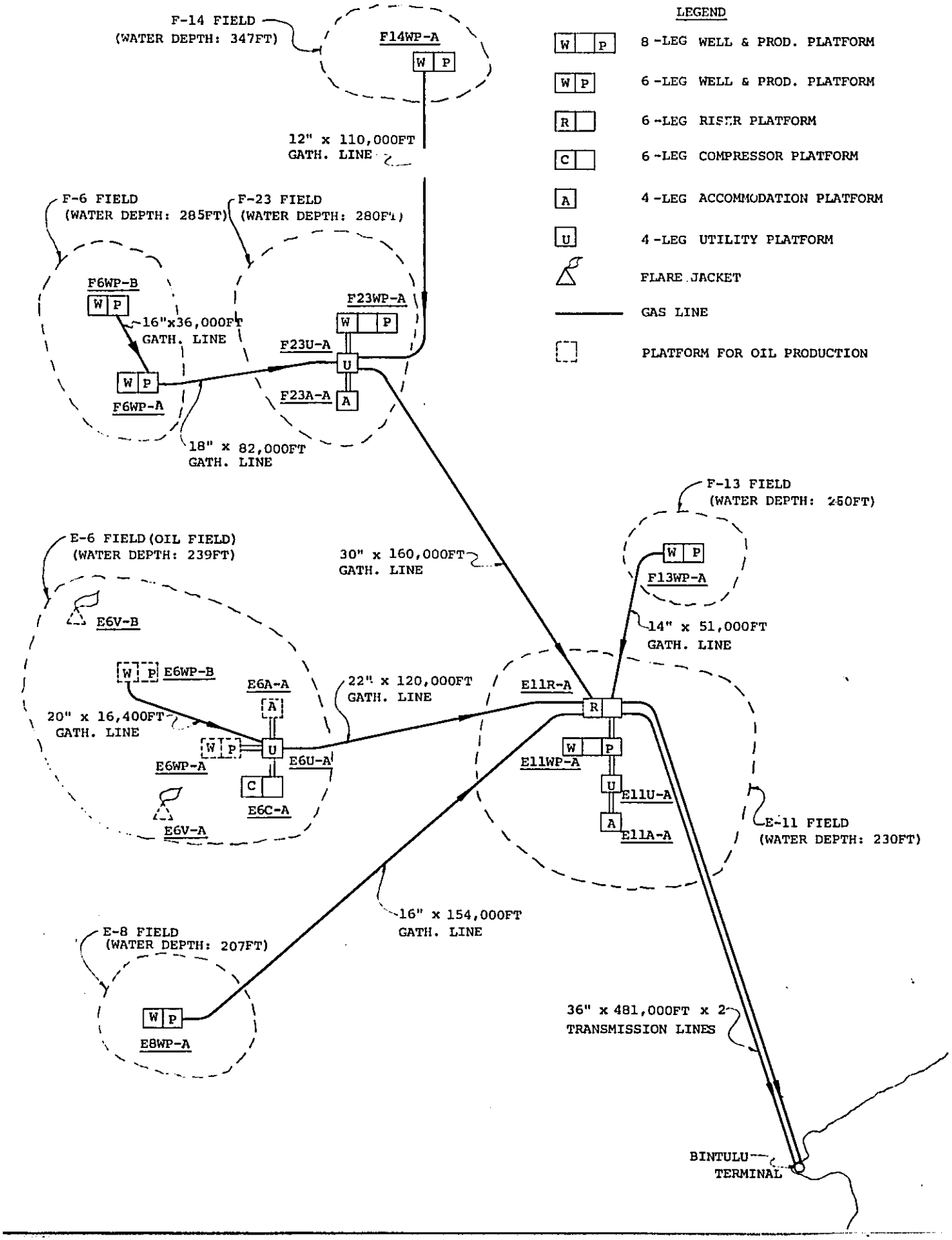


FIG. 17-5-2 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR CENTRAL LUCONIA GAS FIELDS- CASE I A

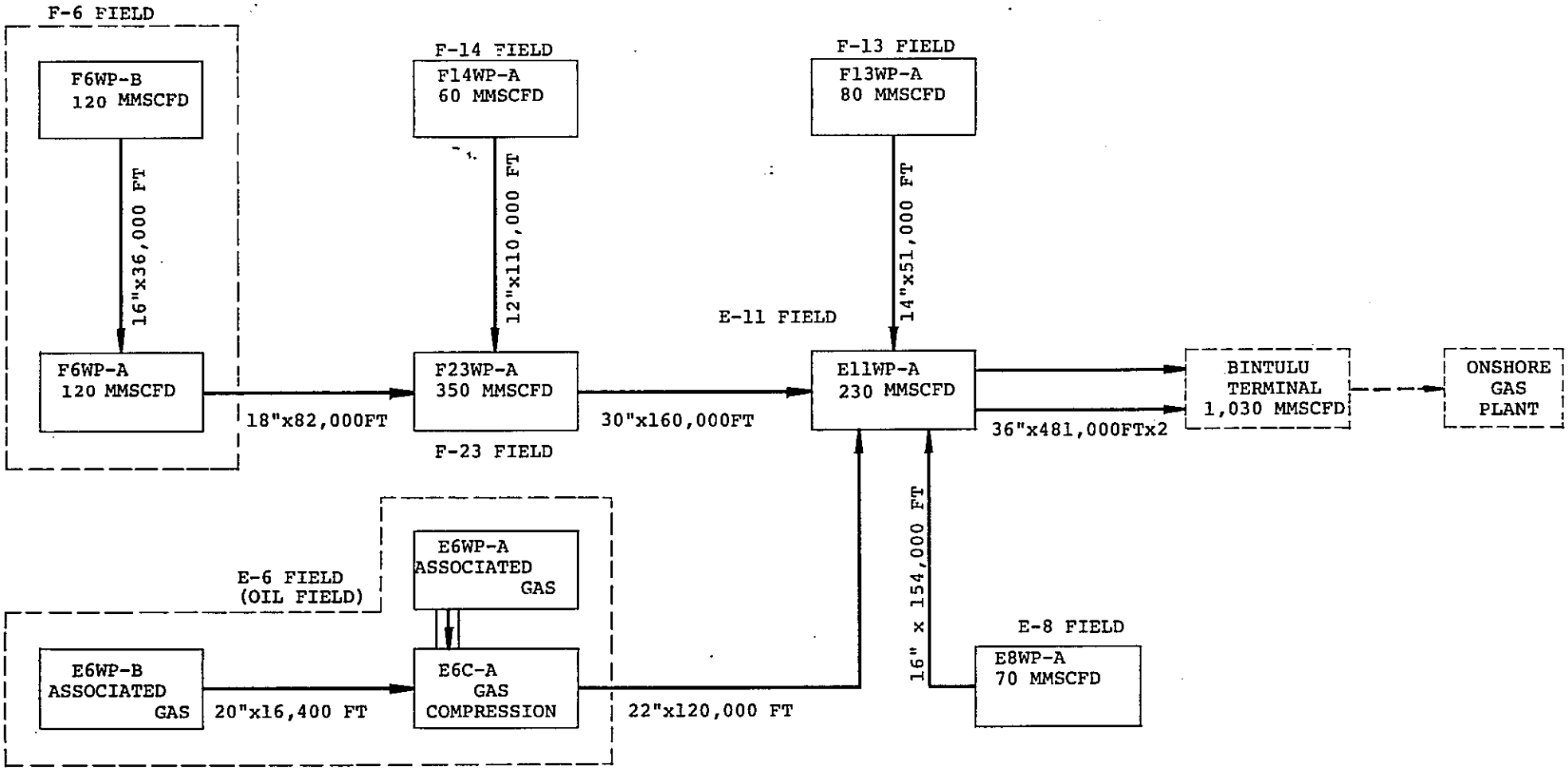


FIG. 17-5-3 (VOL. IV)

FACILITIES ARRANGEMENT

FOR CENTRAL LUCONIA GAS FIELDS- CASE IB

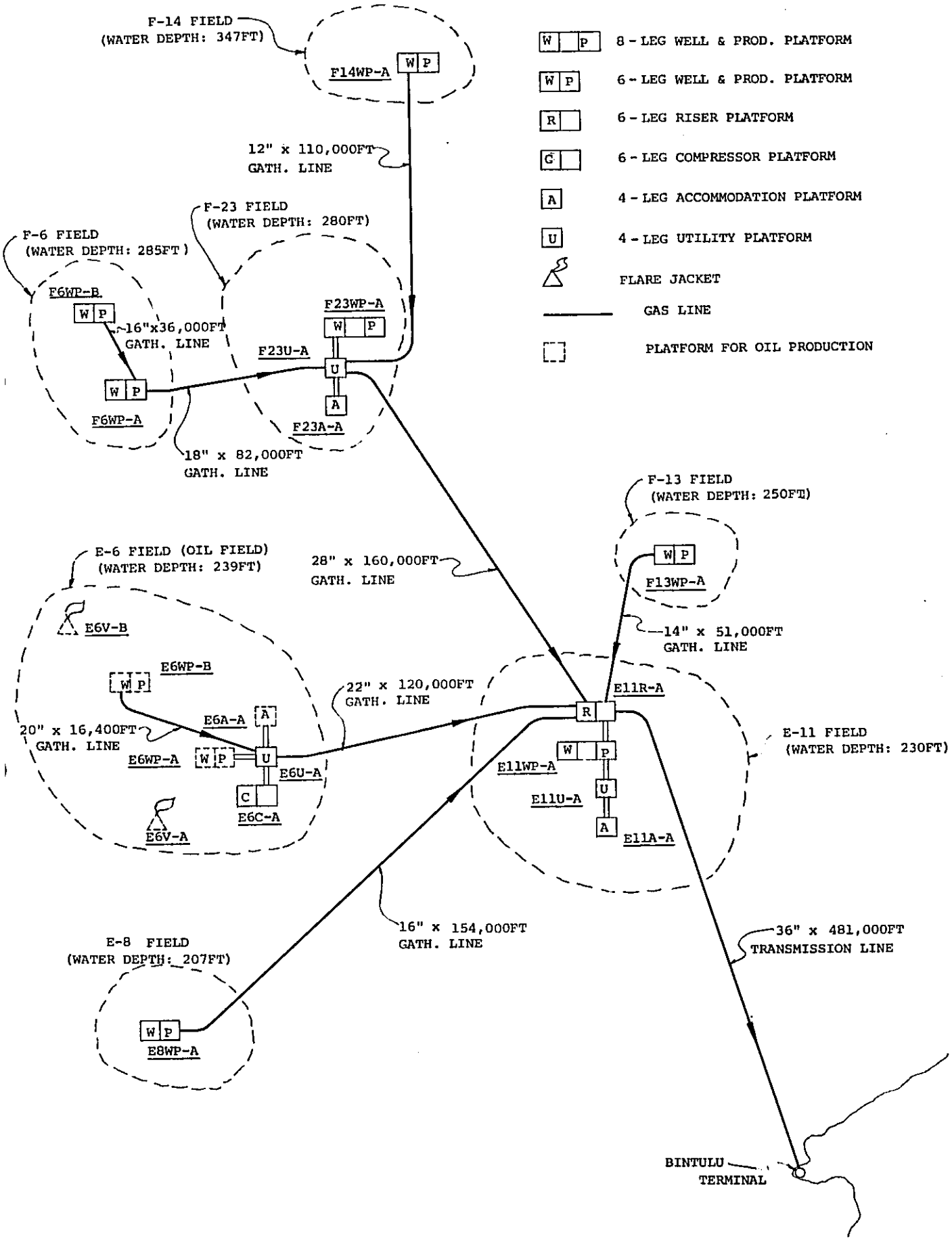
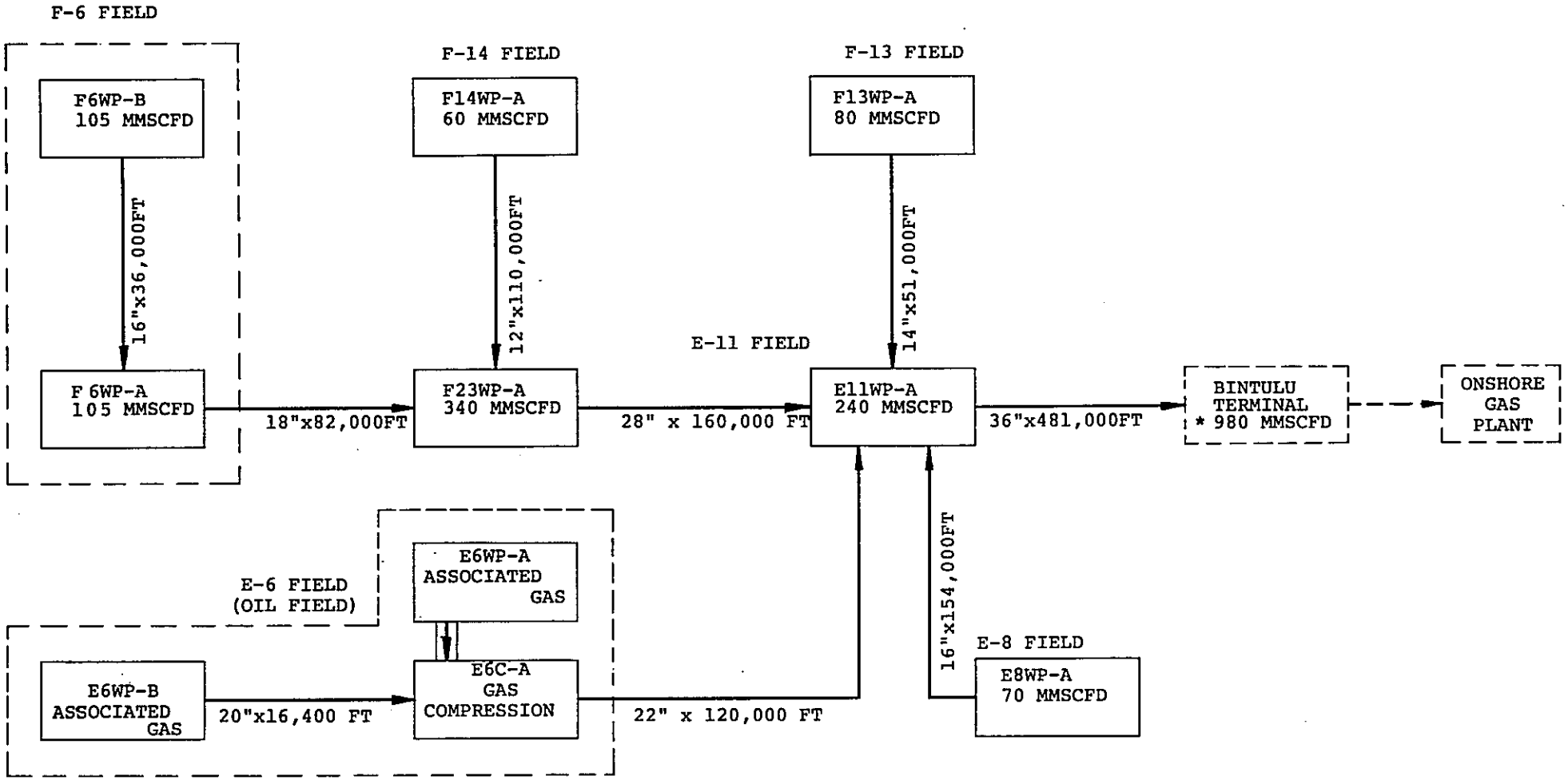


FIG. 17-5-4 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR CENTRAL LUCONIA GAS FIELDS- CASE IB



* Note: Total deliverability (1,000 MMSCFD) consists of net deliverability (980 MMSCFD) and fuel consumption (20 MMSCFD).

FIG. 17-5-5 (VOL. IV)

FACILITIES ARRANGEMENT

FOR CENTRAL LUCONIA GAS FIELDS- CASE IC

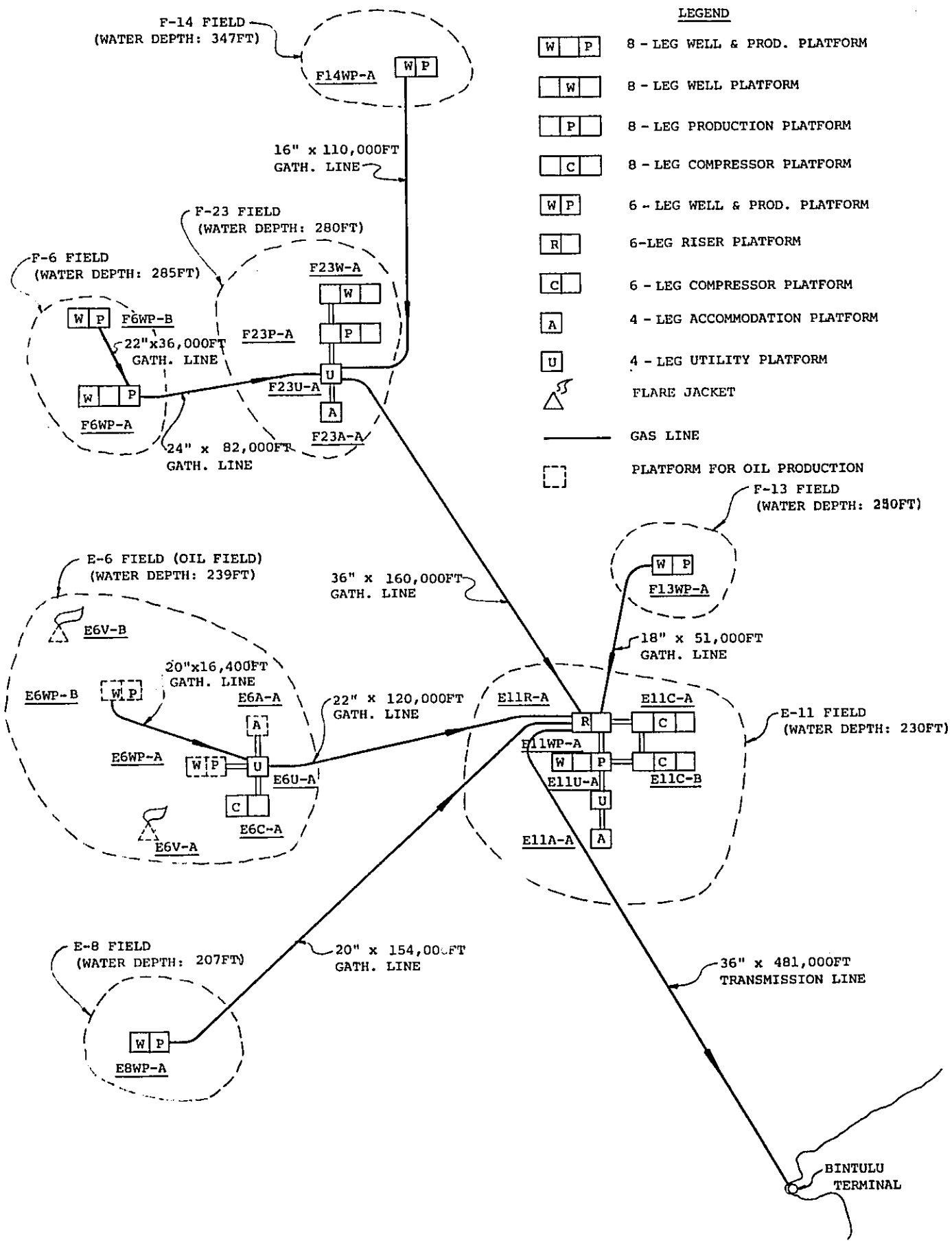
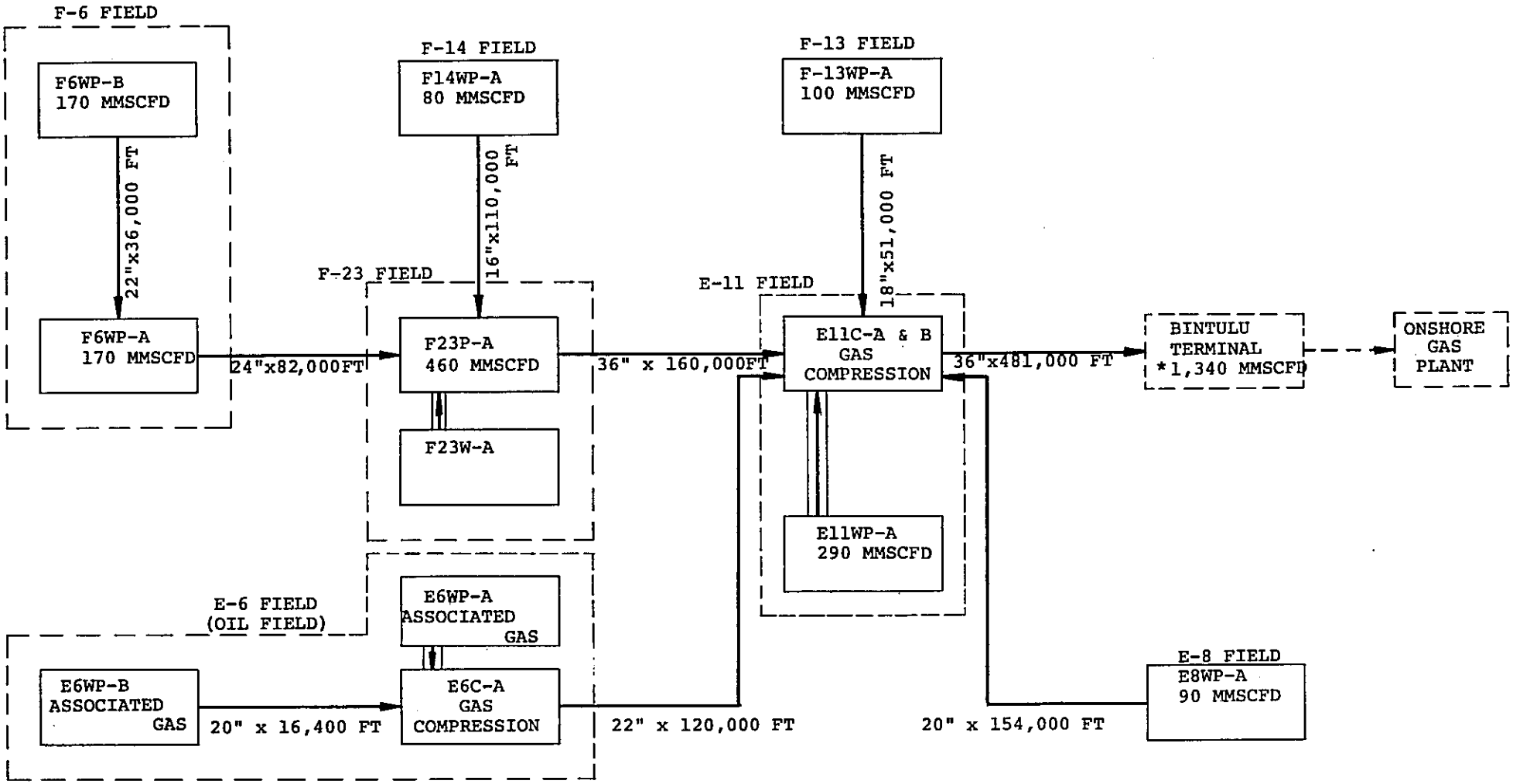


FIG. 17-5-6 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR CENTRAL LUCONIA GAS FIELDS- CASE IC



*Note: Total deliverability (1,360 MMSCFD) consists of net deliverability (1,340 MMSCFD) and fuel consumption (20 MMSCFD)

FIG. 17-5-7 (VOL. IV)

FACILITIES ARRANGEMENT FOR CENTRAL LUCONIA GAS FIELDS- CASE II

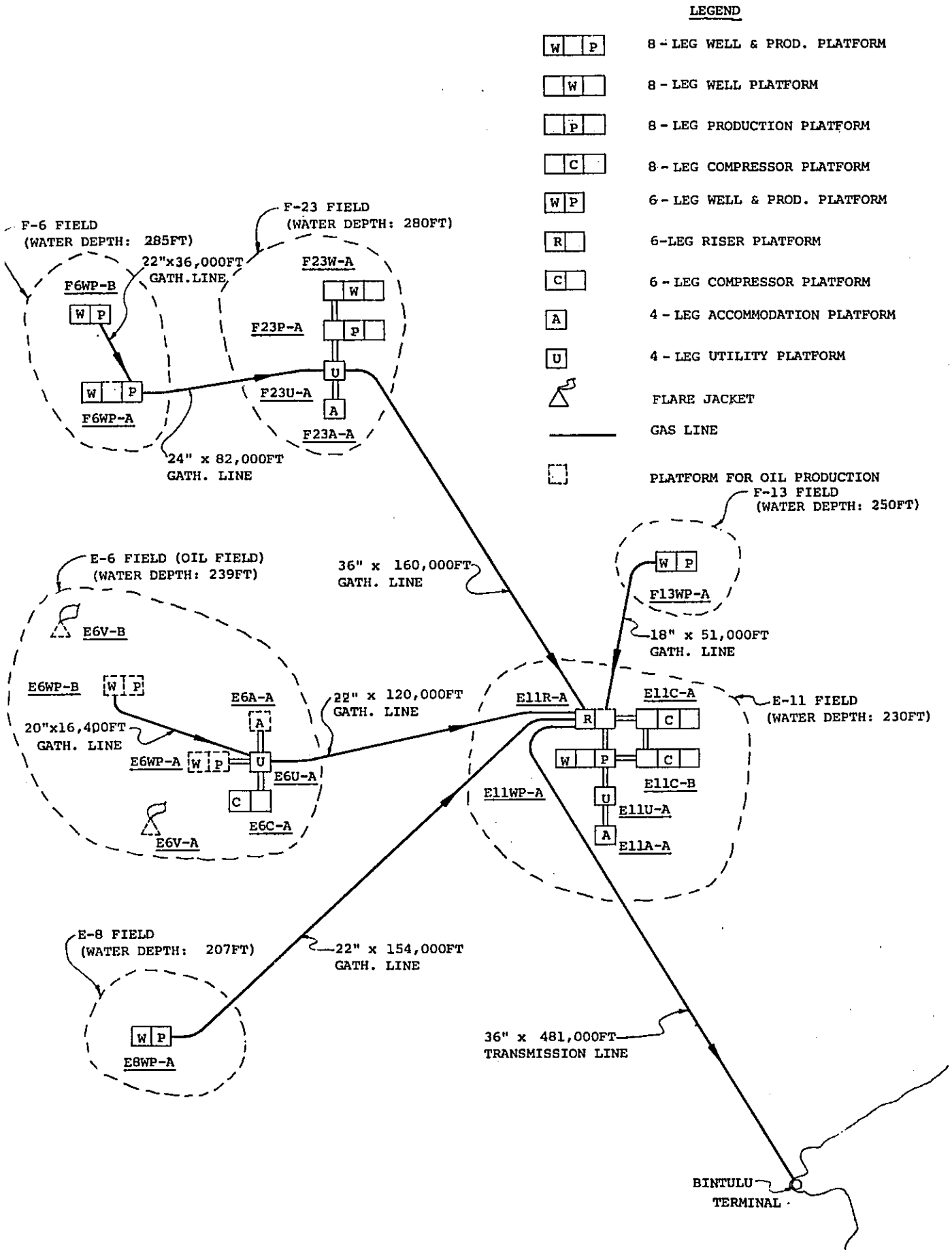
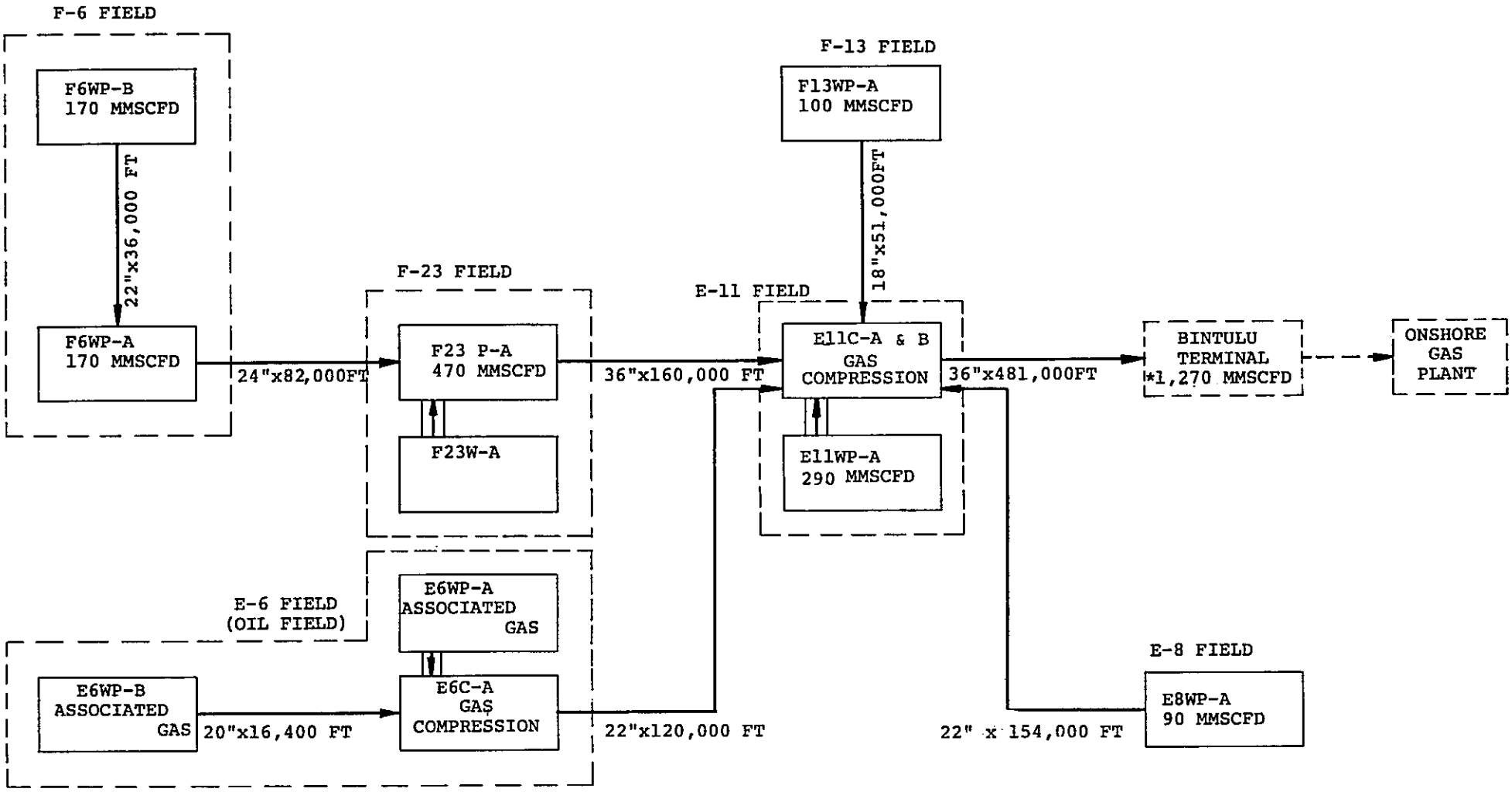


FIG. 17-5-8 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR CENTRAL LUCONIA GAS FIELDS- CASE II



* Note: Total deliverability (1,290 MMSCFD) consists of net deliverability and fuel consumption (20 MMSCFD).

FIG. 17-5-9 (VOL. IV)

FACILITIES ARRANGEMENT

FOR CENTRAL LUCONIA GAS FIELDS- CASE III

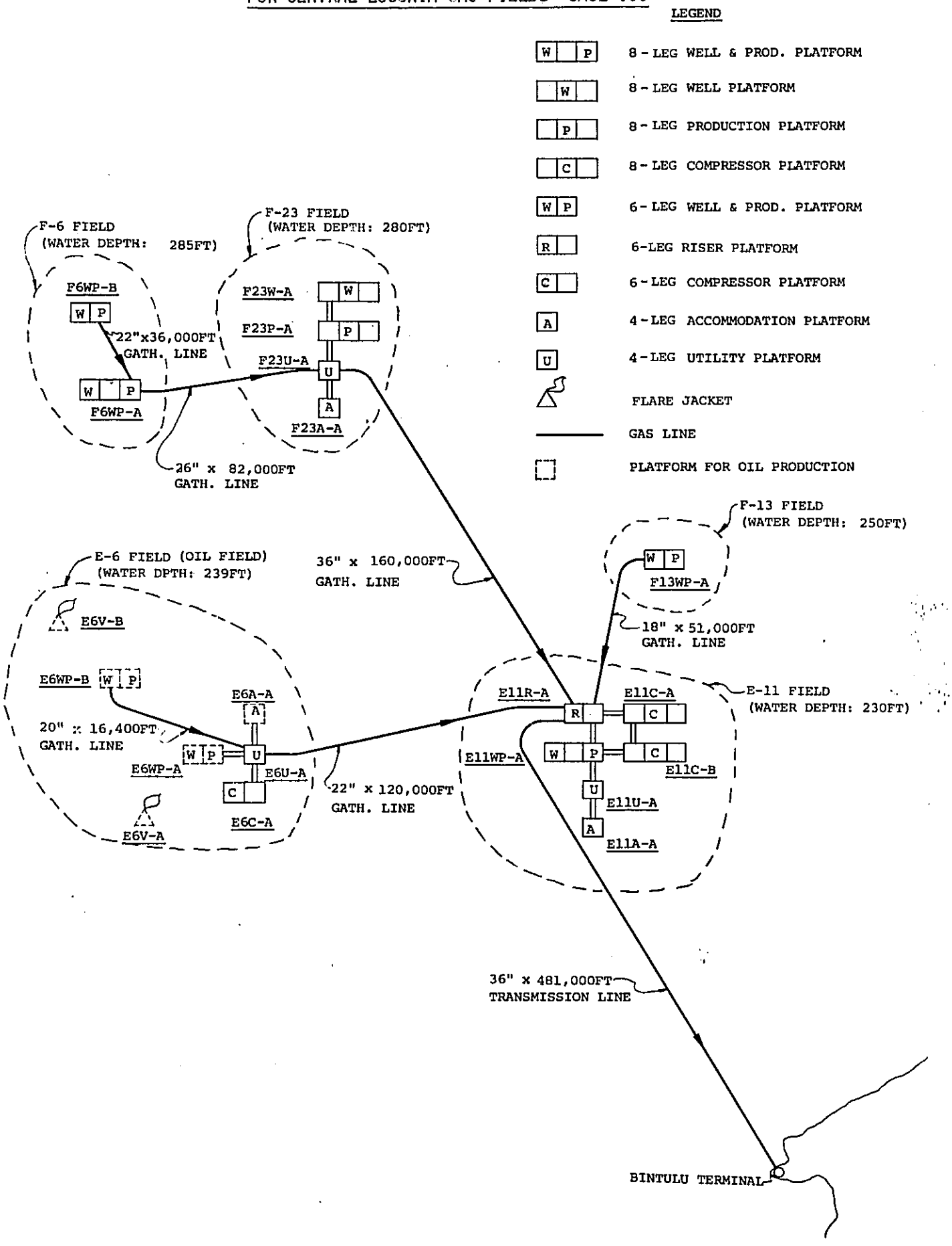
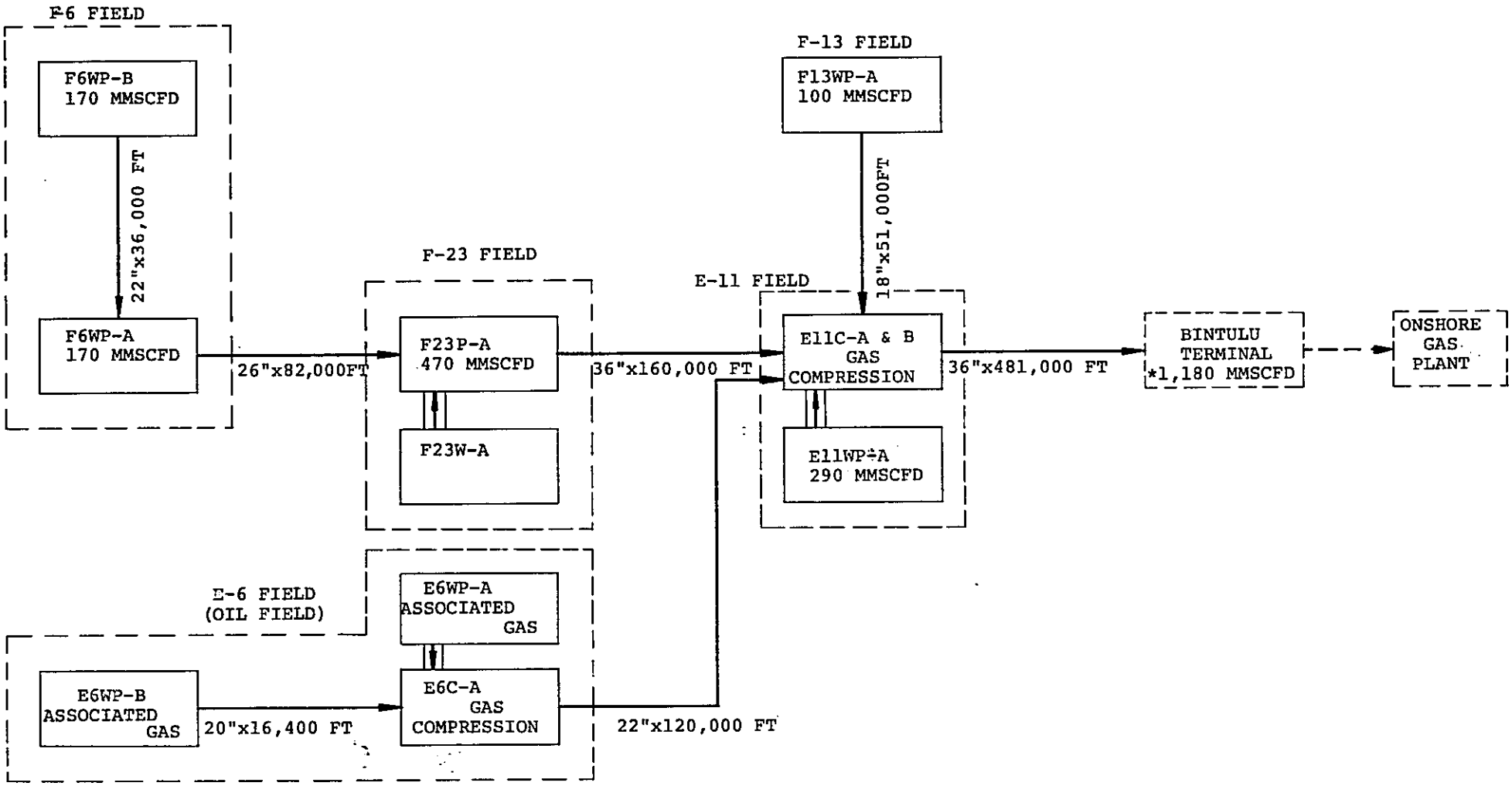


FIG. 17-5-10 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR CENTRAL LUCONIA GAS FIELDS- CASE III



* Note: Total deliverability (1,200 MMSCFD) consists of net deliverability (1,180 MMSCFD) and fuel consumption (20 MMSCFD).

FIG. 17-5-11 (VOL. IV)

FACILITIES ARRANGEMENT FOR CENTRAL LUCONIA GAS FIELDS- CASE IV

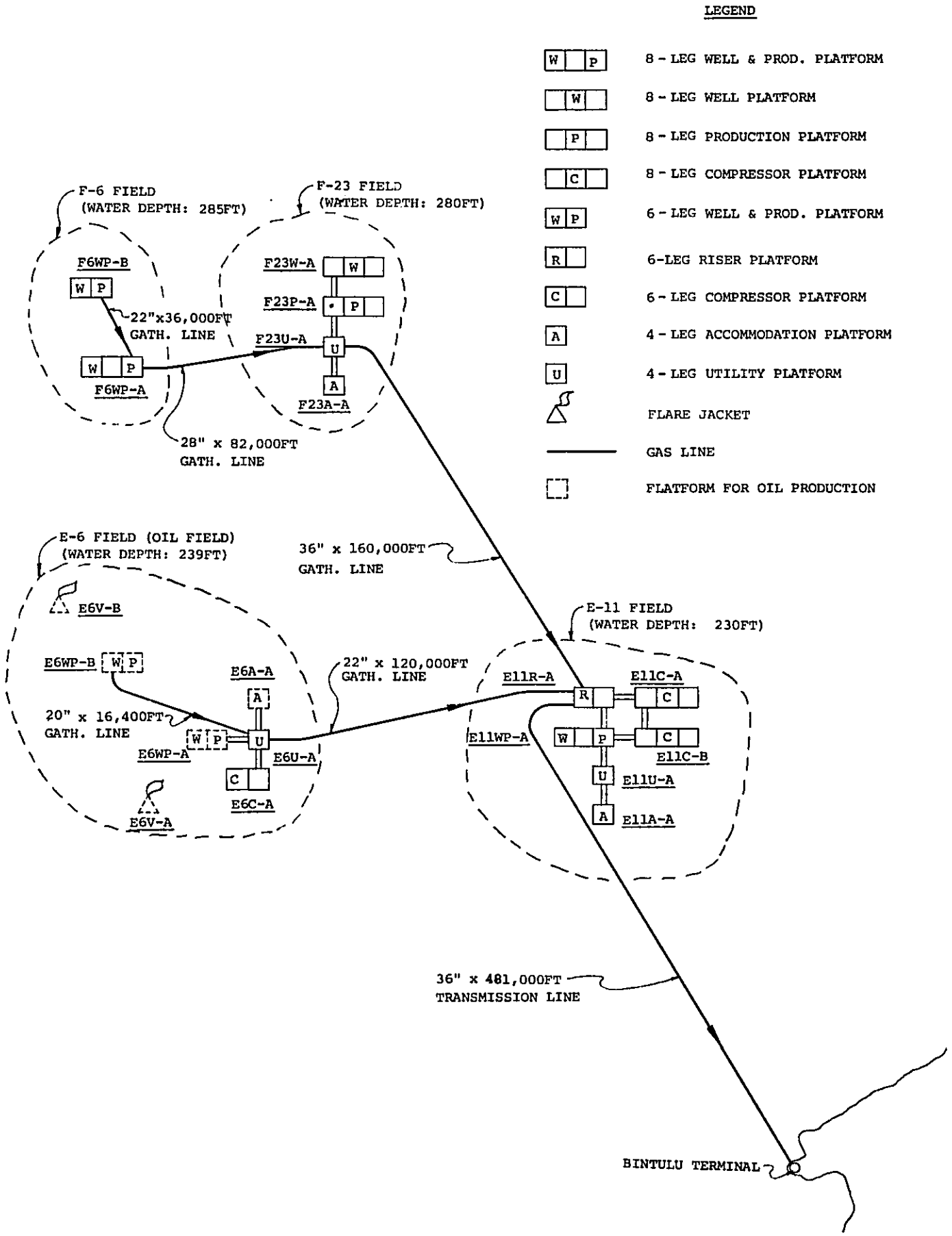
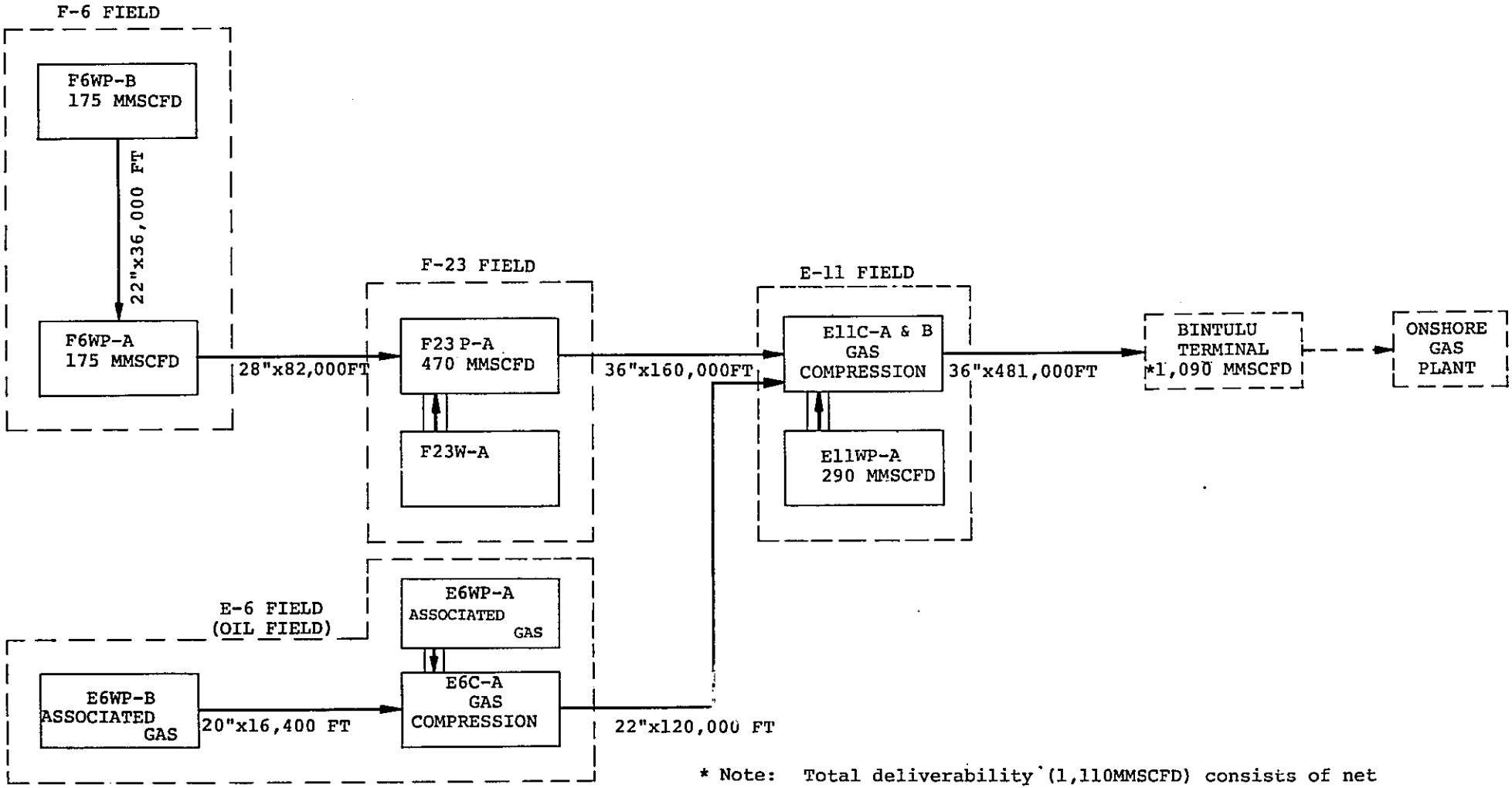


FIG. 17-5-12 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR CENTRAL LUCONIA GAS FIELDS- CASE IV



* Note: Total deliverability (1,110MMSCFD) consists of net deliverability (1,090MMSCFD) and fuel consumption (20MMSCFD).

Fig. 17-5-13 (Vol. IV) ESTIMATED PERFORMANCE FOR CENTRAL LUCONIA GAS FIELDS

WELL HEAD PRESSURE VS CUMULATIVE PRODUCTION

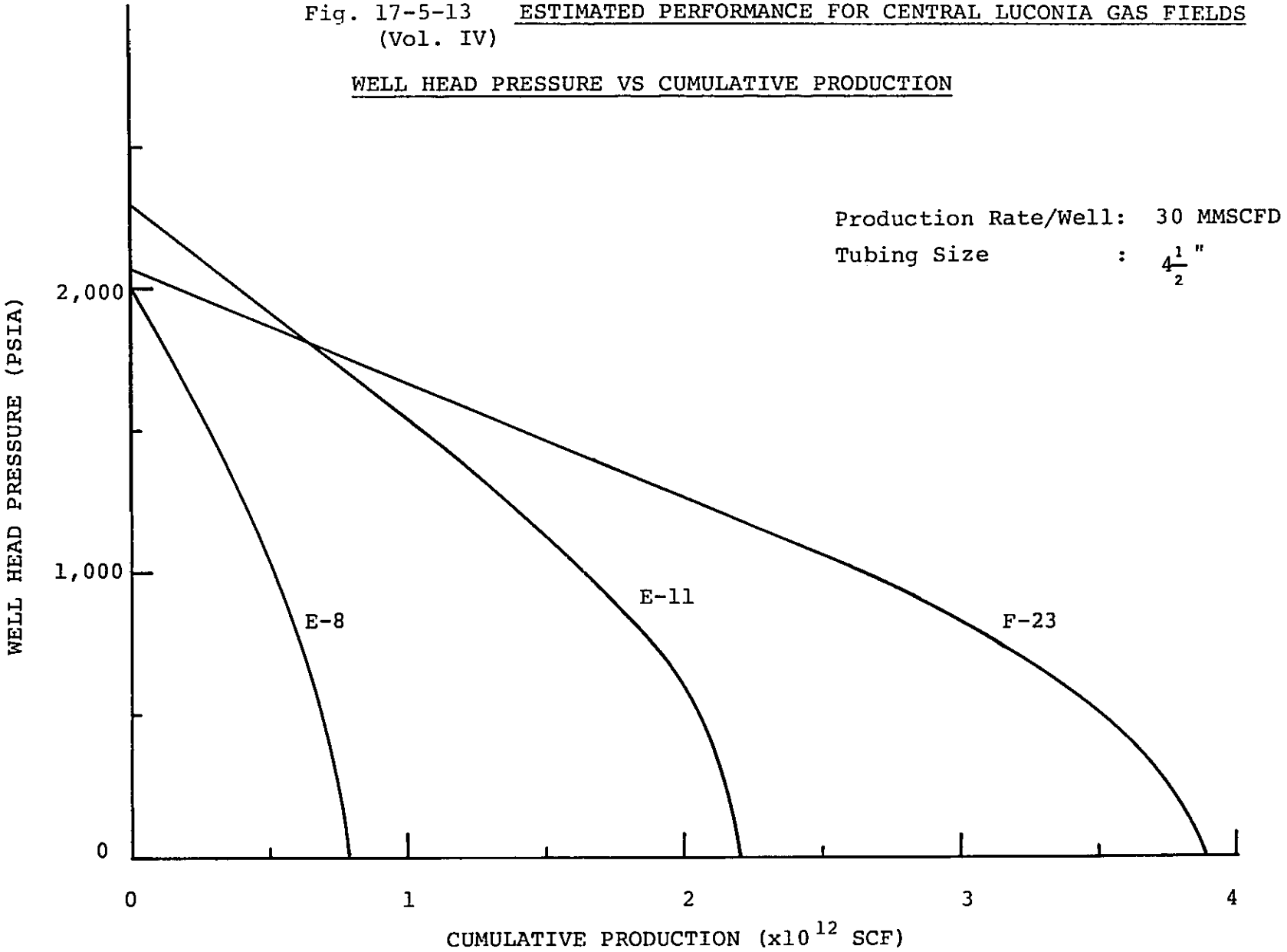


Fig. 17-5-14 (Vol. IV) ESTIMATED PERFORMANCE FOR CENTRAL LUCONIA GAS FIELDS

WELL HEAD PRESSURE VS CUMULATIVE PRODUCTION

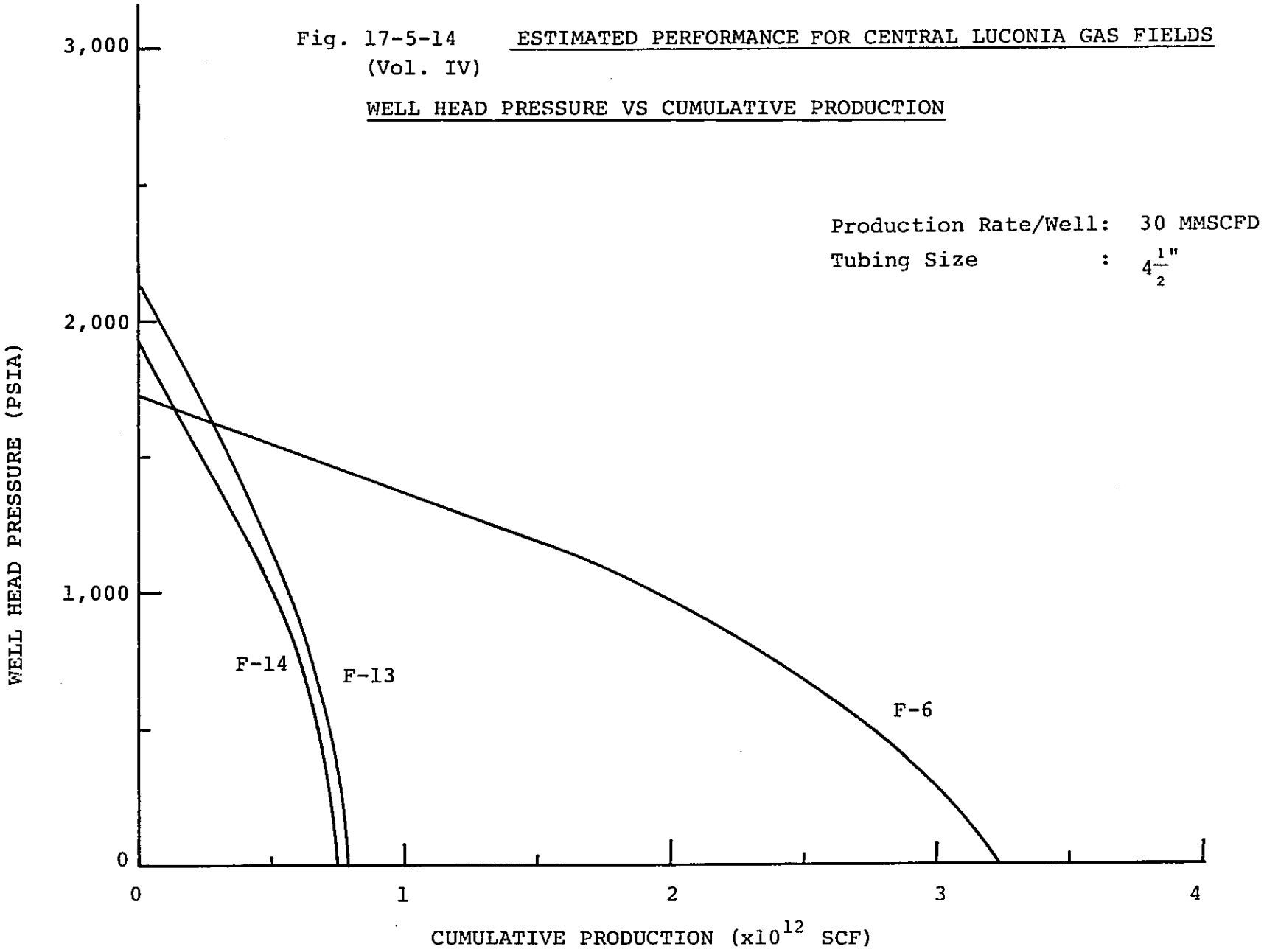


Fig. 17-6-1 (Vol. IV)

PROJECT SCHEDULE

CENTRAL LUCONIA GAS FIELDS CASE I C

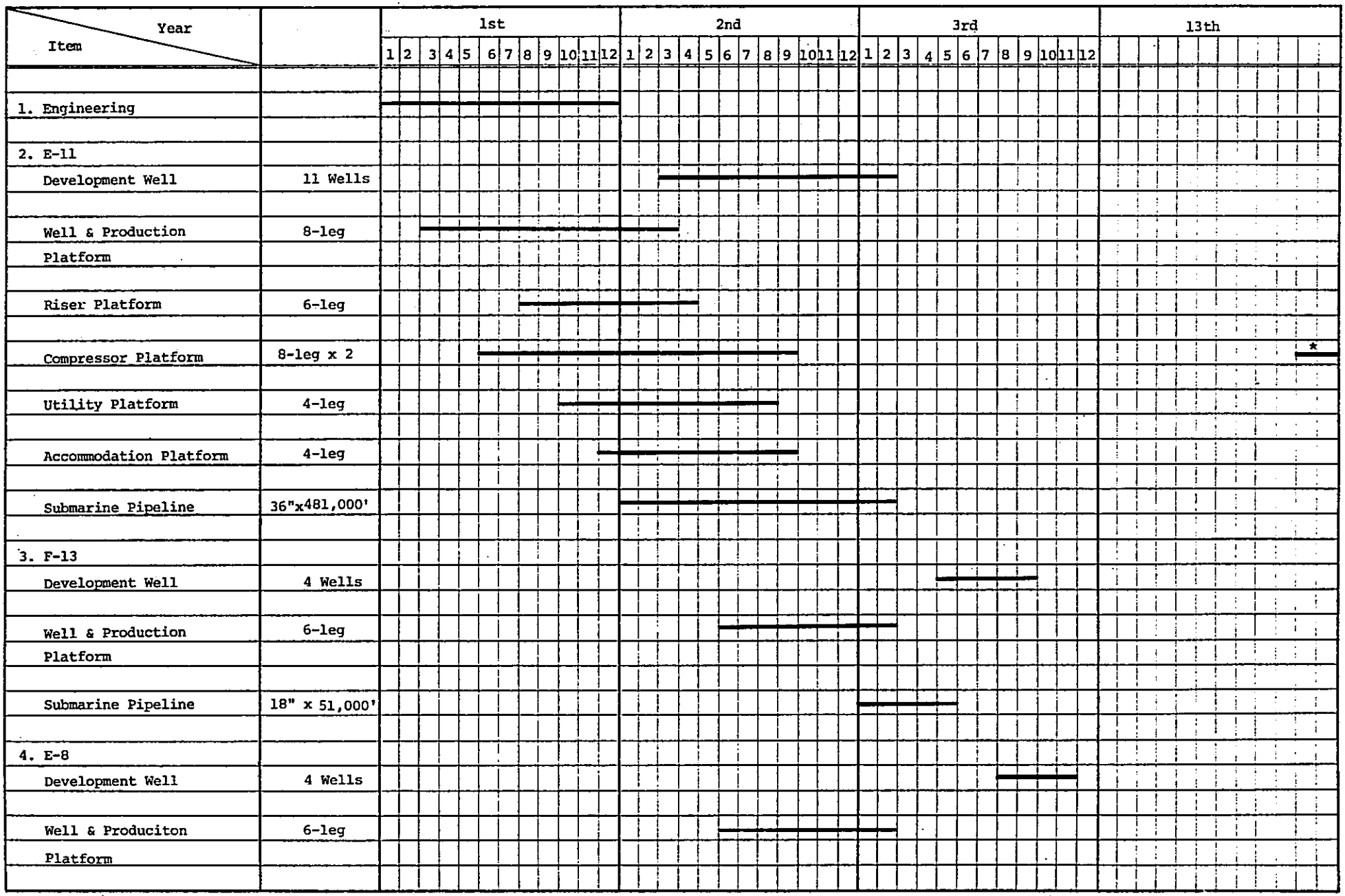


Fig. 17-6-1 (Vol. IV)

PROJECT SCHEDULE (Cont'd)

CENTRAL LUCONIA GAS FIELDS CASE I C

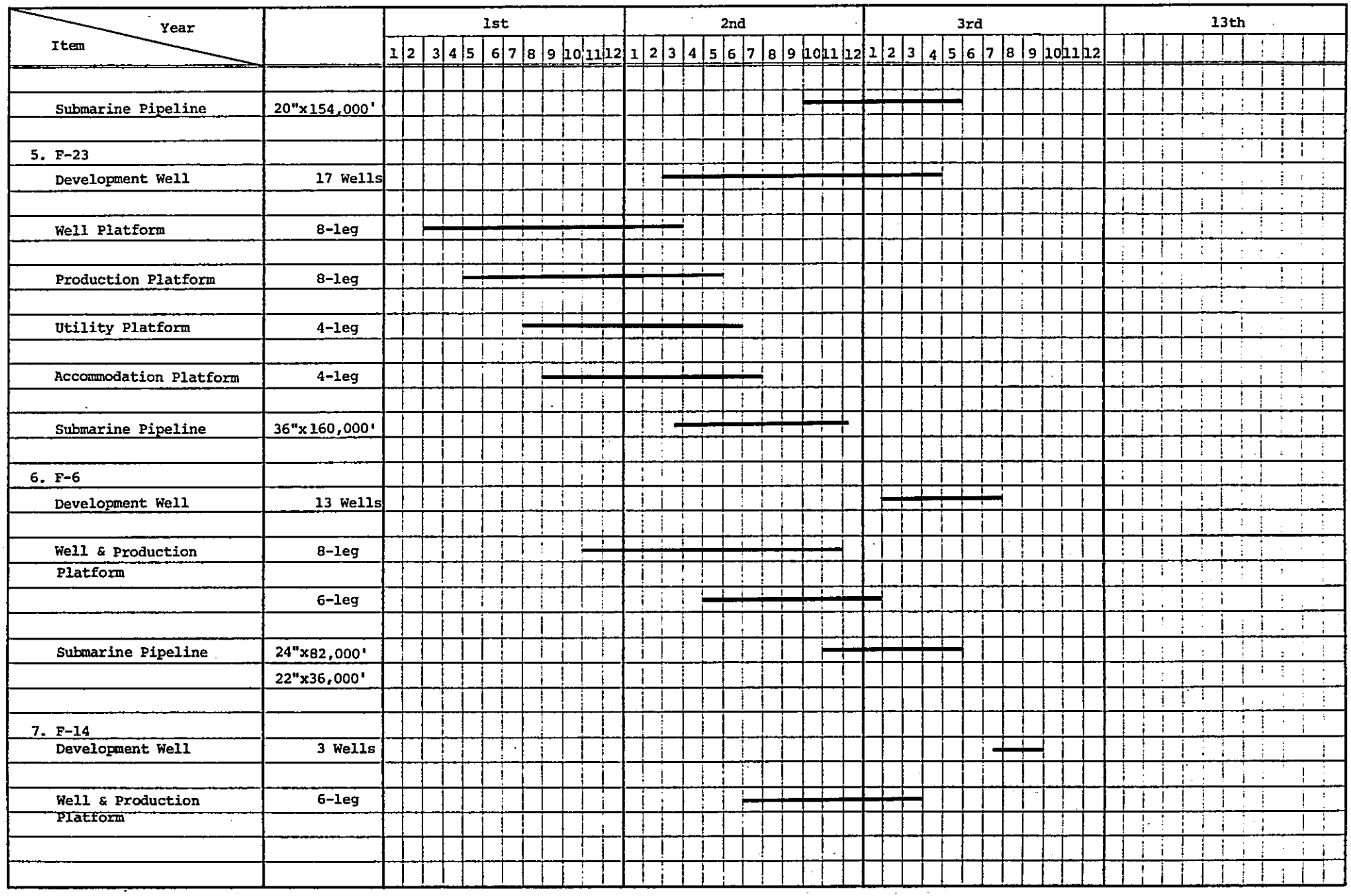


Fig. 17-6-1 (Vol. IV)

PROJECT SCHEDULE (Cont'd)

CENTRAL LUCONIA GAS FIELDS CASE I C

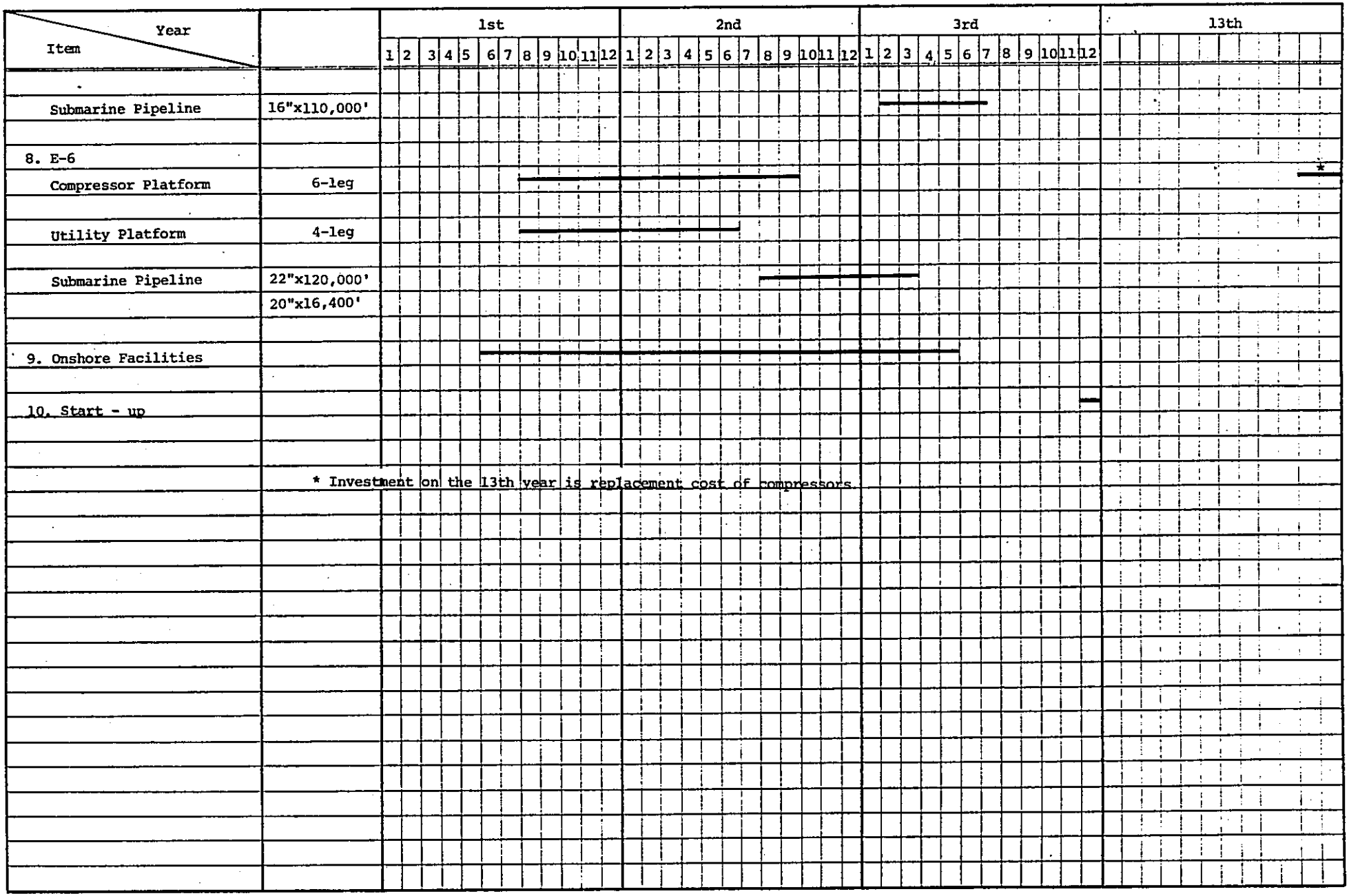


FIG. 18-5-1 (VOL. IV)

FACILITIES ARRANGEMENT

FOR EAST TEMANA OIL FIELD

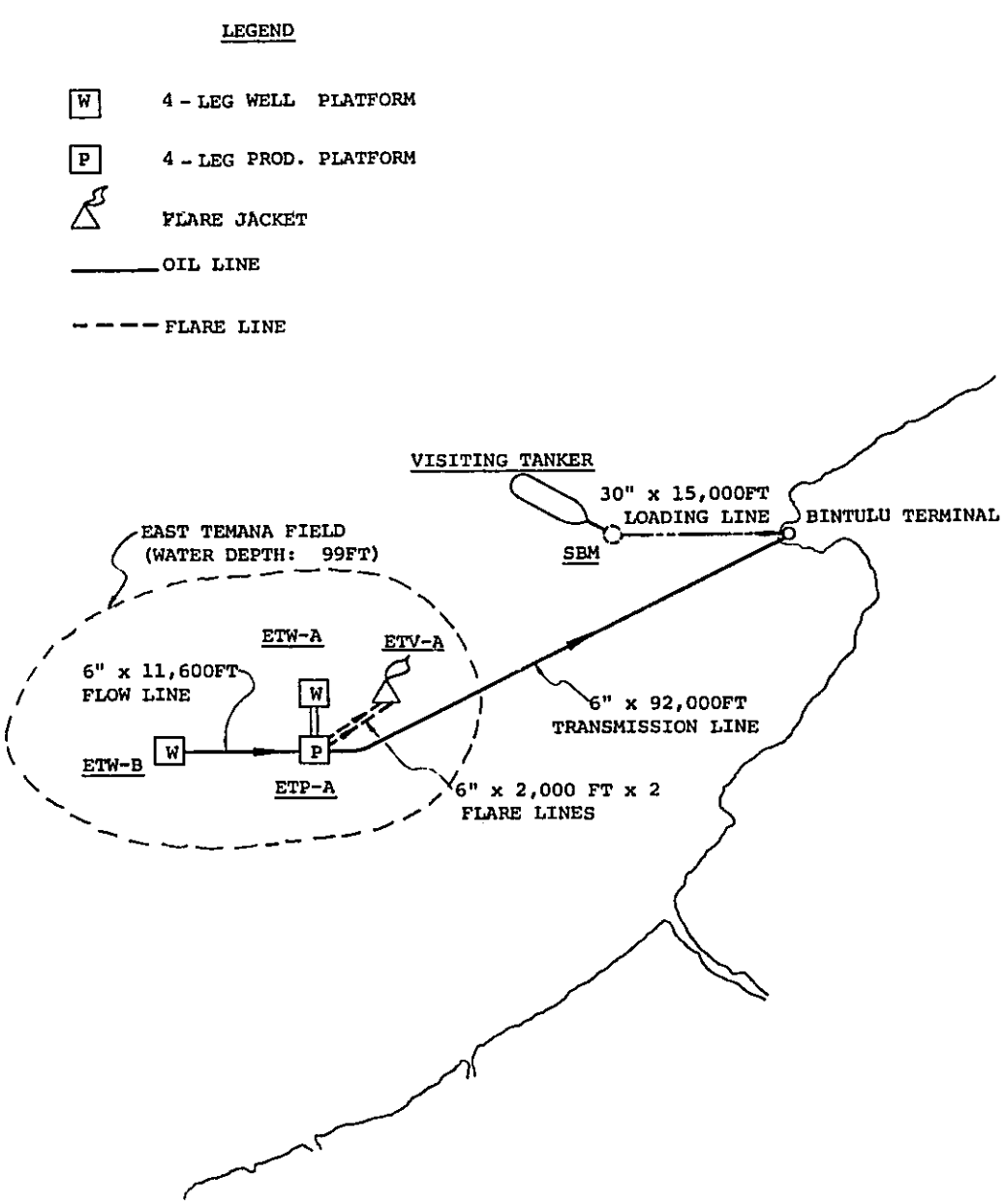
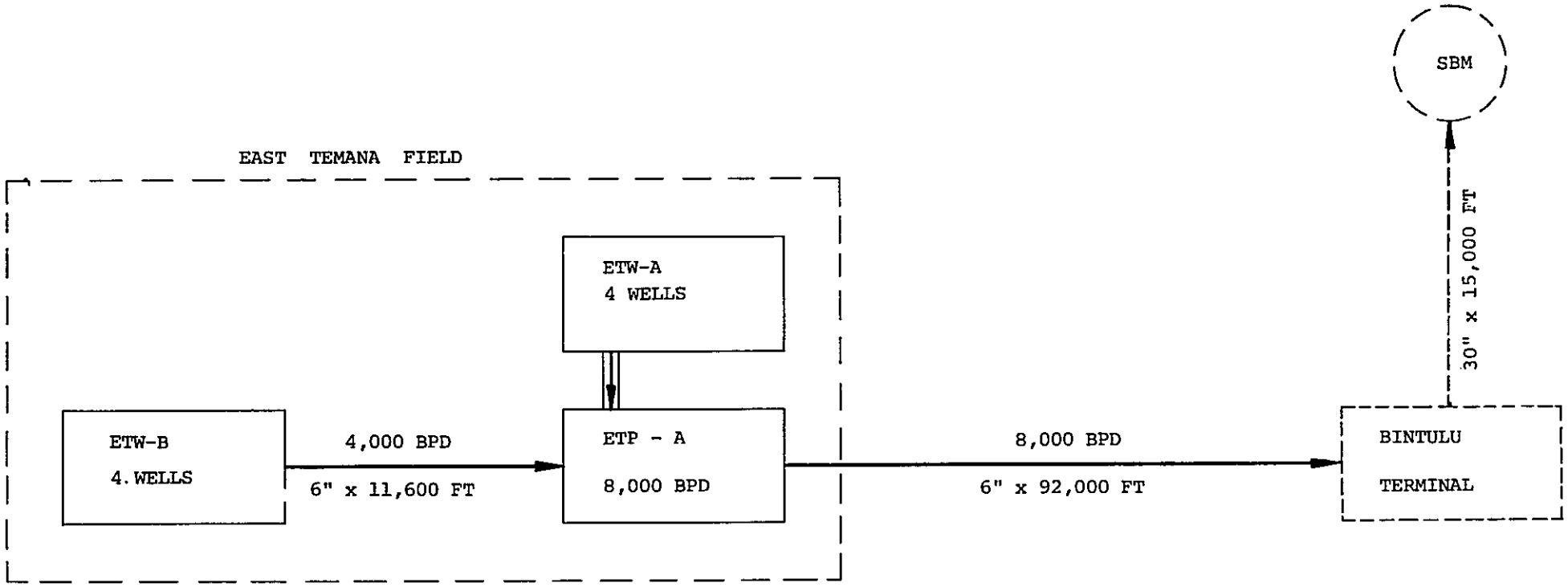
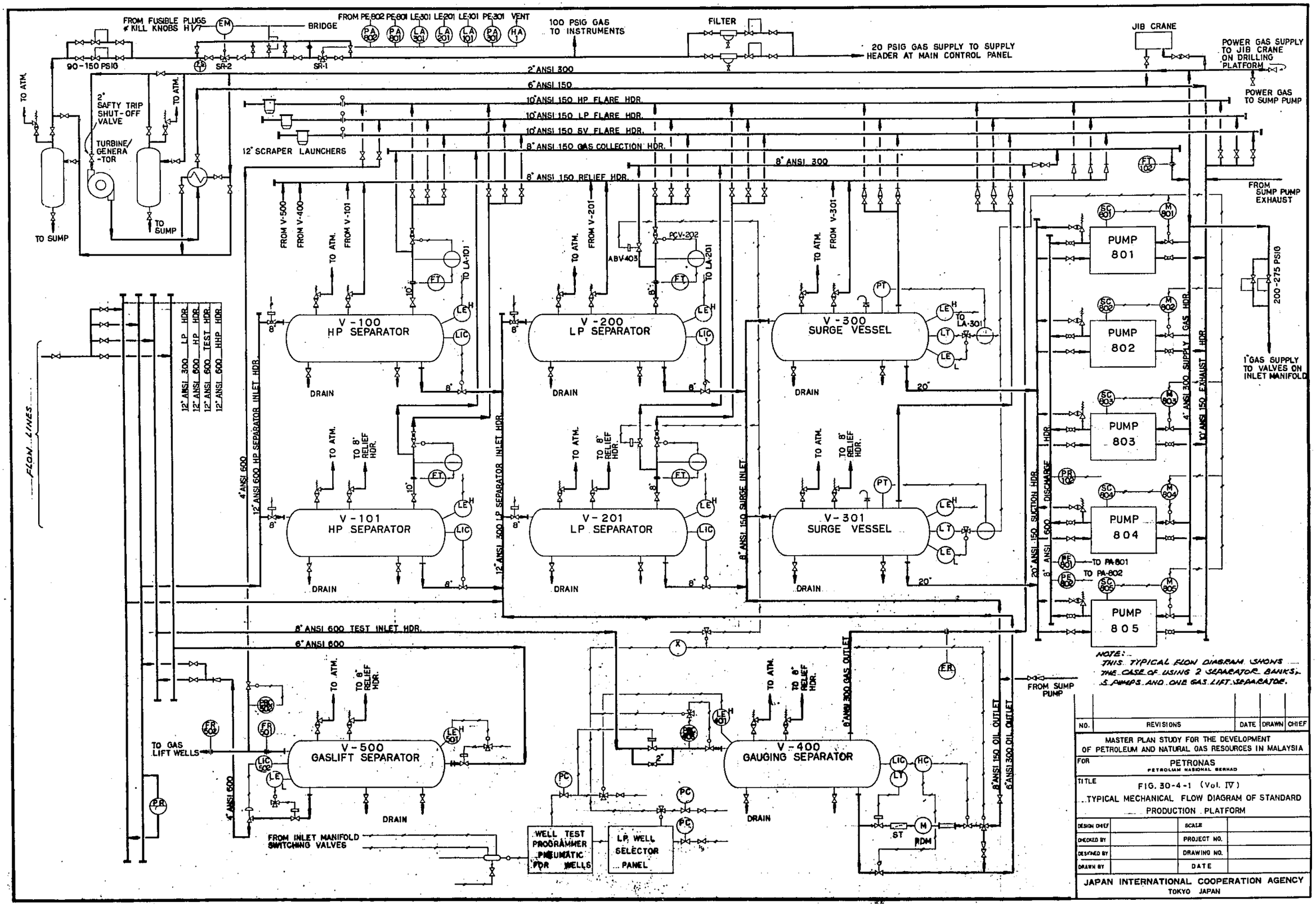


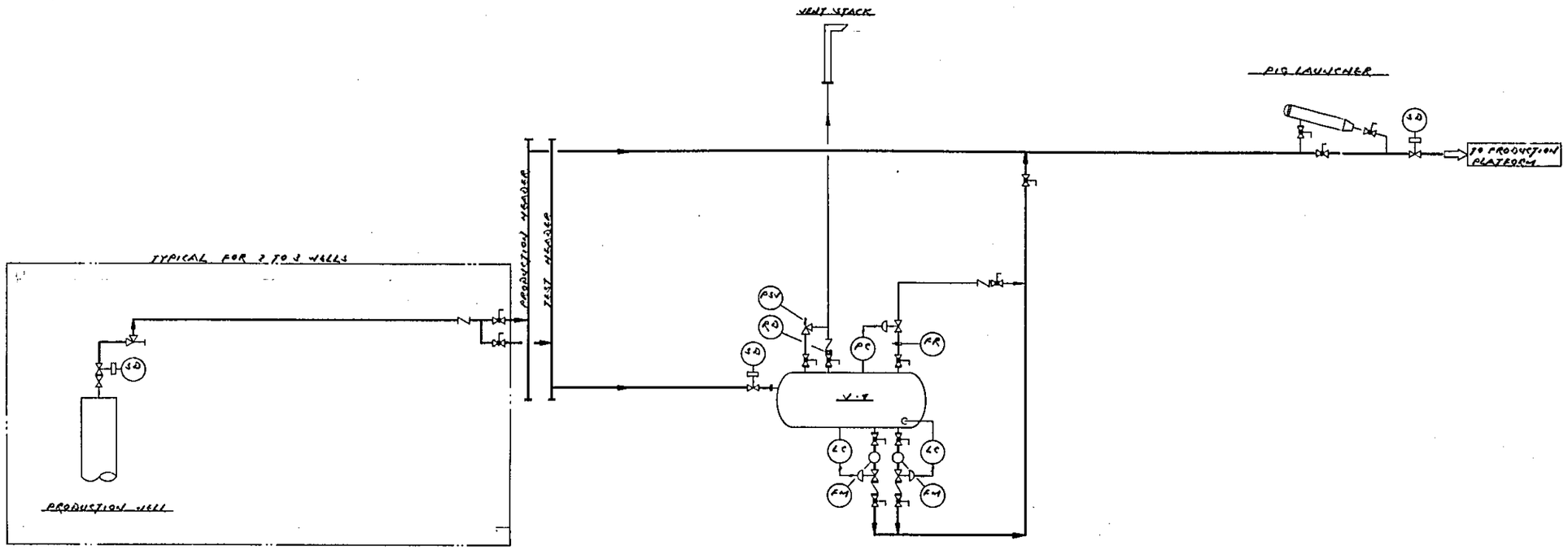
FIG. 18-5-2 (VOL. IV)

BLOCK FLOW DIAGRAM

FOR EAST TEMANA OIL FIELD




FROM FUSIBLE PLUGS & KILL KNOBS HV
EM
BRIDGE
FROM PE-802 PE-801 LE-301 LE-201 LE-101 PE-301 VENT
PA 802
PA 801
LA 301
LA 201
LA 101
PA 301
HA
100 PSIG GAS TO INSTRUMENTS
FILTER
20 PSIG GAS SUPPLY TO SUPPLY HEADER AT MAIN CONTROL PANEL
JIB CRANE
POWER GAS SUPPLY TO JIB CRANE ON DRILLING PLATFORM
POWER GAS TO SUMP PUMP
90-150 PSIG
SR-2
SR-1
2" ANSI 300
6" ANSI 150
10" ANSI 150 HP FLARE HDR.
10" ANSI 150 LP FLARE HDR.
10" ANSI 150 SV FLARE HDR.
8" ANSI 150 GAS COLLECTION HDR.
8" ANSI 300
8" ANSI 150 RELIEF HDR.
12" SCRAPER LAUNCHERS
2" SAFTY TRIP SHUT-OFF VALVE
TURBINE/ GENERA -TOR
TO ATM.
TO SUMP
FT 102
FROM SUMP PUMP EXHAUST
FROM V-500
FROM V-400
FROM V-101
FROM V-201
FROM V-301
PCV-202
ABV-403
TO LA-101
TO LA-201
TO LA-301
V-100 HP SEPARATOR
V-200 LP SEPARATOR
V-300 SURGE VESSEL
V-101 HP SEPARATOR
V-201 LP SEPARATOR
V-301 SURGE VESSEL
V-500 GASLIFT SEPARATOR
V-400 GAUGING SEPARATOR
DRAIN
TO 8" RELIEF HDR.
PUMP 801
PUMP 802
PUMP 803
PUMP 804
PUMP 805
200-275 PSIG
1" GAS SUPPLY TO VALVES ON INLET MANIFOLD
TO PA-801
TO PA-802
4" ANSI 300 SUPPLY GAS HDR.
4" ANSI 150 EXHAUST HDR.
10" ANSI 150 SUCTION HDR.
8" ANSI 600 DISCHARGE HDR.
20" ANSI 150 SUCTION HDR.
8" ANSI 150 OIL OUTLET
6" ANSI 300 OIL OUTLET
8" ANSI 300 GAS OUTLET
8" ANSI 150 SURGE INLET
12" ANSI 300 LP SEPARATOR INLET HDR.
12" ANSI 600 HP SEPARATOR INLET HDR.
4" ANSI 600
8" ANSI 600 TEST INLET HDR.
6" ANSI 600
12" ANSI 300 LP HDR.
12" ANSI 600 HP HDR.
12" ANSI 600 TEST HDR.
12" ANSI 600 HHP HDR.
FLON LINES
TO GAS LIFT WELLS
FROM INLET MANIFOLD SWITCHING VALVES
WELL TEST PROGRAMMER PNEUMATIC FOR WELLS
LP WELL SELECTOR PANEL
FROM SUMP PUMP
NOTE:
THIS TYPICAL FLOW DIAGRAM SHOWS THE CASE OF USING 2 SEPARATOR BANKS, 5 PUMPS AND ONE GAS LIFT SEPARATOR.
NO. REVISIONS DATE DRAWN CHIEF
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA
FOR PETRONAS PETROLIUM NASIONAL BERHAD
TITLE FIG. 30-4-1 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM OF STANDARD PRODUCTION PLATFORM
DESIGN CHIEF
CHECKED BY
DESIGNED BY
DRAWN BY
SCALE
PROJECT NO.
DRAWING NO.
DATE
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



V-T
TEST SEPARATOR

NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR ASW-A, B & AND WJW-A.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-1 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM FOR WELL PLATFORM

DESIGN CHIEF		SCALE	
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DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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V-1 1ST STAGE PRODUCTION SEPARATOR

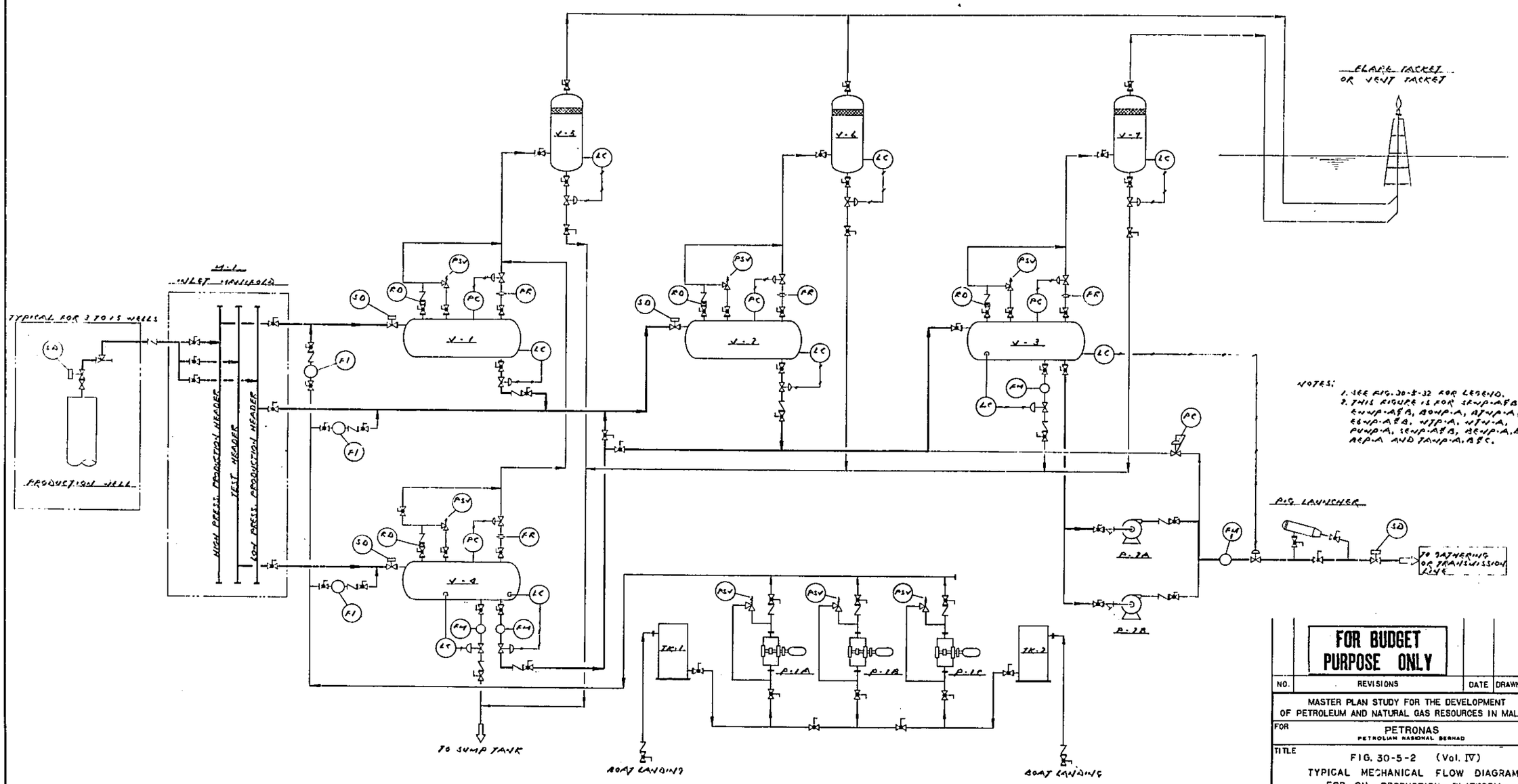
V-5 1ST STAGE FLARE SCRUBBER

V-2 2ND STAGE PRODUCTION SEPARATOR

V-6 2ND STAGE FLARE SCRUBBER

V-3 3RD STAGE PRODUCTION SEPARATOR

V-7 3RD STAGE FLARE SCRUBBER



NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR SEWP-A&B, ENWP-A&B, BOWP-A, ATWP-A, EEWP-A&B, WTP-A, WTW-A, PUMP-A, SEWP-A&B, BEWP-A, BEW-A, ACP-A AND TAWP-A, B&C.

V-8 TEST SEPARATOR

TK-1 DEHYDRATOR TANK

P-1A, B&C CHEMICAL INJECTION PUMPS

TK-2 DEGASSANT TANK

P-2A&B CRUDE TRANSFER PUMPS

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-2 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM FOR OIL PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
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E-101A~D HEAT EXCHANGERS | V-103A~D LIQUID KNOCK OUT DRUMS | V-101A,B,C PRODUCTION SEPARATORS | V-102 TEST SEPARATOR | V-104A,B,C GLYCOL CONTACTORS | E-102A,B,C GLYCOL COOLERS | P-102A~F GLYCOL CIRCULATION PUMPS | GR-101A,B,C GLYCOL REGENERATORS | V-106 FUEL GAS SCRUBBER

VENT STACK

TYPICAL FOR 17 WELLS

V-101 INLET MANIFOLD

TEST HEADER

PRODUCTION HEADER

V-103A

E-101A

WELL

V-101A

V-101B

V-101C

V-102

V-104A

V-104B

V-104C

E-102A

E-102B

E-102C

P-102A&B

P-102C&D

P-102E&F

GR-101A

GR-101B

GR-101C

FILTER

ATM

V-106

FUEL GAS SUPPLY

TO SUMP TANK

V-105

P-101A&B

PIG LAUNCHER

TREATED GAS

SUPPLY

TK-101

P-103A&B

SEAL GAS SUPPLY

V-107

H-101

P-105A&B

GLYCOL SUPPLY

TK-102

P-104A&B

P-104A&B CORROSION INHIBITOR PUMPS

TK-101 CORROSION INHIBITOR TANK

V-107 HEATING MEDIUM SURGE VESSEL

P-105A&B HEATING MEDIUM CIRCULATION PUMPS

H-101 START-UP HEATER

V-105 CONDENSATE SURGE VESSEL

P-101A&B CONDENSATE PUMPS

P-104A&B CORROSION INHIBITOR PUMPS

TK-101 CORROSION INHIBITOR TANK

P-105A&B

P-101A&B CONDENSATE PUMPS

TK-102 GLYCOL STORAGE TANK

P-102A~F GLYCOL CIRCULATION PUMPS

NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR PHASE-I AND PHASE-II.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS PETROLIAM NASIONAL BERHAD

TITLE

FIG. 30-5-3 (Vol. IV)

TYPICAL MECHANICAL FLOW DIAGRAM FOR GAS PRODUCTION PLATEFORM.

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CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

E-101A~E
HEAT EXCHANGERS

V-103A~E
LIQUID KNOCK OUT DRUMS

V-101A&B
PRODUCTION SEPARATORS

V-102
TEST SEPARATOR

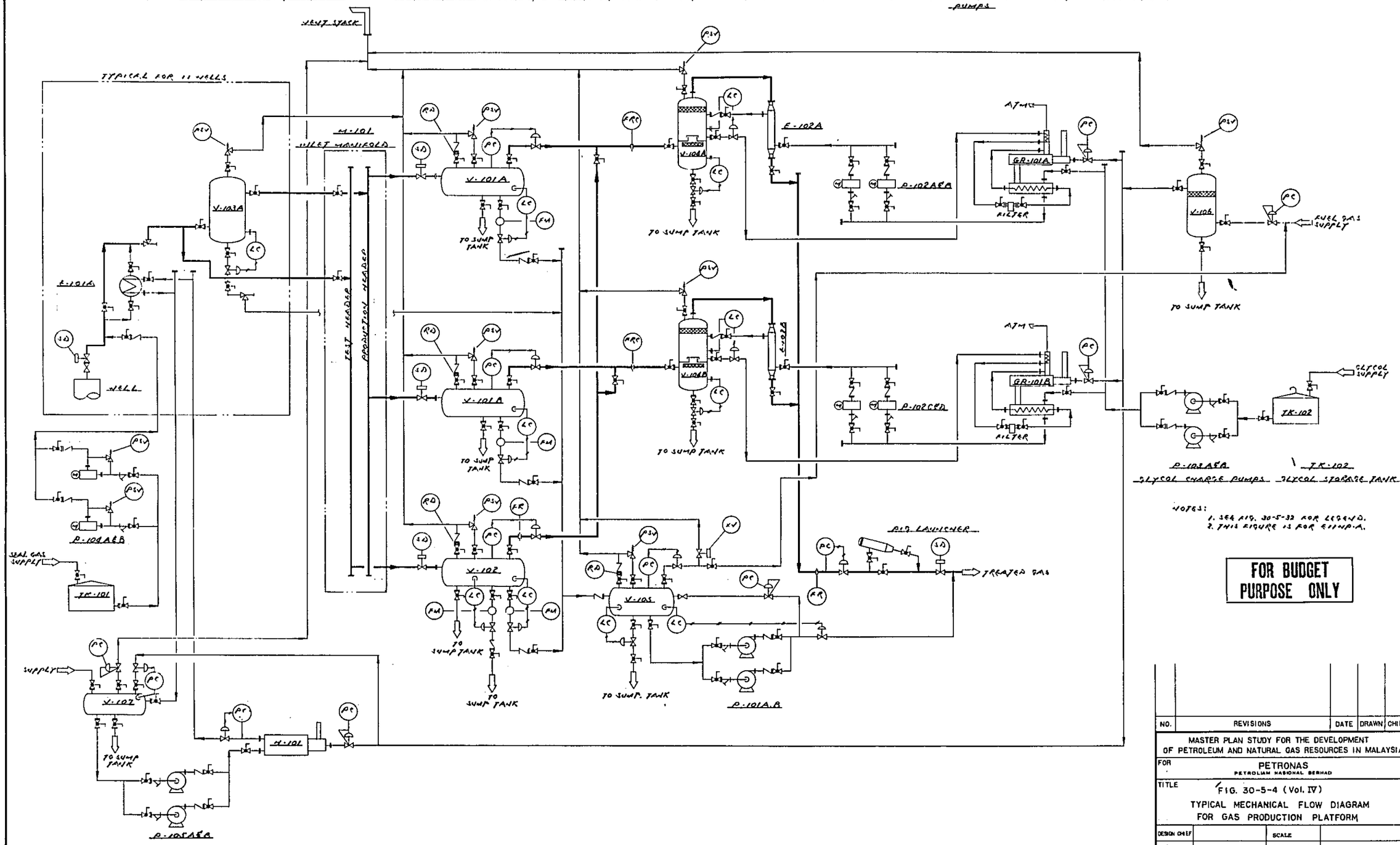
V-106A&B
GLYCOL CONTACTORS

E-102A&B
GLYCOL COOLERS

P-102A~D
GLYCOL CIRCULATION PUMPS

GR-101A&B
GLYCOL REGENERATORS

V-106
FUEL GAS SCRUBBER



P-104A&B
CORROSION INHIBITOR PUMPS

TK-101
CORROSION INHIBITOR TANK

V-107
HEATING MEDIUM SURGE VESSEL

P-105A&B
HEATING MEDIUM CIRCULATION PUMPS

H-101
START-UP HEATER

V-105
CONDENSATE SURGE VESSEL

P-101A&B
CONDENSATE PUMPS

P-103A&B
GLYCOL CHARGE PUMPS

TK-102
GLYCOL STORAGE TANK

NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR EXAMPLE.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

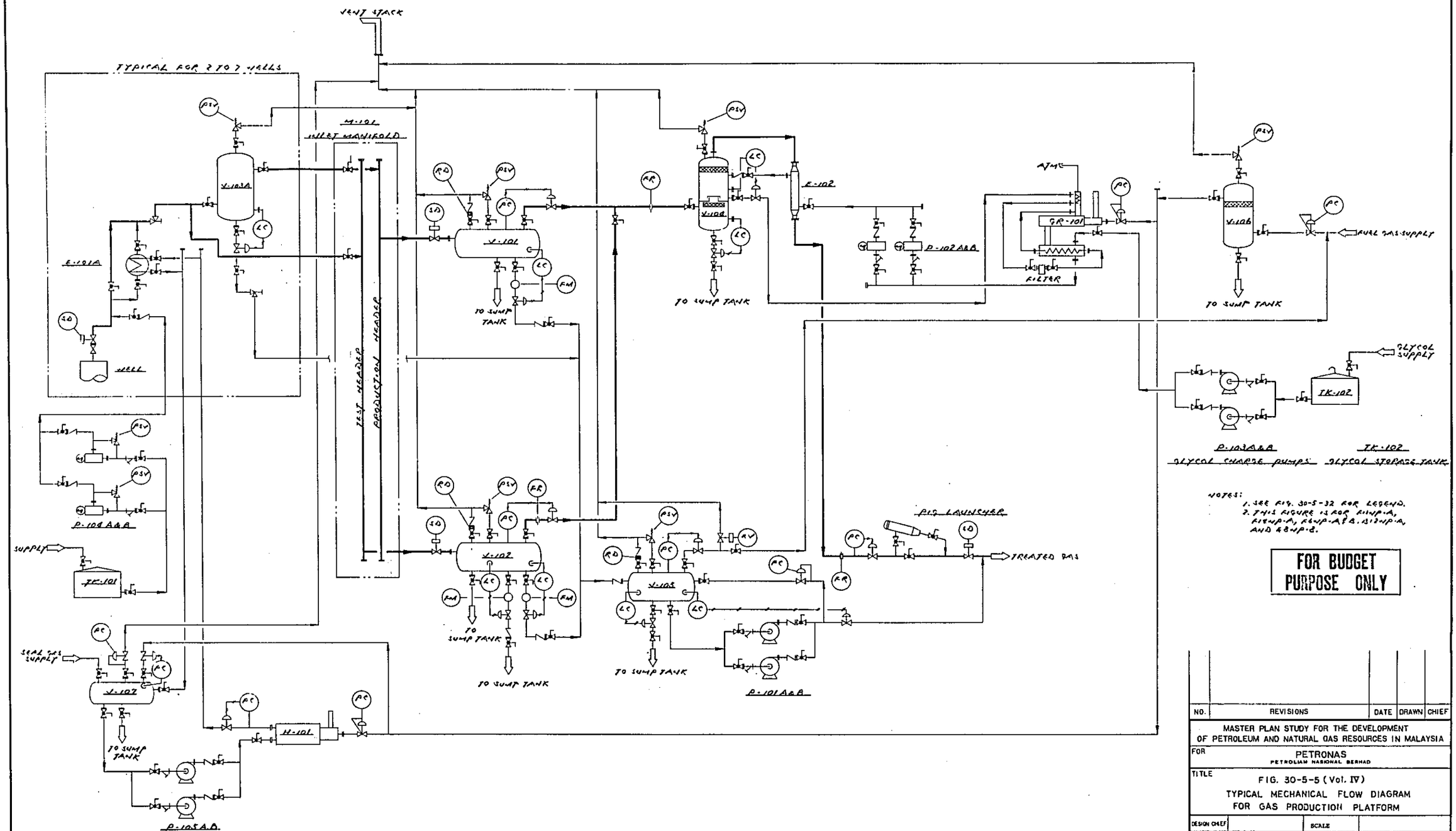
FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE FIG. 30-5-4 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM FOR GAS PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

E-101A~~ HEAT EXCHANGERS | V-103A~~ LIQUID KNOCK OUT DRUMS | V-101 PRODUCTION SEPARATOR | V-102 TEST SEPARATOR | V-104 GLYCOL CONTACTOR | E-102 GLYCOL COOLER | P-102A&B GLYCOL CIRCULATION PUMPS | GR-101 GLYCOL REGENERATOR | V-106 FUEL GAS SCRUBBER



NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR A1MP-A, A1EMP-A, A6MP-A&B, A12MP-A, AND A8MP-B.

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P-104A&B CORROSION INHIBITOR PUMPS | TK-101 CORROSION INHIBITOR TANK | V-107 HEATING MEDIUM SURGE VESSEL | P-105A&B HEATING MEDIUM CIRCULATION PUMPS | H-101 START-UP HEATER | V-105 CONDENSATE SURGE VESSEL | P-101A&B CONDENSATE PUMPS

NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-5 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM FOR GAS PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

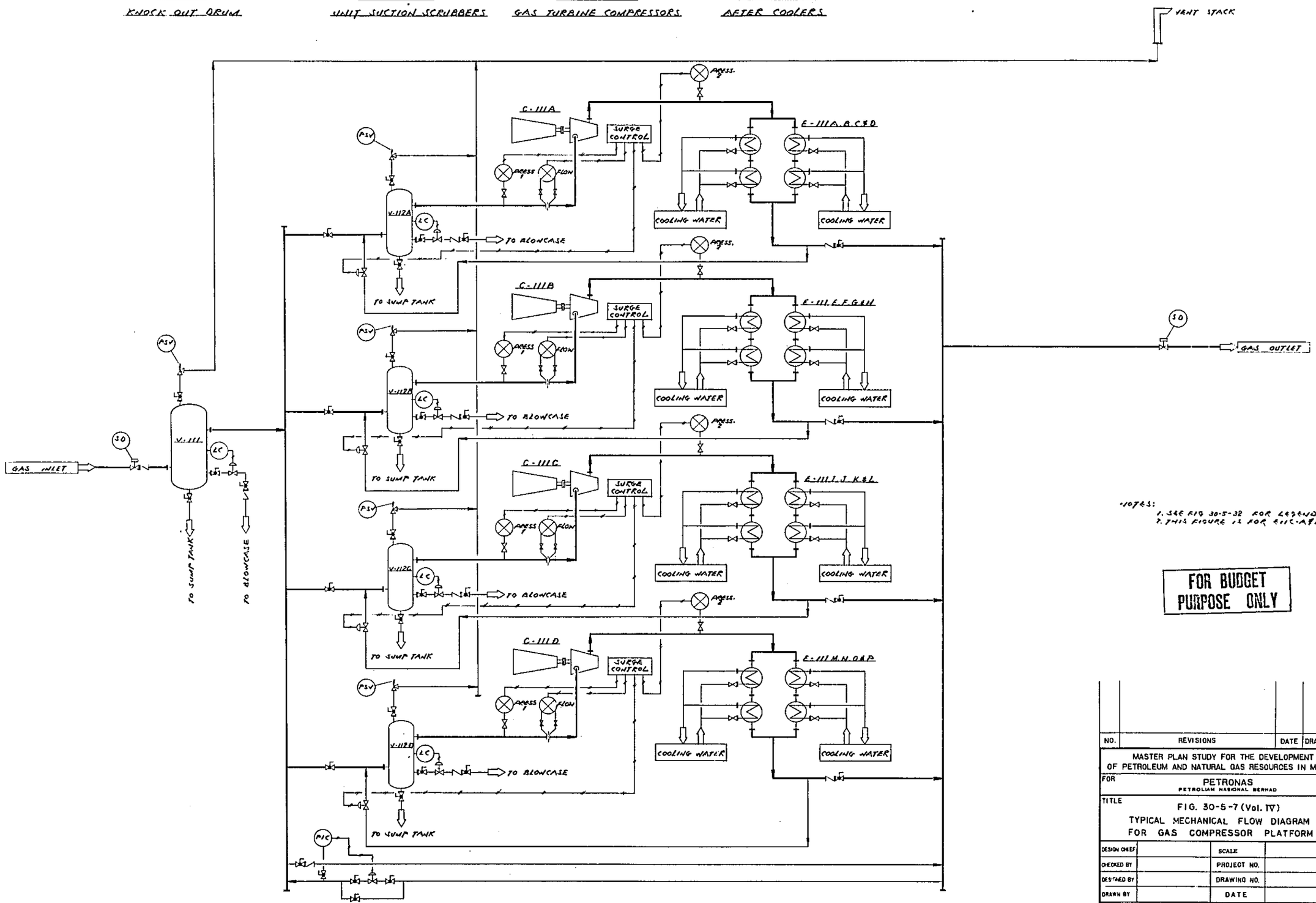
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

V-111
KNOCK OUT DRUM

V-112A~D
UNIT SUCTION SCRUBBERS

C-111A~D
GAS TURBINE COMPRESSORS

E-111A~D
AFTER COOLERS



NOTES:
1. SEE FIG 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR E-111C-A&B.

FOR BUDGET PURPOSE ONLY

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-7 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM
FOR GAS COMPRESSOR PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

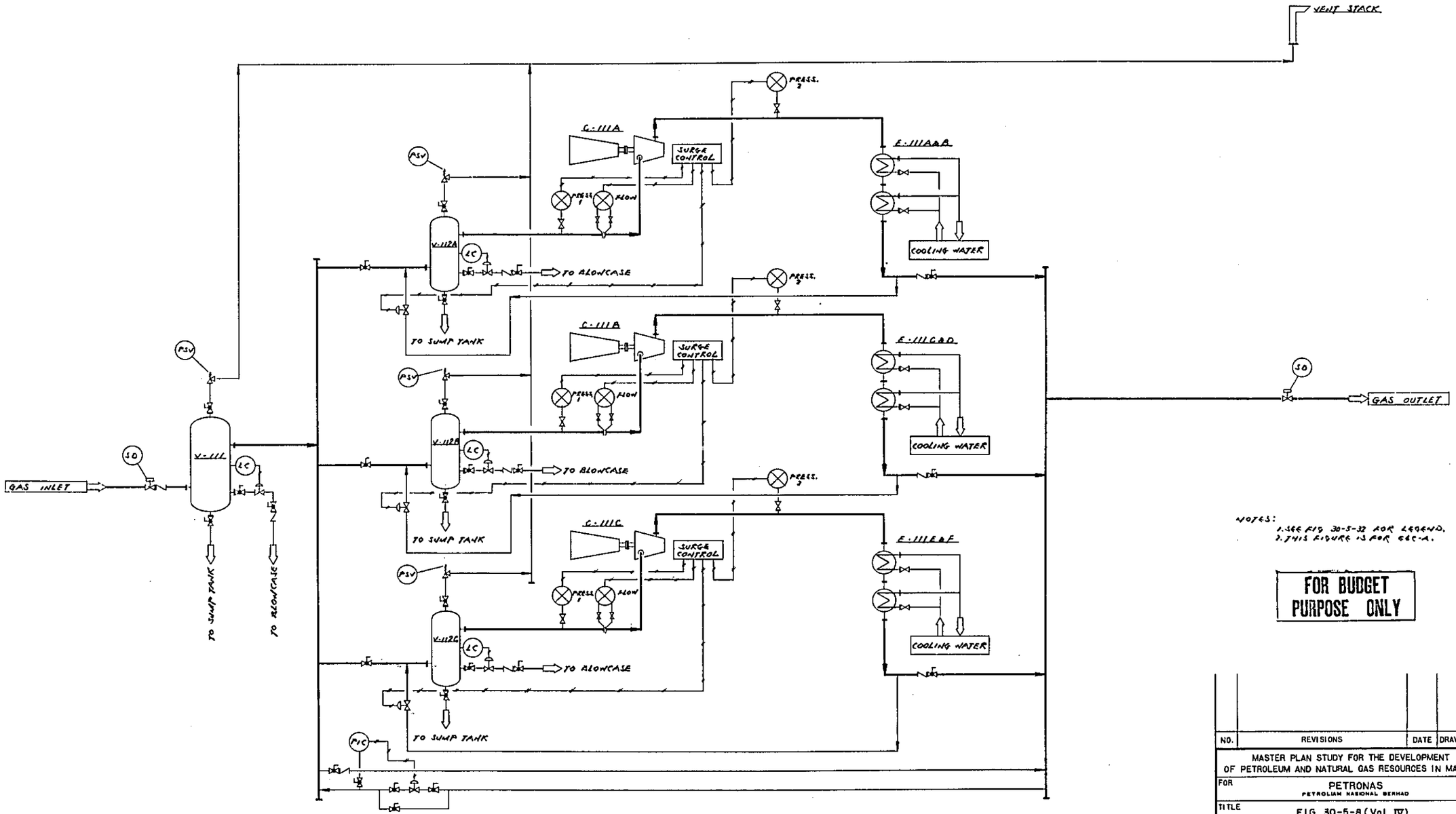
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

V-111
KNOCK OUT DRUM

V-112 A,B&C
UNIT SUCTION SCRUBBERS

C-111 A,B&C
GAS TURBINE COMPRESSORS

E-111A~F
AFTER COOLERS



NOTES:
1. SEE FIG 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR SEC-A.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

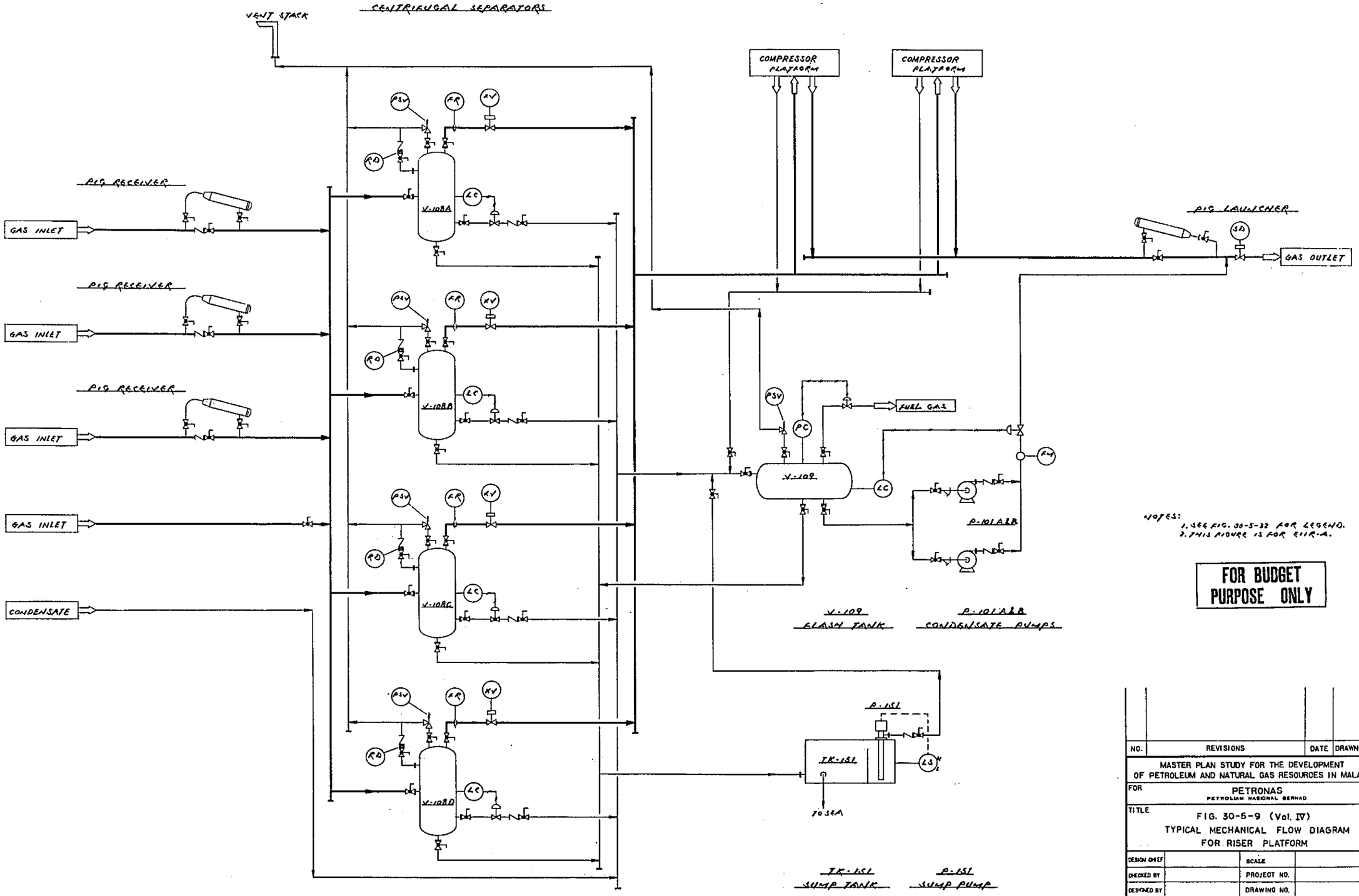
FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-8 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM
FOR GAS COMPRESSOR PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

V-108A~D
CENTRIFUGAL SEPARATORS



V-109
FLASH TANK

P-101A&B
CONDENSATE PUMPS

IK-151
SUMP TANK

P-151
SUMP PUMP

NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR E1IR-A.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

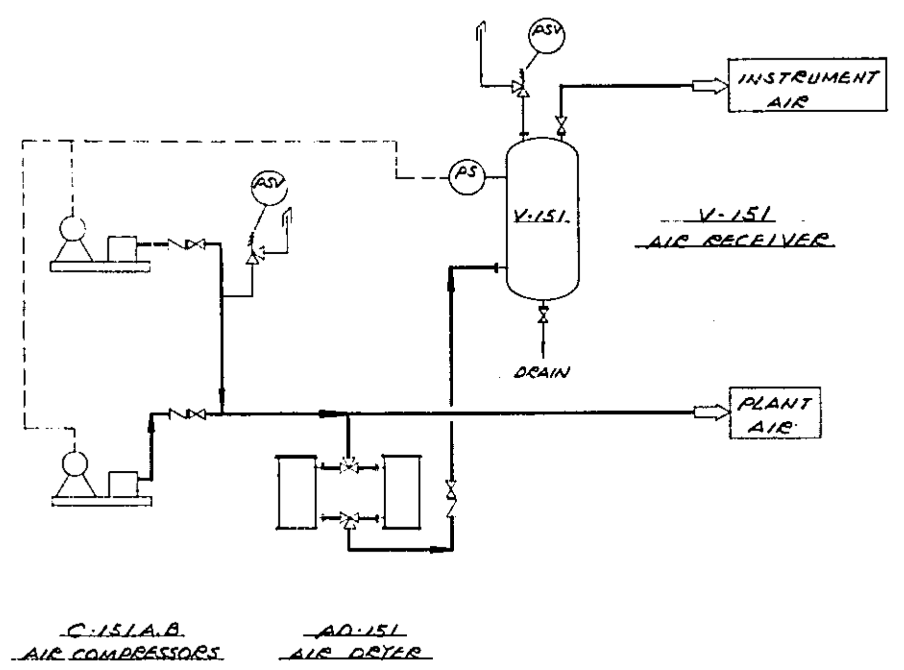
FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-9 (Vol. IV)
TYPICAL MECHANICAL FLOW DIAGRAM
FOR RISER PLATFORM

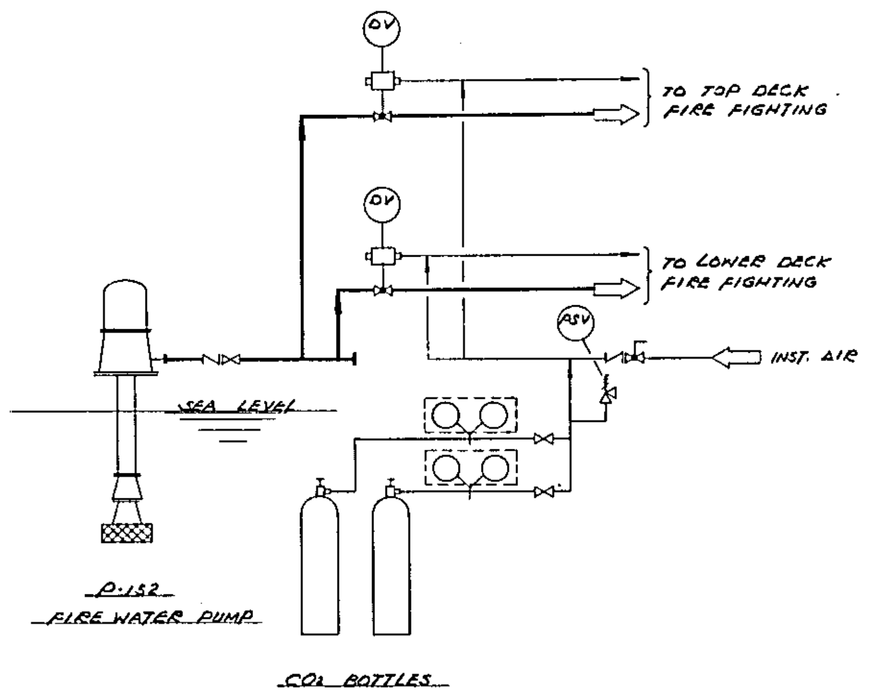
DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

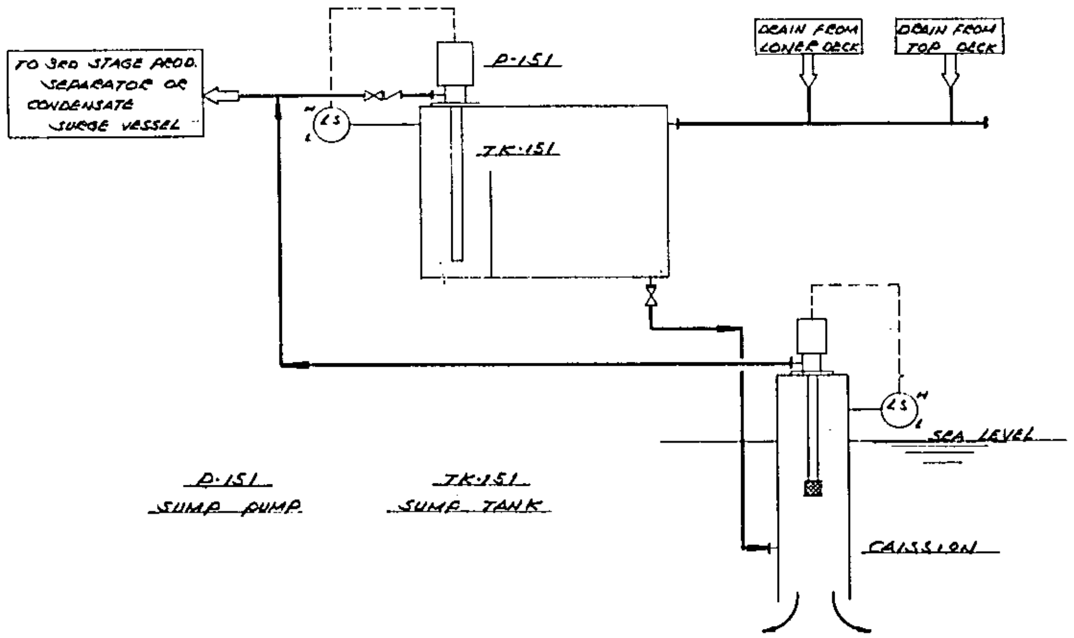
INSTRUMENT AIR SYSTEM



FIRE FIGHTING SYSTEM



DRAIN SYSTEM



NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR SENP-A&B, ENWP-A&B, BONP-A, ATNP-A, E6NP-A&B, NTP-A, PUNP-A, SENP-A&A, BENP-A, BEP-A, TANP-A.B&C, F13NP-A, F18NP-A, F23P-A, F6NP-A&B, E8NP-A E11NP-A, B12NP-A, PUPC-A, AND BEPC-A.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

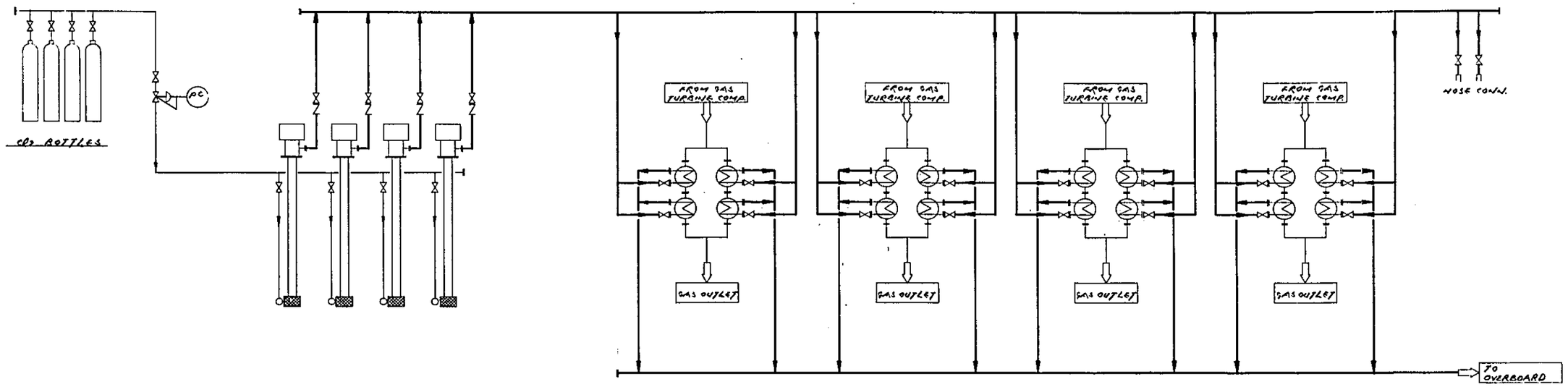
FOR: PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE: FIG. 30-5-10 (Vol. IV)
TYPICAL UTILITY FLOW DIAGRAM FOR OIL & GAS PRODUCTION PLATFORM

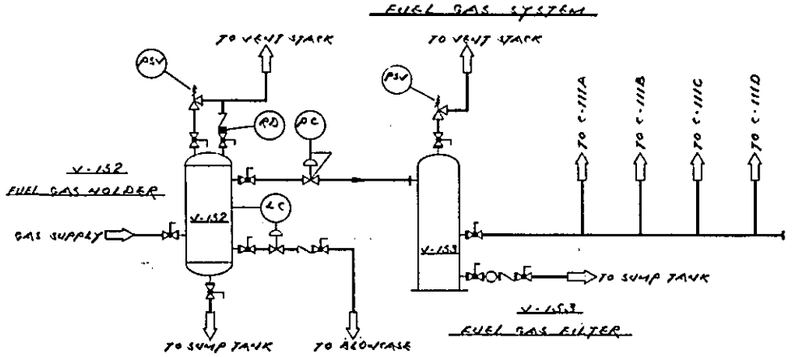
DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

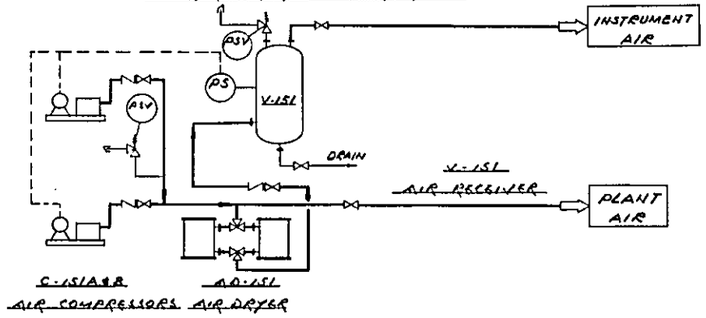
COOLING WATER SYSTEM



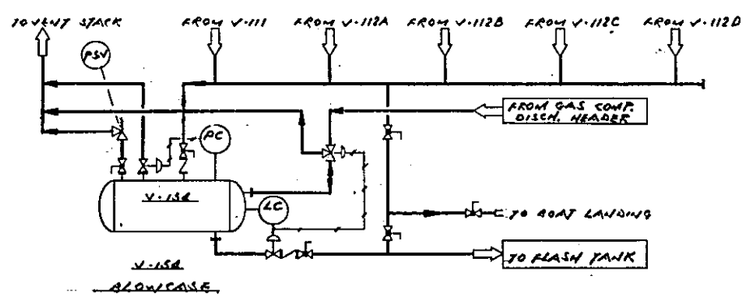
FUEL GAS SYSTEM



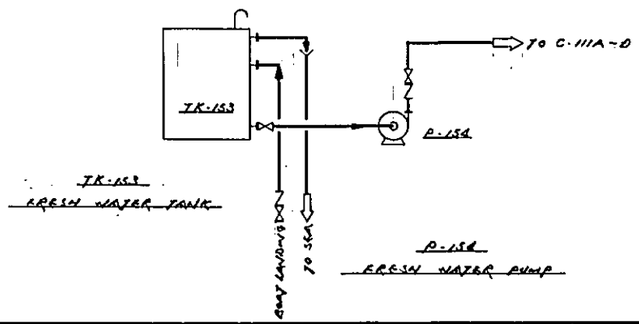
INSTRUMENT AIR SYSTEM



DUMP SYSTEM



FRESH WATER SYSTEM



NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR E11C-A&B.

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NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-11 (Vol. IV)
TYPICAL UTILITY FLOW DIAGRAM FOR GAS COMPRESSOR PLATFORM

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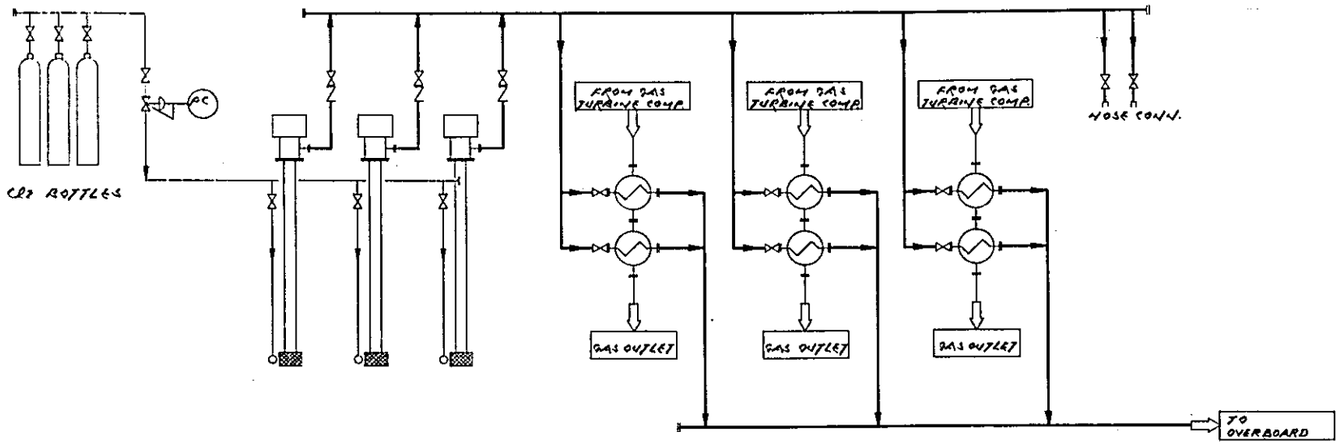
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

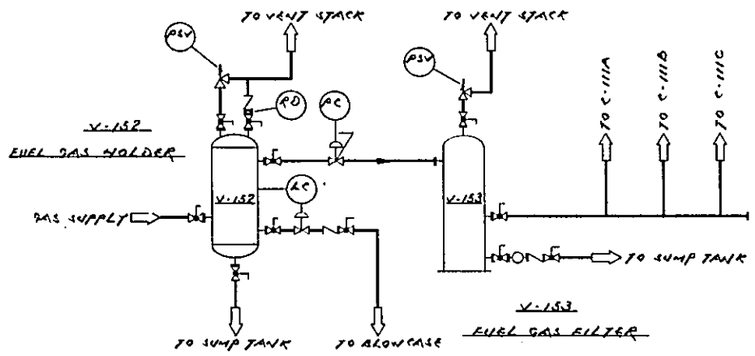
COOLING WATER SYSTEM

P-153A,B,C
SEAWATER PUMPS

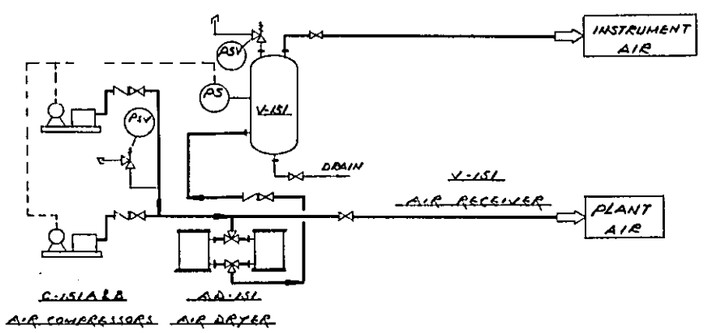
E-111A~F
AFTER COOLERS



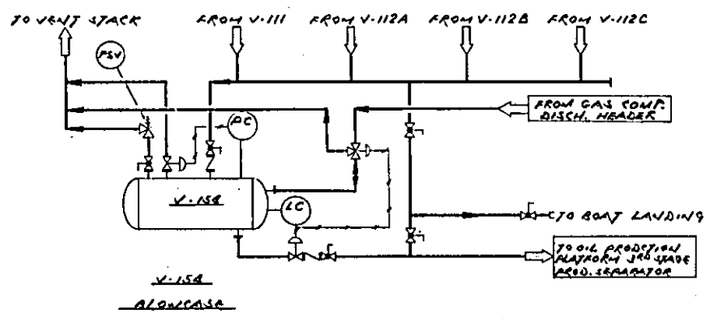
FUEL GAS SYSTEM



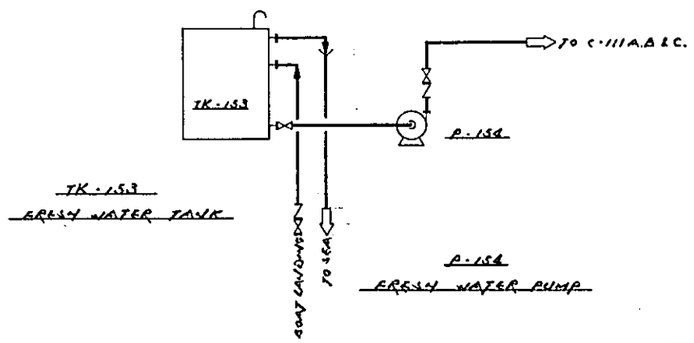
INSTRUMENT AIR SYSTEM



DUMP SYSTEM



FRESH WATER SYSTEM



NOTES:
1. SEE FIG. 30-5-32 FOR LEGEND.
2. THIS FIGURE IS FOR 46C-A.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

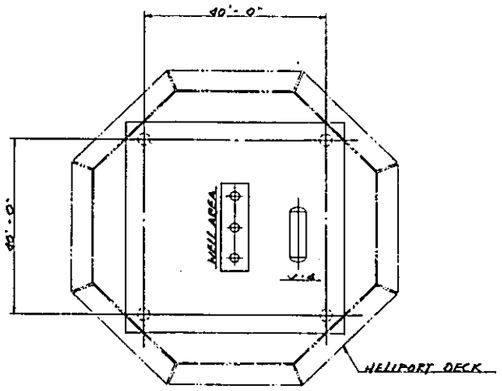
FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-12 (Vol. IV)
TYPICAL UTILITY FLOW DIAGRAM
FOR GAS COMPRESSOR PLATFORM

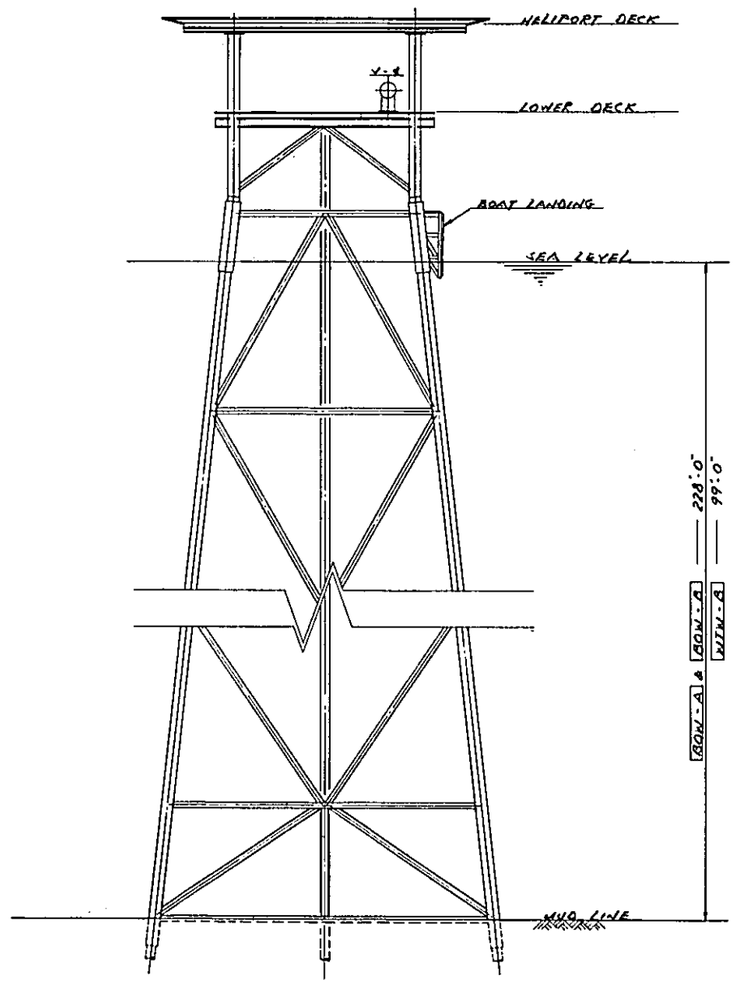
DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
	VESSEL
V-4	TEST SEPARATOR



PLAN



ELEVATION

FOR BUDGET PURPOSE ONLY

NOTE :
THIS FIGURE IS FOR BOW-A&B AND WIN-B.

NO.	REVISIONS	DATE	DRAWN	CHIEF

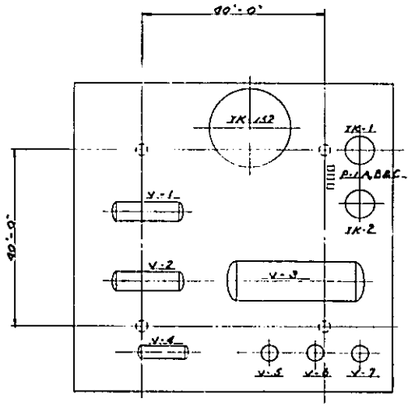
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

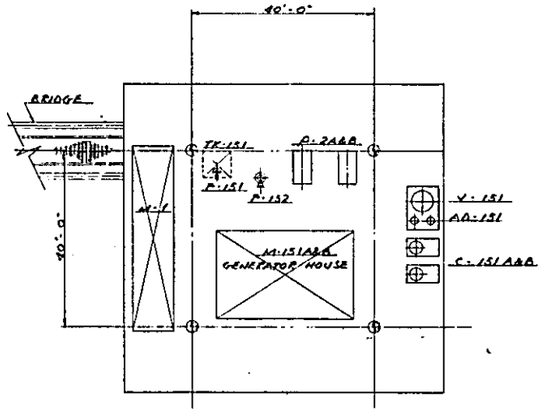
TITLE
FIG. 30-5-13 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR TENDER ASSISTED WELL PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

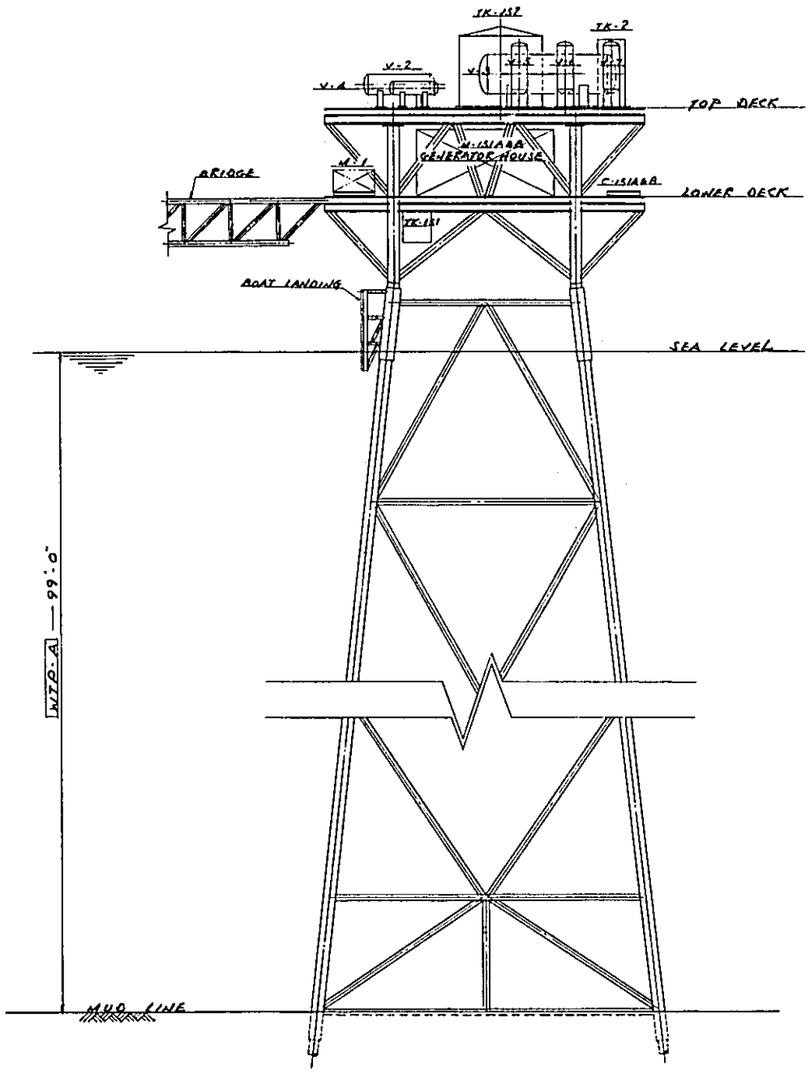
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
	VESSEL
V-1	1ST STAGE PRODUCTION SEPARATOR
V-2	2ND STAGE PRODUCTION SEPARATOR
V-3	3RD STAGE PRODUCTION SEPARATOR
V-4	TEST SEPARATOR
V-5	1ST STAGE FLARE SCRUBBER
V-6	2ND STAGE FLARE SCRUBBER
V-7	3RD STAGE FLARE SCRUBBER
V-151	INSTRUMENT AIR RECEIVER
	MACHINERY
C-151 A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-1A, B&C	CHEMICAL INJECTION PUMPS
P-2A&B	CRUDE TRANSFER PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
	TANK
TK-1	DEEMULSIFIER TANK
TK-2	DEFOAMANT TANK
TK-151	SUMP TANK
TK-152	DIESEL STORAGE TANK
	MISCELLANEOUS
M-1	INLET MANIFOLD
M-151A&B	DIESEL DRIVEN GENERATORS

FOR BUDGET PURPOSE ONLY

NOTE:
THIS FIGURE IS FOR WTP-A.

NO.	REVISIONS	DATE	DRAWN	CHIEF

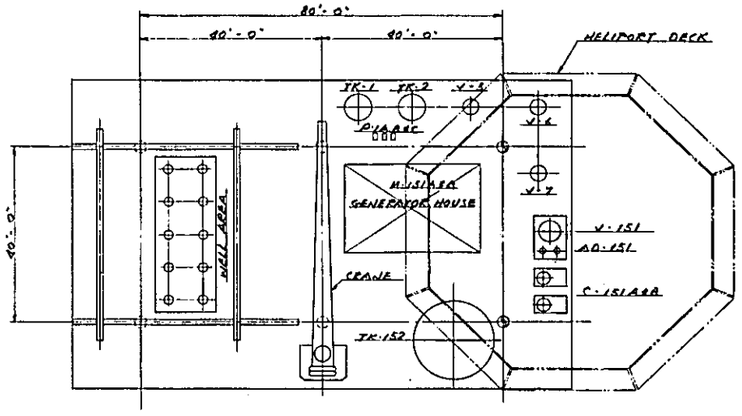
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

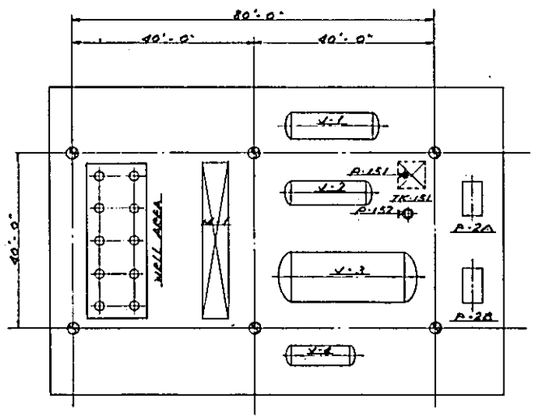
TITLE
FIG. 30-5-15(Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 4-LEG OIL PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

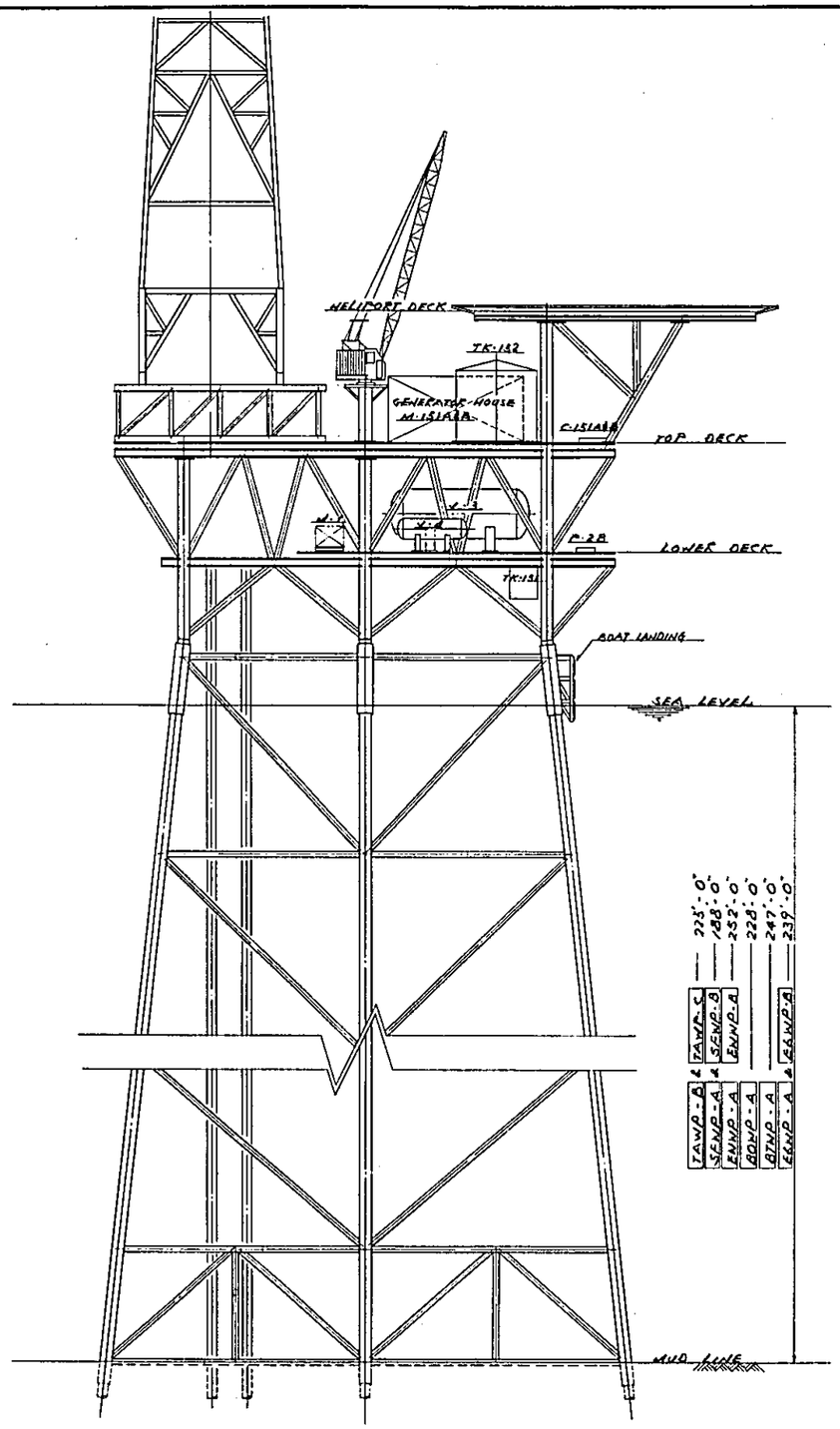
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
	VESSEL
V-1	1ST STAGE PRODUCTION SEPARATOR
V-2	2ND STAGE PRODUCTION SEPARATOR
V-3	3RD STAGE PRODUCTION SEPARATOR
V-4	TEST SEPARATOR
V-5	1ST STAGE FLARE SCRUBBER
V-6	2ND STAGE FLARE SCRUBBER
V-7	3RD STAGE FLARE SCRUBBER
V-151	INSTRUMENT AIR RECEIVER
	MACHINERY
C-151A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-1A,B&C	CHEMICAL INJECTION PUMPS
P-2A&B	CRUDE TRANSFER PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
	TANK
TK-1	DEEMULSIFIER TANK
TK-2	DEFOAMANT TANK
TK-151	SUMP TANK
TK-152	DIESEL STORAGE TANK
	MISCELLANEOUS
M-1	INLET MANIFOLD
M-151A&B	DIESEL DRIVEN GENERATORS

FOR BUDGET PURPOSE ONLY

NOTE:
THIS FIGURE IS FOR SFNP-A & B, ENNP-A & B, BONP-A, BTNP-A, E&NP-A & B, AND TANP-B & C.

NO.	REVISIONS	DATE	DRAWN	CHIEF

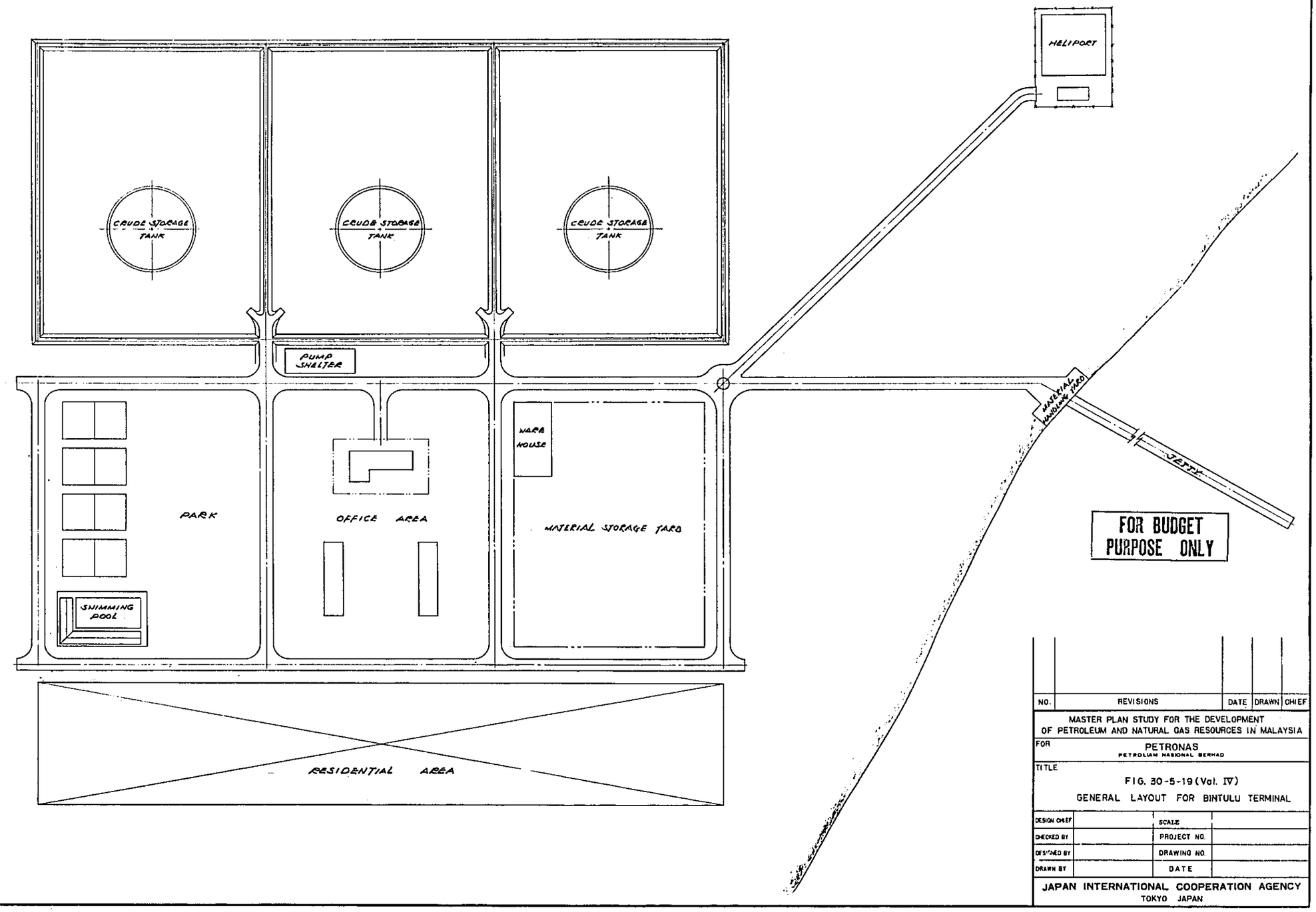
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG 30-5-16 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 6-LEG WELL & OIL PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

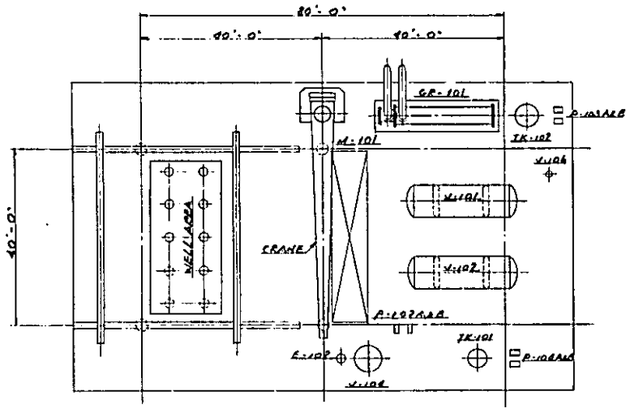
TITLE

FIG. 30-5-19 (Vol. IV)

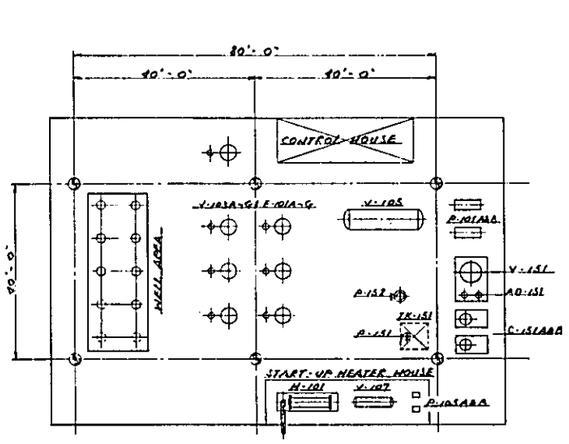
GENERAL LAYOUT FOR BINTULU TERMINAL

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

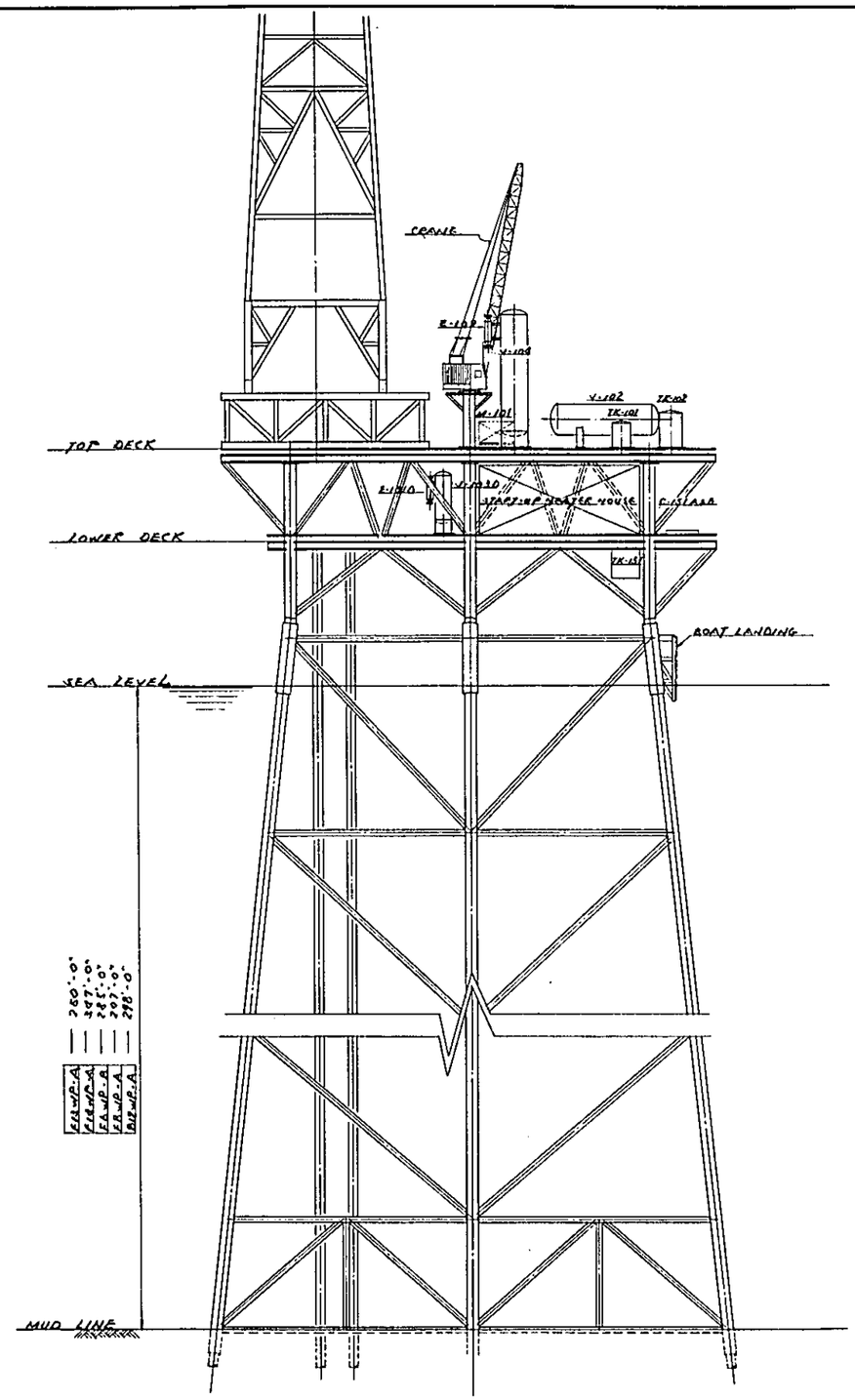
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST

ITEM NO.	DESCRIPTION
	VESSEL
V-101	PRODUCTION SEPARATOR
V-102	TEST SEPARATOR
V-103A-G	LIQUID KNOCK OUT DRUMS
V-104	GLYCOL CONTACTOR
V-105	CONDENSATE SURGE VESSEL
V-106	FUEL GAS SCRUBBER
V-107	HEATING MEDIUM SURGE VESSEL
V-151	INSTRUMENT AIR RECEIVER
	MACHINERY
GR-101	GLYCOL REGENERATOR
H-101	START-UP HEATER
C-151A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-101A&B	CONDENSATE PUMPS
P-102A&B	GLYCOL CIRCULATION PUMPS
P-103A&B	GLYCOL CHARGE PUMPS
P-104A&B	CORROSION INHIBITOR PUMPS
P-105A&B	HEATING MEDIUM CIRCULATION PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
	TANK
TK-101	CORROSION INHIBITOR TANK
TK-102	GLYCOL STORAGE TANK
TK-151	SUMP TANK
	HEAT EXCHANGER
E-101A-G	HEAT EXCHANGERS
E-102	GLYCOL COOLER
	MISCELLANEOUS
M-101	INLET MANIFOLD

NOTE:
THIS FIGURE IS FOR F13WP-A, F14WP-A, F8WP-B, E8WP-A AND B12WP-A.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

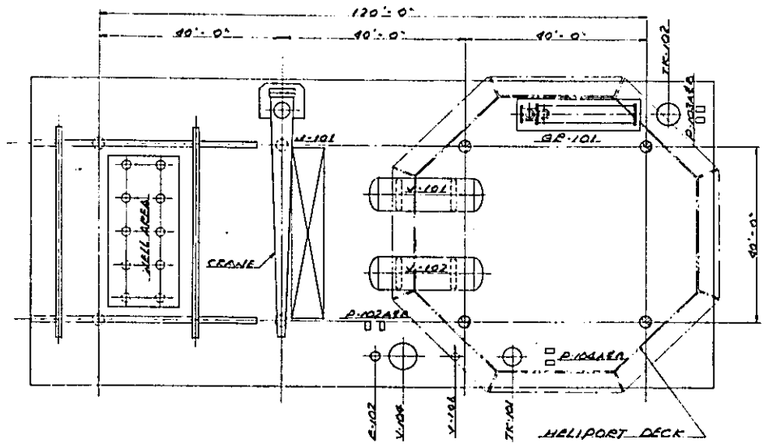
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

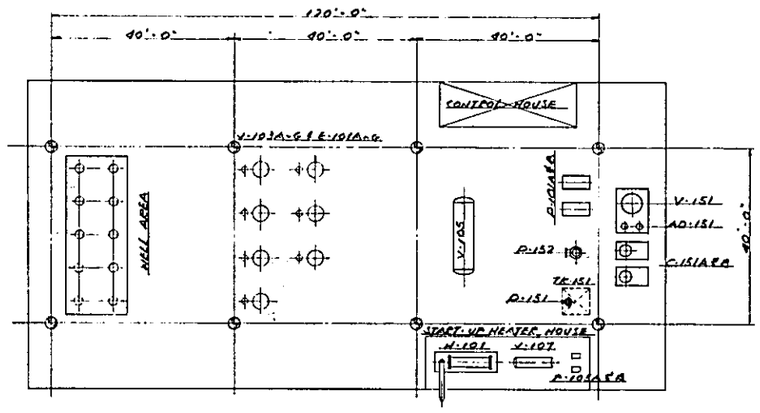
TITLE FIG. 30-5-20 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR TENDER ASSISTED 6-LEG WELL & GAS PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

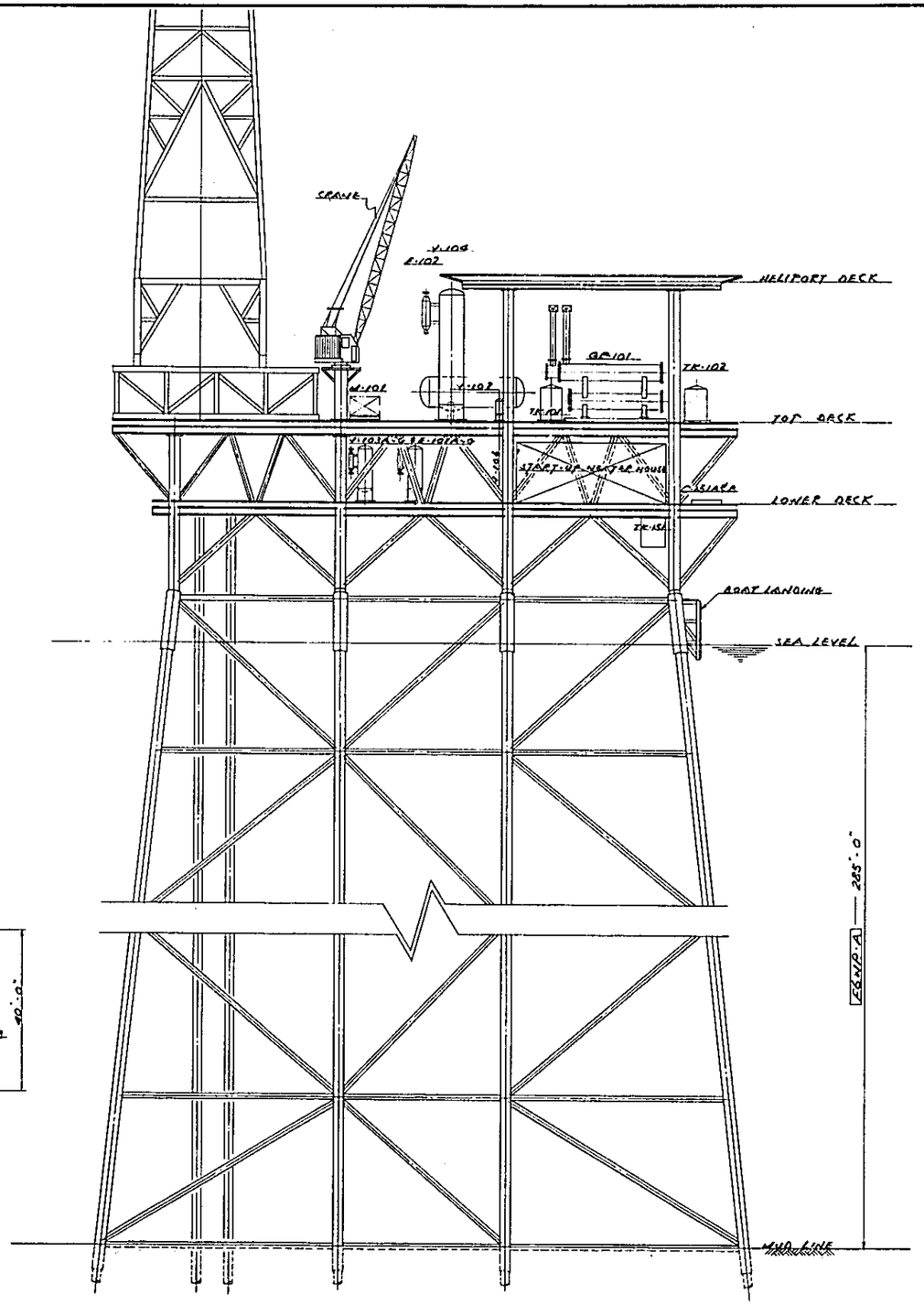
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
	VESSEL
V-101	PRODUCTION SEPARATOR
V-102	TEST SEPARATOR
V-103A~G	LIQUID KNOCK OUT DRUMS
V-104	GLYCOL CONTACTOR
V-105	CONDENSATE SURGE VESSEL
V-106	FUEL GAS SCRUBBER
V-107	HEATING MEDIUM SURGE VESSEL
V-151	INSTRUMENT AIR RECEIVER
	MACHINERY
GR-101	GLYCOL REGENERATOR
H-101	START-UP HEATER
C-151A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-101A&B	CONDENSATE PUMPS
P-102A&B	GLYCOL CIRCULATION PUMPS
P-103A&B	GLYCOL CHARGE PUMPS
P-104A&B	CORROSION INHIBITOR PUMPS
P-105A&B	HEATING MEDIUM CIRCULATION PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
	TANK
TK-101	CORROSION INHIBITOR TANK
TK-102	GLYCOL STORAGE TANK
TK-151	SUMP TANK
	HEAT EXCHANGER
E-101A~G	HEAT EXCHANGERS
E-102	GLYCOL COOLER
	MISCELLANEOUS
M-101	INLET MANIFOLD

NOTE:
THIS FIGURE IS FOR EGNP-A.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

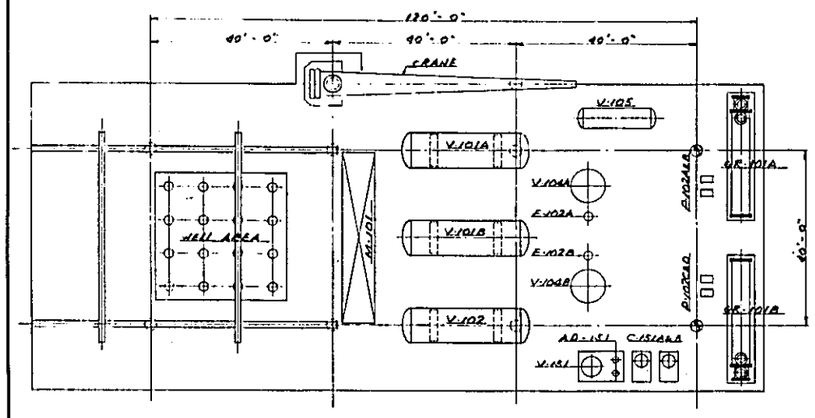
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

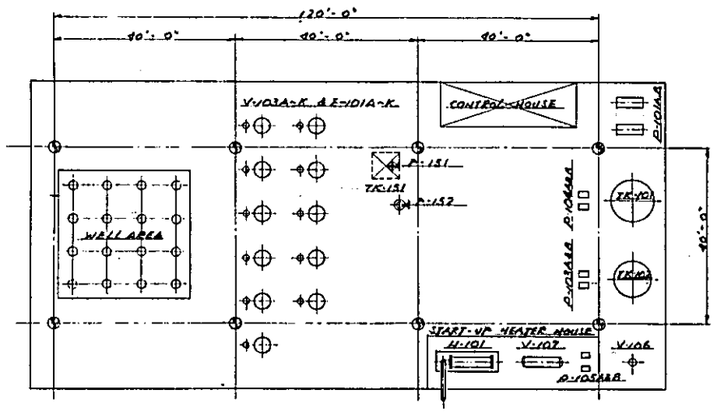
TITLE FIG. 30-5-21 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR TENDER ASSISTED 8-LEG WELL & GAS PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

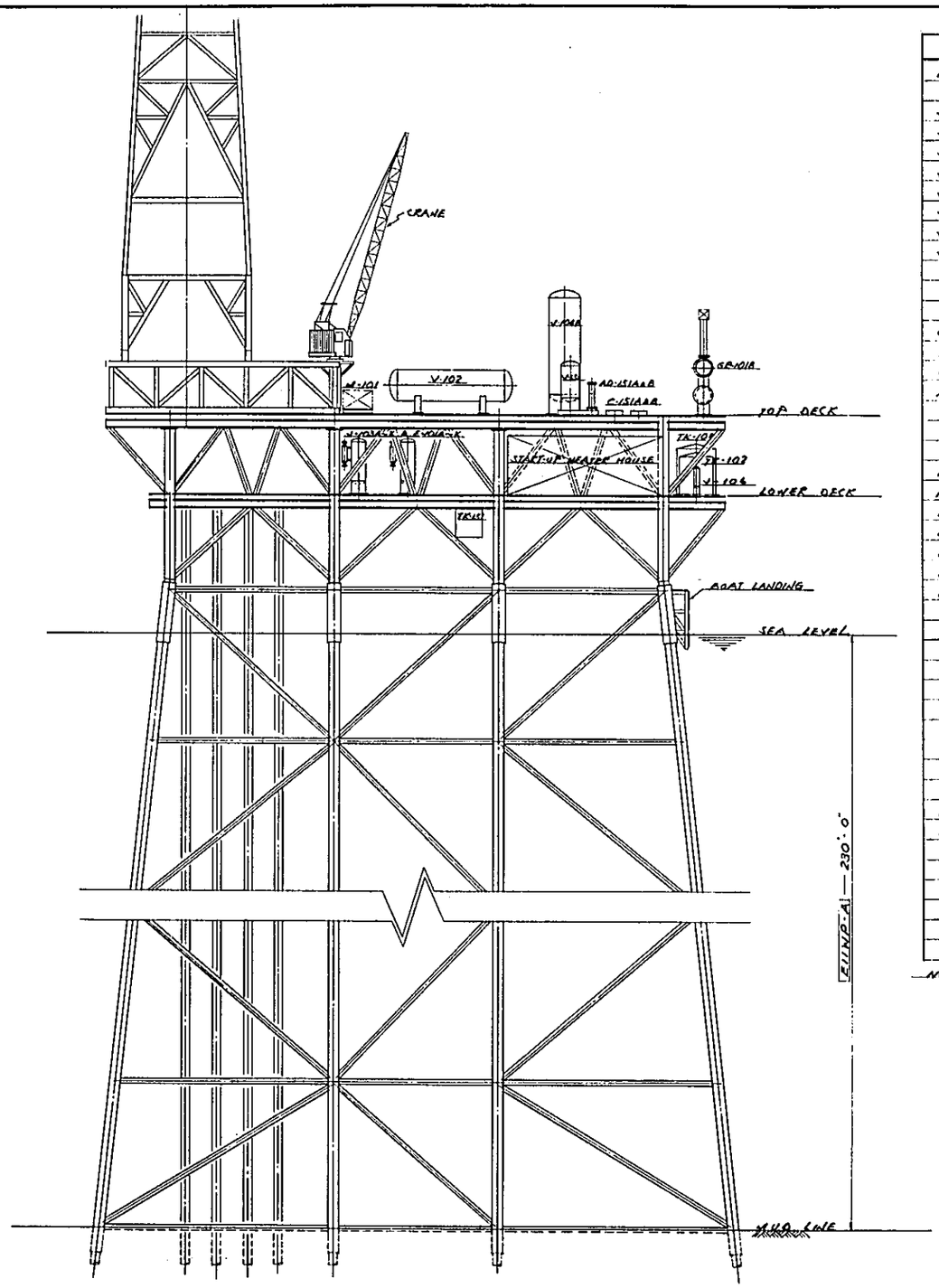
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
	VESSEL
V-101A&B	PRODUCTION SEPARATORS
V-102	TEST SEPARATOR
V-103A~K	LIQUID KNOCK OUT DRUMS
V-104A&B	GLYCOL CONTACTORS
V-105	CONDENSATE SURGE VESSEL
V-106	FUEL GAS SCRUBBER
V-107	HEATING MEDIUM SURGE VESSEL
V-151	INSTRUMENT AIR RECEIVER
	MACHINERY
GR-101A&B	GLYCOL REGENERATORS
H-101	START-UP HEATER
C-151A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-101A&B	CONDENSATE PUMPS
P-102A,B,C&D	GLYCOL CIRCULATION PUMPS
P-103A&B	GLYCOL CHARGE PUMPS
P-104A&B	CORROSION INHIBITOR PUMPS
P-105A&B	HEATING MEDIUM CIRCULATION PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
	TANK
TK-101	CORROSION INHIBITOR TANK
TK-102	GLYCOL STORAGE TANK
TK-151	SUMP TANK
	HEAT EXCHANGER
E-101A~K	HEAT EXCHANGERS
E-102A&B	GLYCOL COOLERS
	MISCELLANEOUS
M-101	INLET MANIFOLD

NOTE:
THIS FIGURE IS FOR E11NP-A.

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NO.	REVISIONS	DATE	DRAWN	CHIEF

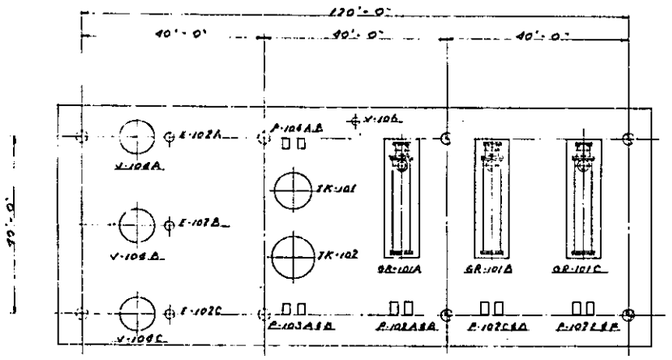
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

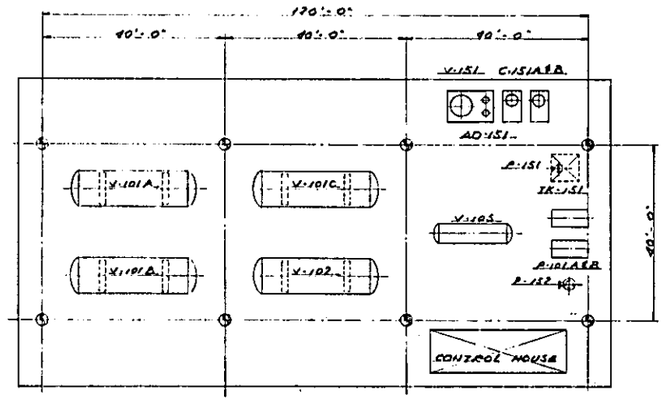
TITLE FIG. 30-5-22 (Vol. IV)
TYPICAL PLAN AND ELEVATION
FOR TENDER ASSISTED 8-LEG
WELL & GAS PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

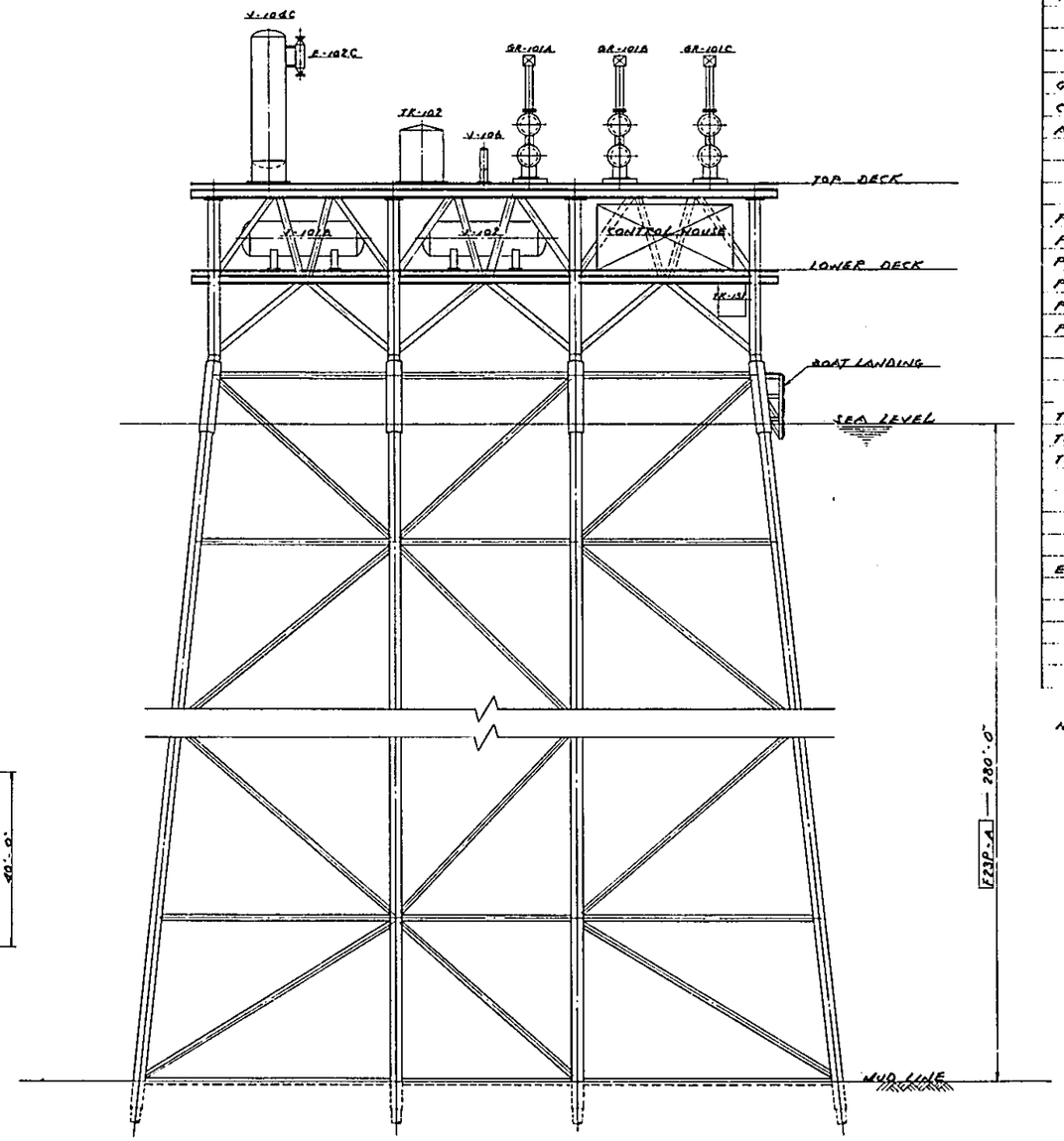
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST

ITEM NO.	DESCRIPTION
	VESSEL
V-101A,B&C	PRODUCTION SEPARATORS
V-102	TEST SEPARATOR
V-104A,B&C	GLYCOL CONTACTORS
V-105	CONDENSATE SURGE VESSEL
V-106	FUEL GAS SCRUBBER
V-151	INSTRUMENT AIR RECEIVER
	MACHINERY
GR-101A,B&C	GLYCOL REGENERATORS
C-151A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-101A&B	CONDENSATE PUMPS
P-102A-F	GLYCOL CIRCULATION PUMPS
P-103A&B	GLYCOL CHARGE PUMPS
P-104A&B	CORROSION INHIBITOR PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
	TANK
TK-101	CORROSION INHIBITOR TANK
TK-102	GLYCOL STORAGE TANK
TK-151	SUMP TANK
	HEAT EXCHANGER
E-102A,B&C	GLYCOL COOLERS

NOTE:
THIS FIGURE IS FOR F23P-A.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

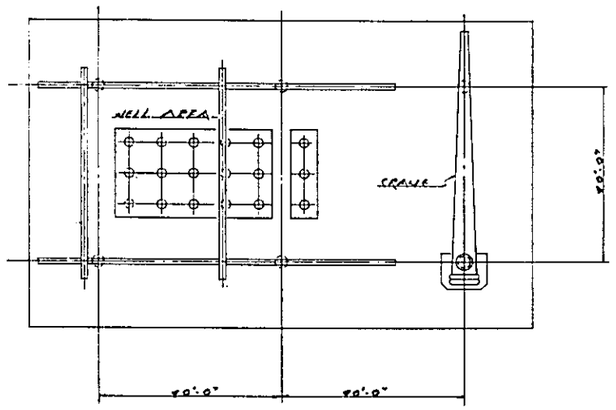
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

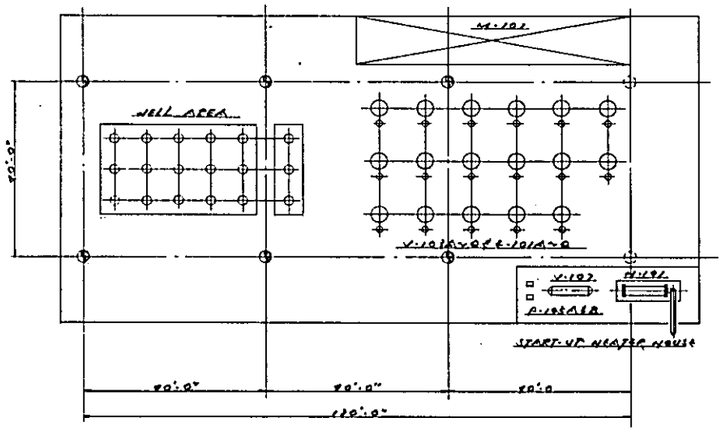
TITLE
FIG. 30-5-23 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 8-LEG GAS PRODUCTION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

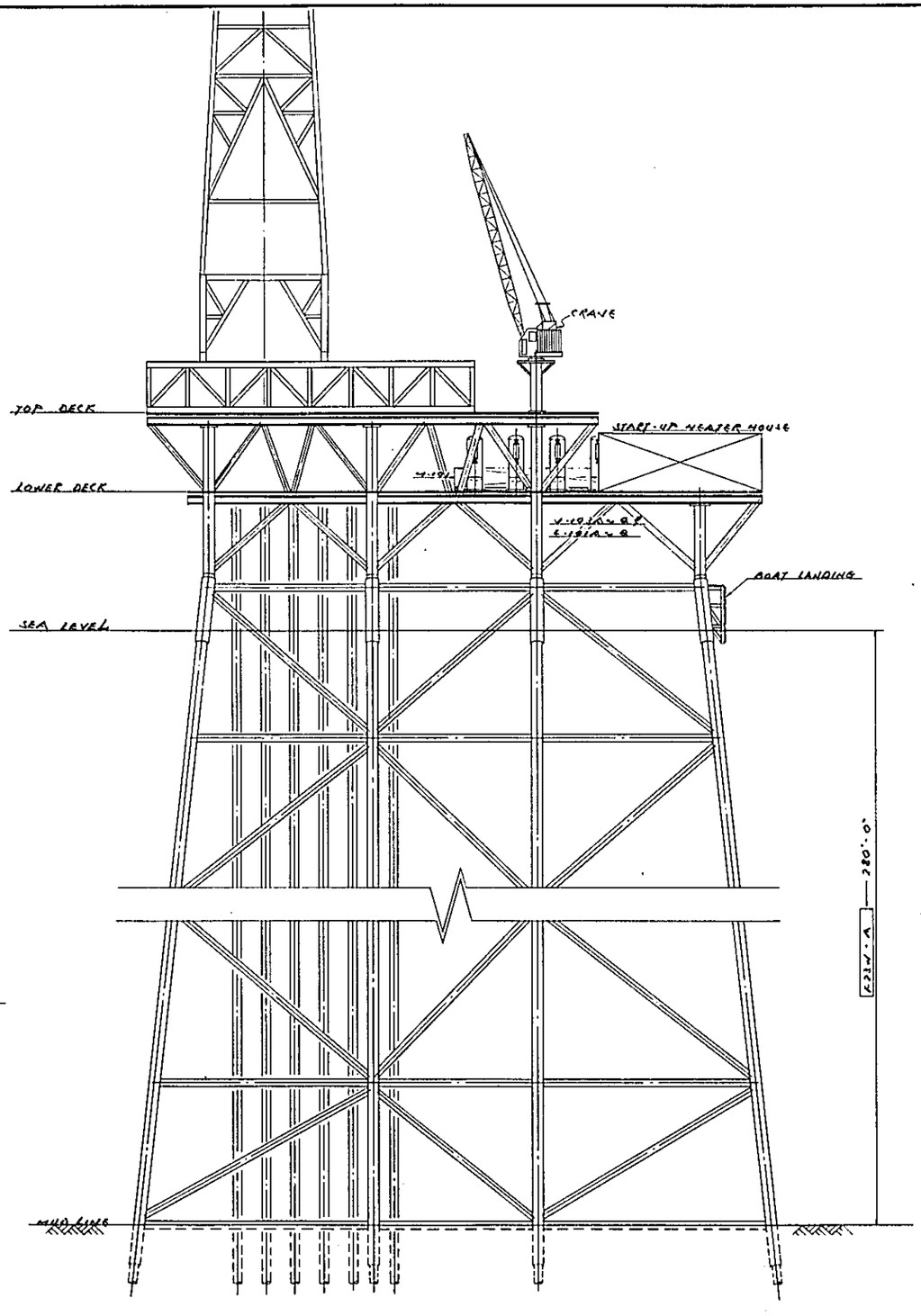
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST

ITEM NO.	DESCRIPTION
	VESSEL
V-103A~G	LIQUID KNOCK OUT DRUMS
V-107	HEATING MEDIUM SURGE VESSEL
	MACHINERY
M-101	START-UP HEATER
	PUMP
P-105A&B	HEATING MEDIUM CIRCULATION PUMPS
	HEAT EXCHANGER
E-101A~G	HEAT EXCHANGERS
	MISCELLANEOUS
M-101	INLET MANIFOLD

FOR BUDGET PURPOSE ONLY

NOTE:
THIS FIGURE IS FOR A2W-A.

NO.	REVISIONS	DATE	DRAWN	CHIEF

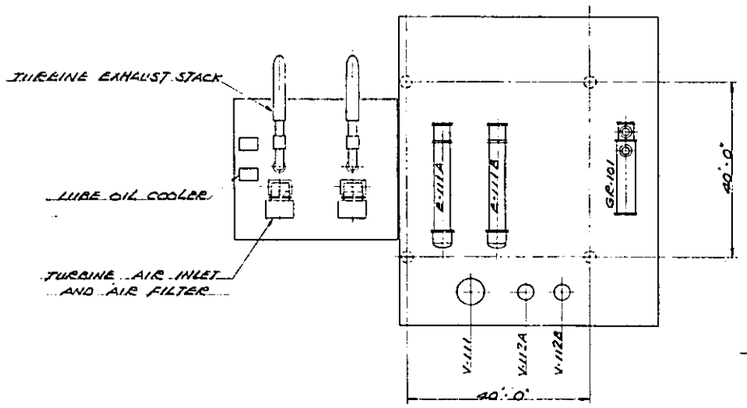
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

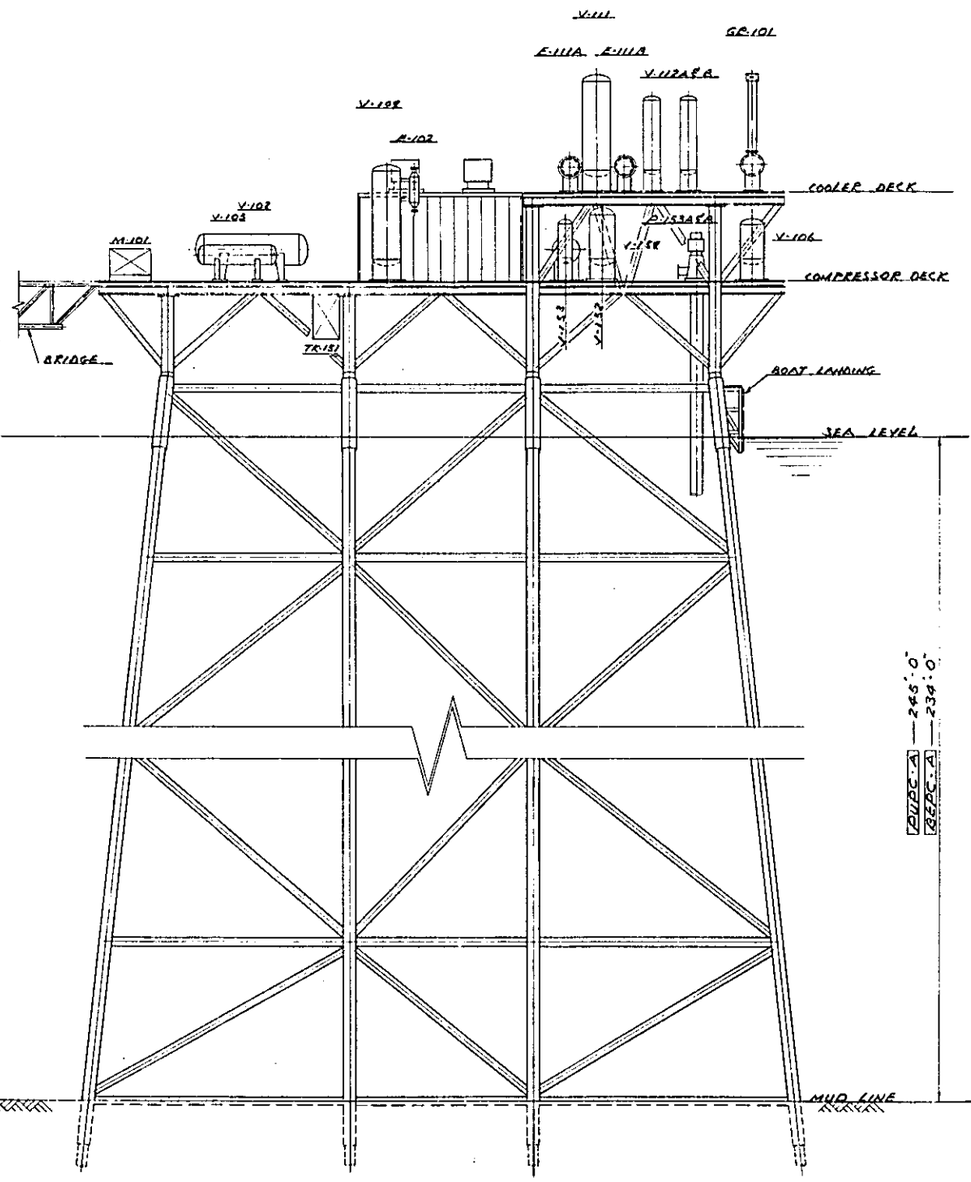
TITLE
FIG. 30-5-24 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR TENDER ASSISTED 8-LEG WELL PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

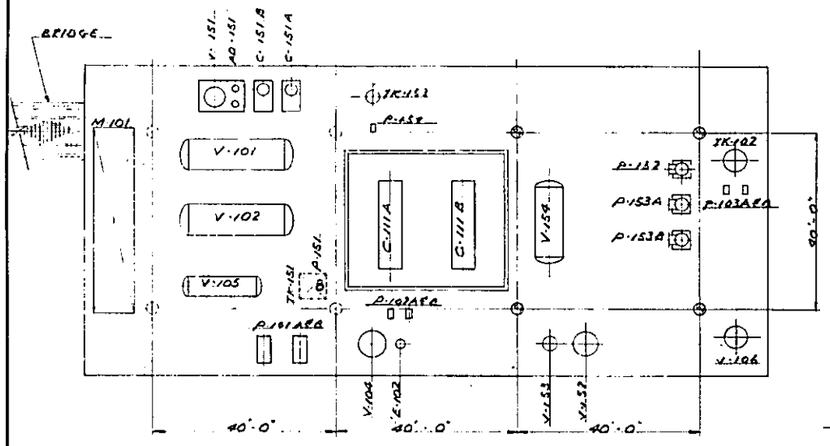
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



COOLER DECK PLAN



ELEVATION



COMPRESSOR DECK PLAN

EQUIPMENT LIST

ITEM NO.	VESSEL
V-101	PRODUCTION SEPARATOR
V-102	TEST SEPARATOR
V-104	GLYCOL CONTACTOR
V-105	CONDENSATE SURGE VESSEL
V-106	FUEL GAS SCRUBBER
V-111	KNOCK OUT DRUM
V-112A&B	UNIT SUCTION SCRUBBERS
V-151	INSTRUMENT AIR RECEIVER
V-152	FUEL GAS HOLDER
V-153	FUEL GAS FILTER
V-154	ALON CASE
	MACHINERY
GR-101	GLYCOL REGENERATOR
C-111A&B	GAS TURBINE COMPRESSORS
C-151A&B	INSTRUMENT AIR COMPRESSOR
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-101A&B	CONDENSATE PUMPS
P-102A&B	GLYCOL CIRCULATION PUMPS
P-103A&B	GLYCOL CHARGE PUMPS
P-151	SUMP PUMP
P-152	FIRE WATER PUMP
P-153A&B	SEAWATER PUMPS
P-154	FRESH WATER PUMP
	TANK
TK-102	GLYCOL STORAGE TANK
TK-151	SUMP TANK
TK-153	FRESH WATER TANK
	HEAT EXCHANGER
E-102	GLYCOL COOLER
E-111A&B	AFTER COOLERS
	MISCELLANEOUS
M-101	INLET MANIFOLD

NOTE:
THIS FIGURE IS FOR PUFC-A AND REPC-A.

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NO.	REVISIONS	DATE	DRAWN	CHIEF

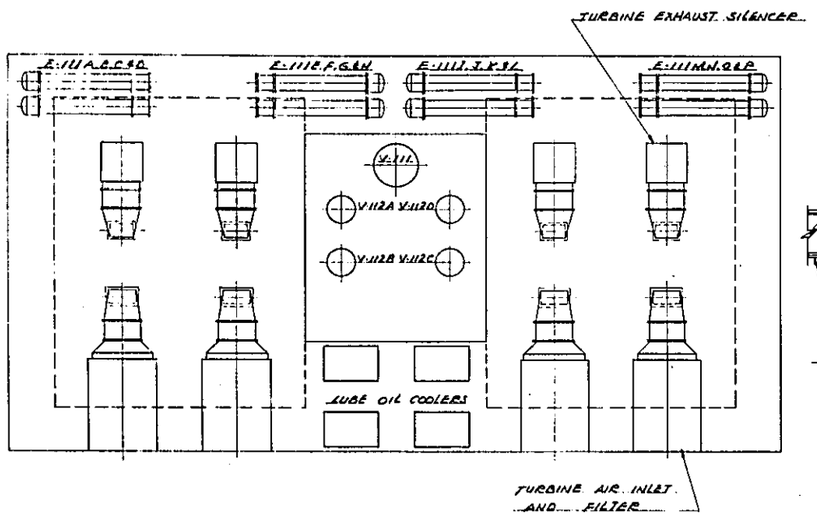
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

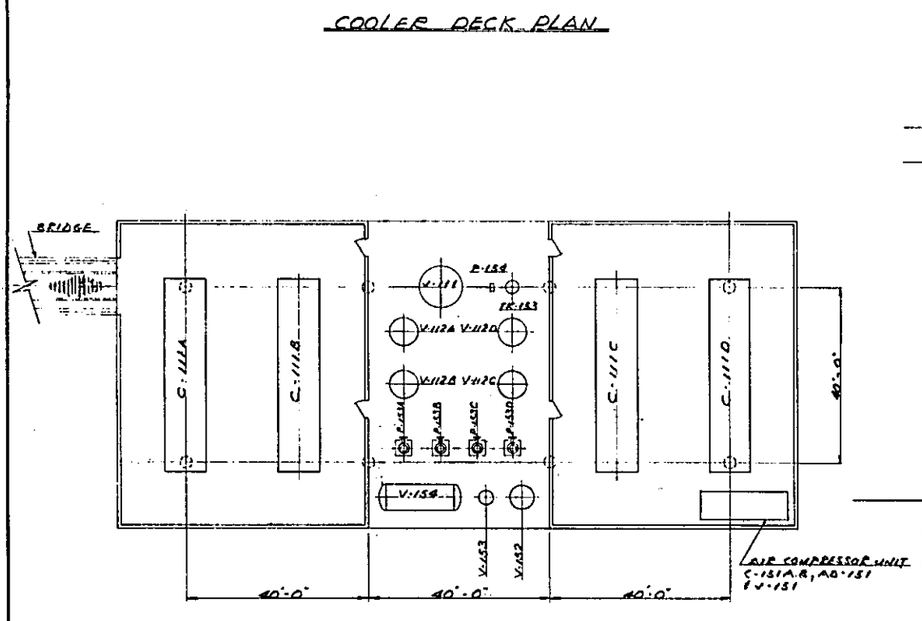
TITLE
FIG. 30-5-25 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 8-LEG GAS PRODUCTION & COMPRESSOR PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

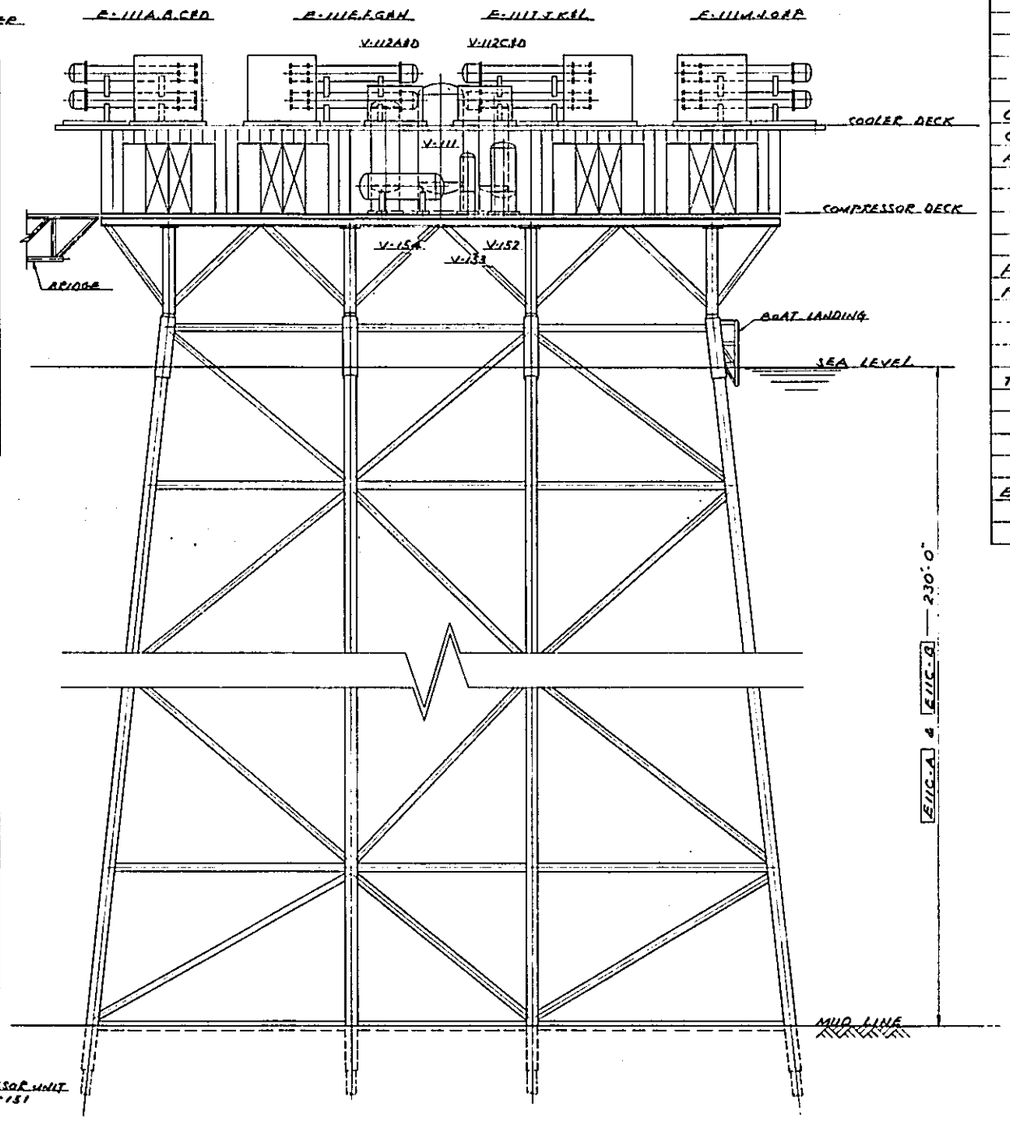
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



COOLER DECK PLAN



COMPRESSOR DECK PLAN



ELEVATION

EQUIPMENT LIST

ITEM NO.	DESCRIPTION
	VESSEL
V-111	KNOCK OUT DRUM
V-112A,B,C&D	UNIT SUCTION SCRUBBERS
V-151	INSTRUMENT AIR RECEIVER
V-152	FUEL GAS HOLDER
V-153	FUEL GAS FILTER
V-154	BLOW CASE
	MACHINERY
C-111A,B,C&D	GAS TURBINE COMPRESSORS
C-151A,B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-153A~D	SEAWATER PUMPS
P-154	FRESH WATER PUMP
	TANK
TK-153	FRESH WATER TANK
	HEAT EXCHANGER
E-111A~P	AFTER COOLERS

NOTE:
THIS FIGURE IS FOR E-111C-A & B.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

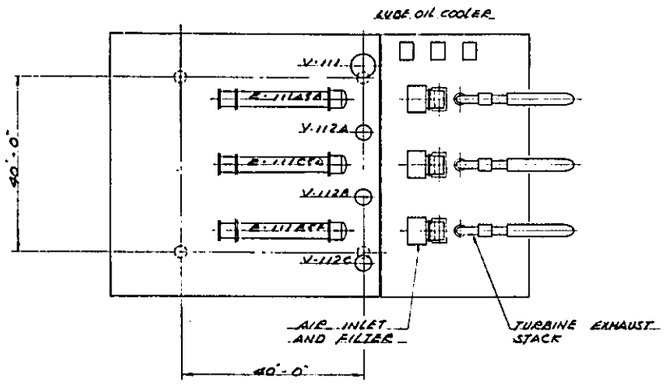
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

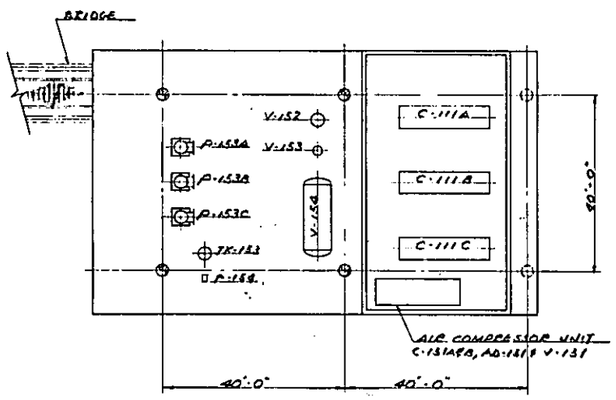
TITLE
FIG. 30-5-26(Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 8-LEG GAS COMPRESSOR PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

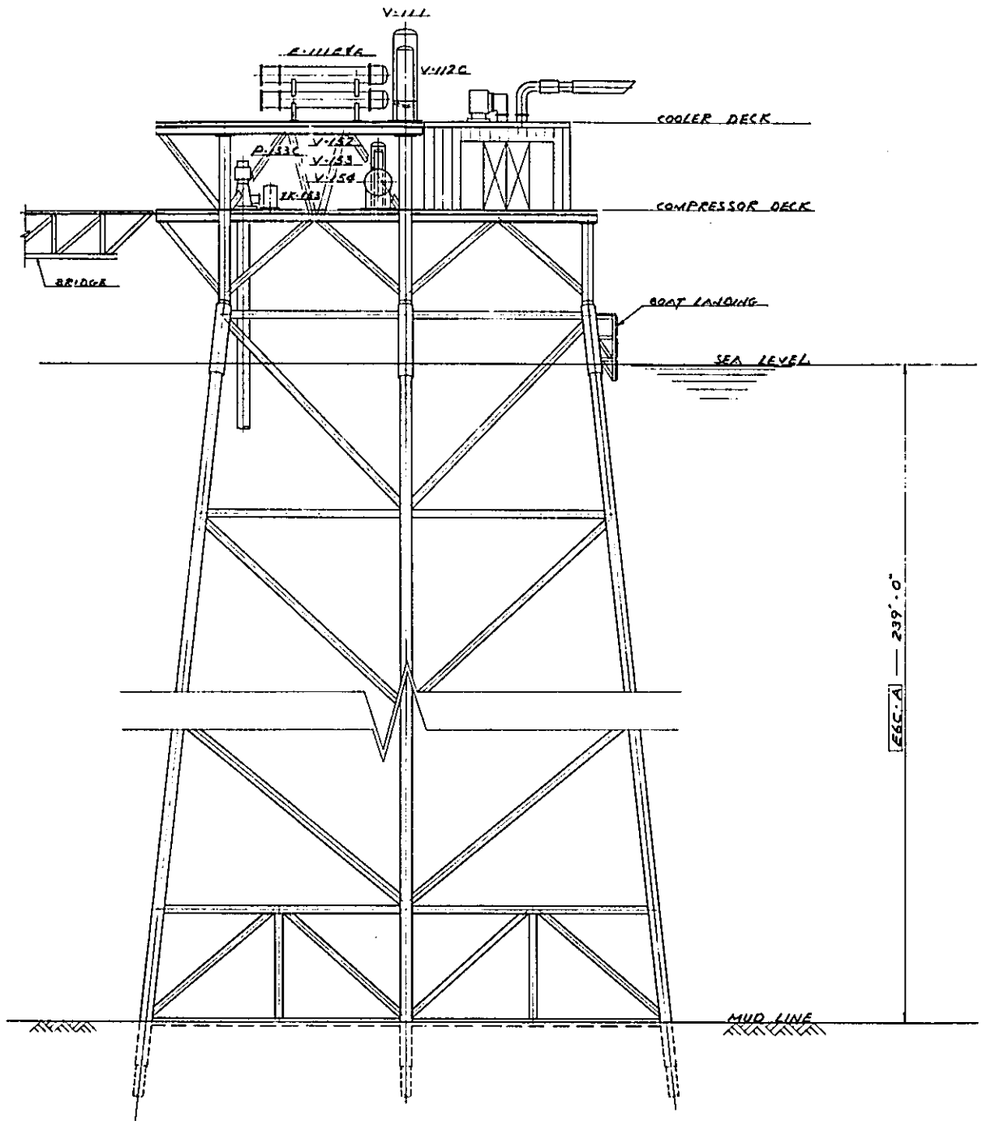
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



COOLER DECK PLAN



COMPRESSOR DECK PLAN



ELEVATION

EQUIPMENT LIST

ITEM NO.	DESCRITION
	VESSEL
V-111	KNOCK OUT DRUM
V-112A&B&C	UNIT SUCTION SCRUBBERS
V-151	INSTRUMENT AIR RECEIVER
V-152	FUEL GAS HOLDER
V-153	FUEL GAS FILTER
V-154	BLOW CASE
	MACHINERY
C-111A&B&C	GAS TURBINE COMPRESSORS
C-151A&B	INSTRUMENT AIR COMPRESSORS
AD-151	INSTRUMENT AIR DRYER
	PUMP
P-153A&B&C	SEAWATER PUMPS
P-154	FRESH WATER PUMP
	TANK
TK-153	FRESH WATER TANK
	HEAT EXCHANGER
E-111A~F	AFTER COOLERS

NOTE:
THIS FIGURE IS FOR EGC-A.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

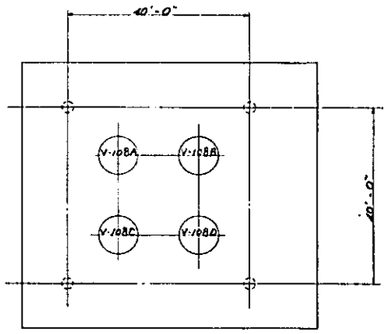
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

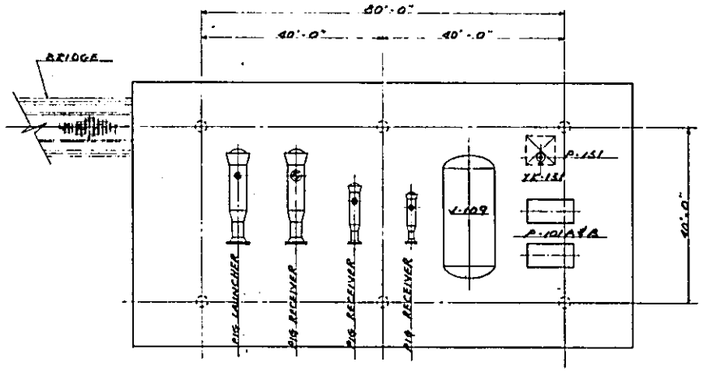
TITLE
FIG. 30-5-27 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 6-LEG GAS COMPRESSOR PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

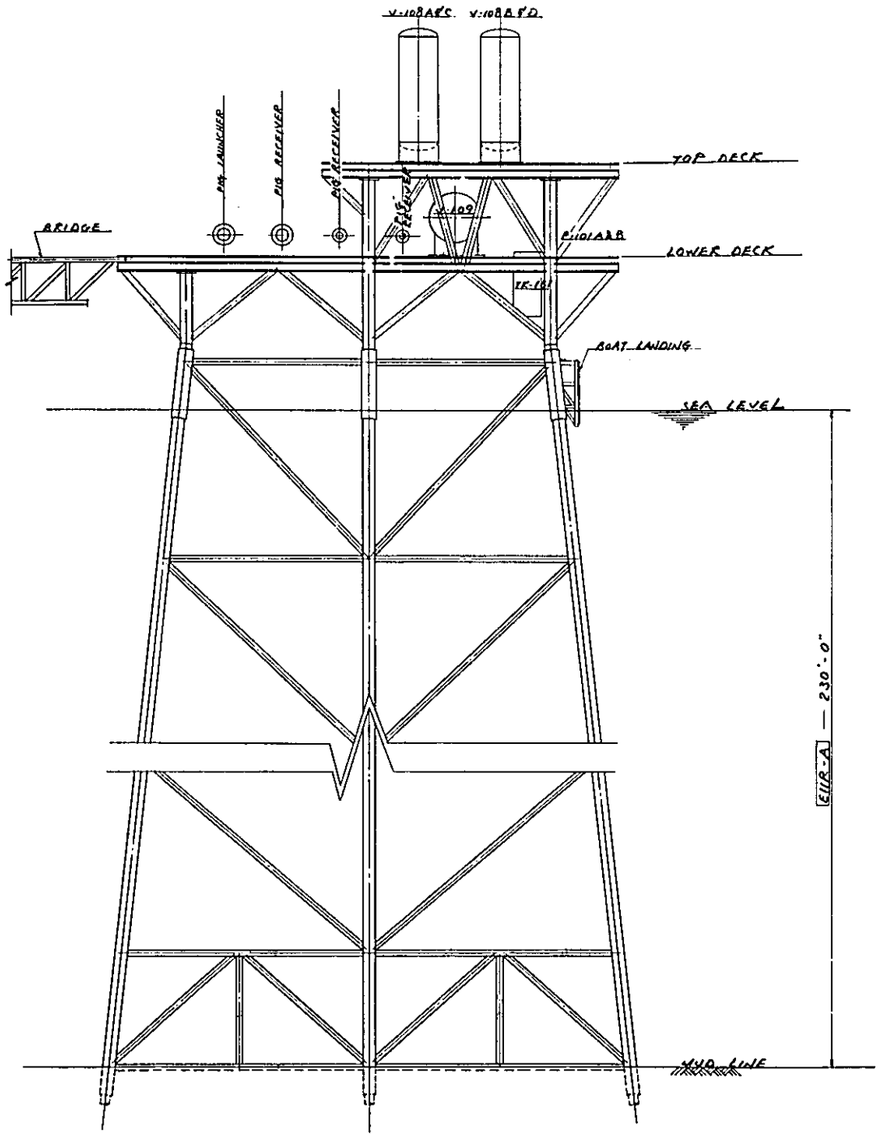
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



TOP DECK PLAN



LOWER DECK PLAN



ELEVATION

EQUIPMENT LIST

ITEM NO.	DESCRIPTION
	VESSEL
V-108A-D	CENTRIFUGAL SEPARATORS
V-109	FLASH TANK
	PUMP
P-101A&B	CONDENSATE PUMPS
P-151	SUMP PUMP
	TANK
TK-151	SUMP TANK

FOR BUDGET PURPOSE ONLY

NOTE:
THIS FIGURE IS FOR E11R-A.

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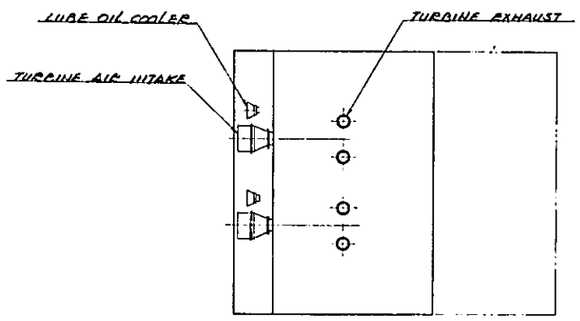
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

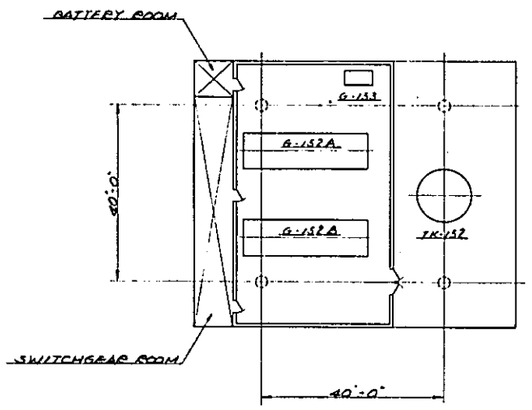
TITLE
FIG. 30-5-28 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 6-LEG RISER PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

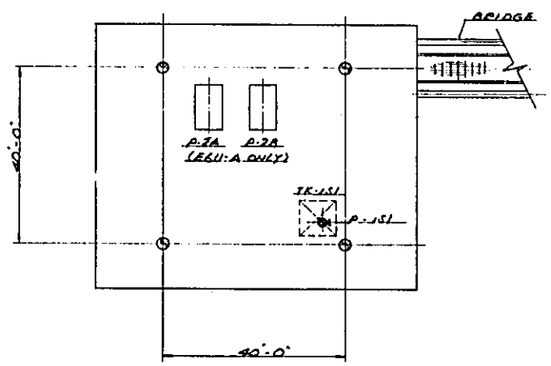
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



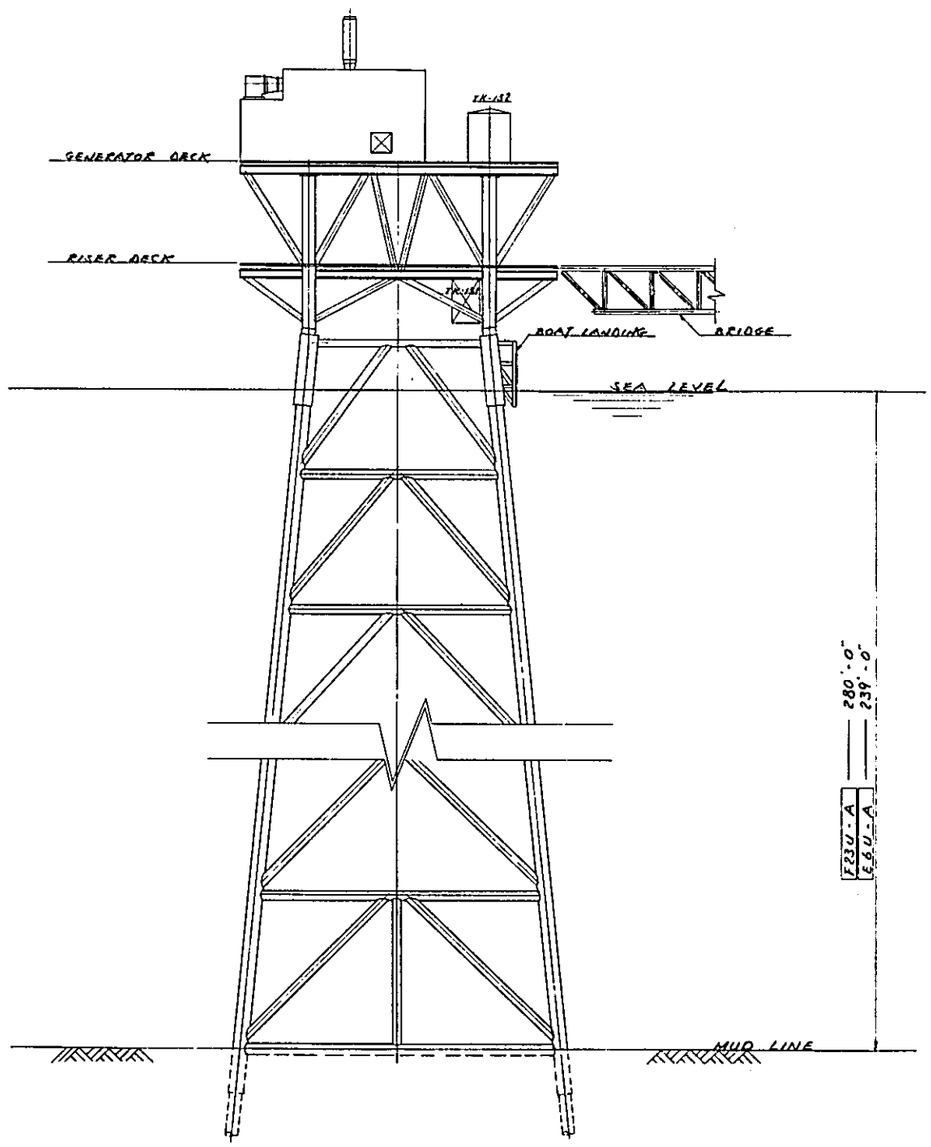
TOP PLAN



GENERATOR DECK PLAN



RISER DECK PLAN



ELEVATION

EQUIPMENT LIST	
TAG NO.	DESCRIPTION
	GENERATOR
G-152A&B	GAS TURBINE GENERATORS
G-153	EMERGENCY GENERATOR
	PUMP
P-2A&B	CRUDE TRANSFER PUMPS (E6U-A ONLY)
P-151	SUMP PUMP
	TANK
TK-151	SUMP TANK
TK-152	DIESEL STORAGE TANK

NOTE:
THIS FIGURE IS FOR F23U-A AND E6U-A.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

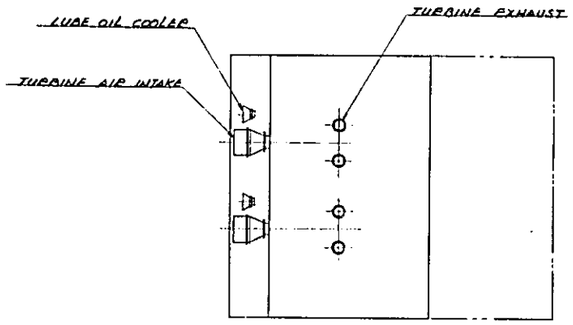
FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-29 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 4-LEG UTILITY PLATFORM

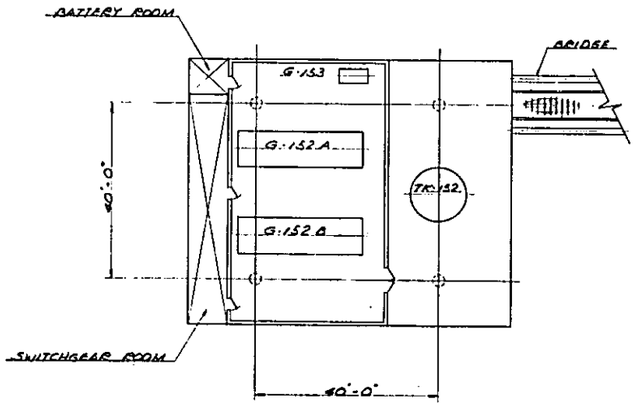
DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

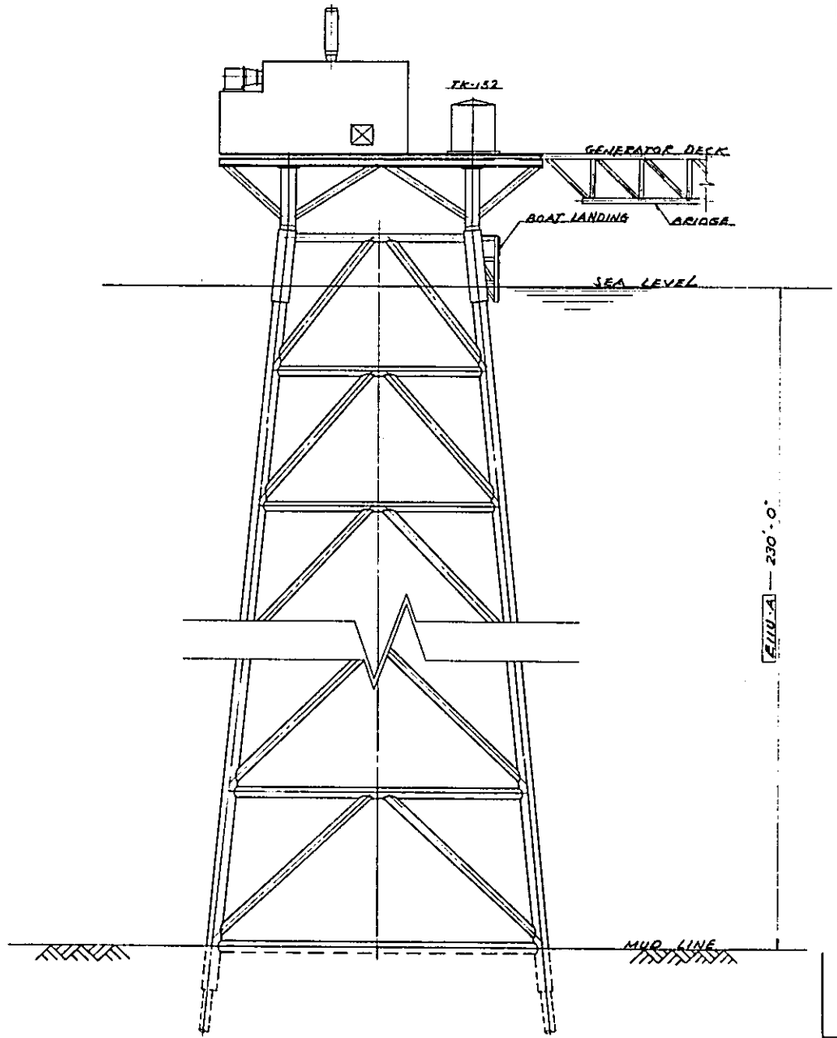
EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
	GENERATOR
G-152 A&B	GAS TURBINE GENERATOR
G-153	EMERGENCY GENERATOR
	TANK
TK-152	DIESEL STORAGE TANK



TOP PLAN



GENERATOR DECK PLAN



ELEVATION

NOTE:
THIS FIGURE IS FOR EIIU-A.

FOR BUDGET PURPOSE ONLY

NO.	REVISIONS	DATE	DRAWN	CHIEF

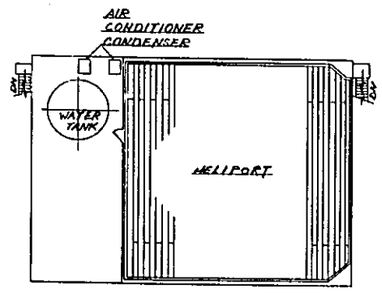
MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

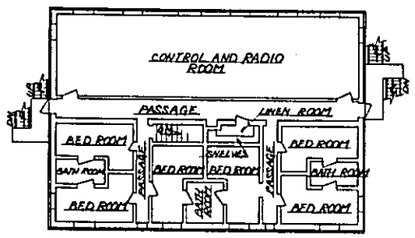
TITLE
FIG. 30-5-30 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 4-LEG UTILITY PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

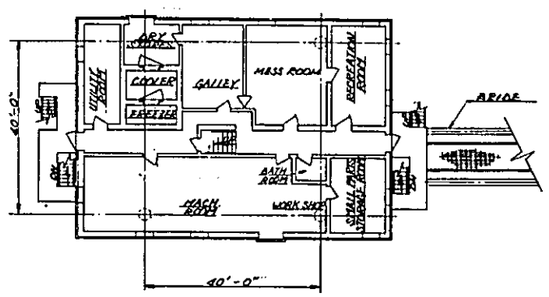
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN



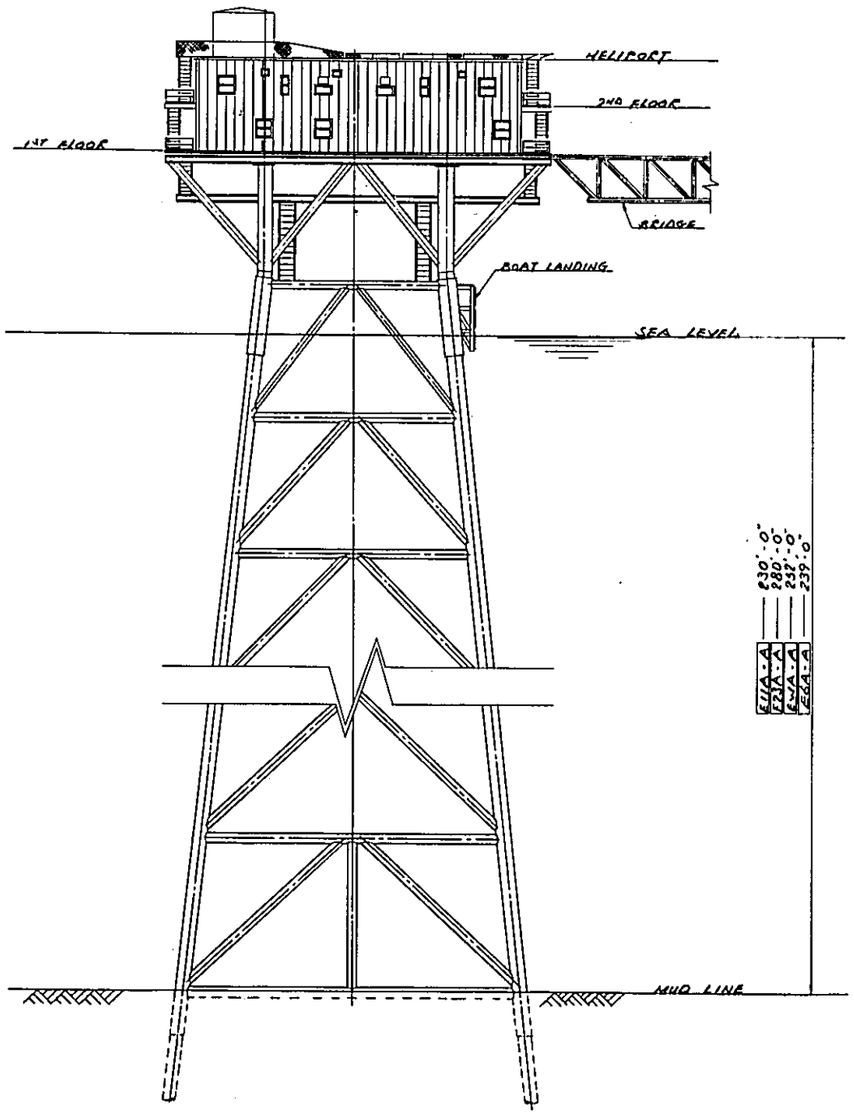
HELIPORT DECK PLAN.



2ND. FLOOR PLAN.



1st FLOOR PLAN.



ELEVATION

NOTE:
THIS FIGURE IS FOR F23A-A, E11A-A, E14A-A AND E24A-A.

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MASTER PLAN STUDY FOR THE DEVELOPMENT OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-5-31 (Vol. IV)
TYPICAL PLAN AND ELEVATION FOR 4-LEG ACCOMMODATION PLATFORM

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

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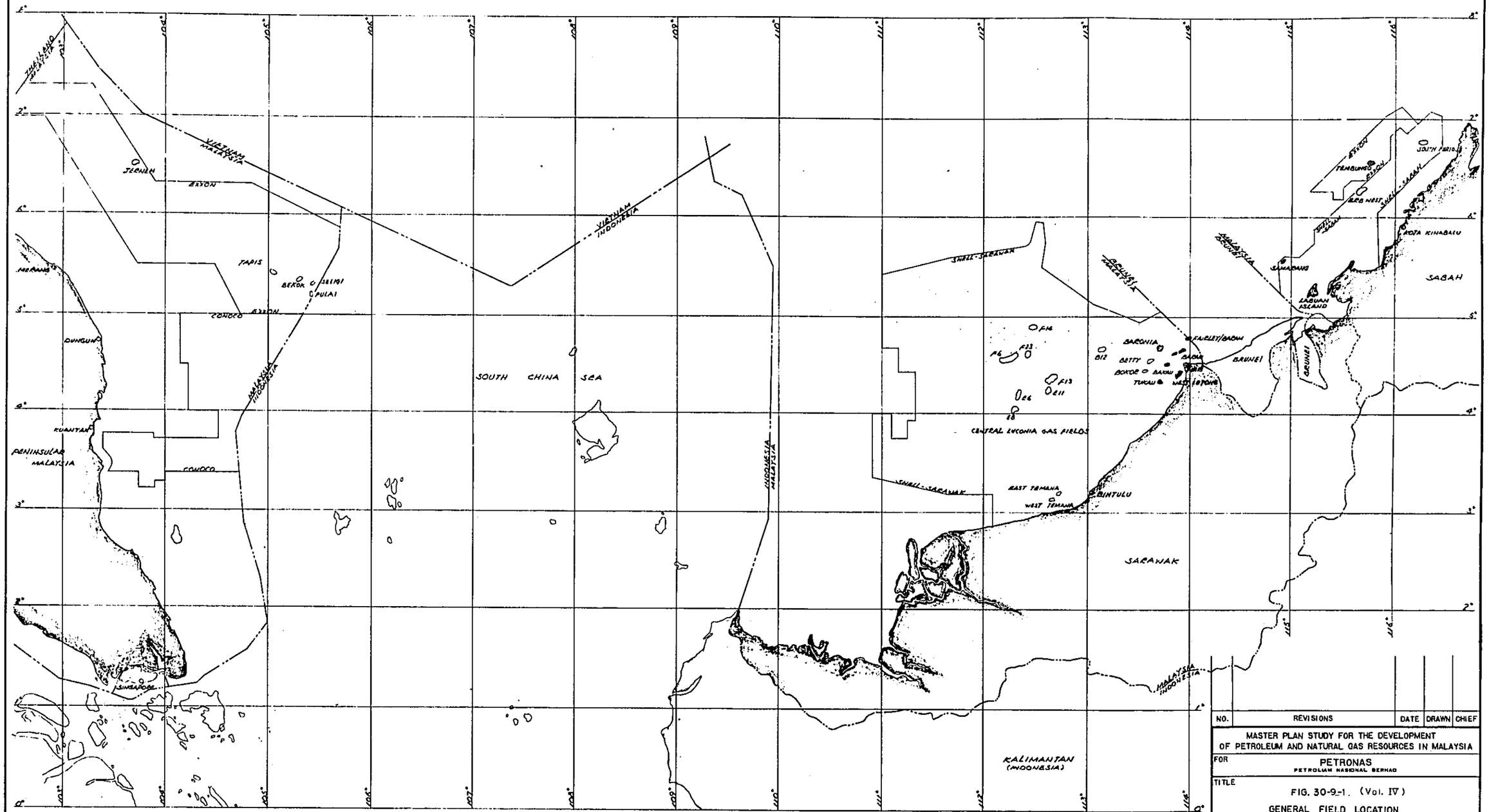
Fig. 30-5-32 (Vol. IV)

LEGEND FOR FLOW DIAGRAMS

PIC	PRESSURE INDICATING CONTROLLER
PC	PRESSURE CONTROLLER
PS	PRESSURE SWITCH
FRC	FLOW RECORDING CONTROLLER
FM	FLOW METER
FR	FLOW RECORDER
FI	FLOW INDICATOR
LC	LEVEL CONTROLLER
LS	LEVEL SWITCH
PSV	PRESSURE SAFETY VALVE
RD	RUPTURE DISC
DV	DELUGE VALVE
SD	SHUTDOWN VALVE
XV	MISCELLANEOUS VALVE

NOTE: PI (PRESSURE INDICATOR) AND TI (TEMPERATURE INDICATOR) ARE NOT SHOWN ON THE FLOW DIAGRAMS FOR SIMPLIFICATION.



NO.	REVISIONS	DATE	DRAWN	CHIEF

MASTER PLAN STUDY FOR THE DEVELOPMENT
OF PETROLEUM AND NATURAL GAS RESOURCES IN MALAYSIA

FOR PETRONAS
PETROLIAM NASIONAL BERHAD

TITLE
FIG. 30-9-1. (Vol. IV)
GENERAL FIELD LOCATION

DESIGN CHIEF		SCALE	
CHECKED BY		PROJECT NO.	
DESIGNED BY		DRAWING NO.	
DRAWN BY		DATE	

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN

Fig. 31-6-1 (Vol. IV) DRILLING & COMPLETION COST OF DEVELOPMENT WELL

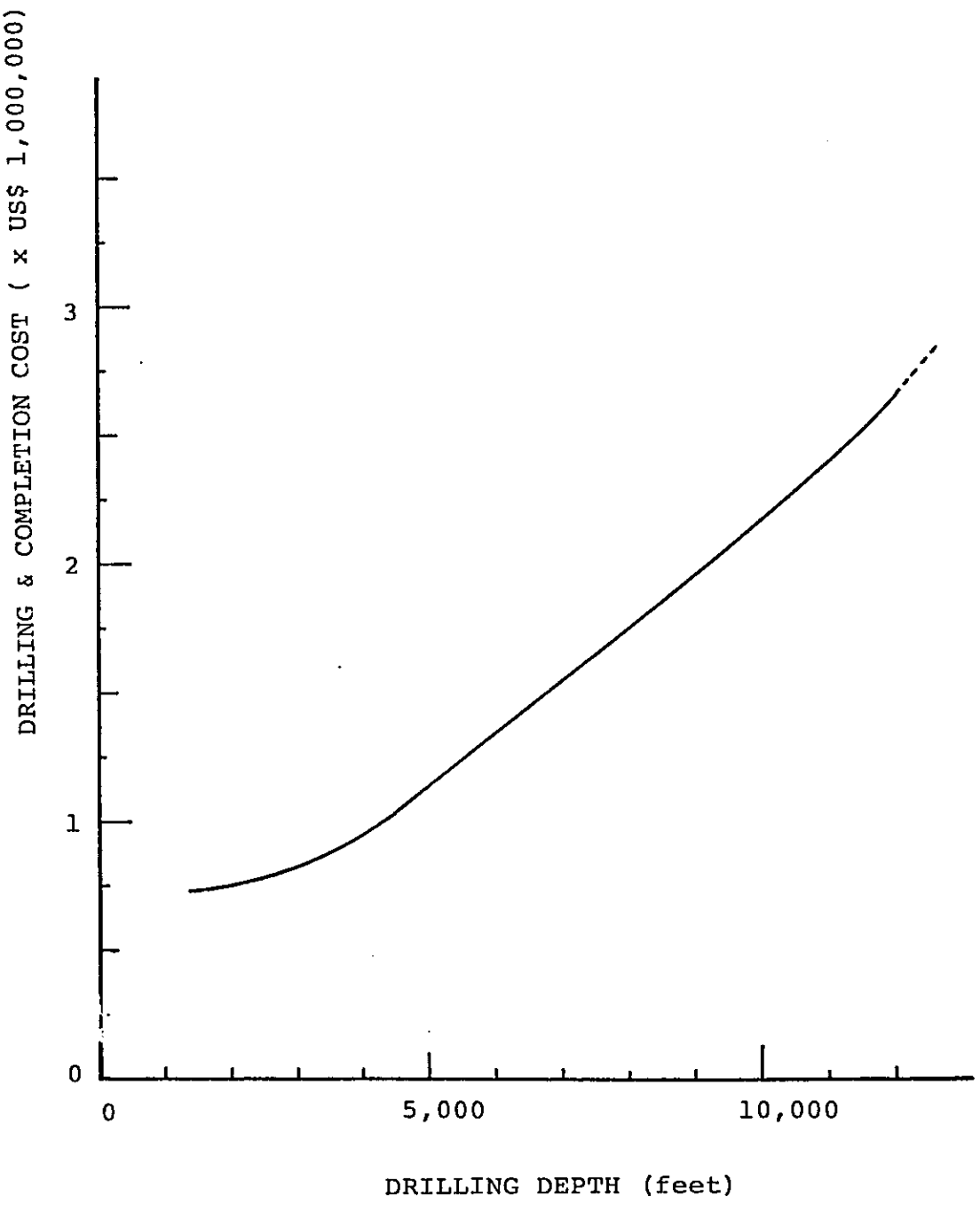


Fig. 31-6-2 (Vol. IV)

TENTATIVE ORGANIZATION FOR FIELD OPERATION

(80 Persons Case)

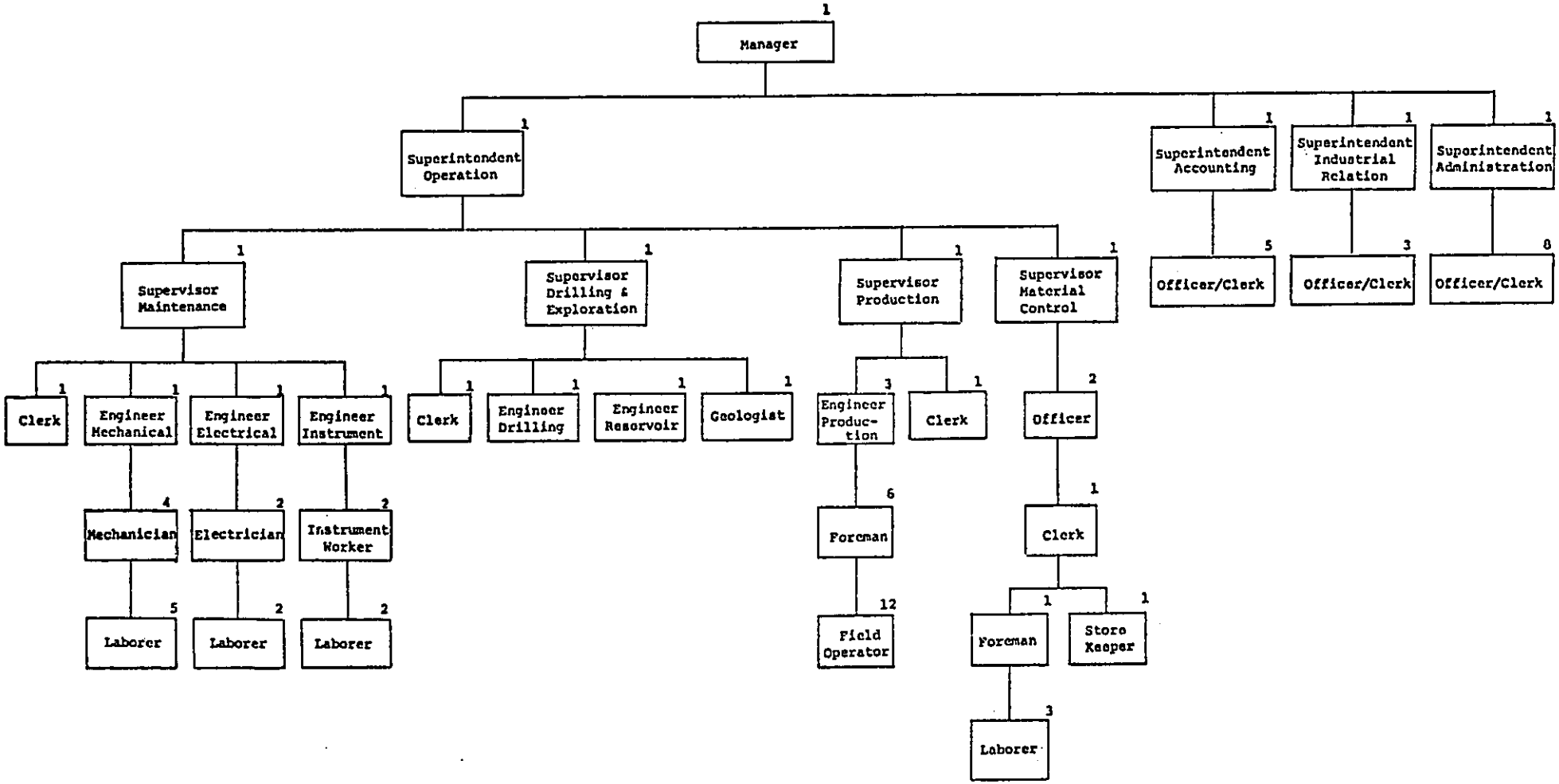


Fig. 31-6-3 (Vol. IV)

TENTATIVE ORGANIZATION FOR FIELD OPERATION

(128 Persons Case)

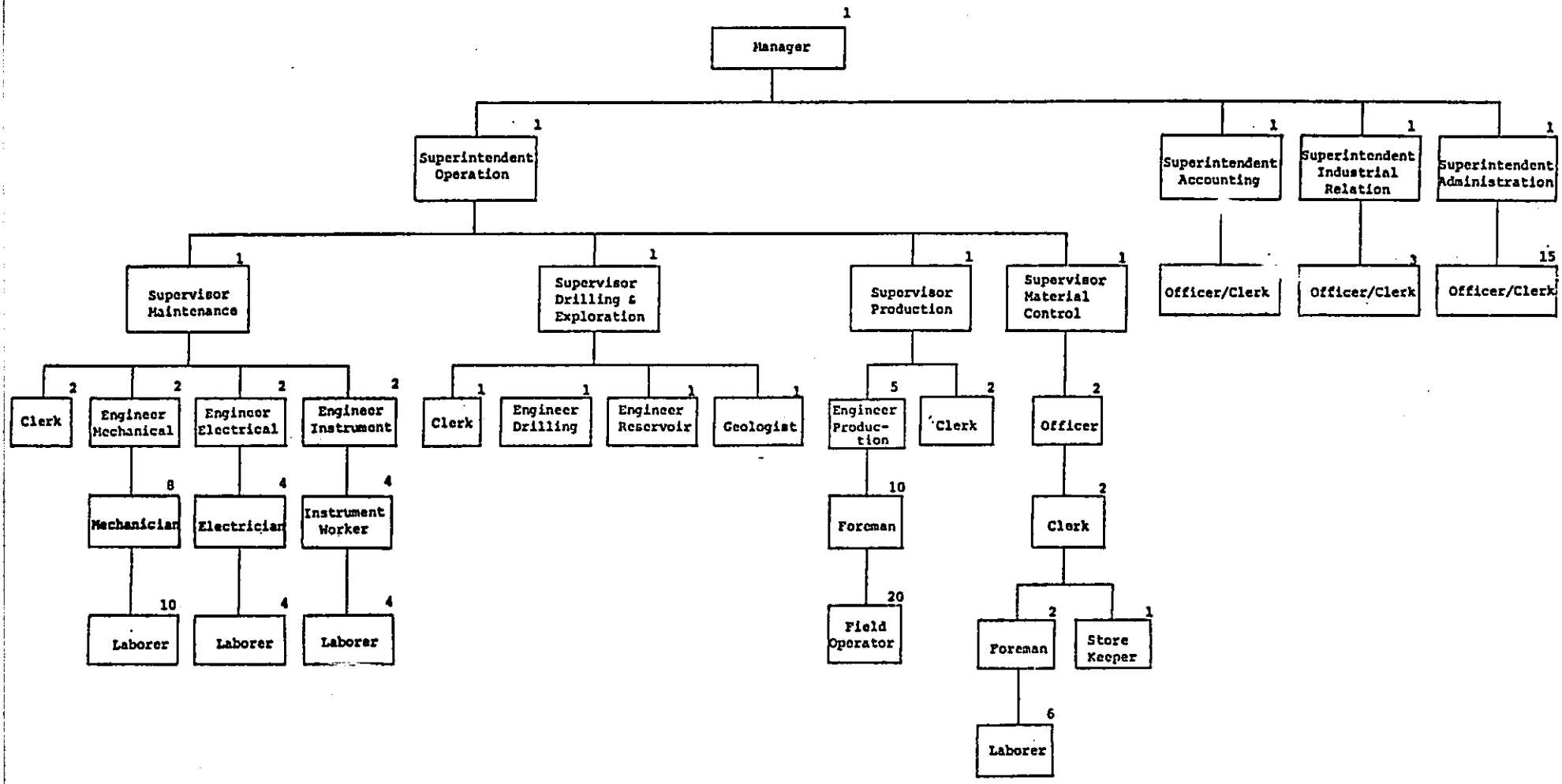


Fig. 31-6-4 (Vol. IV)

TENTATIVE ORGANIZATION FOR FIELD OPERATION

(135 Persons Case)

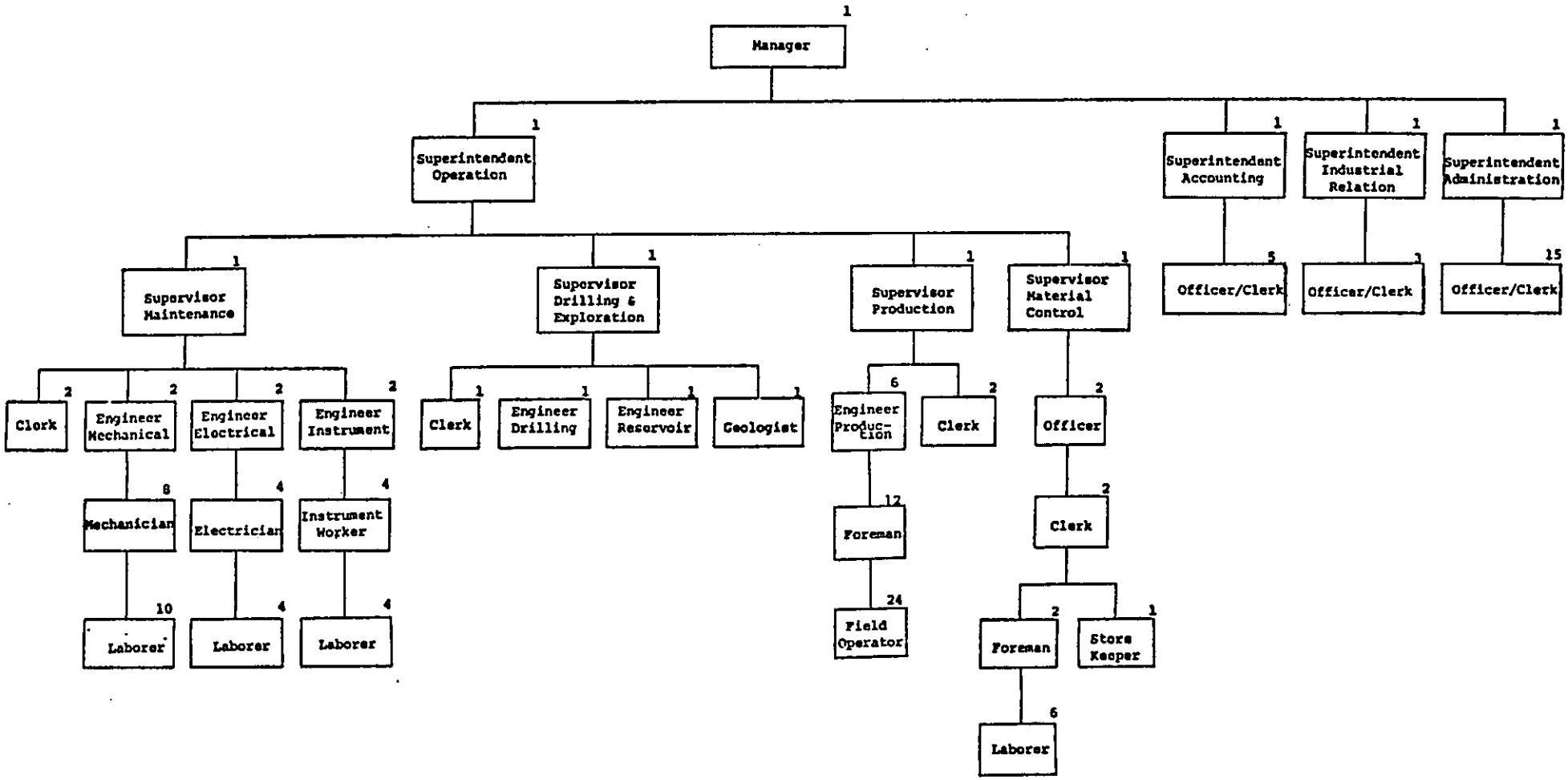


Fig. 31-6-5 (Vol. IV)

TENTATIVE ORGANIZATION FOR FIELD OPERATION

(146 Persons Case)

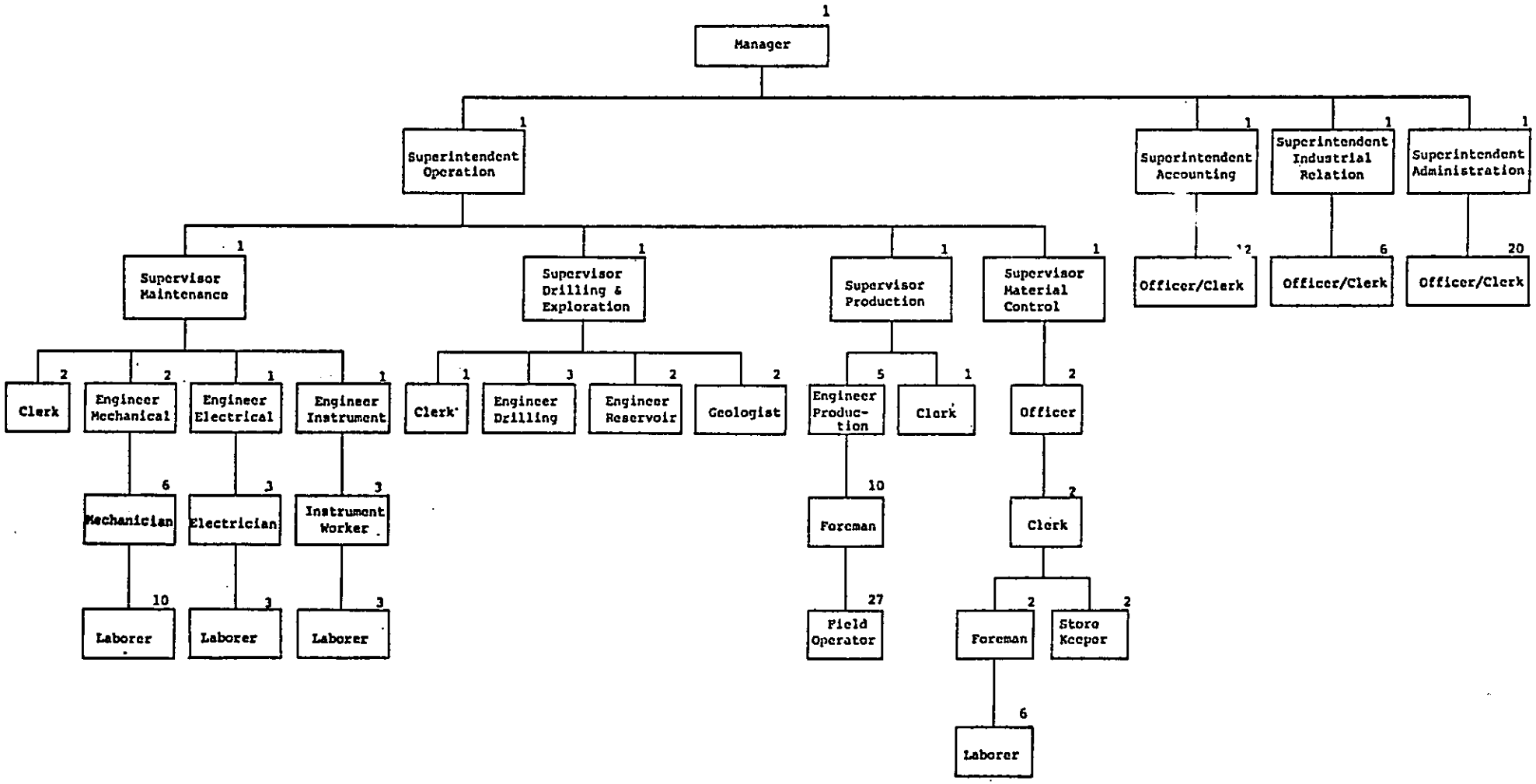
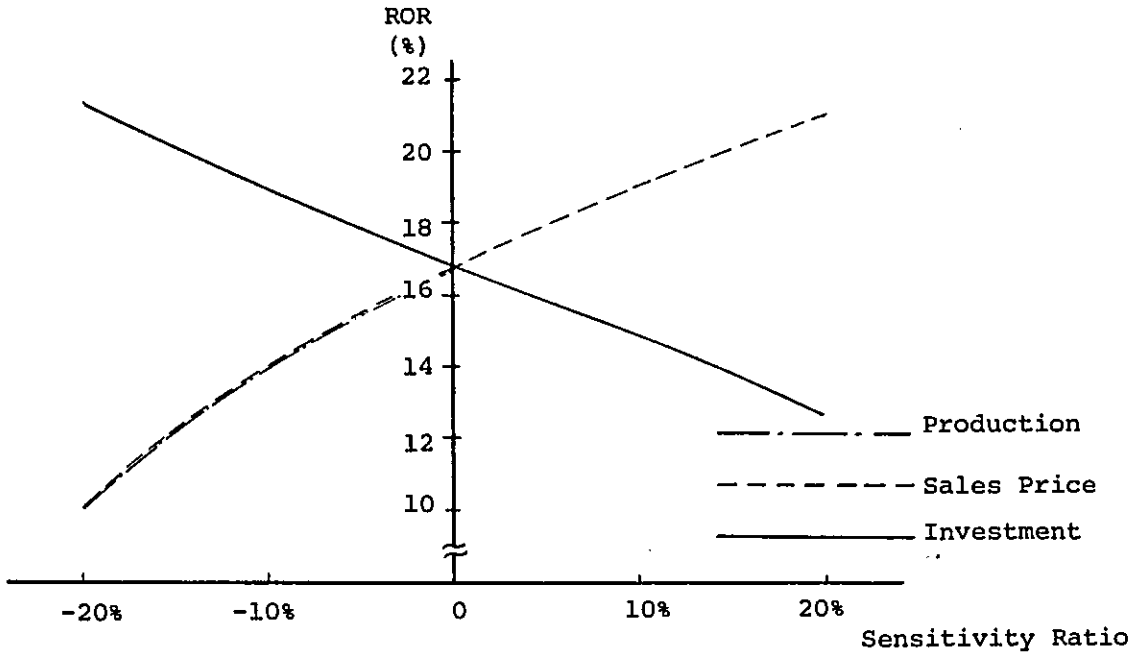


Fig. 31-6-8 (Vol. IV) SENSITIVITY CURVE FOR SARAWAK AREA

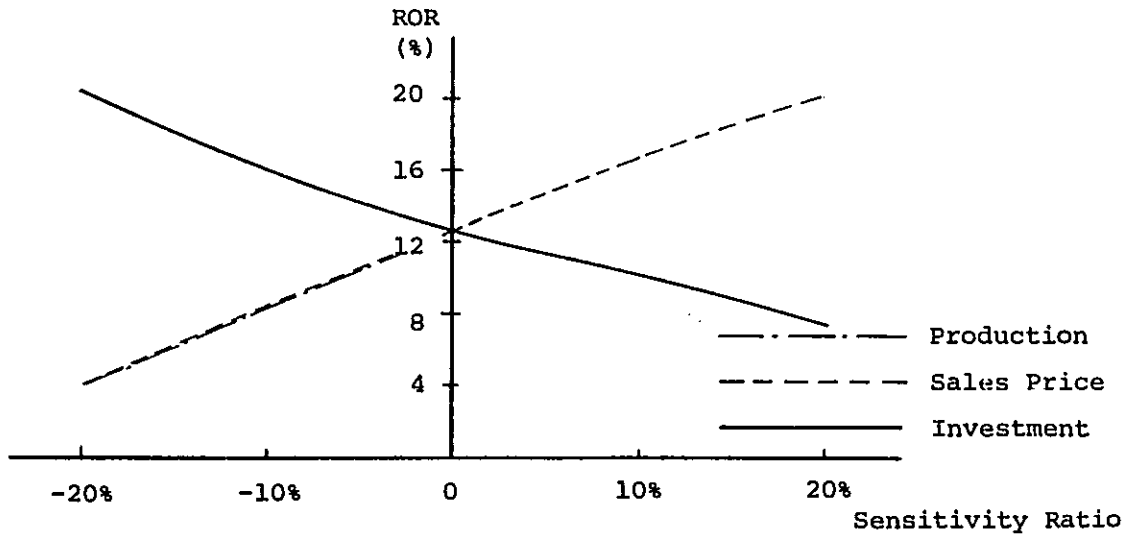
West Temana & E-6 Fields

Optimum Case: E-6, Onshore Terminal - CASE IIB



Betty & Bokor Fields

Optimum Case: Betty, Bakau Gathering System - CASE II



APPENDIX

APPENDIX I

Correspondence of Zones to the Shell Nomenclature
for Producing Fields

Correspondence of Zones to the Shell Nomenclature for Producing Fields

W.Lutong Field		Baram A Field		Baram B Field		Baronia Field		Fairley-Baram Field		Tukau Field	
Zone	Shell	Zone	Shell	Zone	Shell	Zone	Shell	Zone	Shell	Zone	Shell
Top a_1	Top A_0	Top a_0	Top K1	Top a_0	Top L7	Top a_1	Top RL_3	Top a_1	Top L_1	Top a	Top C1
a_2	c_1	a_1	M4	a_1	N1	a_2	RM_2	a_2	P_1	b_1	E6
a_3	∿ E_1	a_2	N2	a_2	O4	a_3	RN_2	a_3	P_4	b_2	F2
b_1	F_1	b	O1	b_1	P1.1	b	RO	a_4	P_5	b_3	∿ F6
b_2	I	c_1	P1	b_2	P3.1	c_1	RP_1	b_1	Q_5	c_1	G5.5
c_1	K	c_2	P4	b_3	P4.1	c_2	∿ RP_2	b_2	Q_6	c_2	H4
c_2	N	d_1	Q5	c_1	P7	d_1	-	b_3	$Q_{6.1}$	d_1	I1
c_3	P_1	d_2	R1	c_2	Q3	d_2	RR_2	c	∿ R_1	d_2	I4
d_1	Q	e_1	S1	c_3	Q5	d_3	-	d	R_5	d_3	I7
d_2	U_1	e_2	S4	c_4	R1	d_4	RS_2			d_4	J2
d_3	V_1	f_1	S6	d_1	S1.1	e	RT_1			e_1	∿ L2
e_1	W_1	f_2	S8	d_2	S4	f_1	RU_2			e_2	M1
e_2	X_1	g_1	S11	e_1	S6.1	f_2	RV_2			e_3	M5
e_3	Z_{1A}	g_2	S13	e_2	S8.1	g	RW_1			e_4	N1
		g_3	S14	e_3	S9.1					f_1	N7
				f	S11.1					f_2	O1
				g_1	S13.1						
				g_2	S15.1						

APPENDIX II

LOG INTERPRETATION RESULTS

SARAWAK AREA

1. Baronia Field

The water resistivity value was 0.09 Ω-m @ 150°F. In this area the value belongs to lower one. Water saturation was somewhat high. The porosities of core samples corresponding the intervals which are under 20% shale contents were compared with log derived porosity. The results are average core derived porosity equal to 20.6% and average log derived porosity equal to 20.3%. They are consistent each other.

2. Fairly Baram Field

As water resistivity value 0.22 Ω-m @ 70°F was used. The water saturation is in the range between 30% and 60%. This value is somewaht high. Generally gas zones show lower water saturation than oil zones. In well No.2 and well No.3 corings were conducted and each core was analyzed. In comparing each other for points picked up continuously under 10% shale contents the average core derived porosity is 21.8% and the average log derived porosity is 21.7% for well No.2. And for well No.3 the average core derived porosity is 25.6% and the average log derived porosity is 22.5%. These values show good coincidance in spite of the correlation difficulty, especially, in well No.2.

3. West Lutong Field

Porosity and water saturation were calculated every two feet by computer using Rw = 0.205 Ω-m @ 100°F.

Generally speaking, water saturation was high relatively. As for porosity log derived porosity has a tendency to show somewhat lower than core derived porosity. The porosities of core samples corresponding the intervals which are under 10% shale contents were compared with log derived porosity. The results are average core porosity equal to 24.4% and average log derived porosity equal to 19.6%. They are not consistent each other. As the explanation of this unconsistency it is considered that in analysing cores shales have been washed out, so core derived porosity shows good result.

4. Baram Field

For Baram A area 0.135 Ω-m @ 150°F and for Baram B area 0.13 Ω-m @ 170°F for water resistivity are used. Calculation was done every two feet by computer. Generally water saturation is high. Core analysis was conducted on Well No.8. But coring intervals were out of log interpreted intervals, so the comparison between log derived porosity and core derived porosity was not done.

5. Bakau Field

As water resistivity value 0.12 Ω-m @ 206°F was used. Water saturation is somwhat high. As there is no core analysis data so the comparison with log derived porosity can not be done. But the magnitude of porosity is in the range of reasonable value.

6. Tukau Field

As water resistivity value 0.12 Ω-m @ 140°F was used. Water saturation is in the range between 30% and 50%. The porosities of core samples corresponding the intervals which are under 20% shale contents in log analysis were compared with log derived porosity. The results are average core porosity is 24.9%, average log derived porosity is 22.4%.

7. Betty Field

There are gas zones or oil zones encountered at only well No.1 and well No.3. So the well log analysis was conducted for well No.1 and well No.3. The water resistivity value was 0.11 Ω-m @ 180°F.

As the core analysis is not conducted, so the comparison with the porosity derived from the core analysis. The within the reasonable range.

8. Bokor Field

0.16 Ω-m @ 140°F was used for the water resistivity value. The cores are not available. The water saturations are generally somewhat high. But when this value and the porosity value were compared with the value of other nearby fields the values are reasonable.

9. Temana Field

Analyzed wells are well No.2 Well No.10 except Well No.1. No.1 Well was excluded because the recording quality is not good.

The water resistivity value was 0.15 Ω-m @ 152°F. The water saturation was very high except well No.9. The value almost exceeds 50%.

The comparison with core analysis data was not done because of imperfect data quality.

10. Beryl Field

In Beryl wells they do not encounter the gas or oil zones. So the well log analysis does not conducted for this field.

11. Siwa Field

Only well No.4 which has hydrocarbon bearing intervals was analysed.

For the water resistivity value 0.4 Ω-m @120°F was used. The relationship $F = 0.62/\phi^{2.15}$ was used. The coring was not planned.

12. Central Luconia Area

In this area m and a values were gotten from core analysis data in the E-8 field and E-11 field. The relations are $F = 1.04/\phi^{1.84}$ in the E-8 field and $F = 1/\phi^{2}$ in the E-11 field. In considering that the main lighology in this area is either limestone or dolomite, either of the two relations was used in calculation.

The water resistivity values show simillar values as other field in the Sarawak area. The value of each field was shown in the table.

In every field in the Central Luconia area the water saturation values were 10 to 20 % and lower than any other zones dominated by sand and shale of the other field in the Sarawak area.

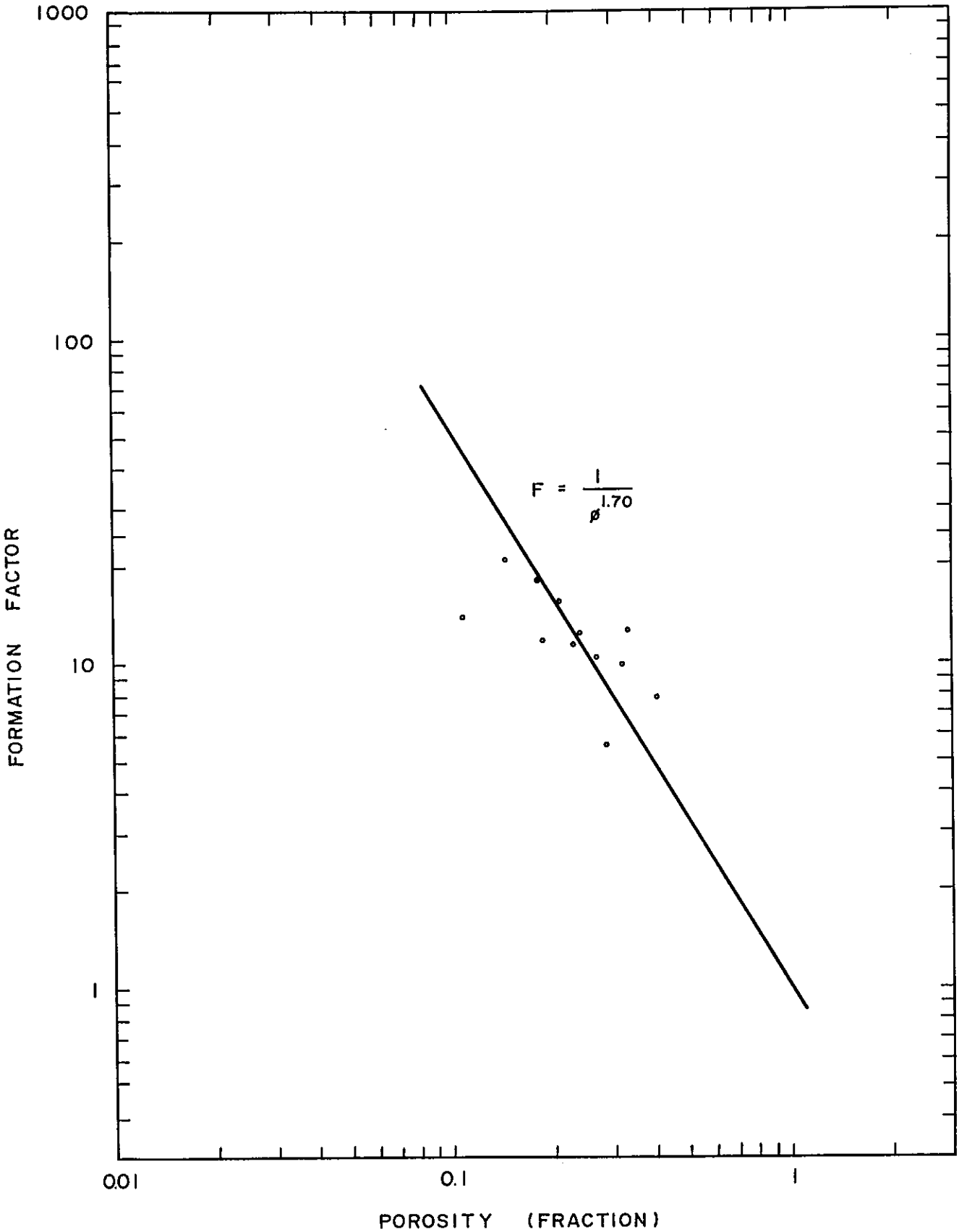
From core analysis data of E-8-2, E-11-1, F-6-1, F-23-1 the porosity cut-off was fixed 10% corresponding to area 99% flow capacity.

Shale contents out-off (Vsh Cut off) limit was decided 60% from the comparison of porosity and shale contents of log analysis results. Water saturation cut off limit was adopted 60%.

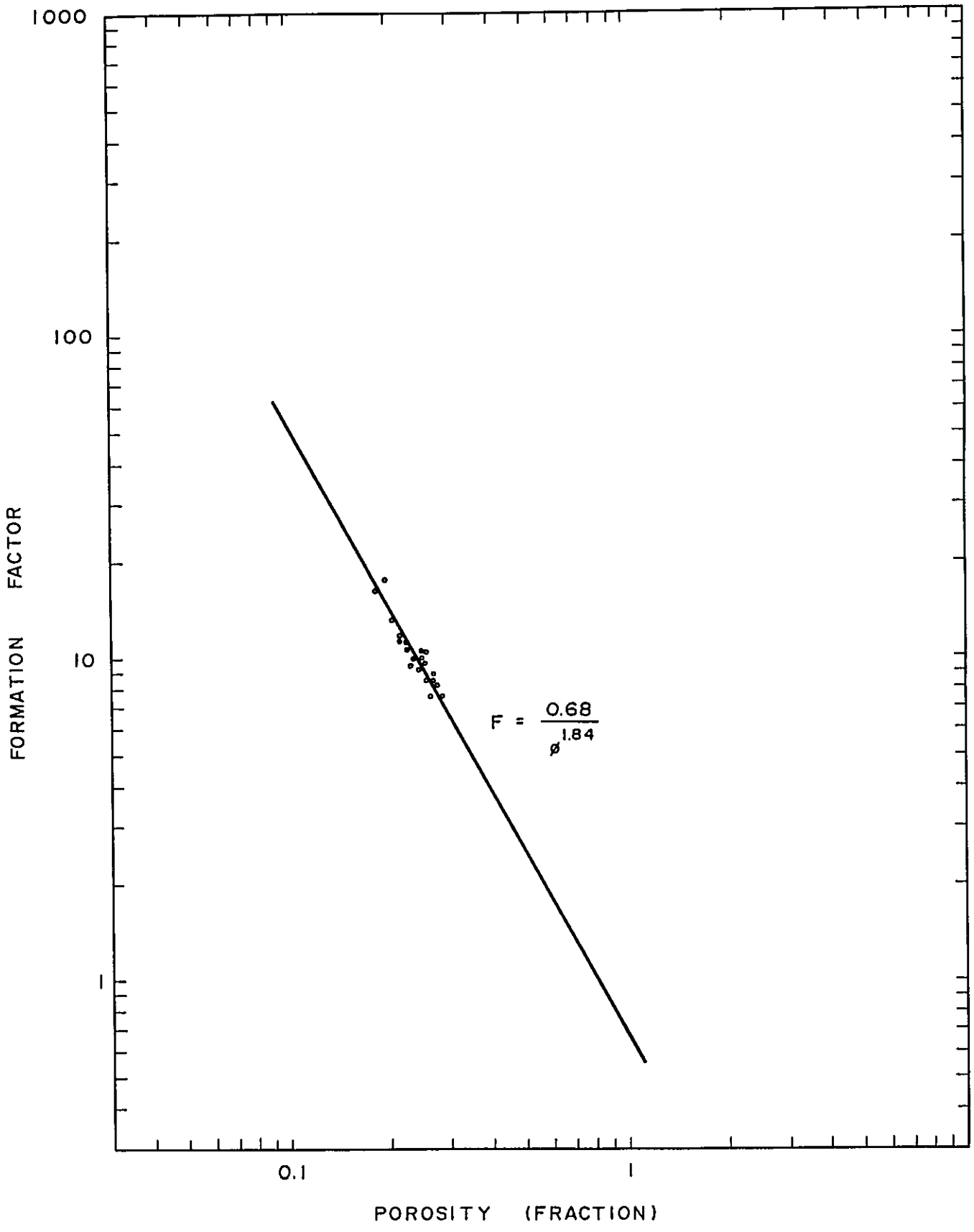
IMPORTANT PARAMETER USED FOR LOG-ANALYSIS

- SABAH AND SARAWAK -

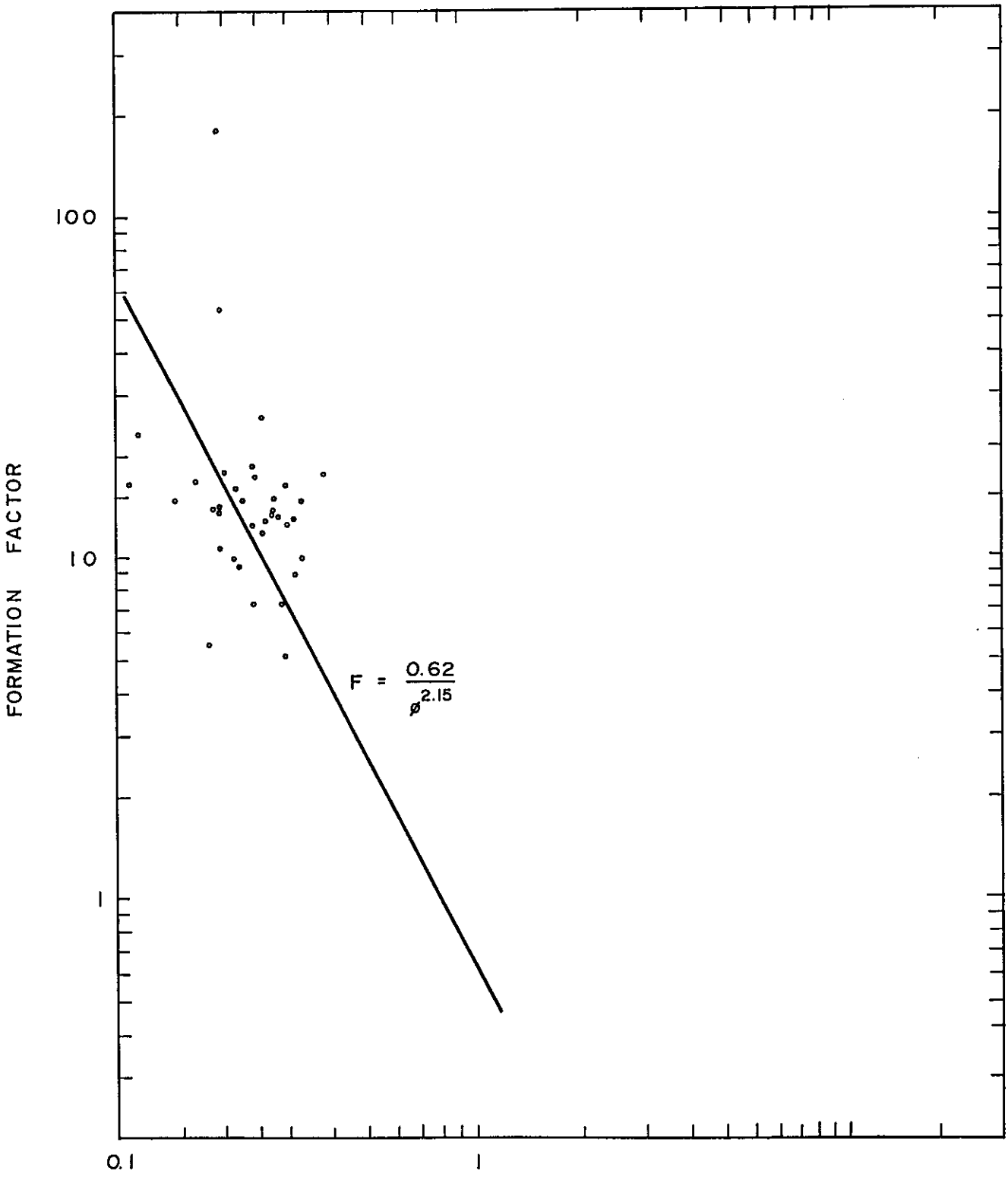
FIELD	CEMENTATION FACTOR (m)	ARCHIE FORMULA'S CONSTANT (a)	SATURATION EXPONENT (n)	WATER RESISTIVITY (Ω-M @ F.T.)
TEMANA	2	1	2	0.15 @ 152°F
SOUTH FURIOUS	1.69	1	2	0.22 @ 155°F
BETTY	2	1	2	0.11 @ 180°F
BOKOR	2.15	0.62	2	0.16 @ 140°F
ERB WEST	2.15	0.62	2	0.13 @ 145°F
ERB SOUTH	2.15	0.62	2	0.3 @ 120°F
ST. JOSEPH	2.15	0.62	2	0.25 @ 150°F
WEST EMERALD	2.15	0.62	2	0.21 @ 135°F
BERYL	1.87	0.7	2	
SIWA	2.15	0.62	2	0.4 @ 120°F
CENTRAL LUCONIA				
B12	1.84	1.04	1.84	0.096@ 240°F
E6	1.84	1.04	1.84	0.23 @ 70°F
E8	1.84	1.04	1.84	0.102@ 148°F
E11	1.84	1.04	1.84	0.096@ 165°F
F6	1.84	1.04	1.84	0.096@ 152°F
F9	2	1	2	0.208@ 170°F
F13	1.84	1.04	0.84	0.25 @ 184°F
F14	1.84	1.04	1.84	0.124@ 148°F
F22	1.84	1.04	1.84	0.2 @ 170°F
F23	1.84	1.04	1.84	0.16 @ 204°F
K4	2	1	2	0.102@ 175°F
M1	1.84	1.04	1.84	0.11 @ 162°F
M3	1.84	1.04	0.84	0.06 @ 203°F
M5	1.84	1.04	1.84	0.06 @ 206°F
BARAM A	1.87	0.7	2	0.135@ 150°F
BARAM B	1.87	0.7	2	0.13 @ 170°F
BAKAU	2.15	0.62	2	0.11 @ 206°F
BARONIA	1.69	1	2.0	0.09 @ 150°F
RAIRLY BARAM	2.15	1	1.49	0.22 @ 70°F
SAMMARANG	1.8	1	1.8	0.111@ 142°F
TEMBUNGO	1.93	1.14	1.93	0.14 @ 150°F
TUKAU	2.15	0.62	2	0.12 @ 140°F
WEST LUTONG	1.84	0.68	2	0.205@ 100°F



FORMATION FACTOR VS POROSITY PLOT
FAIRLY BARAM 2

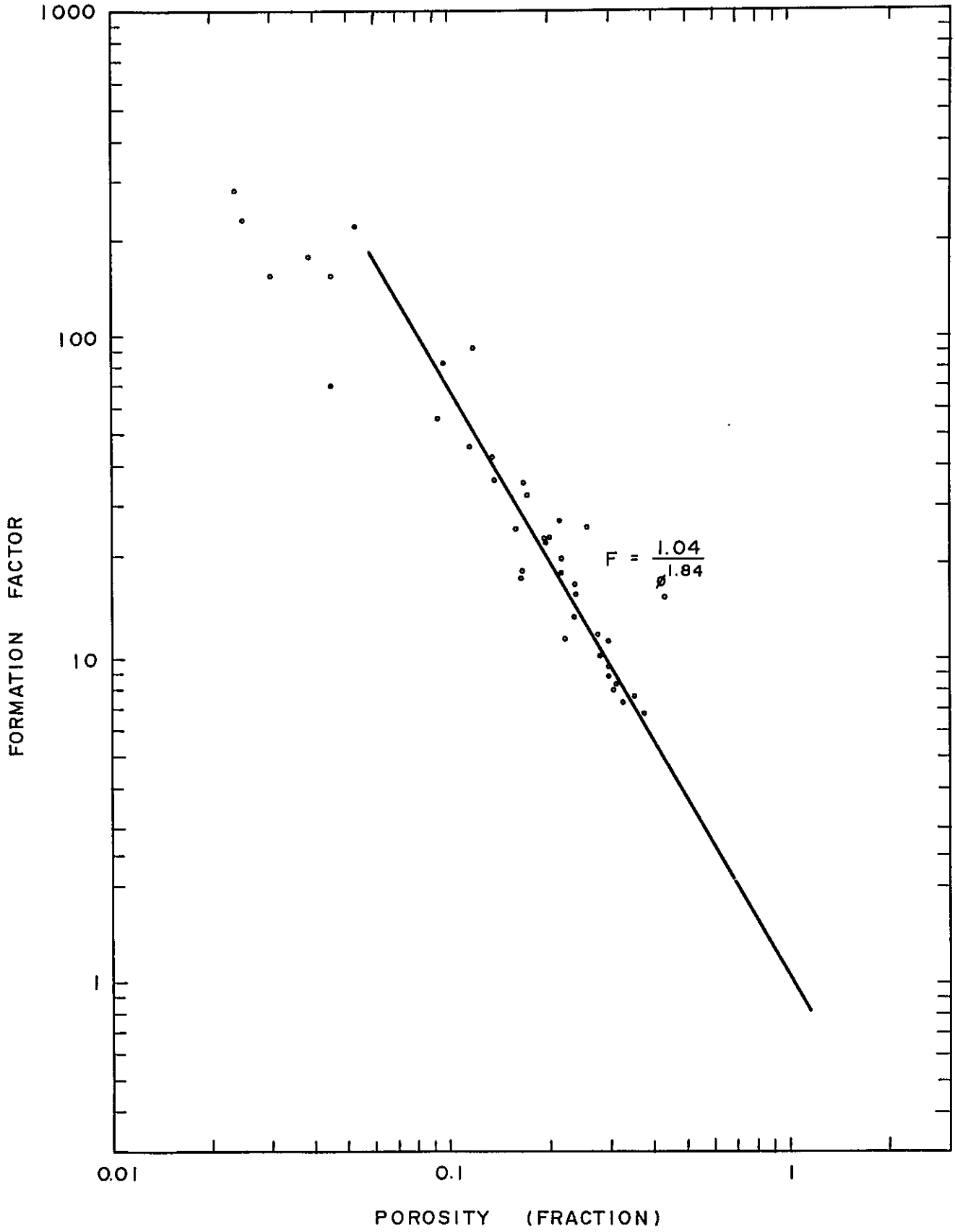


FORMATION FACTOR VS POROSITY PLOT
WEST LUTONG 4

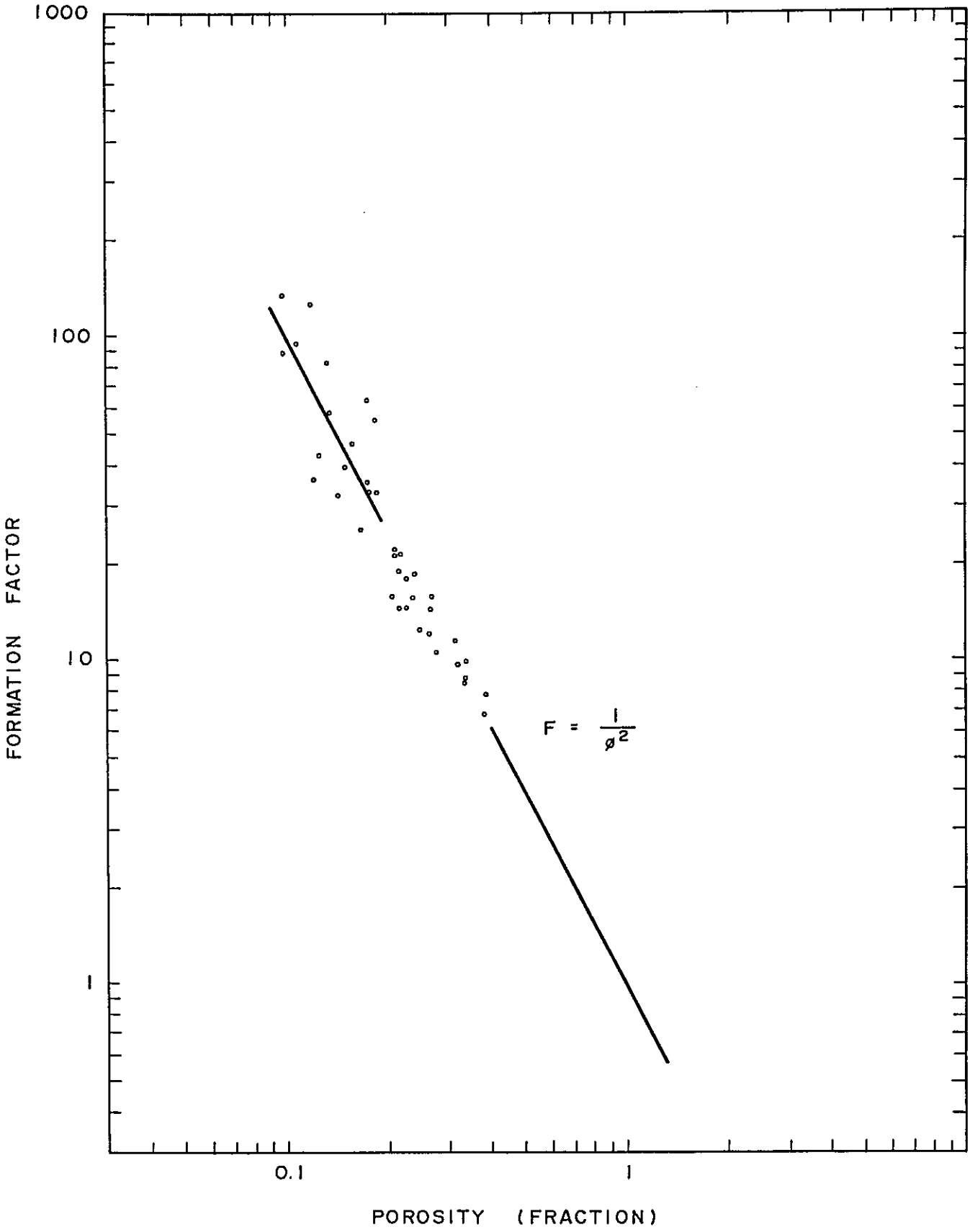


FORMATION FACTOR VS POROSITY PLOT

TUKAU 10

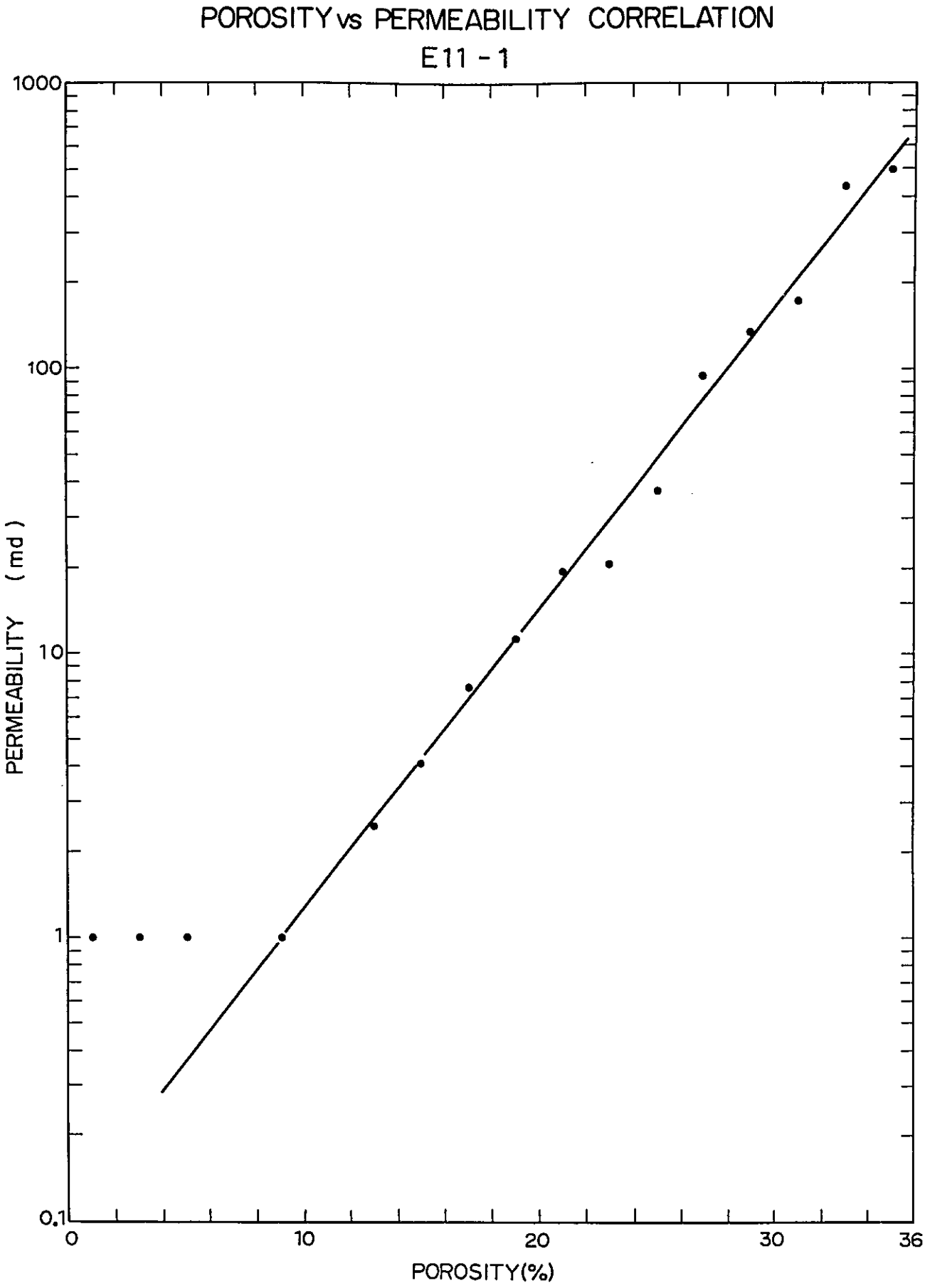


FORMATION FACTOR VS POROSITY PLOT
CENTRAL LUCONIA E8-2



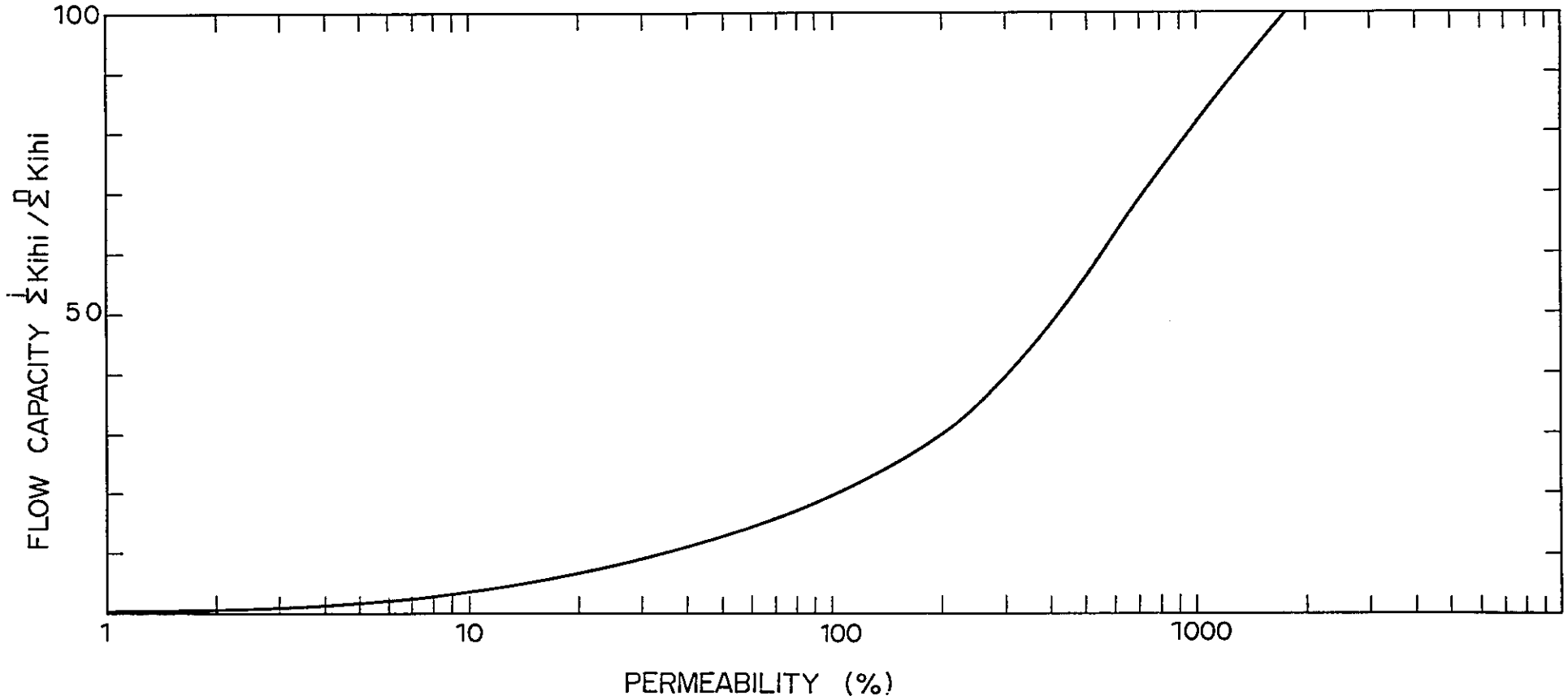
FORMATION FACTOR VS POROSITY PLOT

CENTRAL LUCONIA E 11 – 2


POROSITY vs PERMEABILITY CORRELATION
E11 - 1
1000
100
10
1
0.1
PERMEABILITY (md)
0
10
20
30
36
POROSITY(%)

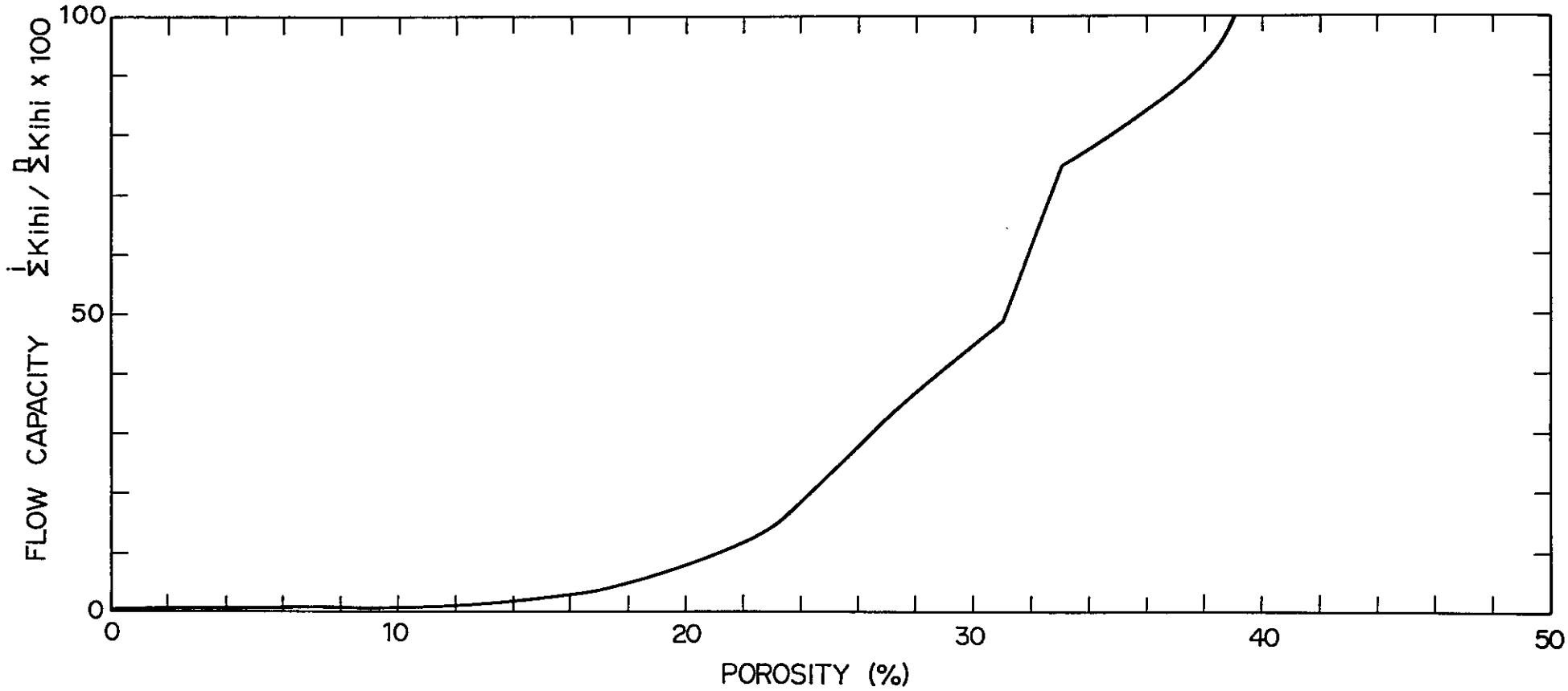
PERMEABILITY DISTRIBUTION

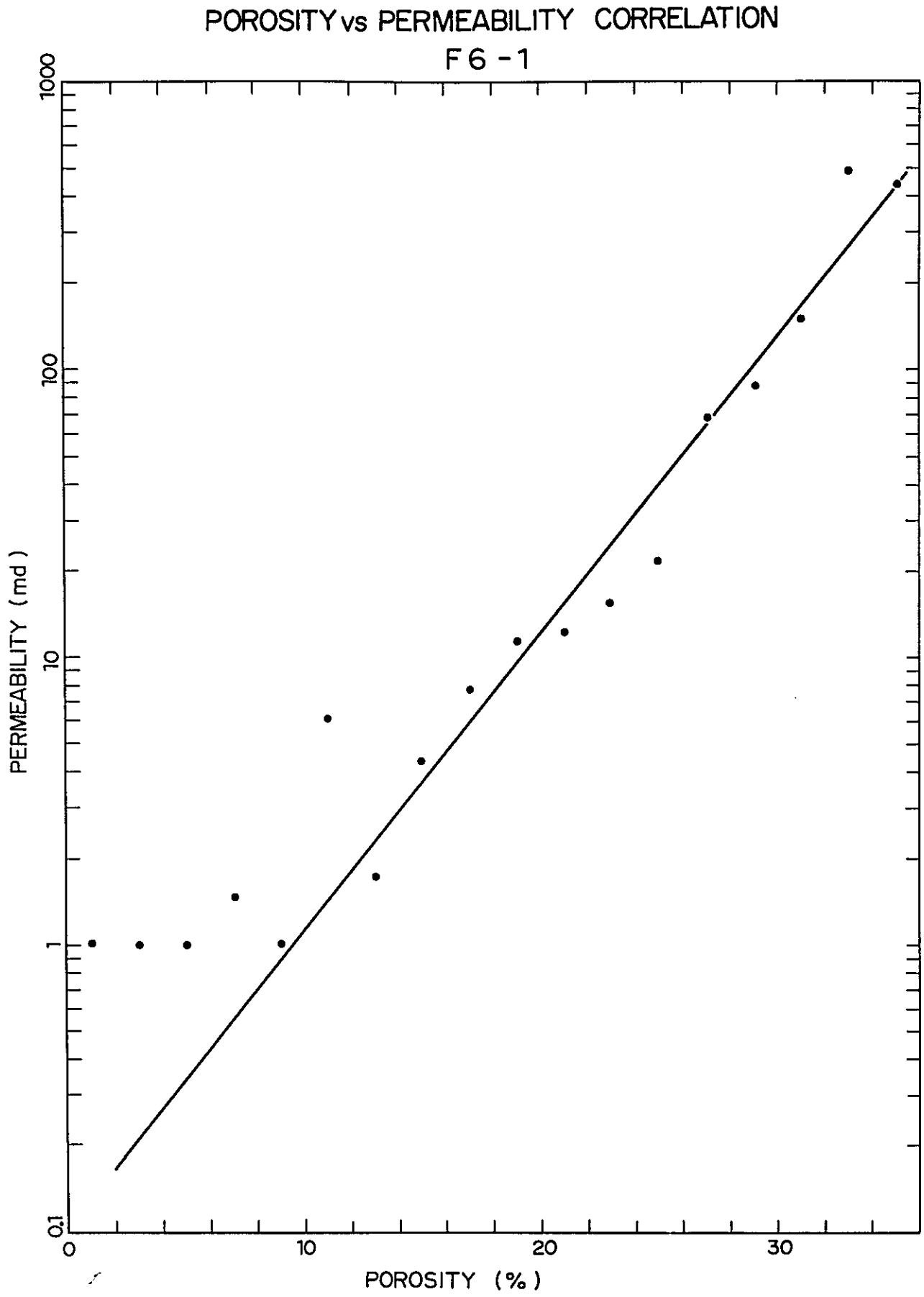
E11 - 1



POROSITY vs PERMEABILITY DISTRIBUTION

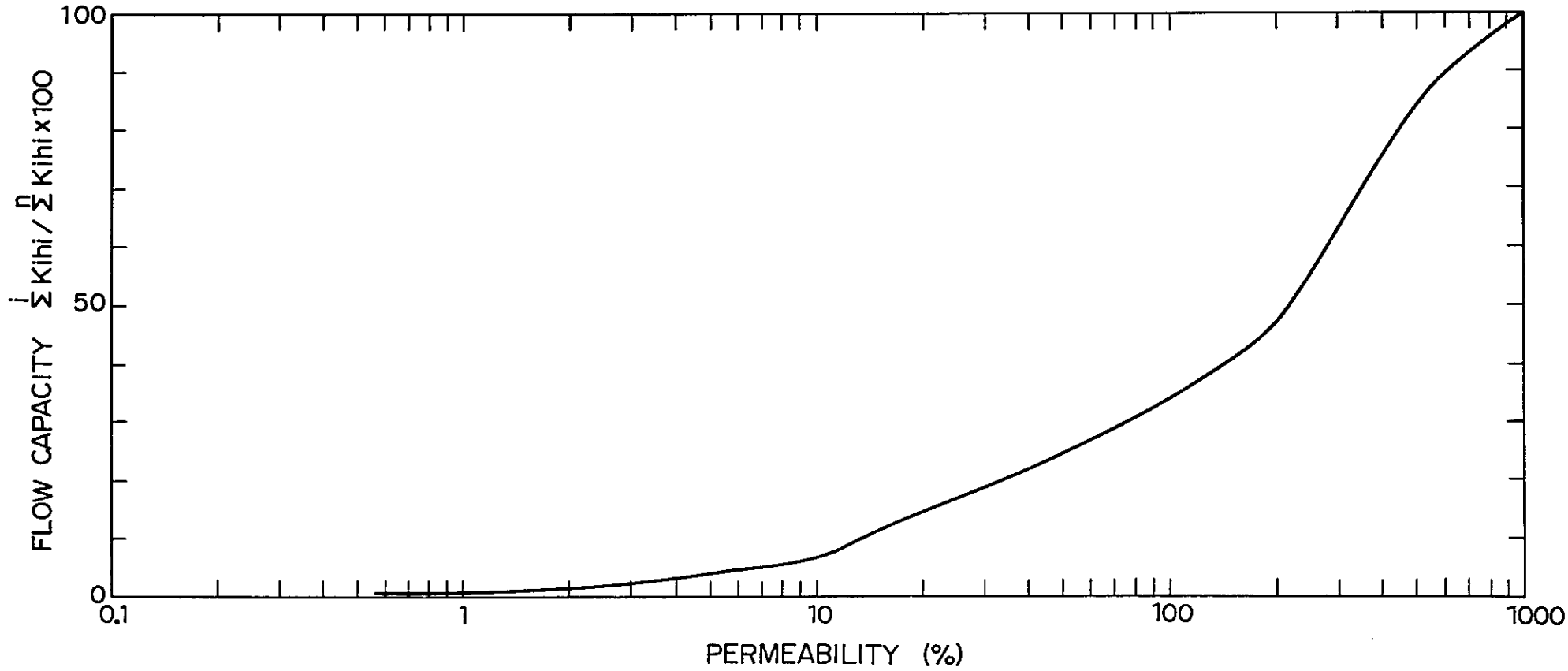
E11 - 1




POROSITY vs PERMEABILITY CORRELATION
F 6 - 1
PERMEABILITY (md)
1000
100
10
1
0.1
0
10
20
30
POROSITY (%)

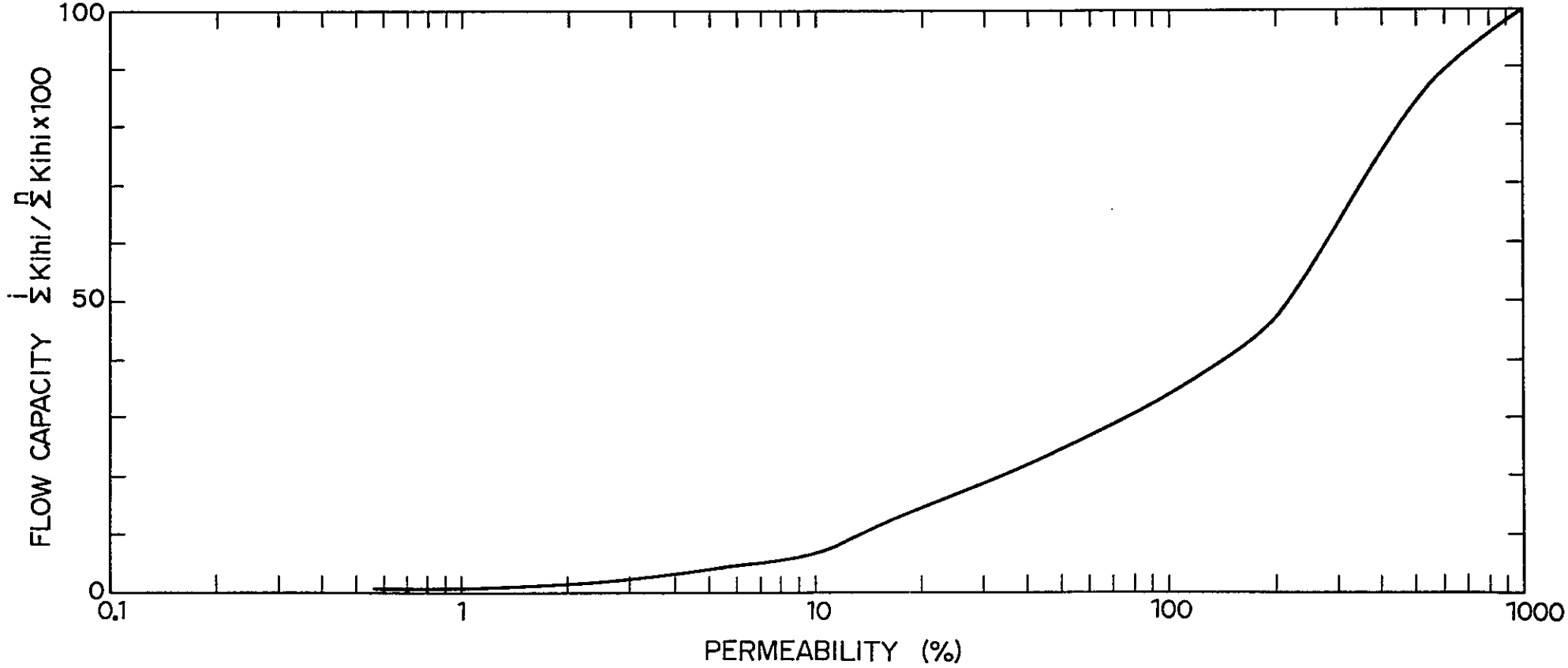
PERMEABILITY DISTRIBUTION

F 6 - 1



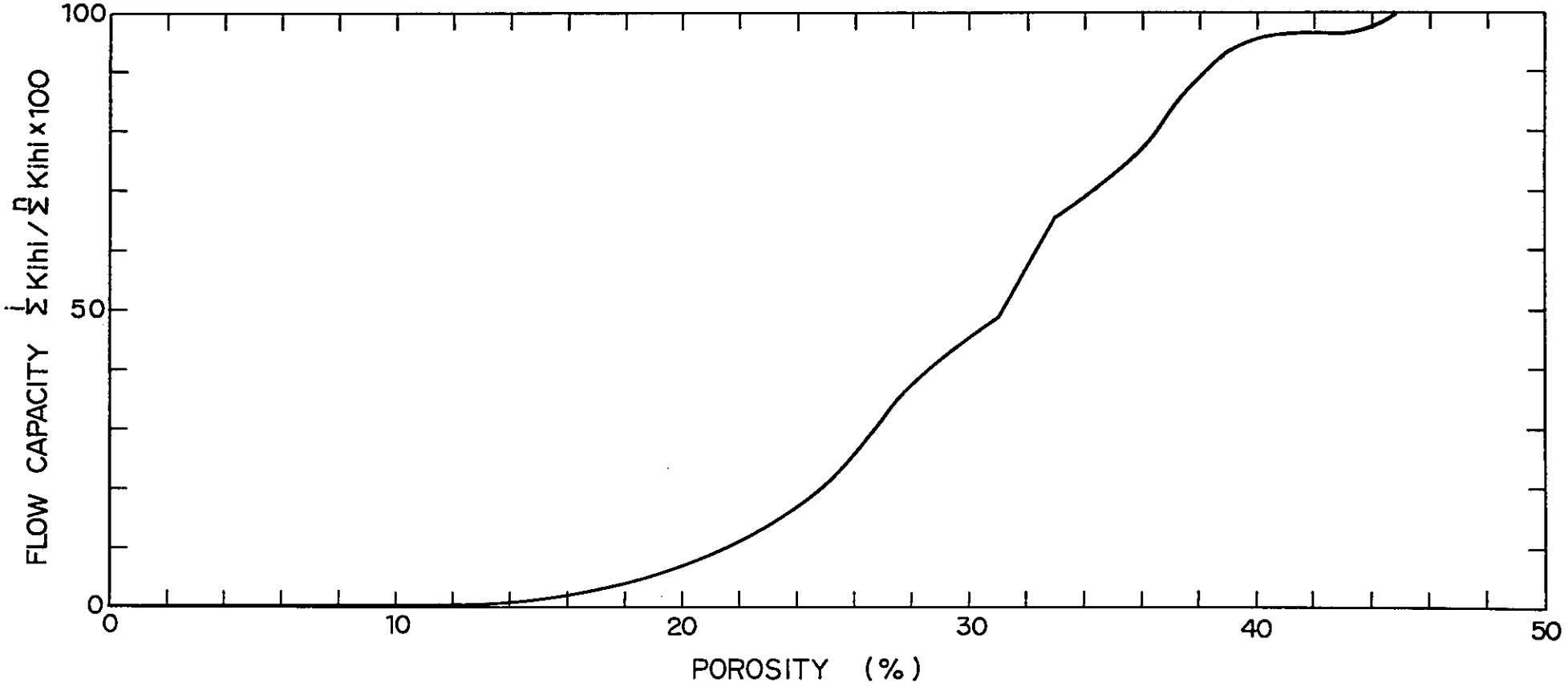
PERMEABILITY DISTRIBUTION

F 6 - 1



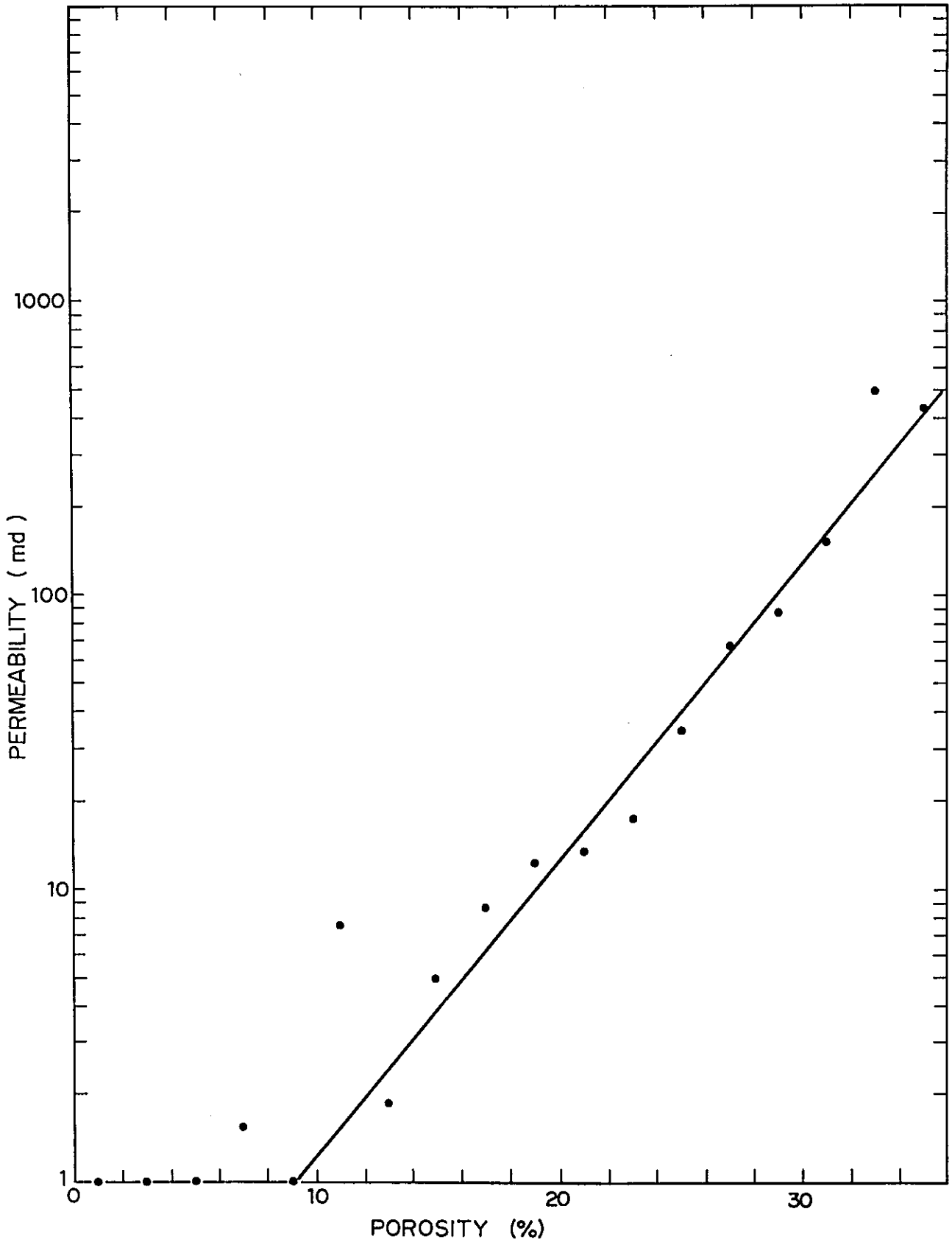
POROSITY vs PERMEABILITY DISTRIBUTION

F6 - 1



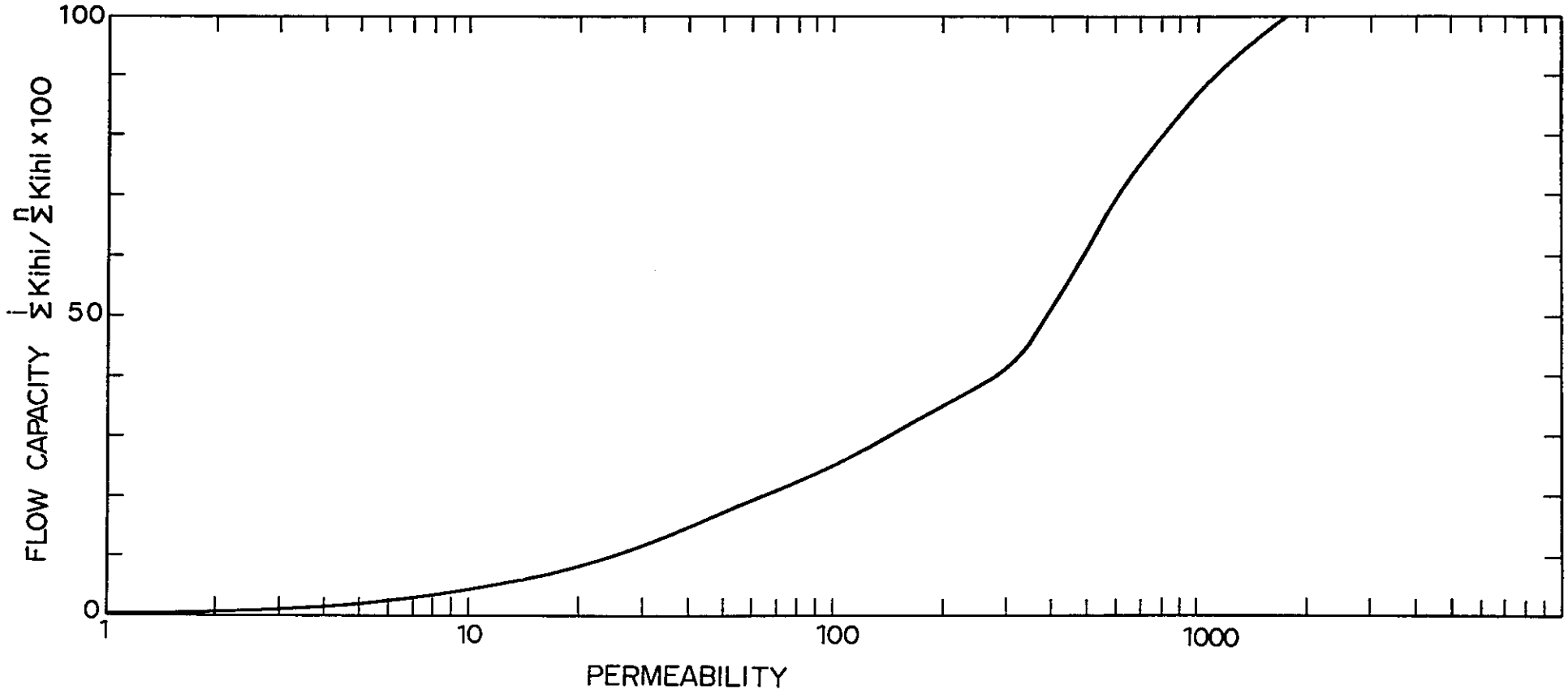
POROSITY vs PERMEABILITY CORRELATION

F8 - 2



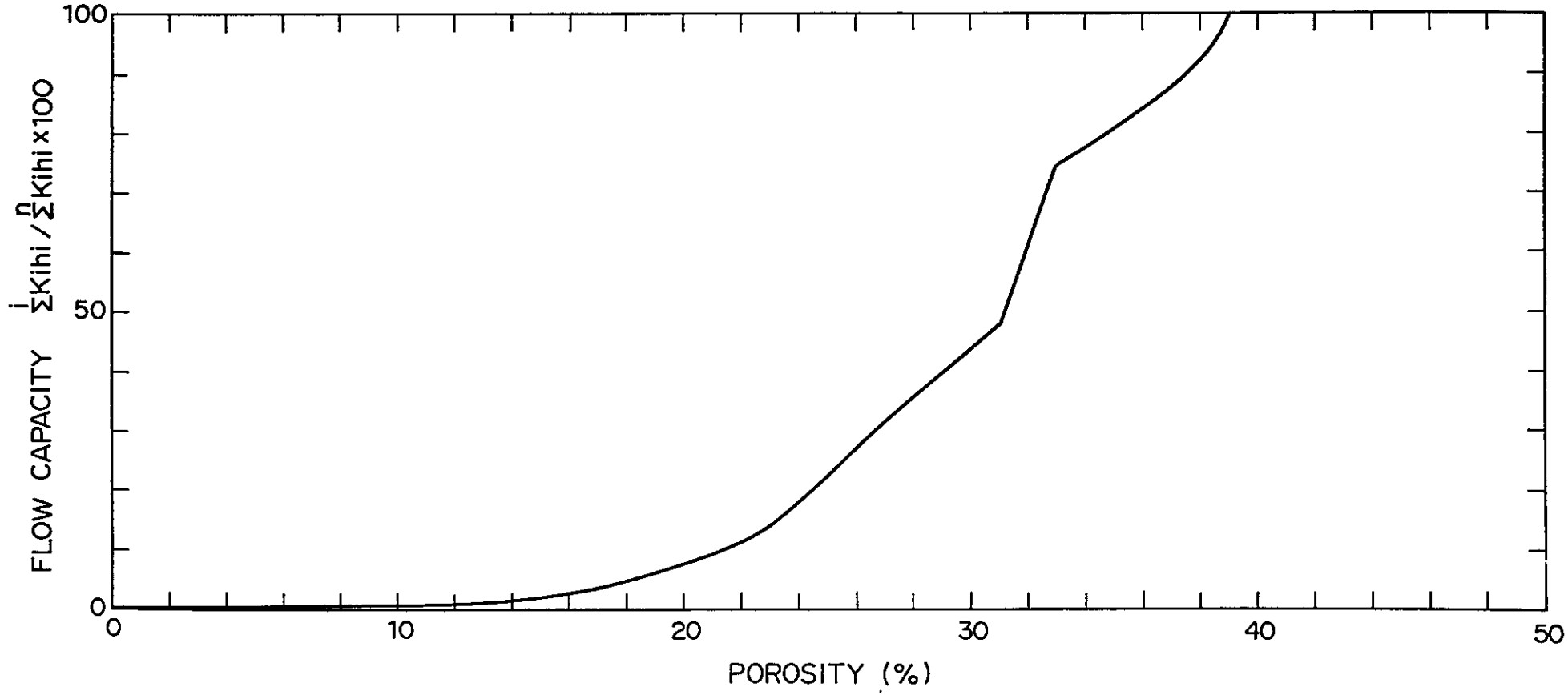
PERMEABILITY DISTRIBUTION

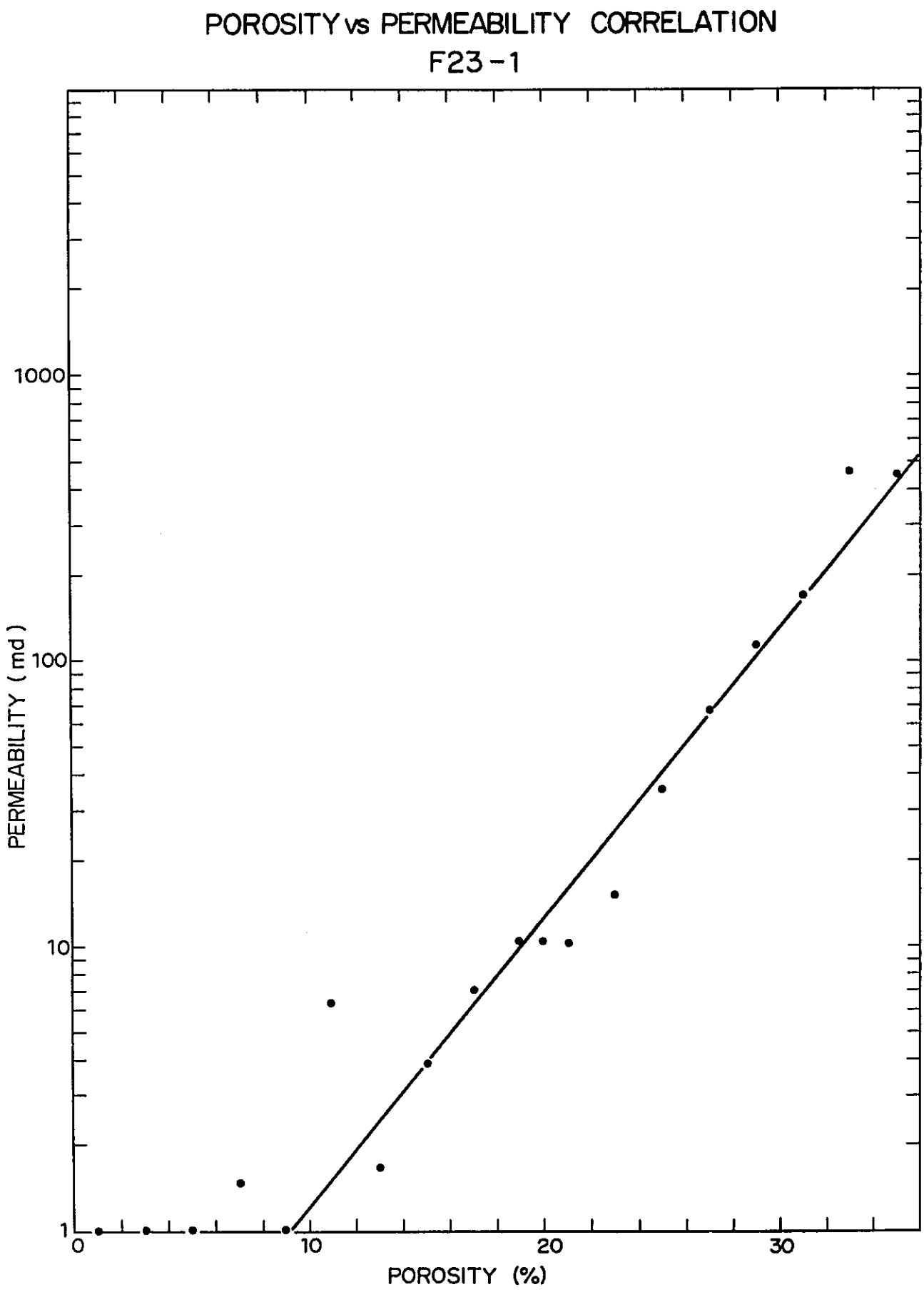
F8 - 2

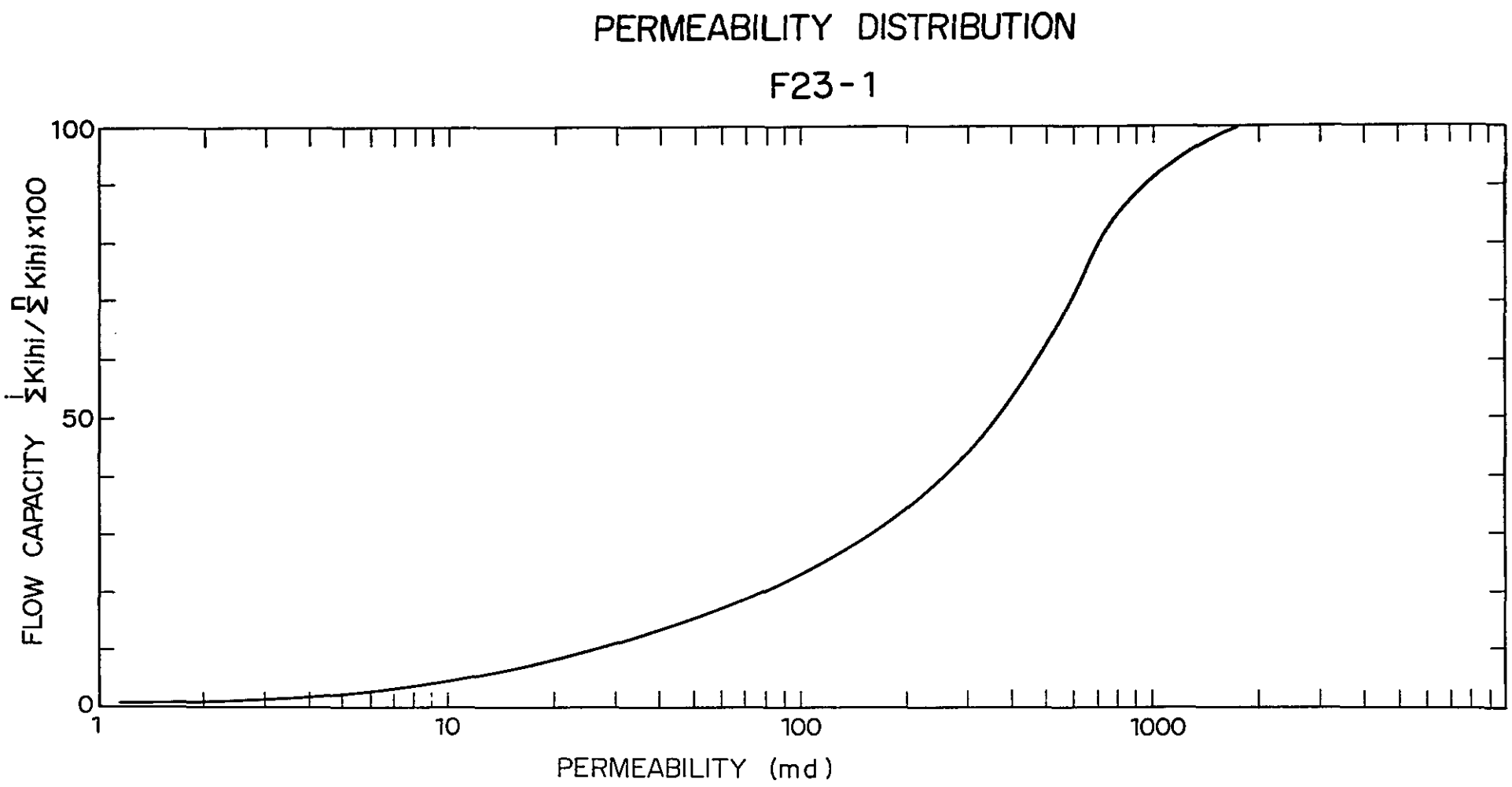


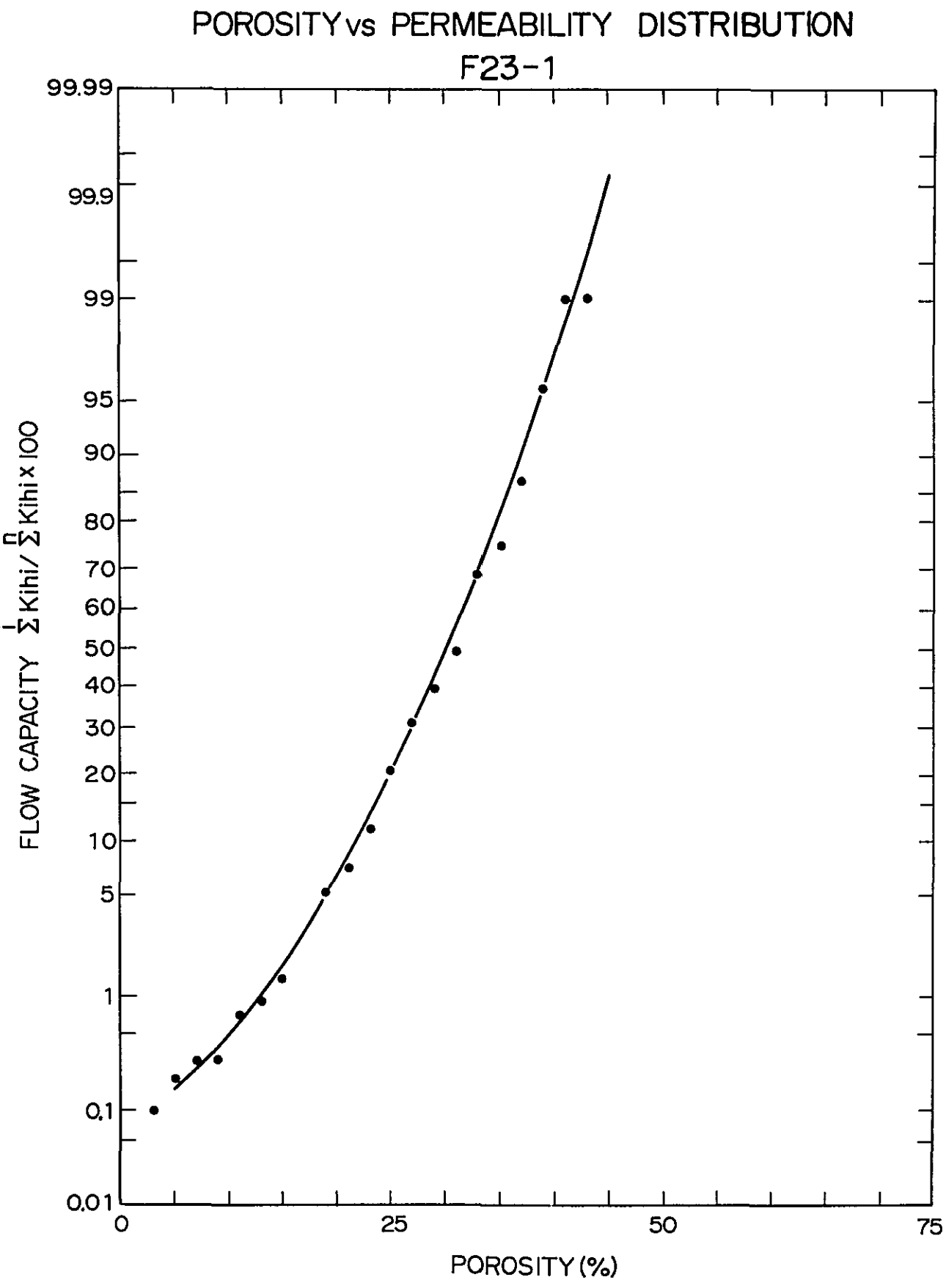
POROSITY vs PERMEABILITY DISTRIBUTION

E 8 - 2




POROSITY vs PERMEABILITY CORRELATION
F23-1
1000
100
10
1
PERMEABILITY (md)
0
10
20
30
POROSITY (%)


PERMEABILITY DISTRIBUTION
F23-1
100
50
0
FLOW CAPACITY $\sum_{i}^{n} Kihi / \sum Kihi \times 100$
1
10
100
1000
PERMEABILITY (md)


POROSITY vs PERMEABILITY DISTRIBUTION
F23-1
99.99
99.9
99
95
90
80
70
60
50
40
30
20
10
5
1
0.1
0.01
FLOW CAPACITY $\sum_{i}^{n} Kihi / \sum Kihi \times 100$
0
25
50
75
POROSITY (%)

WELL NAME : BARONIA 01

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7044.0	-	7058.0	10	19.3	45.6	
7118.0	-	7140.0	22	22.6	22.5	
7158.0	-	7170.0	6	19.4	21.8	
7232.0	-	7266.0	36	22.9	21.0	
7246.0	-	7312.0	46	27.3	26.0	
7456.0	-	7484.0	30	23.6	37.1	
7490.0	-	7496.0	8	27.0	37.5	
7746.0	-	7816.0	52	23.6	38.4	
7860.0	-	7896.0	36	17.6	37.7	
7904.0	-	7964.0	58	14.5	47.8	
8044.0	-	8056.0				
8060.0	-	8182.0				

WELL NAME : BARONIA 04

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4610.0	-	4632.0				GAS	
5334.0	-	5380.0	34	21.2	35.3	GAS	
5478.0	-	5498.0	2	18.2	55.0	GAS	
5500.0	-	5534.0	30	24.8	24.7	GAS	
5538.0	-	5580.0	40	25.7	36.2	GAS	
5590.0	-	5602.0	10	23.3	43.6	GAS	
5606.0	-	5628.0	20	26.2	42.3	GAS	GOC 5628
5628.0	-	5650.0	12	23.9	54.3	OIL	
6384.0	-	6408.0	24	27.1	32.5	GAS	
6485.0	-	6525.0	36	18.8	51.4	OIL	OWC 6525
6925.0	-	6944.0	8	17.1	47.5	GAS	
6964.0	-	6982.0	14	20.7	26.1	GAS	
7022.0	-	7102.0	64	24.1	27.4	GAS	
7114.0	-	7146.0	28	14.7	47.3	GAS	
7156.0	-	7240.0	84	22.6	31.4	GAS	GOC 7240
7240.0	-	7250.0	10	20.6	44.0	OIL	
7391.0	-	7414.0	22	19.5	42.1	OIL	
7422.0	-	7432.0	10	24.9	52.1	OIL	OWC 7432
7663.0	-	7685.0				OIL	
7709.0	-	7748.0	40	21.9	46.3	OIL	OWC 7748
7801.0	-	7875.0	60	13.0	49.4	OIL	
7996.0	-	8009.0	4	17.2	30.5	GAS	
8013.0	-	8025.0	10	18.8	28.3	GAS	
8032.0	-	8076.0	40	13.0	46.8	GAS	

WELL NAME : BARONIA 05

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
3540.0	-	3550.0				GAS	
5384.0	-	5408.0	26	19.4	27.8	GAS	
5418.0	-	5427.0	8	24.3	38.5	GAS	
5514.0	-	5536.0	22	24.9	37.3	GAS	
5544.0	-	5624.0	74	25.1	37.7	GAS	
5634.0	-	5688.0	44	22.5	53.1	OIL	
6984.0	-	7000.0	14	16.5	50.2	GAS	
7020.0	-	7041.0	22	20.6	38.1	GAS	
7080.0	-	7150.0	72	20.5	32.5	GAS	
7160.0	-	7194.0	34	16.3	48.1	GAS	
7203.0	-	7238.0	36	22.5	34.7	GAS	GOC 7238
7238.0	-	7298.0	60	19.9	39.5	OIL	
7834.0	-	7915.0	74	13.4	52.9	OIL	
8020.0	-	8110.0	84	13.9	39.7	GAS	

WELL NAME : BARONIA 06

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4794.0	-	4805.0				GAS	
4830.0	-	4836.0				GAS	
4978.0	-	4986.0				GAS	
5620.0	-	5987.0	258	22.0	47.1	GAS	
5720.0	-	5740.0				GAS	
5778.0	-	5782.0				GAS	
5806.0	-	5890.0				GAS	
5908.0	-	5960.0				GAS	GOC 5960
5960.0	-	5980.0				OIL	
6005.0	-	6013.0	6	17.6	69.6	OIL	
6792.0	-	6826.0	36	20.2	46.3	GAS	
6858.0	-	6944.0	40	17.1	63.2	OIL	OWC 6944
7390.0	-	7402.0	14	16.4	49.5	GAS	
7420.0	-	7445.0	24	13.8	42.8	GAS	
7454.0	-	7555.0	102	19.0	38.3	GAS	
7580.0	-	7705.0	126	20.8	38.0	GAS	GOC 7705
7705.0	-	7795.0	82	20.6	54.0	OIL	OWC 7795
7860.0	-	7915.0	52	16.0	56.1	OIL	OWC 7915
7952.0	-	7980.0	16	15.3	68.2	OIL	OWC 7980
8148.0	-	8178.0	22	11.0	69.5	OIL	
8185.0	-	8199.0	16	12.7	67.9	OIL	
8199.0	-	8240.0	42	18.6	52.2	OIL	OWC 8240
8294.0	-	8420.0	126	14.7	52.9	OIL	
8494.0	-	8510.0				GAS	

WELL NAME : BARONIA 07

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
3574.0	-	3602.0				GAS	
4596.0	-	4666.0				GAS	
4715.0	-	4718.0				GAS	
4758.0	-	4762.0				GAS	
4804.0	-	4811.0				GAS	
5387.0	-	5411.0				GAS	
5429.0	-	5477.0	48	19.2	41.2	GAS	
5484.0	-	5519.0	10	14.6	67.4	GAS	
5530.0	-	5555.0	16	17.1	64.8	GAS	
5610.0	-	5690.0	76	23.8	34.0	GAS	
5703.0	-	5762.0	54	24.0	46.8	GAS	
5793.0	-	5810.0	12	25.0	49.6	OIL	
5824.0	-	5834.0	6	26.9	67.0	OIL	
6546.0	-	6582.0	34	22.7	40.9	GAS	
6612.0	-	6696.0	70	18.0	55.9	OIL	
7138.0	-	7198.0	50	19.2	43.4	GAS	
7224.0	-	7315.0	88	21.3	32.0	GAS	
7331.0	-	7478.0	146	20.2	36.6	GAS	GOC 7478
7478.0	-	7573.0	92	18.6	63.5	OIL	OWC 7573
7623.0	-	7686.0	58	19.4	51.2	OIL	OWC 7686
7742.0	-	7766.0	26	17.3	61.2	OIL	OWC 7766
7913.0	-	8020.0	96	17.5	51.0	OIL	OWC 8020
8067.0	-	8186.0	100	14.4	51.5	OIL	
8277.0	-	8290.0	14	20.0	18.4	GAS	

WELL NAME : BARONIA 08

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4846.0	-	4858.0				GAS	
5640.0	-	5653.0				GAS	
5682.0	-	5703.0				GAS	
5730.0	-	5753.0				GAS	
6922.0	-	6978.0	48	19.1	40.1	GAS	GOC 6978
6978.0	-	6988.0	8	13.0	59.5	OIL	
7166.0	-	7192.0	8	17.3	51.1	GAS	
7215.0	-	7312.0	92	22.4	39.3	GAS	GOC 7312
7312.0	-	7342.0	16	16.4	58.7	OIL	
7362.0	-	7432.0	56	20.2	59.4	OIL	
9540.0	-	9748.0	200	19.7	47.3	GAS	GOC 9748
9748.0	-	9849.0	94	17.9	53.7	OIL	

WELL NAME : BARONIA 09

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4818.0	-	4832.0				GAS	
4976.0	-	4984.0				GAS	
5070.0	-	5074.0				GAS	
5640.0	-	5684.0	44	15.4	49.1	GAS	
5740.0	-	5760.0	8	16.1	68.6	GAS	
5826.0	-	5906.0	78	21.9	37.2	GAS	
5924.0	-	5934.0	10	22.1	46.8	GAS	
5940.0	-	5994.0	54	24.1	50.6	GAS	GOC 5944
5994.0	-	6000.0	4	26.6	52.1	OIL	
6820.0	-	6856.0	36	20.4	42.8	GAS	
6890.0	-	6976.0	62	15.5	57.9	OIL	OWC 6976
7416.0	-	7424.0	10	14.6	55.7	GAS	
7450.0	-	7468.0	20	22.6	32.1	GAS	
7478.0	-	7558.0	78	17.0	39.2	GAS	
7562.0	-	7588.0	24	19.2	29.3	GAS	
7600.0	-	7730.0	130	18.0	38.7	GAS	GOC 7730
7730.0	-	7754.0	24	16.9	58.1	OIL	
7880.0	-	7910.0	24	16.4	49.3	OIL	
7916.0	-	7926.0	10	19.4	52.0	OIL	
7926.0	-	7940.0				OIL	OWC 7940
7962.0	-	8002.0	18	13.7	75.1	OIL	OWC 8002
8204.0	-	8244.0	42	19.2	46.8	OIL	OWC 8244
8298.0	-	8384.0	76	12.1	51.6		

WELL NAME : BARONIA 10

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4926.0	-	4944.0					
5000.0	-	5006.0				GAS	
5044.0	-	5056.0				GAS	
5098.0	-	5106.0				GAS	
5246.0	-	5250.0				GAS	
5716.0	-	5720.0				GAS	
5728.0	-	5732.0				GAS	
5788.0	-	5820.0	32	23.0	27.5	GAS	
5830.0	-	5834.0	4	12.1	70.5	GAS	
5928.0	-	5934.0	6	21.3	41.3	GAS	
5940.0	-	5946.0	8	22.3	31.4	GAS	
5958.0	-	6040.0	82	24.6	36.9	GAS	
6056.0	-	6096.0	42	23.9	45.6	GAS	
6106.0	-	6112.0	6	20.0	58.2	OIL	
6140.0	-	6162.0	22	24.5	59.0	OIL	
6888.0	-	6920.0	32	21.4	37.6	GAS	
6950.0	-	7046.0	94	18.3	53.4	OIL	
7066.0	-	7076.0	6	23.7	48.4	OIL	
7090.0	-	7100.0	10	18.5	70.3	OIL	
7128.0	-	7146.0	10	16.7	71.2	OIL	
7150.0	-	7190.0	10	24.1	53.2	OIL	
7198.0	-	7220.0	16	23.5	62.0	OIL	OWC 7220
7460.0	-	7472.0	12	19.1	42.0	GAS	
7496.0	-	7516.0	22	25.3	34.4	GAS	
7552.0	-	7602.0	52	23.2	29.0	GAS	
7606.0	-	7632.0	26	24.2	25.7	GAS	
7650.0	-	7678.0	30	17.5	45.4	GAS	
7688.0	-	7788.0	102	24.3	29.0	GAS	

WELL NAME : BARONIA 10

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
7926.0	-	7946.0	20	19.2	40.0	OIL	
8032.0	-	8060.0	26	18.5	56.0	OIL	
8246.0	-	8296.0	52	22.6	43.3	OIL	OWC 8296
8340.0	-	8426.0	82	15.5	41.7	OIL	

WELL NAME : BARONIA 11

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5446.0	-	5460.0				GAS	
5490.0	-	5498.0				OIL	
6482.0	-	6492.0	10	16.2	59.8	GAS	
6498.0	-	6532.0	34	21.9	28.3	GAS	
6546.0	-	6552.0	6	19.6	46.1	GAS	
6605.0	-	6610.0	2	15.2	77.5	GAS	
6674.0	-	6680.0	4	15.0	65.0	GAS	
6706.0	-	6808.0	96	26.5	32.1	GAS	
6828.0	-	6836.0	8	26.3	34.0	GAS	GOC 6836
6836.0	-	6844.0	4	15.0	46.9	OIL	
6848.0	-	6862.0	14	25.7	36.6	OIL	
6868.0	-	6878.0	12	23.2	48.1	OIL	
6880.0	-	6914.0	34	27.6	48.5	OIL	
7800.0	-	7816.0	16	25.1	52.5	OIL	OWC 7816
7884.0	-	7906.0	12	16.3	74.4	OIL	
8428.0	-	8448.0	20	23.0	30.9	GAS	
8486.0	-	8536.0	50	22.5	33.0	GAS	
8542.0	-	8556.0	14	24.1	21.9	GAS	
8562.0	-	8568.0	2	21.7	25.3	GAS	
8582.0	-	8612.0	30	15.7	48.7	GAS	
8622.0	-	8654.0	34	22.0	29.6	GAS	GOC 8654
8654.0	-	8736.0	78	20.5	44.6	OIL	OWC 8736

WELL NAME : BARONIA 12

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
3530.0	-	3545.0					
3958.0	-	3978.0				GAS	GOC 3978
3978.0	-	4002.0				OIL	
5254.0	-	5314.0				GAS	
5328.0	-	5352.0				GAS	
5416.0	-	5420.0				GAS	GOC 5420
5420.0	-	5428.0				OIL	
5538.0	-	5548.0				GAS	
6146.0	-	6348.0	16	16.7	59.6	GAS	
6348.0	-	6386.0	38	26.7	26.1	GAS	
6394.0	-	6406.0	14	19.8	45.6	GAS	
6514.0	-	6542.0	30	20.5	42.2	GAS	
6550.0	-	6648.0	98	23.5	41.8	GAS	
6668.0	-	6700.0	30	23.0	62.3	GAS	
6706.0	-	6728.0	20	21.0	63.6	OIL	
8404.0	-	8470.0	68	20.6	45.6	GAS	
8514.0	-	8600.0	84	21.8	35.9	GAS	
8616.0	-	8754.0	132	19.8	47.1	OIL	OWC 8754

WELL NAME : BARONIA 13

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4070.0	-	4140.0					
5328.0	-	5370.0					
5388.0	-	5416.0				GAS	
6438.0	-	6458.0	18	13.0	56.8		
6486.0	-	6552.0	64	20.1	39.4	GAS	
6564.0	-	6610.0				GAS	
6620.0	-	6630.0	8	16.1	65.3	GAS	GOC 6630
6630.0	-	6652.0	2	15.6	75.5	OIL	
6732.0	-	6842.0	106	26.8	34.6	GAS	
6862.0	-	6928.0	58	25.4	46.4	GAS	
6932.0	-	6960.0	28	26.4	48.9	OIL	
6996.0	-	7026.0	24	26.0	60.8	OIL	
8050.0	-	8068.0	20	25.8	40.8	GAS	GOC 8068
8068.0	-	6092.0				OIL	
8130.0	-	3200.0				OIL	
8794.0	-	8814.0				GAS	
8840.0	-	8868.0	28	23.7	40.2	GAS	
8878.0	-	9016.0	108	21.8	34.0	GAS	
9034.0	-	9088.0	56	20.5	44.9	OIL	
9092.0	-	9114.0	24	23.8	30.7	GAS	GOC 9114
9114.0	-	9222.0	108	25.7	38.5	OIL	

WELL NAME : BARONIA 14

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5414.0	-	5428.0					
5448.0	-	5480.0					
5492.0	-	5418.0				GAS	
6538.0	-	6570.0				GAS	GOC 6570
6570.0	-	6610.0				OIL	
6852.0	-	6872.0	14	22.1	48.0	GAS	
6900.0	-	7010.0	108	23.0	45.4	OIL	
9080.0	-	9152.0	66	20.7	55.0	GAS	
9162.0	-	9270.0	90	20.3	60.1	OIL	OWC 9270

WELL NAME : BARONIA 15

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5170.0	-	5218.0				GAS	
6168.0	-	6220.0	46	25.4	26.6	GAS	
6232.0	-	6246.0	14	23.2	36.5	GAS	
6246.0	-	6256.0	8	17.2	56.3	GAS	
6360.0	-	6372.0	12	20.6	35.4	FAS	
6380.0	-	6384.0				GAS	
6396.0	-	6438.0	40	26.6	25.8	GAS	
6444.0	-	6500.0	38	27.6	32.9	GAS	
6510.0	-	6528.0	14	22.1	49.1	OIL	
6534.0	-	6612.0	74	27.4	50.7	GAS	
8320.0	-	8336.0	10	12.0	59.9	GAS	
8358.0	-	8386.0	20	18.9	41.6	GAS	
8392.0	-	8512.0	94	16.0	37.3	GAS	
8528.0	-	8652.0	98	16.8	52.3	OIL	OWC 8652

WELL NAME : BARONIA 16

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5454.0	-	5494.0				GAS	
5518.0	-	5542.0				GAS	
6494.0	-	6544.0	50	20.9	34.6	GAS	
6710.0	-	6758.0	50	24.1	33.4	GAS	
6762.0	-	6812.0	52	23.4	41.9	GAS	
6830.0	-	6882.0	54	23.0	47.6	GAS	GOC 6882
6882.0	-	6922.0	38	27.8	50.1	OIL	
8020.0	-	8042.0	22	21.6	46.5	OIL	
8048.0	-	8066.0	6	20.4	75.4	OIL	
8096.0	-	8172.0	46	19.3	57.9	OIL	OWC 8172
8758.0	-	8782.0	12	16.8	55.7	OIL	
8804.0	-	8830.0	28	22.8	36.1	GAS	
8840.0	-	8988.0	146	20.1	36.8	GAS	
9002.0	-	9084.0	80	19.7	43.4	GAS	GOC 9084
9084.0	-	9190.0	106	22.9	42.6	OIL	OWC 9190

WELL NAME : BARONIA 17

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5334.0	-	5432.0				GAS	
5610.0	-	5628.0				GAS	
5730.0	-	5746.0				GAS	
5768.0	-	5794.0				GAS	
6034.0	-	6046.0				GAS	
6348.0	-	6368.0				GAS	
6378.0	-	6386.0				OIL	
6416.0	-	6472.0	56	26.6	27.2	GAS	
6482.0	-	6492.0	8	24.7	35.2	GAS	
6542.0	-	6562.0	20	20.1	52.3	GAS	
6604.0	-	6634.0	26	30.6	26.7	GAS	
6644.0	-	6750.0	102	29.4	31.0	GAS	
6768.0	-	6808.0	40	28.5	39.0	GAS	
6876.0	-	6894.0	18	32.2	46.5	OIL	
7860.0	-	7904.0	42	26.6	35.5	GAS	
7934.0	-	8046.0	86	19.4	57.1	OIL	OWC 8046
8630.0	-	8704.0	54	21.9	40.5	GAS	
8710.0	-	8854.0	108	22.7	31.9	GAS	
8876.0	-	8988.0	114	20.9	37.0	GAS	GOC 8988
8988.0	-	9012.0	24	22.7	35.8	OIL	OWC 9012

WELL NAME : BARONIA 18

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4342.0	-	4384.0				GAS	
5898.0	-	5970.0				GAS	
5983.0	-	6012.0				GAS	
6090.0	-	6098.0				GAS	
6162.0	-	6176.0				GAS	
6236.0	-	6264.0				GAS	
7150.0	-	7173.0				GAS	
7161.0	-	7204.0				GAS	
7236.0	-	7304.0	70	20.8	31.9	GAS	
7316.0	-	7332.0	16	19.5	36.7	GAS	
7396.0	-	7320.0				GAS	
7478.0	-	7516.0	36	22.0	34.8	GAS	
7532.0	-	7592.0	60	22.8	30.2	GAS	
7594.0	-	7680.0	84	23.1	42.1	GAS	
7700.0	-	7730.0	30	20.7	52.3	GAS	GOC 7730
7730.0	-	7750.0	18	25.5	45.3	OIL	
7840.0	-	7874.0	26	30.2	70.0	OIL	

WELL NAME : FAIRLY BARAM 01

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
7986.0	-	8042.0	6	22.5	74.2	OIL	OWC 8042
8082.0	-	8116.0	20	21.8	63.9	OIL	
8142.0	-	8188.0	32	25.3	49.3	OIL	
8204.0	-	8232.0	22	22.6	47.2	GAS	GOC 8232
8232.0	-	8370.0	70	21.7	62.7	OIL	OWC 8370
8414.0	-	8522.0	46	23.9	53.8	OIL	OWC 8522
8994.0	-	9092.0	86	23.7	36.6	OIL	OWC 9092
9186.0	-	9274.0	82	23.6	39.8	GAS	GOC 9274
9274.0	-	9428.0	126	20.6	42.5	OIL	

WELL NAME : FAIRLY BARAM 02

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
8072.0	-	8090.0	12	27.5	67.2	OIL	OWC 8090
8128.0	-	8145.0	10	24.5	72.7	OIL	OWC 8145
8183.0	-	8288.0	68	19.6	59.2	OIL	
8298.0	-	8314.0	18	19.8	63.2	OIL	OWC 8314
8386.0	-	8454.0	38	22.6	58.5	OIL	OWC 8456
8847.0	-	9020.0	84	23.0	38.9	OIL	OWC 9020
9110.0	-	9306.0	186	18.8	43.1	OIL	

WELL NAME : FAIRLY BARAM 03

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
6772.0	-	6832.0				OIL	
8114.0	-	8158.0	10	22.2	71.4	OIL	OWC 8158
8302.0	-	8342.0	34	25.7	53.7	OIL	
8430.0	-	8488.0	30	22.9	61.5	OIL	
8498.0	-	8542.0	28	21.3	63.7	OIL	OWC 8542

WELL NAME : FAIRLY BARAM 11

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
8822.0 -	8908.0	76	23.1	50.8	OIL	

WELL NAME : FAIRLY BARAM 29

CUT OFF OF SW	:	80.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
7650.0	-	7670.0	10	21.8	69.1	OIL	OWC 7670
7800.0	-	7832.0				OIL	
7906.0	-	7937.0	26	22.2	49.7	OIL	OWC 7937
7962.0	-	7971.0	8	21.1	60.2	GAS	GOC 7937
7971.0	-	7986.0	10	19.1	73.1	OIL	
8587.0	-	8603.0	16	21.9	48.0	GAS	GOC 8603
8637.0	-	8668.0	28	23.4	58.5	OIL	OWC 8668
8752.0	-	8766.0	14	21.6	32.3	GAS	GOC 8766
8766.0	-	8904.0	132	21.4	43.8	OIL	

WELL NAME : WEST LUTONG 01

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5335.0 -	5365.0	16	19.5	44.6	WEST LUTONG 01 'B2-1' GA
5365.0 -	5453.0	40	23.5	47.4	WEST LUTONG 01 'B2-2' GA
5453.0 -	5520.0	54	25.7	37.3	WEST LUTONG 01 'C1-1' GA
5520.0 -	5566.0	26	24.3	32.3	WEST LUTONG 01 'C1-1' OI
5566.0 -	5609.0	24	27.9	28.0	WEST LUTONG 01 'C1-2' GA
5609.0 -	5629.0	6	22.1	49.3	WEST LUTONG 01 'C1-2' OI
5629.0 -	5732.0	70	24.2	36.0	WEST LUTONG 01 'C1-3' OI
5732.0 -	5885.0	112	24.5	35.9	

WELL NAME : WEST LUTONG 02

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS		
5647.0	-	5678.0	4	16.4	45.2	WEST LUTONG 02	'B2-1'	GA
5678.0	-	5682.0				WEST LUTONG 02	'B2-1'	OI
5682.0	-	5745.0				WEST LUTONG 02	'B2-2'	GA
5745.0	-	5779.0	4	21.2	51.0	WEST LUTONG 02	'B2-2'	OI
5779.0	-	5906.0	46	21.0	41.0	WEST LUTONG 02	'C1-1'	OI
5906.0	-	5969.0	16	19.3	47.5	WEST LUTONG 02	'C1-2'	OI
5969.0	-	6085.0	18	19.2	43.7	WEST LUTONG 02	'C1-3'	OI
6085.0	-	6253.0	26	21.8	34.8	WEST LUTONG 02	'C2-1'	OI

WELL NAME : WEST LUTONG 04

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS		
5335.0	-	5369.0	14	20.1	47.2	WEST LUTONG 04	'B2-1'	GA
5369.0	-	5463.0	34	19.9	46.9			
5463.0	-	5510.0	28	20.1	40.5	WEST LUTONG 04	'C1-1'	GA
5510.0	-	5556.0	16	18.1	46.1	WEST LUTONG 04	'C1-1'	OI
5556.0	-	5599.0	28	19.7	42.2	WEST LUTONG 04	'C1-2'	GA
5599.0	-	5633.0	8	18.7	46.3	WEST LUTONG 04	'C1-2'	OI
5633.0	-	5736.0	78	20.2	42.4	WEST LUTONG 04	'C1-3'	OI
5736.0	-	5891.0	78	19.5	39.9	WEST LUTONG 04	'C2-1'	OI
6483.0	-	6510.0	12	20.5	26.0			
6531.0	-	6571.0	30	19.7	33.9			
6571.0	-	6630.0	34	19.7	34.6			

WELL NAME : WEST LUTONG 06

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS		
5811.0	-	5858.0	14	19.5	38.9	WEST LUTONG 06	'B2-1'	GA
5858.0	-	5939.0	2	13.7	58.7			
5939.0	-	5959.0						
5959.0	-	6078.0	46	14.9	46.1			
6078.0	-	6158.0	28	18.9	37.1	WEST LUTONG 06	'C1-2'	OI
6158.0	-	6281.0	50	19.5	36.8	WEST LUTONG 06	'C1-3'	OI
6281.0	-	6490.0	102	18.4	39.5	WEST LUTONG 06	'C2-1'	OI

WELL NAME : WEST LUTONG 07

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5318.0	-	5357.0	4	13.9	57.6	WEST LUTONG 07 'B2-1' GA
5357.0	-	5447.0				WEST LUTONG 07 'B2-2' GA
5447.0	-	5492.0	24	17.0	48.9	WEST LUTONG 07 'C1-1' GA
5492.0	-	5560.0	32	18.2	43.4	WEST LUTONG 07 'C1-1' OI
5560.0	-	5582.0				WEST LUTONG 07 'C1-2' GA
5582.0	-	5622.0				WEST LUTONG 07 'C1-2' OI
5622.0	-	5726.0	10	22.1	38.0	WEST LUTONG 07 'C1-3' OI
5726.0	-	5882.0	74	18.4	40.0	WEST LUTONG 07 'C2-1' OI
6424.0	-	6470.0	4	17.8	56.1	
6470.0	-	6498.0	24	16.4	38.4	
6498.0	-	6566.0	24	17.1	34.9	
6566.0	-	6631.0	50	20.2	35.4	
6631.0	-	6504.0				
6671.0	-	6515.0				
6756.0	-	6547.0				
6843.0	-	6557.0				
7058.0	-	7072.0				
7072.0	-	7090.0				
7090.0	-	7090.0				
7090.0	-	7255.0	46	19.1	40.4	
7255.0	-	7288.0				
7288.0	-	7364.0	2	20.2	40.4	
7364.0	-	7035.0				
7375.0	-	7052.0				
7447.0	-	7174.0				
7521.0	-	7603.0				
7603.0	-	7332.0				
7631.0	-	7355.0				

WELL NAME : WEST LUTONG 07

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7703.0	-	7745.0				
7745.0	-	7858.0				
7858.0	-	7899.0				
7899.0	-	8033.0	64	17.8	39.6	

WELL NAME : WEST LUTONG 08

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS		
5785.0	-	5826.0	10	17.8	42.8	WEST LUTONG 08	'B2-1'	GA
5826.0	-	5921.0	2	17.6	48.9	WEST LUTONG 08	'B2-2'	GA
5921.0	-	5942.0	8	22.0	35.6	WEST LUTONG 08	'C1-1'	GA
5942.0	-	6037.0	14	17.6	46.2	WEST LUTONG 08	'C1-1'	OI
6037.0	-	6105.0	16	16.8	46.5	WEST LUTONG 08	'C1-2'	OI
6105.0	-	6211.0	32	19.2	42.7	WEST LUTONG 08	'C1-3'	OI
6211.0	-	6353.0	44	18.8	42.1	WEST LUTONG 08	'C2-1'	OI
6866.0	-	6880.0	6	16.6	47.3			
6902.0	-	6918.0	6	19.5	53.0			
6950.0	-	6988.0	24	16.5	34.2			
6986.0	-	6992.0	4	15.4	47.5			
7044.0	-	7114.0	50	18.1	35.8			
7114.0	-	7120.0	4	20.3	36.8			
7150.0	-	7204.0	26	18.7	35.5			
7242.0	-	7322.0	28	16.6	40.3			
7322.0	-	7366.0	28	17.3	39.1			
7524.0	-	7544.0	14	14.6	45.8			
7544.0	-	7568.0	8	14.0	45.9			
7732.0	-	7744.0	12	17.3	31.4			
7762.0	-	7840.0	8	20.1	46.8			
7840.0	-	7856.0	12	16.3	50.4			
7856.0	-	7878.0						
7922.0	-	7998.0	64	19.5	25.4			
8000.0	-	7998.0						
8083.0	-	8109.0	18	18.5	30.5			
8109.0	-	8150.0	36	18.9	35.1			
8178.0	-	8218.0	2	19.9	45.0			
8218.0	-	8243.0	22	18.4	37.5			

WELL NAME : WEST LUTONG 08

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
8323.0 -	8343.0	18	19.8	39.4	
8372.0 -	8495.0	2	22.0	58.9	

WELL NAME : WEST LUTONG 14

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS		
5336.0	-	5367.0	4	21.0	53.2	WEST LUTONG 14	'B2-1'	GA
5367.0	-	5461.0				WEST LUTONG 14	'B2-2'	GA
5461.0	-	5523.0	24	20.4	50.1	WEST LUTONG 14	'C1-1'	GA
5523.0	-	5573.0	22	21.8	41.4	WEST LUTONG 14	'C1-1'	OI
5573.0	-	5616.0	16	21.5	42.5	WEST LUTONG 14	'C1-2'	GA
5616.0	-	5636.0				WEST LUTONG 14	'C1-2'	OI
5636.0	-	5743.0	46	21.2	42.2	WEST LUTONG 14	'C1-3'	OI
5743.0	-	5901.0	80	20.7	40.9	WEST LUTONG 14	'C2-1'	OI

WELL NAME : WEST LUTONG 16

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
4432.0	-	4439.0				
4439.0	-	4551.0	20	20.9	40.4	WEST LUTONG 16 'C1' GAS BEAR
4551.0	-	4635.0	4	23.9	58.3	WEST LUTONG 16 'C1' OIL BEAR
4635.0	-	4719.0	18	24.6	51.1	WEST LUTONG 16 'C2' OIL BEAR
4719.0	-	4796.0	2	26.2	59.5	WEST LUTONG 16 'C2' OIL BEAR
4796.0	-	4816.0	4	22.1	55.3	WEST LUTONG 16 'D1' GAS BEAR
4816.0	-	4874.0	4	30.2	55.7	WEST LUTONG 16 'D2' BEAR
4874.0	-	4948.0	24	18.3	41.2	WEST LUTONG 16 'E1' GAS BEAR
4948.0	-	4967.0	6	17.1	48.4	WEST LUTONG 16 'E2' GAS BEAR
4967.0	-	5009.0	8	20.2	48.4	WEST LUTONG 16 'E2' OIL BEAR
5009.0	-	5031.0	8	20.3	34.5	WEST LUTONG 16 'E4' GAS BEAR
5031.0	-	5050.0				WEST LUTONG 16 'E4' OIL BEAR
5050.0	-	5073.0	4	13.8	36.6	WEST LUTONG 16 'F0' GAS BEAR
5073.0	-	5120.0	30	19.7	36.9	WEST LUTONG 16 'F1' GAS BEAR
5120.0	-	5154.0				WEST LUTONG 16 'F2' OIL BEAR
5154.0	-	5194.0	8	20.6	47.1	WEST LUTONG 16 'G1' OIL BEAR
5194.0	-	5239.0	4	19.2	56.6	WEST LUTONG 16 'G2' OIL BEAR
5239.0	-	5387.0	10	22.3	53.9	WEST LUTONG 16 'H ' OIL BEAR
5387.0	-	5421.0	6	15.7	46.8	WEST LUTONG 16 'I ' GAS BEAR
5421.0	-	5428.0				WEST LUTONG 16 'I ' OIL BEAR
5428.0	-	5480.0	6	15.7	49.6	WEST LUTONG 16 'J ' GAS BEAR
5480.0	-	5526.0	2	13.4	59.8	WEST LUTONG 16 'J ' OIL BEAR
5526.0	-	5632.0	52	21.1	35.0	WEST LUTONG 16 'K ' OIL BEAR
5632.0	-	5678.0	36	21.1	33.7	WEST LUTONG 16 'L ' OIL BEAR
5678.0	-	5806.0	52	21.2	41.9	WEST LUTONG 16 'M ' OIL BEAR
5806.0	-	5865.0	44	22.4	36.5	WEST LUTONG 16 'N ' OIL BEAR

WELL NAME : WEST LUTONG 21

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
4146.0	-	4239.0				WEST LUTONG 21 'A0' GAS BEAR
4239.0	-	4333.0				WEST LUTONG 21 'A1' GAS BEAR
4333.0	-	4409.0	6	19.8	52.5	WEST LUTONG 21 'B1' GAS BEAR
4409.0	-	4457.0	6	22.2	50.1	WEST LUTONG 21 'B2' GAS BEAR
4457.0	-	4552.0	14	13.8	55.1	WEST LUTONG 21 'C1' GAS BEAR
4552.0	-	4636.0				WEST LUTONG 21 'C1' OIL BEAR
4636.0	-	4699.0				WEST LUTONG 21 'C2' OIL BEAR
4699.0	-	4703.0				WEST LUTONG 21 'C2' GAS BEAR
4703.0	-	4777.0	2	18.1	58.6	WEST LUTONG 21 'C2' OIL BEAR
4777.0	-	4805.0				WEST LUTONG 21 'D1' GAS BEAR
4805.0	-	4854.0				WEST LUTONG 21 'D2' BEAR
4854.0	-	4919.0	18	12.8	50.8	WEST LUTONG 21 'E1' GAS BEAR
4919.0	-	4968.0				WEST LUTONG 21 'E2' GAS BEAR
4968.0	-	4990.0				WEST LUTONG 21 'E2' OIL BEAR
4990.0	-	5027.0				WEST LUTONG 21 'E4' GAS BEAR
5027.0	-	5055.0				WEST LUTONG 21 'F0' GAS BEAR
5055.0	-	5084.0	12	13.3	41.6	WEST LUTONG 21 'F1' GAS BEAR
5084.0	-	5113.0	2	22.4	59.9	WEST LUTONG 21 'F2' GAS BEAR
5113.0	-	5120.0				WEST LUTONG 21 'F2' OIL BEAR
5120.0	-	5158.0	2	11.8	56.0	WEST LUTONG 21 'G1' OIL BEAR
5158.0	-	5200.0				WEST LUTONG 21 'G2' OIL BEAR
5200.0	-	5351.0				WEST LUTONG 21 'H ' OIL BEAR
5351.0	-	5388.0				WEST LUTONG 21 'I ' GAS BEAR
5388.0	-	5482.0	4	10.3	51.2	WEST LUTONG 21 'J ' GAS BEAR
5482.0	-	5500.0				WEST LUTONG 21 'K ' GAS BEAR
5500.0	-	5575.0	6	14.2	49.1	WEST LUTONG 21 'K ' OIL BEAR
5589.0	-	5589.0				WEST LUTONG 21 'L ' GAS BEAR
5589.0	-	5651.0	12	11.2	56.0	WEST LUTONG 21 'L ' OIL BEAR

WELL NAME : WEST LUTONG 21

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5651.0	-	5750.0	20	15.0	47.4	WEST LUTONG 21 'M ' OIL BEAR
5750.0	-	5896.0	22	15.3	49.9	WEST LUTONG 21 'N ' OIL BEAR

WELL NAME : WEST LUTONG 22

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
4951.0	-	5046.0	8	24.1	41.4	WEST LUTONG 22 'A0' GAS BEAR
5046.0	-	5168.0	4	18.5	56.4	WEST LUTONG 22 'A1' GAS BEAR
5168.0	-	5275.0	4	20.2	54.5	WEST LUTONG 22 'B1' GAS BEAR
5275.0	-	5334.0	6	23.9	56.2	WEST LUTONG 22 'C1' OIL BEAR
5334.0	-	5400.0				WEST LUTONG 22 'C2' OIL BEAR
5400.0	-	5565.0				WEST LUTONG 22 'C1' OIL BEAR
5565.0	-	5674.0				WEST LUTONG 22 'C2' OIL BEAR
5674.0	-	5785.0				WEST LUTONG 22 'C2' OIL BEAR
5785.0	-	5816.0				WEST LUTONG 22 'D1' GAS BEAR
5816.0	-	5874.0				WEST LUTONG 22 'D2' BEAR
5874.0	-	5978.0	20	17.3	44.0	WEST LUTONG 22 'E1' GAS BEAR
5978.0	-	5966.0				WEST LUTONG 22 'E2' GAS BEAR
5966.0	-	6059.0				WEST LUTONG 22 'E2' OIL BEAR
6059.0	-	6110.0				WEST LUTONG 22 'E4' OIL BEAR
6110.0	-	6153.0	8	17.0	39.9	WEST LUTONG 22 'F0' GAS BEAR
6153.0	-	6220.0	32	19.0	38.7	WEST LUTONG 22 'F1' GAS BEAR
6220.0	-	6250.0	4	17.3	51.8	WEST LUTONG 22 'F2' OIL BEAR
6250.0	-	6314.0	6	19.3	52.6	WEST LUTONG 22 'G1' OIL BEAR
6314.0	-	6390.0				WEST LUTONG 22 'G2' OIL BEAR
6390.0	-	6578.0				WEST LUTONG 22 'H ' OIL BEAR
6578.0	-	6581.0				WEST LUTONG 22 'I ' GAS BEAR
6581.0	-	6648.0				WEST LUTONG 22 'I ' OIL BEAR
6648.0	-	6664.0	2	15.2	58.8	WEST LUTONG 22 'J ' GAS BEAR
6664.0	-	6782.0	14	21.0	37.8	WEST LUTONG 22 'J ' OIL BEAR
6782.0	-	6905.0	24	16.1	51.3	WEST LUTONG 22 'K ' OIL BEAR
6905.0	-	6992.0	40	18.0	40.1	WEST LUTONG 22 'L ' OIL BEAR
6992.0	-	7120.0	24	19.3	42.2	WEST LUTONG 22 'M ' OIL BEAR
7120.0	-	7160.0				WEST LUTONG 22 'N ' OIL BEAR

WELL NAME : WEST LUTONG 23

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
4213.0	-	4289.0	50	25.8	40.8	WEST LUTONG 23 'A0' GAS BEAR
4289.0	-	4388.0	42	27.0	44.5	WEST LUTONG 23 'A1' GAS BEAR
4388.0	-	4466.0	8	22.1	53.6	WEST LUTONG 23 'B1' GAS BEAR
4466.0	-	4520.0	16	24.9	51.9	WEST LUTONG 23 'B2' GAS BEAR
4520.0	-	4613.0	14	24.3	40.3	WEST LUTONG 23 'C1' GAS BEAR
4613.0	-	4710.0	6	20.9	53.3	WEST LUTONG 23 'C1' OIL BEAR
4710.0	-	4775.0	6	21.7	48.1	WEST LUTONG 23 'C2' OIL BEAR
4775.0	-	4792.0				WEST LUTONG 23 'C2' GAS BEAR
4792.0	-	4864.0	4	19.9	56.4	WEST LUTONG 23 'C2' OIL BEAR
4864.0	-	4892.0	10	20.9	43.8	WEST LUTONG 23 'D1' GAS BEAR
4892.0	-	4949.0				WEST LUTONG 23 'D2' BEAR
4949.0	-	5016.0	32	24.4	39.8	WEST LUTONG 23 'E1' GAS BEAR
5016.0	-	5081.0	16	19.8	45.8	WEST LUTONG 23 'E2' GAS BEAR
5081.0	-	5097.0				WEST LUTONG 23 'E2' OIL BEAR
5097.0	-	5136.0	2	15.6	60.0	WEST LUTONG 23 'E4' GAS BEAR
5136.0	-	5168.0				WEST LUTONG 23 'F0' GAS BEAR
5168.0	-	5199.0	16	18.4	38.9	WEST LUTONG 23 'F1' GAS BEAR
5199.0	-	5232.0	2	19.0	50.4	WEST LUTONG 23 'F2' GAS BEAR
5232.0	-	5236.0	2	15.0	48.3	WEST LUTONG 23 'G1' GAS BEAR
5236.0	-	5276.0	10	20.1	44.5	WEST LUTONG 23 'G1' OIL BEAR
5276.0	-	5279.0				WEST LUTONG 23 'G2' GAS BEAR
5279.0	-	5323.0	2	16.3	52.5	WEST LUTONG 23 'G2' OIL BEAR
5323.0	-	5328.0				WEST LUTONG 23 'H ' GAS BEAR
5328.0	-	5489.0				WEST LUTONG 23 'H ' OIL BEAR
5489.0	-	5530.0	2	15.0	40.3	WEST LUTONG 23 'I ' GAS BEAR
5530.0	-	5629.0	4	12.5	58.7	WEST LUTONG 23 'J ' GAS BEAR
5629.0	-	5655.0	4	17.0	38.7	WEST LUTONG 23 'K ' GAS BEAR
5655.0	-	5732.0	22	17.3	38.6	WEST LUTONG 23 'K ' OIL BEAR

WELL NAME : WEST LUTONG 23

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5732.0	-	5762.0	20	17.6	39.7	WEST LUTONG 23 'L ' GAS BEAR
5762.0	-	5814.0	10	16.0	50.9	WEST LUTONG 23 'L ' OIL BEAR
5814.0	-	5923.0	50	19.7	41.2	WEST LUTONG 23 'M ' OIL BEAR
5923.0	-	6065.0	48	18.1	39.8	WEST LUTONG 23 'N ' OIL BEAR
6572.0	-	6585.0				
6612.0	-	6642.0	14	17.4	32.2	
6702.0	-	6721.0	6	14.9	27.3	
6758.0	-	6791.0	18	18.7	38.2	
6791.0	-	6848.0	22	20.6	34.9	
6910.0	-	6942.0	22	17.7	39.1	
6988.0	-	7086.0	40	17.9	36.9	
7095.0	-	7132.0	36	21.7	31.1	
7279.0	-	7297.0	8	14.3	36.1	
7297.0	-	7326.0	10	14.6	42.7	
7326.0	-	7493.0	78	17.7	34.2	
7493.0	-	7518.0	16	13.7	43.6	
7520.0	-	7540.0	10	20.2	40.2	
7597.0	-	7610.0				
7610.0	-	7954.0	126	19.4	31.1	
7678.0	-	7763.0				
7763.0	-	7778.0				
7845.0	-	7865.0				
7865.0	-	7934.0				
7935.0	-	7959.0	4	16.1	43.0	
7975.0	-	8030.0	30	19.4	33.4	
8082.0	-	8131.0	30	19.2	37.7	
8131.0	-	8133.0	2	20.4	48.6	

WELL NAME : BARAM 08

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7900.0	-	7943.0	34	16.2	50.4	BLOCK 6 ZONE S3 OIL
8549.0	-	8585.0				BLOCK 6 ZONE F2 OIL
8694.0	-	8703.0	6	8.6	60.6	BLOCK 6 ZONE F2 OIL
9224.0	-	9370.0	22	9.5	64.1	BLOCK 4 ZONE G1 OIL
9377.0	-	9508.0	52	11.9	52.5	BLOCK 4 ZONE G2 OIL
9558.0	-	9584.0	4	6.8	73.7	BLOCK 4 ZONE G3 OIL

WELL NAME : BARAM10

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6880.0	-	6905.0	24	21.4	59.7	BLOCK: 4-1, ZONE: C1, OIL
8246.0	-	8360.0	78	18.0	48.2	BLOCK: 5 , ZONE: , OIL
8526.0	-	8609.0	72	18.5	32.2	
8696.0	-	8747.0	50	17.3	33.7	BLOCK: 5 , ZONE: S3, OIL
8879.0	-	8933.0	34	17.9	52.8	BLOCK: 5 , ZONE: , OIL
9183.0	-	9193.0	10	20.5	42.3	BLOCK: 5 , ZONE: F1, OIL
9408.0	-	9507.0	62	13.2	48.0	BLOCK: 5 , ZONE: , OIL
9585.0	-	9646.0	42	15.0	45.9	BLOCK: 5 , ZONE: S9, OIL
9884.0	-	9975.0	56	16.0	49.3	BLOCK: 5 , ZONE: G1, OIL
10106.0	-	10240.0	76	15.0	44.4	BLOCK 4 ZONE : G-1 OIL
10249.0	-	10322.0	48	15.7	45.2	BLOCK 4 ZONE : G-2 GAS
10322.0	-	10398.0	52	17.3	38.0	BLOCK 4 ZONE : G-2 OIL

WELL NAME : BARAM 11

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5905.0	-	5922.0	10	20.4	45.4	BLOCK: 4-1, ZONE: B , GAS
6086.0	-	6118.0	26	23.6	47.0	BLOCK: 4-1, ZONE: 3, OIL
6514.0	-	6566.0	44	20.6	49.2	BLOCK: 4-1, ZONE: C1, OIL
6602.0	-	6656.0	30	17.8	51.4	BLOCK: 4-1, ZONE: P2, OIL
6809.0	-	6830.0	20	21.6	35.0	BLOCK: 4-1, ZONE: C2, GAS
6830.0	-	6874.0	28	19.9	50.3	BLOCK: 4-1, ZONE: , OIL
7777.0	-	7815.0	34	23.4	30.2	BLOCK : 1-2 ZONE : E2
7815.0	-	7868.0	42	21.0	40.8	BLOCK : 1-2 ZONE : E2
7953.0	-	7992.0	32	18.7	40.9	GAS
8039.0	-	8045.0	6	9.4	62.8	GAS
8093.0	-	8155.0	42	12.1	47.0	GAS
8188.0	-	8254.0	42	17.8	38.2	GAS
8372.0	-	8399.0	20	12.7	50.2	GAS

WELL NAME : BARAM 12

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6769.0	-	6869.0	64	19.4	38.7	BLOCK: 5 , ZONE: C2, GAS
6955.0	-	6990.0	26	20.5	36.2	BLOCK: 5 , ZONE: P5, GAS
6999.0	-	7024.0	22	20.0	41.6	BLOCK: 5 , ZONE: , OIL
7044.0	-	7070.0	26	21.7	40.2	BLOCK: 5 , ZONE: , OIL
7107.0	-	7130.0	24	20.6	46.6	BLOCK: 5 , ZONE: , OIL
7812.0	-	7930.0	66	18.9	38.9	BLOCK: 5 , ZONE: D2, GAS
7930.0	-	7986.0	50	19.6	46.2	BLOCK: 5 , ZONE: , OIL
8858.0	-	8895.0				BLOCK: 5 , ZONE: S3, OIL
8248.0	-	8330.0				
8403.0	-	8476.0				

WELL NAME : BARAM 12

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
9024.0	-	9086.0				BLOCK 4 ZONE : F-2 OIL
9210.0	-	9246.0	28	13.2	40.4	BLOCK 4 ZONE : F-2 OIL
9581.0	-	9644.0	54	19.4	34.0	BLOCK 4 ZONE : G-1 OIL
9792.0	-	9826.0	32	10.5	52.9	BLOCK 4 ZONE : G-1 GAS
9897.0	-	9977.0	64	13.3	43.4	BLOCK 4 ZONE : G-1 OIL
9988.0	-	10016.0	24	11.0	42.4	BLOCK 4 ZONE : G-2 GAS
10057.0	-	10082.0	26	14.8	37.7	BLOCK 4 ZONE : G-2 OIL

WELL NAME : BARAM 13

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6045.0	-	6115.0	56	17.3	40.2	BLOCK: 5 , ZONE: , GAS
6458.0	-	6548.0	70	18.6	37.6	BLOCK: 5 , ZONE: C1, GAS
6548.0	-	6568.0	18	19.1	44.7	BLOCK: 5 , ZONE: , OIL
6593.0	-	6656.0	36	15.2	50.1	BLOCK: 5 , ZONE: P2, OIL
6684.0	-	6697.0	10	15.4	45.8	BLOCK: 5 , ZONE: P3, OIL
6826.0	-	6870.0	34	19.3	33.0	BLOCK: 5 , ZONE: C2, GAS
6878.0	-	6913.0	32	16.4	45.8	BLOCK: 5 , ZONE: , OIL
7010.0	-	7062.0	32	17.4	50.7	BLOCK: 5 , ZONE: , OIL
7812.0	-	7930.0	38	14.3	48.8	BLOCK: 5 , ZONE: D2, GAS
7930.0	-	7986.0	22	15.3	53.1	BLOCK: 5 , ZONE: , OIL
8295.0	-	8340.0	46	15.4	32.1	BLOCK 4 ZONE : E-1 GAS
8340.0	-	8349.0	8	16.5	38.1	BLOCK 4 ZONE : E-1 OIL
8490.0	-	8577.0	80	16.7	46.7	BLOCK 4 ZONE : E-2 OIL
9051.0	-	9096.0	28	9.4	50.1	BLOCK 4 ZONE : F-2 OIL
9220.0	-	9255.0	28	11.8	48.7	BLOCK 4 ZONE : F-2 OIL
9603.0	-	9670.0	54	18.2	36.6	BLOCK 4 ZONE : G-1 OIL
10005.0	-	10155.0	36	14.3	39.5	BLOCK 7 ZONE : G-2 OIL

WELL NAME : BARAM 14

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6625.0	-	6686.0	44	17.4	36.8	BLOCK 5 ZONE P5 GAS
6704.0	-	6755.0	44	18.7	35.0	BLOCK 5 ZONE P6 GAS
6768.0	-	6790.0	20	16.7	39.3	BLOCK 5 ZONE P7 GAS
6790.0	-	6812.0	14	15.8	46.5	BLOCK 5 ZONE P7 OIL
7390.0	-	7536.0	84	15.8	37.1	BLOCK 5 ZONE D2 GAS
7536.0	-	7624.0	62	18.4	41.0	BLOCK 5 ZONE D2 OIL
7756.0	-	7826.0	60	14.0	36.5	BLOCK 5 ZONE E1 GAS
7901.0	-	7947.0	46	17.9	29.4	BLOCK 5 ZONE E1 OIL
8070.0	-	8104.0	30	14.5	43.2	BLOCK 5 ZONE E2 GAS
8104.0	-	8140.0	34	22.2	39.4	BLOCK 5 ZONE E2 OIL
8342.0	-	8366.0	26	22.3	32.8	BLOCK 5 ZONE F1 OIL
8548.0	-	8602.0	54	11.5	45.0	BLOCK 5 ZONE F2 GAS
8708.0	-	8752.0	38	15.8	42.8	BLOCK 5 ZONE F2 OIL
8994.0	-	9000.0	8	15.5	41.6	BLOCK 5 ZONE G1 GAS
9000.0	-	9084.0	76	17.0	42.5	BLOCK 5 ZONE G1 OIL
9147.0	-	9208.0	42	14.6	51.0	BLOCK 4 ZONE G2 GAS
9208.0	-	9239.0	18	12.6	45.0	BLOCK 4 ZONE G2 OIL
9578.0	-	9686.0	76	16.6	41.2	BLOCK 4 ZONE G3 GAS

WELL NAME : BARAM 16

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6885.0	-	6967.0	38	14.3	53.3	BLOCK: 5 , ZONE: C1, GAS
6976.0	-	7036.0	46	16.5	54.2	BLOCK: 5 , ZONE: , OIL
7070.0	-	7139.0	20	13.4	58.6	BLOCK: 5 , ZONE: P2, OIL
7170.0	-	7186.0	14	19.1	42.1	BLOCK: 5 , ZONE: P3, OIL
7330.0	-	7374.0	26	15.5	49.9	BLOCK: 5 , ZONE: , OIL
8495.0	-	8517.0	16	13.5	63.2	BLOCK: 5 , ZONE: , OIL
8966.0	-	9034.0	48	11.9	56.4	BLOCK 4 ZONE : E-1 OIL
9770.0	-	9831.0	24	10.1	57.0	BLOCK 4 ZONE : F-2 OIL
10723.0	-	10822.0	52	13.5	50.3	BLOCK 7 ZONE : G-2 OIL

WELL NAME : BARAM 17

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6132.0	-	6191.0	50	17.4	39.2	BLOCK: 5 , ZONE: , GAS
6561.0	-	6637.0	44	13.8	54.3	BLOCK: 5 , ZONE: C1, GAS
6643.0	-	6703.0	58	17.7	52.0	BLOCK: 5 , ZONE: , OIL
6727.0	-	6791.0	32	17.2	50.5	BLOCK: 5 , ZONE: P2, OIL
6818.0	-	6832.0	12	19.9	39.1	BLOCK: 5 , ZONE: P3, OIL
6970.0	-	6991.0	20	18.4	38.6	BLOCK: 5 , ZONE: C2, GAS
6991.0	-	7048.0	34	17.1	56.0	BLOCK: 5 , ZONE: , OIL
8082.0	-	8105.0	12	14.3	61.8	BLOCK: 5 , ZONE: , OIL
8320.0	-	8337.0	8	11.3	69.5	BLOCK 4 ZONE : E-1 OIL
8492.0	-	8560.0	54	12.7	46.8	BLOCK 4 ZONE : E-1 OIL
8700.0	-	8754.0	26	14.3	62.7	BLOCK 4 ZONE : E-2 OIL
9311.0	-	9374.0	26	8.8	53.6	BLOCK 4 ZONE : F-2 OIL
9510.0	-	9518.0	10	18.4	52.9	BLOCK 4 ZONE : F-2 OIL
9828.0	-	9834.0	8	7.5	71.1	BLOCK 7 ZONE : G-1 OIL
9854.0	-	9876.0	18	13.0	50.2	BLOCK 7 ZONE : G-1 OIL
9006.0	-	9918.0	20	16.4	67.6	BLOCK 7 ZONE : G-1 OIL
10322.0	-	10429.0	70	11.8	47.8	BLOCK 7 ZONE : G-2 OIL

WELL NAME : BARAM 18

CUT OFF OF SW	:	80.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
3830.0	-	3879.0	36	24.8	50.5	BLOCK 4 ZONE : K-1 GAS
3879.0	-	3965.0	78	31.2	46.4	BLOCK 4 ZONE : K-1 OIL
5331.0	-	5359.0				BLOCK 4 ZONE : A-1 OIL

WELL NAME : BARAM 18

CUT OFF OF SW	:	80.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
9303.0 -	9335.0	20	11.0	52.9	BLOCK: 8 , ZONE: G2, OIL
9348.0 -	9457.0	78	11.2	49.9	BLOCK: 8 , ZONE: G2, OIL

WELL NAME : BARAM 19

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5904.0	-	5923.0	10	21.8	55.3	BLOCK: 4-1, ZONE: , OIL
6059.0	-	6093.0	26	19.5	55.6	BLOCK: 4-1, ZONE: , OIL
6360.0	-	6484.0	78	18.3	40.7	BLOCK: 5 , ZONE: C1, GAS
6506.0	-	6564.0	36	16.3	49.1	BLOCK: 5 , ZONE: P2, OIL
6589.0	-	6603.0	14	15.9	47.3	BLOCK: 5 , ZONE: P3, GAS
6722.0	-	6803.0	60	18.6	38.0	BLOCK: 5 , ZONE: C2, GAS
6892.0	-	6902.0	10	16.8	41.8	BLOCK: 5 , ZONE: P5, GAS
6913.0	-	6955.0	26	17.8	48.9	BLOCK: 5 , ZONE: , OIL
6973.0	-	6993.0	18	20.8	45.1	BLOCK: 5 , ZONE: , OIL
7032.0	-	7053.0	22	18.2	55.8	BLOCK: 5 , ZONE: , OIL
7669.0	-	7810.0	82	17.3	38.9	BLOCK: 5 , ZONE: D2, GAS
7810.0	-	7898.0	52	19.7	44.4	BLOCK: 5 , ZONE: , OIL
8057.0	-	8130.0	66	14.4	39.2	
8200.0	-	8257.0	54	15.8	43.9	BLOCK: 5 , ZONE: S3, OIL
8374.0	-	8417.0	38	14.7	56.4	BLOCK: 5 , ZONE: E2, OIL
8665.0	-	8674.0	10	18.8	50.7	BLOCK: 5 , ZONE: F1, OIL
8960.0	-	8996.0	28	12.8	45.7	BLOCK 4 ZONE : F-2 OIL
9300.0	-	9348.0	46	16.6	34.9	BLOCK 4 ZONE : G-1 GAS
9348.0	-	9408.0	58	17.1	40.8	BLOCK 4 ZONE : G-1 OIL
9506.0	-	9601.0	64	12.6	42.1	BLOCK 4 ZONE : G-1 GAS
9609.0	-	9693.0	22	14.2	49.7	BLOCK 4 ZONE : G-1 OIL
9705.0	-	9800.0	48	14.1	40.5	BLOCK 4 ZONE : G-2 GAS
9804.0	-	9874.0	44	12.2	49.4	BLOCK 4 ZONE : G-2 OIL
9934.0	-	10055.0				BLOCK 4 ZONE : G-3 GAS

WELL NAME : BARAM20

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
8653.0	-	8740.0	22	12.6	58.8	BLOCK : 2- ZONE : D2
9216.0	-	9284.0	56	9.5	47.2	BLOCK : 2- ZONE : E1
9421.0	-	9533.0	46	13.6	46.7	BLOCK : 2- ZONE : E2
9533.0	-	9643.0	40	11.7	57.9	
9743.0	-	9792.0	18	13.4	48.6	BLOCK : 2- ZONE : F1
9792.0	-	9835.0	36	13.1	58.0	BLOCK : 2- ZONE : F1
10046.0	-	10101.0	44	9.2	50.0	BLOCK : 2- ZONE : F2
10240.0	-	10256.0	10	14.6	42.5	BLOCK : 2- ZONE : F2
10256.0	-	10280.0	18	11.6	48.9	BLOCK : 2- ZONE : F2
10908.0	-	10984.0				BLOCK : 2- ZONE : G1
11179.0	-	11300.0				BLOCK : 2- ZONE : G2
11333.0	-	11389.0				BLOCK : 2- ZONE : G3
11410.0	-	11444.0				

WELL NAME : BARAM 21

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5756.0	-	5805.0	32	18.5	58.0	BLOCK : 1-2 ZONE : A2
5989.0	-	5996.0	4	21.1	58.0	BLOCK : 1-2 ZONE : B
5998.0	-	6008.0	10	16.3	51.5	
6088.0	-	6118.0	24	22.4	41.6	BLOCK : 1-2 ZONE : O2
6159.0	-	6194.0	28	23.1	50.2	BLOCK : 1-2 ZONE : O3
6602.0	-	6616.0	14	18.7	53.9	BLOCK : 1-1 ZONE : C1
6642.0	-	6672.0	18	15.8	62.2	BLOCK : 1-1 ZONE : C1
6757.0	-	6827.0	54	20.3	43.0	BLOCK : 1-1 ZONE : C2
7410.0	-	7470.0	38	14.0	53.5	BLOCK : 1-1 ZONE : D1
7474.0	-	7544.0	46	17.4	33.4	BLOCK : 1-1 ZONE : D1
7557.0	-	7608.0	34	14.7	50.5	BLOCK : 1-1 ZONE : D2
7836.0	-	7885.0	42	14.7	42.7	BLOCK : 1-1 ZONE : E1

WELL NAME : BARAM 22

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6194.0	-	6288.0	80	16.9	49.9	BLOCK 1 ZONE : B-
6303.0	-	6348.0	24	16.7	49.5	BLOCK 1 ZONE : O-2
6365.0	-	6428.0	48	20.5	45.0	BLOCK 1 ZONE : O-3
6896.0	-	6906.0	12	19.2	57.4	BLOCK : 1-1 ZONE : C1
6934.0	-	6970.0	14	18.7	52.5	BLOCK : 1-1 ZONE : C1
7054.0	-	7110.0	40	19.1	49.4	BLOCK : 1-1 ZONE : C2
7716.0	-	7776.0	36	14.0	46.5	BLOCK : 1-1 ZONE : D1
7780.0	-	7831.0	42	17.8	35.7	BLOCK : 1-1 ZONE : D1
7867.0	-	7880.0	4	14.7	63.0	BLOCK : 1-1 ZONE : D2
8159.0	-	8212.0	44	16.3	33.6	BLOCK : 1-1 ZONE : E1

WELL NAME : BARAM 24

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS	
7454.0	-	7469.0	4	20.4	49.2	BLOCK 3-1	ZONE : C3
7510.0	-	7572.0	38	22.2	42.1	BLOCK 3-1	ZONE : C3
8542.0	-	8593.0	36	21.7	37.5	BLOCK 3-3	ZONE : E1
8751.0	-	8864.0	60	19.4	44.2	BLOCK 3-3	ZONE : E2
8909.0	-	9071.0	92	15.9	48.1	BLOCK 3-3	ZONE : E3
9512.0	-	9544.0	10	15.6	40.9	BLOCK 3-3	ZONE : G1

WELL NAME : BARAM 25

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7592.0	-	7713.0	50	17.2	59.6	BLOCK 7 ZONE : D-1 GAS

WELL NAME : BARAM 25

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
8970.0	-	9003.0	22	10.4	54.8	
9201.0	-	9250.0	50	15.7	41.6	
9250.0	-	9291.0	34	16.2	50.7	BLOCK: 8 , ZONE: , OIL
9773.0	-	9811.0	34	14.6	42.0	BLOCK: 8 , ZONE: G2, OIL
9820.0	-	9830.0	12	15.8	34.8	
9830.0	-	9944.0	108	14.1	46.2	BLOCK: 8 , ZONE: G2, OIL
9955.0	-	9967.0	12	18.5	42.3	
9967.0	-	9990.0	12	11.3	67.7	BLOCK: 8 , ZONE: G3, OIL
10000.0	-	10020.0	22	13.7	45.6	
10020.0	-	10030.0	6	13.1	52.5	BLOCK: 8 , ZONE: , OIL
10061.0	-	10092.0	30	12.3	54.2	BLOCK: 8 , ZONE: , OIL
10139.0	-	10205.0	28	10.0	55.6	BLOCK: 8 , ZONE: , OIL

WELL NAME : BARAM26

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
8000.0	-	8029.0	2	22.2	76.2	BLOCK : 1-2 ZONE : C1
8982.0	-	9081.0	44	17.0	59.9	BLOCK : 1-2 ZONE : D1
9192.0	-	9253.0	46	19.4	52.1	BLOCK : 1-2 ZONE : D2
9576.0	-	9644.0	60	16.9	56.4	BLOCK : 1-2 ZONE : E1
9692.0	-	9790.0	68	22.5	45.7	BLOCK : 1-2 ZONE : E1

WELL NAME : BARAM 27

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7838.0	-	7892.0	52	18.1	37.1	BLOCK 7 ZONE : E-1 GAS
7993.0	-	8017.0	12	15.2	57.5	BLOCK 7 ZONE : E-2 OIL
8460.0	-	8484.0	14	10.1	71.6	BLOCK 7 ZONE : F-2 OIL
8517.0	-	8590.0	26	15.3	49.8	BLOCK 7 ZONE : F-2 OIL
8596.0	-	8617.0	20	15.2	47.0	BLOCK 7 ZONE : F-2 OIL
8876.0	-	8904.0	26	13.7	56.3	BLOCK 7 ZONE : G-1 OIL
8913.0	-	8933.0	10	12.0	62.8	BLOCK 7 ZONE : G-1 OIL
8939.0	-	8961.0	22	21.3	47.6	BLOCK 7 ZONE : G-1 OIL
9012.0	-	9041.0	16	16.5	56.0	BLOCK 7 ZONE : G-1 OIL
9261.0	-	9376.0	104	15.1	40.9	BLOCK 7 ZONE : G-2 OIL
5262.0	-	5300.0				BLOCK 4 ZONE : A-1 OIL

WELL NAME : BARAM 30

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6640.0	-	6892.0	126	18.6	41.2	BLOCK 4 ZONE : C-1 GAS
7006.0	-	7030.0	14	22.2	66.4	BLOCK 4 ZONE : C-2 OIL
7718.0	-	7736.0	4	13.4	74.4	BLOCK 4 ZONE : D-1 OIL
8362.0	-	8406.0	36	15.8	67.7	BLOCK 4 ZONE : E-1 OIL
8980.0	-	9008.0	12	16.9	42.3	BLOCK 4 ZONE : F-2 OIL
9624.0	-	9750.0	2	12.1	70.7	BLOCK 4 ZONE : G-1 OIL
9784.0	-	9920.0	66	12.7	56.5	BLOCK 4 ZONE : G-2 OIL

WELL NAME : BARAM 31

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
3997.0	-	4008.0	12	32.2	39.4	BLOCK 4 ZONE : K-1 GAS
4008.0	-	4068.0	40	28.0	50.6	BLOCK 4 ZONE : K-1 OIL

WELL NAME : BARAM 32

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5812.0	-	5824.0	10	29.5	52.4	BLOCK : 2 ZONE : B1
6722.0	-	6760.0	16	18.9	54.0	BLOCK : 1-1 ZONE : S1.1
6810.0	-	6914.0	14	23.7	49.0	BLOCK : 1-1 ZONE : S1.4
6938.0	-	6950.0	10	17.3	59.9	BLOCK : 1-1 ZONE : S1.9
7044.0	-	7094.0	38	21.2	45.4	BLOCK : 1-1 ZONE : S4.1
7294.0	-	7450.0	32	18.0	60.9	BLOCK : 1-1 ZONE : S6.1
7478.0	-	7514.0	28	19.3	48.8	BLOCK : 1-1 ZONE : S6.5
7632.0	-	7694.0	20	21.6	47.2	BLOCK : 1-1 ZONE : S9.1
7760.0	-	7846.0	44	17.4	45.4	BLOCK : 1-1 ZONE : S10.1
8170.0	-	8320.0	2	23.2	41.5	BLOCK : 1-1 ZONE : S12.1

WELL NAME : BARAM33

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6554.0	-	6600.0	12	26.7	43.2	BLOCK : 1 ZONE : B2
6740.0	-	6774.0	22	23.4	53.6	BLOCK : 1 ZONE : B3
7650.0	-	7670.0	8	18.9	63.6	
9112.0	-	9128.0	4	14.9	65.4	BLOCK : 1 ZONE : E1
9200.0	-	9254.0	20	15.6	54.4	BLOCK : 1 ZONE : E2
9260.0	-	9280.0	8	17.2	59.9	BLOCK : 1 ZONE : E2
9346.0	-	9544.0	104	16.1	51.4	BLOCK : 1 ZONE : E3
9574.0	-	9730.0	124	16.7	46.4	BLOCK : 1 ZONE : F
9734.0	-	9766.0				BLOCK : 1 ZONE : F
9770.0	-	9822.0				BLOCK : 1 ZONE : F
9878.0	-	9934.0	32	14.7	47.2	BLOCK : 1 ZONE : G1
9938.0	-	10010.0	56	18.3	37.7	BLOCK : 1 ZONE : G1
10020.0	-	10088.0	50	19.9	34.5	BLOCK : 1 ZONE : G1
10092.0	-	10152.0	50	18.5	41.5	BLOCK : 1 ZONE : G1
10152.0	-	10170.0	12	14.4	52.7	BLOCK : 1 ZONE : G1
10174.0	-	10210.0	24	14.8	51.2	BLOCK : 1 ZONE : G1
10230.0	-	10274.0	20	14.3	48.7	BLOCK : 1 ZONE : G2
10274.0	-	10308.0	28	20.1	36.3	BLOCK : 1 ZONE : G2
10312.0	-	10324.0	10	15.7	42.2	BLOCK : 1 ZONE : G2
10324.0	-	10360.0	34	15.7	36.1	BLOCK : 1 ZONE : G2

WELL NAME : BARAM 34

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS	
10128.0	-	10140.0	2	13.3	68.9	BLOCK : 1	ZONE : E1
10202.0	-	10224.0				BLOCK : 1	ZONE : E2
10226.0	-	10256.0	16	14.8	50.1	BLOCK : 1	ZONE : E2
10366.0	-	10576.0	82	13.9	47.6	BLOCK : 1	ZONE : E3
10588.0	-	10742.0	98	14.8	46.3	BLOCK : 1	ZONE : F
10894.0	-	10940.0	22	15.8	43.3	BLOCK : 1	ZONE : G1
10940.0	-	10958.0	8	13.4	42.1	BLOCK : 1	ZONE : G1
10966.0	-	11018.0	44	14.9	41.5	BLOCK : 1	ZONE : G1
11048.0	-	11094.0	44	17.6	39.0	BLOCK : 1	ZONE : G1
11094.0	-	11102.0	6	15.9	47.0	BLOCK : 1	ZONE : G1
11122.0	-	11136.0	6	11.2	57.5	BLOCK : 1	ZONE : G1
11146.0	-	11168.0	16	17.3	49.5	BLOCK : 1	ZONE : G1
11214.0	-	11230.0	10	12.5	48.2	BLOCK : 1	ZONE : G1
11230.0	-	11236.0	4	16.6	41.7	BLOCK : 1	ZONE : G1
11256.0	-	11328.0	28	14.2	40.3	BLOCK : 1	ZONE : G2
11368.0	-	11384.0	14	13.9	35.7	BLOCK : 1	ZONE : G2

WELL NAME : BARAM35

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4777.0 -	4822.0	6	25.5	57.1	OIL	SHELLCODE :L

WELL NAME : BARAM 35

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5524.0	-	5532.0				BLOCK : 2 ZONE : A1
5530.0	-	5556.0	6	25.3	64.3	BLOCK : 2 ZONE : A1
5668.0	-	5708.0	28	26.1	53.8	BLOCK : 1-1 ZONE : O2.1
5708.0	-	5724.0	2	26.8	65.8	BLOCK : 1-1 ZONE : O2.1
5776.0	-	5830.0	18	26.1	50.3	BLOCK : 1-1 ZONE : O3.1
6046.0	-	6090.0	22	25.0	58.5	BLOCK : 1-1 ZONE : P1.1
6542.0	-	6576.0	4	21.9	58.6	BLOCK : 1-1 ZONE : P6.1
6590.0	-	6604.0				BLOCK : 1-1 ZONE : P6.1

WELL NAME : BARAM 36

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5560.0	-	5568.0				BLOCK : 2 ZONE : A2
5794.0	-	5802.0				BLOCK : 2 ZONE : A2
5862.0	-	5938.0	20	25.7	51.4	BLOCK : 2 ZONE : B1
6084.0	-	6148.0	24	24.5	57.9	BLOCK : 2 ZONE : B1
6178.0	-	6246.0	26	24.2	51.3	BLOCK : 2 ZONE : B2
6350.0	-	6420.0	32	24.3	53.9	BLOCK : 2 ZONE : B3
7080.0	-	7218.0	6	22.9	67.4	BLOCK : 2 ZONE : C2
7292.0	-	7350.0	10	22.1	52.8	BLOCK : 2 ZONE : C3
7350.0	-	7374.0	14	15.4	59.2	BLOCK : 2 ZONE : C3
7414.0	-	7464.0	26	23.3	51.6	BLOCK : 2 ZONE : C3
7604.0	-	7634.0	16	19.6	51.1	BLOCK : 2 ZONE : C4
7676.0	-	7686.0	8	22.3	65.0	BLOCK : 2 ZONE : C4
8058.0	-	8078.0	10	18.7	57.4	BLOCK : 2 ZONE : C4
8078.0	-	8084.0				BLOCK : 2 ZONE : C4
8120.0	-	8162.0	26	20.0	54.8	BLOCK : 2 ZONE : D1
8186.0	-	8198.0	4	19.8	54.6	BLOCK : 2 ZONE : D1
8818.0	-	8834.0	18	21.9	28.1	BLOCK : 2 ZONE : E1

WELL NAME : BARAM 37

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7620.0	-	7630.0	4	22.1	42.1	BLOCK : 3-3 ZONE : B1
7630.0	-	7652.0	12	21.8	51.3	BLOCK : 3-3 ZONE : B1
7888.0	-	7908.0	20	22.7	45.9	BLOCK : 3-3 ZONE : B1
7908.0	-	7962.0	18	22.3	59.4	BLOCK : 3-3 ZONE : B1
7996.0	-	8018.0	18	23.9	40.1	BLOCK : 3-3 ZONE : B2
8024.0	-	8032.0	8	21.0	52.7	BLOCK : 3-3 ZONE : B2
8094.0	-	8104.0				BLOCK : 3-3 ZONE : B2
8206.0	-	8274.0	34	22.9	51.0	BLOCK : 3-3 ZONE : B3
8654.0	-	8682.0	16	21.2	59.6	BLOCK : 3-3 ZONE : C1
8754.0	-	8840.0	34	27.6	52.2	BLOCK : 3-3 ZONE : C1
8852.0	-	8890.0	26	29.2	50.5	BLOCK : 3-3 ZONE : C1
8966.0	-	8994.0	2	20.1	60.0	BLOCK : 3-3 ZONE : C2
8994.0	-	9008.0	8	21.7	58.5	BLOCK : 3-3 ZONE : C2
9100.0	-	9108.0				BLOCK : 3-3 ZONE : C2
9124.0	-	9136.0				BLOCK : 3-3 ZONE : C2
9152.0	-	9178.0				BLOCK : 3-3 ZONE : C2
9288.0	-	9334.0	16	16.9	53.4	BLOCK : 3-3 ZONE : C3
9380.0	-	9588.0	128	20.1	39.4	BLOCK : 3-3 ZONE : C3
9630.0	-	9660.0	28	22.8	34.6	BLOCK : 3-3 ZONE : C4
9660.0	-	9704.0	44	23.6	34.9	BLOCK : 3-3 ZONE : C4
9710.0	-	9726.0	10	18.3	56.4	BLOCK : 3-3 ZONE : C4
9740.0	-	9778.0	30	19.5	59.5	BLOCK : 3-3 ZONE : C4

WELL NAME : BARAM38

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7638.0	-	7674.0	8	16.2	65.4	BLOCK : 3-1 ZONE : C2
7766.0	-	7800.0	10	15.7	62.7	BLOCK : 3-1 ZONE : C2
7842.0	-	7852.0				BLOCK : 3-1 ZONE : C3
7882.0	-	8076.0	76	19.6	40.4	BLOCK : 3-1 ZONE : C3
8098.0	-	8106.0	6	20.8	37.7	BLOCK : 3-3 ZONE : C4
8112.0	-	8182.0	56	23.7	43.3	BLOCK : 3-3 ZONE : C4
8372.0	-	8428.0	42	18.3	42.2	BLOCK : 3-3 ZONE : D1
8442.0	-	8502.0	26	18.7	45.0	BLOCK : 3-3 ZONE : D1
8532.0	-	8540.0	8	18.0	39.9	BLOCK : 3-3 ZONE : D1
8540.0	-	8572.0	30	16.5	47.0	BLOCK : 3-3 ZONE : D1
8574.0	-	8608.0	14	21.4	60.0	BLOCK : 3-3 ZONE : D1
8690.0	-	8698.0	4	15.9	66.4	BLOCK : 3-3 ZONE : D2
8986.0	-	9012.0	4	21.6	51.2	BLOCK : 3-3 ZONE : D2
9140.0	-	9164.0	20	17.1	43.1	BLOCK : 3-3 ZONE : E1
9162.0	-	9182.0	2	14.5	50.9	BLOCK : 3-3 ZONE : E1
9238.0	-	9256.0	8	10.7	64.1	BLOCK : 3-3 ZONE : E1
9260.0	-	9286.0	24	13.7	41.6	BLOCK : 3-3 ZONE : E1
9298.0	-	9310.0	12	12.4	57.2	BLOCK : 3-3 ZONE : E1
9440.0	-	9452.0	6	12.6	56.0	BLOCK : 3-3 ZONE : E2
9474.0	-	9484.0	4	13.4	59.1	BLOCK : 3-3 ZONE : E2
9494.0	-	9528.0	24	14.8	45.4	BLOCK : 3-3 ZONE : E2
9558.0	-	9594.0	30	15.5	46.8	BLOCK : 3-3 ZONE : E2
9600.0	-	9632.0	28	15.3	48.7	BLOCK : 3-3 ZONE : E2
9644.0	-	9666.0	12	14.1	47.5	BLOCK : 3-3 ZONE : E2
9668.0	-	9678.0	10	19.0	34.6	BLOCK : 3-3 ZONE : E2
9706.0	-	10042.0	198	17.1	47.7	BLOCK : 3-3 ZONE : E3

WELL NAME : BARAM 39

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
8124.0	-	8138.0				BLOCK : 3-3 ZONE : C2
8246.0	-	8274.0	8	14.5	63.2	BLOCK : 3-3 ZONE : C3
8326.0	-	8358.0	30	21.0	35.5	BLOCK : 3-3 ZONE : C3
8368.0	-	8380.0	12	19.8	46.5	BLOCK : 3-3 ZONE : C3
8394.0	-	8450.0	30	17.1	51.3	BLOCK : 3-3 ZONE : C3
8478.0	-	8532.0	28	18.0	46.2	BLOCK : 3-3 ZONE : C4
8540.0	-	8570.0	28	20.3	50.8	BLOCK : 3-3 ZONE : C4
9692.0	-	9716.0	22	16.2	46.2	BLOCK : 3-3 ZONE : E1
9736.0	-	9756.0	16	15.2	56.9	BLOCK : 3-3 ZONE : E1
9794.0	-	9828.0	28	18.8	57.0	BLOCK : 3-3 ZONE : E1
9974.0	-	10038.0	26	17.1	44.1	BLOCK : 3-3 ZONE : E2
10074.0	-	10122.0	14	15.7	60.3	BLOCK : 3-3 ZONE : E2
10128.0	-	10138.0	4	15.7	59.9	BLOCK : 3-3 ZONE : E2
10146.0	-	10158.0	12	17.8	49.2	BLOCK : 3-3 ZONE : E2
10186.0	-	10450.0	122	16.4	48.7	BLOCK : 3-3 ZONE : E3

WELL NAME : BARAM40

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7826.0	-	7864.0	18	21.6	48.3	BLOCK : 3-3 ZONE : B3
7896.0	-	7914.0	6	20.9	66.5	BLOCK : 3-3 ZONE : B3
7950.0	-	7968.0				BLOCK : 3-3 ZONE : B3
8020.0	-	8054.0	22	20.9	48.1	BLOCK : 3-3 ZONE : B3
8084.0	-	8096.0	12	18.0	50.2	
8096.0	-	8140.0	24	20.8	58.5	
8216.0	-	8246.0	14	19.1	44.9	BLOCK : 3-3 ZONE : C1
8250.0	-	8286.0	24	21.2	51.7	BLOCK : 3-3 ZONE : C1
8436.0	-	8458.0	12	22.7	45.5	BLOCK : 3-3 ZONE : C1
8456.0	-	8494.0	22	22.8	57.0	BLOCK : 3-3 ZONE : C1
8524.0	-	8584.0	16	16.8	53.1	BLOCK : 3-3 ZONE : C2
8610.0	-	8646.0	12	19.1	58.4	BLOCK : 3-3 ZONE : C2
8646.0	-	8658.0				BLOCK : 3-3 ZONE : C2
8692.0	-	8706.0	6	13.6	63.3	BLOCK : 3-3 ZONE : C2
8716.0	-	8726.0	8	15.4	57.0	BLOCK : 3-3 ZONE : C2
8832.0	-	8880.0	20	13.6	53.6	BLOCK : 3-3 ZONE : C3
8934.0	-	8976.0	38	19.1	39.2	BLOCK : 3-3 ZONE : C3
8980.0	-	9010.0	24	18.5	43.0	BLOCK : 3-3 ZONE : C3
9020.0	-	9080.0	26	18.3	47.5	BLOCK : 3-3 ZONE : C3
9114.0	-	9148.0	28	21.5	39.3	BLOCK : 3-3 ZONE : C4
9148.0	-	9198.0	22	19.3	52.5	BLOCK : 3-3 ZONE : C4
9200.0	-	9246.0	26	19.4	57.5	BLOCK : 3-3 ZONE : C4
10666.0	-	10700.0	10	16.6	63.7	BLOCK : 3-3 ZONE : E1
10714.0	-	10740.0				BLOCK : 3-3 ZONE : E1
10786.0	-	10816.0	16	19.1	64.6	BLOCK : 3-3 ZONE : E1
10994.0	-	11090.0	36	14.4	56.3	BLOCK : 3-3 ZONE : E2
11122.0	-	11178.0	32	17.3	56.7	BLOCK : 3-3 ZONE : E2
11200.0	-	11222.0	20	17.0	57.1	BLOCK : 3-3 ZONE : E2

WELL NAME : BARAM40

CUT OFF OF SW : 70.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 40.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
11260.0 -	11544.0	122	18.6	57.0	BLOCK : 3-3 ZONE : E3

WELL NAME : BAKAU 03

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7142.0	-	7148.0	4	23.1	54.8	
7349.0	-	7403.0	42	22.2	59.1	
7462.0	-	7492.0	6	13.6	72.1	
7514.0	-	7528.0	6	18.4	59.2	
7687.0	-	7719.0	24	21.6	45.3	
7745.0	-	7757.0	12	19.8	54.9	
7784.0	-	7797.0	10	18.0	58.7	
7814.0	-	7852.0	34	22.2	47.4	
7868.0	-	7881.0	10	21.7	51.4	
7886.0	-	7921.0	20	20.4	66.7	
8217.0	-	8279.0	24	19.7	54.8	
8319.0	-	8327.0				GWC 8327.
8454.0	-	8510.0	24	13.1	49.7	
8531.0	-	8572.0	12	11.4	65.9	
8605.0	-	8614.0				
8710.0	-	8819.0	2	11.4	73.5	
8848.0	-	8858.0				
8953.0	-	9002.0	16	7.2	69.9	
9225.0	-	9313.0	26	10.0	65.4	
9374.0	-	9431.0				
9443.0	-	9452.0				
9482.0	-	9502.0	4	11.5	68.1	
9579.0	-	9592.0	4	7.4	64.6	
9609.0	-	9672.0	26	8.5	70.2	

WELL NAME : BAKAU 04

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
8703.0	-	8711.0	4	20.8	52.9	GAS	GOC 8708?
8733.0	-	8764.0	2	22.5	70.4	OIL	
8796.0	-	8802.0	6	22.6	72.3	OIL	OWC 8802
9017.0	-	9065.0	16	19.4	62.9	OIL	
9244.0	-	9249.0				OIL	
9283.0	-	9351.0	28	17.8	67.3	OIL	
9655.0	-	9748.0	78	17.4	48.4	GAS	
9840.0	-	9920.0	58	18.0	44.9	GAS	
9940.0	-	9995.0	24	17.1	60.5	GAS	
10155.0	-	10188.0	24	16.0	52.9	GAS	
10217.0	-	10419.0	142	16.0	57.2	OIL?	
10701.0	-	10780.0	60	15.2	52.8	GAS?	
10844.0	-	10918.0	70	16.3	52.7	GAS?	
11002.0	-	11025.0	22	18.3	46.9	GAS?	
11108.0	-	11130.0	24	16.2	40.1	GAS?	
11141.0	-	11160.0	18	16.0	47.7	GAS?	
11203.0	-	11253.0	46	13.9	54.5	GAS?	

WELL NAME : BAKAU 05

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
7690.0	-	7698.0	4	14.8	61.5	GAS
7824.0	-	7828.0	2	14.8	78.2	GAS
8168.0	-	8174.0	6	17.5	59.4	TIGHT
8211.0	-	8218.0	2	14.5	62.4	OIL
8338.0	-	8364.0	18	13.1	65.7	OIL
8450.0	-	8458.0	2	11.0	79.0	OIL
8461.0	-	8458.0				OIL
8852.0	-	8864.0	10	17.2	55.7	OIL

WELL NAME : TUKAU 03

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
2738.0	-	2744.0	6	24.0	46.3	OIL	
2788.0	-	2812.0	22	25.3	42.6	OIL	
2826.0	-	2848.0	18	26.9	37.6		
2868.0	-	2878.0	12	33.7	22.3		
2900.0	-	2924.0	20	26.2	35.8	OIL	
2952.0	-	2962.0	8	21.7	46.2	OIL	
2998.0	-	3004.0	6	25.4	39.3	OIL	
3036.0	-	3040.0	4	26.7	31.1	OIL	
3076.0	-	3084.0	8	23.5	44.9	OIL	
3102.0	-	3138.0	28	30.2	33.6	OIL	
3152.0	-	3206.0	30	25.3	42.1	OIL	
3714.0	-	3800.0	10	22.1	49.7	OIL	
3822.0	-	3848.0	22	24.1	39.1	OIL	
3856.0	-	3866.0	6	26.0	41.7	OIL	
4064.0	-	4084.0	2	20.1	54.6	OIL	
4316.0	-	4320.0	6	21.0	42.0	OIL	
4348.0	-	4408.0	14	23.2	42.5	GAS	
4538.0	-	4546.0	4	27.4	41.0	OIL	
5980.0	-	6090.0				OIL	OWC 6090
6202.0	-	6228.0				GAS	
6256.0	-	6372.0				GAS	
6572.0	-	6612.0	36	16.3	44.6	GAS	GOC 6612
6612.0	-	6718.0	102	17.9	43.3	OIL	

WELL NAME : TUKAU 04

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
2849.0	-	2875.0	8	27.0	45.5	OIL	
2899.0	-	2967.0	4	30.0	45.1	OIL	
2979.0	-	3019.0	6	27.0	52.8	OIL	
3032.0	-	3076.0	2	36.0	50.9	OIL	OWC 3076
3414.0	-	3428.0				OIL	
3444.0	-	3469.0				OIL	
3558.0	-	3598.0	2	28.6	53.7	OIL	
3612.0	-	3632.0	2	29.5	53.8	OIL	
3689.0	-	3768.0				OIL	
3782.0	-	3815.0	16	26.7	48.6	OIL	
3849.0	-	3857.0	4	28.1	50.0	OIL	
3874.0	-	4074.0	10	22.2	46.3	OIL	
4087.0	-	4160.0	6	22.3	51.2	OIL	
4260.0	-	4266.0	2	22.7	54.5	OIL	
4350.0	-	4412.0	20	23.1	47.3	OIL	
4572.0	-	4585.0				OIL	
4597.0	-	4613.0				OIL	
4626.0	-	4642.0	6	22.6	50.5	OIL	
7116.0	-	7174.0	54	24.9	33.0	GAS	

WELL NAME : TUKAU 05

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6584.0	-	6620.0	22	17.9	34.5	OIL

WELL NAME : TUKAU 06

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS	
1672.0	-	1784.0				OIL	NOT INTERPRETATED
1802.0	-	1828.0				OIL	NOT INTERPRETATED

WELL NAME : TUKAU 07

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2786.0	-	2790.0	4	25.9	53.8	OIL
2798.0	-	2804.0	6	27.3	43.2	OIL
2822.0	-	2920.0	42	27.4	37.3	OIL
2944.0	-	2964.0	14	28.0	32.2	OIL
2984.0	-	3002.0	4	23.9	55.0	OIL
3008.0	-	3018.0	8	30.1	34.2	OIL
3024.0	-	3032.0	6	24.8	42.9	OIL
3114.0	-	3128.0	14	29.6	29.4	OIL
3150.0	-	3120.0				OIL

WELL NAME : TUKAU 08

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2878.0	-	2901.0	18	24.5	37.0	OIL
2931.0	-	2939.0	8	28.4	30.7	OIL
2979.0	-	2983.0	4	17.6	58.3	OIL
3009.0	-	3027.0	16	27.7	45.5	OIL
3071.0	-	3075.0	2	24.5	49.8	OIL
4055.0	-	4065.0	6	16.7	52.4	OIL
4092.0	-	4094.0				OIL
4150.0	-	4193.0	32	15.5	50.3	OIL
4395.0	-	4418.0	4	19.5	54.9	OIL

WELL NAME : TUKAU 09

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2760.0	-	2780.0	12	23.4	41.8	OIL
2802.0	-	2828.0	16	27.6	29.8	GAS
2855.0	-	2865.0	6	21.1	48.2	OIL
2870.0	-	2885.0	10	26.6	28.9	GAS
2888.0	-	2896.0				OIL
2940.0	-	2945.0	2	24.9	39.7	OIL
2986.0	-	3000.0	12	26.5	30.0	OIL
3028.0	-	3100.0	28	24.2	42.1	OIL
3234.0	-	3238.0	2	19.9	59.7	OIL
3302.0	-	3330.0	8	24.5	43.3	OIL
3492.0	-	3500.0	4	21.4	52.6	OIL
3514.0	-	3522.0				OIL
3548.0	-	3555.0	6	24.9	39.7	OIL
3630.0	-	3642.0	10	29.0	23.4	OIL
3776.0	-	3786.0	8	21.2	40.9	OIL
3846.0	-	3854.0	4	24.3	42.5	GAS
3884.0	-	3920.0	4	16.7	53.3	OIL
4008.0	-	4018.0				OIL
4035.0	-	4040.0	2	26.3	36.8	GAS
4046.0	-	4080.0				OIL
4108.0	-	4114.0	4	18.3	50.3	GAS
4120.0	-	4146.0	16	17.8	44.2	GAS
4158.0	-	4172.0	8	19.4	44.1	GAS
4182.0	-	4222.0	8	22.6	38.2	GAS
4258.0	-	4274.0				OIL
4292.0	-	4331.0	8	20.9	38.3	OIL
4358.0	-	4414.0	34	16.8	44.5	GAS
4427.0	-	4444.0	2	16.5	56.7	GAS

WELL NAME : TUKAU 09

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
4468.0	-	4500.0	8	25.0	33.4	GAS
4586.0	-	4600.0				OIL
4626.0	-	4636.0	4	18.6	44.3	OIL
4656.0	-	4664.0	6	17.6	44.8	OIL
4696.0	-	4722.0	8	18.8	47.9	OIL
4754.0	-	4762.0	2	15.3	58.9	OIL
4768.0	-	4777.0	6	21.5	45.2	OIL
4786.0	-	4798.0	12	25.5	45.9	OIL
5730.0	-	5762.0	26	23.3	42.3	OIL

WELL NAME : TUKAU 10

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2901.0	-	2916.0	12	31.4	36.0	OIL
2946.0	-	2976.0	18	27.7	39.6	OIL
3092.0	-	3106.0	10	33.3	31.7	OIL
3522.0	-	3536.0	8	29.4	51.4	OIL
3700.0	-	3710.0	8	29.0	46.7	OIL
3940.0	-	3946.0	4	27.6	57.2	OIL
4006.0	-	4022.0	2	31.9	44.8	OIL
4177.0	-	4196.0	12	24.4	47.5	OIL
4212.0	-	4260.0	8	26.3	56.7	OIL
4290.0	-	4296.0	2	23.3	53.1	OIL
4304.0	-	4334.0	14	24.3	49.2	OIL
4460.0	-	4465.0	4	28.3	45.1	OIL
4558.0	-	4614.0	10	23.5	49.2	OIL
4828.0	-	4848.0	2	24.5	56.3	OIL

WELL NAME : TUKAU 11

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2764.0	-	2776.0	10	27.7	32.1	OIL
2802.0	-	2832.0	16	27.8	36.4	OIL
2928.0	-	2940.0	10	29.1	29.4	OIL
2994.0	-	3004.0				OIL
3308.0	-	3322.0				OIL
3358.0	-	3364.0				OIL
3380.0	-	3384.0	2	18.3	51.7	OIL
3404.0	-	3414.0	4	20.6	55.6	OIL

WELL NAME : TUKAU 17

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
3296.0	-	3304.0	8	30.1	26.4	GAS	GOC 3304
3304.0	-	3332.0	28	28.9	38.1	OIL	
3352.0	-	3372.0	20	28.0	45.4	OIL	
3408.0	-	3440.0	20	28.7	36.5	GAS	
3482.0	-	3520.0	22	28.0	41.3	GAS	
3656.0	-	3674.0	18	30.6	34.1	OIL	
3714.0	-	3774.0	38	25.1	49.2	GAS	
3782.0	-	3792.0	10	28.8	39.3	GAS	
3816.0	-	3822.0	6	29.7	41.4	OIL	
3960.0	-	3978.0	18	26.2	53.1	OIL	
4364.0	-	4374.0	8	23.8	49.9	OIL	
4384.0	-	4398.0	8	24.1	47.6	OIL	
4426.0	-	4436.0	8	24.1	49.7	OIL	
4496.0	-	4520.0	18	25.9	40.4	GAS	
4600.0	-	4612.0	12	26.7	41.9	OIL	
4984.0	-	4996.0	10	22.0	43.2	OIL	
5006.0	-	5014.0	10	21.7	41.7	OIL	
5060.0	-	5084.0	12	22.5	45.8	OIL	
5100.0	-	5110.0	8	18.9	55.1	OIL	
5376.0	-	5410.0	28	19.5	47.0	OIL	
5450.0	-	5462.0	12	20.3	43.1	OIL	
5766.0	-	5772.0	8	26.7	36.2	OIL	
5864.0	-	5900.0				OIL	
5962.0	-	6004.0				OIL	

WELL NAME : TUKAU 18

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2818.0	-	2836.0	10	23.0	37.7	GAS
2860.0	-	2670.0				GAS
2876.0	-	2890.0	10	24.1	33.2	OIL
2996.0	-	3014.0	12	27.3	34.1	GAS
3046.0	-	3090.0				OIL
3222.0	-	3226.0				OIL
3440.0	-	3452.0				OIL
3464.0	-	3474.0	4	23.6	37.7	OIL
3558.0	-	3566.0	6	22.2	44.0	OIL
3776.0	-	3782.0				OIL
3836.0	-	3850.0	4	20.5	52.2	OIL
3994.0	-	4018.0	6	21.9	50.4	GAS
4023.0	-	4038.0				GAS
4046.0	-	4050.0	4	15.9	55.4	OIL
4060.0	-	4064.0				OIL
4076.0	-	4080.0	2	23.2	44.8	GAS
4106.0	-	4134.0	20	21.7	39.7	GAS
4142.0	-	4160.0	4	17.7	48.5	OIL
4248.0	-	4254.0	6	20.6	55.1	GAS
4286.0	-	4294.0				OIL
4334.0	-	4366.0	12	22.6	44.7	GAS
4374.0	-	4392.0	6	21.3	37.6	OIL

WELL NAME : TUKAU 19

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
3352.0	-	3360.0	8	27.9	45.5	OIL
3530.0	-	3546.0	14	32.2	26.9	GAS
3588.0	-	3594.0	6	33.7	18.6	GAS
3594.0	-	3600.0	6	31.8	18.3	GAS
3610.0	-	3628.0	14	24.1	39.8	OIL
3660.0	-	3668.0	6	21.6	51.0	OIL
3712.0	-	3720.0	4	23.1	49.7	OIL
3734.0	-	3764.0	12	20.9	50.7	OIL
3776.0	-	3796.0	18	28.6	28.7	OIL
3848.0	-	3912.0	28	22.0	48.3	OIL
3928.0	-	3938.0	6	30.7	33.6	OIL
3986.0	-	4002.0	12	30.4	32.9	OIL

WELL NAME : TUKAU 20

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
2452.0	-	2476.0				GAS	
3136.0	-	3140.0				GAS	
3168.0	-	3204.0	14	21.5	48.7	GAS	
3218.0	-	3236.0	16	28.8	34.3	GAS	
3264.0	-	3278.0	4	28.6	50.1	OIL	OWC 3278
3314.0	-	3354.0	12	25.1	38.3	GAS	
3374.0	-	3412.0	10	22.5	51.8	GAS	
3462.0	-	3474.0	2	19.1	55.8	OIL?	
3514.0	-	3532.0	10	24.7	38.5	OIL?	
3558.0	-	3624.0	24	22.7	47.0	OIL?	
3640.0	-	3714.0	10	24.3	52.0	OIL?	
3754.0	-	3770.0	4	23.5	53.9	OIL?	
3778.0	-	3786.0				OIL?	
3800.0	-	3808.0				GAS	
3878.0	-	3924.0	4	26.8	48.7	GAS	
4060.0	-	4094.0	14	20.8	47.6	GAS	
4114.0	-	4124.0	8	20.5	50.9	GAS	
4180.0	-	4198.0	8	26.1	39.9	GAS	
4286.0	-	4298.0	6	23.8	46.3	GAS	
4476.0	-	4480.0	4	20.8	48.2	GAS	
4698.0	-	4708.0				OIL	
4726.0	-	4730.0	2	22.1	53.6	OIL	
4762.0	-	4776.0	8	17.2	46.7	GAS	
4784.0	-	4832.0	36	16.7	41.4	OIL	
4848.0	-	4854.0	4	22.4	38.5	OIL	
4900.0	-	4914.0	8	16.1	50.5	OIL	
5080.0	-	5098.0				OIL	
5150.0	-	5182.0	24	14.8	45.1	OIL	

WELL NAME : TUKAU 21

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
3016.0	-	3032.0	8	30.6	43.9	OIL
3068.0	-	3104.0	10	25.6	49.3	OIL
4560.0	-	4570.0	8	23.6	46.7	OIL
4676.0	-	4712.0	4	22.7	53.8	OIL
4947.0	-	4992.0				OIL
8454.0	-	8484.0	4	19.7	49.7	OIL

WELL NAME : TUKAU 22

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
2954.0	-	2960.0	2	27.4	53.7	OIL	
2968.0	-	2973.0	4	30.5	35.6	OIL	
3016.0	-	3024.0	4	25.5	53.1	OIL	
3042.0	-	3046.0	2	26.5	45.2	OIL	
3210.0	-	3253.0	4	27.5	47.5	OIL	OWC 3253
3842.0	-	3852.0	10	25.6	37.8	OIL	
4492.0	-	4524.0	2	19.6	58.5	OIL	
4574.0	-	4584.0				OIL	
4682.0	-	4752.0	20	23.9	37.9	OIL	
4938.0	-	4946.0	2	17.5	58.5	OIL	
5091.0	-	5184.0	8	20.4	52.1	OIL	

WELL NAME : TUKAU 23

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2944.0	-	2952.0	6	35.1	37.4	OIL
2988.0	-	3020.0	22	33.0	38.3	OIL
3044.0	-	3050.0	4	31.0	47.2	OIL
3080.0	-	3086.0	4	32.0	46.6	OIL
3098.0	-	3100.0				OIL
3110.0	-	3112.0				OIL
3564.0	-	3582.0	2	31.9	43.9	OIL
4226.0	-	4350.0	8	23.7	44.4	OIL
4358.0	-	4388.0	6	24.0	56.1	OIL
4614.0	-	4720.0				OIL
4810.0	-	1815.0				OIL

WELL NAME : TUKAU 24

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
2914.0	-	2920.0	4	30.7	42.1	OIL	
2926.0	-	2950.0	12	28.3	45.3	OIL	
2972.0	-	3006.0	24	28.1	44.8	OIL	
3070.0	-	3078.0	8	28.4	54.9	OIL	
3107.0	-	3118.0	10	28.4	53.5	OIL	
3128.0	-	3132.0				OIL	
3162.0	-	3206.0	6	30.0	53.9	OIL	OWC 3206
6784.0	-	3818.0				OIL	
4156.0	-	5170.0				OIL	
4354.0	-	4366.0				OIL	
4500.0	-	4619.0				OIL	
4690.0	-	4700.0				OIL	
4808.0	-	4876.0				OIL	
5160.0	-	5176.0				OIL	

WELL NAME : TUKAU 25

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
3206.0	-	3228.0	14	28.5	39.3	OIL	
3268.0	-	6284.0	66	28.3	36.0	OIL	
3260.0	-	3300.0				OIL	
3306.0	-	3322.0				OIL	
3408.0	-	3426.0				OIL	
3486.0	-	3516.0				OIL	

WELL NAME : TUKAU 26

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
3056.0	-	3060.0				OIL
3066.0	-	3071.0				OIL
3103.0	-	3110.0	2	21.6	54.1	OIL
3116.0	-	3136.0	16	28.1	40.1	OIL
3168.0	-	3178.0	8	28.7	29.6	OIL
3184.0	-	3196.0	6	23.4	46.6	OIL
3204.0	-	3208.0	2	22.3	53.6	OIL
3212.0	-	3220.0				OIL
3226.0	-	3258.0				OIL
3270.0	-	3284.0	2	25.5	53.3	OIL
3314.0	-	3322.0				OIL
3332.0	-	3346.0	4	30.5	37.4	OIL
3378.0	-	3444.0	22	25.8	50.1	OIL
3834.0	-	3838.0				OIL
3908.0	-	3940.0	16	23.8	54.1	OIL
3962.0	-	3970.0	6	30.6	40.1	OIL
4024.0	-	4080.0	14	28.8	41.7	OIL
4116.0	-	4124.0	4	27.7	41.4	OIL
4140.0	-	4166.0	4	25.8	51.7	OIL

WELL NAME : TUKAU 27

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2888.0	-	2896.0	8	28.2	34.1	OIL
2928.0	-	2936.0	8	30.0	26.4	OIL
2954.0	-	2968.0	10	26.6	40.2	OIL
2982.0	-	2992.0	2	22.6	56.0	OIL
2998.0	-	3004.0				OIL
3015.0	-	3026.0	6	26.0	53.6	OIL
3486.0	-	3500.0	2	22.3	50.9	OIL
4118.0	-	4130.0	10	22.1	43.3	OIL
4224.0	-	4230.0				OIL
4238.0	-	4268.0	8	19.4	52.6	OIL

WELL NAME : TUKAU 28

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2898.0	-	2910.0	8	26.0	33.7	OIL
2942.0	-	2954.0	10	26.3	24.4	OIL
2960.0	-	2966.0				OIL
2972.0	-	2990.0	10	24.5	36.3	OIL
3000.0	-	3012.0				OIL
3092.0	-	3108.0	12	27.2	37.6	OIL
3548.0	-	3552.0				OIL
3705.0	-	3758.0	4	21.7	57.1	OIL
3968.0	-	3974.0	4	21.7	48.9	OIL
4040.0	-	4054.0				OIL
4218.0	-	4246.0	10	17.0	46.4	OIL
4256.0	-	4304.0				OIL
4330.0	-	4340.0				OIL
4350.0	-	4382.0	6	16.4	51.2	OIL
4392.0	-	4408.0				OIL
4512.0	-	4516.0				OIL
4544.0	-	4556.0				OIL
4573.0	-	4580.0				OIL
4604.0	-	4714.0	6	8.1	52.4	OIL
4788.0	-	5004.0				OIL

WELL NAME : TUKAU 29

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
2833.0	-	2836.0				OIL	
2844.0	-	2866.0	10	25.5	46.2	OIL	
2885.0	-	2892.0	4	25.3	41.4	OIL	
2898.0	-	2906.0	2	25.6	36.0	OIL	
2912.0	-	2960.0	2	22.2	52.9	OIL	
2968.0	-	2980.0				OIL	
3018.0	-	3028.0	6	26.4	48.9	OIL	
3420.0	-	3426.0				TIGHT	
3450.0	-	3458.0				OIL	
3472.0	-	3498.0	4	27.1	50.3	OIL	OWC 3498
3544.0	-	3554.0				OIL	
3566.0	-	3614.0	2	27.8	46.9	OIL	
3624.0	-	3682.0				OIL	
3706.0	-	3882.0	2	29.6	55.8	OIL	
3896.0	-	3948.0				OIL	
4032.0	-	4044.0	6	19.3	50.0	GAS	GOC 4044
4044.0	-	4106.0				OIL	
4114.0	-	4122.0				OIL	
4134.0	-	4140.0				OIL	
4146.0	-	4258.0	6	21.1	49.6	OIL	
4274.0	-	4280.0				OIL	
4246.0	-	4348.0				OIL	
4380.0	-	4520.0	6	21.0	42.8	OIL	
5600.0	-	5614.0	8	16.4	46.4	OIL	
5638.0	-	5674.0	8	19.4	53.1	OIL	
5716.0	-	5726.0				OIL	OWC 5726
5818.0	-	5844.0	22	20.0	37.8	GAS	
5918.0	-	5942.0	12	17.6	44.0	OIL	

WELL NAME : TUKAU 29

CUT OFF OF SW	:	60.00
CUT OFF OF POROSITY	:	0.0
CUT OFF OF SHALE	:	50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
6146.0	-	6158.0	14	20.0	36.8	GAS	GOC 6158
6158.0	-	6164.0	4	23.6	45.8	OIL	OWC 6164
6316.0	-	6324.0	4	19.8	37.4	OIL	
6366.0	-	6372.0	6	19.6	43.0	GAS	GOC 6372
6372.0	-	6418.0	18	18.0	53.7		
6508.0	-	6548.0	40	17.2	37.2		
6586.0	-	6594.0	6	18.3	44.3	OIL	
6512.0	-	6522.0				OIL	OWC 6522
6770.0	-	6738.0				GAS	GOC 6738
6738.0	-	6748.0				OIL	OWC 6748
6836.0	-	6852.0	10	12.6	50.2	GAS	GOC 6852
6852.0	-	6918.0	16	16.6	45.5	OIL	
6996.0	-	7020.0				OIL	
7080.0	-	7100.0	8	13.0	52.1	OIL	
7230.0	-	7266.0	18	10.1	47.4		

LOG INTERPRETATION RESULTS

- BETTY 1 -

INTERVAL	NET SAND	AVERAGE ϕ	AVERAGE Sw	REMARKS
7559 - 7668	94	21.39	40.33	Oil a_1 7668 O/W
7786 - 7892	0	-	-	Oil a_2
7892 - 8008	42	18.49	50.84	Oil a_3 8008 O/W
8100 - 8245	16	17.84	47.58	G & C b_1
8290 - 8375	10	14.89	44.53	Oil b_2 8375 O/W
8580 - 8670	66	17.63	36.80	G & C
8865 - 8915	4	18.86	39.80	

LOG INTERPRETATION RESULTS

- BETTY 3 -

INTERVAL	NET SAND	AVERAGE ϕ	AVERAGE Sw	REMARKS
8066 - 8098	10	16.17	74.18	
8205 - 8220	2	20.84	69.45	GWC 8220
8453 - 8490	36	20.54	64.79	GWC 8490
8556 - 8560	0	-	-	GOC 8560
8560 - 8570	8	13.01	68.55	
8590 - 8634	6	19.16	56.64	

WELL NAME : BOKOR - 2

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2218.0	-	2232.0	8	22.3	47.2	
2272.0	-	2300.0	20	22.2	42.6	BOKOR - 2
2378.0	-	2420.0	20	23.7	66.8	BOKOR - 2
2510.0	-	2534.0	8	24.1	60.9	BOKOR - 2
2534.0	-	2566.0	28	30.1	40.5	BOKOR - 2
2854.0	-	2896.0	8	22.8	73.7	BOKOR - 2
3048.0	-	3054.0	2	20.5	67.4	
3080.0	-	3110.0	14	22.4	55.5	
3580.0	-	3600.0	6	21.7	57.2	
3608.0	-	3620.0	6	19.5	66.8	
3662.0	-	3693.0	4	18.6	62.8	
3702.0	-	3712.0	6	18.0	73.1	

WELL NAME : BOKOR03

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2800.0	-	2814.0	10	25.9	70.2	BOKOR - 3
3306.0	-	3398.0	16	22.7	56.2	BOKOR - 3
3412.0	-	3474.0	34	23.9	62.4	BOKOR - 03
3528.0	-	3560.0	26	22.0	48.3	BOKOR - 03
3598.0	-	3702.0	40	20.6	58.1	BOKOR - 03
4220.0	-	4340.0	42	21.6	63.5	BOKOR - 03
4428.0	-	4476.0	12	23.7	57.2	BOKOR - 3
4724.0	-	4790.0	4	23.9	63.3	BOKOR - 3
5090.0	-	5132.0	6	24.9	51.4	BOKOR - 3

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 02

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)	INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5257.0 -	5277.0	18	20.9	58.1	

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 03

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
1900.0	-	1965.0				
2200.0	-	2216.0				

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 04

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
1991.0	-	2002.0	6	28.6	68.2	GAS
2023.0	-	2026.0				GAS
2096.0	-	2114.0	4	20.1	69.9	GAS
2168.0	-	2199.0	14	20.6	58.0	GAS
2218.0	-	2282.0	52	23.7	46.1	GAS
2286.0	-	2300.0	2	15.3	71.6	GAS
2383.0	-	2394.0				GAS
2448.0	-	2472.0	4	22.3	70.9	GAS
2597.0	-	2603.0				GAS
2638.0	-	2662.0	2	16.0	78.8	GAS
2680.0	-	2684.0	2	28.0	50.7	GAS
2770.0	-	2780.0	10	25.7	45.6	GAS
2793.0	-	2795.0				GAS
2862.0	-	2890.0	16	17.5	60.8	GAS
2904.0	-	2942.0	4	19.4	56.9	GAS
2969.0	-	2976.0	2	16.6	61.4	GAS
2993.0	-	3005.0	2	14.9	68.4	GAS
3032.0	-	3054.0				GAS
3084.0	-	3094.0	4	17.7	79.5	GAS
3120.0	-	3218.0	2	14.3	78.0	OIL
3301.0	-	3305.0				OIL
3374.0	-	3404.0				OIL
4716.0	-	4760.0	24	16.2	69.1	OIL

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 05

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
2022.0	-	2120.0	84	33.1	23.6	OIL
2138.0	-	2170.0				OIL
2677.0	-	2692.0	10	26.6	66.3	OIL
4050.0	-	4056.0				OIL
4576.0	-	4584.0	8	25.8	37.2	OIL
4846.0	-	4850.0				OIL
4962.0	-	4968.0				GAS
5158.0	-	5164.0				OIL
5508.0	-	5526.0				OIL
5584.0	-	5663.0				OIL
5822.0	-	5828.0	6	25.3	52.9	GAS
6180.0	-	6194.0	12	22.2	49.1	GAS
6216.0	-	6236.0	18	19.4	58.6	GAS
6350.0	-	6392.0				OIL

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 06

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
1883.0	-	1906.0				OIL
2158.0	-	2184.0	4	21.8	68.3	OIL

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 07

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)	INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
0.0	0.0				NO HYDROCARBON

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 08

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)	INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
0.0	0.0				NO HYDROCARBON

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 09

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
1807.0	-	1822.0	14	35.9	47.6	OIL
2087.0	-	2093.0	4	32.1	44.1	OIL
2126.0	-	2166.0	38	40.1	26.3	GAS
2174.0	-	2220.0	44	32.9	52.6	OIL

LOG INTERPRETATION RESULT TEMANA FIELD

WELL NAME : TEMANA 10

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
1770.0	-	1782.0	2	25.7	69.7	?
1790.0	-	1816.0	26	34.2	31.7	OIL
2126.0	-	2166.0	40	34.9	17.0	GAS
2287.0	-	2294.0				GAS
2298.0	-	2324.0	18	24.2	40.6	OIL
2424.0	-	2432.0	4	24.0	47.8	?
2632.0	-	2680.0	28	21.7	42.0	OIL
2692.0	-	2704.0	6	15.8	52.9	OIL
2978.0	-	2994.0	16	28.2	22.0	GAS GOC 2994
2994.0	-	3036.0	38	24.6	28.1	OIL
3092.0	-	3114.0	20	33.4	10.0	GAS
3298.0	-	3308.0	2	24.5	26.4	GAS
3311.0	-	3322.0	10	24.3	26.5	OIL
3558.0	-	3564.0	4	23.3	60.5	GAS
3584.0	-	3602.0	6	25.7	41.0	GAS
3618.0	-	3626.0	6	23.7	48.3	GAS
3636.0	-	3658.0	20	22.0	56.0	GAS
3672.0	-	3684.0	12	23.2	61.2	OIL
4024.0	-	4062.0	8	14.9	71.7	?
4404.0	-	4476.0	46	27.2	33.3	GAS
4496.0	-	4527.0	30	21.6	52.6	GAS

WELL NAME : SIWA 4

CUT OFF OF SW : 80.00
CUT OFF OF POROSITY : 0.0
CUT OFF OF SHALE : 50.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
1388.0	-	1396.0	4	31.4	51.6	GAS	
1404.0	-	1407.0				OIL?	
1426.0	-	1440.0	6	21.9	69.3	OIL?	
1892.0	-	1902.0	6	31.4	41.1	GAS	
1914.0	-	1918.0	6	30.7	47.8	GAS	
1927.0	-	1944.0	6	22.0	65.7	GAS	
1950.0	-	1966.0	6	21.7	61.2	GAS	
1988.0	-	1994.0	2	29.9	43.0	OIL	
2918.0	-	1854.0				OIL	OWC 2954
3059.0	-	3068.0	4	25.6	70.2	OIL	
3758.0	-	3778.0				OIL	OWC 3778
4011.0	-	4025.0				OIL	OWC 4025
4310.0	-	4329.0				?	
4383.0	-	4470.0				GAS	
4546.0	-	4615.0	32	22.9	46.5	GAS	
4662.0	-	4758.0	72	23.1	45.8	GAS	GWC 4758
5391.0	-	5402.0	12	19.3	49.1	GAS	
5406.0	-	5431.0	24	16.4	59.3	OIL	OWC 5431
5460.0	-	5472.0	2	18.4	61.1	OIL	
6681.0	-	6701.0	12	16.3	64.1	GAS	

WELL NAME : CENTRAL LUCONIA B12-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
10676.0	- 11375.0	248	13.6	11.4	GAS	GWC 11375

WELL NAME : CENTRAL LUCONIA E6-1X 'CARBONATES' OI

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5375.0	-	5944.0	510	22.0	2.8	GAS	GOC 5944
5944.0	-	6050.0	98	18.6	17.4	OIL	OWC 6050

WELL NAME : CENTRAL LUCONIA E8-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4655.0	-	5734.0	862	20.0	6.0	GAS	GWC 5734.

WELL NAME : CENTRAL LUCONIA E8-2 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4680.0 -	5734.0	776	19.6	5.7	GAS	GWC 5734.

WELL NAME : CENTRAL LUCONIA E11-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4856.0	-	6520.0	1214	21.1	4.1	GAS	GWC 6520

WELL NAME : CENTRAL LUCONIA E11-2 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
5590.0 -	6520.0	606	18.5	12.4	GAS	GWC 6520

WELL NAME : CENTRAL LUCONIA ;F4-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4305.0	-	4528.0	182	26.9	11.0	GAS	GWC 4528

WELL NAME : CENTRAL LUCONIA F6-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
3636.0	-	4448.0	706	25.1	10.6	GAS GWC 4448

WELL NAME : CENTRAL LUCONIA F6-2 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
4149.0 -	4448.0	240	21.7	28.3	GAS GWC 4448

WELL NAME : CENTRAL LUCONIA F9-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4416.0	-	4648.0	68	14.4	22.2	GAS	GWC 4648

WELL NAME : CENTRAL LUCONIA F13-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
6339.0 -	6538.0	140	22.0	27.4	GAS	GWC 6538

WELL NAME : CENTRAL LUCONIA F22-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
6439.0	-	7276.0	632	18.2	12.1	GAS	GWC 7276

WELL NAME : CENTRAL LUCONIA F23-1 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
3941.0 -	5004.0	1008	25.4	7.7	GAS	GWC 5004

WELL NAME : CENTRAL LUCONIA K4-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4118.0 -	4356.0	236	28.3	3.2	GAS	GWC 4356

WELL NAME : CENTRAL LUCONIA M1-1X 'CARBONATE'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)		REMARKS
4806.0	-	5065.0	116	35.5	10.6	GAS	GOC 5065
5065.0	-	5086.0	20	40.0	19.3	OIL	OWC 5086

WELL NAME : CENTRAL LUCONIA M3-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)		INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
5652.0	-	6044.0	230	18.4	2.0	

WELL NAME : CENTRAL LUCONIA M5-1X 'CARBONATES'

CUT OFF OF SW : 60.00
CUT OFF OF POROSITY : 10.00
CUT OFF OF SHALE : 60.00

INTERVAL TOP (FT)	INTERVAL BASE (FT)	NET THICKNESS (FT)	AVERAGE POROSITY (%)	AVERAGE SATURATION (%)	REMARKS
6468.0 -	6774.0	136	18.9	17.8	