1

OCS-P-2645, 2646, 2647
S-1223

In Reply Refer To: RP-2-1

NOV 02 1983

Union Oil Company of California
Attention: Mr. L. Carl Hebert
4545 Southwest Freeway
Houston, Texas 77027

Gentlemen:

Reference is made to your Supplemental Plan of Development/Production received October 27, 1983, for Leases OCS-P 2645, 2646, and 2647, Blocks 158, 159, and 160, East Breaks Area. This plan includes the activities proposed for Wells A-13 through A-21 to be drilled from the A platform in Block 159.

In accordance with 30 CFR 250.34, revised December 13, 1979, and our letter dated January 29, 1979, this plan has been determined to be complete as of November 2, 1983, and is now being considered for approval.

Your plan control number is S-1223 and should be referenced to your communication and correspondence concerning this plan.

Sincerely yours,

(ORIG. SGD.) RALPH J. MELANCON

L. J. Solanas
Regional Supervisor
Units and Production

bcc: Lease OCS-P 2645 (OPS-4)
Lease OCS-P 2646 (OPS-4)
Lease OCS-P 2647 (OPS-4)
OPS-4 w/public info copy of the plan and ~~it~~ (Public Records)
OC-3

MDJoseph:kks:10/31/83 disk 3b

Noted D. Arcana

Office of
Management Support
NOV 3 1983
Records Management

UNION OIL COMPANY OF CALIFORNIA

SUPPLEMENT TO PLAN OF DEVELOPMENT/PRODUCTION

LEASE OCS-G-2645 BLOCK 158

LEASE OCS-G-2646 BLOCK 159

LEASE OCS-G-2647 BLOCK 160

EAST BREAKS AREA

OFFSHORE, TEXAS

Ownership and Location of Leases

The subject leases are owned jointly by Union Oil Company of California (33-1/3%), Mobil Producing Texas & New Mexico, Inc. (MPTM) (33-1/3%), and Amoco Production Company (33-1/3%). As operator, Union is currently developing the subject leases. An ownership and well location map is provided in Exhibit No. 1.

Summary of Prior Development/Production Plan Submissions and Revisions

Union submitted the original Plan of Development/Production (POD/P) for leases OCS-G-2645 and 2646, Blocks 158 and 159, on May 28, 1980. By letter dated October 21, 1980, approval of this POD/P was granted pursuant to 30 CFR 250.34. The original POD/P included the following:

1) drilling and completing two (2) wells on Block 158, and

2) drilling twelve (12) wells and completing ten (10) wells on Block 159.

By letter dated August 3, 1983, Union requested the original POD/P be revised with respect to the following:

1) drilling and completing three (3) wells on Block 158, and

2) drilling eleven (11) and completing nine (9) wells on Block 159.

Approval of the Revised POD/P was granted pursuant to 30 CFR 250.34 by letter dated August 12, 1983.

Union submitted the original POD/P for leases OCS-G-2647 and 2648, Blocks 160 and 161, on August 10, 1979. By letter dated January 18, 1980, approval of this POD/P was granted pursuant to 30 CFR 250.34.

Project Development History

Union set a twenty-one (21) slot drilling/production platform on OCS-G-2646 Block 159 in the location shown in Exhibit No. 2. Platform installation was completed and drilling operations commenced during July, 1982. Eleven (11) wells have been drilled from the Block 159 A platform to date. Union is currently drilling the A-12, the twelfth well from the 159 A platform.

Reason for Supplement

Upon cessation of drilling activity on the A-12, Union will have two (2) remaining approved well locations on Block 159. There are no remaining approved locations on Block 158.

Union requests approval of seven (7) additional well locations from the Block 159 A platform. Two (2) of the additional locations will be on OCS-G-2645 Block 158, three (3) on OCS-G-2646 Block 159, and two (2) on OCS-G-2647 Block 160. The target reservoirs of the two (2) requested Block 160 well locations can be developed only from the Block 159 A platform.

All existing and proposed locations are listed below and shown in Exhibit No. 3 in accordance with 30 CFR 250.34 2(a)(1)(iii).

Existing Well Locations

Block	Well	Measured Depth	True Vertical Depth	BHL
159	A-1	7714'	7500'	5592' FNL & 4873' FWL
159	A-2	8080'	7214'	7474' FNL & 5384' FWL
158	A-3	9323'	5308'	2395' FNL & 572' FEL
159	A-4	7880'	6449'	5041' FNL & 2046' FWL
159	A-5 ST	7100'	6269'	2146' FNL & 4481' FWL
159	A-6 ST	8269'	6940'	7147' FNL & 3829' FWL
158	A-7	12,020	6831'	6180' FNL & 2887' FEL
159	A-8	9399'	6824'	7435' FNL & 1780' FWL
159	A-9	9054'	8172'	6943' FNL & 8677' FEL
158	A-10	10,684'	6888'	7373' FNL & 770' FEL
159	A-11	7438'	6639'	6464' FNL & 4187' FWL

Proposed Well Locations

Block	Well	Measured Depth	True Vertical Depth	BHL
159	A-12	6990'	5300'	4525' FNL & 2007' FWL
158	A-13	10,500'	6600'	4760' FNL & 2400' FEL
158	A-14	13,000'	6500'	4350' FNL & 4400' FEL
159	A-15	10,000'	7900'	7900' FNL & 9800' FWL
159	A-16	15,000'	8500'	7000' FNL & 15,650' FWL
159	A-17	7200'	6800'	5500' FNL & 8500' FWL
160	A-18	15,100'	8750'	10,600' FNL & 950' FWL
160	A-19	13,900'	8600'	7000' FNL & 900' FWL
159	A-20	9200'	7500'	7200' FNL & 10,640' FWL
159	A-21	8850'	6600'	5300' FNL & 400' FWL

The OCS-G-2645 Well No. A-14 is scheduled to be drilled immediately upon cessation of drilling operations on Well No. A-12. Union estimates the spud date for Well No. A-14 to be November 9, 1983.

Activity Schedule

By letter dated January 28, 1983, Union requested a revision of the approved activity schedule for Leases OCS-G-2645 and 2646. This revision was approved by letter dated February 22, 1983. Exhibit No. 4 contains a graphical display of the remainder of the currently approved activity schedule, beginning October 1, 1983, at which time Union had not yet finished drilling activity on Well No. A-11. Since current operations are well ahead of the approved activity schedule, Union foresees no problem in meeting the deadlines set forth in the activity schedule.

Geology

Exhibit No. 5 is a structure map of the HB-2 sand showing the existing and proposed wells needed to develop this sand. The corresponding structure map included in the original POD/P for Leases OCS-G-2645 and 2646 shows this sand to be the AB-2, which has been renamed the HB-2. No structural cross-section of the HB-2 is currently available.

Exhibit No. 6 is a combined structure map of the GM-3, GA-1 and GM-2 sands, showing the existing and proposed wells needed to develop these sands. The structure map included in the original POD/P which corresponds to the GM-3 sand is the CS-2 sand structure map. There were no structure maps submitted in the original POD/P which correspond to the GM-2 or GA-1 sands. No structural cross-sections of the GM-2, GM-3 or GA-1 sands are currently available.

Please note that Exhibit Nos. 5 and 6 are marked "Confidential" since they contain proprietary information. Union requests these exhibits have limited circulation as provided for under the Freedom of Information Act and implementing regulations (43 CFR Part 2).

Estimated Project Life and Reserves

Production operations from the 159 A platform are scheduled to begin no later than December 1, 1985. The anticipated productive life of the 159 A platform is twenty (20) years. Current reserve estimates are 8,145,000 BBLS oil and 72,000,000 MCF gas. The estimated values for gas/oil ratio and condensate yield are 500 SCF/STB and approximately 17 BBLS condensate/MMCF, respectively.

Proposed Pipeline Routes

Union plans to install oil and gas infield pipelines from the Block 159 A platform to the Block 160 A platform. Each infield pipeline will be approximately 4.75 miles in length and will tie into the corresponding sales pipeline at the Block 160 A platform.

Union now plans to install an oil sales pipeline that will initiate at the Block 160 A platform and terminate at the High Island Block A-536 platform. The proposed oil sales pipeline will be approximately 17.4 miles in length and will be part of the HIPS system. The sales gas pipeline will be the responsibility of the gas purchaser and will be owned, installed and operated by same. The exact sales gas pipeline route to the Block 160 A platform will be determined by the purchaser.

All proposed pipeline routes are shown in Exhibit No. 7.

Description of Platform and Pollution Prevention Equipment

The Block 159 A platform was fabricated at a contractor's facility to Union's specifications and in accordance with the Department of the Interior's OCS Order No. 8. The platform is a four-pile, 21-slot drilling and production platform with 151' x 75' main and cellar decks (Exhibit No. 8). Drains have been installed in all deck areas in a manner necessary to collect all contaminants not normally collected in equipment drain pans and piped to a sump. The collected liquids will be skimmed and pollutants stored for disposal onshore. The platform is equipped with two survival capsules, all necessary railings and safety devices, and all mandatory navigational aids.

Description of Drilling Rig and Pollution Prevention Equipment

The SEE 15 rig will be used during all drilling and completion operations. The SEE 15 is a compact, self-contained, diesel-electric rig. Exhibit No. 8 is attached in compliance with 30 CFR 250.34 2(a)(1)(ii).

All wells will be drilled in accordance with 30 CFR 250.34, 250.41, 250.91, the provisions of OCS Order No. 2, and the stipulations of the oil and gas lease covering the block until field drilling rules are issued.

Blowout preventers and related well-control equipment will be installed, used, and tested in a manner necessary to prevent blowouts. Prior to drilling below drive pipe or conductor casing, a remotely controlled, annular type blowout preventer and diverter system will be installed. This will consist of the remotely controlled annular BOP, two remotely controlled full-opening eight-inch diverter valves, and two eight-inch diverter lines directed to opposite sides of the platform (Exhibit No. 9). The remotely controlled diverter valves will be designed so that the valves will open when the annular preventer is closed.

Prior to drilling below surface or intermediate casing, a remotely controlled blowout preventer and choke manifold system will be installed (Exhibit No. 10). This will consist of a minimum of four remote-controlled, hydraulically operated blowout preventers with a working pressure which exceeds the maximum anticipated surface pressure. The preventers will be equipped with three rams and one annular type, a drilling spool with side outlets for a choke line and a kill line, and a fill up line. Also a choke and a manual choke will be installed (Exhibit No. 11).

In addition, an inside BOP assembly and an essentially full-opening drill string safety valve in the open position will be maintained on the rig floor to fit all pipe in the drill string.

The following pollution control measures are required of the SEE 15 rig during the development/production drilling program to prevent spills of oil or waste materials.

1. All engines and pumps of the drilling rig are equipped with drip pans or sumps. The collected liquids will be skimmed; pollutants will be stored in oil drums for disposal onshore.

2. The rotary table and draw works have drip pans to direct any oil, grease or other pollutants into the mud system.

3. Oil changes will be performed under close supervision and in such a manner as not to cause any pollutants to spill overboard.

All solid combustible waste products will be incinerated, taking great care not to endanger the rig. All noncombustible material will be collected and transported to shore for disposal at our Surfside facility. None of this material will enter the water at any time.

Oil Spill Contingency Plan

In the event of a spill during the development drilling or the production period of the program, Union's Offshore and Coastal Waters Oil and Hazardous Substances Spill Contingency Plan will be actuated. This plan was filed with the MMS on January 10, 1977, in accordance with OCS Order No. 7, and approved on February 8, 1977. The plan was revised in March, 1983. This plan contains the names and telephone

numbers of company personnel who will form an emergency response team in the event of an oil spill. Union is a member of Clean Gulf Associates. This association provides for the purchase and maintenance of equipment and materials for use by the members in the clean-up of an oil spill. Equipment is presently located at Galveston and Freeport, Texas; Cameron, Intracoastal City, Grand Isle and Venice, Louisiana. Some of the equipment available include a shallow water skimmer system with a 40-barrel storage capacity, a fast response open sea and bay system with two (2) 180-barrel tanks used in skimming and storing, and a large volume open sea skimmer system with a 1000-barrel storage capacity. The amount of time required to get to the spill will vary depending on the location of company chartered work boats or the availablility and location of work boats for immediate charter. Equipment response time should be within 24 hours of notification.

Description of Onshore Support Base

All operations on the East Breaks Block 159 A platform will be serviced from Union's shore base located at Surfside, Texas. The base has docking facilities for the marine equipment that will be used on the subject base. There is a crane for loading and unloading materials. Union maintains a small stock of tubular goods on their pipe racks. There are also helicopter pads where personnel and supplies can be loaded and flown to and from the platform. The base is manned 24 hours a day. Goods and services are easily transported to this facility by highway and marine transportation from the Houston and Freeport areas. No expansion is needed at the base in order to accomodate the needs of the East Breaks Block 159 A platform during development/production operations.

Safety Standards

During drilling and production operations all applicable safety standards established by the U.S. Coast Guard and Department of Interior (Minerals Management Service) will be strictly complied with to insure the safety of life and property in the offshore environment.

In addition to Federal requirements, safety standards encompass applicable API Recommended Practices and the Offshore Operators Committee's Manual of Safe Practices in Offshore Operations.

An effective safety program will be followed which includes, but is not limited to the following:

1. Training in safety aspects of each job, fire fighting, First Aid, survival, etc.

2. Regular periodic safety meetings.

3. Safety inspections of facilities.

4. Enforcement of Union's safe practices.

5. Investigation of all accidents with recommendations for corrective action.

Personnel safety is covered in a multitude of government and industry standards such as:

1. U.S. Coast Guard - Rules and Regulations for Artificial Islands and Fixed Structures on the OCS.

2. GSS-OCS-1, Safety Requirements for Drilling Operations in Hydrogen Sulfide Environment.

3. GSS-OCS-B, Platforms, Structures and Associated Equipment.

4. GSS-OCS-T1, Training and Qualifications of Personnel in Well Control Equipment and Techniques for Drilling on Offshore Location.

5. API RPT-1, Orientation Program for Personnel Going Offshore for the First Time.

6. API RPT-3, Training and Qualification of Personnel in Well Control Equipment and Techniques for Drilling on Offshore Location.

7. API Bul. T-5, Employee Motivation Programs for Safety and Prevention of Pollution in Offshore Operations.

8. API RP14G, Fire Prevention and Control on Open Type Offshore Production Platforms.

9. OCC-Crane Manual.

10. OOC-Manual of Safe Practices in Offshore Operations.

Mud Components and Additives

A list of the mud components and additives that may be used in the drilling of these wells is shown in Exhibit No. 12.

Air Quality Statement

An Air Quality Statement for the proposed drilling, completion and production operations at the East Breaks Block 159 A platform is attached following Exhibit No. 12.

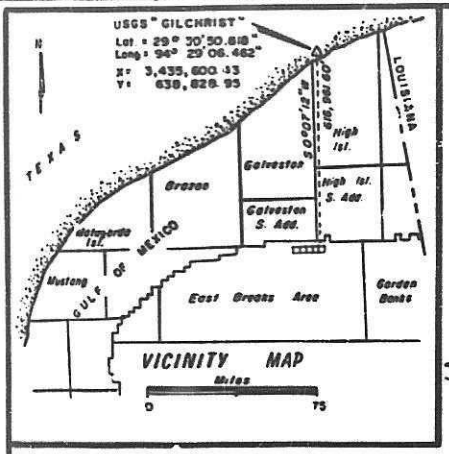


Exhibit No. 1

UNION OIL AND GAS DIVISION
UNION OIL CO OF CALIFORNIA – HOUSTON DISTRICT

BLOCKS 157, 158, 159, 160 & 161
EAST BREAKS AREA – OFFSHORE, TEX.

OWNERSHIP AND WELL LOCATION MAP

INTERPRETATION BY	DRAFTED BY	DATE	FILE NUMBER
D.J.K.		5-79	

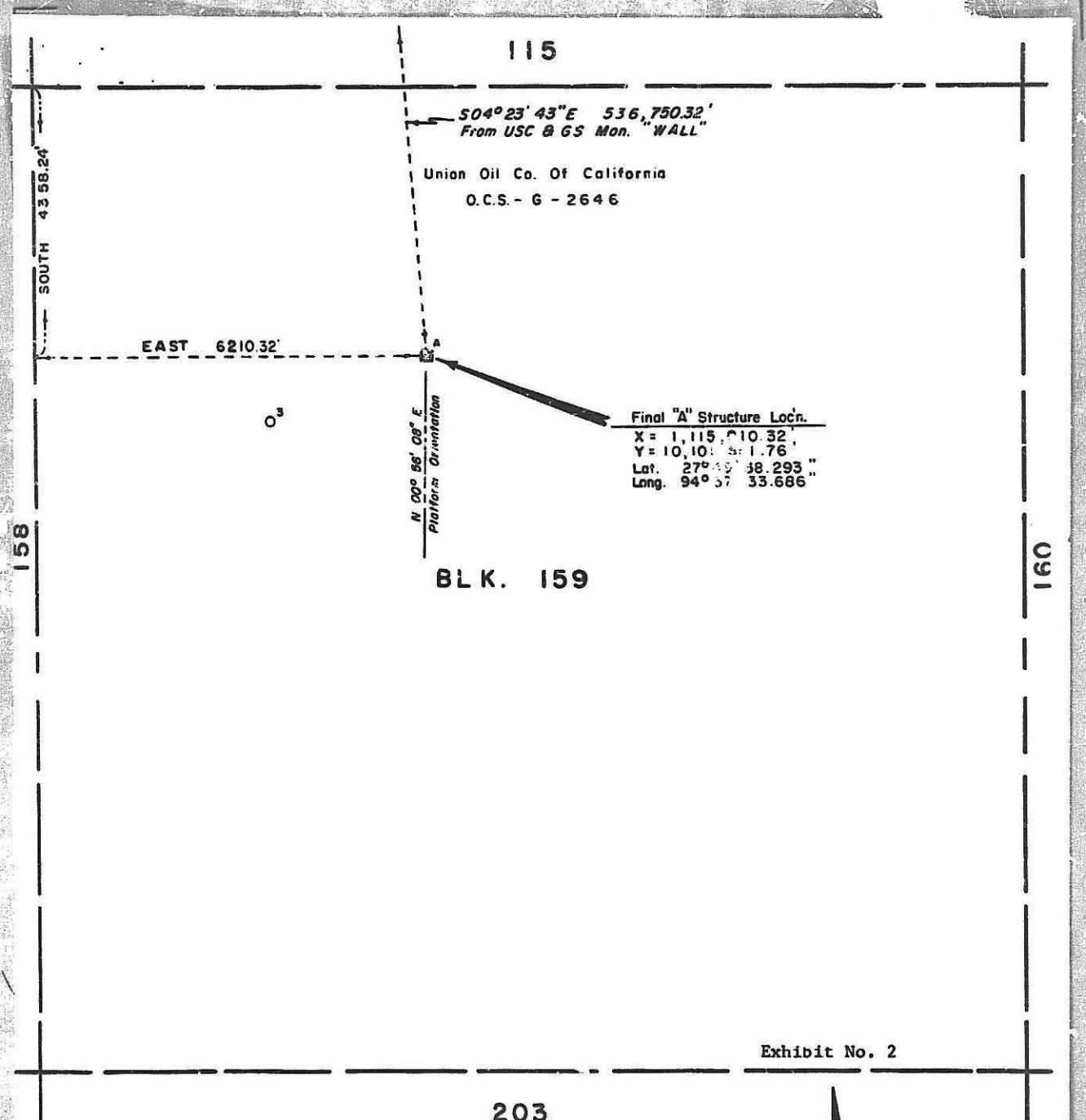


Exhibit No. 2

U.T.M. ZONE 15

203

I hereby certify that the above final structure location is correct.

Philip J. Stutes
Registered Civil Engineer No. 15517
State of Louisiana
John E. Chance & Associates, Inc.

STATE OF LOUISIANA
PHILIP J. STUTES
REG. No. 15517
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

UNION OIL CO. OF CALIF.
O.C.S.-G-2646 "A" STR. (Final)

PERMIT PLAT

EAST BREAKS AREA

SCALE: 1" = 2000' 06/02/82

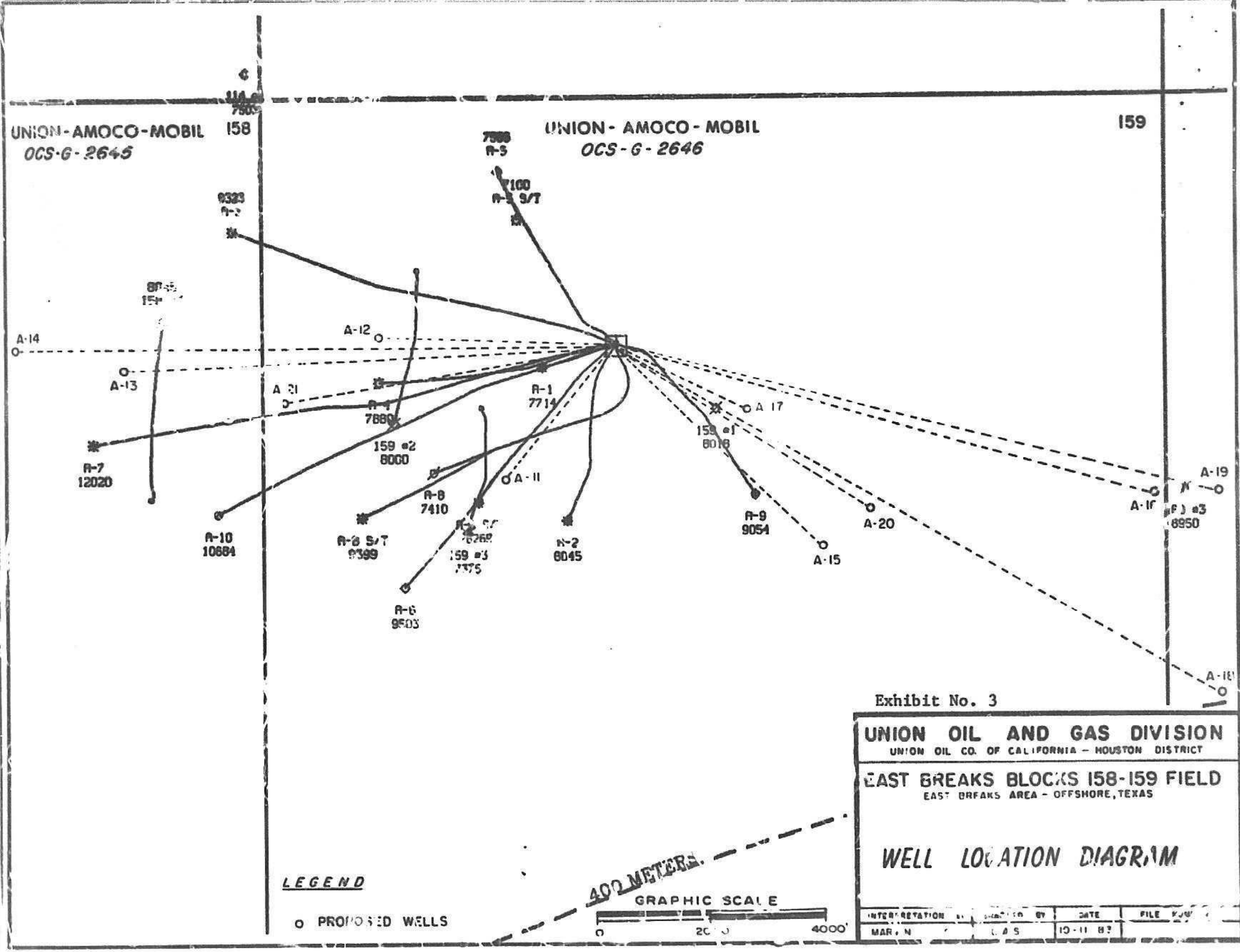


Exhibit No. 3

UNION OIL AND GAS DIVISION

UNION OIL CO. OF CALIFORNIA – HOUSTON DISTRICT

EAST BREAKS BLOCKS 158-159 FIELD

EAST BREAKS AREA – OFFSHORE, TEXAS

WELL LOCATION DIAGRAM

INTERPRETATION	DRAFTED BY	DATE	FILE
MAR. N		10-11-83	

DEVELOPMENT & PRODUCTION SCHEDULE

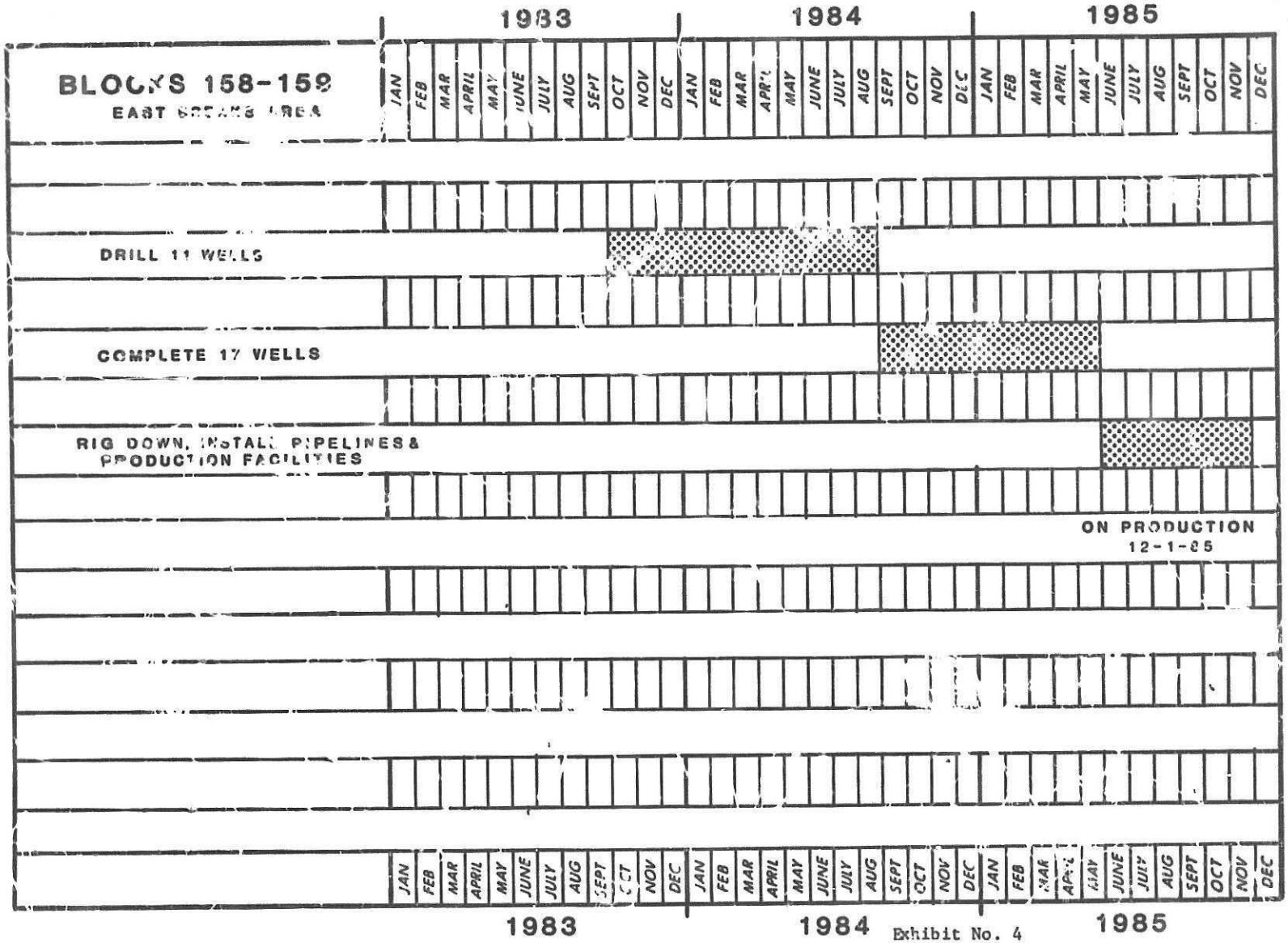


Exhibit No. 4

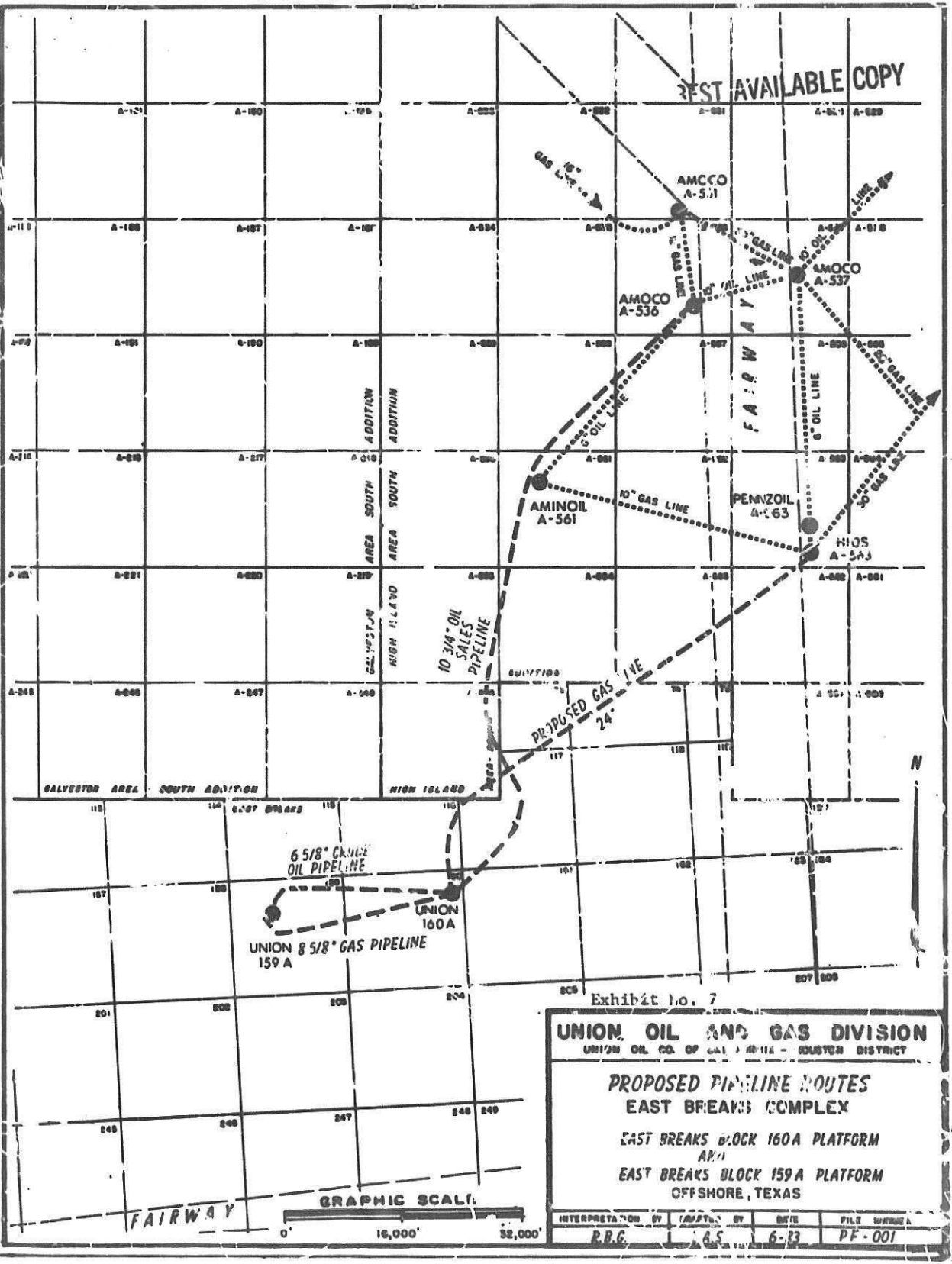
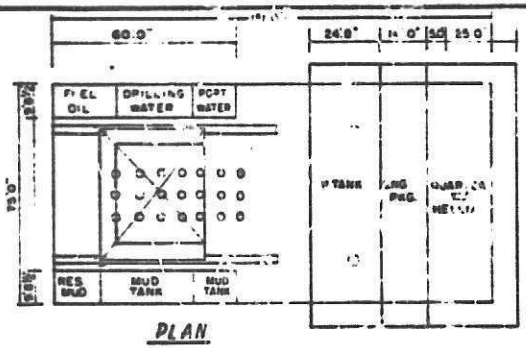


Exhibit No. 7

UNION OIL AND GAS DIVISION
UNION OIL CO. OF CALIFORNIA – HOUSTON DISTRICT

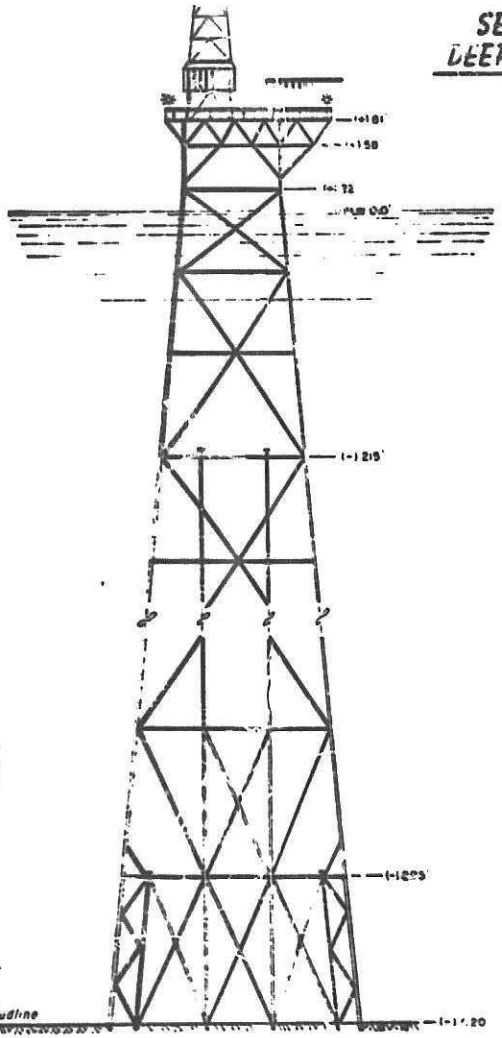
PROPOSED PIPELINE ROUTES
EAST BREAKS COMPLEX
EAST BREAKS BLOCK 160A PLATFORM
AND
EAST BREAKS BLOCK 159A PLATFORM
OFFSHORE, TEXAS

INTERPRETATION BY	DRAFTING BY	DATE	FILE NUMBER
R.B.G.	A.S.	6-83	PF-001



PLAN

SELF-CONTAINED DEEPWATER PLATFORM



ELEVATION

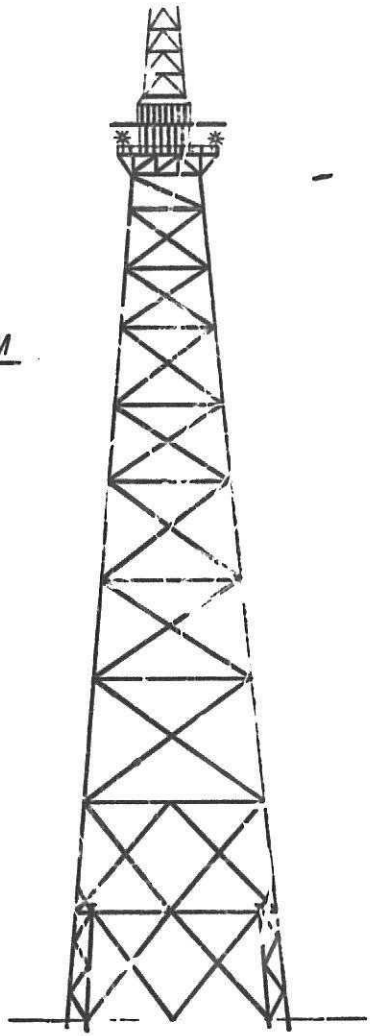


Exhibit No. 8

PROPOSED DRILLING & PRODUCTION OPERATIONS
UNION OIL COMPANY OF CALIFORNIA, et al
PROPOSED PLATFORM
BLOCK 159 OCS-G-2646
EAST BREAKS AREA
OFFSHORE TEXAS-GULF OF MEXICO
Application By: UNION OIL CO OF CALIFORNIA - Houston, Texas

DATE APRIL, 1980

SCALE - NTS

SHEET 1 OF 1

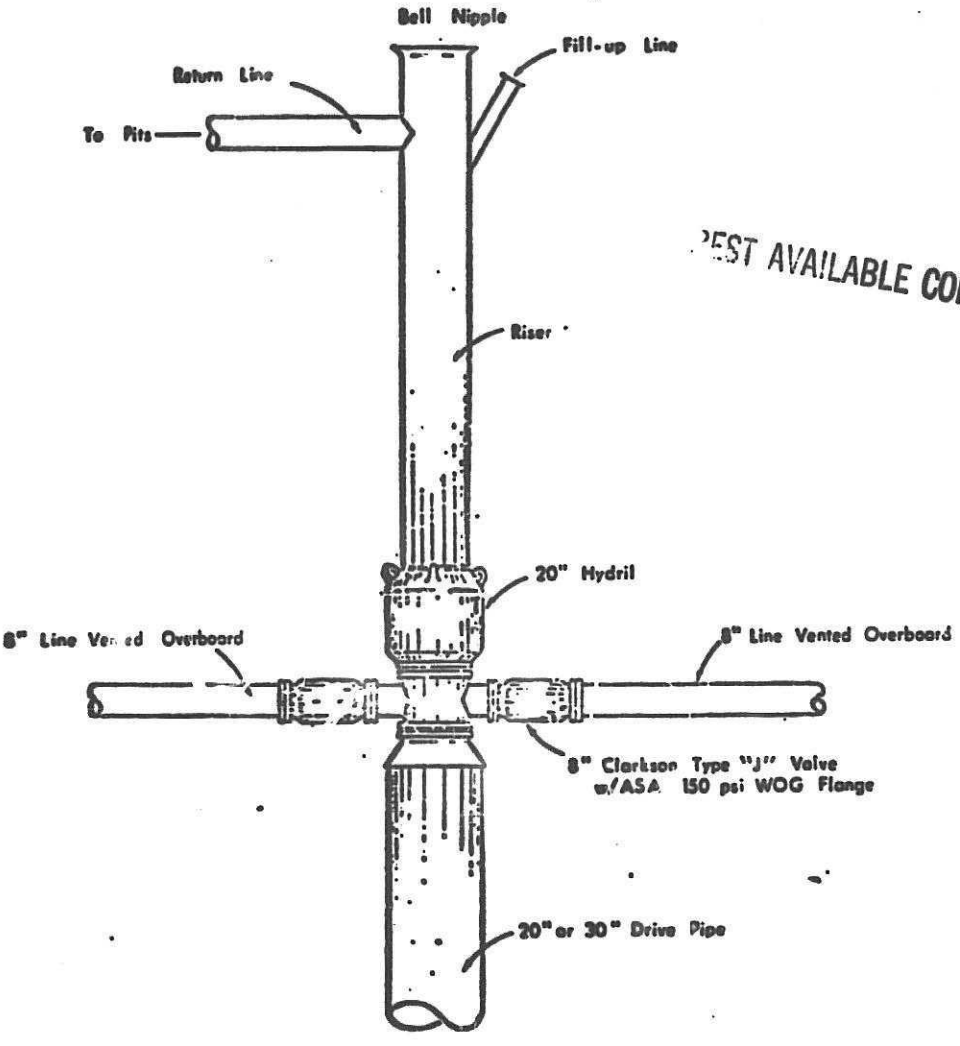


Exhibit No. 9

REV	DATE

PROPOSED DIVERTER SYSTEM

OCS-G-2646 - BLOCK 159 EAST BREAKS AREA

UNION OIL COMPANY OF CALIFORNIA

DRAWN ____ CRD ____
APP'D ____
SCALE ____
DATE ____

SHEETS | SHEET

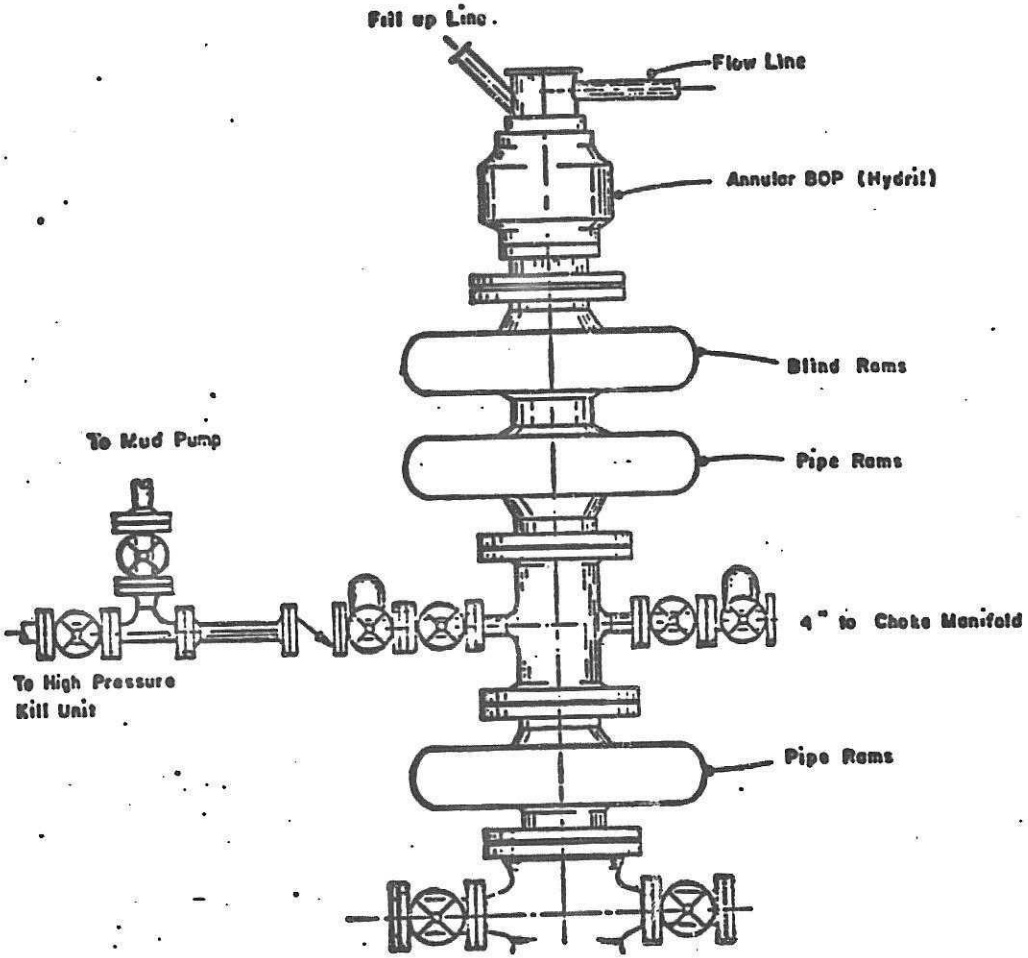


Exhibit No. 10

REV.	DATE

STANDARD 4 PREVENTER ASSEMBLY

OCS-G-2646 - BLOCK 159 EAST BREAKS AREA

UNION OIL COMPANY OF CALIFORNIA

DRAWN ____ CKD ____
APP'D ____
SCALE ____
DATE ____

SHEETS | SHEET

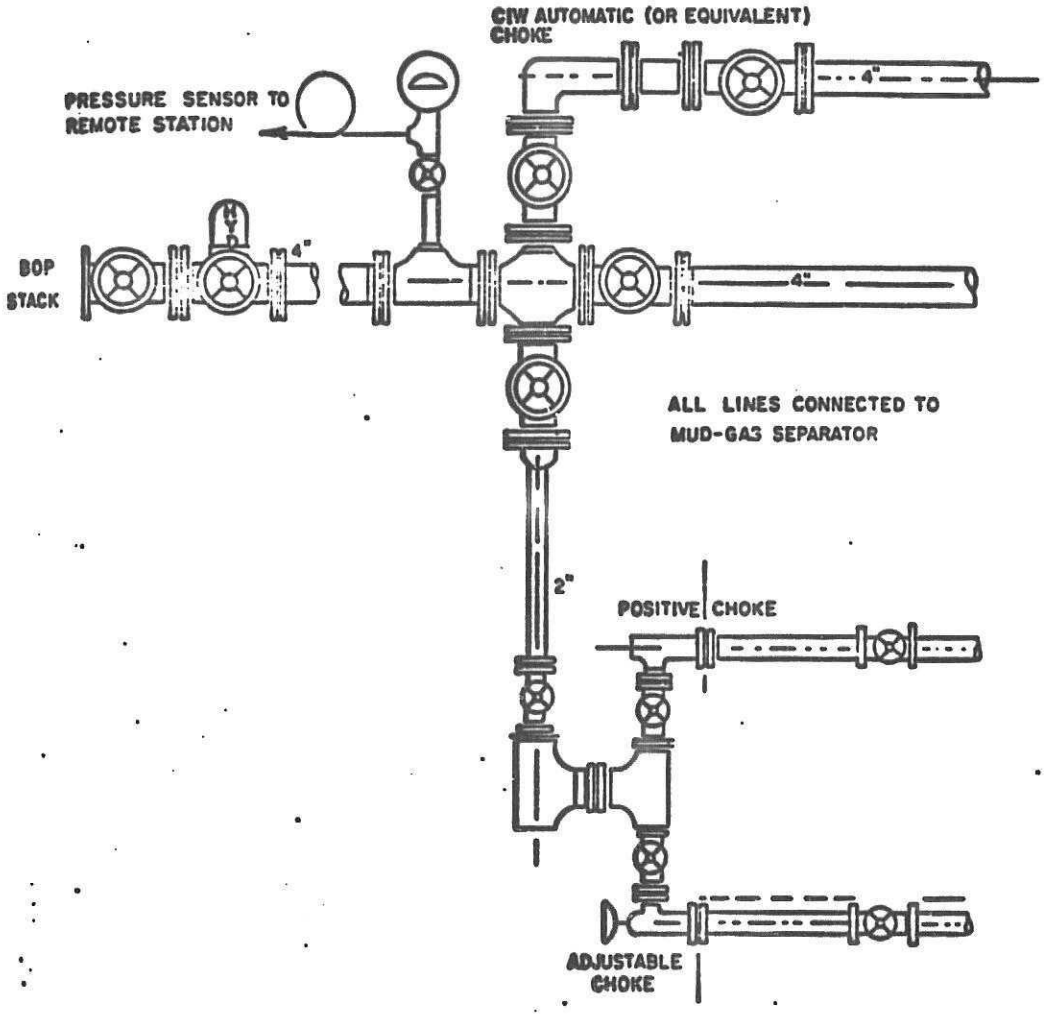


Exhibit No. 11

REV.	DATE

PROPOSED CHOKE MANIFOLD

OCS-G-2646 - BLOCK 159 EAST BREAKS AREA

UNION OIL COMPANY OF CALIFORNIA

DRAWN ____ CRD ____
APP'D. ____
SCALE ____
DATE ____

SHEETS | SHEET

EXHIBIT NO. 12

MUD COMPONENTS AND ADDITIVES

Product Line	Physical or Chemical Composition
Weighting Material	
Mil-Gel	Barium Sulfate
Clays (Viscosifiers)	
Mil-Gel	Wyoming Bentonite
Salt Water Gel	Attapulgite Clay for Salt water muds
Floscal	Asbestos Material
Thinners	
Unical	Chrome Lignosulfonate
Lig[illegible]	Processed Lignite
Sodium Chromate	Sodium Chromate
Fluid Loss Control Agents	
Milchem CMC	Sodium Carboxymethylcellulose
Alkalinity, pH Control Additives	
Lime	Hydrated Lime
Caustic Soda	Sodium Hydroxide
Calcium Removers	
S.A.P.P.	Sodium Acid Pyrosphosphate
Bicarbonate of Soda	Sodium Bicarbonate
Defoamer	
Aluminum Stearate	Aluminum Stearate
Lost Circulation Materials	
Mil Mica	Mica Flakes (Graded)
Mil Plug	Ground Walnut Hulls (Graded)

AIR QUALITY STATEMENT

OCS-G-2645 BLOCK 158

OCS-G-2646 BLOCK 159

OCS-G-2647 BLOCK 160

EAST BREAKS AREA

OFFSHORE, TEXAS

The plan of operations for the drilling, completion and production of the Block 159 A platform wells was set forth in the preceding pages. The onshore support base for the Block 159 A platform will be the Union Oil Company Shore Base located at Surfside, Texas. All boats and helicopters will be handled from this base.

Air emission calculations are provided for:

1) the drilling and completion phase from October 1, 1983 through May 31, 1985;

2) rig down and production facilities installation (14 days);

3) infield pipelines and oil sales pipeline installation (60 days);

4) production operations throughout the estimated life of the Block 159 A platform wells.

Any additional service work required during the scope of production operations will be minimal and will result in air emissions well below the exemption level.

The emission calculations are based on data from "Compilation of Air Pollutant Emission Factors", third edition AP-42, EPA, 1977, Table 3.3.3-1 and Table 3.2.1-3.

AREA East Breaks BLOCK 159 PLATFORM A

EXEMPTION CALCULATIONS

$E = 3400 (D^{2/3})$ for carbon monoxide

$E = 33.3\ D$ for sulfur dioxide, nitrogen oxides, total suspended particulates, and volatile organic compounds

D = 85.6 Statute Miles (451,968 ft.)

E = 66,038 CO

E = 2,851 SO_2, NOx, TSP, and VOC

POLLUTANTS	"E" (T/YR.)	1985 HIGHEST YEAR PROJECTED EMISSIONS (T/YR.)	EXEMPT (YES OR NO)
SO_2	2850	11.50	yes
NOx	2850	172.07	yes
CO	66,038	37.60	yes
TSP	2850	12.37	yes
VOC	2850	13.95	yes

E = The emission exemption amount expressed in tons per year.

D = The distance of the facility from the closest onshore area of a state expressed in statute miles.

AREA East Breaks BLOCK 159 PLATFORM A

PROJECTED EMISSIONS FROM EACH SOURCE

BY AIR POLLUTANT FOR 1983 Year

SOURCE	AIR POLLUTANT (#/YR.)				
	SO_2	NOx	CO	TSP	VOC
Drilling Rig	3617	54,366	11,824	3883	43(
Cargo Boat	11	173	37	12	14
Crew Boat	11	173	37	12	14
Helicopter	66	210	210	92	191
Sub-Total	3705	54,922	12,108	3999	4566
Miscellaneous (25% of Sub-total)	926	13,731	3027	1000	1142
Total in pounds	4631	68,653	15,135	4999	5708
Total from Facility In Tons Per Year	2.32	34.33	7.57	2.50	2.85

AREA East Breaks BLOCK 159 PLATFORM A

PROJECTED EMISSIONS FROM EACH SOURCE

BY AIR POLLUTANT FOR 1984 Year

SOURCE	AIR POLLUTANT (#/YR.)				
	SO_2	NOx	CO	TSP	VOC
Drilling Rig	14,388	216,284	47,039	15,449	17,293
Cargo Boat	46	686	149	49	55
Crew Boat	46	686	149	49	55
Helicopter	264	835	835	366	761
Sub-total	14,744	218,491	48,172	15,913	18,164
Miscellaneous (25% of Sub total)	3,686	54,623	12,043	3,978	4,541
Total in Pounds	18,430	273,114	60,215	19,891	22,705
Total from Facility In Tons Per Year	9.22	136.56	30.11	9.95	11.35

AREA East Breaks BLOCK 159 PLATFORM A

PROJECTED EMISSIONS FROM EACH SOURCE

BY AIR POLLUTANT FOR 1985 Year

SOURCE	AIR POLLUTANT (#/YR.)				
	SO_2	NOx	CO	TSP	VOC
Derrick Barge	1,245	18,713	4,070	1,337	1,496
Pipelay Barge	10,670	160,398	34,884	11,457	12,825
Cargo Boat	115	1,726	376	124	137
Crew Boat	115	1,726	376	124	137
Helicopter	114	360	360	158	330
Drilling Rig	6,146	92,384	20,091	6,599	7,387
Sub-Total	18,405	275,307	60,157	19,799	22,312
Miscellaneous (25% of Sub-total)	4,601	68,827	15,039	4,950	5,578
Total in Pounds	23,006	344,134	75,196	24,749	27,890
Total from Facility In Tons Per Year	11.50	172.07	37.60	12.37	13.95

AREA East Breaks BLOCK 159 PLATFORM A

PROJECTED EMISSIONS FROM EACH SOURCE

BY AIR POLLUTANT FOR 1986-2005
Year

SOURCE	AIR POLLUTANT (#/YR.)				
	SO_2	NOx	CO	TSP	VOC
Note: No continuous emissions					
25% of 1985 Miscellaneous	1150	17,207	3760	1238	1395
Total from Facility In Tons Per Year	0.58	8.60	1.88	0.62	0.70

AREA East Breaks BLOCK 159 PLATFORM A

FREQUENCY DISTRIBUTION OF TOTAL EMISSIONS

SO_2 (Pollutant) FOR 1983-2005 (Year(s))

POLLUTANT	YEAR	EMISSION RATES POUNDS/DAY	EMISSION RATES DAYS/YEAR
SO_2	1983	39.31	92
		0.25	92
		0.72	92
	1984	39.31	366
		0.25	366
		0.72	366
	1935	177.83	7
		177.83	60
		1.47	225
		0.72	158
		38.90	158
	1986-2005	3.15	365

REMARKS:

AREA East Breaks BLOCK 159 PLATFORM A

FREQUENCY DISTRIBUTION OF TOTAL EMISSIONS

NOx (Pollutant) FOR 1983-2005 (Year(s))

POLLUTANT	YEAR	EMISSION RATES POUNDS/DAY	DAYS/YEAR
NOx	1983	590.93	92
		3.76	92
		2.28	92
	1984	590.93	366
		3.76	366
		2.28	366
	1985	2673.29	7
		2673.29	60
		15.34	225
		2.28	158
		584.71	158
	1986-2005	47.14	365

REMARKS:

AREA East Breaks BLOCK 159 PLATFORM A

FREQUENCY DISTRIBUTION OF TOTAL EMISSIONS

CO (Pollutant) FOR 1983-2005 (Year(s))

POLLUTANT	YEAR	EMISSION RATES POUNDS/DAY	EMISSION RATES DAYS/YEAR
CO	1983	128.52	92
		0.80	92
		2.28	92
	1984	128.52	366
		0.80	366
		2.28	366
	1985	581.43	7
		581.43	60
		3.34	225
		2.28	138
		127.16	138
	1986-2005	10.30	365

REMARKS:

AREA East Breaks BLOCK 159 PLATFORM A

FREQUENCY DISTRIBUTION OF TOTAL EMISSIONS

TSP (Pollutant) FOR 1983-2005 (Year(s))

POLLUTANT	YEAR	EMISSION RATES POUNDS/DAY	EMISSION RATES DAYS/YEAR
TSP	1983	42.41	92
		0.26	92
		1.0	92
	1984	42.21	366
		0.26	366
		1.0	366
	1985	191.0	7
		191.0	60
		1.10	225
		1.0	158
		41.77	158
	1986-2005	339	365

REMARKS:

AREA East Breaks BLOCK 159 PLATFORM A

FREQUENCY DISTRIBUTION OF TOTAL EMISSIONS

VOC (Pollutant) FOR 1983-2005 (Year(s))

POLLUTANT	YEAR	EMISSION RATES POUNDS/DAY	EMISSION RATES DAYS/YEAR
VOC	1983	47.25	92
		0.30	92
		2.08	92
	1984	47.25	366
		0.30	366
		2.08	366
	1985	213.71	7
		213.71	60
		1.22	225
		2.08	158
		46.75	158
	1986-2005	3.82	365

REMARKS:

2ROJECTED AIR EMISSION FOR EAST BREAKS BLOCK 159 A PLATFORM

Emission Source	Running Time/Day	Takeoffs & Landings Per Day	Fuel Cons. Gals./Day	Emission Factors Pound/1,000 gals.					Emission Factors Aircraft Takeoff & Landings					Projected Emission 609 - day projection in #				
				SO_2	NOx	CO	TSP	VOC	SO_2	NOx	CO	TSP	VOC	SO_2	NOx	CO	TSP	VOC
Calculations for 609 day dr ling and completion phase.																		
Drilling Rig	24 hrs.		1260	31.2	469	102	33.5	37.5						23,941	359,882	78,269	25,706	28,775
Cargo Boat (In Berth)	2 hrs.		4	31.2	469	102	33.5	37.5						76	1,142	248	82	91
Crew Boat (In Berth)	2 hrs.		4	31.2	469	102	33.5	37.5						76	1,142	248	82	91
Helicopter Takeoffs & Landings		4							.18	.57	.57	.25	.52	439	1,389	1,389	609	1,267
Calculations for day platform installation phase. Not applicable																		
Derrick Barge	hrs.			31.2	469	102	33.5	37.5										
Cargo Boat (In Berth)	hrs.			31.2	469	102	33.5	37.5										
Crew Boat (In Berth)	hrs.			31.2	469	102	33.5	37.5										

Projected emissions are based on data from "Compilation of Air Pollutant Emission Factors", 3rd Edition AP-42, EPA, 1977, Table 3.3.3.-1 and Table 3.2.1.-3.

SO_2	NOx	CO	TSP	VOC
24,082	363,555	80,154	26,479	30,224

Total in Pounds

PROJECTED AIR EMISSION FOR EAST BREAKS BLOCK 159 A PLATFORM

Emission Source	Running Time/Day	Takeoffs & Landings Per Day	Fuel Cons. Gals./Day	Emission Factors Pound/1,000 gals. SO_2	NOx	CO	TSP	VOC	Emission Factors Aircraft Tackoff & Landings SO_2	NOx	CO	TSP	VOC	Projected Emission 7-day projection in # SO_2	NOx	CO	TSP	VOC
Calculations for 7 days rig down phase.																		
Drilling Rig	24 hrs.		960	31.2	469	102	33.5	37.5						210	3152	685	225	252
Cargo Boat (In Berth)	2 hrs.		4	31.2	469	102	33.5	37.5						1	13	3	1	1
Crew Boat (In Berth)	2 hrs.		4	31.2	469	102	33.5	37.5						1	13	3	1	1
Helicopter Takeoffs & Landings		4							.18	.57	.57	.25	.52	5	16	16	7	15
Calculations for 7 day rig offload and production equipment onload phase.																		
Derrick Barge	24 hrs.		5700	31.2	469	102	33.5	37.5						1245	18,713	4070	1337	1496
Cargo Boat (In Berth)	12 hrs.		24	31.2	469	102	33.5	37.5						5	79	17	6	6
Crew Boat (In Berth)	12 hrs.		24	31.2	469	102	33.5	37.5						5	79	17	6	6

Projected emissions are based on date from "Compilation of Air Pollutant Emission Factors", 3rd Edition AP-42, EPA, 1977, Table 3.3.3.-1 and Table 3.2.1.-3.

SO_2	NOx	CO	TSP	VOC
1472	22,065	4811	1583	1777

Total in Pounds

PROJECTED AIR EMISSION FOR EAST BREAKS BLOCK 159 A PLATFORM

Emission Source	Running Time/Day	Takeoffs & Landings Per Day	Fuel Cons. Gals./Day	Emission Factors Pound/1,000 gals. SO_2	NOx	CO	TSP	VOC	Emission Factors Aircraft Takeoff & Landings SO_2	NOx	CO	TSP	VOC	Projected Emission 60 -day projection in # SO_2	NOx	CO	TSP	VOC
Calculations for	day																	
Drilling Rig	24 hrs.			31.2	469	102	33.5	37.5										
Cargo Boat (In Berth)	2 hrs.			31.2	469	102	33.5	37.5										
Crew Boat (In Berth)	2 hrs.			31.2	469	102	33.5	37.5										
Helicopter Takeoffs & Landings		4							.18	.57	.57	.25	.52					
Calculations for	60 day pipeline installation phase.																	
Pipelay Barge	24 hrs.		5700	31.2	469	102	33.5	37.5						10,670	160,398	34,884	11,457	12,825
Cargo Boat (In Berth)	24 hrs.		48	31.2	469	102	33.5	37.5						90	1,351	294	96	108
Crew Boat (In Berth)	24 hrs.		48	31.2	469	102	33.5	37.5						90	1,351	294	96	108

Projected emissions are based on data from "Compilation of Air Pollutant Emission Factors", 3rd Edition AP-42, EPA, 1977, Table 3.3.3.-1 and Table 3.2.1.-3.

SO_2	NOx	CO	TSP	VOC
10,850	163,100	35,472	11,649	13,041

Total in Pounds