In Reply Refer To: RP-2-1 JUL 9 1985

ARCO Oil and Gas Company
Attention: Mr. H. Nelson Robertson
Post Office Box 51408
Lafayette, Louisiana 70505

Gentlemen:

Reference is made to your Supplemental Development Operations Coordination Document (DOCD) received July 1, 1985, for Leases OCS-G 1608 and 2943, Blocks 60 and 59, South Pass Area. This DOCD includes the activities proposed for nine wells.

In accordance with 30 CFR 250.34, revised December 13, 1979, and Notice to Lessees and Operators No. 84-1, this DOCD has been determined to be complete as of July 8, 1985, and is now being considered for approval.

Your control number is S-1666 and should be referenced in your communication and correspondence concerning this DOCD.

Sincerely yours,

for (Orig. Sgd.) A. Donald Giroir

D. W. Solanas
Regional Supervisor
Rules and Production

bcc: Lease OCS-G 1608 (OPS-3-2) (FILE ROOM)
Lease OCS-G 2943 (OPS-3-2) (FILE ROOM)
OPS-3-4 w/Public Info. Copy of the DOCD (PUBLIC RECORDS ROOM)
DO-5

ADGobert:gtj:7/5/85:Disk 3a

JUL 1 1985

ARCO Oil and Gas Company
[illegible]
Post [illegible]
[illegible]
Telephone [illegible]

M. Nelson Robe[illegible]
Offshore D[illegible]

MINERALS MANAGEMENT SERVICE

JUL 01 1985

RULES AND PRODUCTION

June 26, 1985

Mr. D. W. Solanas
Deputy Minerals Manager
Minerals Management Service
Post Office Box 7944
Metairie, LA 70010-7944

Reference: Supplemental Development Operations Coordination Document
OCS-G 1608 South Pass Block 60
OCS-G 2943 South Pass Block 59
South Pass Block 61 Field

Dear Mr. Solanas:

The Supplemental Development Operations Coordination Document (DOCD) for the OCS-G 1608 and OCS-G 2943 leases requires both revision and supplement. In accordance with your letter OS-7-1, eight (8) copies (five (5) proprietary) of this DOCD are hereby submitted in compliance with applicable provisions of 30 CFR 250.34. A DOCD checklist is included in front of the exhibits for reference.

REVISED PLANS

Arco Oil and Gas Company has developed South Pass Block 61 Field thus far from Platforms 'A', 'B', 'C', 'D', and 'E', in Block 60 and Platform 'A' in Block 67. The supplemental DOCD dated March 15, 1985, details additional plans for development from Platform 'G'. The attached supplemental DOCD is required in order to revise and supplement the development plan from Platforms 'C' and 'E'.

There are currently two approved wells that remain to be drilled from 'E' Platform. These wells, the E-30 and E-31, were approved in our supplemental DOCD dated May 24, 1983 for South Pass Block 61 Field. Both of these wells require revision since they will be drilled to new locations. We now plan to drill 7 more wells from 'E' Platform including these revisions.

'C' Platform requires supplement since no additional drilling wells are currently approved. We plan to drill 4 more wells from 'C'.

The location plats for the leases and platforms, drilling schedule, and spider map for the above revisions are included in Exhibits 1, 2, 3, and 4. These exhibits also include the information for the supplemental development plans described in the next section of this write up.

SUPPLEMENTAL PLANS

Eleven additional wells are proposed for OCS-G leases 1608 and 2943 from our existing South Pass Block 60 Platforms 'C' and 'E'. Exhibits 1 and 2 are the location maps for these leases and platforms. Seven wells will be drilled from Platform 'E', and four wells from Platform 'C'. The wells will be put on production as they are drilled and completed. No new facilities, pipelines or platforms will be required. Coordinates for the surface and bottom hole locations, true vertical depths, and a projected drilling schedule for these wells are given in Exhibit 3. This information is only an estimate, which may be revised in the future in an effort to optimize development. The approximate bottom hole locations for the wells are plotted on the spider map of the South Pass Block 61 Field (See spider map). The total time for this proposed work is estimated to be two years. The life of the reserves to be developed by these wells is estimated to be 5 years.

The H&P 101 drilling rig currently on 'E' Platform, will be used to complete that work as well as the work on 'C' Platform. The rig will be used for workovers on 'A' platform prior to being moved to 'C' in 1987. This rig is a self contained, modular platform rig commonly used in the Gulf of Mexico. (See Exhibit 5). Drip pans, curbs, drains and sumps are designed into the rig and platforms for pollution control. Cuttings and mud will be disposed of in the prescribed manner outlined in OCS Order No. 7. During drilling operations, diverter systems, blowout preventers, and well control equipment will be provided and maintained in accordance with OCS Order No. 2. (See Exhibits 6 and 7). Attached as Exhibit 8 (pages 1-4) is a list of the available mud additives. In accordance with OCS Order No. 5, all wells will have surface controlled surface and subsurface safety valves installed.

In the event of a spill, ARCO will implement its approved Oil Spill Contingency Plan which is on file with the MMS and updated annually. ARCO is a member of Clean Gulf Associates which can provide spill response within approximately 12 hours from bases at Venice, Grand Isle, Intracoastal City and Cameron in Louisiana.

The base of operations for our offshore activities is in Venice, Louisiana. The base consists of a docking facility, warehouse, heliport, offices and living quarters and a parking lot. A base coordinator and a dispatcher are on duty at all times to coordinate movement of materials and personnel by boat and helicopter which service the platforms. Communications include private radios, microwave channels and regular telephones.

A previous air emissions report was submitted with our Supplemental Plan S-0966 and is hereby referenced. Exhibit 9 updates the projected yearly emissions from these two platforms.

Five of the eight copies of this DOCD include geological structure maps of the I, UJ, K, LK, and ML Sands, and two representative cross sections of the OCS-G 1608 and OCS-G 2943 leases. We request that this geologic data be held confidential as we believe it to be exempt from disclosure under the Freedom of Information Act (5 U.S.C. 552) and implementing regulations (43 CFR Part 2).

Please sign and return one copy of the Shipment of Confidential Information form to us for our records. If further data or clarification is required, please call me at telephone number (318) 264-4295.

Sincerely,

ARCO OIL AND GAS COMPANY

Peter Robinson for

M. N. Robertson

MNR/gmp247/4:ma

attachment

DOCD CHECK LIST

DESCRIPTION

✓ Description of work to be performed

SCHEDULE

✓ Commencement date
✓ Time to complete each phase
✓ Total time to complete the work proposed

LOCATION

✓ Location map of the lease block(s) relative to the shore line
✓ Description of onshore base facilites, LOCATION Venice, Louisiana
✓ Location map showing platform(s) location(s) - (non-proprietary)

GEOLOGICAL AND GEOPHYSICAL DATA

N/A Identification of geological hazards
N/A Archaeological report submitted
N/A Surface location relative to anomalies
✓ Structure maps (proprietary)
✓ Cross Section (proprietary)
✓ Spider Map
✓ Depth: TVD and BHL (for each well)

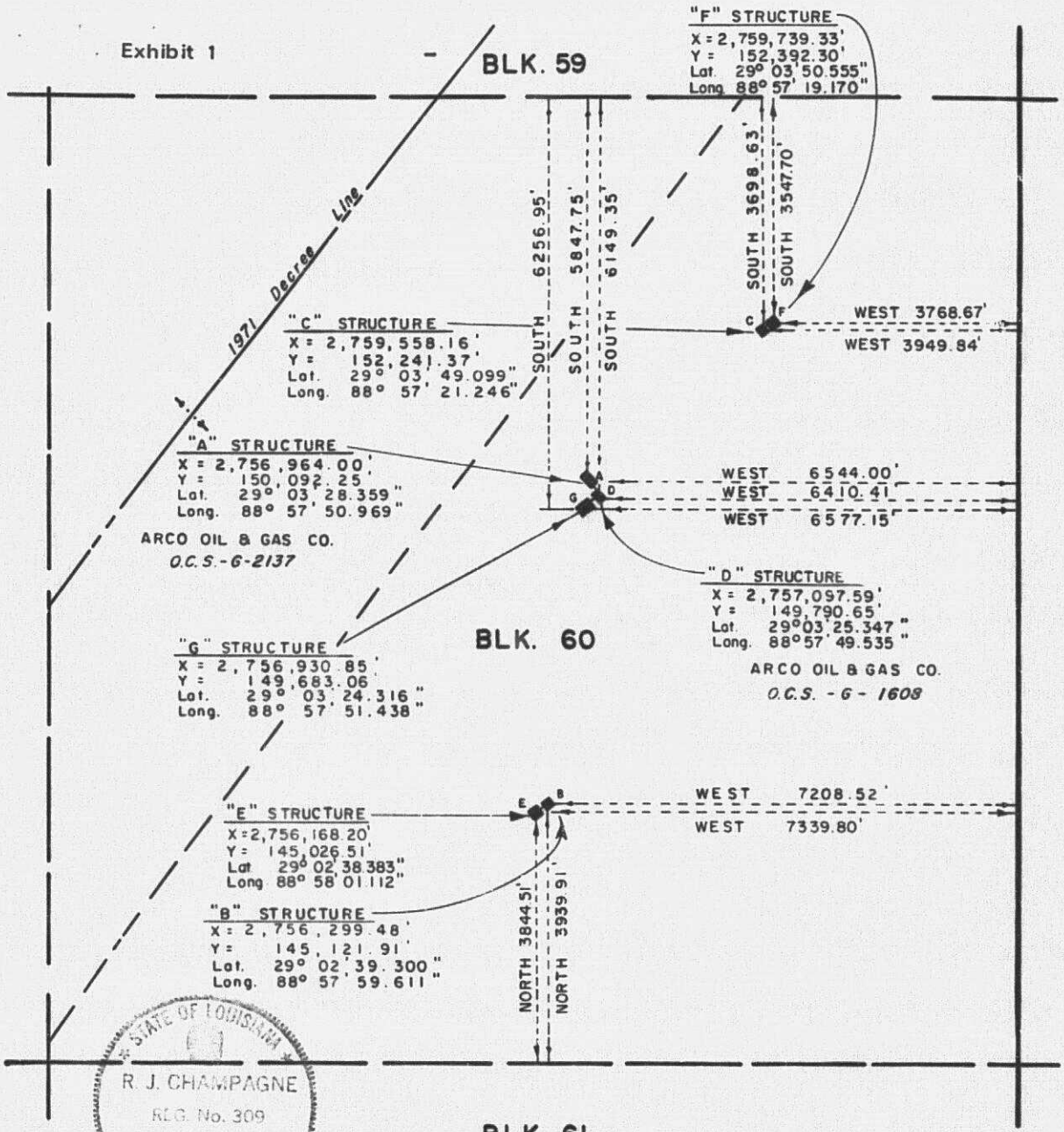
OIL SPILL INFORMATION

✓ Oil spill plan referenced
✓ Base of operations
✓ Deployment time

OTHER

✓ List of mud additives
N/A Production rate
✓ Estimated life of reserves
N/A Water depth
✓ Description of drilling rig if applicable indicating pollution prevention equipment
N/A Description of the size, length, route, tie-in points and burial depth on proposed pipelines including a pipeline plat
✓ Calculations for air emissions
N/A Environmental report if applicable
N/A CZM Consistency if applicable

Exhibit 1



STATE OF LOUISIANA
R. J. CHAMPAGNE
REG. No. 309
REGISTERED
LAND SURVEYOR

I hereby certify that the above structures are correct.

R. J. Champagne

Registered Land Surveyor No. 309
State of Louisiana
John E. Chance & Associctes, Inc.

PUBLIC INFORMATION PLAT

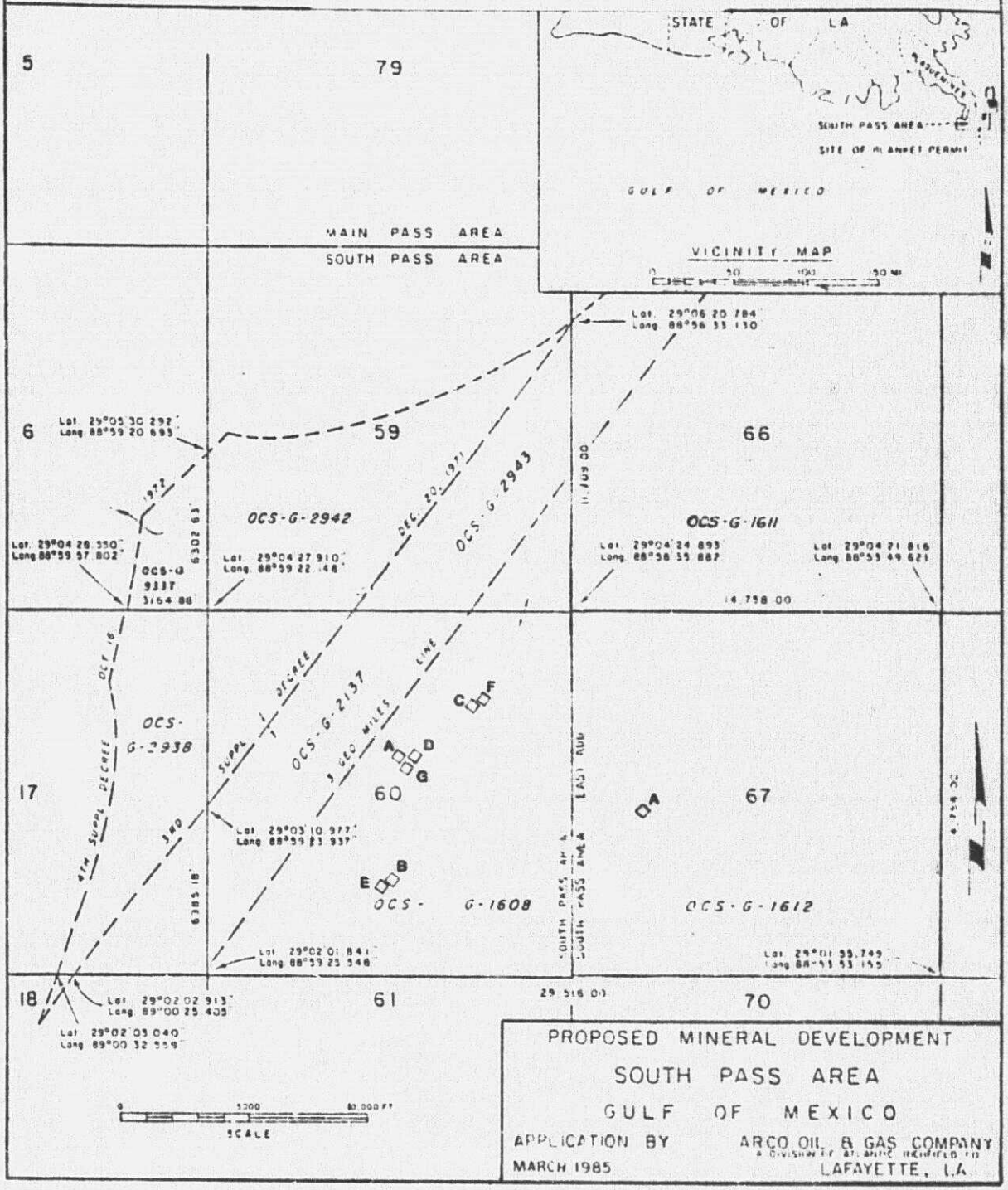
ARCO OIL & GAS CO.
A DIVISION OF ATLANTIC RICHFIELD CO.
O.C.S.-G-1608 STR A,B,C,D, E,F&G

PERMIT PLAT

SOUTH PASS AREA

SCALE: 1" = 6/25/85

Exhibit 2


5
79
MAIN PASS AREA
SOUTH PASS AREA
STATE OF LA
SOUTH PASS AREA
SITE OF BLANKET PERMIT
GULF OF MEXICO
VICINITY MAP
Lat. 29°06 20 784
Long. 88°56 33 130
6
59
66
Lat. 29°05 30 292
Long. 88°59 20 695
OCS-G-2942
OCS-G-2943
OCS-G-1611
Lat. 29°04 28 350
Long. 88°59 57 802
Lat. 29°04 27 910
Long. 88°59 22 148
Lat. 29°04 24 893
Long. 88°58 55 882
Lat. 29°04 21 816
Long. 88°55 49 621
OCS-G 9337
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6302.63
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14,758.00
DEC. 20, 1971
17
60
67
OCS-G-2938
OCS-G-2137
OCS-G-1608
OCS-G-1612
Lat. 29°03 10 977
Long. 88°59 23 937
Lat. 29°02 01 841
Long. 88°59 25 548
Lat. 29°01 55.749
Long. 88°55 53 155
6385.18
18
61
70
29,516.00
Lat. 29°02 02 913
Long. 89°00 25 405
Lat. 29°02 03 040
Long. 89°00 32 559
SCALE
PROPOSED MINERAL DEVELOPMENT
SOUTH PASS AREA
GULF OF MEXICO
APPLICATION BY ARCO OIL & GAS COMPANY
A DIVISION OF ATLANTIC RICHFIELD CO
MARCH 1985
LAFAYETTE, LA.

EXHIBIT 3

"C" AND "E" PLATFORM DRILLING SCHEDULE FOR REVISED AND SUPPLEMENTAL WELLS

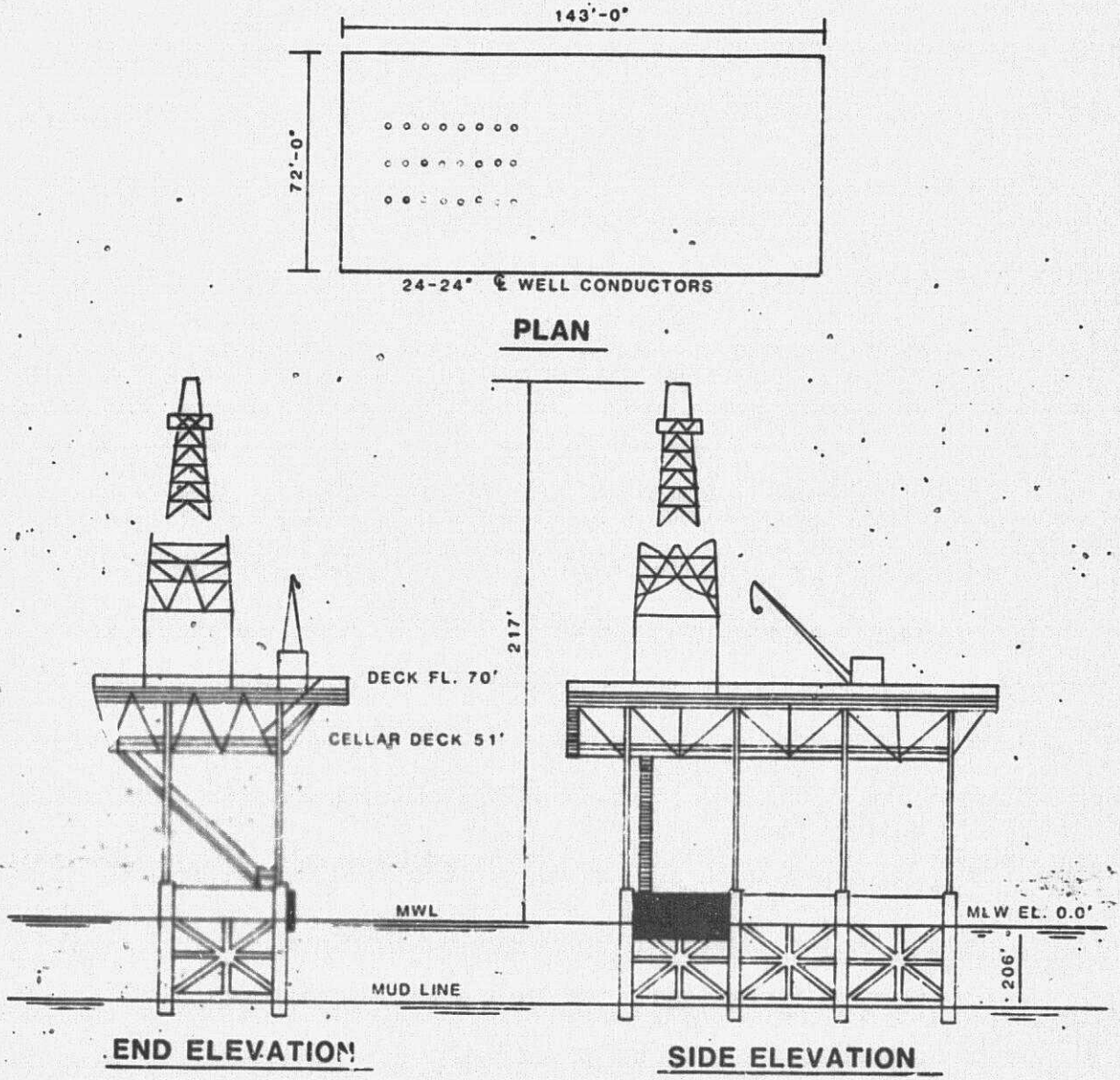
RIG	WELL	TARGET RESERVOIR	BOTTOM HOLE LOCATION (LAMBERT COORDINATES) X	Y	TOTAL DEPTH (TVD)	ESTIMATED SPUD DATE
H & P 101	OCS-G 1608 E-30	UJ RL	2754626	145832	6350	07/10/85
H & P 101	OCS-G 1608 E-31	UJ RP-4	2755250	143582	6600	08/10/85
H & P 101	OCS-G 1608 E-32	LK RM-4	2755610	146122	5600	09/10/85
H & P 101	OCS-G 1608 E-33	K RP-2	2756330	143802	6000	10/10/85
H & P 101	OCS-G 1608 E-34	I RK-2	2754530	146862	5850	11/10/85
H & P 101	OCS-G 1608 E-35	ML RV-1	2744610	141852	9500	12/10/85
H & P 101	1608 E-36	I RR	2756190	142892	6000	02/10/86
H & P 101	OCS-G 2943 C-42	K RBB	2757778	156480	5500	01/01/87
H & P 101	OCS-G 2943 C-30ST#1	K RKK3	2759158	154940	5400	03/01/87
H & P 101	OCS-G 2943 C-43	K RBB	2756908	156170	5500	04/01/87
H & P 101	OCS-G 2943 C-44	K RJJ-1	2760128	157770	6300	06/01/87

SURFACE LOCATIONS

C Platform X = 2759740
Y = 152264

E Platform X = 2756168
Y = 145027

Exhibit 5



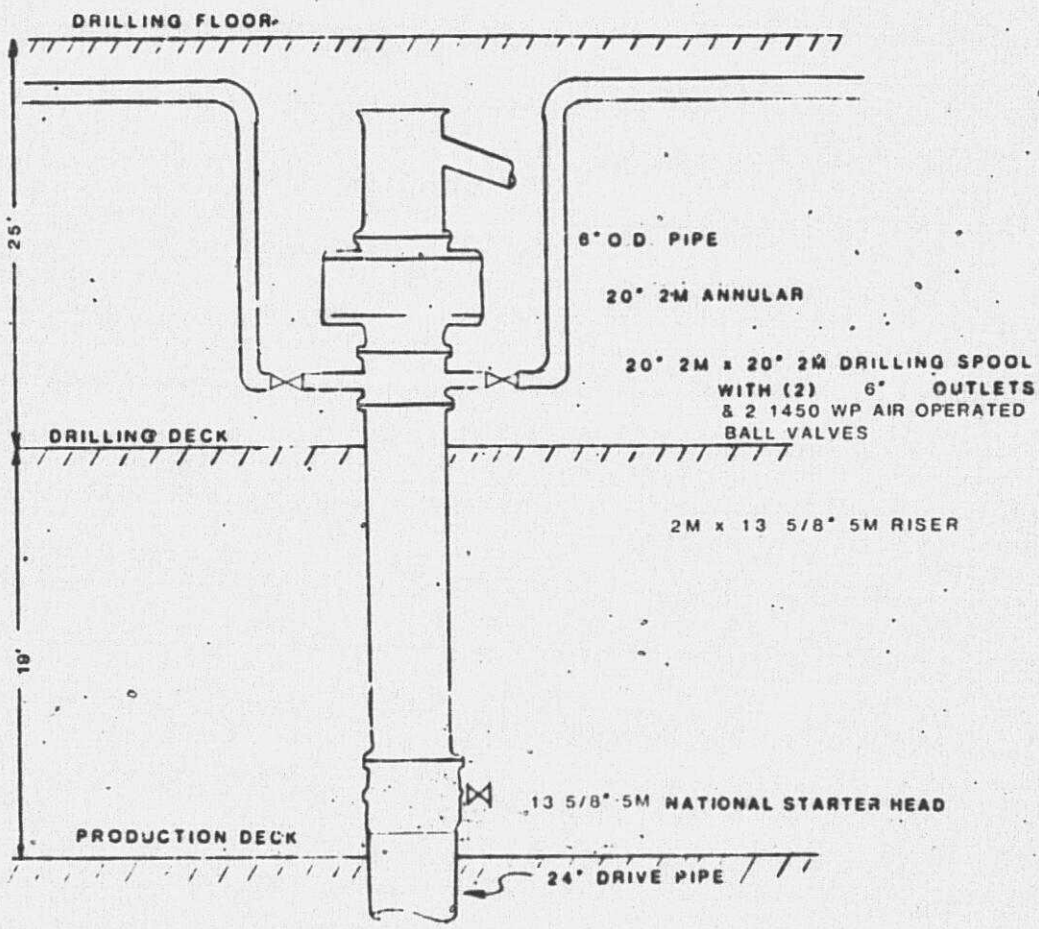
TYPICAL SELF-CONTAINED DRILLING PLATFORM

PROPOSED MINERAL DEVELOPMENT
SOUTH PASS AREA
GULF OF MEXICO
APPLICATION BY: ATLANTIC RICHFIELD CO.
LAFAYETTE,LA.

Exhibit 6

SP BLK 60"C" PLATFORM BOOKER 952

DIVERTER SYSTEM



OPERATION

THIS DIVERTER SYSTEM WILL BE INSTALLED FROM THE START UNTIL SURFACE CASING IS LANDED. ALL DIVERTER VALVES WILL REMAIN OPEN AT ALL TIMES. LINES WILL BE FLUSHED OUT DAILY. AT THE FIRST SIGN OF A KICK, THE DRILLER WILL CLOSE THE ANNULAR PREVENTER AND WELL FLUIDS WILL BE AUTOMATICALLY DIVERTED. DEPENDING ON PREVAILING WIND CONDITION AND SIZE OF KICK, ONE DIVERTER LINE MAY THEN BE CLOSED.

Exhibit 7

S.P. BLK. 60 "C" PLATFORM BOOKER 952

BOP ARRANGEMENT

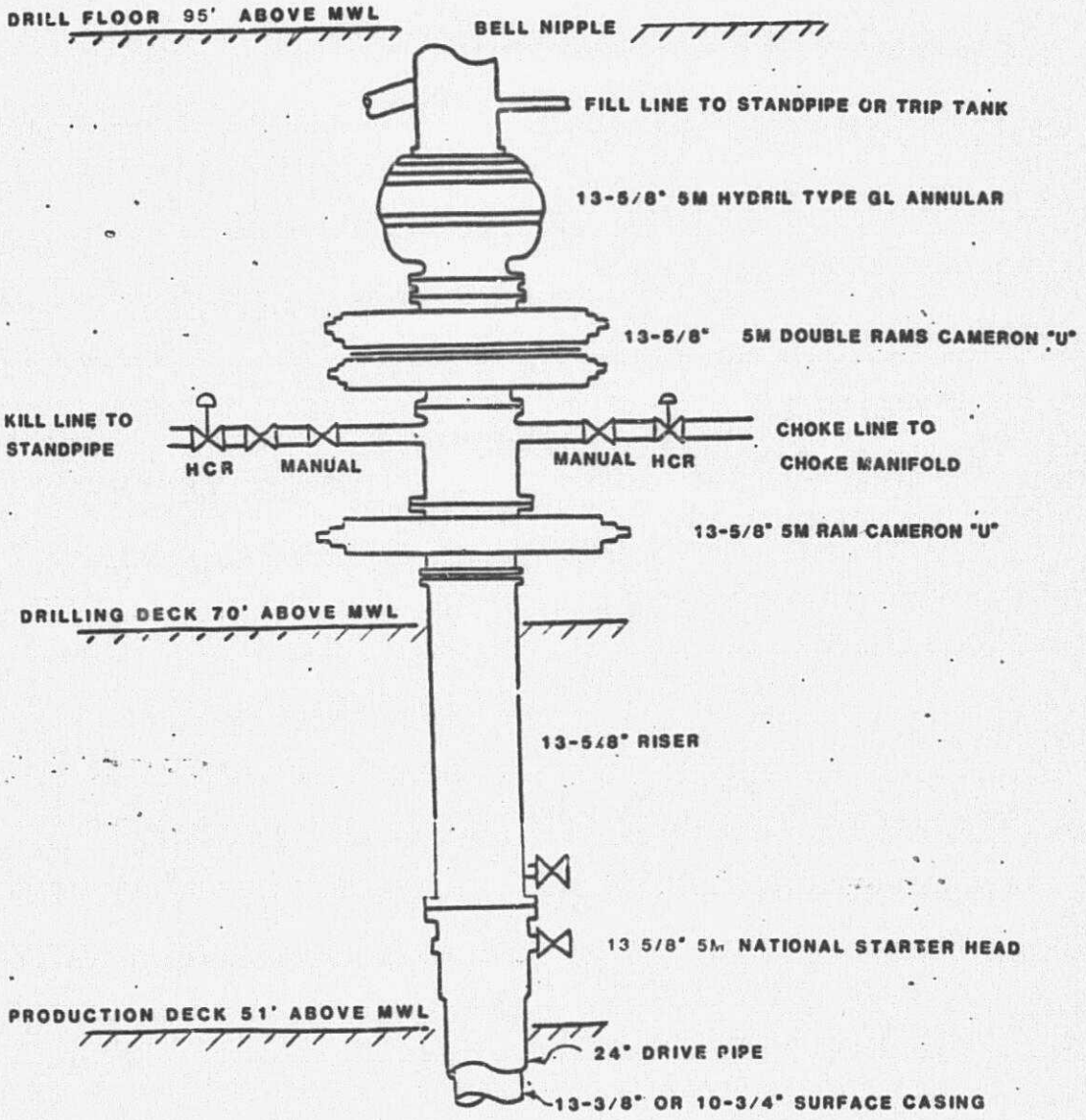


Exhibit 8 Page 1

COMPARABLE MUD PRODUCTS BY TRADE NAMES

Description or Principal Component	IMCO SERVICES	Baroid	Magcobar	Milchem	Primary Application
WEIGHTING AGENTS AND VISCOSIFIERS					
Barite	IMCO BAR	Baroid	Magcobar	Mil-Bar	For increasing mud weight up to 20 ppg.
Calcium Carbonate	IMCO WATE		Lo-Wate	W.O. 30 W.O. 50	For increasing weight of oil muds up to 10.8 ppg.
Bentonite	IMCO GEL	Aquagel	Magcogel	Milgel	Viscosity and filtration control in water-base muds.
Sub-Bentonite	IMCO KLAY	Baroco	High Yield Blended Clay	Green Band Clay	For use when larger particle size is desired for viscosity and filtration control.
Attapulgite	IMCO BRINEGEL	Zeogel	Salt Gel	Salt Water Gel	Viscosifier in saltwater muds.
Beneficiated Bentonite	IMCO HYB	Quick-Gel	Kwik-Thik	Super-Col	Quick viscosity in fresh-water, upper-hole muds with minimum chemical treatment.
Asbestos Fibers	IMCO SHURLIFT	Flosal	Visquick	Flosal	Viscosifier for fresh-water or saltwater muds.
Bacterially Produced Polymer	IMCO XC	XC Polymer	Duovis	XC Polymer	Viscosifier and fluid-loss control additive for low-solids muds.
Sepiolite	IMCO DUROGEL				Viscosifier in all water-base muds, especially high-temperature drilling fluids.
DISPERSANTS					
Sodium Tetraphosphate	IMCO PHOS	Barofos	[illegible]-Ph-	Oil Fos	Thinner for low pH fresh-water muds where temperatures do not exceed 160°.
Sodium Acid Pyrophosphate	SAPP	SAPP	SAPP	SAPP	For treating cement contamination.
Quebracho Compound	IMCO QBT	Tannex	M-C Quebracho	Tanco	Thinner for fresh-water and lime muds.
Modified Tannin	DESCO	Desco	Desco	Desco	Thinner for fresh-water and saltwater muds alkalized for pH control.
Processed Lignite	IMCO LIG	Carbonox	Tann A Thin	Ligco	Dispersant, emulsifier and supplementary additive for fluid-loss control.
Causticized Lignite	IMCO THIN	CC-16	Caustilig	Ligcon	1-6 ratio caustic-lignite dispersant, emulsifier and supplementary fluid-loss additive.
Modified Lignosulfonate	IMCO VC-10	Q-Broxin	Spersene	Uni-Cal	Dispersant and fluid-loss control additive for water-base muds.
Blended Lignosulfonate Compound	IMCO RD-111				Blended multi-purpose dispersant, fluid-loss agent and inhibitor for IMCO RD-111 mud systems.
Chrome-Free Lignosulfonate	IMCO RD-2000			X-KB Thin	Dispersant and fluid-loss control additive for water-base muds.
FLUID-LOSS REDUCERS					
Organic Polymer	IMCO PERMALOID	DEXTRID			Controls fluid loss in water-base systems.
Pregelatinized Starch	IMCO LOID	Impermex	My-Lo-Jel	Milstarch	Controls fluid loss in saturated salt water, and lime muds.
Sodium Carboxymethyl Cellulose	IMCO CMC (Regular)	Cellex (Regular)	Magco CMC (Regular)	Milchem CMC (Med-Vis)	For fluid-loss control and barite suspension in water-base muds.
Sodium Carboxymethyl Cellulose	IMCO CMC (Hi-Vis)	Cellex (Hi-Vis)	Magco CMC (Hi-Vis)	Milchem CMC (Hi-Vis)	For fluid-loss control and viscosity building in low-solids muds.
Polyanionic Cellulosic Polymer	DRISPAC	Drispac	Drispac	Drispac	Fluid-loss control additive and viscosifier in salt muds.
Polyanionic Cellulosic Polymer	DRISPAC SUPERLO	Drispac Superlo	Drispac Superlo	Drispac Superlo	Primary fluid-loss additive, secondary viscosifier in water-base muds.
*Sodium Polyacrylate	IMCO SP-101				Fluid-loss control in calcium-free low solids and nondispersed muds.

*Cypan and WL-100 are sold by American Cyanamid and Rotary Engineering, respectively.

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COMPARABLE MUD PRODUCTS BY TRADE NAMES (Continued)

Description or Principal Component	IMCO SERVICES	Baroid	Magcobar	MI	Primary Application
LUBRICANTS, DETERGENTS, EMULSIFIERS, AND SURFACTANTS					
Extreme Pressure Lubricant	IMCO EP LUBE	EP Mud Lube	Bit Lube	Lubri-Film	Used in water-base muds to impart extreme pressure lubricity
Processed Hydrocarbons	SOLTEX	Soltex	Soltex	Soltex	Used in water-base muds to lower downhole fluid loss and minimize heaving shale.
Water Dispersible Asphalts	IMCO HOLECOAT		STABIL-HOLE	ITI-WD	Lubricant and fluid-loss reducer for water-base muds that contain diesel or crude oil.
Oil Dispersible Asphalts	IMCO MUD OIL	Baroid Asphalt	Pave-A-Hole	Carbo-Seal	Lubricant and fluid-loss reducer for water-base fluids that contain diesel or crude oil.
Oil Soluble Surfactants	IMCO FREEPIPE	Skot-Free	Pipe Lax	Pe[illegible]	Nonweighted fluid for spotting to free differentially stuck pipe.
Detergent	IMCO MD	Con Det	D-D	Milchem MI	Used in water base muds to aid in dropping sand, emulsifies oil, reduces torque and minimizes bit-balling.
Blend of Anionic Surfactants	IMCO SWS	Trimulso	Salinex	Attapulgite Additive S	Emulsifier for saltwater and fresh-water muds
An Organic Fatty Nitrogen Derivative Amines	IMCO LUBRIKLEEN	Torq Trim	DOS-3	Mil-Pick 2	Supplies the lubricating properties of oils without environmental pollution
Blend of Fatty Acids, Sulfonates, and Asphaltic Materials	IMCO SPOT	SF 100			Invert emulsion that may be weighted to desired density for placement to free differentially stuck pipe.
DEFOAMERS, FLOCCULANTS, AND BACTERICIDES					
Aluminum Stearate	Aluminum Stearate	Aluminum Stearate	Aluminum Stearate	Aluminum Stearate	Defoamer for lignosulfonate muds
Liquid Surface-Active Agent	IMCO DEFOAM L				Defoamer for all water-base muds.
Surface-Active Dispersible Liquid Defoamer	IMCO FOAMBAN	W200 W300		LD-7	All-purpose defoamer.
Flocculating Agent	IMCO FLOC	Barafloc	[illegible]it	Separan	Used to drop drilled solids where clear water is desirable for a drilling fluid.
Blended Solutions	IMCO CIDE				Bactericide used to prevent fermentation.
LOST CIRCULATION MATERIALS					
Fibrous Material	IMCO FYBER	Fibertex	Mud Fiber	Mil-Fiber	Filler as well as matting material.
Nut Shells: Fine	IMCO PLUG	Wall-Nut	Nut-Plug	Mil-Plug	Most often used to prevent lost circulation.
Medium	IMCO PLUG	Wall-Nut	Nut-Plug	Mil-Plug	Used in conjunction with fibers or flakes to regain lost circulation.
Coarse	IMCO PLUG	Wall-Nut	Nut-Plug	Mil-Plug	Used where large crevices or fractures are encountered.
Ground Mica: Fine	IMCO MYCA	Micatex	Magco-Mica	Milmica	Used for prevention of lost circulation.
Coarse	IMCO MYCA	Micatex	Magco-Mica	Milmica	Forms a good mat at face of wellbore.
Cellophane	IMCO FLAKES	Jel Flake	Cell-O-Seal	Milflake	Used to regain lost circulation.
Combination of granules, flakes, and fibrous materials of various sizes in one sack	KWIKSEAL	Kwik-Seal	Kwik-Seal	Kwik-Seal	Used where large crevices or fractures are encountered.

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COMPARABLE MUD PRODUCTS BY TRADE NAMES (Continued)

Description or Principal Component	IMCO SERVICES	Baroid	Magcobar	Milchem	Primary Application
SPECIALTY PRODUCTS					
Bentonite Extender	IMCO GELEX	Benex	Benex	Bene-	Increases yield of bentonite to form very low-solids drilling fluid.
Inhibiting Agent	IMCO IE PAC				Imparts high-temperature fluid-loss control, temperature stability and increased inhibition.
Synergistic Polymer Blend	IMCO POLY Rx		Resinex		Rheological stabilization and filtration control.
Biodegradable Surfactant	IMCO FOAMANT				Foaming agent in air or mist drilling.
High-Temperature Polymer	IMCO DRILTHERM				High-temperature fluid-loss control.
Multipurpose Polymer	IMCO POLYSAFE				Polymer for fluid-loss control.
COMMERCIAL CHEMICALS					
Chromate	Sodium Chromate	Sodium Chromate	Sodium Chromate	-ium -romate	Used in water-base muds to prevent high-temperature gelation.
Sodium Hydroxide	Caustic Soda	Caustic Soda	Caustic Soda	Caustic Soda	For pH control in water-base muds.
Sodium Carbonate	Soda Ash	Soda Ash	Soda Ash	Soda Ash	For treating out calcium sulfate in low pH muds.
Sodium Bicarbonate	Sodium Bicarbonate	Sodium Bicarbonate	Sodium Bicarbonate	Sodium Bicarbonate	For treating out calcium sulfate or cement in high pH muds.
Barium Carbonate	Barium Carbonate	Anhydrox	Barium Carbonate	Barium Carbonate	For treating out calcium sulfate (pH should be above 10 for best results).
Calcium Sulfate	Gypsum	Gypsum	Gypsum	Gypsum	Source of calcium for formulating gyp muds.
Calcium Hydroxide	Lime	Lime	Lime	Lime	Source of calcium for formulating lime muds.
Sodium Chloride	Salt	Salt	Salt	Salt	For saturated salt muds and resistivity control.
Chrome Alum (chromic chloride)	Chrome Alum	Chrome Alum	Chrome Alum	Chrome Alum	For use in cross-linking XC Polymer systems.
OIL-MUD ADDITIVES					
Primary Emulsifier	IMCO KENOL-S (L) and IMCO KEN-X Conc. #1(L)	Invermul	Vertoil	Carbo-Tec (D) and Carbo-Tec (L)	Primary additives to form stable water-in-oil emulsion.
Viscosifier and Gelling Agent	IMCO KEN GEL and IMCO KEN-X CONC.#2	Gel-Tone and Petro-Tone	VG-69	Carbo-Gel	Provides viscosity, weight suspension, and filtration control.
High-Temperature Stabilizer	IMCO KEN-X Conc. #3	Duratone [illegible]	DV-33 and V-33		Improves emulsion under high-temperature conditions.
Stabilizes Borehole Conditions	IMCO VR				Stabilizes running shale, improves emulsion, weight suspension, and fluid loss under high-temperature conditions.
CORROSION INHIBITORS					
Zinc Compound	IMCO SULF-X II				For use as a hydrogen sulfide scavenger in water-base and oil-base muds.
Liquid Corrosion Inhibitor	IMCO CHACK CHEK				Prevent stress cracking of drill strings in an H_2S environment.
A Catalyzed Ammoninium Bisulfite	IMCO XO_2	Coat 777	A-202		For use as an oxygen scavenger.
Filming Amine	IMCO X-CORR				Corrosion inhibitor.

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COMPARABLE MUD PRODUCTS BY TRADE NAMES (Continued)

Description or Principal Component	IMCO SERVICES	Baroid	Magcobar	Milchem	Primary Application
CORROSION INHIBITORS (Continued)					
Filming Amine	IMCO PERMAFILM				Corrosion inhibitor.
Organic Polymer	IMCO SCALECHEK				Scale inhibitor.
Calcium Oxide	IMCO KENOX				Calcium source for saponification.
Fatty Acid Emulsifier	IMCO KEN SUPREME Conc. A		Oilfaze		Primary emulsifier and stabilizer for oil-base drilling fluids.
Emulsion Stabilizer	IMCO KEN SUPREME Conc. B		DC [illegible]		Imparts gels, contributes to viscosity for weight suspension, and provides filtration control.
Specially Modified Saponified Fatty Acid Chemicals	IMCO KEN PAK	SF-100			Gelling agent for formulating high-gelation casing packs.
Wetting Agent and Dispersant	IMCO KEN CAL-L				Wetting agent and dispersant for oil muds for the reduction and/or stabilization of viscosity.

NOTES

19[illegible] CO SERVICES, A Division of HALLIBURTON Company. All Rights Reserved.

Exhibit 9

ARCO OIL & GAS COMPANY

A DIVISION OF

ATLANTIC RICHFIELD COMPANY

SOUTH PASS BLOCK 60

SUPPLEMENTAL DEVELOPMENT OPERATIONS COORDINATION DOCUMENT

PLATFORMS "C" AND "E"

OCS-G-1608

AIR EMISSIONS DATA REPORT

June 26, 1985

AIR EMISSIONS DATA

A. Summary of Operations

This air emissions report is being submitted with the Supplemental Development Operations Coordination Document dated June 26, 1985, for South Pass Block 61 Field, South Pass Block 60, Platforms "C" and "E". These platforms are located approximately 13 miles southeast of Port Eads, which is the nearest onshore population center.

H&P Rig 101 is currently drilling on Platform "E." It will be used for drilling the remaining approved wells as well as 11 new proposed wells - 4 on Platform "C" and seven on Platform "E" (see well schedule - Exhibit #3 of DOCD).

The following is a description of rig engines and platform equipment along with an estimate of total expected yearly emissions from these two platforms:

H&P Rig #101

1. Prime Movers - Four V-16 Caterpillar G-399's Engines
   Natural gas fueled, 870 BHP each. Average of two are used 75% in drilling mode at 75% load, 25% non-drilling mode at 25% load.
   (75% X 75% X 1740) + (25% X 25% X 1740) = 1088 HP/HR average

2. Crane - Unit Mariner 650-H
   GM 8V-92N diesel engine, 355 BHP. Used 30% of the time and operates at 50% load.
   50% X 355 = 177.5 HP/HR average.

3. Cementing Unit
   a. Two GM 8V-71N diesel engine driven pumps, 333 rated BHP, average of 5% actual use at continuous rating.
   b. One GM 3-71N diesel cement mixer, 90 rated BHP, 67 continuous BHP, average of 5% actual use at continuous rating.

4. Emergency Rig Generator
   Caterpillar D-379 V-8 diesel, 715 continuous BHP at 1300 RPM, used for emergency back-up. Not figured into total emissions.

Note: All rig engine exhaust stacks at ±85'.

Platform "C" Equipment

1. Two Solar "Saturn" turbine engines - generators
   Natural gas fueled, 1000 HP each
   Only one used at a time, the other is backup. Exhaust stack at ±65'.

2. Pump Down Pump - driven by Detroit Diesel 6-71N
   Diesel fueled, 230 HP at 2100 RPM maximum.
   Used about 10% of the time. Exhaust stack at ±65'.

3. Platform Crane - Detroit Diesel 7-71 rated at 93 continuous BHP. Average of 30% actual use. Exhaust stack at ±85'.

Platform "E" Equipment

1. Two Solar "Centaur" turbine engines
   Natural gas fueled, 3800 HP each at 22,000 RPM
   Only one usually in operation. Exhaust stack at ±65'.

2. One Solar "Saturn" turbine engine
   Natural gas fueled, 1000 HP at 15,000 RPM
   Exhaust stack at ±65'.

3. Two Waukesha L7042 engines for generators
   Natural gas fueled, 710 continuous HP at 900 RPM
   Exhaust stack at ±65'.

4. Fire water pump driven by Detroit Diesel 12V-71
   Diesel fueled, 460 HP at 2100 RPM
   Only run for emergencies and maintenance. Not figured in total emissions. Exhaust stack at ±65'.

5. Platform crane - Detroit Diesel 4-71 rated at 93 continuous BHP. Average of 30% actual use. Exhaust stack at ±85'.

B. Calculations of Emission Exemption - Part 250.57-101

Exemption Formulas:
1. $33.3\ D$ for NO_x, SO_2, TSP, THC each
2. $3400\ D^{2/3}$ for CO

Where D = distance for shore defined as landward of the mean high water mark, approximately 13 miles from shore to South Pass Block 60, Platform "C".

Maximum Allowables:
1. $33.3 \times 13 = 433$ tons/year each of NO_x, SO_2, TSP, THC
2. $3400 \times 13^{(2/3)} = 18{,}798$ tons/year for CO

C. EPA AP-42 Emission Factors

	DIESEL FUELED INTERNAL COMBUSTION ENGINE (#/HP-HR)
NO_x	0.030837
CO	0.006674
SO_2	0.0020507
TSP	0.0022026
THC	0.002467

*NOTE: Total Hydrocarbons (THC) as methane and non-methane

NATURAL GAS FUELED

	INTERNAL COMBUSTION ENGINE (#/1000 HP-HR)		TURBINE ENGINE (#/1000 HP-HR)	
	EPA's AP-42 Emission Factors		EPA's AP-42 Emission Factors
NO_x	24	NO_x	2.9
CO	3.1	CO	1.1
SO_2	.004	SO_2	.004
TSP	-	TSP	-
*THC	9.7	*THC	.2

*Total Hydrocarbons (THC) as methane and non-methane.

EMISSION TOTALS
(tons/year)

South Pass Block 60, Platform "C"

Emission Source	NO_x	CO	SO_2	TSP	THC
Drilling-H&P 101					
Prime Movers	146.95	31.80	9.77	10.50	11.76
Crane	7.19	1.56	.48	.51	.58
Cement Unit-Pump	2.25	.49	.15	.16	.18
Cement Unit-Mixer	.45	.10	.03	.03	.04
Production					
Saturn Turbine	12.70	4.82	.02	--	.88
Pump Down Pump	3.11	.67	.21	.22	.25
Platform Crane	3.77	.82	.25	.27	.30
Totals	175.42	40.26	10.91	11.69	13.99

South Pass Block 60, Platform "E"

Emission Source	NO_x	CO	SO_2	TSP	THC
Drilling-H&P 101					
Prime Movers	146.95	31.80	9.77	10.50	11.76
Crane	7.19	1.56	.48	.51	.58
Cement Unit-Pump	2.25	.49	.15	.16	.18
Cement Unit-Mixer	.45	.10	.03	.03	.04
Production					
Centaur Turbines	48.27	18.31	.07	--	3.33
Saturn Turbines	12.70	4.82	.02	--	.88
Generators	149.27	19.28	.02	--	60.33
Platform Crane	3.77	.82	.25	.27	.30
Totals	370.85	77.18	10.79	11.47	77.40

The general equation used for calculation of the tabulated expected air emissions for a particular piece of equipment is given by:

(a) Expected Air Emissions (Tons/Year)

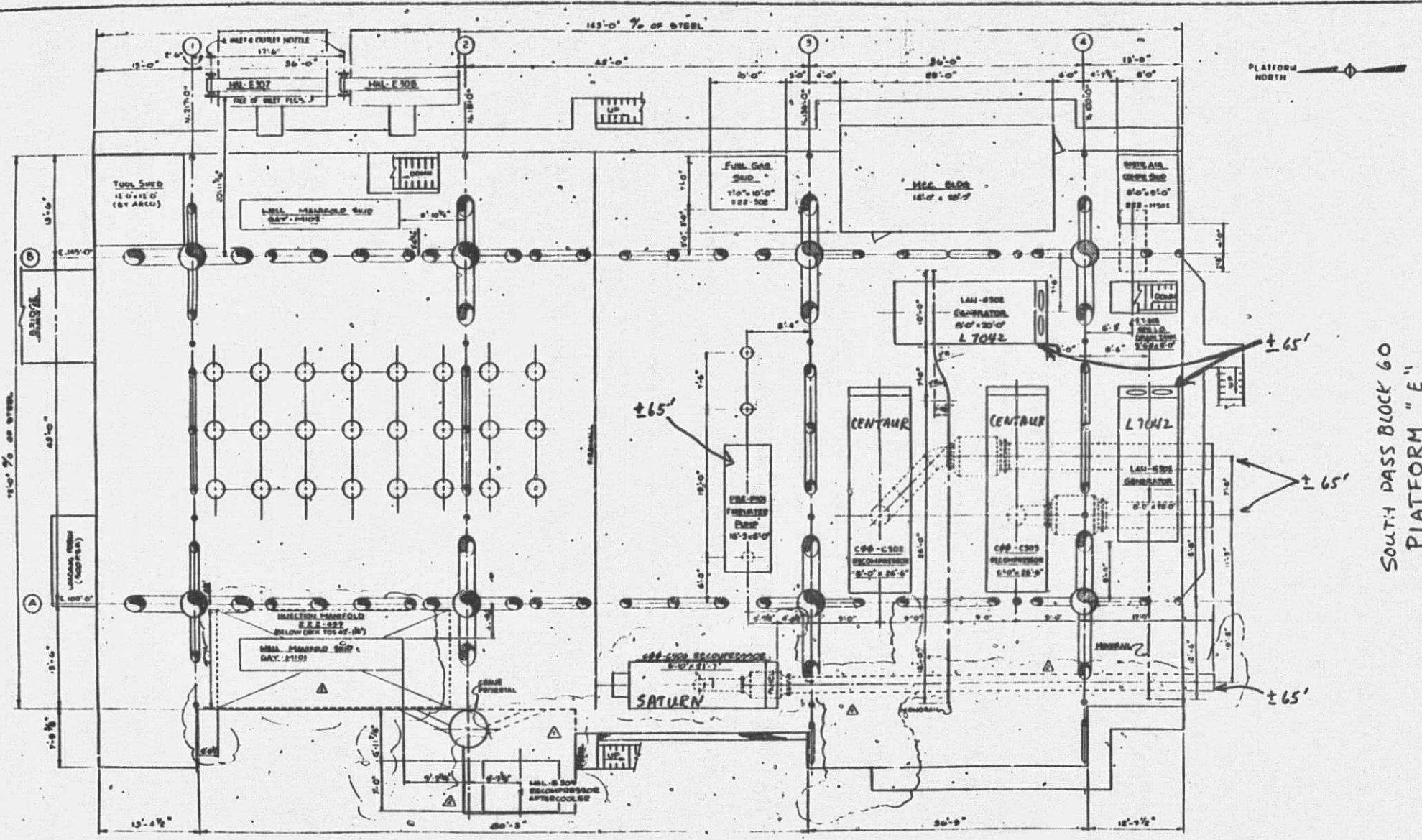
= [Continuous BHP of Equipment] x [% Actual Use] x [% Operating Power]

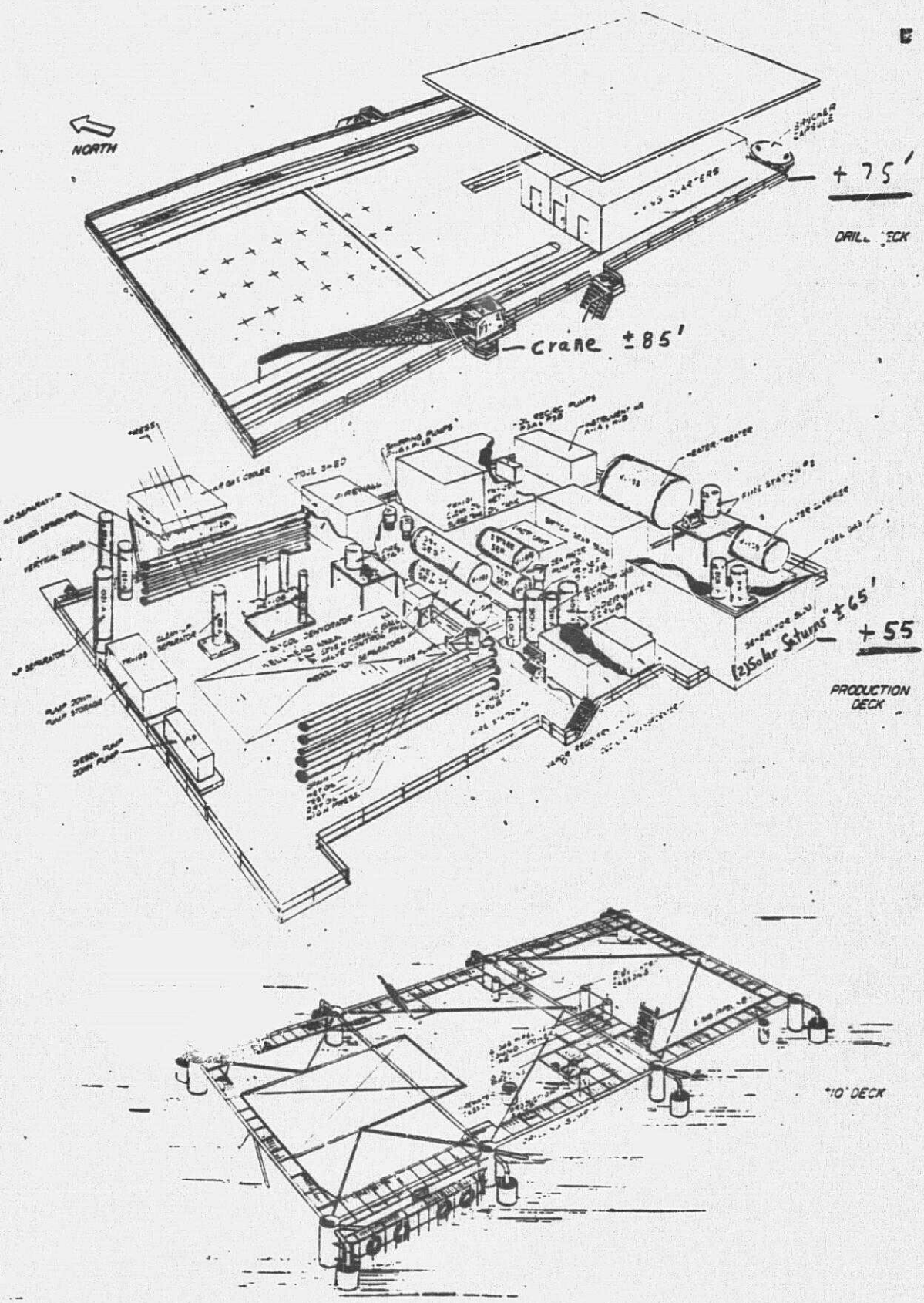
x [Appropriate Air Emission Factor, lbs/HP-HR]
x [1/2000 lbs/ton] x [24 Hr/Day]

An example of the use of the above equation is given below:

The expressed yearly air emission of NO_x in tons/year for the two Waukesha 7042 generator engines on Platform "C" is:

Expected NO_x Air Emissions From the Waukesha 7042 Generator Engine on "C" Platform = 2[710 (HP/HR)] x [24 (lbs NO_x/1000 HP-HR] x [365 days/year] x [1 ton/2000 lbs] x [24 Hrs/Day] = 149.27 tons/year of NO_x air emissions


PLATFORM NORTH
TOOL SHED
HRL MANIFOLD SKID
FUEL GAS SKID
MCC BLDG
LAN-6501 GENERATOR
L 7042
CENTAUR
CENTAUR
L 7042
±65'
±65'
±65'
±65'
SATURN
INJECTION MANIFOLD
HRL MANIFOLD SKID
SOUTH PASS BLOCK 60
PLATFORM "E"



ATLANTIC RICHFIELD COMPANY
SOUTH PASS BLOCK 60
PLATFORM 'C'

(Decks same on Platform "E")

6

59

17

60

ARCo
LA-13737
11-1-79
1656.93 Ac

ARCo
LA-13738
11-1-79
907.26 Ac

C-44
X= 2,760,128
Y= 157,770
TVD = 6300'

C-43
X= 2,756,908
Y= 156,170
TVD= 5500'

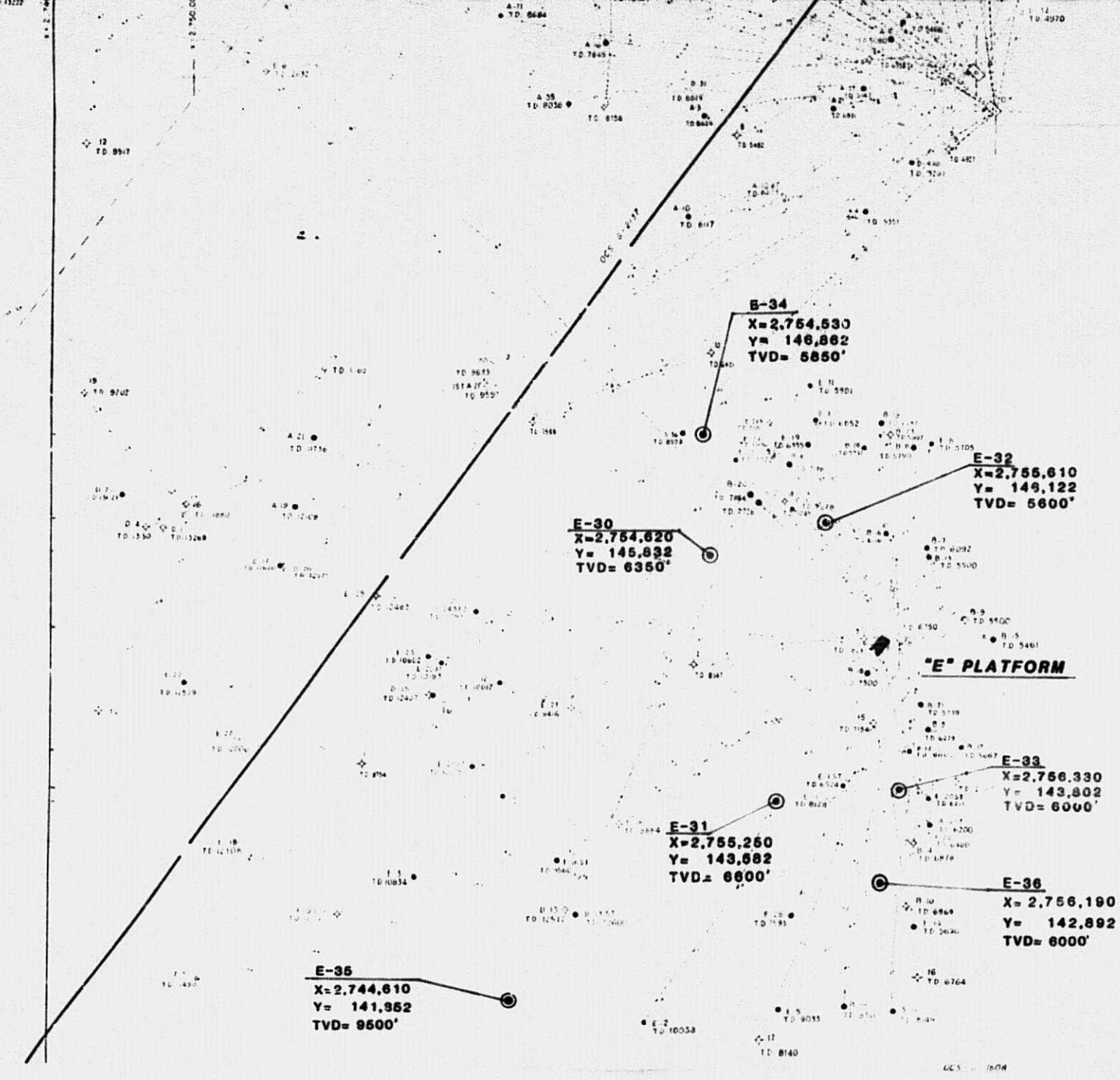
C-42
X=2,757,778
Y= 156,480
TVD= 5500'

C-30ST#1
X=2,759,155
Y= 156,940
TVD= 5400'

APPROXIMATE POSITION OCS-G 2943

"C" PLATFORM

AREA
DITION



SOUTH PASS AREA

SOUTH PASS - EAST ADDITION

31-14612 32

Exhibit 4

ARCO Oil and Gas Company

South Louisiana District

AREA EASTERN OFFSHORE

LOCATION SOUTH PASS BLOCK 61 FIELD

HORIZON **SPIDER MAP**

SCALE _____ CONTOUR INTERVAL

INTERPRETED BY _____ DATE

WELLS INJECTING INTO THIS ZONE

WELLS PRODUCING FROM THIS ZONE