DATE 2-18-86

TO: OPS-3-4

FROM: RP-2-1

Unit plan of Exploration/DOCD and Environmental Report,

Lease(s) OCS-~~G~~ 42,163,164,1769 Control No. T 435 .

ODECO OIL & GAS COMPANY

SUPPLEMENTAL UNIT PLAN OF DEVELOPMENT

NO. 14-08-001-2931

SHIP SHOAL BLOCK 113 UNIT

YEAR 1986

SUBMITTED BY: E. S. Breda

E. S. Breda
Oil & Gas Supervisor

DATE: FEB 7 1986

INDEX

ODECO OIL & GAS COMPANY
SUPPLEMENTAL UNIT PLAN OF DEVELOPMENT NO. 14-08-001-2931
YEAR 1986

I. Additional Plan for Year 1986

This supplemental plan proposes six locations to be drilled in 1986. These wells were submitted in our original annual plan. Some questions were raised by MMS concerning their locations to close proximity of pipeline and/or flowline. In order to expedite approval of plan for those locations that were not questioned, we deleted from the original plan these wells that are now being resubmitted. Note, two well locations are being changed from the original submission-namely OCS 064 #64, and OCS 063 #53. The other four locations are the same. Section III deals with resolution of the location questions.

A. OCS-042 #22, Ship Shoal Block 94
Surface Location: 1480' FSL and 1050' FEL of Block 94
BHL: 2818' FSL and 2421' FEL of Ship Shoal Block 94
Proposed TD: 13,350' SS
Objective: Pliocene & Miocene sands - See geological program
Date: Commence 5/15/86 Complete 7/15/86

B. OCS-063 #50, Ship Shoal Block 93
Surface Location: 3550' FNL and 7350' FWL of Ship Shoal Block 93
BHL: Straight Hole
Proposed TD: 12,500' SS
Objective: Pleistocene & pliocene sands - See geological program
Date: Commence 8/1/86 Complete 9/15/86

C. OCS-063 #53, Ship Shoal Block 93 (Note - revised surface location)
Surface Location: 630' FNL and 3845' FWL of Ship Shoal Block 114
Proposed TD: 11,900' SS
Objective: Pleistocene & pliocene sands - See geological program
Date: Commence 9/15/86 Complete: 11/1/86

D. OCS-064 #64, Ship Shoal Block 114 (Note - revised surface location)
Surface Location: 2005' FSL and 920' FWL of Ship Shoal Block 114
Proposed TD: 7,000' SS
Objective: Pleistocene & pliocene sands - See geological program
Date: Commence 3/1/86 Complete: 4/15/86

E. OCS-064 #66, Ship Shoal Block 114
Surface Location: 1920' FSL and 3200' FWL of Ship Shoal Block 114
BHL: Straight Hole
Proposed TD: 10,500' SS
Objective: Pleistocene & pliocene sands - See geological program
Date: Commence 9/15/86 Complete: 10/18/86

F. OCS-069 #20, Ship Shoal Block 119 (Note - revised surface location)
Surface Location: 4950' FNL and 8300' FEL of Ship Shoal Block 119
BHL: Straight Hole
Proposed TD: 10,000' SS
Objective: Pleistocene & pliocene sands - See geological program
Date: Commence 4/15/86 Complete: 5/15/86

II. Resolution of Well Locations to Close Proximity of Pipelines

A. OCS 042 #22: According to our flowline plat on scale of 1" = 500' this location is approximately 250' from a gas lift line. Prior to moving the rig on location the lines will be located and buoyed - Refer to enclosed plat depicting the position which the drill barge "Ocean Pride" will assume on location.

B. OCS 063 #50: According to our flowline plat on a scale of 1" = 500', this location is approximately 240' from a 4" flowline. Prior to moving the rig on location, the line will be located and buoyed. Refer to enclosed plat depicting the position which the drill barge "Ocean Pride" will assume on location.

C. OCS 063 #53: The location being submitted has been moved 130' South of the originally proposed location, therefore, this location is clear of any pipeline.

D. OCS 064 #64: The location being submitted has been moved 95' N and 238' W of the originally proposed location. Our pipeline plat on a scale of 1" = 500' shows this new location to be 200' from a 4" flowline. Prior to moving on location this line will be located and buoyed. Refer to the enclosed plat depicting the position which the drill barge "Ocean Pride" will assume on location.

E. OCS 064 #66: According to our flowline plat on a scale of 1" to 500', this location 375' from a 4' flowline. Prior to moving the rig on location, the line will be located and buoyed. Refer to the enclosed plat depicting the position which the drill barge "Ocean Pride" will assume on location.

F. OCS 069 #20: According to our flowline plat on scale of 1" = 500', this location is 450' from an existing pipeline. Prior to moving the rig on location, the line will be located and buoyed. Refer to the enclosed plat depicting the position which the drill barge "Ocean Pride" will assume on location.

III. Estimated Production Rates and Depletion Schedule

A. Rates --

Type wells, type completion and initial flow rates.

Lease	Well/ Completion	Oil Rate BOPD	Gas Rate MCF/D
OCS 042 #22	Single Oil	300	300
OCS 063 #50	Single Oil	1400	1500
OCS 063 #53	Dual Oil & Gas	320	2300
OCS 064 #64	Dual Oil	700	580
OCS 064 #66	Single Oil	400	400
OCS 069 #20	Single Oil	500	250

B. Depletion Schedule

1. OCS 042 #22

Year	Oil - Bbls.	Gas-MMCF
1986	82,125	82
1987	108,851	109
1988	77,136	77
1989	43,992	44
1990	25,091	25
1991	45,742	46
1992	41,342	41
1993	14,454	15

III. B. 2. OCS 063 #50

Year	Oil - Bbls	Gas - MMCF
1987	255,256	276
1988	511,000	551
1989	511,000	551
1990	510,633	551
1991	507,623	548
1992	484,945	523
1993	375,778	406
1994	131,235	142
1995	48,453	52
1996	14,871	16

3. OCS 063 #53

Year	Oil - Bbls	Gas - MMCF
1986	19,459	139
1987	111,148	834
1988	52,475	575
1989	16,208	205
1990	27,885	78
1991	59,373	60
1992	2,852	3

4. OCS 064 #64

Year	Oil - Bbls	Gas - MMCF
1987	255,500	212
1988	215,530	185
1989	118,644	105
1990	59,094	55
1991	26,593	26
1992	14,639	15

5. OCS 064 #66

Year	Oil - Bbls	Gas - MMCF
1987	109,500	109
1988	144,736	145
1989	99,662	100
1990	55,402	55
1991	30,798	31
1992	17,120	17
1993	2,782	3

6. OCS 069 #20

Year	Oil - Bbls	Gas - MMCF
1987	182,500	91
1988	154,500	77
1989	77,733	39
1990	37,605	19
1991	18,193	9
1992	1,969	1

IV. Well Connection and tie-in data

A. OCS-042 #22, lay a 3" flowline to the OCS-042 #19 structure, a distance of 600'. The No. 19 structure carries production to the B platform production facility in Block 114. Commencement date for tie-in 7/15/86, complete 7/20/86.

B. OCS-063 #50, lay a 4" flowline to the B platform producing facility in Block 114, a distance of 1125' Commencement date for tie-in 9/15/86, complete 9/20/86.

C. OCS-063 #53, (surface Blk. 114), lay a 4" flowline to the B platform, a distance of 1700'. cement date for tie-in 11/1/86, complete 11/6/86.

D. OCS-064 #64, lay a 4 owline to the OCS 064 #36, a distance of 1150'. Well #36 routes production to the SOB production facility in Block 114, Commencement date for tie-in 4/15/86, Complete 4/20/86.

E. OCS-064 #66, lay a 3" flowline to the SOB Header Production facility, a distance of 1150'. Commencement date for tie-in 10/15/86, complete 10/20/86.

F. OCS-069 #20, lay a 3" flowline to the 069 #6 structure, a distance of 1800'. The #6 structure routes production to the E platform production facility in Block 118. Commencement date for tie-in 5/15/86, complete 5/22/86.

V. Drilling Rigs and Production Facilities:

A. Drill Barge: Plans are to utilize the "Ocean Pride" - See attachments for rig details. No additional personnel will be added offshore or onshore as a result of drilling activities.

B. Production facilities serving the Ship Shoal Units consists of the B. J. and Header platform (formerly the S.O.B.) in Block 114, the E structure in Block 118, and the K structure in Block 120. Separation of liquids from gas takes place at each platform.

Oil/Condensate is metered at each structure and routed via pipeline to our onshore terminal at Cocodrie, La. Gas is metered at each structure and is being sold to Transcontinental Gas Pipeline Corporation. Gas from the entire unit is transported to North Terrebonne Gas Processing Plant. No additional personnel offshore or onshore are anticipated to handle production.

VI. Oil Spill Contingency Plan

Odeco Oil & Gas Company fulfills its oil spill contingency plan by being a member of Clean Gulf Associates, P. O. Box 51239, New Orleans, LA 70151, an agency which handles clean up operations in the event of an oil spill. Fast Response Service can be obtained by calling Halliburton Services in Harvey, LA (504) 366-1735.

A. Estimated deployment time of the equipment to this area is 12 hours.

B. Description of clean up equipment.

1. Fast Response System Model I consists of:

a. Primary and auxilliary skid with 180 bbl. tank on each skid
b. One "Don Wilson" skimmer
c. One basket and one lot of Bennet oil boom section
d. Fire extinguisher skid

VI. B. 2. Fast Response, Model II consists of:

a. Section of floating oil boom
b. Skimmer
c. Outrigger
d. Pump
e. Two skid mounted storage tanks of 180 bbls. each

3. High volume open sea skimmer system (HOSS Barge).

4. Shallow water skimmer system.

5. Auxilliary shallow water skimmer and booms.

6. Helicopter spray system (HUSS Units).

7. Waterfowl rehabilitation units and bird scarers.

8. Miscellaneous material.

9. Radio Systems.

VII. Fuel Consumption

A. Drilling Operations

The drilling rig uses an average of 50 bbls. of diesel fuel per day during drilling operations. Each supply boat uses approximately 25 bbls. (42 gal/bbl) of diesel per day. Two boats service each drilling rig daily.

	BOATS	RIG
Approx. Rig Days	255	255
Bbls./Day consumption	x 50	x 50
Total Fuel Consumption	12,750 bbls.	12,750 bbls.

B. Production Operations

1. Six production boats routinely service production facilities in Ship Shoal 113 Unit. Each boat consumes approximately 30 bbls. diesel per day.

Operating Days per year	255
(6 boats x 30 bbls.)	x 180
Consumption for year	45,900 bbls.

2. Gas consumption to entire unit 1900 MCF/D.

Operating days per year	255
	x 1900
Gas consumption per year	484,500 MCF

VIII. Safety Standards and Programs

A. Production Facilities

All production facilities are constructed and installed to meet MMS and Coast Guard Standards for safety and protection of the environment.

A Safety and Training Department is maintained to continually monitor and train personnel in the conduct of safe operations. Our training program emphasizes the adherence to existing MMS and environmental regulations.

Safety engineers monitor the operation for compliance with all safety standards. Safety meetings are held with the operating personnel to review these safety standards. Operational personnel attend schools for firefighting, first aid, and operation of special equipment, such as, cranes and safety devices used in the production of oil and gas.

VIII. B. Drilling Operations

ODECO believes the safety of its employees is directly proportional to each employee's skills and knowledge of the work to be performed. To improve these skills and increase this knowledge, a "Rig Crew Training Program" has been instituted. This program provides the necessary on-the-job training to enable each employee to make a planned progression from roustabout to driller. It consists of on-site video cassette programs, International Association Drilling Contractors approved "Home Study Courses". Minerals Management Service required Crane Operating and Blow Out Prevention training and United States Coast Guard's seamen's training. All employees must pass required testing in each of these courses. A pay incentive is included to encourage employee participation. In addition, this program is supported by generally accepted methods of rig inspections, drills and safety meetings which ate in compliance with U.S.C.G. and MMS standards which, we believe will ultimately enhance the safe work performance of our employees.

IX. Base of Operation

A. Marine service to service drilling operations is provided from LAMCO dock in Dulac, LA. A limited amount of marine service is provided from Cocodrie, LA to service our Cocodrie Terminal which receives crude from the Ship Shoal Block 113 Unit.

B. Air Service (helicopter) is provided from Houma, LA.

X. Type Drill Mud to be Used and Chemical Components

A. Bariod

B. Chemical Components

Aktaflo-S	Mixed oxyethlated phenols
Aluminum Stearate	$(CH_3 (CH_2)_{16}COO)_3AL$
Aquagel	Sodium montmorillonite
Bariod	Barium Sulfate
Bicarbonate of Soda	$Na NCO_3$
Carbonox	Lignitic humic acid powder
Caustic Soda	Sodium Hydroxide
CC-16	Caustized Carbonox
Cellex	Sodium Carboxymethylcellulose
Dextrid	Dextrinized polysaccharide powder
HME	Selective, nonionic surfactant - Chemco product
Impermex	Starch
Lime	Calcium Hydroxide
Micatex	Mica Flakes
Q-Broxin	Ferrochrome lignosulfonate
Sapp	Sodium acid pyrophosphate
Soda Ash	Sodium Carbonate
Sodium Chromate	Sodium Chromate
Soltex	Hydrocarbon powder
Superdril	Gilsonite
Torq-Trim	Biodegradable, non toxic lubricant
Wall-Nut	

XI. Gaseous Emission Data

A. Emission Data

1. Rig: Drill barge "Ocean Pride" will be used the entire year. Emissions are calculated on 255/day basis. Stated in (lbs./day) Tons/255 days. See attachment for basis of calculations.

   a. CO (529.99) 75.60
   b. Hydrocarbon (127.62) 16.27
   c. NO_x (3768.05) 87.68
   d. SO_2 (41.21) 5.25
   e. Particules (197.26) 25.15

2. Helicopters - See attachment for emission/hour use.

   a. Drilling use: Estimate 74 round trips in 255 days, two and one half per round trip = 185 hours operating time. Stated in (lbs./day) Tons per 255 days, based on average hours used.

      1. CO (.36) .05
      2. Hydrocarbon (.07) .01
      3. NO_x (1.60) .20
      4. SO_2 (10.31) 1.31
      5. Particules (.07) .01

   b. Production use: Estimate 510 round trips in 255 days, two and one half hours per round trip = 1275 hours operating time. Stated in lbs./days, Tons/255 days, based on average hours used.

      1. CO (2.50) .32
      2. Hydrocarbon (.50) .06
      3. NO_x (11.00) 1.40
      4. SO_2 (71.00) 9.05
      5. Particules (1.00) .13

3. Boats - See attachment for emission/hr. use

   a. Drilling use (crew) - 182 round trips in 255 days at 5 hours per round trip = 910 hours.
      (Supply) - 110 trips in 255 days at 11 hours round trip = 1210 hours. 910 + 1210 = 2126 operating hours. Stated in (lbs./day) Tons/255, based on average hours used.

      1. CO (58.39) 7.44
      2. Hydrocarbon (20.73) 2.64
      3. NO_x (260.40) 33.20
      4. SO_2 (17.42) 2.22
      5. Particules (19.07) 2.43

   b. Production Use - 6 boats in use. Each is estimated to average 5 hours running time per day. 30 hours per day x 255 days = 7,650 operating hours. Stated in (lbs./day), Tons/255 days based on averaged hours used.

      1. CO (204.00) 26.01
      2. Hydrocarbon (75.00) 9.56
      3. NO_x (942.00) 120.11
      4. SO_2 (63.00) 8.03
      5. Particules (69.00) 8.80

XI. A. 4. Supply Base - 30 ton crane estimated use in 255 days = 1020 hours. Stated in (lbs./days) Tons/255 days. Based on average hours used. See attachment for emissions rate calculations.

a. CO (15.08) 1.93
b. Hydrocarbon (1.40) .18
c. NO_x (36.72) 4.68
d. SO_2 (1.88) .24
e. Particules (2.00) .26

B. Exemptions: Distance from shore 17 miles.

1. Hydrocarbons, NO_x, SO_2, Particules - 33.3 x 17 = 566.10 tons/365 days for each or 566.10 x 4 - 2264.40 tons/365 days.

2. CO (3400 x 17 2/3) or 1389 tons/365 days

XII. Attachments

A. General vicinity map

B. Pipeline maps - four sheets

C. Rig positioning plats - five sheets

D. Geological Programs

1. OCS-042 #22 with structure map, salt map and shallow hazards letter

2. OCS-063 #50 with structure map, and shallow hazards letter.

3. OCS-063 #53 with structure map, top of salt map, and shallow hazards letter.

4. OCS-064 #64 with structure map, top of pressure map and shallow hazards letter.

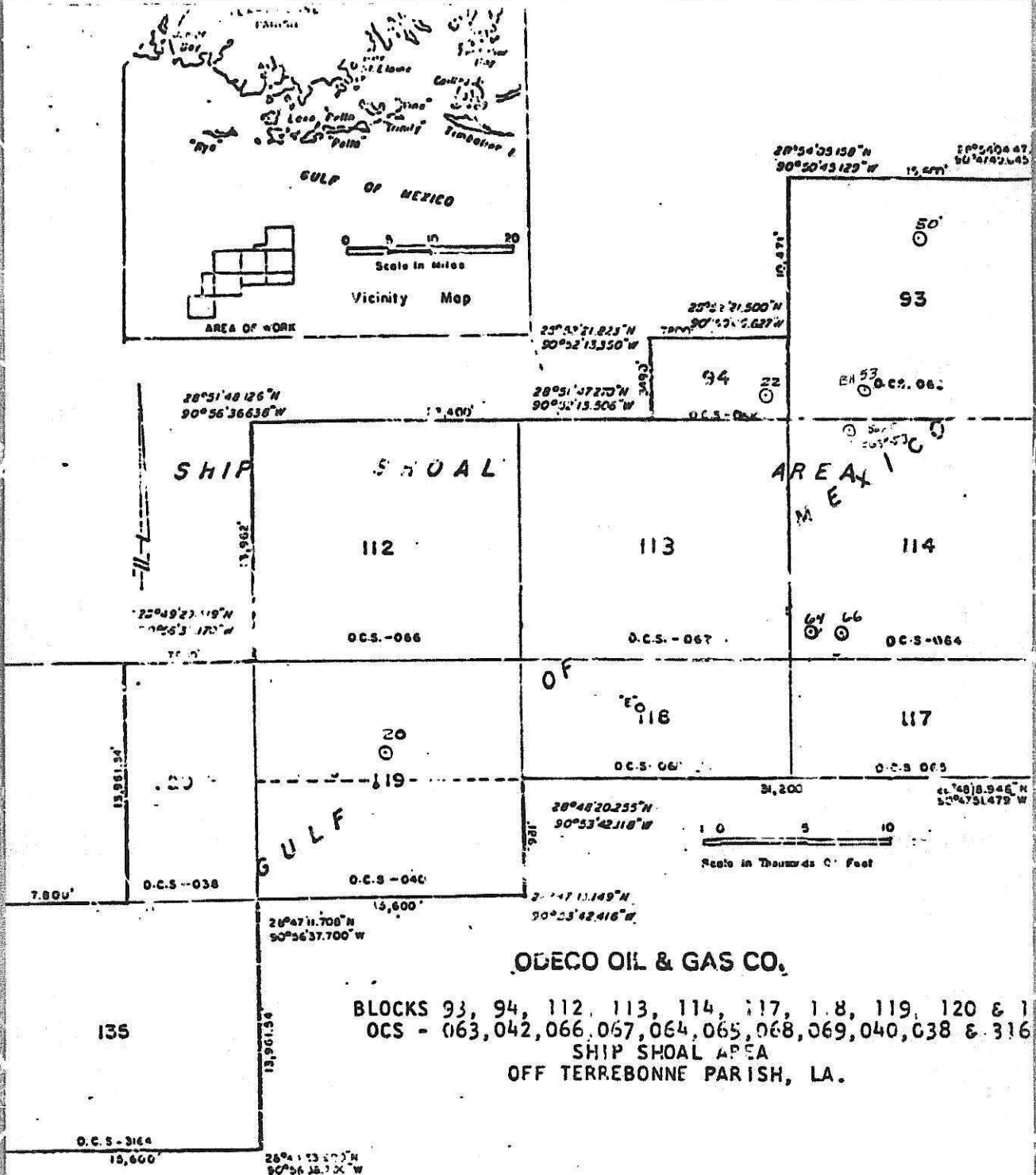
5. OCS-064 #66 with structure map and shallow hazards letter.

6. OCS-069 #20 with stucuture map, top of pressure map and shallow hazards statement.

E. Schematic of drill barge, Ocean Pride with list of components, schematic of diverter and list of operational procedures, and statement of pollution control.

F. Summary of gaseous emissions for drill barge "Ocean Pride" with basis of calculations.

G. Basis of calculations of gaseous emissions for boats, helicopter and supply base.



ODECO OIL & GAS CO.

BLOCKS 93, 94, 112, 113, 114, 117, 118, 119, 120 & 135
OCS - 063,042,066,067,064,065,068,069,040,038 & 3164
SHIP SHOAL AREA
OFF TERREBONNE PARISH, LA.

Buda

ODECO OIL AND GAS COMPANY

October 23, 1985

GEOLOGICAL PROGRAM AND WELL RECOMMENDATION
OCS-G-042 WELL NO. 22 - SHIP SHOAL BLOCK 94

LOCATION:	Surface:	1480' FSL and 1050' FEL of Ship Shoal Block 94
	Target No. 1:	1800' FSL and 1350' FEL of Block 94 @ 11,200' ss (RE-1 Sand)
	Tolerance:	North 100' South 100' East 100' West 100'
	Target No. 2:	2100' FSL and 1670' FEL of Block 94 @ 12,100' ss (M-1 Sand)
	Tolerance:	North 100' South 100' East 100' West 100'
	Target No. 3:	2700' FSL and 2300' FEL OF Block 94 @ 13,140' ss (M-6 Sand)
	Tolerance:	North 100' South 100' East 100' West 100'
	PBHL:	2,818' FSL and 2,421' FEL of Ship Shoal Block 94
	KOP:	10,399' ss
	Hole Angle:	39°
TOTAL DEPTH:		13,350' ss
WELL CLASSIFICATION:		Development

Geological Program and Well Recommendation
OCS-G-042 Well No. 22 - Ship Shoal Block 24
October 23, 1985

LOGGING SERVICES:

1.) ISF - Induction Spherically Focused

Run No. 1 - 700' - 4,000' ss

Run No. 2 - 4,000' - 13,350' ss

2.) FDC/CNL/GR - Formation Density Compensated/ Compensated Neutron Log/Gamma Ray

Over potential hydrocarbon bearing zones as indicated by ISF.

3.) SWS - Sidewall Samples

In porous and resistive zones as indicated by the ISF.

4.) HRD - High Resolution Dipmeter

Run No. 1 - 5,000' ss - 13,350' ss

GEOLOGICAL PROGNOSIS:

0'ss - 5,400'ss	Pleistocene
5,400'ss -12,350'ss	Pliocene
12,300'ss -13,350'ss	Miocene

WELL OBJECTIVES: This subject well will be drilled updip to OCS-042 Wells No. 7, 14 and 19, and programmed to evaluate productive Lower Pliocene and Upper Miocine Sands. The well will top the RE-1 Sand at 11,300'ss in an untested fault block updip to Well No. 19 with 23 NFO. Nearby Well No. 20 with 28 NFO is fault separated from the subject well and produced 250 MBO and 1.6 BCFG from this sand.

At the M-1 Sand the well will top this sand at 12,100' ss approximately 180 ft. updip to wells No. 14 (ST-1) with 15 NFO and production of 336 MBO and .5 BCFG and Well No. 19 with 23 HRO. For the M-6 Sand Well No. 19 noted 32 NFG/FBS and downdip Well No. 7 observed 100' NFO and is still producing with over 2919 MBO and 6 BCFG. The subject well is designed to encounter this sand in the oil leg at 13,150'ss updip to Well No. 7.

Salt nor abnormal pressure is expected to be seen at this location.

Submitted By: W. E. Martin III

W. E. Martin, III
Development Geologist

Geological Program and Well Recommendation
OCS-G-042 Well No. 22 - Ship Shoal Block 94
October 23, 1985

Approved by: C. R. Brammell

C. R. Brammell
Manager
Development Geology

TELEX: 50-4124
PHONE: 504-561-2811

ODECO

ODECO OIL & GAS COMPANY

ODECO BUILDING • 1600 CANAL STREET
MAIL TO: P.O. BOX 61780, NEW ORLEANS, LA. 70161

October 25, 1985

Mr. John D. Borne
District Supervisor
Minerals Management Service
1700 Grand Caillou Road
Post Office Box 10145
Houma, Louisiana 70361

Re: SHALLOW DRILLING HAZARD REPORT
SHIP SHOAL BLOCK 94
OCS-G-042 WELL NO. 22

Dear Sir:

Geophysical Data in the vicinity of the ODECO Oil & Gas Company's proposed location has been reviewed and no shallow drilling hazards are apparent on fair to good quality seismic data.

Seismic lines OS-779 and OS-780 were reviewed for this proposal and are indicated on the attached plat.

In addition, a log of well OCS-G-042 No. 19 was checked and no hazardous conditions were encountered.

Drilling in this field is based on seismic amplitude anomalies and structural closure ranging from -8,000' to -11,000'. Minor gas zones are expected within this interval and are not expected to be hazardous.

Sincerely yours,

M. S. Alspaugh
Geophysicist

MSA/mac

Attachment

ODECO OIL AND GAS COMPANY

November 22, 1985

REVISION NO. 1

GEOLOGICAL PROGRAM AND WELL RECOMMENDATION
OCS-G-063 WELL NO. 50 - SHIP SHOAL BLOCK 93

LOCATION: 3,550' FNL and 7,350' FWL of Ship Shoal Block 93

TOTAL DEPTH: 12,500'ss

WELL CLASSIFICATION: Development

LOGGING SERVICES:

1.) ISF - Induction Spherically Focused

Run No. 1 - 800'ss - 3500'ss

Run No. 2 - 3500'ss - 12500'ss

2.) FDC/CNL/GR - Formation Density Compensated/ Compensated Neutron Log/Gamma Ray

Over potential hydrocarbon bearing zones as indicated by the ISF.

3.) SWS - Sidewall Samples

In porous and resistive zones as indicated by the ISF.

4.) HRD - High Resolution Dipmeter

Run No. 1 - 10,000'ss - 12,500'ss

GEOLOGICAL PROGNOSIS:

0'ss - 4900'ss	Pleistocene
4900'ss - 12500'ss	Pliocene

WELL OBJECTIVES: This well is designed as a recovery well for the M-8 Sand secondary recovery water injection project. The M-8 Sand is expected by 12,200'ss and to be 55' in thickness. Neither salt nor abnormal pore pressures is anticipated by total depth.

Submitted by: _____

John R. Breen
Staff Geologist

Approved by: C. R. Brammell

C. R. Brammell
Manager - Development Geology

TELEX: 58-4124
PHONE: 504-561-2811

ODECO OIL & GAS COMPANY

ODECO BUILDING • 1600 CANAL STREET
MAIL TO: P.O. BOX 61780, NEW ORLEANS, LA. 70161

October 25, 1985

Mr. John D. Borne
District Supervisor
Minerals Management Service
1700 Grand Caillou Road
Post Office Box 10145
Houma, Louisiana 70361

Re: SHALLOW DRILLING HAZARD REPORT
SHIP SHOAL BLOCK 93
OCS-G-063 WELL NO. 50

Dear Sir:

Geophysical Data in the vicinity of the ODECO Oil & Gas Company's proposed location has been reviewed and no shallow drilling hazards are apparent on fair to good quality seismic data.

Seismic lines OS-783 and OS-1508 were reviewed for this proposal and are indicated on the attached plat.

In addition, a log of well OCS-G-063 No. 38 was checked and no hazardous conditions were encountered.

Drilling in this field is based on seismic amplitude anomalies and structural closure ranging from -8,000' to -11,000'. Minor gas zones are expected within this interval and are not expected to be hazardous.

Sincerely yours,

M. S. Alspaugh
Geophysicist

MSA/tac

Attachment

ODECO OIL AND GAS COMPANY

January 27, 1985

GEOLOGICAL PROGRAM AND WELL RECOMMENDATION
OCS-G-063 WELL NO. 53 - SHIP SHOAL BLOCK 93

Revision No. 1
Revised due to Pipelines

LOCATION:	Surface:	630' FNL and 3845' FWL of Ship Shoal Block 114
	Target No. 1:	350' FNL and 3875' FWL of Ship Shoal Block 114
	Tolerance:	150' North 150' South 150' East 150' West
	Target No. 2:	25' FSL and 3950' FWL of Ship Shoal Block 93
	Tolerance:	150' North 150' South 150' East 150' West
	Target No. 3:	1025' FSL and 4150' FWL of Ship Shoal Block 93
	Tolerance:	150' North 150' South 150' East 150' West
	PBHL:	1800' FSL and 4300' FWL of Ship Shoal Block 93
	KOP:	8750'ss
	Hole Angle:	42°
TOTAL DEPTH:		11,900'ss
WELL CLASSIFICATION.		Exploratory

LOGGING SERVICES:

1.) ISF - Induction Spherically Focused

Run No. 1 - Base of Conductor Pipe
800'ss - 4000'ss

Run No. 2 - 4000'ss - 11900'ss

2.) FDC/CNL/GR - Formation Density Compensated/ Compensated Neutron Log/Gamma Ray

Over potential hydrocarbon bearing zones as indicated by the ISF.

3.) SWS - Sidewall Samples

In porous and resistive zones as indicated by the other services.

4.) HRD - High Resolution Dipmeter

Run No. 1 - 9500'ss - 11,900'ss

GEOLOGICAL PROGNOSIS:

0'ss - 4500'ss	Pleistocene
4500'ss - 11900'ss	Pliocene

WELL OBJECTIVES: This well will test the C-1, C-3 and C-8 Sands in an untested fault block separated from the ODECO S.L. 778 #18 and the Magnolia S.L. 770 B-3. The #18 well found 30 net feet of oil, full to base in the C-1 Sand and 12 net feet oil on water in the C-3 Sand. The B-3 well found 90 net feet of gas, full to base in the C-8 Sand and produced more than 2 BCF prior to sanding up while shut in for a hurricane.

The deeper C-series Sands are secondary objectives of this well. While, these sands are untested on the northeast flank of the S.S. Block 113 dome they have been productive in a number of wells on the northern flank of the dome. The C-12/13 Sand has produced from the #4 well in S. S. Block 93 and the #2 and #4 wells in S. S. Block 94. The #1 well in Block 93 and the #4 and #5 wells in Block 94 have produced in the C-14 Sand and had hydrocarbon shows in the C-17 Sand.

The well is designed to follow the salt-sediment interface down through the prospective section in order to see each sand in a high structural position.

It should be possible to drill the proposed well without encountering pressure. Geopressured section occurs in this area just below the C-17 Sand. The transition from normal pressure to geopressure is rapid.

Submitted by: William E. Schramm

William E. Schramm
Development Geologist

Approved by: C. R. Brammell

C. R. Brammell
Manager - Development Geology

TELEX: 58-4124
PHONE: 504-561-2811

ODECO

ODECO OIL & GAS COMPANY

ODECO BUILDING • 1600 CANAL STREET
MAIL TO: P.O. BOX 61780, NEW ORLEANS, LA. 70161

October 25, 1985

Mr. John D. Borne
District Supervisor
Minerals Management Service
1700 Grand Caillou Road
Post Office Box 10145
Houma, Louisiana 70361

Re: SHALLOW DRILLING HAZARD REPORT
SHIP SHOAL BLOCK 93
OCS-G-063 WELL NO. 53

Dear Sir:

Geophysical Data in the vicinity of the ODECO Oil & Gas Company's proposed location has been reviewed and no shallow drilling hazards are apparent on fair to good quality seismic data.

Seismic lines OS-841, OS-803, and OS-786 were reviewed for this proposal and are indicated on the attached plat.

In addition, a log of well OCS-G-064 No. 18 was checked and no hazardous conditions were encountered.

Drilling in this field is based on seismic amplitude anomalies and structural closure ranging from -8,000' to -11,000'. Minor gas zones are expected within this interval and are not expected to be hazardous.

Sincerely yours,

M. S. Alspaugh
Geophysicist

MSA/tac

Attachment

ODECO OIL AND GAS COMPANY

January 20, 1986

GEOLOGICAL PROGRAM AND WELL RECOMMENDATION
OCS-G-064 WELL NO. 64 - SHIP SHOAL BLOCK 114

Revision No. 1
Revised due to pipelines in area

LOCATION:	Surface:	2005' FSL and 920' FWL of Ship Shoal Block 114
	Target No. 1:	1600' FSL and 1890' FWL of Ship Shoal Block 114 at 8920'ss (C-1 Sand)
	Tolerance:	150' North 150' South 150' East 150' West
	Target No. 2:	1235' FSL and 2750' FWL of Ship Shoal Block 114 at 10,100'ss
	Tolerance:	150' North 150' South 150' East 150' West
	PBHL:	956' FSL and 3405' FWL of Ship Shoal Block 114
	KOP:	7000'ss
	Hole Angle:	38°
TOTAL DEPTH:		11,000'ss
WELL CLASSIFICATION:		Development

LOGGING SERVICES:

1.) ISF - Induction Spherically Focused

Run No. 1 - 800'ss - 3,500'ss
Run No. 2 - 3,500'ss - 10,300'ss
Run No. 3 - 10,300'ss - 11,000'ss

2.) FDC/CNL/GR - Formation Density Compensated/Compensated Neutron Log/Gamma Ray

Over potential hydrocarbon bearing zones as indicated by ISF.

3.) SWS - Sidewall Samples

In porous and resistive zones as indicated by the ISF.

4.) HRD - High Resolution Dipmeter

Run No. 1 - 9,000'ss - 10,300'ss
Run No. 2 - 10,300'ss - 11,000'ss

GEOLOGICAL PROGNOSIS:

0'ss - 4,900'ss	Pleistocene
4,900'ss - 11,000'ss	Pliocene

WELL OBJECTIVES: This well is designed as a replacement well for the 064 No. 10 well drilled on the southeast flank of the dome in 1965. The No. 10 well did not produce the C-9 thru C-13 Sands and this proposed well will recover these oil reserves. Salt is not anticipated at this location, however, abnormal pore pressure is anticipated by 11,000'ss.

Submitted by: John R Breen

John R. Breen
Staff Geologist

Approved by: C. R. Brammell

C. R. Brammell
Manager - Development Geology

TELEX: 58-4124
PHONE: 504-561-2811

ODECO

ODECO OIL & GAS COMPANY
ODECO BUILDING • 1600 CANAL STREET
MAIL TO: P.O. BOX 61780, NEW ORLEANS, LA. 70161

January 20, 1986

Mr. John D. Borne
District Supervisor
Minerals Management Service
1700 Grand Caillou Road
Post Office Box 10145
Houma, Louisiana 70361

Re: SHALLOW DRILLING HAZARD REPORT
SHIP SHOAL BLOCK 114
OCS-G-064 WELL NO. 64

Dear Sir:

Geophysical Data in the vicinity of the ODECO Oil & Gas Compa. proposed location has been reviewed and no shallow drilling hazards are apparent on fair to good quality seismic data.

Seismic lines OS-804 and OS-1014 were reviewed for this proposal and are indicated on the attached plat.

In addition, a log of well OCS-G-064 No. 55 was checked and no hazardous conditions were encountered.

Drilling in this field is based on seismic amplitude anomalies and structural closure ranging from -8,000' to -11,000'. Minor gas zones are expected within this interval and are not expected to be hazardous.

Sincerely yours,

M. S. Alspaugh
Geophysicist

MSA/tac

Attachment

ODECO OIL AND GAS COMPANY

OCTOBER 24, 1985

GEOLOGICAL PROGRAM AND WELL RECOMMENDATION
OCS-G-064 WELL NO. 66 - SHIP SHOAL BLOCK 114

LOCATION: 1,920' FSL and 3,200' FWL of Ship Shoal Block 114

TOTAL DEPTH: 10,500'ss

WELL CLASSIFICATION: Development

LOGGING SERVICES:

1.) ISF - Induction Spherically Focused

Run No. 1 - 800'ss - 3,500'ss

Run No. 2 - 3,500'ss - 10,500'ss

2.) FDC/CNL/GR - Formation Density Compensated Compensated Neutron Log/Gamma Ray

Over potential hydrocarbon bearing zones as indicated by the ISF.

3.) SWS - Sidewall Samples

In porous and resistive zones as indicated by the ISF.

4.) HRD - High Resolution Dipmeter

Run No. 1 - 8,000'ss - 10,500'ss

GEOLOGICAL PROGNOSIS:

0'ss - 4,900'ss	Pleistocene
4,900'ss - 10,500'ss	Pliocene

WELL OBJECTIVES: This well is designed for an additional take point for the C-9 Sand on the southeast flank of the 113 dome. This sand was seen with 64' net oil in the No. 10 well and the C-9 Sand has been mapped with a 694' oil column. Neither salt nor abnormal pore pressure is anticipated at this location.

Submitted by: John R Breen

John R. Breen
Staff Geologist

Approved by: C. R. Brammell

C. R. Brammell
Manager - Development Geology

TELEX: 58-4124
PHONE: 504-561-2811

ODECO

ODECO OIL & GAS COMPANY

ODECO BUILDING • 1600 CANAL STREET
MAIL TO: P.O. BOX 61780, NEW ORLEANS, LA. 70161

October 25, 1985

Mr. John D. Borne
District Supervisor
Minerals Management Service
1700 Grand Caillou Road
Post Office Box 10145
Houma, Louisiana 70361

Re: SHALLOW DRILLING HAZARD REPORT
SHIP SHOAL BLOCK 114
OCS-G-064 WELL NO. 66

Dear Sir:

Geophysical Data in the vicinity of the ODECO Oil & Gas Company's proposed location has been reviewed and no shallow drilling hazards are apparent on fair to good quality seismic data.

Seismic lines OS-1014 and OS-804 were reviewed for this proposal and are indicated on the attached plat.

In addition, a log of well OCS-G-064 No. 39 was checked and no hazardous conditions were encountered.

Drilling in this field is based on seismic amplitude anomalies and structural closure ranging from -8,000' to -11,000'. Minor gas zones are expected within this interval and are not expected to be hazardous.

Sincerely yours,

Marl S. Alspaugh

M. S. Alspaugh
Geophysicist

MSA/tac

Attachment

ODECO OIL AND GAS COMPANY

February 5, 1986

GEOLOGICAL PROGRAM AND WELL RECOMMENDATION
OCS-G-069 WELL NO. 20 - SHIP SHOAL BLOCK 119

Revision No. 1

LOCATION: Surface: 4950' FNL and 8300' FEL of Ship Shoal Block 119

TOTAL DEPTH: 10,000' MD

WELL CLASSIFICATION: Exploratory

LOGGING SERVICES:

1.) DIFL - Dual Induction Focused Log/GR/Acoustic

Run No. 1 - Base of Conductor Pipe 600' MD to 2500' MD

Run No. 2 - 2500' MD to 9400' MD

Run No. 3 - 9400' MD to 10000 MD

2.) FDC/CNL/GR - Formation Density Compensated/ Compensated Neutron Log/Gamma Ray

Over potential hydrocarbon bearing zones as indicated by the DIFL.

3.) SWS - Sidewall Samples

In porous and resistive zones as indicated by the DIFL.

4.) Velocity Survey

To be run from the base of surface casing to total depth.

GEOLOGICAL PROGNOSIS:

0' - 6000'	Pleistocene
6000' - TD	Pliocene

Geol[illegible] Program and Well Recommendation
OCS- Well No. 20 - Ship Shoal Block 119
Revis[illegible] No. 1
February 5, 1986

WELL OBJECTIVES: Well No. 21 will be drilled to offset production in the OCS-G-069 No. 14 well which has produced in excess of 1.1 MMBO in the R-18 Sand from a column of 92 NFO. Well No. 20 will penetrate the R-18 Sand at ±9100'ss in an untested fault block adjacent to the No. 14 well. If the R-18 Sand is found to be productive a decision will be made on running intermediate casing, deepening the well to the PTD of 10,000', and evaluating the C 5/6 Sands. These sands produce from wells in the NW/4 of Blocks 118/119. Gouge/Salt should not be encountered, however abnormal pore pressure (12.5#/gal) will be encountered at ±9300'ss if the well is deepened to PTD.

Submitted by: R. J. Chassaniol

R. J. Chassaniol
Development Geologist

Approved by: C. R. Brammell

C. R. Brammell
Manager - Development Geology

TELEX: 58-4124
PHONE: 504-561-281.

ODECO

ODECO OIL & GAS COMPANY
ODECO BUILDING • 1600 CANAL STREET
MAIL TO: P.O. BOX 61780, NEW ORLEANS, LA. 70161

October 25, 1985

Mr. John D. Borne
District Supervisor
Minerals Management Service
1700 Grand Caillou Road
Post Office Box 10145
Houma, Louisiana 70361

Re: SHALLOW DRILLING HAZARD REPORT
SHIP SHOAL BLOCK 119
OCS-G-069 WELL NO. 20 - Revised

Dear Sir:

Geophysical Data in the vicinity of the ODECO Oil & Gas Company's proposed location has been reviewed and no shallow drilling hazards are apparent on fair to good quality seismic data.

Seismic lines OS-794, OS-793, and OS-770 were reviewed for this proposal and are indicated on the attached plat.

In addition, a log of well OCS-G-069 No. 14 was checked and no hazardous conditions were encountered.

Drilling in this field is based on seismic amplitude anomalies and structural closure ranging from -8,000' to -11,000'. Minor gas zones are expected within this interval and are not expected to be hazardous.

Sincerely yours,

M. S. Alspaugh
Geophysicist

MSA/tac

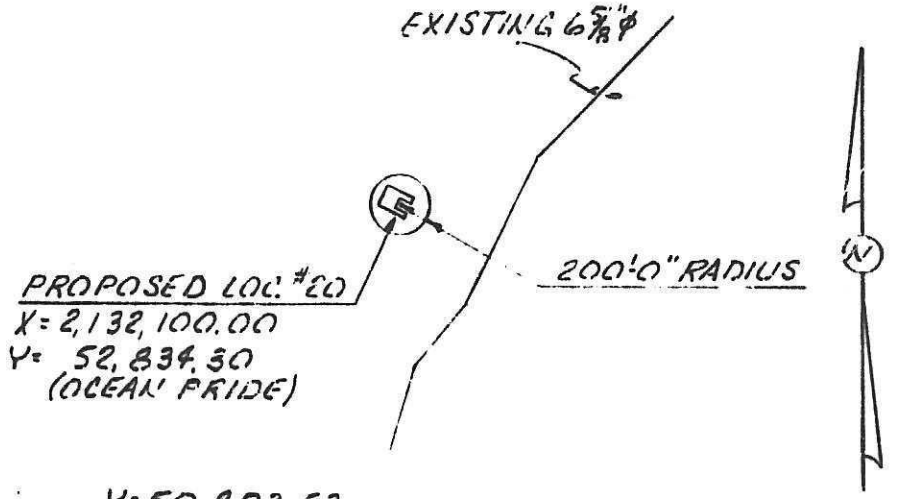
Attachment

Y= 57,784.30

BLOCK 119

OCS-069

SHIP SHOAL AREA



Y= 50,803.53

BLOCK 119

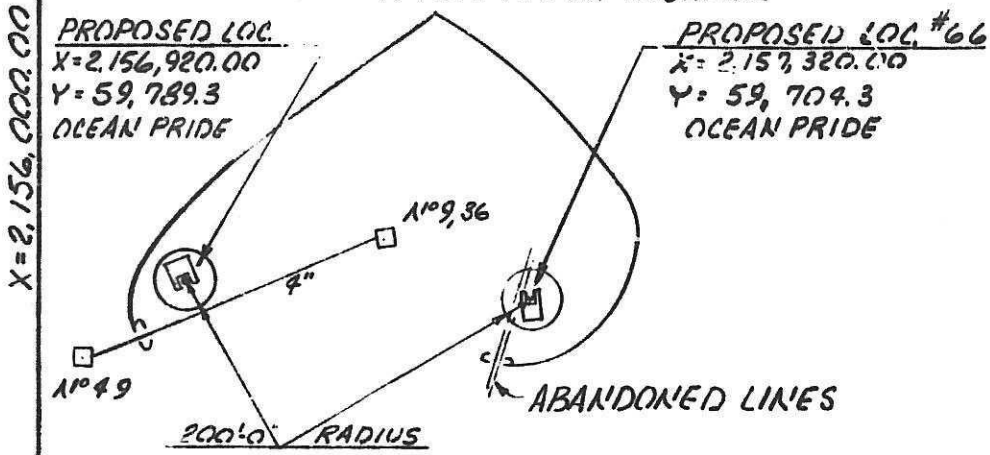
OCS-044

ODECO OIL & GAS COMPANY				
PROPOSED DRILLING LOCATION FOR OCS-069 NO 20 BLK. 119 SHIP SHOAL				
DRAWN	DATE	SCALE	DWG. NO.	
FJR	2-12-86	1"=1,000	0112	

BLOCK 114

OCS-064

EXISTING LINES TO BE
LOCATED & BOUYED PRIOR
TO SPOTTING RIG ON LOCATION



BLOCK 117

OCS-065

SHIP SHOAL AREA

N

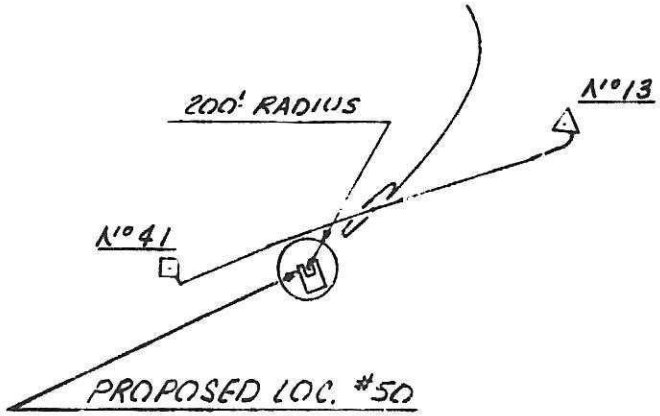
ODECO OIL & GAS COMPANY

PROPOSED DRILLING LOCATIONS FOR OCS-064 #64 & #66 BLOCK 114
SHIP SHOAL AREA

DRAWN	DATE	SCALE	DWG. NO.
FJR	2-12-86	1"=1,000	0110

Y= 85, 707.38

EXISTING LINE LOCATED
BOUYED & MOVED IF NECESSARY
PRIOR TO RIG PLACEMENT

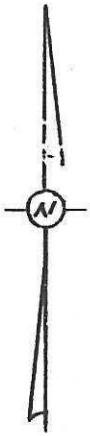


PROPOSED LOC. #50
X= 2,163,350.00
Y= 82,157.38
(OCEAN PATRIOT)

BLOCK 93

OCS-063

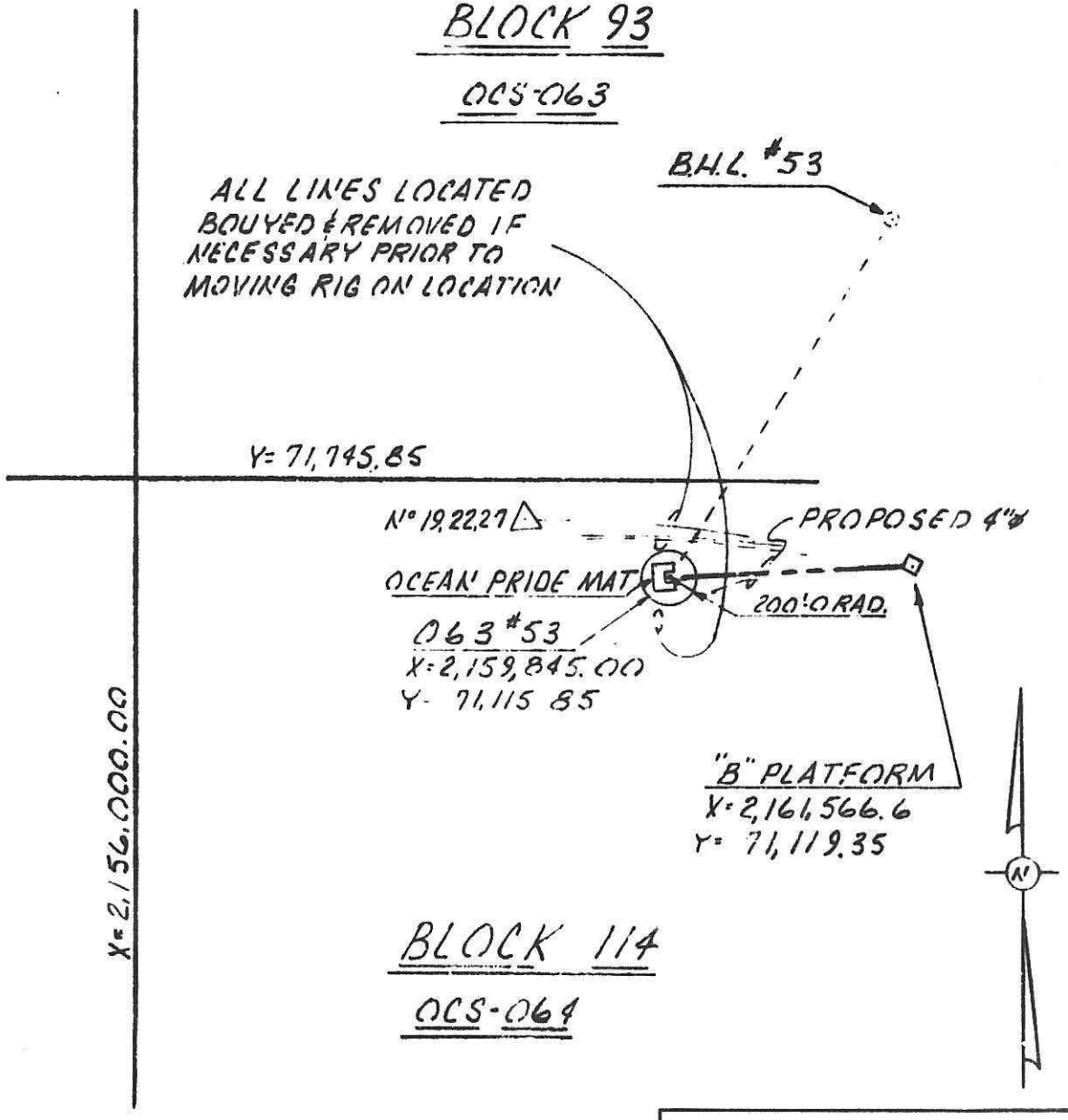
SHIP SHOAL AREA



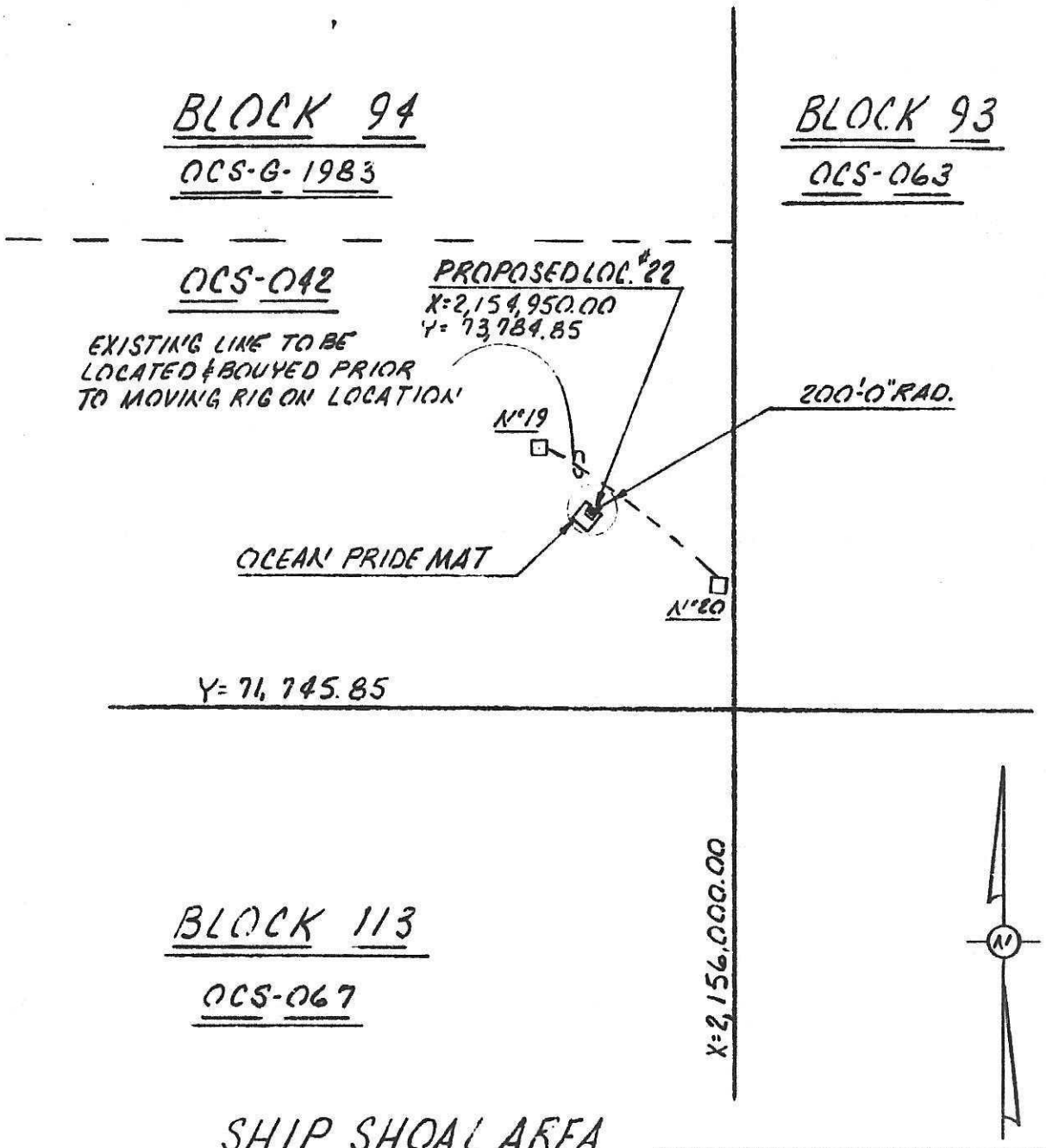
DRAWN	DATE	SCALE	DWG. NO.
FJR	2-12-86	1"=1,000	0111

ODECO OIL & GAS COMPANY

PROPOSED DRILLING
LOCATION OCS-063 #50
BLOCK 93 SHIP SHOAL



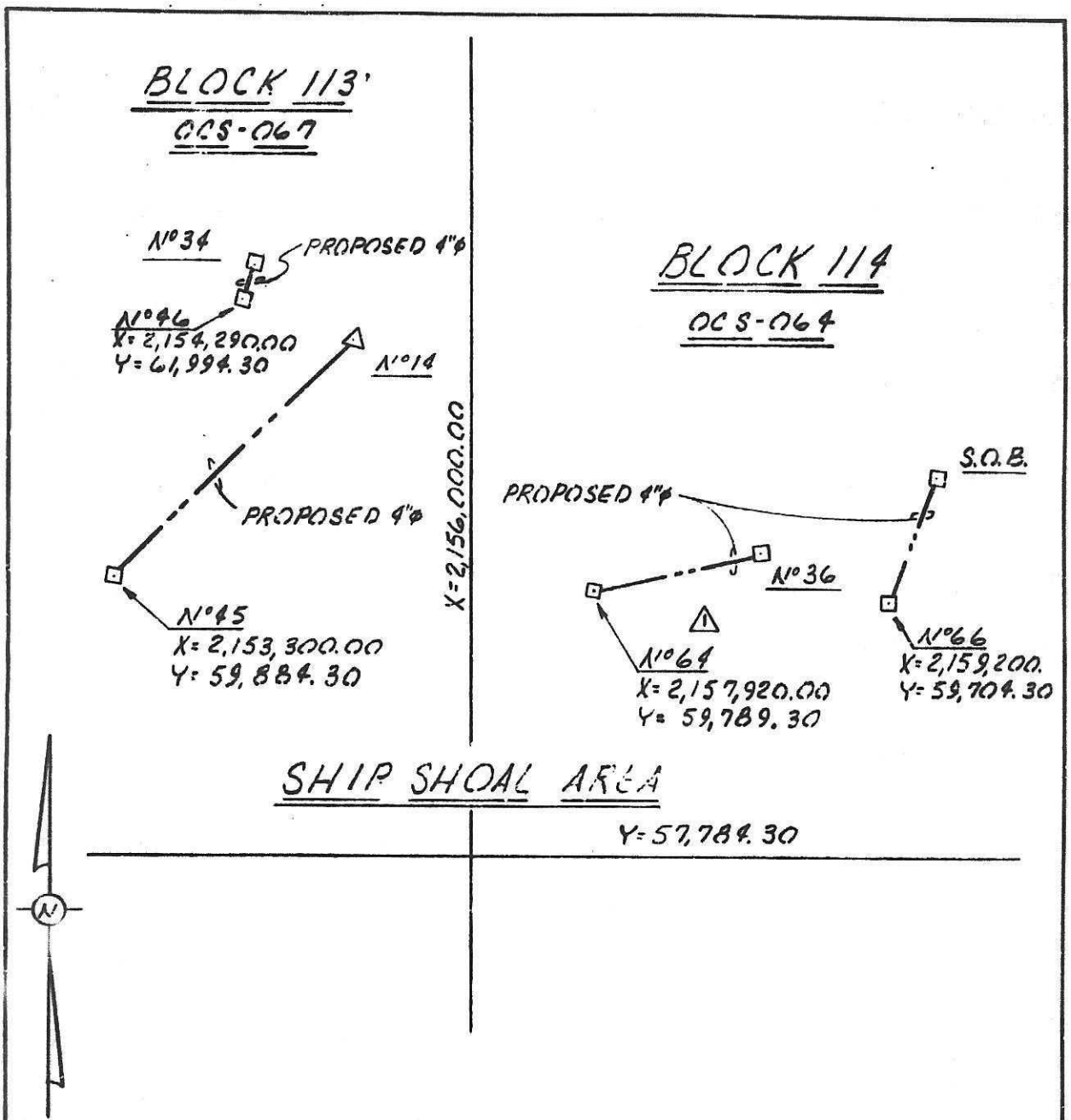
ODECO OIL & GAS COMPANY			
PROPOSED DRILLING LOC. FOR OCS-063 #53 BLK 93 SHIP SHOAL AREA			
DRAWN	DATE	SCALE	DWG. NO.
FJR	2-12-86	1"=1,000	0108



ODECO OIL & GAS COMPANY

PROPOSED DRILLING LOCATION FOR OCS-042 #22 BLOCK 94 SHIP SHOAL AREA

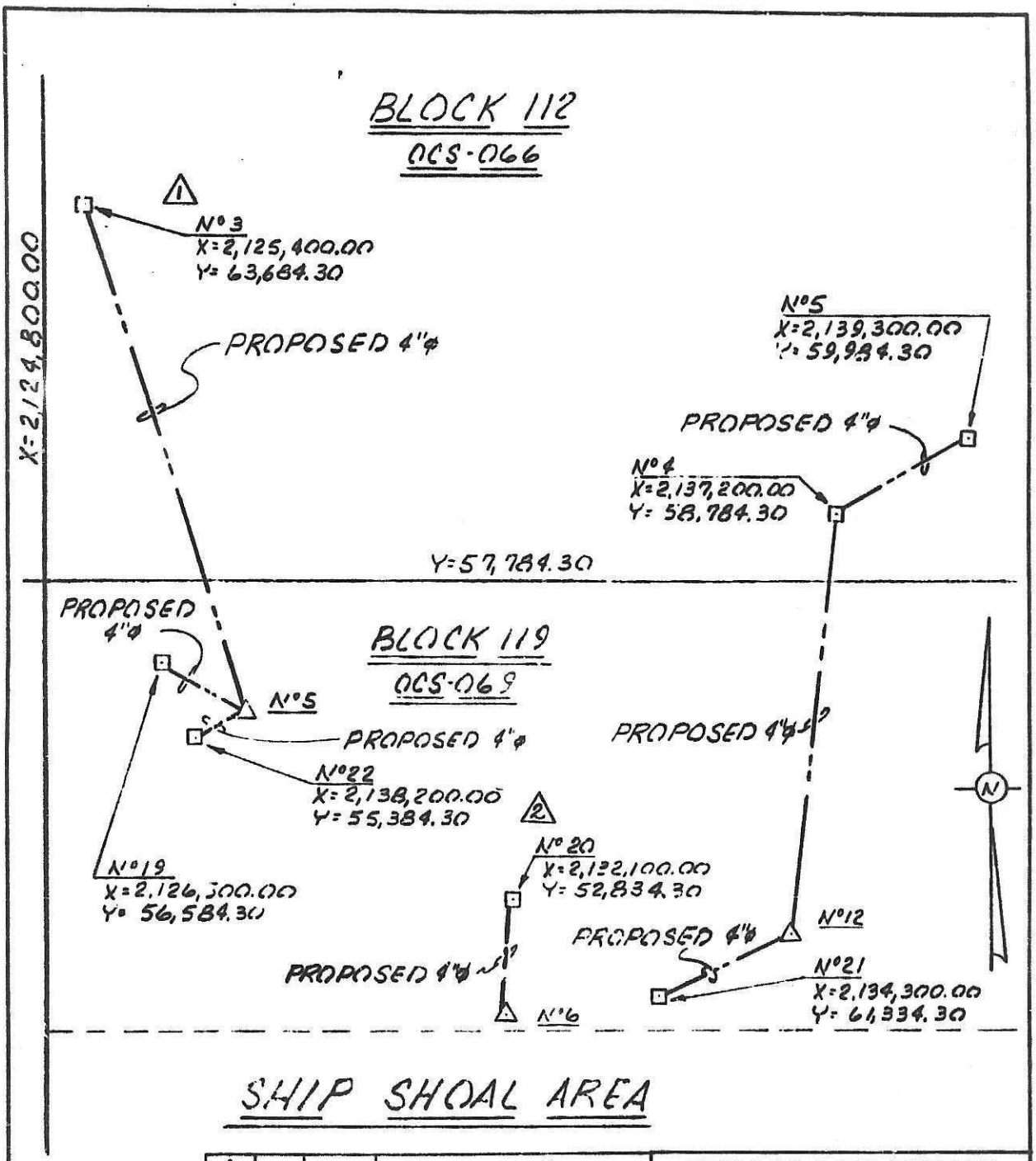
DRAWN	DATE	SCALE	DWG. NO.
FJR	2-12-86	1"=1,000'	0109



1	FJR	2-10-86	RELOCATED 064 #64	
DRAWN	DATE	SCALE	DWG. NO.	
FJR	11-21-85	1"=1,000	0238	

ODECO OIL & GAS COMPANY

FLOWLINE MAP
OCS-064 & OCS-067
BLOCKS 113 & 114
SHIP SHOAL AREA

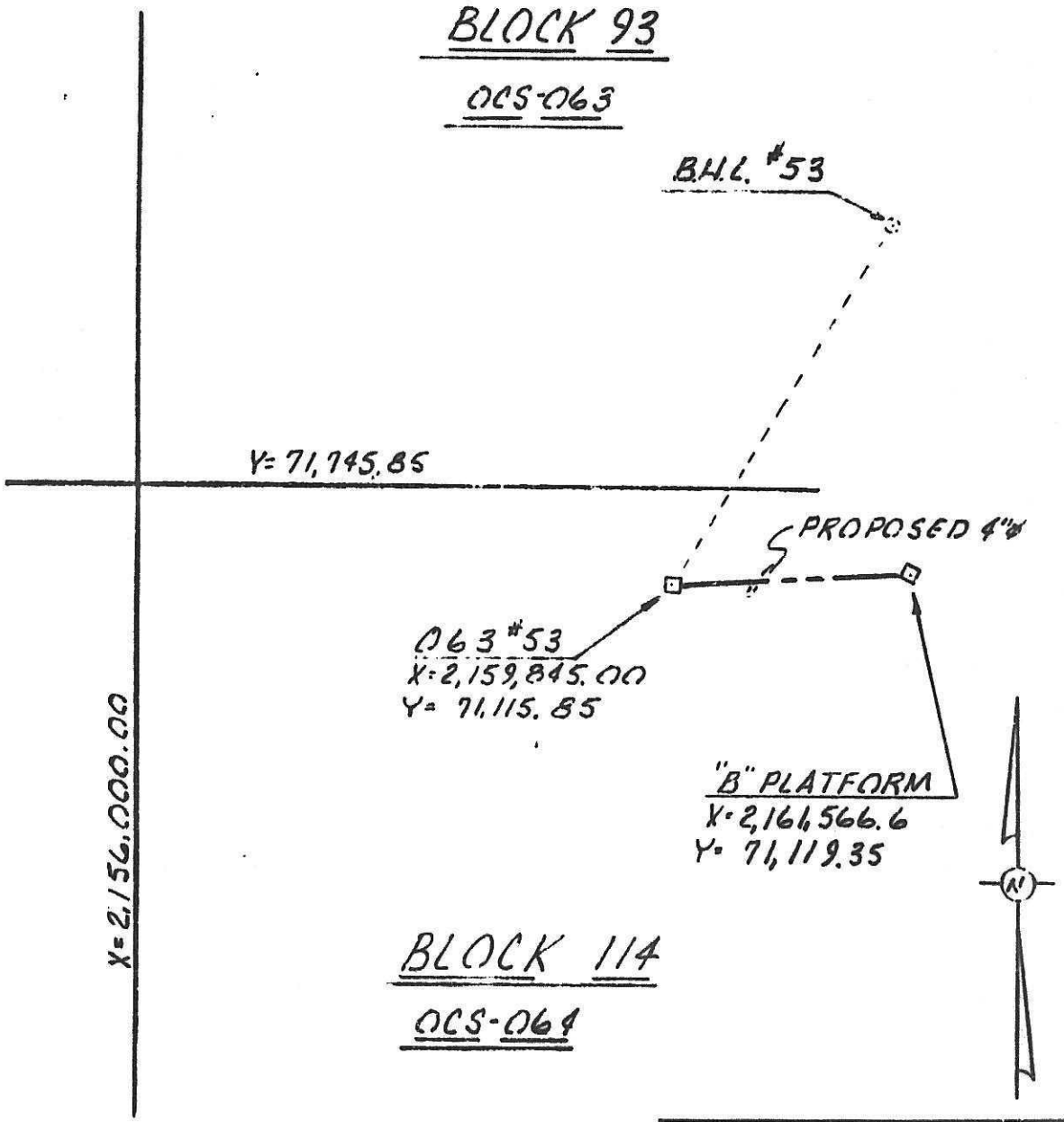


2	FJR	2-10-86	RELOCATE 069 #20	
1	FJR	1-2-86	REV. LOC. OF OCS-066 #3	

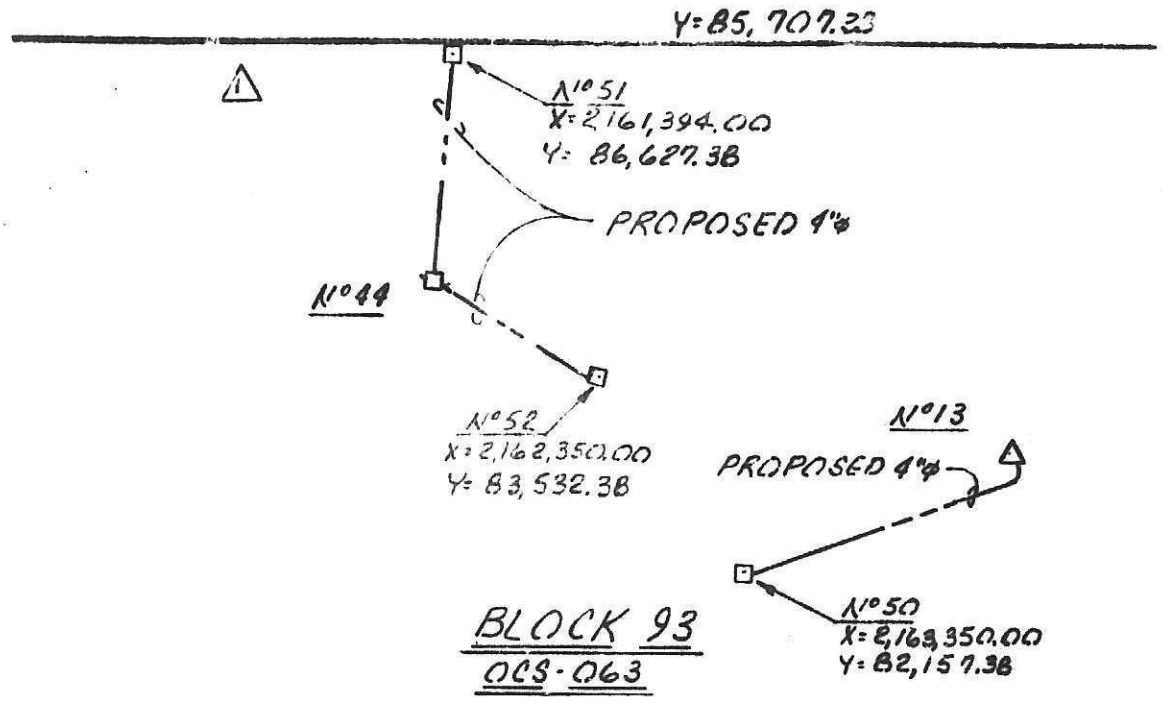
DRAWN	DATE	SCALE	DWG. NO.
FJR	11-22-85	1"=2000'	0240

ODECO OIL & GAS COMPANY

FLOWLINE MAP
OCS-066 & OCS-069
BLOCKS 112 & 119
SHIP SHOAL AREA 1



ODECO OIL & GAS COMPANY			
FLOWLINE MAP OCS-064 BLK 114 SHIP SHOAL AREA			
DRAWN	DATE	SCALE	DWG. NO.
FJR	2-10-86	1"=1,000	0258



SHIP SHOAL AREA

ODECO OIL & GAS COMPANY

1 FJR 2-10-86 DELETED N°53			
DRAWN	DATE	SCALE	DWG. NO.
FJR	11-21-85	1"=1,000	0237

FLOWLINE MAP
OCS-063 BLOCK 93
SHIP SHOAL AREA

SHIP SHOAL AREA

OCS-G-1983

BLOCK 94

BLOCK 93

OCS-042

OCS-063

X: 2,156,000.00

N°19

PROPOSED 4"ø

N°22

X: 2,154,950.00

Y= 73,275.85

N°23 ON PLAT

X=2,153,221.29

Y= 72,376.82

Y=71,745.85

BLOCK 113

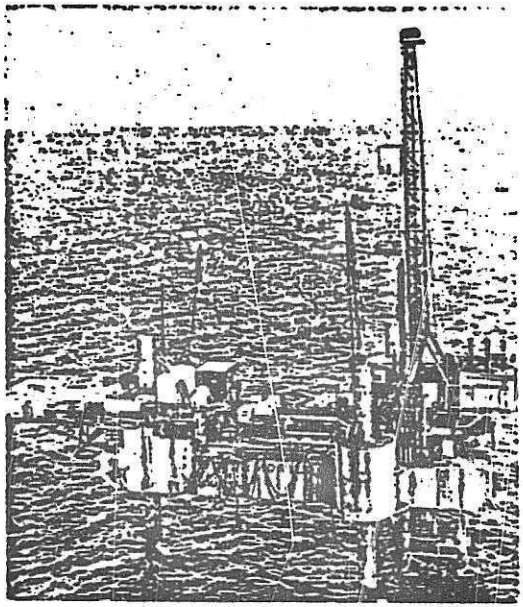
OCS-067

N

ODECO OIL & GAS COMPANY			
FLOWLINE MAP			
OCS-042 BLOCK 94			
SHIP SHOAL AREA			
DRAWN	DATE	SCALE	DWG. NO.
FJR	11-22-85	1"=1,000	0239

OCEAN PRIDE

BETHLEHEM MAT SUPPORTED JACK-UP

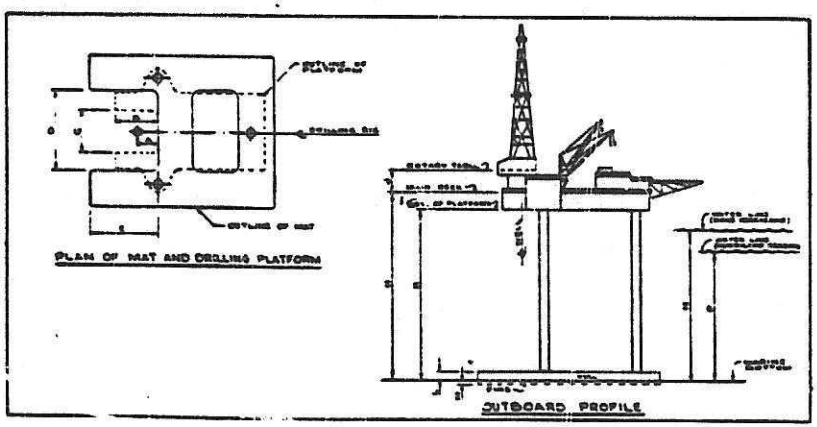


BARGE DATA

MAT ——— 170' Long x 160' Wide x 10' Deep with 2' scouring skirt. Slot in Mat is 80' Long x 88' Wide

PLATFORM ——— Contains all living and working areas 164' Long x 86' Wide x 16' Deep. Slot in Platform is 50' x 48'

QUARTERS ——— For 48 men



EARANCES & DIMENSIONS

	DIMENSIONS												OPERATING DEPTH		
	A	B	C	D	E	H	J	K	L	M	N	P	Maximum Normal	Hurricane Season	Minimum
Ocean Pride	15'	48'	50'	88'	80'	193'	20'	177'	10'	2'	152'	142'	152'	142'	24'

EQUIPMENT

1 ——— 140' – 1,100,000 lb. Standard derrick
1 ——— National 110 double drum drawworks powered by three (3) Superior PTD6-S diesel engines.
1 ——— National N-275 rotary w/Varco KMPC pin drive.
1 ——— National P-500 Swivel
1 ——— National 500 ton traveling block grooved for 1-3/8" line
1 ——— Oilwell 5807 Crown Block grooved for 1-3/8" line.
1 ——— National 500 ton Hook
1 ——— Koomey 120 gallon accumulator
1 ——— 13-5/8" 5000 # W.P. GK Hydril Bag type Preventer.
1 ——— 13-5/8" 5000 # W.P. Cameron Type "U" triple B.O.P.
2 ——— National N-1600 mud pumps, each independently powered by EMD-V16-567 diesel engines.
2 ——— Mission 6 x 8 Centrifugal much mixing pumps each powered by 50 HP electric motors
1 ——— Brandt dual screen shale shaker.
10,000+ ——— 5" 19.50 # Grade "E" Range 2 drill pipe w/4 1/2" IF tool joints.
5,000' ——— 5" 19.50 # Grade "G" Range 2 drill pipe w/4 1/2" IF tool joints.
21 ——— 7 1/4" Zip drill collars w/5 1/2" H-90 connections
1 ——— 5 1/4" Hex Kelly
2 ——— 30 Ton Unit Cranes
1 ——— Halliburton cementing Unit
1 ——— Schlumberger logging unit
1 ——— Pioneer desander
1 ——— Pioneer desilter
1 ——— SWACO Degasser
2 ——— 350 KW AC generators, each powered by GMC-V-16-71 engines

STORAGE CAPABILITIES

Dry Mud	3,000 sks	Bulk Cement	2,540 cu.ft.
Active Mud	1,000 Bbl.	Diesel Fuel	1,550 Bbl.
Reserve Mud	500 Bbl.	Drill Water	3,840 Bbl.
Bulk Mud	5,000 sks	Potable Water	500 Bbl.

BLOWOUT PREVENTER ACTIVATION

The Blowout Preventers on the drilling rig OCEAN PRIDE are HYDRAULICALLY activated from controls located on the rig floor and the living quarters.

DIVERTER SYSTEM OPERATIONAL PROCEDURE

The Diverter System as shown in Attachment 1 is installed to that the HCR Valve (s) will open automatically when the Hydril is closed. The diverting valves will remain open and be used to divert wellbore fluids downwind when necessary.

Prior to drilling the Hydril shall be closed and seawater pumped through the system. The diverting valves shall be function tested at this time.

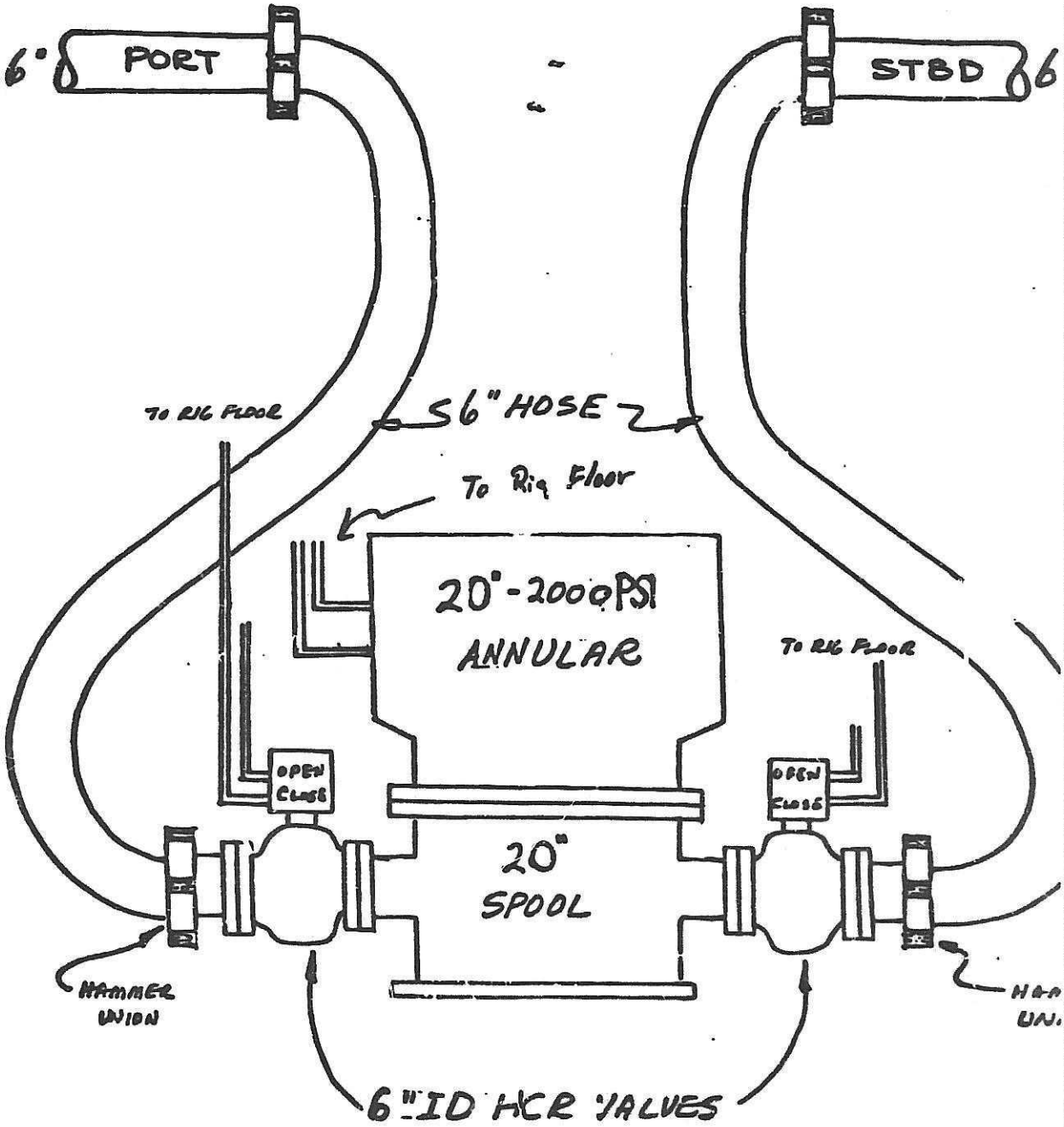
In the event it is necessary to use the diverter system for well control, the following sequence is recommended:

A) Clear Kelly from Hydril.

B) Close Hydril.

C) Use diverting valves to direct well fluids downwind.

D) Pump mud in hole as fast as possible. Pump Seawater if mud is expended.



OCEAN Pride
DIVERTER SYSTEM

ODECO

INTER-OFFICE CORRESPONDENCE

TO: R. S. Gloger LOC.: N. O. DATE:

CARBONS TO:

FROM: W. J. Wilkinson LOC.: N. O.

SUBJECT: Pollution and Waste Disposal from D/B OCEAN PRIDE

The D/B OCEAN PRIDE was constructed with certain features which were incorporated specifically to stop any pollutant likely to be found during normal drilling operations. It is equipped with drip pans and/or drians under floor and other machinery to retain all oil spills.

Provisions have been made for the collection, storage, and later transfer to shore base of all used oil from machinery on the drilling platform.

Containers have been provided to transfer solid waste, such as boxes, cartons, cans, etc., which cannot be incinerated to a shore base.

Copies of OCS Order Nos. 1 through 10 which are applicable to the contract drilling operations have been furnished the toolpushers. Rig supervisory personnel have been shown the seriousness of control of pollutants.

Should it come to your attention that any liquids or solids have escaped into the Gulf without our knowledge, I sincerely ask that you bring this to my attention.

W. J. Wilkinson

WJW/ggt

"OCEAN PRIDE"

EMISSIONS SUMMARY

SOURCE NO.	SOURCE	STACK HT. (Ft.)	STACK DIA. (Ft)	EMISSIONS (TONS/YEAR) CO	HYDROCARBON		PARTICULATE	SO_2
1	GM 16V71	60	1.33	14.4	3.10	91.5	1.0	7.45
2	GM 16V61	60	1.33	14.4	3.10	91.5	1.0	7.45
3	Mud Pumps (EMD 16-567)	60	.67	30.59	6.58	194.4	2.12	5.83
4	Mud Pumps (EMD 16-567)	60	.67	30.59	6.58	194.4	2.12	5.83
5	Schlumberger (4-71)	65	.13	0.05	0.01	0.32	Neg	0.03
6	Drawworks (Superior PTD-6)	65	.83	5.84	1.26	37.10	0.41	3.02
7	Drawworks (Superior PTD-6)	65	.83	5.84	1.26	37.10	0.41	3.02
8	Drawworks (Superior PTD-6)	65	.83	5.84	1.26	37.10	0.41	3.02
9	Cold Start (LD-1)	60	.13	0.01	Neg	0.06	Neg	0.01
10	Halliburton (GM 3-53)	73	.5	0.08	0.02	0.51	0.01	0.04
11	Halliburton (GM 8V71)	73	.5	0.29	0.06	1.84	0.02	0.15
12	Halliburton (GM 8V71)	73	.5	0.29	0.06	1.84	0.02	0.15
			Total	108.22	23.29	687.67	7.52	36.0
	X 2000 = lbs./yr.			216,440	46,580	1,375,340	15,040	72,000
	÷ 365 = lbs./Day			592.99	127.62	3768.05	41.21	197.26

Pollutant from diesel engines on drilling rigs were calculated using the following:

$$\frac{\text{TONS}}{\text{YR}} = .0096563 \times C \times P \times (\text{BHP})$$

where

- .0096563 = conversion from Grams/hr. to Tons/yr.
- C = Grams/BHP-Hr of pollutant - see (1)
- P = Average % useage in a yr. - see (2)
- BHP = Rated HP of engine

(1) Available data from manufacturers of diesel engines and theoretical combustion data was surveyed, and the following values chosen:

Pullutant	Grams/BHP-HR
NO_x	18.3
SO_2	1.49
Hydrocarbon	0.62
CO	2.68
Particulate	0.20

(2) Operation of equipment data from several rigs was reviewed to obtain % useage. Based on this review, the following data was utilized in preparing emissions estimates. This data is probably conservative, because it was assumed that engines were operating at all times at rated horsepower:

Engine Application	Average Yearly % Use
Main Engine	74
Emerg. Engine	.0.5
Primary Crane	7
Back Up Crane	3
Fork Lift	3
Cement Unit	3
Logging Unit	1
Welding Unit	2
Desander/Desilter	10
Cold Start Air Comp.	2
Rig Air Comp.	10
Main Mud Pump	50
Mud Mix Unit	10
Draw works	60
Bulk Air Comp.	3

Basis For Calculations of Gaseous emissions of
Boats - Helicopters and Crane at Supply Base
for Rig Related Operations

I. Boats: Equiped with two V 12 marine engines and two generators.

Lbs/Hour

CO	Hydrocarbon	No_x	SO_2	Particules
6.8	2.5	31.4	2.1	2.3

II. Helicopter: for transportation of men. Size 206

Lbs/Hour

CO	Hydrocarbon	No_x	SO_2	Particules
.5	.1	2.2	14.2	.2

III. Supply Base - Crane - with GM 6-71 diesel engine with 228 BHP driving a 30 ton crane

Lbs/Hour

CO	Hydrocarbon	No_x	SO_2	Particules
3.77	.35	9.18	.47	.5