Form OGC - 3

MISSOURI OIL AND GAS COUNCIL

APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

APPLICATION TO DRILL ☒ DEEPEN ☐ PLUG BACK ☐

NAME OF COMPANY OR OPERATOR Landmark Production Inc. DATE 2/6/81
c/o Odyssey Petroleum Inc.
1801 B S. Butler Dr. (Address) Harrisonville (City) Missouri (State) 64701

DESCRIPTION OF WELL AND LEASE

Name of lease	Well number	Elevation (ground)
Dwight E. Diehl & Paula Diehl	1	935

WELL LOCATION (give footage from section lines)
1193 ft. from (N) (~~S~~) sec. line 173 ft. from (E) (~~W~~) sec. line

WELL LOCATION Section 33 Township 44 Range 33 County Cass

Nearest distance from proposed location to property or lease line: 173 feet

Distance from proposed location to nearest drilling, completed or applied — for well on the same lease: _____ feet

Proposed depth:	Rotary or Cable tools	Approx. date work will start
700	Rotary	February 9, 1981

Number of acres in lease: 300

Number of wells on lease, including this well, completed in or drilling to this reservoir: 1

Number of abandoned wells on lease: _____

If lease, purchased with one or more wells drilled, from whom purchased: Name _____ Address _____

No. of Wells: producing _____ inactive _____ abandoned _____

Status of Bond

Single Well ☐ Amt. _____ Blanket Bond ☒ Amt. $40,000.

☒ ON FILE ☐ ATTACHED

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone) use back of form if needed.

Proposed casing program:

amt.	size	wt./ft.	cem.
120ft	7"	17	to surface

Approved casing — To be filled in by State Geologist

amt.	size	wt./ft.	cem.

I, the undersigned, state that I am the Agent of the Landmark Production Inc (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature M B Nathan

Permit Number: 20144

Approval Date: 2/9/81

Approved By: Wallace B. Hunt

RECEIVED FEB 09 1981 MO. OIL & GAS COUNCIL

☒ SAMPLES REQUIRED

☐ SAMPLES NOT REQUIRED

WATER SAMPLES REQUIRED @: _____

Note: This Permit not transferable to any other person or to any other location.

Remit two copies to: Missouri Oil and Gas Council P.O. Box 250 Rolla, Mo. 65401

One will be returned.

Approval of this permit by the Oil and Gas Council does not constitute endorsement of the geologic merits of the proposed well nor endorsement of the qualifications of the permittee.

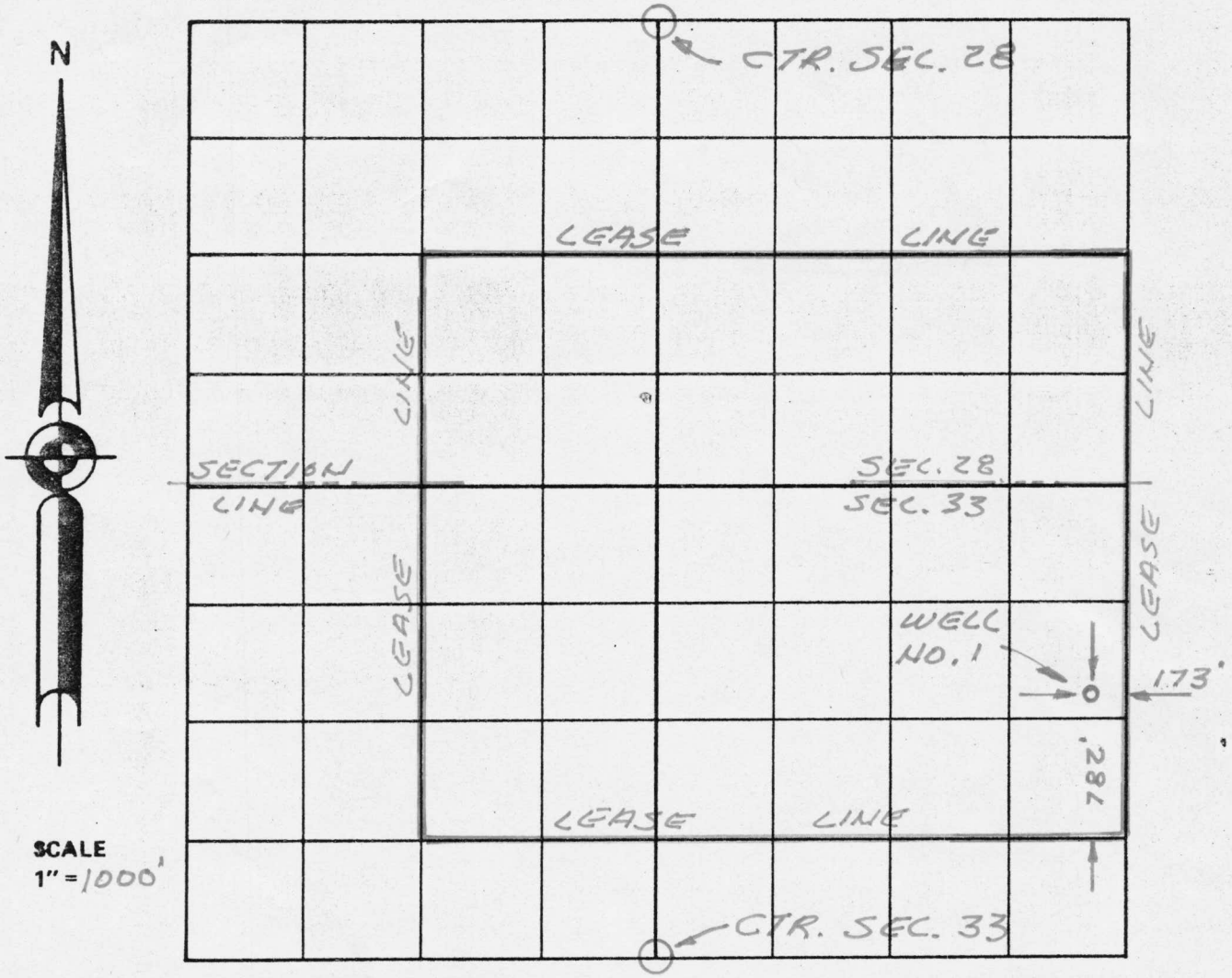
Form OGC—4

MISSOURI OIL AND GAS COUNCIL
WELL LOCATION PLAT

Owner: Landmark Production Inc.

Lease Name: Dwight E. Diehl **County:** Cass

1193 feet from North (N) - (S) line and 173 feet from East (E) - (W) line of Sec. 33, Twp. 44 N, Range 33.



SCALE 1" = 1000'

REMARKS: Well No. 1

INSTRUCTIONS

On the above plat, show distance of the proposed well from the two nearest section lines, the nearest lease line, and from the nearest well on the same lease completed in or drilling to the same reservoir. Do not confuse survey lines with lease lines. See rule 10 CSR 50-2.030 for survey requirements.

This is to Certify that I have executed a survey to accurately locate oil and gas wells in accordance with 10 CSR 50-2.030 and that the results are correctly shown on the above plat.

RECEIVED
FEB 09 1981
MO. OIL & GAS COUNCIL

MISSOURI LS-918 HOWARD L. SHERMAN REGISTERED LAND SURVEYOR (SEAL)

Howard L. Sherman — 918
Registered Land Surveyor — Number

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250, Rolla, Mo. 65401

One will be returned.

Missouri Oil and Gas Council

Form OGC-7

PLUGGING RECORD

Owner Landmark Production, Inc.	Address 10950 Grandview, Suite 350 Overland Park, Kansas 66210	
Name of Lease Dwight Diehl	Well No. #1	Permit Number (OGC-3 or OGC-3I number) 20144
Location of Well Sec. 33 - T44N - R33W	Sec-Twp-Rng or Block & Survey	County Cass

Application to drill this well was filed in name of	Has this well ever produced oil or gas?	Character of well at completion (initial production) Oil (bbls/day)	Gas (MCF/day)	Dry?
Landmark Production, Inc.	No	---------	--------	Yes

Date Abandoned	Total depth	Amount well producing prior to abandonment Oil (bbls/day)	Gas (MCF/day)	Water (bbls/day)
8/82	738'	0	0	

Name of each formation containing oil or gas. Indicate which formation open to well bore at time of abandonment.	Fluid content of each formation	Depth interval of each formation	Size, kind, & depth of plugs used. Indicate zones squeeze cemented, giving amount cement.
Bartlesville	Water	642' - 644'	B.P. @ 640 ft.
Bartlesville	Water	647' - 651'	B.P. @ 590 ft.
Upper Bartlesville	Water	524' - 529'	B.P. @ 460 ft.
Squirrel	Water	393' - 410'	B.P. @ 350 ft.

Size pipe	Put in well (ft)	Pulled out (ft)	Left in well (ft)	Give depth and method of parting casing (shot, ripped, etc.)	Packers and shoes
7"	120	0	120	None	None
4½"	760	0	760	None	None

Was well filled with mud-laden fluid?	Indicate deepest formation containing fresh water.
No	

NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE

Name	Address	Direction from this well:
Tommie E. Bailey	RR 1, Cleveland, Mo. 64734	East
Dorotha Corine Crook	West Line, Mo.	North
Evelyn Courier Crook	1102 S. Cedar, Independence, Mo.	West
Lee DeWayne Duncan	Cole Camp, Mo.	South

Method of disposal of mud pit contents: Unloaded, Dried Naturally and Filled In. We cemented to surface and then cut the casing off below plow depth.

Use reverse side for additional detail.

File this form in duplicate with

CERTIFICATE: I, the undersigned, state that I am the Manager of the Landmark Production (Company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct, and complete to the best of my knowledge.

Signature [illegible]

RECEIVED

SEP 02 1982

MO. OIL & GAS COUNCIL

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250, Rolla, MO 65401

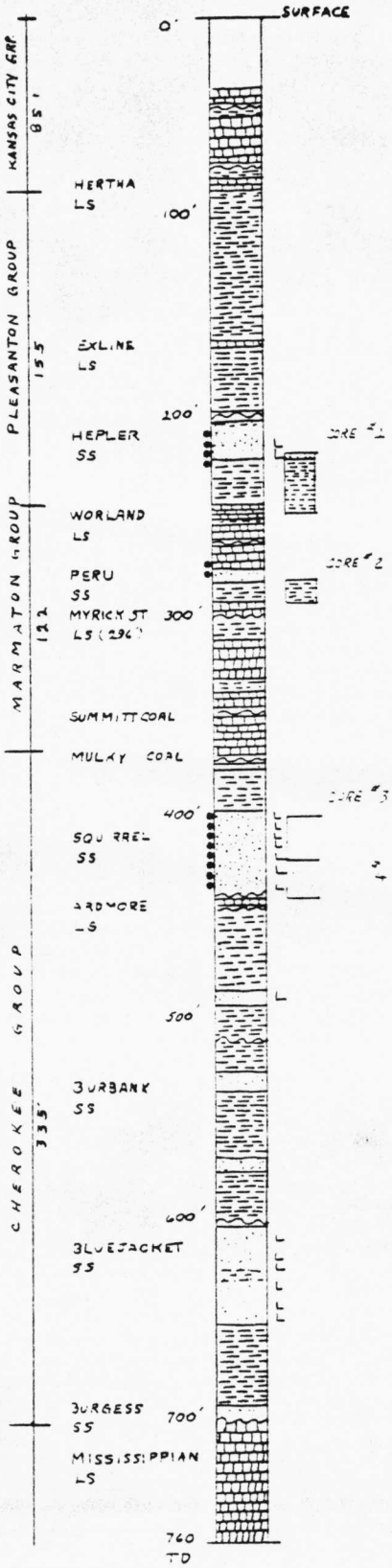
One will be returned.

3/12/82

DIEHL WELL #1

Below a depth of 437' the samples were inadequate for the same reasons as outlined in Lomax #1. The Hepler sandstone, about 20' thick, contained prominent oil staining, but Core #1 missed the interval. The sandstone is calcareous, particularly in the upper horizons, but may make production in the lower interval in the present hole. The samples noted for the interval 370 -390' suggest a 30' thickness of coal. The interval samples are subject to question as to the actual thickness of the coal. The petroliferous horizon of the Squirrel sandstone, displayed in Cores #3 and #4, contain both oil and water.

D DIEHL #1
Sec 33 T44N R33W
173' FEL & 280 FSL
Elv. 935



Name of Lease:
Dwight Diehl

Number Acres in Lease:
180

Location:
S1/4, Sec 28 - N1/8, Sec 33
T 44 N - R 33 W

Date of Report:
April 12, 1981

County:
Cass

State:
Missouri

Well No:
1

Well Location:
Sec 33-T44N-R33W
173' fr. E line
282' fr. S line

Company:
Odyssey Joint Venture

Surface Elevation:
935'

Casing Record:
104', 7" J55 to 103' 7"

Date Spudded:
February 10, 1981

Cementing Record:
28 Sacks, Portland A in 125 Gal. Water

Date Completed or Abandoned:

Hole Size:
9-7/8" to 106'
6-1/4" to 760'

Total Depth:
760'

Permanent Datum G. L. Elev. K. B. --
Log Measured from G. L. D. F. --
Drill Measured from G. L. G. L. 935'

Sample and Core Descriptions

Formation	Depth(s)	Unit Description
	0-5	soil, silt and sand
	5-10	limestone, tan to light tan, dense, cherty
	10-15	coal, black, flakey
	15-20	shale, light bluish-gray, soft; minor limestone, tan
	20-35	limestone, light gray, dense, fossiliferous
	35-40	limestone, light gray, dense (few fragments coal, black, soft)

Diehl - Well No. 1

40-45	shale, black, fissile, dense
45-50	shale, gray to dark gray, calcareous, silty
50-55	limestone, light tan to buff, dense, crystalline, fossiliferous
55-60	shale, grayish-green, silty (75%); limestone, tan, oolitic 12%
60-165	shale, gray, sandy
165-175	shale, medium gray, silty; limestone fragments
175-180	shale, gray, very sandy
180-210	shale, gray, sandy; sandstone, very fine-grained, buff to tan, hard
210-215	shale, gray, silty, 40%; shale, black, fissile, carbonaceous; sandstone, white
215-216.3	limestone, tan; sandstone, gray to tan, very fine-grained, calcareous; oil staining prominent on both
216.3-236.6	Core #1
	216.3-220 Sand.
	220-236.6 Shale, gray, with minor sand parting.
236.6-255	shale, gray, dense, hard
255-260	limestone sand, very fine to fine; passes through sample screen (may be connection related)
260-275	limestone sand, fine to coarse; limestone fragments (calcareous)
275-280	limestone sand, fine to moderate; minor chert fragments; free oil in sample water as minute droplets. Note: Sample at 280' has both gray and a tan sandstone, fine-grained; tan to brown sandstone is saturated with oil, florescence with yellow to golden yellow; odor clear and distinct.

Diehl - Well No. 1

	280-291	Core #2
		All dark blue shale; very minor sand showing as sandy shale upper most 3 inches.
	291-295	limestone
	295-299	coal
	299-303	shale
	303-309	coal
	309-340	limestone, tan to white to gray, pyritic, fossiliferous
	340-345	limestone, white to tan; traces shale, gray; bit fragments
	345-350	coal, black
	350-355	limestone, gray; shale, gray, sandy; coal 5%
	355-360	limestone, white to gray (blue tint); shale, gray; coal 5%
	360-365	limestone, white to tan 40%; coal 40%; 20% shale, gray, pyritic
	365-370	limestone, white to tan 50%; shale, blue-gray, sandy 50%; trace of coal
	370-375	coal, black 80%; limestone, light gray; shale, light gray
erratic sample returns ?	375-380	coal, black 90%; shale, blue-gray to brown, sandy
	380-385	coal, black 70%; shale, gray, pyritic
	385-390	coal, black 100%; limestone fragments trace
	390-395	sandstone, fine-grained, white to tan 50%; coal, black (Brachiopod fossil)
	395-400	sandstone, gray, fine-grained; traces of coal; sandstone florescence

Diehl - Well No. 1

400-418.7 Core #3

All sandstone. All of core saturated to some degree with apparently light oil; bleeding oil and water on surfaces of core. No gas allution noticed.

418.7-437.4 Core #4

All sandstone except last 2'. Minor coal seam at 1.5' from bottom (3 or 4 inch thickness) shale, light gray last foot of core.

Sample returns not possible beyond this depth due to inadequate air volume as compared to drill steel size and annulus in 6-1/4" hole.

Permit #: 20144

Date Issued: 2-9-81

County: Cass

Date Cancelled:

CONFIDENTIAL UNTIL:

Date Plugged: 9-2-82

OGC FORMS	Date Received
1	
2	
3	
3i	
4	
4i	
5	
6	
7	
8	
11	
12	
Misc. Form 2	

	TYPE	ID #	Date Received
Logs			
Samples	chip		
	core		
Analyses	water		
	core		

Additional Submitted Data:

COMMENTS:

from card - plugged 9-2-82

1193 ft. from (N) (~~S~~) line 173 ft. from (E) (~~W~~) line

County Cass Sec. 33 T. 44N R. 33W

Owner Landmark Prod. Elev. 935 Permit # 20144

Farm Diehl No. 1 TD 730 Shows none

Spls. yes Status duggestest Date Completed 8/82

Fm @ TD _____ Remarks: CONFIDENTIAL

until 8/83 BWN

RELEASED

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

ODYSSEY JOINT VENTURE NO. 1
DEIHL NO. 1 WELL

CASS COUNTY, MO.

DATE : 2-23-81
FORMATION : PERU
DRLG. FLUID: WATER BASE MUD
LOCATION : SEC. 33-44S-34W

FILE NO : 3406-00294
ANALYSTS : HUDSON
LABORATORY: CHANUTE, KS

DEAN STARK ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM	POR %	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
1	216.0-17.0	<0.1	3.1	34.7	45.3	2.73	LM
2	217.0-18.0	<0.1	5.2	34.8	51.5	2.73	LM CLY INCL
3	218.0-19.0	0.4	9.6	16.2	65.5	2.69	LM SDY SHY
4	219.0-20.0	0.2	7.6	27.6	60.6	2.69	LM SDY SHY
	220.0-98.0						DRILLED
5	398.0-99.0	27.	20.6	6.7	78.0	2.67	SD SL/SHY MIC
6	399.0- 0.0	28.	20.7	6.3	76.8	2.67	SD SL/SHY MIC
7	400.0- 1.0	12.	19.6	4.6	81.9	2.68	SD SL/SHY MIC
8	401.0- 2.0	7.5	19.0	12.4	74.7	2.68	SD SLTY SL/SHY MIC
9	402.0- 3.0	33.	22.2	8.5	71.7	2.67	SD SL/SHY MIC
10	403.0- 4.0	31.	21.6	8.3	77.8	2.66	SD SL/SHY MIC
11	404.0- 5.0	43.	22.4	8.9	77.1	2.67	SD MIC
12	406.0- 7.0	27.	20.7	14.0	70.0	2.67	SD SL/SHY MIC
13	407.0- 8.0	27.	21.4	6.5	79.8	2.68	SD SL/SHY MIC
14	407.0- 8.0	36.	22.1	6.4	81.0	2.68	SD MIC
15	408.0- 9.0	34.	22.2	22.9	61.7	2.68	SD SL/SHY MIC
16	409.0-10.0	30.	21.8	7.8	74.3	2.68	SD SL/SHY MIC
17	410.0-11.0	26.	21.4	4.4	79.4	2.66	SD SL/SHY MIC
18	411.0-12.0	3.0	17.4	24.5	62.0	2.68	SD SLTY SL/SHY MIC
19	412.0-13.0	29.	22.3	6.9	78.0	2.66	SD MIC
20	413.0-14.0	16.	19.4	8.8	69.3	2.66	SD SL/SHY MIC
21	414.0-15.0	32.	21.1	6.2	76.9	2.66	SD SL/SHY MIC
22	415.0-16.0	23.	20.6	2.4	83.7	2.65	SD MIC
23	416.0-17.0	30.	21.2	7.2	80.5	2.66	SD MIC
24	417.0-18.0	31.	21.7	4.2	77.6	2.66	SD SL/SHY MIC
25	418.0-19.0	31.	23.5	10.9	80.3	2.64	SD MIC
26	419.0-20.0	29.	20.9	10.1	73.1	2.63	SD MIC
27	420.0-21.0	27.	17.0	20.4	72.3	2.69	SD SL/CAL MIC

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

YSSEY JOINT VENTURE NO. 1
IHL NO. 1 WELL

DATE : 2-23-81
FORMATION : PERU

FILE NO : 3406-00294
ANALYSTS : HUDSON

DEAN STARK ANALYSIS

AMPLE UMBER	DEPTH FEET	PERM MD MAXIMUM	POR %	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
28	421.0-22.0	29.	18.8	11.2	69.7	2.67	SD SL/SHY MIC
29	422.0-23.0	22.	23.2	9.0	75.7	2.65	SD MIC
30	423.0-24.0	36.	21.8	11.8	81.3	2.66	SD MIC
31	424.0-25.0	35.	26.0	10.1	78.6	2.64	SD MIC
32	425.0-26.0	40.	24.1	8.2	81.9	2.64	SD MIC
33	426.0-27.0	34.	25.8	10.5	76.7	2.65	SD MIC
34	427.0-28.0	32.	24.5	9.3	81.1	2.63	SD MIC
35	428.0-29.0	43.	24.5	5.5	78.7	2.64	SD MIC
36	429.0-30.0	38.	25.2	6.2	79.2	2.64	SD MIC
37	430.0-31.0	46.	25.6	5.5	80.7	2.64	SD MIC
38	431.0-32.0	44.	23.3	6.3	83.1	2.63	SD SL/SHY MIC
39	432.0-33.0	46.	24.2	5.1	81.9	2.67	SD MIC
40	433.0-34.0	48.	22.7	7.3	79.3	2.68	SD SHY MIC
	434.0-35.0						SD V/LIG
	435.0-36.0						LM V/SLTY

These analy[illegible]ions or interpretations are based on observations and materials supplied by the client to [illegible], and for whose exclusive and confidential use, this report is made. The interpretations or [illegible] the best judgm[illegible] Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees assume no responsibility and make no warra[illegible]

MYSSEY JOINT VENTURE NO. -
ETAL NO. 1 WELL

ASS COUNTY, MISSOURI

DATE : 2-28-8
FORMATION : PERU
FIELD : MILLER DISE SUD
LOCATION : SEC. 28-47S-33W

FILE NO : 3406-00254
ANALYSTS : HUDSON
LABORATORY: CHANUTE, KS

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM
	PERMEABILITY AFTER DISTILLED WATER TREATMENT	
1	216.0-17.0	0.1
2	217.0-18.0	0.1
3	218.0-19.0	1.9
4	219.0-20.0	2.4
	220.0-96.0	DRILLED
5	396.0-99.0	26.
6	399.0- 0.0	43.
7	400.0- 1.0	16.
8	401.0- 2.0	7.3
9	402.0- 3.0	53.
10	403.0- 4.0	33.
11	404.0- 5.0	41.
12	405.0- 6.0	24.
13	406.0- 7.0	27.
14	407.0- 8.0	38.
15	408.0- 9.0	34.
16	409.0-10.0	30.
17	410.0-11.0	26.
18	411.0-12.0	3.0
19	412.0-13.0	43.
20	413.0-14.0	18.
21	414.0-15.0	32.
22	415.0-16.0	23.
23	416.0-17.0	30.

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CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

ODYSSEY JOINT VENTURE NO. 1
DETHL NO. 1 WELL

DATE : 2-23-81
FORMATION : PERO

FILE NO : 3406-00294
ANALYSTS : HUDSON

A-35

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM
24	417.0-18.0	31.
25	418.0-19.0	41.
26	419.0-20.0	28.
27	420.0-21.0	34.
28	421.0-22.0	37.
29	422.0-23.0	37.
30	423.0-24.0	41.
31	424.0-25.0	42.
32	425.0-26.0	42.
33	426.0-27.0	41.
34	427.0-28.0	38.
35	428.0-29.0	43.
36	429.0-30.0	40.
37	430.0-31.0	46.
38	431.0-32.0	44.
39	432.0-33.0	46.
40	433.0-34.0	48.

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CORE LABORATORIES, INC
Petroleum Reservoir Engineering
Oklahoma District

Company ODSSEY JOINT VENTURE NO. 1 Page 5

Well DEIHL NO. 1 CLI File 3406-00294

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME	PERU				
DEPTH INTERVAL	216-20	398-434			
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	4	36			
FEET OF CORE INCLUDED IN AVERAGES	4	36			
AVERAGE PERMEABILITY MILLIDARCYS	0.2	31			
PRODUCTIVE CAPACITY MILLIDARCY FEET	0.8	1116			
AVERAGE POROSITY PER CENT	6.4	22.0			
AVERAGE RESIDUAL OIL SATURATION PER CENT OF PORE SPACE	28.3	9.1			
AVERAGE TOTAL WATER SATURATION PER CENT OF PORE SPACE	55.7	76.8			
AVERAGE CONNATE WATER SATURATION PER CENT OF PORE SPACE					
OIL GRAVITY °API					
ORIGINAL SOLUTION GAS-OIL RATIO CUBIC FEET PER BARREL					
ORIGINAL FORMATION VOLUME FACTOR BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL					
CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE BARRELS PER ACRE FOOT	*	*	-		

Calculated maximum solution gas drive recovery is * barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. These recovery estimates represent theoretical maximum values for solution gas drive and do not take into account any prior production or drainage to other areas. The difference between the calculated stock-tank oil in place and the solution gas drive recovery estimates, which are barrels per acre-foot, represent that portion of the reservoir oil which is available for possible secondary recovery techniques. Estimates of additional recoverable oil by secondary or enhanced methods would necessitate a complete engineering study of the subject reservoir.

* LOW OIL SATURATION AND HIGH WATER VALUES

PERMIT DATABASE EDIT SCREEN

COUNTY: CASS PERMIT NO: 20144 DATE APPROVED: 02/09/81
LEASE: DIEHL WELL NO: 1
OWNER: LANDMARK PRODUCTION INC. COMPANY NUMBER: LA005

SECTION: 33 TOWNSHIP: 44N RANGE: 33W
SURVEY LOCATION 1: 1193 FNL SURVEY LOCATION 2: 173 FEL
LATITUDE: 38,34,33 N LONGITUDE: 094,33,47 W

ELEV: 935 PROPOSED TD: 700 ACTUAL TD: 738 PROD FM:

WELL CATEGORY: PLUGGED WELL TYPE: OWELL STATUS:
COMPLETION DATE: / / PLUG DATE: / / CANCEL DATE: / /

MIT HISTORY:
LAST MIT: / / WITNESSED(Y OR N):
MIT COMMENTS:
MIT 1: / / MIT 2: / / MIT 3: / /
MIT 4: / /

INSPECTION HISTORY:
INSPECTION 1: / /
INSPECTION 2: / /
INSPECTION 3: / /

MAKE CHANGES AS REQUIRED, THEN PRESS PgDn

CORE ANALYSIS REPORT

FOR

Landmark Production, Inc.

~~ODSSEY JOINT VENTURE NO. 1~~

DEIHL NO. 1 WELL

CASS COUNTY, MISSOURI

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
OKLAHOMA CITY, OKLAHOMA

APRIL 3, 1981

REPLY TO
SUITE 133
400 SOUTH VERMONT
OKLAHOMA CITY, OKLA.
73108

ODYSSEY JOINT VENTURE NO. 1
1801 B SOUTH BUTLER DRIVE
HARRISONVILLE, MISSOURI 64701

ATTN: MR. BRENT NATRASS

SUBJECT: CORE ANALYSIS DATA
DEIHL NO. 1 WELL
CASS COUNTY, MISSOURI
CLI FILE 340G-00294

GENTLEMEN:

DIAMOND CORES WERE TAKEN IN THE SUBJECT WELL AND LATER TRANSPORTED TO OUR CHANUTE LABORATORY FOR ANALYTICAL PURPOSE. THE MEASURED DATA, IN TABULAR FORM, FOLLOWS ON THE ACCOMPANYING PAGES OF THIS REPORT. A GRAPHICAL PRESENTATION IS PRESENTED ON THE ACCOMPANYING COREGRAPH.

PRODUCTIVITY INDICATED FROM THE RESIDUAL FLUID SATURATION DATA IN THE INTERVAL ANALYZED BETWEEN 216 AND 434 FEET WOULD LIKELY BE GAS-WATER PRODUCTIVE AFTER FORMATION TREATMENT.

ZONAL DATA AVERAGES ALONG WITH ESTIMATES OF RECOVERABLE OIL (WHERE APPLICABLE) ARE PRESENTED ON THE CORE SUMMARY PAGE OF THIS REPORT.

WE APPRECIATE THIS OPPORTUNITY OF SERVING YOU.

VERY TRULY YOURS,

CORE LABORATORIES, INC.

Dale E. Boyle (RR)

DALE E. BOYLE
DISTRICT MANAGER

5 CC - ADDRESSEE
2 CC - ALVIN WINESTOCK

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

ODYSSEY JOINT VENTURE NO. 1
DEIHL NO. 1 WELL

CASS COUNTY, MO.

DATE : 2-23-81
FORMATION : PERU
DRLG. FLUID: WATER BASE MUD
LOCATION : SEC. 33-44S-34W

FILE NO : 3406-00294
ANALYSTS : HUDSON
LABORATORY: CHANUTE, KS

DEAN STARK ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM	POR %	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
1	216.0-17.0	<0.1	3.1	34.7	45.3	2.73	LM
2	217.0-18.0	<0.1	5.2	34.8	51.5	2.73	LM CLY INCL
3	218.0-19.0	0.4	9.6	16.2	65.5	2.69	LM SDY SHY
4	219.0-20.0	0.2	7.6	27.6	60.6	2.69	LM SDY SHY
	220.0-98.0						DRILLED
5	398.0-99.0	27.	20.6	6.7	78.0	2.67	SD SL/SHY MIC
6	399.0- 0.0	28.	20.7	6.3	76.8	2.67	SD SL/SHY MIC
7	400.0- 1.0	12.	19.6	4.6	81.9	2.68	SD SL/SHY MIC
8	401.0- 2.0	7.5	19.0	12.4	74.7	2.68	SD SLTY SL/SHY MIC
9	402.0- 3.0	33.	22.2	8.5	71.7	2.67	SD SL/SHY MIC
10	403.0- 4.0	31.	21.6	8.3	77.8	2.66	SD SL/SHY MIC
11	404.0- 5.0	43.	22.4	8.9	77.1	2.67	SD MIC
12	406.0- 7.0	27.	20.7	14.0	70.0	2.67	SD SL/SHY MIC
13	407.0- 8.0	27.	21.4	6.5	79.8	2.68	SD SL/SHY MIC
14	407.0- 8.0	36.	22.1	8.4	81.0	2.68	SD MIC
15	408.0- 9.0	34.	22.2	22.9	61.7	2.68	SD SL/SHY MIC
16	409.0-10.0	30.	21.8	7.8	74.3	2.68	SD SL/SHY MIC
17	410.0-11.0	26.	21.4	4.4	79.4	2.66	SD SL/SHY MIC
18	411.0-12.0	3.0	17.4	24.5	62.0	2.68	SD SLTY SL/SHY MIC
19	412.0-13.0	29.	22.3	6.9	78.0	2.66	SD MIC
20	413.0-14.0	16.	19.4	8.8	69.3	2.66	SD SL/SHY MIC
21	414.0-15.0	32.	21.1	6.2	76.9	2.66	SD SL/SHY MIC
22	415.0-16.0	23.	20.6	2.4	83.7	2.65	SD MIC
23	416.0-17.0	30.	21.2	7.2	80.5	2.66	SD MIC
24	417.0-18.0	31.	21.7	4.2	77.6	2.66	SD SL/SHY MIC
25	418.0-19.0	31.	23.5	10.9	80.3	2.64	SD MIC
26	419.0-20.0	29.	20.9	10.1	73.1	2.63	SD MIC
27	420.0-21.0	27.	17.0	20.4	72.3	2.69	SD SL/CAL MIC

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

ODYSSEY JOINT VENTURE NO. 1
DEIHL NO. 1 WELL

DATE : 2-23-81
FORMATION : PERU

FILE NO : 3406-00294
ANALYSTS : HUDSON

DEAN STARK ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM	POR %	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
28	421.0-22.0	29.	18.8	11.2	69.7	2.67	SD SL/SHY MIC
29	422.0-23.0	22.	23.2	9.0	75.7	2.65	SD MIC
30	423.0-24.0	36.	21.8	11.8	81.3	2.66	SD MIC
31	424.0-25.0	35.	26.0	10.1	78.6	2.64	SD MIC
32	425.0-26.0	40.	24.1	8.2	81.9	2.64	SD MIC
33	426.0-27.0	34.	25.8	10.5	76.7	2.65	SD MIC
34	427.0-28.0	32.	24.5	9.3	81.1	2.63	SD MIC
35	428.0-29.0	43.	24.5	5.5	78.7	2.64	SD MIC
36	429.0-30.0	38.	25.2	6.2	79.2	2.64	SD MIC
37	430.0-31.0	46.	25.8	5.5	80.7	2.64	SD MIC
38	431.0-32.0	44.	23.3	6.3	83.1	2.63	SD SL/SHY MIC
39	432.0-33.0	46.	24.2	5.1	81.9	2.67	SD MIC
40	433.0-34.0	48.	22.7	7.3	79.3	2.68	SD SHY MIC
	434.0-35.0						SD V/LIG
	435.0-36.0						LM V/SLTY

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ODYSSEY JOINT VENTURE NO. 1
DEIHL NO. 1 WELL

CASS COUNTY, MISSOURI

DATE : 2-23-81
FORMATION : PERU
DRLG. FLUID: WATER BASE MUD
LOCATION : SEC. 33-44S-33W

FILE NO : 3406-00294
ANALYSTS : HUDSON
LABORATORY: CHANUTE, KS

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM	
	PERMEABILITY AFTER DISTILLED WATER TREATMENT		
1	216.0-17.0	<0.1	
2	217.0-18.0	<0.1	
3	218.0-19.0	1.9	
4	219.0-20.0	2.4	
	220.0-98.0		DRILLED
5	398.0-99.0	26.	
6	399.0- 0.0	33.	
7	400.0- 1.0	18.	
8	401.0- 2.0	7.5	
9	402.0- 3.0	33.	
10	403.0- 4.0	33.	
11	404.0- 5.0	41.	
12	405.0- 6.0	24.	
13	406.0- 7.0	27.	
14	407.0- 8.0	36.	
15	408.0- 9.0	34.	
16	409.0-10.0	30.	
17	410.0-11.0	26.	
18	411.0-12.0	3.0	
19	412.0-13.0	43.	
20	413.0-14.0	18.	
21	414.0-15.0	32.	
22	415.0-16.0	29.	
23	416.0-17.0	30.	

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ODYSSEY JOINT VENTURE NO. 1
DEIHL NO. 1 WELL

DATE : 2-23-81
FORMATION : PERU

FILE NO : 3406-00294
ANALYSTS : HUDSON

SAMPLE NUMBER	DEPTH FEET	PERM MD MAXIMUM
24	417.0-18.0	31.
25	418.0-19.0	41.
26	419.0-20.0	28.
27	420.0-21.0	34.
28	421.0-22.0	27.
29	422.0-23.0	37.
30	423.0-24.0	41.
31	424.0-25.0	42.
32	425.0-26.0	42.
33	426.0-27.0	41.
34	427.0-28.0	38.
35	428.0-29.0	43.
36	429.0-30.0	40.
37	430.0-31.0	46.
38	431.0-32.0	44.
39	432.0-33.0	46.
40	433.0-34.0	48.

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Company ODSSEY JOINT VENTURE NO. 1 Page 5

Well DEIHL NO. 1 CLI File 3406-00294

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

FORMATION NAME	PERU				
DEPTH INTERVAL	216-20	398-434			
FEET OF CORE RECOVERED FROM ABOVE INTERVAL	4	36			
FEET OF CORE INCLUDED IN AVERAGES	4	36			
AVERAGE PERMEABILITY: MILLIDARCYS	0.2	31			
PRODUCTIVE CAPACITY: MILLIDARCY-FEET	0.8	1116			
AVERAGE POROSITY: PER CENT	6.4	22.0			
AVERAGE RESIDUAL OIL SATURATION: PER CENT OF PORE SPACE	28.3	9.1			
AVERAGE TOTAL WATER SATURATION: PER CENT OF PORE SPACE	55.7	76.8			
AVERAGE CONNATE WATER SATURATION: PER CENT OF PORE SPACE					
OIL GRAVITY: °API					
ORIGINAL SOLUTION GAS-OIL RATIO: CUBIC FEET PER BARREL					
ORIGINAL FORMATION VOLUME FACTOR: BARRELS SATURATED OIL PER BARREL STOCK-TANK OIL					
CALCULATED ORIGINAL STOCK-TANK OIL IN PLACE: BARRELS PER ACRE-FOOT	*	*			

Calculated maximum solution gas drive recovery is * barrels per acre-foot, assuming production could be continued until reservoir pressure declined to zero psig. These recovery estimates represent theoretical maximum values for solution gas drive and do not take into account any prior production or drainage to other areas. The difference between the calculated stock-tank oil in place and the solution gas drive recovery estimates, which are barrels per acre-foot, represent that portion of the reservoir oil which is available for possible secondary recovery techniques. Estimates of additional recoverable oil by secondary or enhanced methods would necessitate a complete engineering study of the subject reservoir.

* LOW OIL SATURATION AND HIGH WATER VALUES

(c) calculated (e) estimated (m) measured

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY	ODYSSEY JOINT VENTURE NO. 1			FILE NO.	3406-00294
WELL	DEIHL NO. 1			DATE	2/24/81
FIELD	UNKNOWN	FORMATION	PERU	ELEV.	UNKNOWN
COUNTY	CASS	STATE MISSOURI	DRLG. FLD.	WATER	CORES
LOCATION	SEC. 33-44S-33W				

CORRELATION COREGRAPH

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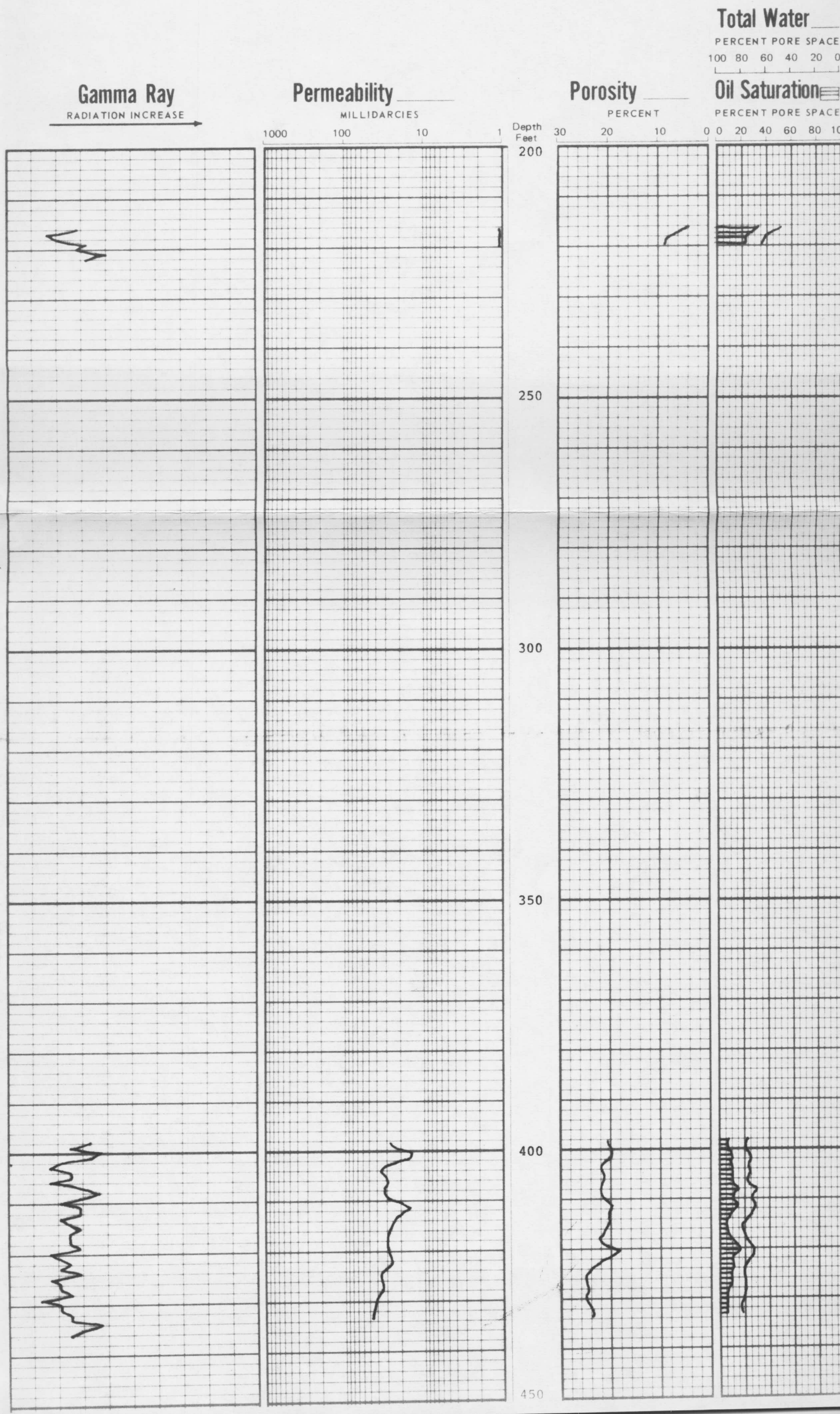
VERTICAL SCALE: 5" = 100'