

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS REPORT

FOR

PHILLIPS PETROLEUM COMPANY

**LEA-MEX NO. 32
MALJAMAR FIELD
LEA COUNTY, NEW MEXICO**

PRELIMINARY PRINT

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

PAGE 1 OF

PHILLIPS PETROLEUM COMPANY
LEA-MEX NO. 32
MALJAMAR FIELD
LEA COUNTY, NEW MEXICO

DATE : 1-4-82
FORMATION : GRAYBURG/SAN ANDRES
DRLG. FLUID:
LOCATION : SEC. 24, T-17-S, R-33-E

FILE NO : 3202-12734
ANALYSTS : DEVIER
LABORATORY: MIDLAND TEXAS

FULL DIAMETER ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MAXIMUM	PERM 90 DEG	HE POR	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
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CORE NO. 1 4350.0-4399.0 CUT 49' REC 50'

1	4350.0-62.0	0.54	0.25	3.0	0.0	88.7	2.77	NA DOL ANHY
2	4362.0-63.0	3.2	2.5	5.5	19.6	52.2	2.72	SD DOLC SL/SHY SHLAM FOSS
3	4363.0-64.0	1.6	1.3	6.3	21.2	53.8	2.71	SD SL/DOLC SL/F PP
4	4364.0-65.0	0.70	0.53	6.5	9.3	66.7	2.72	SD SL/DOLC SL/F
5	4365.0-66.0	0.45	0.17	6.5	8.5	78.0	2.72	SD SL/DOLC PP
6	4366.0-67.0	<0.01		4.2	0.0	69.1	2.72	SD SL/DOLC PP
7	4367.0-68.0	0.22	0.13	4.9	0.0	92.5	2.72	SD SL/DOLC SHLAM
8	4368.0-69.0	0.58	0.52	5.7	21.3	41.3	2.74	SD SL/DOLC SL/F PP
9	4369.0-70.0	0.20	0.08	2.9	30.6	44.4	2.82	DOL SL/SDY SL/SHY STY
10	4370.0-71.0	0.12	0.06	0.7	0.0	92.9	2.82	DOL SL/SDY SHLAM FOSS
	4371.0-72.0							NA DOL ANHY SHLAM
	4372.0-0.0							

CORE NO. 2 4400.0-4460.0 CUT 60' REC 60'

11	4400.0-5.0	9.4	7.7	11.2	11.2	51.0	2.71	REMOVED BY CLIENT
12	4405.0-6.0	0.43	0.37	6.6	21.2	48.5	2.67	SD SL/DOLC
	4406.0-7.0							SD SL/DOLC
	4407.0-10.0							NA DOL ANHY SL/SDY SHLAM
	4410.0-60.0							NA DOL ANHY SHLAM STY

CORE NO. 3 4460.0-4519.0 CUT 59' REC 59'

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SAMPLE NUMBER	DEPTH FEET	PERM MAXIMUM	PERM 90 DEG	HE FOR	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
13	4460.0-61.0	5.9	5.6	9.3	11.1	44.4	2.69	SD SL/SLTY SL/F
14	4461.0-62.0	23.	23.	13.7	9.7	46.5	2.68	SD SL/SLTY
15	4462.0-63.0	30.	29.	13.8	5.9	47.3	2.67	SD SL/SLTY SL/F
16	4463.0-64.0	0.23	0.21	6.3	6.5	67.3	2.71	SD DOLC SL/SHY SHLAM
	4464.0-92.0							NA DOL ANHY SHLAM STY
	4492.0-94.0							NA DOL ANHY SHLAM STY
	4494.0-7.0							NA DOL ANHY SHLAM STY
17	4507.0-8.0	0.13	0.06	6.4	2.9	69.6	2.73	SD DOLC VF SHLAM
18	4508.0-9.0	0.58	0.55	8.4	3.6	56.4	2.68	SD DOLC
19	4509.0-10.0	0.63	0.58	10.4	19.9	44.5	2.69	SD SL/DOLC SHLAM
20	4510.0-11.0	1.1	0.73	8.3	6.6	46.7	2.75	SD DOLC F
21	4511.0-12.0	0.43	0.09	8.1	17.4	34.1	2.75	SD DOLC VF
	4512.0-18.0							NA DOL ANHY SHLAM STY
22	4518.0-19.0	0.05	0.05	5.1	0.0	94.7	2.70	SD DOLC SHLAM
CORE NO. 4 4519.0-4579.0 CUT 60' REC 60'								
23	4519.0-20.0	5.2	5.1	12.7	21.8	26.6	2.67	SD SL/CLAY
24	4520.0-21.0	0.21	0.21	7.2	3.4	76.7	2.72	SD SL/DOLC
25	4521.0-22.0	0.03	<0.01	5.2	1.1	85.9	2.74	SD DOLC SHLAM
26	4522.0-23.0	0.02	0.02	4.3	8.7	56.5	2.75	SD DOLC VF
27	4523.0-24.0	<0.01	<0.01	4.9	2.9	69.6	2.74	SD DOLC SHLAM
	4524.0-41.0							NA DOL SDY SHLAM
28	4541.0-42.0	0.02	0.02	7.2	0.0	75.7	2.69	SD SL/DOLC SHLAM
29	4542.0-43.0	0.83	0.49	10.7	4.9	70.6	2.69	SD SL/DOLC SHLAM
30	4543.0-44.0	0.21	0.21	7.1	2.2	83.9	2.71	SD DOLC SHLAM
31	4544.0-45.0	0.37	0.35	7.6	1.0	80.4	2.70	SD SL/DOLC VF
	4545.0-64.0							NA SD DOLC SHLAM

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

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FULL DIAMETER ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MAXIMUM	PERM 90 DEG	HE FOR	DIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
* 32	4564.0-65.0	1.2		7.1	1.6	82.4	2.67	SD SHLAM
33	4565.0-66.0	1.1	1.1	11.5	8.0	64.2	2.69	SD SHLAM STY
34	4566.0-67.0	0.93	0.86	11.4	9.2	66.0	2.68	SD SHLAM STY
35	4567.0-68.0	2.1	2.0	12.4	6.2	63.5	2.67	SD STY
36	4568.0-69.0	1.2	1.0	14.0	10.4	62.2	2.65	SD SL/SHY
37	4569.0-70.0	1.2	0.15	13.9	15.1	55.9	2.67	SD SL/SHY
38	4570.0-71.0	4.1	3.4	14.2	15.5	51.3	2.66	SD SL/SHY
39	4571.0-72.0	51.	41.	20.2	15.0	54.2	2.64	SD SL/SHY
40	4572.0-73.0	17.	11.	18.3	11.0	56.6	2.65	SD
41	4573.0-74.0	3.6	3.0	14.9	14.6	47.7	2.68	SD SHLAM
42	4574.0-75.0	4.1	2.1	13.6	12.7	53.4	2.65	SD SL/SHY
43	4575.0-76.0	26.	24.	15.3	13.4	47.6	2.66	NA SD SHY
	4576.0-79.0							

CORE NO. 5 4579.0-4639.0 CUT 60' REC 47'

* 44	4579.0-81.0	2.2		10.0	0.0	80.5	2.63	NA SD SHY SHLAM
	4581.0-82.0							SD SHLAM
45	4582.0-83.0	0.33	0.25	9.9	7.2	70.2	2.69	SD SL/F SHLAM
46	4583.0-84.0	8.9	8.6	14.6	9.0	57.0	2.66	SD SHLAM
47	4584.0-85.0	21.	20.	17.2	16.7	52.9	2.67	SD STY
48	4585.0-86.0	2.1	1.7	12.9	14.5	52.5	2.68	SD STY
49	4586.0-87.0	2.4	1.4	11.2	8.3	55.7	2.68	SD SHLAM STY
50	4587.0-88.0	1.1	0.08	8.0	4.4	72.2	2.65	SD SL/SHY SHLAM
51	4588.0-89.0	0.16	0.11	4.9	1.8	89.9	2.73	SLT SL/SHY SHLAM
52	4589.0-90.0	3.9	0.05	5.2	2.0	89.1	2.76	SLT SL/SHY
53	4590.0-91.0	0.04	0.04	6.4	0.9	94.8	2.73	SLT SL/SHY
54	4591.0-92.0	0.09		9.8	0.0	88.5	2.68	SD SL/SLTY SL/SI
55	4592.0-93.0	0.33	0.21	10.2	7.1	73.7	2.69	SD SL/SHY SHLAM

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SAMPLE NUMBER	DEPTH FEET	PERM MAXIMUM	PERM 90 DEG	HE FOR	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTION
56	4593.0-94.0	3.7	2.4	13.2	13.1	66.5	2.68	SD
57	4594.0-95.0	142.	3.1	21.3	33.1	39.0	2.61	SD VF SHR
58	4595.0-96.0	10.		22.3	51.2	28.0	2.63	SD MG SHR
59	4596.0-97.0	9.7	7.1	18.7	34.4	41.3	2.64	SD SL/SHY SHLAM SHR
60	4597.0-98.0	4.1		19.3	39.9	40.6	2.69	SD SL/SHY SHLAM SHR
61	4598.0-99.0	14.	11.	21.8	47.6	38.8	2.67	SD SHR
62	4599.0-0.0	29.		23.5	40.6	33.4	2.64	SD MG SHR
63	4600.0-1.0	9.8		24.7	50.8	26.1	2.64	SD MG SHR
64	4601.0-2.0	6.9		21.7	45.7	33.2	2.65	SD MG SHR
65	4602.0-3.0	12.		20.0	41.6	25.9	2.69	SD MG SHR
66	4603.0-4.0	<0.01		7.1	0.0	87.9	2.64	SD MG SHR
67	4604.0-5.0	1.1	0.67	11.6	0.0	93.6	2.71	SLT SL/SHY
68	4605.0-6.0	3.2		13.9	0.0	89.7	2.66	SLT
69	4606.0-7.0	3.0	0.08	10.5	0.0	87.7	2.68	SLT SL/SDY SL/SHY SHLAM
70	4607.0-8.0	0.36	0.29	10.2	0.0	88.6	2.68	SLT SL/SHY
71	4608.0-9.0	0.06	<0.01	8.7	0.0	83.9	2.66	SLT SL/SHY
72	4609.0-10.0	0.09	0.04	5.0	1.1	89.4	2.67	SLT
73	4610.0-11.0	0.15	0.06	5.8	1.0	96.5	2.72	SLT SL/SDY SL/SHY
74	4611.0-12.0	0.18	0.12	6.3	0.0	94.0	2.70	SLT
75	4612.0-13.0	0.36		6.1	2.1	76.5	2.73	SD SLTY SL/SHY
76	4613.0-14.0	0.94	0.44	10.2	8.8	74.8	2.70	SD SL/SHY
77	4614.0-15.0	1.2	1.1	14.7	18.9	50.4	2.68	SD SL/SHY
78	4615.0-16.0	1.8		17.1	18.3	28.0	2.67	SD MG SHR
79	4616.0-17.0	4.9		15.1	21.4	40.2	2.69	SD MG SHR
80	4617.0-18.0	4.0		19.5	30.5	29.5	2.73	SD MG SHR
81	4618.0-19.0	2.0		22.4	39.6	34.8	2.64	SD MG SHR
82	4619.0-20.0	12.		21.0	45.0	33.8	2.66	SD MG SHR
83	4620.0-21.0	6.9		14.1	23.3	38.4	2.71	SD MG SHR
84	4621.0-22.0	1.6	1.1	12.7	19.0	49.1	2.67	SD SL/SHY
85	4622.0-23.0	0.10		7.2	0.0	86.4	2.72	SLT SL/SHY

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FULL DIAMETER ANALYSIS

SAMPLE NUMBER	DEPTH FEET	PERM MAXIMUM	PERM 90 DEG	HE FOR	OIL% PORE	WTR% PORE	GRAIN DEN	DESCRIPTI
86	4623.0-24.0	0.04	<0.01	7.3	0.0	88.7	2.70	SLT
87	4624.0-25.0	0.05	0.02	1.6	0.0	88.9	2.74	SLT SHY
88	4625.0-26.0	0.04	<0.01	3.2	6.9	79.3	2.81	SLT SL/ST
	4626.0-39.0							LOST CORE

* INDICATES PLUG PERMEABILITY

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

LITHOLOGICAL ABBREVIATIONS

ANH(Y)	ANHYDRITE, ANHYDRITIC	LN(Y)	LIMESTONE, LIMY
ARK	ARKOSE, ARKOSIC	MG	MEDIUM GRAINED
BAN	BAND, BANDED	MTX	MATRIX
BREC	BRECCIA, BRECCIATED	NA	INTERVAL NOT ANALYZED (AT REQUEST OF CLIENT)
CALC	CALCITE, CALCAREOUS	NOD	NODULE, NODULAR
CARB	CARBONACEOUS	OOL	OOLITIC
CG	COARSE GRAINED	PISO	PISOLITIC
CHK(Y)	CHALK, CHALKY	PP	PINPOINT POROSITY
CHT(Y)	CHERT, CHERTY	PT	PARTING
CONGL	CONGLOMERATE, CONGLOMERITIC	PYR	PYRITE, PYRITIC
CXLN	COARSELY CRYSTALLINE	SD(Y)	SANDSTONE, SANDY
DNS	DENSE	SH(Y)	SHALE, SHALY
DOL(C)	DOLOMITE, DOLOMITIC	SHR	SOLID HYDROCARBON RESIDU
F	RANDOMLY ORIENTED FRACTURES	SL/	SLIGHTLY
FG	FINE GRAINED	SLT(Y)	SILT, SILTY
FSSS	FOSSILIFEROUS	STY	STYLOLITE, STYLOLITIC
FR	FRIABLE	SUC	SUCROSLIC
FXLN	FINELY CRYSTALLINE	SUL	SULPHUR
GAL	GALENA	TBFA	TOO BROKEN FOR ANALYSIS
GLAUC	GLAUCONITE, GLAUCONITIC	TRIP	TRIPOLITE
GRAN	GRANITE	V/	VERY
GYP	GYPSUM, GYPSIFEROUS	VF	PREDOMINANTLY VERTICALLY
HF	PREDOMINANTLY HORIZONTALLY FRACTURED	V	VUGULAR
INC	INCLUSION	XBD	CROSSBEDDED
INTBD	INTERBEDDED	XLN	MEDIUM CRYSTALLINE
LAM	LAMINATED	XTL	CRYSTAL

THE FIRST WORD IN THE DESCRIPTION COLUMN OF THE CORE ANALYSIS REPORT DESCRIBES THE ROCK TYPE. FOLLOWING ARE ROCK MODIFIERS IN DECREASING ABUNDANCE AND MISCELLANEOUS DESCRIPTIVE TERMS.

LAB

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

COMPANY PHILLIPS PETROLEUM COMPANY
WELL LEA-MEX NO. 32
FIELD MAJAMAR FIELD
COUNTY LEA COUNTY STATE NEW MEXICO ORIG FLD
LOCATION T-17, R-33-E, SEC. 24,,

FILE NO 3202-12734
DATE 1-4-82
ELEV
CORES ACC

CORRELATION COREGRAPH

VERTICAL SCALE 30'

Total Water
PERCENT PORE SPACE
100 80 60 40 20 0

Gamma Ray
RADIATION IN UNITS
API UNITS

Permeability
MILLIDARIES
1 10 100

Porosity
PERCENT
20 10 0

Oil Saturation
PERCENT PORE SPACE
0 20 40 60 80 100

