

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS REPORT

FOR

SUN EXPLORATION & PROD. CO.

BRINKS NO. 1-3 WELL
WILDCAT
MISSAUKEE COUNTY, MICHIGAN

CORE LABORATORIES, INC.

Sun Exploration & Production Co.
P. O. Box 340180
Dallas, Texas 75234

File No: 3602-1043
October 12, 1983

Att: Mr. Gerald DeBusschere

Re: Core Analysis Report
Prairie Du Chien Sandstone
Brinks No. 1-3 Well
C N NE NE Sec 3 T21N; R6W (Clam Union Twp)
Missaukee Co., Mich.

Gentlemen:

Two diamond cores from this well between the depths of 10,708' and 10,819' have been transported to our Michigan laboratory for conventional (plug-type) analyses. Upon receipt the cores were oriented, surface-gamma logged and a representative sample obtained from each foot. A portion of each sample was crushed and its inplace fluids recovered by retorting. From the remaining portion of each sample 1" O.D. cylindrical plugs were obtained horizontal and vertical to bedding, using fresh water as a coolant. The plugs were cleaned, dried and air permeabilities, Boyle's Law porosities and grain densities measured. Bulk density for each sample has been computed assuming its pore space is saturated with a fluid having 1.10 gr/cc specific gravity. Results of these analyses are herein submitted in tabular and graphical form with a graph of the Surface-Gamma log.

Histogram presentations of permeability/porosity data with their respective tabular data are included for each of the 10,708-83' and 10,783-819' intervals. These presentations are primarily designed to aid in selecting "net pay cutoff" values of permeability and/or porosity for the reservoirs. An explanation of the histogram usage is included for your reference.

2.

Sun Exploration & Production Co.

October 12, 1983

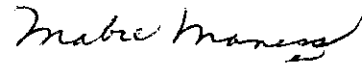
These cores have been vertically sliced into two slabs, color photographed, separately packaged and will be shipped to your facility at Richardson, Texas and to Wayne State University.

Prints of the color photographs will be sent to you, Ms. Sandi Merchant and Mr. Bill Hensel under separate cover.

The opportunity to be of service on this well is appreciated and please call if you have any questions.

Very truly yours,

CORE LABORATORIES, INC.



Mabre Maness
District Manager

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Petroleum Reservoir Engineering
 DALLAS, TEXAS

SUN EXPLORATION & PROD. CO.
 BRINKS NO. 1-3 WELL
 WILDCAT
 MISSAUKEE COUNTY, MICHIGAN

DATE: 10-04-83
 FORMATION: PRAIRIE DU CHIEN
 DRLG. FLUID: BRINE
 LOCATION: CN NE NE, SEC 3, CLAM UNION T21N R6W

FILE NO: 3602-1043
 ENGINEER: MCCLURE
 ELEVATION:

* INDICATES PLUG PERM S INDICATES PRESERVED SAMPLE + ASSUMES FLUID DEN. = 1.1 G/CC

SMP. NO.	DEPTH	FEET ANAL	PERM TO AIR, Md MAXIMUM	90 DEG VERT	PERM FT(90)	POROSITY GEX	FEET	FLUID OIL	SATS WATER	DENSITY +BULK GRN	PROB PROD	DESCRIPTION
CONVENTIONAL (PLUG-TYPE) ANALYSIS WITH MEASURED GRAIN DENSITIES												
1	10708.0-09.0		*	0.16	0.68	4.1		0.0	65.6	2.58	2.64	SS,F/GR,GY
2	10709.0-10.0		*	0.30	0.04	3.5		0.0	65.5	2.62	2.67	SS,F/GR,GY
3	10710.0-11.0		*	0.35	0.08	4.2		0.0	81.4	2.59	2.66	SS,F/GR,GY
4	10711.0-12.0		*	0.03	0.03	3.9		0.0	92.1	2.57	2.63	SS,F/GR,GY, SHLY
5	10712.0-13.0		*	0.19	<0.02	3.3		0.0	93.6	2.59	2.64	SS,F/GR,GY, SHLY
6	10713.0-14.0		*	0.02	0.06	3.7		0.0	91.0	2.57	2.63	SS,F/GR,GY, SHLY
7	10714.0-15.0		*	0.02	0.02	5.7		0.0	41.9	2.52	2.61	SS,F/GR,GY, SHLY
8	10715.0-16.0		*	0.04	0.02	2.6		0.0	93.2	2.57	2.61	SS,F/GR,GY, SHLY
9	10716.0-17.0		*	<0.02	0.02	5.2		0.0	65.6	2.53	2.61	SS,F/GR,GY, SHLY
10	10717.0-18.0		*	0.60	<0.02	5.1		0.0	71.6	2.53	2.61	SS,F/GR,GY, SHLY
11	10718.0-19.0		*	2.61	<0.02	2.1		0.0	68.9	2.69	2.72	SHALE,BLK
12	10719.0-20.0		*	0.11	0.08	1.5		0.0	66.2	2.69	2.71	SHALE,BLK
13	10720.0-21.0		*	0.13	1.49	3.2		0.0	76.9	2.59	2.64	SS,F/GR,GY

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 profitability of any oil, gas or other mineral well or field in connection with which such analyses were conducted.

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 DALLAS, TEXAS

SUN EXPLORATION & PROD. CO.
 BRINKS NO. 1-3 WELL

DATE: 10-04-83
 FORMATION: PRAIRIE DU CHIEN

FILE NO: 3602-1043
 ENGINEER: MCCLURE

SMP. NO.	DEPTH	FEET ANAL	PERM TO AIR, Md		PERM FT(90)	POROSITY GEX FEET	FLUID SATS		DENSITY		PROB PROD	DESCRIPTION
			MAXIMUM	90 DEG VERT			OIL	WATER	+BULK	GRN		
14	10721.0-22.0		*	3.41	2.76	7.2	0.0	78.1	2.53	2.64		SS,F/GR,GY
15	10722.0-23.0		*	0.22	3.00	5.0	0.0	81.4	2.56	2.64		SS,F/GR,GY
16	10723.0-24.0		*	0.04	0.12	3.8	0.0	63.9	2.58	2.64		SS,F/GR,GY
17	10724.0-25.0		*	0.25	1.78	5.5	0.0	54.8	2.55	2.63		SS,F/GR,GY
18	10725.0-26.0		*	0.32	2.89	4.9	0.0	65.4	2.56	2.64		SS,F/GR,GY
19	10726.0-27.0		*	0.21	0.32	3.3	0.0	79.8	2.59	2.64		SS,F/GR,GY
20	10727.0-28.0		*	0.52	0.13	3.9	0.0	80.3	2.60	2.66		SS,F/GR,GY
21	10728.0-29.0		*	1.25	0.38	6.3	0.0	93.8	2.55	2.65		SS,F/GR,GY
22	10729.0-30.0		*	0.29	0.22	5.9	0.0	93.4	2.55	2.64		SS,F/GR,GY
23	10730.0-31.0		*	0.23	0.83	6.6	0.0	85.1	2.52	2.62		SS,F/GR,GY
24	10731.0-32.0		*	0.21	0.19	6.9	0.0	80.7	2.52	2.62		SS,F/GR,GY
25	10732.0-33.0		*	0.06	0.14	7.6	0.0	83.1	2.50	2.61		SS,F/GR,GY
26	10733.0-34.0		*	0.05	<0.02	3.1	0.0	94.8	2.59	2.64		SS,F/GR,GY, SHLY
27	10734.0-35.0		*	<0.02	0.07	2.8	0.0	78.7	2.59	2.63		SS,F/GR,GY, SHLY
28	10735.0-36.0		*	0.16	0.05	1.2	0.0	60.3	2.67	2.69		SS,F/GR,GY, SHLY
29	10736.0-37.0		*	0.06	0.05	1.4	0.0	78.9	2.69	2.71		SS,F/GR,GY, SHLY

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			MAXIMUM	90 DEG VERT			OIL	WATER	+BULK GRN	GRN		
30	10737.0-38.0		*	0.11	<0.02	2.0	0.0	86.6	2.66	2.69		SS,F/GR,GY, SHLY
31	10738.0-39.0		*	0.04	<0.02	2.1	0.0	71.9	2.65	2.68		SS,F/GR,GY, SHLY
32	10739.0-40.0		*	0.03	0.02	2.7	0.0	93.7	2.62	2.66		SS,F/GR,GY, SHLY
33	10740.0-41.0		*	0.13	0.06	2.8	0.0	97.1	2.60	2.64		SS,F/GR,GY, SHLY
34	10741.0-42.0		*	0.65	<0.02	2.4	0.0	73.0	2.65	2.69		SS,F/GR,GY, SHLY
35	10742.0-43.0		*	0.03	<0.02	1.2	0.0	48.9	2.69	2.71		SS,F/GR,GY, SHLY
36	10743.0-44.0		*	0.04	<0.02	0.4	0.0	46.8	2.81	2.82		DOL,F/XL,GY
37	10744.0-45.0		*	<0.02	<0.02	0.7	0.0	53.6	2.80	2.81		DOL,F/XL,GY
38	10745.0-46.0		*	<0.02	<0.02	0.5	0.0	85.0	2.83	2.84		DOL,F/XL,GY
39	10746.0-47.0		*	<0.02	<0.02	0.6	0.0	63.9	2.71	2.72		DOL,F/XL,GY, SHLY
40	10747.0-48.0		*	<0.02	<0.02	0.6	0.0	42.7	2.83	2.84		DOL,F/XL,GY
41	10748.0-49.0		*	<0.02	<0.02	0.6	0.0	48.8	2.81	2.82		DOL,F/XL,GY
42	10749.0-50.0		*	<0.02	<0.02	0.6	0.0	60.8	2.74	2.75		DOL,F/XL,GY, SHLY
43	10750.0-51.0		*	0.23	<0.02	1.2	0.0	66.8	2.68	2.70		DOL,F/XL,GY, SHLY,VRT/FRAI
44	10751.0-52.0		*	<0.02	<0.02	0.2	0.0	72.8	2.81	2.81		DOL,F/XL,GY
45	10752.0-53.0		*	<0.02	<0.02	0.9	0.0	58.6	2.66	2.67		DOL,F/XL,GY,

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SMP. NO.	DEPTH	FEET ANAL	PERM TO AIR, Md MAXIMUM	90 DEG VERT	PERM FT(90)	POROSITY GEX	FEET	FLUID SATS OIL WATER	DENSITY +BULK GRN	PROB PROD	DESCRIPTION
46	10753.0-54.0	*	<0.02	<0.02		0.6		0.0 44.3	2.84 2.85		SHLY DOL,F/XL,GY
47	10754.0-55.0	*	<0.02	<0.02		0.5		0.0 62.3	2.72 2.73		DOL,F/XL,GY, SHLY
48	10755.0-56.0	*	<0.02	<0.02		0.7		0.0 70.9	2.81 2.82		DOL,F/XL,GY
49	10756.0-57.0	*	<0.02	<0.02		0.6		0.0 39.8	2.84 2.85		DOL,F/XL,GY
50	10757.0-58.0	*	<0.02	<0.02		0.4		0.0 76.1	2.78 2.79		DOL,F/XL,GY, SHLY
51	10758.0-59.0	*	0.02	<0.02		0.2		0.0 65.5	2.81 2.81		DOL,F/XL,GY
52	10759.0-60.0	*	<0.02	<0.02		0.2		0.0 89.1	2.75 2.75		DOL,F/XL,SHY GY
53	10760.0-61.0	*	0.03	<0.02		0.6		0.0 79.2	2.67 2.68		DOL,F/XL,SHY GY
54	10761.0-62.0	*	<0.02	<0.02		0.4		0.0 69.2	2.82 2.83		DOL,F/XL,GY
55	10762.0-63.0	*	<0.02	<0.02		0.1		0.0 67.6	2.83 2.83		DOL,F/XL,GY
56	10763.0-64.0	*	<0.02	<0.02		0.1		0.0 77.3	2.80 2.80		DOL,F/XL,GY
57	10764.0-65.0	*	<0.02	<0.02		0.2		0.0 87.0	2.77 2.77		DOL,F/XL,SHY GY
58	10765.0-66.0	*	<0.02	<0.02		0.2		0.0 95.7	2.79 2.79		DOL,F/XL,GY
59	10766.0-67.0	*	<0.02	<0.02		0.7		0.0 85.9	2.75 2.76		DOL,F/XL,SHY GY
60	10767.0-68.0	*	0.02	<0.02		0.3		0.0 76.1	2.77 2.78		DOL,F/XL,SHY GY
61	10768.0-69.0	*	<0.02	<0.02		0.7		0.0 69.7	2.66 2.67		DOL,F/XL,SHY GY

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			MAXIMUM	90 DEG VERT			OIL	WATER	+BULK	GRN		
62	10769.0-70.0	*	0.22	<0.02		1.8	0.0	66.5	2.64	2.67		DOL,F/XL,SHY GY
63	10770.0-71.0	*	0.02	<0.02		0.9	0.0	63.3	2.67	2.68		DOL,F/XL,SHY GY
64	10771.0-72.0	*	0.41	<0.02		2.5	0.0	73.3	2.62	2.66		DOL,F/XL,SHY GY
65	10772.0-73.0	*	2.21	0.05		2.3	0.0	64.1	2.66	2.70		DOL,F/XL,SHY GY
66	10773.0-74.0	*	0.02	<0.02		0.8	0.0	54.9	2.69	2.70		DOL,F/XL,SHY GY
67	10774.0-75.0	*	1.51	<0.02		2.7	0.0	95.6	2.66	2.70		DOL,F/XL,SHY GY
68	10775.0-76.0	*	0.72	0.05		3.0	0.0	90.2	2.61	2.66		SS,F/GR,SHY GY
69	10776.0-77.0	*	0.04	<0.02		2.8	0.0	95.2	2.61	2.65		SS,F/GR,SHY GY
70	10777.0-78.0	*	0.04	<0.02		2.1	0.0	98.0	2.62	2.65		SS,F/GR,SHY GY
71	10778.0-79.0	*	1.95	<0.02		2.5	0.0	92.4	2.64	2.68		SS,F/GR,SHY GY
72	10779.0-80.0	*	5.14	0.03		1.8	0.0	84.4	2.63	2.66		SS,F/GR,SHY GY
73	10780.0-81.0	*	0.61	0.05		3.0	0.0	83.5	2.60	2.65		SS,F/GR,SHY GY
74	10781.0-82.0	*	0.40	<0.02		3.2	0.0	98.9	2.61	2.66		SS,F/GR,SHY GY
75	10782.0-83.0	*	0.17	0.03		3.2	0.0	98.2	2.59	2.64		SS,F/GR,SHY GY
76	10783.0-84.0	*	0.69	0.36		9.4	0.0	94.7	2.50	2.65		SS,F/GR,WH
77	10784.0-85.0	*	0.50	0.87		8.6	0.0	92.1	2.51	2.64		SS,F/GR,WH

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			MAXIMUM	90 DEG VERT			OIL	WATER	±BULK	GRN		
78	10785.0-86.0	*	1.93	4.59		8.6	0.0	75.9	2.51	2.64		SS,F/GR,WH
79	10786.0-87.0	*	2.52	1.54		10.0	0.0	82.6	2.49	2.64		SS,F/GR,WH
80	10787.0-88.0	*	2.05	3.74		9.2	0.0	87.2	2.49	2.63		SS,F/GR,WH
81	10788.0-89.0	*	13.00	188.00		8.3	0.0	76.3	2.50	2.63		SS,F/GR,WH
82	10789.0-90.0	*	288.00	56.00		9.9	0.0	75.2	2.48	2.63		SS,F/GR,WH
83	10790.0-91.0	*	8.52	3.23		9.5	0.0	85.0	2.49	2.64		SS,F/GR,WH
84	10791.0-92.0	*	0.05	<0.02		2.5	0.0	80.6	2.60	2.64		SS,F/GR,WH
85	10792.0-93.0	*	1.22	1.59		9.3	0.0	89.4	2.50	2.64		SS,F/GR,WH
86	10793.0-94.0	*	3.00	1.81		10.7	0.0	83.7	2.47	2.63		SS,F/GR,WH
87	10794.0-95.0	*	0.57	0.08		9.6	0.0	82.2	2.49	2.64		SS,F/GR,WH
88	10795.0-96.0	*	0.10	0.03		8.3	0.0	76.8	2.51	2.64		SS,F/GR,WH
89	10796.0-97.0	*	2.13	1.51		9.6	0.0	84.0	2.48	2.63		SS,F/GR,WH
90	10797.0-98.0	*	1.36	1.45		8.1	0.0	89.0	2.51	2.63		SS,F/GR,WH
91	10798.0-99.0	*	24.00	6.79		10.7	0.0	79.7	2.47	2.63		SS,F/GR,WH
92	10799.0-00.0	*	1.75	37.00		5.6	0.0	71.3	2.55	2.64		SS,F/GR,WH
93	10800.0-01.0	*	40.00	5.48		10.9	0.0	73.2	2.47	2.64		SS,F/GR,WH

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			MAXIMUM	90 DEG VERT			OIL	WATER	+BULK	GRN		
94	10801.0-02.0		*	10.00	21.00	9.6	0.0	79.9	2.49	2.64		SS,F/GR,WH
95	10802.0-03.0		*	3.92	1.57	8.8	0.0	80.9	2.50	2.63		SS,F/GR,WH
96	10803.0-04.0		*	28.00	2.37	9.9	0.0	73.1	2.48	2.63		SS,F/GR,WH
97	10804.0-05.0		*	3.31	6.23	3.1	0.0	73.9	2.59	2.64		SS,F/GR,WH
98	10805.0-06.0		*	6.57	2.17	9.5	0.0	84.5	2.48	2.63		SS,F/GR,WH
99	10806.0-07.0		*	35.00	3.63	7.5	0.0	71.9	2.52	2.64		SS,F/GR,WH
100	10807.0-08.0		*	6.67	1.16	8.3	0.0	81.4	2.50	2.63		SS,F/GR,WH
101	10808.0-09.0		*	6.25	3.82	12.5	0.0	67.0	2.44	2.63		SS,F/GR,WH
102	10809.0-10.0		*	8.16	14.00	10.6	0.0	79.0	2.47	2.63		SS,F/GR,WH
103	10810.0-11.0		*	10.00	4.96	10.8	0.0	79.1	2.46	2.63		SS,F/GR,WH
104	10811.0-12.0		*	4.56	2.58	10.7	0.0	87.7	2.47	2.63		SS,F/GR,WH
105	10812.0-13.0		*	0.67	3.45	10.9	0.0	89.7	2.46	2.63		SS,F/GR,WH
106	10813.0-14.0		*	0.29	0.59	3.4	0.0	85.5	2.61	2.66		SS,F/GR,WH
107	10814.0-15.0		*	0.62	0.03	9.1	0.0	85.7	2.50	2.64		SS,F/GR,WH
108	10815.0-16.0		*	5.24	0.12	10.3	0.0	85.1	2.47	2.63		SS,F/GR,WH
109	10816.0-17.0		*	6.61	18.00	9.0	0.0	89.8	2.50	2.64		SS,F/GR,WH

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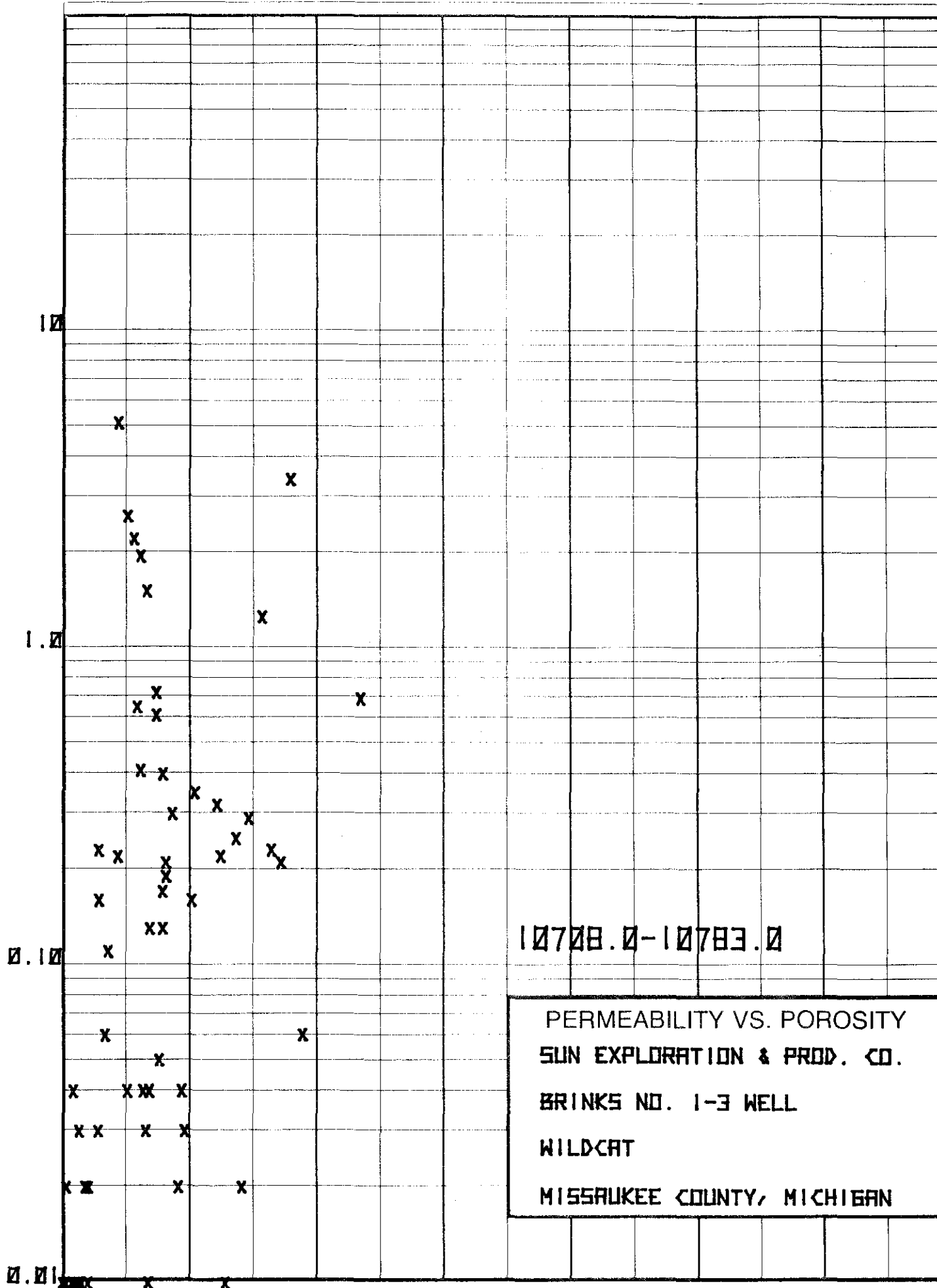
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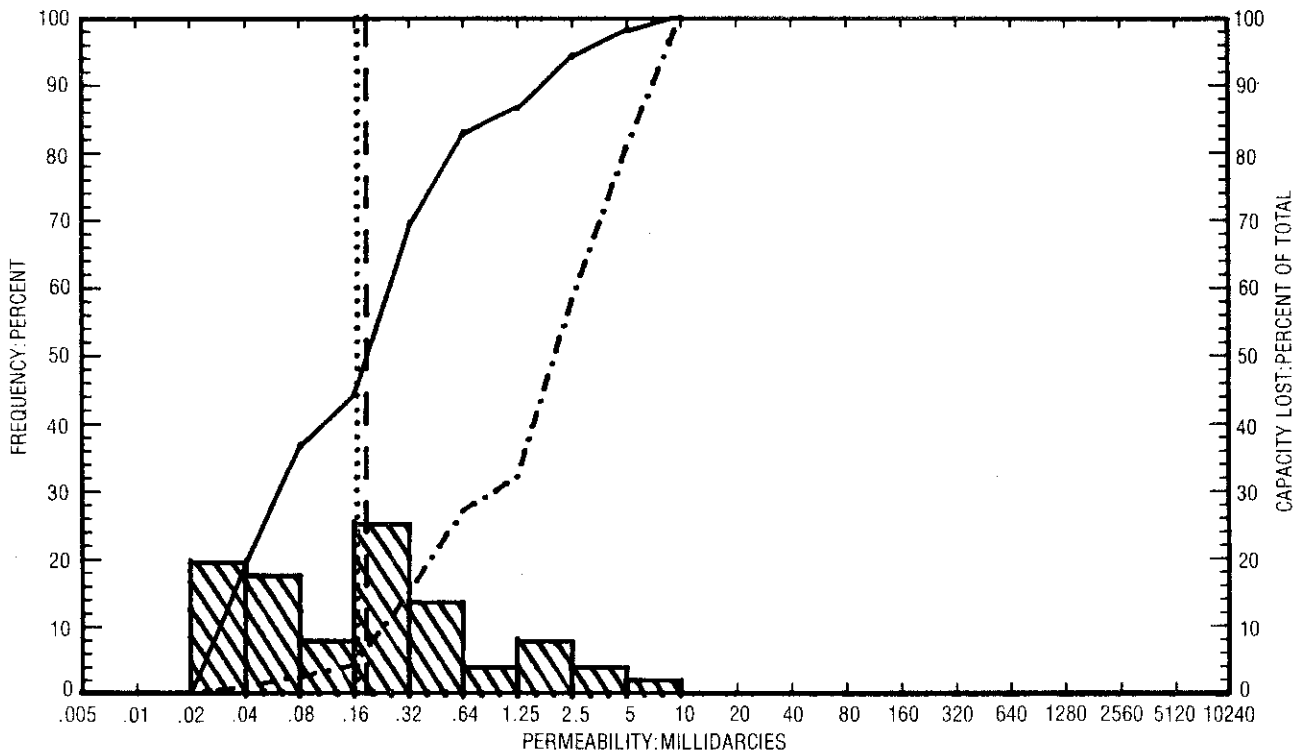
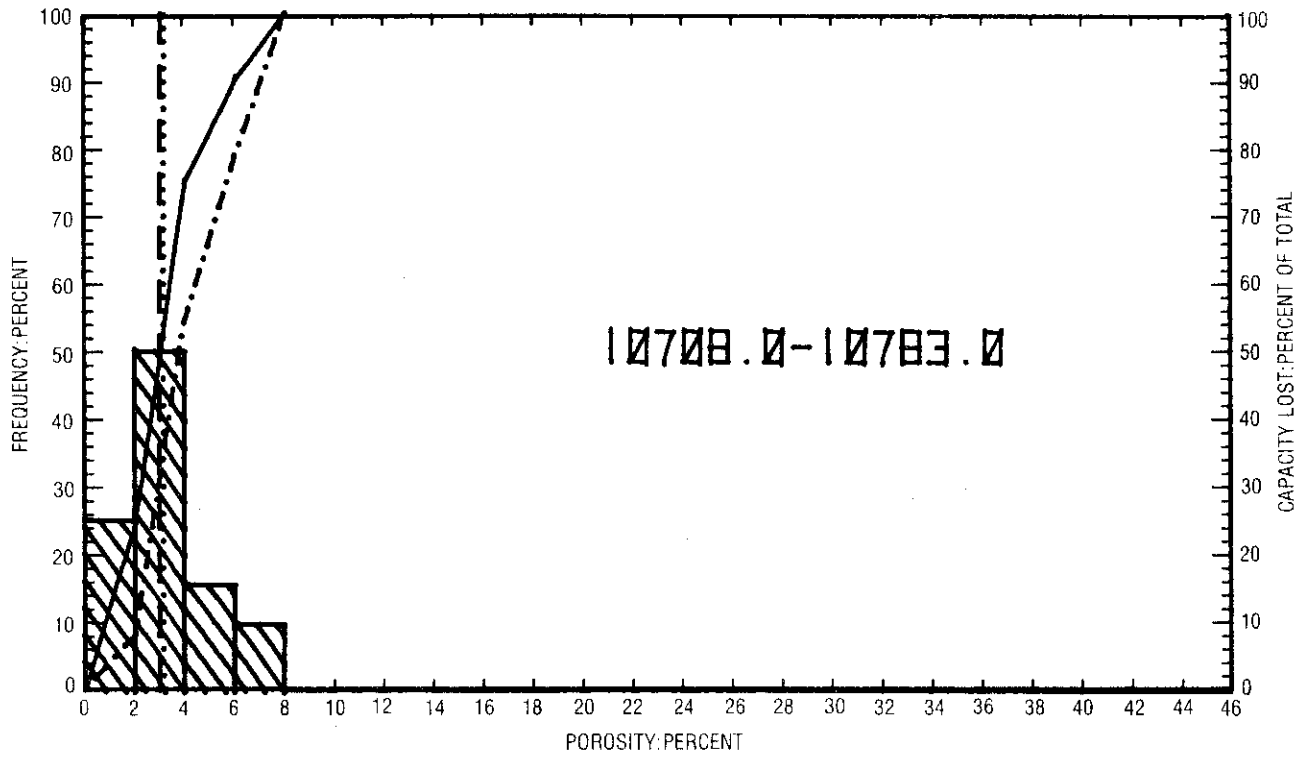
FILE NO: 3602-1043
 ENGINEER: MCCLURE

SMP. NO.	DEPTH	FEET ANAL	PERM TO AIR, Md		PERM FT(90)	POROSITY GEX	FEET	FLUID SATS		DENSITY		PROB PROD	DESCRIPTION
			MAXIMUM	90 DEG VERT				OIL	WATER	+BULK	GRN		
110	10817.0-18.0		*	24.00	5.47		9.4	0.0	88.1	2.50	2.64		SS,F/GR,WH
111	10818.0-19.0		*	4.74	0.63		9.4	0.0	78.9	2.49	2.63		SS,F/GR,WH

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PERMEABILITY: MILLIDARCIES





PERMEABILITY AND POROSITY HISTOGRAMS

**SUN EXPLORATION & PROD. CO.
BRINKS NO. 1-3 WELL
WILDCAT
MISSAUKEE COUNTY, MICHIGAN**

LEGEND

- ARITHMETIC MEAN POROSITY ······
- GEOMETRIC MEAN PERMEABILITY ······
- MEDIAN VALUE ————
- CUMULATIVE FREQUENCY ————
- CUMULATIVE CAPACITY LOST - · - · -

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO. WELL : BRINKS NO. 1-3 WELL
FIELD : WILDCAT COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

AIR PERMEABILITY : MD. (HORIZONTAL) RANGE USED 0.010 TO 5000
POROSITY : PERCENT (GAS EXPANSION) RANGE USED 0.0 TO 46.0

(PERMEABILITY UNCORRECTED FOR SLIPPAGE)

DEPTH LIMITS : 10708.0 - 10783.0 INTERVAL LENGTH : 75.0
FEET ANALYZED IN ZONE : 75.0 LITHOLOGY EXCLUDED : NONE

DATA SUMMARY

POROSITY AVERAGE	PERMEABILITY AVERAGES		
	ARITHMETIC	HARMONIC	GEOMETRIC
3.2	0.51	0.07	0.16

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO. WELL : BRINKS NO. 1-3 WELL
 FIELD : WILDCAT COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

GROUPING BY POROSITY RANGES

POROSITY RANGE	FEET IN RANGE	AVERAGE POROSITY	AVERAGE PERM. (GEOM.)	(ARITH)	FREQUENCY (PERCENT)	CUMULATIVE FREQUENCY (%)
0.0 - 2.0	13.0	1.0	0.073	0.469	25.0	25.0
2.0 - 4.0	26.0	2.9	0.189	0.506	50.0	75.0
4.0 - 6.0	8.0	5.1	0.207	0.276	15.4	90.4
6.0 - 8.0	5.0	6.9	0.415	1.0	9.6	100.0

TOTAL NUMBER OF FEET = 52.0

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO.
 FIELD : WILDCAT

WELL : BRINKS NO. 1-3 WELL
 COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

GROUPING BY PERMEABILITY RANGES

PERMEABILITY RANGE	FEET IN RANGE	AVERAGE PERM. (GEOM.)	AVERAGE PERM. (ARITH)	AVERAGE POROSITY	FREQUENCY (PERCENT)	CUMULATIVE FREQUENCY (%)
0.020 - 0.039	10.0	0.024	0.024	2.0	19.2	19.2
0.039 - 0.078	9.0	0.045	0.046	2.9	17.3	36.5
0.078 - 0.156	4.0	0.120	0.120	2.4	7.7	44.2
0.156 - 0.313	13.0	0.214	0.218	4.0	25.0	69.2
0.313 - 0.625	7.0	0.446	0.459	3.8	13.5	82.7
0.625 - 1.250	2.0	0.684	0.685	2.7	3.8	86.5
1.250 - 2.500	4.0	1.7	1.7	3.5	7.7	94.2
2.500 - 5	2.0	3.0	3.0	4.7	3.8	98.1
5 - 10	1.0	5.1	5.1	1.8	1.9	100.0

TOTAL NUMBER OF FEET = 52.0

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO. WELL : BRINKS NO. 1-3 WELL
 FIELD : WILDCAT COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

POROSITY-FEET OF STORAGE CAPACITY LOST FOR SELECTED POROSITY CUT OFF

POROSITY CUT OFF	FEET LOST	CAPACITY LOST (%)	FEET REMAINING	CAPACITY REMAINING (%)	ARITH MEAN	MEDIAN
0.0	0.0	0.0	52.0	100.0	3.2	3.0
2.0	13.0	8.1	39.0	91.9	3.9	
4.0	39.0	54.3	13.0	45.7	5.8	
6.0	47.0	78.9	5.0	21.1	6.9	
8.0	52.0	100.0	0.0	0.0		

TOTAL STORAGE CAPACITY IN POROSITY-FEET = 164.0

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO.
 FIELD : WILDCAT

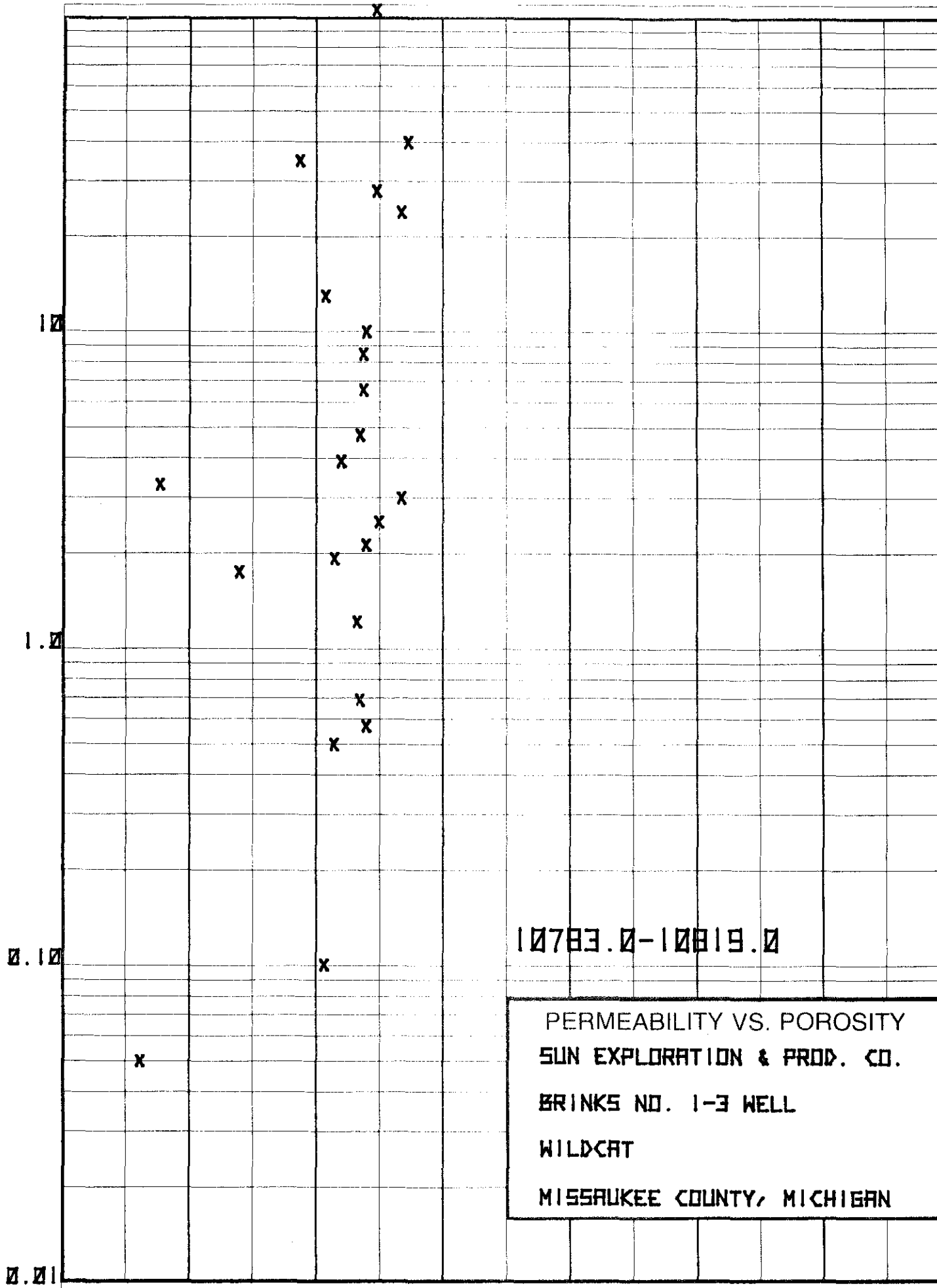
WELL : BRINKS NO. 1-3 WELL
 COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

MILLIDARCY-FEET OF FLOW CAPACITY LOST FOR SELECTED PERMEABILITY CUT OFF

PERMEABILITY CUT OFF	FEET LOST	CAPACITY LOST (%)	FEET REMAINING	CAPACITY REMAINING (%)	GEOM MEAN	MEDIAN
0.005	0.0	0.0	52.0	100.0	0.16	0.18
0.010	0.0	0.0	52.0	100.0	0.16	0.18
0.020	0.0	0.0	52.0	100.0	0.16	0.18
0.039	10.0	0.9	42.0	99.1	0.26	0.24
0.078	19.0	2.4	33.0	97.6	0.42	0.30
0.156	23.0	4.2	29.0	95.8	0.49	0.36
0.313	36.0	14.9	16.0	85.1	0.97	0.88
0.625	43.0	27.0	9.0	73.0	1.77	1.93
1.250	45.0	32.1	7.0	67.9	2.33	
2.500	49.0	58.1	3.0	41.9	3.58	
5	51.0	80.7	1.0	19.3	5.14	
10	52.0	100.0	0.0	0.0		

TOTAL FLOW CAPACITY IN MILLIDARCY-FEET (ARITHMETIC) = 26.63

PERMEABILITY: MILLIDARCIES



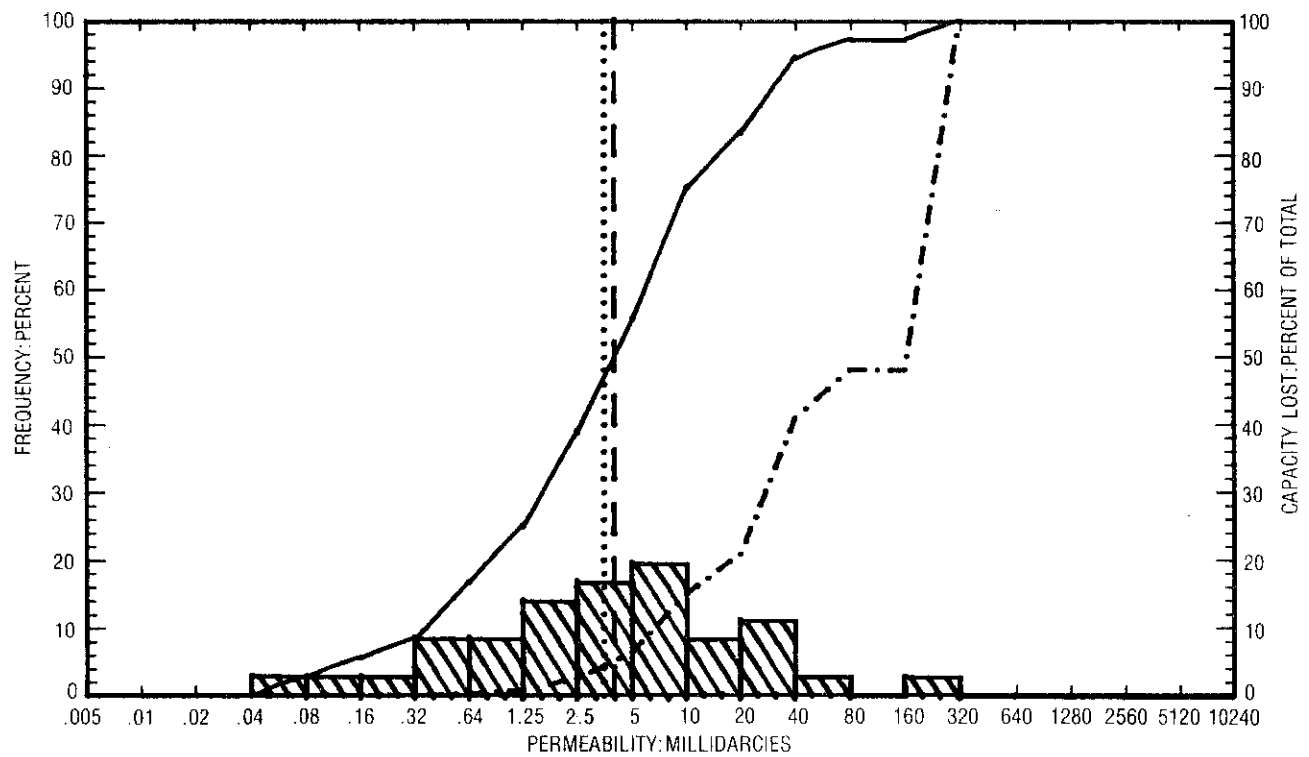
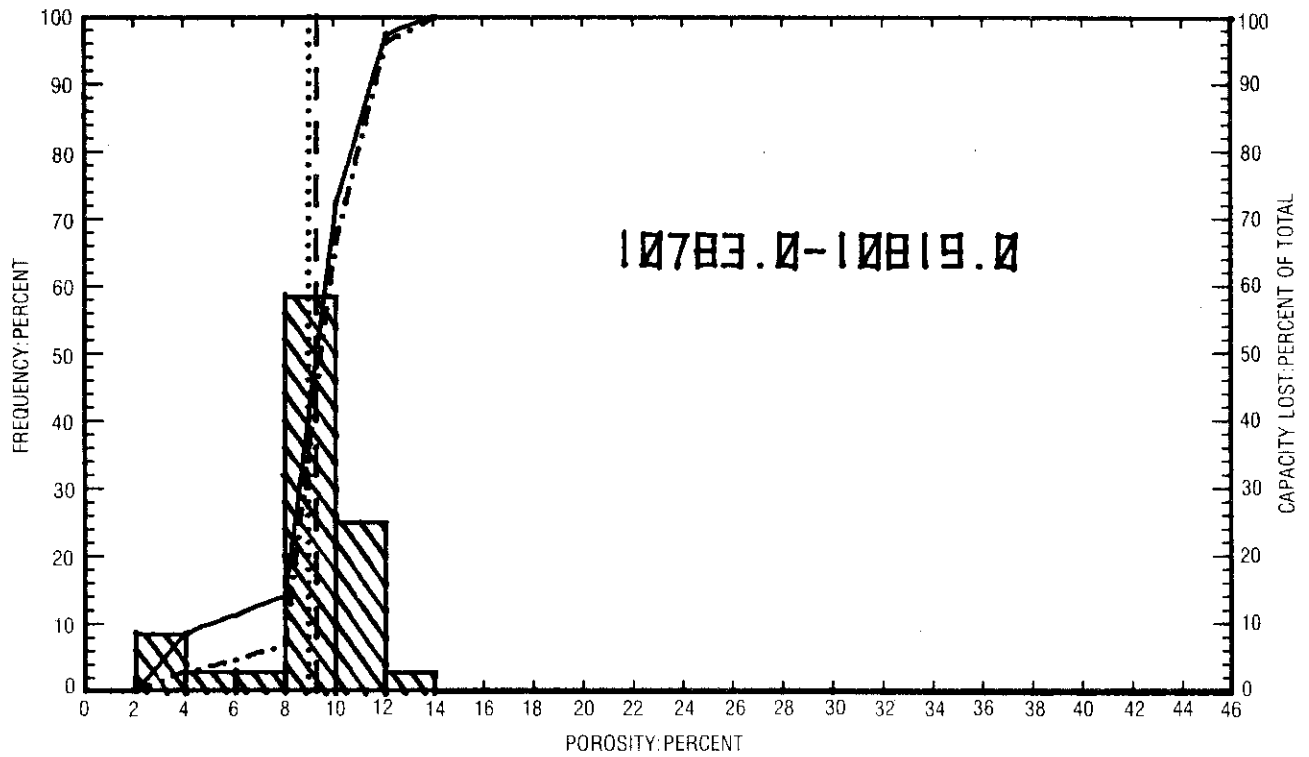
10783.0-10819.0

PERMEABILITY VS. POROSITY
SUN EXPLORATION & PROD. CO.
BRINKS NO. 1-3 WELL
WILDCAT
MISSAUKEE COUNTY, MICHIGAN

0.01

4.0 8.0 12.0 16.0 20.0 24.0

POROSITY: PERCENT



PERMEABILITY AND POROSITY HISTOGRAMS

**SUN EXPLORATION & PROD. CO.
BRINKS NO. 1-3 WELL
WILDCAT
MISSAUKEE COUNTY, MICHIGAN**

LEGEND

- ARITHMETIC MEAN POROSITY (vertical dotted line)
- GEOMETRIC MEAN PERMEABILITY (vertical dotted line)
- MEDIAN VALUE - - - - - (solid line)
- CUMULATIVE FREQUENCY - - - - - (solid line)
- CUMULATIVE CAPACITY LOST - . - . - . (dash-dot line)

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO. WELL : BRINKS NO. 1-3 WELL
FIELD : WILDCAT COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

AIR PERMEABILITY : MD. (HORIZONTAL) RANGE USED 0.010 TO 5000
POROSITY : PERCENT (GAS EXPANSION) RANGE USED 0.0 TO 46.0

(PERMEABILITY UNCORRECTED FOR SLIPPAGE)

DEPTH LIMITS : 10783.0 - 10819.0 INTERVAL LENGTH : 36.0
FEET ANALYZED IN ZONE : 36.0 LITHOLOGY EXCLUDED : NONE

DATA SUMMARY

POROSITY AVERAGE	PERMEABILITY AVERAGES		
	ARITHMETIC	HARMONIC	GEOMETRIC
8.9	15	0.74	3.5

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO. WELL : BRINKS NO. 1-3 WELL
 FIELD : WILDCAT COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

GROUPING BY POROSITY RANGES

POROSITY RANGE	FEET IN RANGE	AVERAGE POROSITY	AVERAGE PERM. (GEOM.) (ARITH)		FREQUENCY (PERCENT)	CUMULATIVE FREQUENCY (%)
2.0 - 4.0	3.0	3.0	0.363	1.2	8.3	8.3
4.0 - 6.0	1.0	5.6	1.7	1.8	2.8	11.1
6.0 - 8.0	1.0	7.5	35	35	2.8	13.9
8.0 - 10.0	21.0	9.1	3.4	20	58.3	72.2
10.0 - 12.0	9.0	10.6	6.0	11	25.0	97.2
12.0 - 14.0	1.0	12.5	6.2	6.3	2.8	100.0

TOTAL NUMBER OF FEET = 36.0

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO.
 FIELD : WILDCAT

WELL : BRINKS NO. 1-3 WELL
 COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

GROUPING BY PERMEABILITY RANGES

PERMEABILITY RANGE	FEET IN RANGE	AVERAGE PERM. (GEOM.)	AVERAGE PERM. (ARITH)	AVERAGE POROSITY	FREQUENCY (PERCENT)	CUMULATIVE FREQUENCY (%)
0.039 - 0.078	1.0	0.050	0.050	2.5	2.8	2.8
0.078 - 0.156	1.0	0.100	0.100	8.3	2.8	5.6
0.156 - 0.313	1.0	0.290	0.290	3.4	2.8	8.3
0.313 - 0.625	3.0	0.561	0.563	9.1	8.3	16.7
0.625 - 1.250	3.0	0.826	0.860	9.9	8.3	25.0
1.250 - 2.500	5.0	1.8	1.8	8.2	13.9	38.9
2.500 - 5	6.0	3.6	3.7	8.8	16.7	55.6
5 - 10	7.0	6.8	6.9	10.0	19.4	75.0
10 - 20	3.0	11	11	9.6	8.3	83.3
20 - 40	4.0	27	28	9.4	11.1	94.4
40 - 80	1.0	40	40	10.9	2.8	97.2
160 - 320	1.0	288	288	9.9	2.8	100.0

TOTAL NUMBER OF FEET = 36.0

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO.
 FIELD : WILDCAT

WELL : BRINKS NO. 1-3 WELL
 COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

POROSITY-FEET OF STORAGE CAPACITY LOST FOR SELECTED POROSITY CUT OFF

POROSITY CUT OFF	FEET LOST	CAPACITY LOST (%)	FEET REMAINING	CAPACITY REMAINING (%)	ARITH MEAN	MEDIAN
0.0	0.0	0.0	36.0	100.0	8.9	9.2
2.0	0.0	0.0	36.0	100.0	8.9	9.2
4.0	3.0	2.8	33.0	97.2	9.5	9.4
6.0	4.0	4.5	32.0	95.5	9.6	9.4
8.0	5.0	6.9	31.0	93.1	9.7	
10.0	26.0	66.4	10.0	33.6	10.8	
12.0	35.0	96.1	1.0	3.9	12.5	
14.0	36.0	100.0	0.0	0.0		

TOTAL STORAGE CAPACITY IN POROSITY-FEET = 321.6

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

COMPANY: SUN EXPLORATION & PROD. CO.
 FIELD : WILDCAT

WELL : BRINKS NO. 1-3 WELL
 COUNTY, STATE: MISSAUKEE COUNTY, MICHIGAN

MILLIADRCY-FEET OF FLOW CAPACITY LOST FOR SELECTED PERMEABILITY CUT OFF

PERMEABILITY CUT OFF	FEET LOST	CAPACITY LOST (%)	FEET REMAINING	CAPACITY REMAINING (%)	GEOM MEAN	MEDIAN
0.005	0.0	0.0	36.0	100.0	3.49	3.97
0.010	0.0	0.0	36.0	100.0	3.49	3.97
0.020	0.0	0.0	36.0	100.0	3.49	3.97
0.039	0.0	0.0	36.0	100.0	3.49	3.97
0.078	1.0	0.0	35.0	100.0	3.94	4.20
0.156	2.0	0.0	34.0	100.0	4.39	4.45
0.313	3.0	0.1	33.0	99.9	4.76	4.72
0.625	6.0	0.4	30.0	99.6	5.90	5.52
1.250	9.0	0.8	27.0	99.2	7.34	6.40
2.500	14.0	2.5	22.0	97.5	10.08	8.20
5	20.0	6.5	16.0	93.5	14.85	12.60
10	27.0	15.1	9.0	84.9	27.31	25.94
20	30.0	21.0	6.0	79.0	43.20	
40	34.0	41.0	2.0	59.0	107.33	80.00
80	35.0	48.2	1.0	51.8	288.00	
160	35.0	48.2	1.0	51.8	288.00	
320	36.0	100.0	0.0	0.0		

TOTAL FLOW CAPACITY IN MILLIDARCY-FEET (ARITHMETIC) = 556.00

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