



CHEM LAB

WATER ANALYSIS LABORATORY REPORT



01122951

14298-1

MEMBER COMPANY The California Company  
OPERATOR Plains Exploration Company  
WELL NO. Plains No. 1 Van Trotha  
FIELD Wildcat  
COUNTY Weld  
STATE Colorado

DATE May 14, 1959 REPORT NO.  
LOCATION Sec. 31-6N-66W  
FORMATION Shannon  
DEPTH 4601 - 4623  
SAMPLE FROM DST No. 1

DESCRIPTION OF SAMPLE Gel mud before DST. Very organic filtrate.

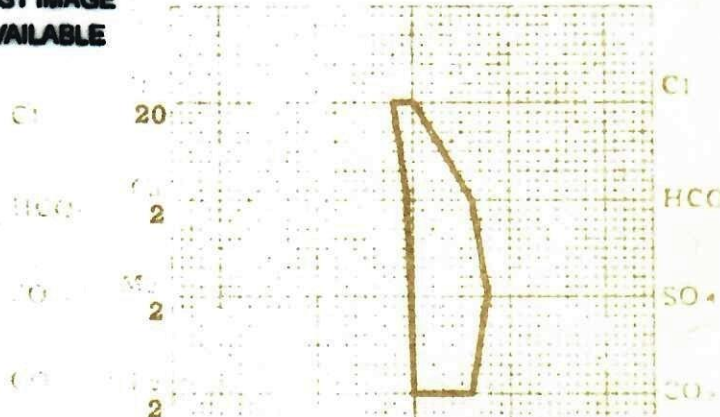
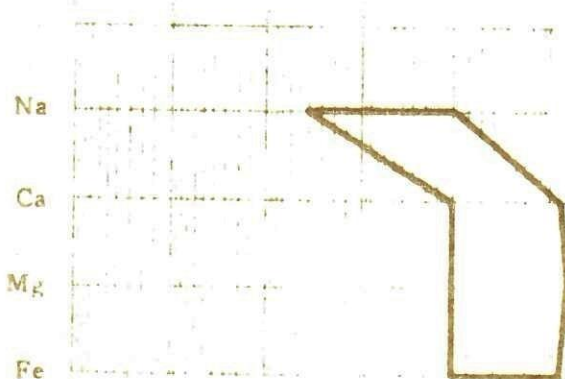
CONSTITUENTS	PPM	MEQ	MEQ	TOTAL SOLIDS IN PARTS PER MILLION
SODIUM	879	38.20	48.04	BY EVAPORATION 2,719
CALCIUM	23	1.15	1.45	AFTER IGNITION 2,604
MAGNESIUM	5	0.41	0.51	CALCULATED 2,378
SULFATE	732	15.23	19.16	
CHLORIDE	18	0.51	0.64	
CARBONATE	372	12.39	15.58	PROPERTIES OF REACTION IN PERCENT
BICARBONATE	709	11.63	14.62	PRIMARY SALINITY 39.60
HYDROXIDE	-	-	-	SECONDARY SALINITY 0.00
OBSERVED pH 9.7				PRIMARY ALKALINITY 56.48
CHLORIDE as NaCl 30				SECONDARY ALKALINITY 3.92
				CHLORIDE SALINITY 3.23
				SULFATE SALINITY 96.77

## WATER ANALYSIS PATTERNS

MEQ per unit

LOGARITHMIC

STANDARD

BEST IMAGE  
AVAILABLE



ITEM LAB 14298-2

WATER ANALYSIS REPORT



14298-2

MEMBER COMPANY The California Company  
 OPERATOR Plains Exploration Company  
 WELL NO. Plains No. 1 Van Trotha  
 FIELD Wildcat  
 COUNTY Weld  
 STATE Colorado  
 DATE May 14, 1959  
 LOCATION Sec. 31-6N-66W  
 FORMATION Shannon  
 ELEVATION 4601 - 4623  
 SAMPLE NO. DST No. 1

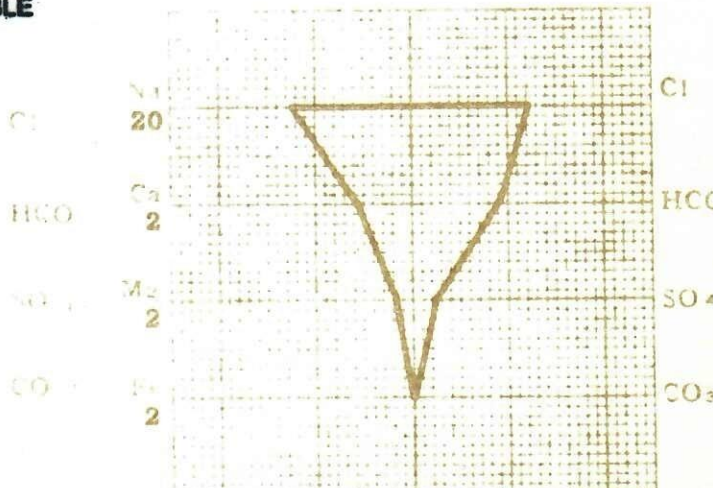
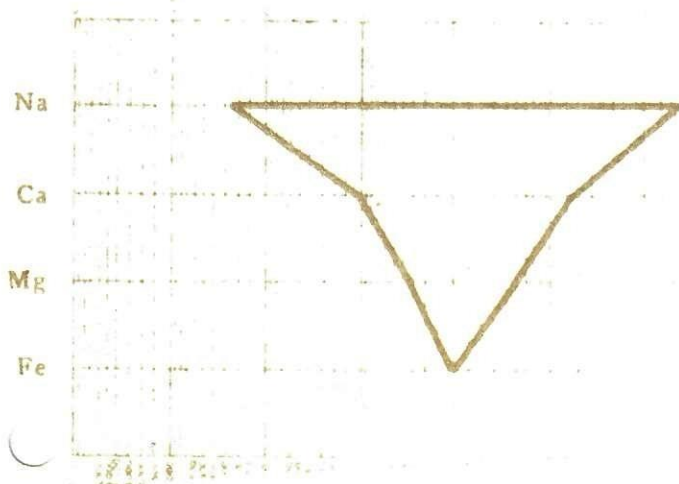
DESCRIPTION OF ANALYSIS Sampled 210 feet from top of fluid (300' fluid recovery).  
 Believe this is slightly contaminated Shannon water.

CONSTITUENTS	PPM	MEQ	MEQ/L	TOTAL SOLIDS IN PPM WATER MILLION
SODIUM	5,655	245.87	47.30	15,424
CALCIUM	224	11.18	2.15	14,944
MAGNESIUM	35	2.88	0.55	15,094
SULFATE	233	4.65	0.93	
CHLORIDE	8,400	236.88	45.47	
CARBONATE	-	-	-	
BICARBONATE	1,110	-	-	
HYDROXIDE	-	-	-	
OBSERVED pH	8.2			
CHLORIDE as NaCl	13,848			
		RESISTIVITY		
		MEASURED 0.49		
		CALCULATED		
				PERCENTS OF REACTION IN PERCENT
				PRIMARY SALINITY 92.80
				SECONDARY SALINITY 0.00
				PRIMARY ALKALINITY 1.80
				SECONDARY ALKALINITY 5.40
				CHLORIDE SALINITY 98.00
				SULFATE SALINITY 2.00

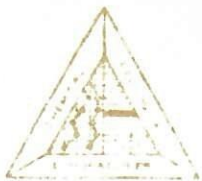
WATER ANALYSIS METHODS

BEST IMAGE AVAILABLE

STANDARD







14298-3

MEMBER COMPANY The California Company  
OPERATOR Plains Exploration Company  
WELL NO. Plains No. 1 Van Trotha  
FIELD Wildcat  
COUNTY Weld  
STATE Colorado  
DATE May 14, 1959  
LOCATION Sec. 31-6N-66W  
FORMATION Shannon  
DEPTH 4601 - 4623  
SAMPLE FROM DST No. 1

DESCRIPTION OF SAMPLE Sampled 300 feet from top of fluid (300' fluid recovery).  
Believe this is Shannon water.

CONSTITUENTS	PPM	MEQ	MEQ%	TOTAL SOLIDS IN PART PER MILLION	
SODIUM	5,950	258.70	46.91	BY EVAPORATION	16,820
CALCIUM	266	13.27	2.41	AFTER IGNITION	16,080
MAGNESIUM	46	3.78	0.68	CALCULATED	15,996
SULFATE	199	4.14	0.75		
CHLORIDE	9,000	253.80	46.02		
CARBONATE	-	-	-	PROPERTIES OF SOLUTION INTEREST	
BICARBONATE	1,086	17.81	3.23	PRIMARY SALINITY	93.54
HYDROXIDE	-	-	-	SECONDARY SALINITY	0.00
				PRIMARY ALKALINITY	0.28
OBSERVED pH	8.3			SECONDARY ALKALINITY	6.18
CHLORIDE				CHLORIDE SALINITY	98.40
as NaCl	14,837			SULFATE SALINITY	1.60
		RESISTIVITY			
		@ 68 F., ohm-meters			
		MEASURED	0.415		
		CALCULATED			

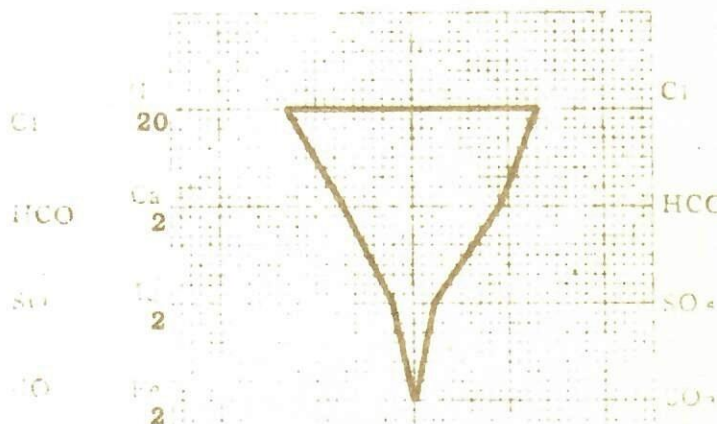
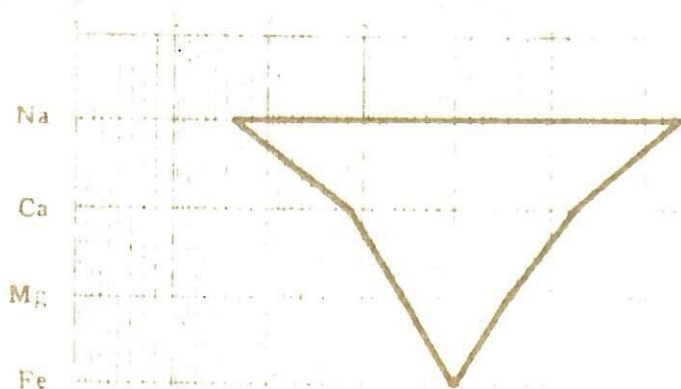
BEST IMAGE  
AVAILABLE

WATER ANALYSIS PATTERNS

MEQ per unit

LOGARITHMIC

STANDARD



# DATA SHEET AND DISCOSSION



00223484

**LOCATION:** NE NE (660 feet South of North line and 660 feet West of East line), Section 31, Township 6 North, Range 66 West, Weld County, Colorado.

**COMMENCED:** April 28, 1959

**COMPLETED:** May 28, 1959

**CONTRACTOR:** Sterling Drilling Company, Sterling, Kansas

**CASING:** Set 1 Joint, 7 feet of 18 inch Galvanized Culvert at 25 feet with 18 sacks of cement. Set 11 joints, 289 feet of 10 3/4 inch, 40 pound, 8 round thread new casing at 303 feet with 150 sacks of cement. (100 sacks 60-40 Posmix and 50 sacks regular)

**MEASUREMENTS:** All measurements are taken from the kelly bushing approximately 14 feet above the ground elevation. A 2 foot upward correction was necessary to make drilled depth match log depth at total depth and top of Lyons sandstone. (8900 = 8898 log).

**ELEVATION:** 4709 Ground (Powers) - 4723 Kelly Bushing

<u>Formation</u>	<u>Sample Top</u>	<u>Schlumberger Top</u>	<u>Datums</u>
Parkman	3445	3464	+ 1259
Sussex	4238	4248	+ 475
Shannon	4600	4596	+ 127
Niobrara	6740	6705	- 1972
Timpas	6993	6996	- 2273
Codell			
Carlile	7015	7018	- 2299
Greenhorn	7210	7220	- 2497
Graneros	7285	7304	- 2581
Muddy (J Sand)	7483	7486	- 2763
Skull Creek		7588	- 2865
Dakota	7714	7727	- 3004
Morrison	7830	7835	- 3112
Entrada	8077	8078	- 3355
Jelm	8105	8104	- 3381
Lykins	8159	8164	- 3441
Forrele	8565	8548	- 3825
Upper Satanka	8690	8688	- 3965
Lyons	8797	8796	- 4073
Lower Satanka	8890	8886	- 4163
Total Depth	8900	8898	- 4175

BEST IMAGE  
AVAILABLE

**DISCUSSION:** A.W. Gilbert, Jr. Geologist for the California Company, ran the samples, checked the mud logger, and picked the sample tops through the Lykins formation and R. H. Espack relieved him below that depth. The author worked with these men spot checking the samples.

The Parkman, 3464 (+ 1259) was a gray fine tight silty sand with no shows noted in the samples or indicated on the mud or electric logs.

# SAMPLE LOG



0 - 30	Sand gray fine shaley little gravel
60	Ditto; little ditto
90	Ditto; trace ditto
120	Ditto
150	Ditto; little shale dark gray silty
180	Ditto and ditto
210	Ditto and ditto
240	Ditto and ditto
270	Shale gray to dark gray soft to silty
300	Sand gray fine very silty tight soft
330	Ditto; little shale dark gray silty
360	Ditto; little ditto
390	Ditto and ditto
420	Sand dark gray fine silty firm tight
450	Ditto; little shale dark gray silty little gravel
480	Ditto and ditto; trace ditto
510	Ditto soft and ditto
540	Sand gray fine silty soft; little ditto
570	Ditto; little ditto
600	Ditto and ditto
630	Ditto and ditto
660	Shale dark gray silty; little sand gray fine silty soft
690	Ditto; little ditto
720	Ditto; trace ditto
750	Ditto; little ditto
780	Ditto; trace ditto; little gravel
810	Ditto and ditto
840	Ditto; little ditto

BEST IMAGE  
AVAILABLE



## CORE DESCRIPTION AND CORE ANALYSIS RECORD



Core #1 6792 to 6842 - Recovery 49 feet

49' - 0" Shale dark gray hard calcareous with some buff to brown mottling; good gas odor in freshbreak, small amount of gas bubbling on wet surface.

Core #2 8799 - 8807 Recovery 8 feet (8797 to 8805 log)

8' - 0" Sand gray fine to medium quartzitic with anhydride cementing vertical fractured hard tight no show, some carbanaceous inclusions.

Core #3 8812 - 29 - Recovery 12 feet (8810 - 27) log

12' - 0" Sand gray fine to medium quartzitic with some anhydride cementing vertical fractured hard tight, no show, some carbanaceous inclusions.

Core #4 8834 to 54 - Recovery 17 feet (probably 8828 to 48 log)

9' - 0" Sand dark gray fine hard tight quartzitic, no show.

8' - 0" Sand gray with brownish cast fine to medium hard tight quartzitic trace of anhydride. No show, vertical fractured.

Core #5 8854 to 66 - Recovery 11 feet (probably 8848 - 8860 log)

11' - 0" Sand gray with brownish cast fine to medium hard tight quartzitic trace of anhydride. Vertical fractured, no show.

BEST IMAGE  
AVAILABLE

## DRILL STEM TEST RECORD



## Drill Stem Test #1 - 4601 to 4623

The tool was open 4 minutes, shut in 30 minutes, open one hour and 30 minutes, then shut in for 30 minutes. During the 4 minute open period the blow built to the bottom of the bucket (12" in water) in 3 minutes. During the topen test it took 15 minutes to build to the bottom of the bucket then weakened some after 20 minutes to a blow of 6 inches in water at end of test. No gas reached the surface but it was noted in the drill pipe approximately 1000 feet above fluid. The test recovered 30 feet of oil and gas cut mud, 90 feet of slightly oil and gas cut mud and 180 feet of slightly gas cut muddy water. A reasonable estimate would be 1% of the fluid recovered was a light green oil, however, not enough was recovered to take a gravity check.

	#205 at 4614	#194 at 4587	#1629 at 4621	
Initial Shut in pressure	2003	1992	1600	psi
Final Shut in pressure	1695	1682	1320	psi
Initial Flow pressure	113	74	200	psi
Final Flow pressure	150	128	200	psi
Initial Hydrostatic pressure	2240	2225	2000	psi
Final Hydrostatic pressure	2205	2112	2000	psi

Note: #1629 was the old style direct reading paper chart and the least accurate.

## Drill Stem Test #2 - 8807 to 98

BEST IMAGE  
AVAILABLE

The tool was opened at 6 a.m. May 28, 1959 and a 5 minute initial test taken during which time the blow built from a bubble to 2½ inches in water. The tool was closed and a 30 minute initial shut in pressure was taken, then the tool was reopened for the normal test. There was a weak bubble for 7 minutes when it was completely dead after carefully checking all valves and the hose for plugs or leaks, it was decided to bypass mud to clear perforations at the end of 15 minutes open test. The tool reopened in 2 minutes and remained dead for 10 minutes when the test was shut in for a 15 minute final shut in pressure. The test recovered 960 feet of fluid, 180 feet of mud, 600 feet of mud with increasing water cutting and 180 feet of muddy water (30% mud, 70% water). There was no trace of oil or gas cutting.

	12 Hrs. Chart 194 at 8833	24 Hrs. Chart 205 at 8790	pounds per square inch			
Initial Flow Pressure	289	182	"	"	"	"
Final Flow pressure	415	308	"	"	"	"
Initial Shut in pressure	3495	3310	"	"	"	"
Final shut in pressure	2921 building	2468	"	"	"	"
Initial Hydrostatic pressure	4358	4140	"	"	"	"
Final Hydrostatic pressure	4308	4090	"	"	"	"
Initial Flow pressure (5 min.)	225	"	"	"	"	"
Final Flow pressure (5 min.)	356	"	"	"	"	"

Overall length of tool below bottom of packer 91.24 feet. Perforations 8807 to 8827 and 8884 to 8892.





## CORING TIME WITH 1 FOOT DRILLING TIME

6792 - 6800	14-22-24-26-26-24-24-26	Core #1
6800-10	24-20-22-19-23-19-22-18-20-21	" "
6810-20	17-21-20-24-23-12-14-14-15-14	" "
6820-30	13-16-15-16-12-10-12-14-16-14	" "
6830-40	12-15-15-15-17-14-12-17-11-17	" "
6840-42	12-13*	" "
8750-60	6-4-8-5-7-4-5-5-7-8	
8760-70	4-4-6-6-5-5-6-5-6-5	
8770-80	10-8-8-4-6-6-6-6-6-5	
8780-90	5-6-8-7-7-5-6-8-9-8**	
8790-99	6-6-6-7-7-7-7-10-85*	
8799-8807	23-15-18-17-13-23-26-25*	Core #2
8807-8812	10-14-14-16-22*	
8812-8820	10-7-6-7-6-2-6-8	Core #3
8820-8829	18-24-25-19-25-23-44-36-80*	" "
8829-8834	11-8-10-8-11* Note: Probably reaming & drilling core loss	
8828-8838	14-20-16-11-16-16-18-19-20-20	Core #4
8838-8848	24-20-18-23-9-16-15-9-24-28	
8848-8860	18-13-33-27-19-21-19-20-16-36-13-21*	Core #5
8860-8870	10-8-14-2-10-10-15-9-8-8	
8870-80	10-11-11-9-10-10-9-9-10-4	
8880-90	12-12-8-7-8-8-11-11-9-12	
8890-8900	16-21-17-17-21-11-16-23-26-35*	

Note: Drilling and coring time below 8750 should be corrected upward 2 feet to match log.

BEST IMAGE  
AVAILABLE

(\* - Trip)  
(\*\* - Circulated Samples)



# MUD RECORD

Date	Depth	Wt	Vis	St Vis	Pl Vis	Yield Point	Gel. Strength		pH	Water Loss in cc	Wall Cake in 32nds	Cl ppm	ca	Sand % Vol	Tester
4/30/59	840		Water												Magcobar
5/3/59		9.3	33	10	9	2	0	0	8.5	10.0	2	220			"
5/3/59		9.2	42	--	--	--	0	0	--	8	2	--			"
5/3/59		9.2	51	13	11	2	0	0	9.5	7.2	2	220			"
5/7/59	6190		Water												"
5/8/59	6792	9.2	39	15	12	1	0	0	9.5	8.6	2	200			"
5/9/59	6792		Water and Native Mud												"
5/12/59	7484	9.2	37.5	14	10	4	0	0	9	10.2	2	200			"
5/12/59	7589	9.4	36	15	12-	8	0	4	8.5	9.5	2			.3/4	"
5/13/59	7694	9.6	37	15	12	4	0	0	8.5	8.6	2			.1/8	"
5/14/59	7719	9.6	38	20	18-	6	0	5	9.0	9.2	2			.1/4	"
5/19/59	8326	9.2	34	14	12	9	4	7	7.5	22	3		3800	.1/8	"
5/22/59	8694	9.5	36	16	12	10	4	21	7.5	22	3		2600	.1/8	"
5/24/59	8829	9.5	37	14	--	--	6	22	7.0	14	3	380	3400	.1/8	"
5/26/59	8853	9.4	40	20	18	10	5	14	7.5	14	3			.3	"

BEST IMAGE  
AVAILABLE



BEST IMAGE  
AVAILABLE

BIT RECORD



No	Make	Size	Type	From - To	Footage Drilled	Hours Run	Condition	Remarks
1	Hughes	8 3/4	OSC-3	0 - 840	840	11	WO	
*	Reed	13 3/4	Reamer	0 - 305				Rerun
2	Hughes	8 3/4	OSC-3	840 - 2405	1565	17	Locked	
3	"	"	"	2405 - 3198	793	12	"	
4	"	"	"	3198 - 3850	652	12	"	
5	"	"	"	3850 - 4338	488	13	Loose	
6	"	"	"	4338 - 4623	285	8	Green	Pulled for test
7	"	"	"	4623 - 5127	504	18	Loose	
8	"	"	"	5127 - 5860	733	23	"	
9	"	"	"	5860 - 6417	557	19	"	
10	"	"	"	6417 - 6792	375	9	Green	Pulled to Core
*	Diamond	7 3/4	Core	6792 - 6842	50	16	Not Hurt	
11	Hughes	8 3/4	OSC-3	6792 - 6842	50	9	Pinched	Reamed
12	"	"	"	6842 - 7282	440	21	Dull	
13	"	"	"	7282 - 7484	202	8	Bearings gone	
14	"	"	W7R	7484 - 7570	86	10	Bald	
15	"	"	W7	7570 - 7589	19	4	"	
16	"	"	"	7589 - 7676	87	12	"	
17	"	7 7/8	"	7676 - 7721	45	7	"	
18	"	"	W7R	7721 - 7749	28	5	"	
19	"	"	"	7749 - 7786	37	6	"	
20	"	"	"	7786 - 7832	46	7	"	
21	"	"	"	7832 - 7877	45	9	Loose	
22	"	"	W7	7877 - 7971	94	13	"	
23	"	"	"	7971 - 8026	55	8	"	
24	"	"	"	8026 - 8164	139	10	"	
25	"	"	OWV	8164 - 8212	48	9	"	
26	"	"	"	8212 - 8288	76	10	"	
27	"	"	"	8288 - 8398	110	12	"	
28	"	"	"	8398 - 8488	90	11	"	
29	"	"	"	8488 - 8608	120	14	Dull	
30	"	"	"	8608 - 8701	93	12	"	
31	"	"	"	8701 - 8799	98	11	WO	
*	Diamond	7 3/4	Core	8799 - 8807	8	4	Grooved	Salvaged
	Hughes	7 7/8	W7R	8807 - 8812	5	2	WO	Rerun
*	Diamond	7 3/4	Core	8812 - 8829	17	7	Inside gauge gone	Salvaged
	Hughes	7 7/8	W7R	8829 - 8834	5	1	WO	Rerun
*	Diamond	7 3/4	Core	8834 - 8854	20	7	Not Hurt	Contract
*	"	"	"	8854 - 8866	12	4	" "	"
32	Hughes	7 7/8	W7R	8866 - 8907	41	9	WO	



Sterling Drilling Company

Page 2.

Well Log



7877 - 7920	Sandy Shale & Lime
7920 - 8057	Sand & Shale
8057 - 8075	Shale
8075 - 8164	Sand & Shale
8164 - 8186	Shale, Red Bed & Anhydrite
8186 - 8212	Shale & Sand
8212 - 8258	Red Bed & Shale
8258 - 8288	Red Shale & Anhydrite
8288 - 8398	Red Bed & Shale
8398 - 8448	Red Shale
8448 - 8701	Shale & Red Bed
8701 - 8750	Shale & Sand Stone
8750 - 8797	Shale
8797 - 8888	Lyons Sand
8888 - 8996	Sand & Shale
8996 - 8898	Shale R.T.D.

BEST IMAGE  
AVAILABLE

PRODUCTION RECORD

Plugged & Abandoned

STATE OF KANSAS, COUNTY OF RICE, SS:

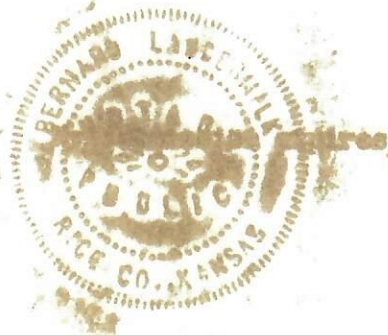
I, F. A. Wuellner, Secretary of Sterling Drilling Company, a corporation of the State of Missouri, being first duly sworn under oath, says: That I have knowledge of the facts, statements and matters herein contained of the above described well as filed and that the same are true and correct.

  
F. A. Wuellner

Subscribed and Sworn to before me this 2nd day of June, 1959.

  
Notary Public

My Commission Expires Jan. 22, 1962



CORE ANALYSES FROM PLAINS NO. 1 VON TROTHA BROS. WELL  
Weld County Colorado

## BRACEWELL AREA

## NIOERAPA SECTION

DEPTH	PERMEABILITY	% POROSITY	% OIL	% WATER	SPEC. GRAVITY
6795	T	2.8	C	42	2.51
6807.5	T	4.3	50	31	2.61
6818	T	4.2	35	82	2.60
6830	T	2.2	41	123	2.58
6840	O	5.4	45	38	2.55

## LYONS SECTION

8799.5	O	2.4	O	T	2.75
8800.5	O	2.6	O	23	2.70
8801.5	O	4.1	O	9	2.68
8802.5	O	5.6	C	13	2.67
8803.5	O	3.8	O	11	2.68
8804.5	O	4.6	O	55	2.63
8805.5	O	5.7	O	T	2.63
8806.5	O	2.7	C	T	2.69
8812.5	O	6.	O	44	2.64
8813.5	O	4.9	O	55	2.68
8814.5	T	6.4	O	64	2.67
8815.5	T	6.5	O	21	2.68
8818.5	T	4.5	O	48	2.68
8819.5	O	4.3	O	37	2.64
8820.5	O	3.5	O	9	2.68
8821.5	O	4.3	O	40	2.67
8822.5	O	4.1	O	40	2.71
8823.5	O	5.1	O	48	2.71
8824.5	O	4.0	C	31	2.65
8834.5	O	5.5	O	50	2.67
8835.5	O	6.8	O	41	2.67
8836.5	O	6.3	O	48	2.66
8837.5	O	6.3	O	47	2.69
8838.5	O	6.0	O	49	2.71
8839.5	O	6.4	O	62	2.63
8840.5	O	5.9	O	51	2.63
8841.5	O	3.8	O	18	2.69
8842.5	1.3	5.9	O	28	2.73
8843.5	O	5.0	O	37	2.73
8844.5	O	3.6	O	26	2.72
8845.5	1.8	5.3	O	47	2.73
8846.5	2.3	7.5	O	64	2.71
8847.5	2.9	7.2	O	40	2.70
8848.5	2.3	8.7	O	35	2.67
8849.5	1.8	8.7	O	70	2.69

CORE NO. 5 CONTINUED ON NEXT PAGE

BEST IMAGE  
AVAILABLE