



State of Florida
DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE MEMORANDUM

October 24, 1979

TO: David Curry and Permit No. 986 Well File.
FROM: Charles H. Tootle
SUBJECT: Field Analysis of the Geophysical Well Logs for
Shepherd Oil and Gas, Inc. - Rayonier Well No. 1,
Permit 986.

DEPTH (ft.)	BULK DENSITY (gm./cc/)	POROSITY (%)	RESISTIVITY (ohm-meters)	OIL SATURATION (%)	
				*	**
2945	2.43	11	5.5	22	0
2958	2.41	14	4.5	32	9.09
2968	2.40	17	3.0	32	8.31
2985	2.35	18	2.2	25	0
2990	2.40	15	2.1	7	0
2993	2.27	18	1.7	14	0

* Indicates oil saturations obtained by assuming the formation waters had a chloride content of 100,000 p.p.m.

** Indicates oil saturations obtained by assuming the formation waters had a chloride content of 50,000 p.p.m.; which is believed to be the most realistic, because of drilling fluids (fresh water) that invaded the formation during the drilling of this well.

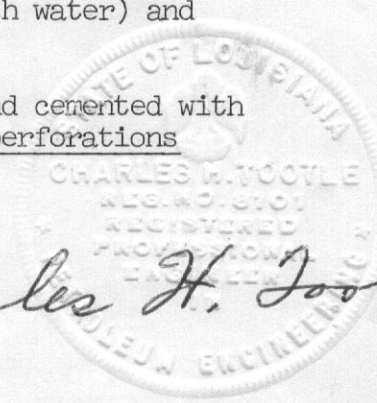
There is a probability of ninety-five percent that there was an oil show, which was probably pipe dope, in a sandstone formation at a depth of 2,958 feet and 2,968 feet.

There is a probability of ninety-nine percent that this well would produce only invaded drilling fluids (fresh water) and salt water.

Set 4 1/2"; J-55; 9.5#/ft. casing at 3,013 feet and cemented with 75 sacks of cement. NOTE: Shepherd's proposed perforations are 2,960 feet to 2,980 feet.

CHT/dm

Charles H. Tootle





State of Florida
DEPARTMENT OF NATURAL RESOURCES

Permit 986

INTEROFFICE MEMORANDUM

November 6, 1979

TO: C. W. Hendry
FROM: Charles H. Tootle
SUBJECT: Analyses of Several Geophysical Well Logs in Columbia County, Florida.

I. Mosbacher-Owens Illinois Glass Co. No. 1, Permit 956

at 2790'

$$R_t = 2.1 \text{ ohm-meters}; S_w = 100\%; \phi = 22\%$$

$$R_w = (S_w^2)(\phi^2)(R_t)$$

$$R_w = (1.00^2)(0.22^2)(2.1)$$

$$R_w = 0.10 \text{ ohm-meters (Chloride Content} = 45,000 \text{ ppm).}$$

Depth (ft.)	Bulk Density (gm./cc)	Porosity (%)	Resistivity (ohm-meters)	Oil Saturation (%)
2830	2.40	16	2.6	0
2840	2.37	19	2.2	0
2850	2.43	17	2.5	0

Conclusion: There were no oil shows in the Owens Illinois Glass Company Well No. 1.

II. Shepherd Oil & Gas, Inc.--Rayonier Well No. 1, Permit 986

Depth (ft.)	Bulk Density (gm./cc)	Porosity (%)	Resistivity (ohm-meters)	Oil Saturation (%)
2958	2.41	14	4.5	0
2968	2.40	17	3.0	0
2985	2.35	18	2.2	0

Note: The geophysical well logs for this well are not available; the above data were taken from a field analysis of field prints of the subject geophysical well logs; so, the chloride content of the formation waters was assumed to be 40,000 ppm (because of invasion by fresh water drilling fluids during drilling operations), and this yields a formation water resistivity of 0.11 ohm-meters at 115° F.

Conclusion: There were no oil shows in the Shepherd-Rayonier Well No. 1.

III. Getty Oil Company-J. C. Marsh & Sons No. 1, Permit 666

at 2920'

$$R_t = 1.67 \text{ ohm-meters; } S_w = 100\%; \phi = 21\%$$

$$R_w = (S_w^2)(\phi^2)(R_t)/0.81$$

$$R_w = (1.00^2)(0.21^2)(1.67)/(0.81)$$

$$R_w = 0.091 \text{ ohm-meters (Chloride Content - 55,000 ppm).}$$

Depth (ft.)	Bulk Density (gm./cc)	Porosity (%)	Resistivity (ohm-meters)	Oil Saturation (%)
2960	2.50	12	3.85	0
2970	2.42	17	2.63	0
2980	2.40	18	2.08	0
2990	2.40	18	2.44	0

Conclusion: There were no oil shows in the Getty Oil Company-J. C. Marsh & Sons, No. 1.

IV. Thayer & Davis-Frances Ripley No. 1, Permit 338

$$\text{Assumed } R_w = 0.091 \text{ ohm-meters (Chloride Content = 55,000 ppm).}$$

Depth (ft.)	Sonic Porosity (%)	Resistivity (ohm-meters)	Oil Saturation (%)
2840	12	4.76	0
2850	11	3.45	0
2860	9	3.64	0
2870	13	1.33	0

Conclusion: There were no oil shows in the Thayer & Davis-Frances Ripley No. 1.

V. J. S. Michael Company-Frances Ripley No. 1, Permit 339

at 2870'

$$R_t = 6.67 \text{ ohm-meters}$$

$$\phi = 13\% \text{ (from sonic log)}$$

$$S_w = 100\%$$

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$$R_w = (S_w^2)(\phi^2)(R_t)/(0.81)$$

$$R_w = (1.00^2)(0.13^2)(6.67)/(0.81)$$

$$R_w = 0.1391 \text{ ohm-meters (Chloride Content} = 35,000 \text{ ppm).}$$

<u>Depth</u> (ft.)	<u>Sonic Porosity</u> (%)	<u>Resistivity</u> (ohm-meters)	<u>Oil Saturation</u> (%)
2910	12	7.69	0
2920	12	7.69	0
2930	12	7.69	0
2940	12	7.14	0
2950	12	7.69	0

Conclusion: There were no oil shows in the J. S. Michael Company-Frances Ripley No. 1.

Summary:

The geophysical well logs for five wells in Columbia County, Florida were analyzed. These wells were the following:

1. Permit 956 - Mosbacher-Owens Illinois Glass Company No. 1 (One mile NW of Permit 986).
2. Permit 986 - Shepherd Oil & Gas, Inc.-Rayonier Well No. 1 (The well that caused all of the stir).
3. Permit 666 - Getty Oil Company-J. C. Marsh & Sons No. 1 (Six miles NW of Permit 986).
4. Permit 338 - Thayer & Davis-Frances Ripley No. 1 (Four miles SW of Permit 986).
5. Permit 339 - J. S. Michael Company-Frances Ripley No. 1 (Three miles SE of Permit 986).

No oil shows were found in a sandstone formation located at depths of 2800' to 3000' below the surface of the ground. These analyses are estimated to be ninety-five percent reliable.

Signed: *Charles H. Fottle*

Date: *November 6, 1979*

dm

