United States Department of the Interior

GEOLOGICAL SURVEY
Box 25046
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Office of Energy Resources
Branch of Oil and Gas Resources

IN REPLY REFER TO:

January 5, 1977

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PYROLYSIS - ORGANIC CARBON STUDIES

Mr. Thomas R. Marshall
Chief Petroleum Geologist
Division of Oil and Gas
3001 Porcupine Drive
Anchorage, Alaska 99501

Dear Mr. Marshall:

Enclosed are the results of our analyses of samples from the following wells, furnished to us by your office.

Standard Oil Company of California
North Fork Unit 41-35
Sec. 35, T45, R14W SM

Standard Oil Company of California
Anchor Point No. 1
Sec. 10, T5S, R15W SM

Our general interpretation of these analyses is that both sections are thermally immature with respect to liquid petroleum hydrocarbon generation. In addition, the organic matter in most of the sediments analyzed does not yield a significant amount of hydrocarbons upon pyrolysis (Pyrolytic HC/Organic Carbon < 20%), suggesting that the sediments are not potential oil source rocks. An exception to this generally unfavorable oil source potential is the deeper part of the North Fork section (i.e., from 11,900 to 12,500 feet). Samples from this interval have very good organic richness (~2% organic carbon) and undergo relatively high conversion of organic matter to hydrocarbons upon pyrolysis (pyrolytic HC/Organic Carbon > 40%). The organic matter in these sediments is, however, thermally immature at this locality, and would appear to require further burial metamorphism equivalent to about five thousand feet of additional overburden to be considered effective oil source rocks.

The organic-rich (dominantly coaly) Tertiary section is known to be productive of gas. Our investigations are primarily aimed at evaluation of oil source potential.

RECEIVED
JAN - 6 1977
Division of Oil and Gas Conservation
Anchorage

Sincerely,

George E. Claypool

George E. Claypool, Research Chemist
Branch of Oil and Gas Resources

Copy to: L. B. Magoon

GMC DATA REPORT NO. 6

SOCAL-North Fork Unit 41-35 - Ditch cuttings

Item	Depth Interval (ft.)	Organic Carbon wt. %	Pyrolytic HC yield wt.%	Volatile HC content ppm	Pyrol. HC / Org. Carbon %	Tmax °C	lith Descripti coal/f.g./clast
1.	1500-30	1.19	0.25	610	21.0	460	5/95/0
2.	5010-20	16.2	3.00	1830	18.5	464	20/40/40
3.	5530-40	17.2	3.80	1380	22.1	458	40/20/40
4.	6150-60	3.69	0.53	540	14.4	462	10/20/70
5.	6610-2-	4.62	0.65	260	14.1	460	15/85/0
6.	7100-10	36.8	4.60	1510	12.5	452	70/10/20
7.	7740-50	30.2	3.77	1330	12.5	458	80/10/10
8.	8220-30	12.9	1.50	580	11.6	456	60/30/10
9.	8890-8900	14.8	2.90	1090	19.6	458	40/40/20
10.	9260-70	15.1	3.10	770	20.5	460	50/30/20
11.	10,240-50	15.2	2.76	790	17.8	462	30/50/20
12.	10,540-50	14.8	2.20	720	14.9	460	40/30/30
13.	10,890-900	4.76	0.45	93	9.5	462	15/80/5
14.	11,060-70	4.33	0.68	225	15.7	462	15/70/15
15.	11,340-50	2.28	0.30	110	13.2	464	5/70/25
16.	11,520-30	1.82	0.38	135	20.9	464	5/85/10
17.	11,900-10	2.26	1.00	430	44.3	462	0/90/10
18.	12,060-70	1.87	0.55	190	29.4	464	0/95/5
19.	12,300-10	2.15	0.89	225	41.4	464	0/90/10
20.	12,490-500	1.87	0.82	260	43.9	466	0/90/10
21.	12,780-90	1.40	0.15	120	10.7	464	2/88/10

SOCAL-Anchor Point No. 1 - Ditch Cuttings

Item	Depth Interval (ft.)	Organic Carbon wt.%	Pyrolytic HC yield wt.%	Volatile HC content ppm	Pyrol. HC / Org. Carbon %	Tmax °C	lith Descripti coal/f.g./clasti
1.	5090-5100	21.0	3.08	960	14.6	462	50/30/20
2.	6050-50	15.0	2.03	770	13.5	458	25/75/0
3.	7000-10	9.34	1.60	530	17.1	462	15/65/20
4.	7980-90	6.38	1.22	500	19.1	460	30/30/40
5.	8840-50	2.30	0.33	110	14.3	468	15/80/5
6.	9100-10	1.23	0.14	220	11.4	468	5/95/0
7.	9590-9600	4.12	0.50	220	12.1	462	5/85/10
8.	10,030-40	1.93	0.30	270	15.5	466	10/90/0
9.	10,220-30	1.41	0.25	190	17.7	464	2/58/40
10.	10,730-40	1.11	0.10	140	9.0	466	2/70/28
11.	11,110-20	8.66	1.22	380	14.1	460	35/50/15
12.	11,350-60	0.95	0.09	140	9.5	464	2/90/8
13.	11,640-50	1.72	0.24	200	14.0	466	5/75/20
14.	12,140-50	0.54	0.06	100	11.1	464	2/50/48
15.	12,340-50	0.45	0.05	100	11.1	468	0/50/50
16.	12,800-10	8.66	0.90	280	10.4	462	40/30/30
17.	13,120-30	0.98	0.15	170	15.3	470	2/49/49
18.	13,720-30	1.07	0.18	170	16.8	472	2/58/40
19.	13,990-14,000	1.94	0.25	190	12.9	466	6/50/50
20.	14,340-50	0.68	0.10	180	14.7	470	0/50/50
21.	14,510-00	0.78	0.14	2.0	17.0	470	0/70/30