



CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.

TELEPHONE (907) 279-4014

P.O. BOX 4-1276
ANCHORAGE, ALASKA 99509

4649 BUSINESS PARK BLVD.

ANALYTICAL REPORT

From Amerada Hess Product Geochem Samples
 Address Tulsa, Oklahoma Date March 30, 1977
 Other Pertinent Data _____
 Analyzed by Th/Ag Date April 27, 1977 Lab No. 5639

REPORT OF ANALYSIS
OILWELL DRILL CUTTINGS
ARCO-ITKILLIK #1
NORTH SLOPE, ALASKA

ELEMENTAL ANALYSIS

DEPTHCARBON.....							
	% HCl INSOLUBLE	..PPM.. Ni V		% TOTAL	% CARBONATE	% ORGANIC	% ORGANIC EXTRACTED	% TOTAL ORGANIC EXTRACTED
8500-700	90.12	2.1	0.2	8.89	0.56	8.33	1.05	12.6
8700-900	89.25	2.1	0.2	8.90	0.64	8.26	1.14	13.8
8900-9100	89.25	2.6	0.2	8.80	0.62	8.18	1.06	13.0
9100-300	88.31	2.7	0.3	7.93	0.67	7.26	0.92	12.7
9300-500	87.28	2.1	0.2	7.65	0.68	6.97	0.91	13.1
9500-700	88.64	2.3	0.2	7.26	0.65	6.61	0.95	14.4
9700-900	83.94	2.3	0.2	7.40	0.63	6.67	1.07	16.0
9900-10100	89.31	3.3	0.2	9.02	1.23	7.79	1.12	14.4
10100-300	88.51	2.7	0.2	7.30	2.17	5.13	1.01	19.7
10300-500	88.58	2.0	0.2	7.44	1.36	6.08	1.48	24.3
10500-700	89.01	4.1	0.3	6.66	0.73	5.93	0.93	15.7
10700-900	89.78	4.6	0.3	7.81	0.71	7.10	1.10	15.4
10900-11100	90.15	3.1	0.2	9.34	0.33	9.01	1.04	11.5
11100-300	85.61	3.2	0.2	8.33	0.26	8.07	0.75	9.3
11300-500	85.17	3.3	0.2	8.81	0.38	8.43	0.42	5.0
11500-700	23.40	4.9	<0.1	16.76	9.17	7.59	0.17	2.2
11700-900	12.83	5.5	<0.1	17.15	10.59	6.56	0.09	1.2

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C _PTHCARBON.....							
	% HCl INSOLUBLE	..PPM.. Ni V		% TOTAL	% CARBONATE	% ORGANIC	% ORGANIC EXTRACTED	% TOTAL ORGANIC EXTRACTED
11900-12100	13.14	6.4	<0.1	17.21	10.69	6.52	0.08	1.2
12100-300	11.09	8.4	<0.1	17.16	10.57	6.59	0.05	0.8
12300-500	9.47	21	<0.1	17.00	10.40	6.60	0.05	0.8
12500-700	13.70	18	<0.1	18.40	11.89	6.51	0.05	0.8
12700-900	22.53	21	<0.1	14.83	8.93	5.90	0.06	1.0
12900-13100	26.73	19	<0.1	14.18	8.58	5.60	0.04	0.7
13100-300	17.02	21	<0.1	15.39	10.10	5.29	0.04	0.8
13300-500	35.58	19	<0.1	13.43	8.11	5.32	0.14	2.6
13500-700	37.34	17	<0.1	13.21	7.88	5.33	0.06	1.1
13700-900	43.90	0.2	<0.1	12.25	7.05	5.20	0.15	2.9
13900-14100	46.23	0.2	<0.1	11.52	6.49	5.03	0.12	2.4
14100-300	52.48	0.2	<0.1	10.09	5.39	4.70	0.15	3.2
14300-500	35.02	0.2	<0.1	12.40	7.40	5.00	0.14	2.8
14500-700	57.90	0.2	<0.1	10.92	6.01	4.91	0.23	4.7
14700-900	60.76	2.8	0.2	8.55	4.35	4.20	0.23	5.5
14900-15100	70.41	6.0	0.2	9.23	4.92	4.31	0.05	1.2
15100-15300TD	72.09	5.9	0.2	10.35	5.71	4.64	0.07	1.5

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REPORT OF ANALYSIS
OILWELL DRILL CUTTINGS
ARCO-ITKILLIK #1
NORTH SLOPE, ALASKA

ANALYSIS OF EXTRACTED ORGANIC MATTER

DEPTH	GRAMS OF ORGANIC MATTER EXTRACTED PER 100 GRAMS SAMPLECHROMATOGRAPHIC ANALYSIS.....			
		% PARAFFIN- NAPHTHENE	% AROMATICS	% COMPOUNDS O-N-S	% OTHER COMPLEX ORGANIC MATTER
8500-8700	1.046	7.6	1.7	11.0	79.7
8700-8900	1.140	3.0	0.3	9.9	86.8
8900-9100	1.057	14.0	16.2	6.7	63.1
9100-9300	0.915	15.0	9.9	12.0	63.1
9300-9500	0.905	7.4	1.2	23.7	67.7
9500-9700	0.951	28.0	6.5	23.7	41.8
9700-9900	1.072	14.4	5.0	15.2	65.4
9900-10100	1.121	8.2	1.2	21.3	69.5
10100-300	1.012	10.3	0.8	5.7	83.2
10300-500	1.484	31.6	1.2	0.9	66.3
10500-700	0.934	17.6	21.7	2.9	57.8
10700-900	1.095	26.9	14.0	20.5	38.6
10900-11100	1.036	11.3	10.0	12.2	65.5
11100-300	0.752	13.4	13.0	18.3	54.9
11300-500	0.418	8.5	2.1	10.6	78.8

DEPTH	GRAMS OF ORGANIC MATTER EXTRACTED PER 100 GRAMS SAMPLECHROMATOGRAPHIC ANALYSIS.....			
		% PARAFFIN- NAPHTHENE	% AROMATICS	% COMPOUNDS O-N-S	% OTHER COMPLEX ORGANIC MATTER
11500-700	0.170	7.4	2.6	12.3	77.7
11700-900	0.092	8.4	2.0	15.9	73.7
11900-12100	0.075	10.4	2.0	14.4	73.2
12100-300	0.051	8.3	2.3	16.7	72.7
12300-500	0.052	10.5	2.8	18.3	68.4
12500-700	0.048	13.0	3.0	17.4	66.6
12700-900	0.060	7.7	3.0	17.4	71.9
12900-13100	0.036	7.6	3.8	13.8	74.8
13100-300	0.035	5.9	3.5	11.8	78.8
13300-500	0.136	6.1	2.5	13.0	78.4
13500-700	0.064	3.2	2.0	10.0	84.8
13700-900	0.150	6.9	2.8	1.4	88.9
13900-14100	0.117	7.0	2.0	1.7	89.3
14100-300	0.152	6.9	2.7	2.7	87.7
14300-500	0.138	7.3	3.1	3.0	86.6
14500-700	0.228	6.4	3.6	5.6	84.4
14700-900	0.232	9.6	3.5	6.1	80.8
14900-15100	0.053	4.7	2.3	4.7	88.3
15100-15300TD	0.071	3.1	2.8	5.6	88.5



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NORTH SLOPE, ALASKA

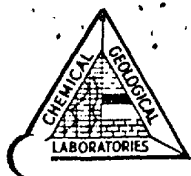
GROSS CHROMATOGRAPH OF C₁₅⁺ FRACTIONS

DEPTH	8500-700	8700-900	8900-9100	9100-300	9300-500	9500-700	9700-900
%							
C ₁₅	0.1	8.3	4.7	7.2	8.1	9.2	14.2
C ₁₆	5.5	8.8	6.8	7.2	7.3	8.9	8.1
C ₁₇	9.5	13.6	13.1	14.3	11.9	14.7	13.6
C ₁₈	12.3	8.1	10.6	9.4	9.1	11.1	11.2
C ₁₉	5.9	6.8	9.0	8.3	8.1	10.0	5.4
C ₂₀	14.5	11.5	10.6	10.2	9.8	9.8	12.2
C ₂₁	4.1	3.7	5.5	3.9	6.2	5.3	4.1
C ₂₂	14.0	9.4	7.4	6.1	7.3	5.5	9.6
C ₂₃	3.2	4.6	6.6	5.9	6.3	5.8	1.8
C ₂₄	9.1	6.1	5.5	3.7	6.2	4.8	5.2
C ₂₅	6.8	6.4	5.7	4.2	6.5	4.3	5.0
C ₂₆	2.3	1.8	4.1	2.2	4.4	3.8	0.9
C ₂₇	2.7	1.5	3.7	3.7	3.9	3.0	0.4
C ₂₈	10.0	9.4	6.7	13.8	4.9	4.3	6.3
C ₂₉₊	Trace	Trace	Trace	Trace	Trace	Trace	Trace

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ARCO - ITKILLIK #1
NORTH SLOPE, ALASKA

GROSS CHROMATOGRAPH OF C₁₅+ FRACTIONS

DEPTH	<u>9900-10100</u>	<u>10100-300</u>	<u>10300-500</u>	<u>10500-700</u>	<u>10700-900</u>	<u>10900-11100</u>	<u>11100-300</u>
%							
C ₁₅	12.7	11.2	20.7	16.7	25.5	15.8	15.3
C ₁₆	8.8	8.9	12.1	12.9	16.0	12.8	16.2
C ₁₇	12.1	10.0	12.1	14.1	17.3	11.0	10.2
C ₁₈	10.1	11.0	8.6	10.4	8.9	6.4	5.1
C ₁₉	7.1	6.6	6.9	6.3	5.1	7.1	7.2
C ₂₀	10.1	11.4	9.1	10.4	7.0	9.8	9.8
C ₂₁	4.5	2.5	3.0	3.3	3.2	2.6	2.1
C ₂₂	8.1	11.5	6.5	7.5	5.8	10.2	10.2
C ₂₃	3.8	2.1	1.7	1.7	Trace	5.6	2.6
C ₂₄	6.3	7.6	4.7	4.6	2.6	6.0	6.0
C ₂₅	5.8	6.4	4.7	4.6	3.2	5.6	5.5
C ₂₆	4.5	2.1	2.6	1.7	0.6	1.1	1.3
C ₂₇	1.8	1.7	0.4	0.8	0.3	1.5	2.1
C ₂₈	4.3	7.0	6.9	5.0	4.5	4.5	6.4
C ₂₉₊	Trace	Trace	Trace	Trace	Trace	Trace	Trace



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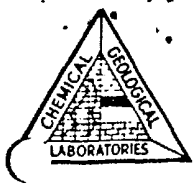
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GROSS CHROMATOGRAPH OF C₁₅⁺ FRACTIONS

DEPTH	<u>11300-500</u>	<u>11500-700</u>	<u>11700-900</u>	<u>11900-12100</u>	<u>12100-300</u>	<u>12300-500</u>	<u>12500-700</u>
%							
C ₁₅	1.4	4.5	1.1	1.6	1.2	1.3	3.7
C ₁₆	10.1	9.8	8.8	10.0	11.6	9.0	11.0
C ₁₇	15.0	11.8	4.6	10.6	6.2	8.1	12.1
C ₁₈	15.7	11.8	10.7	18.6	8.3	9.0	9.4
C ₁₉	7.3	7.7	5.0	12.2	6.2	6.3	14.3
C ₂₀	14.3	13.0	12.7	18.0	14.2	12.6	11.5
C ₂₁	1.0	3.3	2.3	2.3	3.6	5.4	3.7
C ₂₂	9.8	7.7	11.1	12.3	13.1	12.6	7.9
C ₂₃	2.8	7.7	8.4	1.6	5.3	4.9	5.2
C ₂₄	5.2	4.9	8.0	3.9	8.3	6.7	3.7
C ₂₅	5.6	6.1	10.0	3.2	8.9	11.7	6.8
C ₂₆	1.0	1.6	2.7	0.6	1.2	1.3	0.8
C ₂₇	1.4	1.2	2.3	0.6	0.6	0.9	0.5
C ₂₈	9.4	8.9	12.3	4.5	11.3	10.2	9.4
C ₂₉ ⁺	Trace	Trace	Trace	Trace	Trace	Trace	Trace



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GROSS CHROMATOGRAPH OF C₁₅ + FRACTIONS

DEPTH	<u>12700-900</u>	<u>12900-13100</u>	<u>13100-300</u>	<u>13300-500</u>	<u>13500-700</u>	<u>13700-900</u>	<u>13900-14100</u>
% C ₁₅	6.1	3.8	3.0	14.1	3.8	4.9	10.5
C ₁₆	7.7	7.9	9.9	13.5	10.6	11.1	7.3
C ₁₇	5.4	4.4	3.0	19.2	7.5	6.9	12.5
C ₁₈	6.8	10.7	5.0	13.0	9.8	8.9	12.5
C ₁₉	7.5	4.4	9.9	13.0	13.6	11.1	13.7
C ₂₀	10.0	14.8	8.6	5.6	10.6	7.7	4.8
C ₂₁	7.7	3.5	9.1	3.4	6.8	5.2	5.2
C ₂₂	13.1	16.1	11.6	2.8	5.7	4.4	4.8
C ₂₃	7.9	5.4	13.3	2.8	4.5	7.9	8.9
C ₂₄	6.8	7.9	6.1	1.7	3.0	3.0	3.2
C ₂₅	8.8	9.8	8.3	3.9	9.8	10.6	4.8
C ₂₆	1.4	0.3	1.7	1.4	3.8	5.2	3.2
C ₂₇	0.7	0.2	0.8	1.7	4.5	5.2	3.2
C ₂₈	10.1	10.8	9.7	3.9	6.0	7.9	5.4
C ₂₉₊	Trace	Trace	Trace	Trace	Trace	Trace	Trace



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GROSS CHROMATOGRAPH OF C₁₅⁺ FRACTIONS

DEPTH	<u>14100-300</u>	<u>14300-500</u>	<u>14500-700</u>	<u>14700-900</u>	<u>14900-15100</u>	<u>15100-300TD</u>
% C ₁₅	6.0	7.6	7.6	4.5	4.1	4.3
C ₁₆	3.7	6.1	10.8	9.0	12.7	9.7
C ₁₇	12.0	8.3	19.7	18.8	15.2	15.4
C ₁₈	11.7	10.5	5.4	9.0	21.3	21.7
C ₁₉	22.4	17.9	7.3	0.7	28.4	28.6
C ₂₀	6.7	7.6	7.0	4.5	3.0	3.4
C ₂₁	6.4	5.1	6.7	7.5	2.5	3.4
C ₂₂	5.7	5.8	5.4	6.8	1.3	2.6
C ₂₃	9.0	6.9	8.0	9.5	2.5	5.1
C ₂₄	2.0	1.8	3.2	5.3	1.0	0.6
C ₂₅	6.7	10.8	10.5	12.1	3.6	2.6
C ₂₆	2.3	2.9	1.9	2.3	1.0	0.3
C ₂₇	2.0	2.9	1.6	3.0	1.3	0.3
C ₂₈	3.4	5.8	4.9	7.0	2.1	2.0
C ₂₉ ⁺	Trace	Trace	Trace	Trace	Trace	Trace