TOC and Rock-Eval analyses from the following NPRA wells:

Husky NPR Operations (U. S. G. S.) J. W. Dalton T. W. No. 1 unwashed cuttings (3,060' - 9,360'), and

Husky NPR Operations (U. S. G. S.) West Dease No. 1 unwashed cuttings (110' - 4,070') and core (3,782' - 3,799').

Received 1 July 1996

Total of 12 pages in report

Alaska Geologic Materials Center Data Report No. 269

Humble Geochemical Services

Division of Humble Instruments & Services, Inc.

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218 Higgins Street • Humble, Texas 77338

TELEPHONE: (713) 540-6050 *FACSIMILE: (713) 540-2864*

Geochemical Services for Exploration, Development and Production

April 23, 1996

Harold Davis
Anadarko Petroleum
17001 Northchase Drive
Houston, TX 77060

Dear Dr. Davis:

The following pages detail the TOC and Rock-Eval data for the J.W. Dalton #1 well sent to us for analyses. Also enclosed is an invoice for this service.

Please let me know if you have any questions or if I may be of further assistance.

Best Regards,

Daniel M. Jarvie

DMJ/cb

ANADARKO PETROLEUM

OPERATOR: USGS/HUSKY
WELL NAME: J. W. DALTON #1 ALASKA
ATTN: Harold Davis

SAMPLE NO.	SAMPLE DESCRIPTION		TOC AND ROCK-EVAL DATA						INTERPRETIVE RATIOS					NOTES	
			TOC	S1	S2	S3	TMAX		HI	OI	S2/S3	PI	S1/TOC	Check	Pyrogram
33	3060-3090		1.07	0.09	0.44	1.85	436	*	41	173	0.24	0.17	8		n
34	3180-3210		0.73												
35	3270-3300		0.84												
36	3330-3360		0.82												
37	3450-3480		0.87											c	
38	3630-3660		0.89												
39	3810-3840		0.96											c	
40	3990-4020		0.91												
41	4230-4260		0.73												
42	4440-4470		0.72												
43	4620-4650		0.92												
44	4770-4800		1.13	0.64	1.31	1.21	425		116	107	1.08	0.33	57	c	ltS2sh
45	5010-5040		1.19	0.16	0.54	1.74	436		45	146	0.31	0.23	13		n
46	5490-5520		1.17	0.27	0.69	1.74	422		59	149	0.40	0.28	23		n
47	5940-5970		1.05	0.13	0.52	1.12	444		50	107	0.46	0.20	12		n
48	5970-6000		1.06	0.12	0.50	1.12	429		47	106	0.45	0.19	11		n
49	6420-6450		0.93												
50	6510-6540		1.17	0.07	0.46	0.96	434	*	39	82	0.48	0.13	6		n
51	7000-7010		1.09	0.12	0.48	1.06	441	*	44	97	0.45	0.20	11	c	n
52	7300-7310		1.23	0.12	0.54	0.84	435		44	68	0.64	0.18	10		n
53	7380-7390		1.11	0.07	0.51	0.62	439		46	56	0.82	0.12	6		n
54	7480-7490		1.14	0.11	0.92	0.40	436		81	35	2.30	0.11	10		n
55	7490-7500		1.81	0.18	1.87	0.34	436		103	19	5.50	0.09	10		n
56	7520-7530		2.32	0.23	2.17	0.30	435		94	13	7.23	0.10	10		n
57	7550-7560		2.06	0.48	2.22	3.34	434		108	162	0.66	0.18	23		n

HGS 96A-81

ANADARKO PETROLEUM

OPERATOR: USGS/HUSKY
WELL NAME: J. W. DALTON #1 ALASKA
ATTN: Harold Davis

SAMPLE NO.	SAMPLE DESCRIPTION			TOC AND ROCK-EVAL DATA					INTERPRETIVE RATIOS					NOTES	
				TOC	S1	S2	S3	TMAX	HI	OI	S2/S3	PI	S1/TOC	Check	Pyrogram
58	7570-7580			3.39	0.65	5.94	0.48	432	175	14	12.38	0.10	19		n
59	7600-7610			3.27	1.67	5.62	0.90	441	172	28	6.24	0.23	51	c	n
60	7680-7700			2.47	0.53	2.44	0.87	433	99	35	2.80	0.18	21		n
61	7740-7750			2.26	0.91	3.28	0.77	432	145	34	4.26	0.22	40		n
62	7800-7810			2.23	1.17	2.75	0.75	433	123	34	3.67	0.30	52		n
63	7850-7860			1.97	0.92	4.01	0.80	434	204	41	5.01	0.19	47		n
64	7940-7950			2.00	3.13	3.16	1.08	435	158	54	2.93	0.50	157	c	ltS2sh
65	8000-8010			2.50	1.27	3.80	0.85	433	152	34	4.47	0.25	51		n
66	8050-8060			1.73	0.42	1.69	1.41	432	98	82	1.20	0.20	24		n
67	8250-8260			1.94	0.44	2.01	0.76	433	104	39	2.64	0.18	23		n
68	8290-8300			1.16	0.70	1.78	0.51	429	153	44	3.49	0.28	60		ltS2sh
69	8340-8350			2.00	1.01	3.03	0.89	436	152	45	3.40	0.25	51		ltS2sh
70	8410-8420			1.01	0.40	1.46	0.51	437	145	50	2.86	0.22	40		n
71	8460-8470			1.19	0.26	1.37	0.41	436	115	34	3.34	0.16	22	c	ltS2sh
72	8500-8510			0.55											
73	8560-8570			1.14	0.27	1.29	0.49	441	113	43	2.63	0.17	24		n
74	8600-8610			1.81	0.33	2.01	0.81	441	111	45	2.48	0.14	18		n
75	8650-8660			0.38											
76	8700-8710			0.43											
77	8740-8750			0.29										c	
78	8800-8810			0.26											
79	8850-8860			0.26											
80	8900-8910			0.10											
81	8940-8950			0.20											
82	9000-9010			0.10											

ANADARKO PETROLEUM

OPERATOR: USGS/HUSKY
WELL NAME: J. W. DALTON #1 ALASKA
ATTN: Harold Davis

SAMPLE NO.	SAMPLE DESCRIPTION			TOC AND ROCK-EVAL DATA					INTERPRETIVE RATIOS					NOTES	
				TOC	S1	S2	S3	TMAX	HI	OI	S2/S3	PI	S1/TOC	Check	Pyrogram
83	9010-9020			0.18											
84	9080-9090			0.16											
85	9120-9130			0.18											
86	9210-9220			0.15										c	
87	9300-9310			0.48											
88	9350-9360			0.70											

HGS 96A-81 PAGE 3

* Tmax data not reliable due to low kerogen S2 value

TOC = weight percent organic carbon
S1,S2 = mg hydrocarbons/g rock
S3 = mg carbon dioxide/g rock
Tmax = Degree C

HI = S2*100/TOC
OI = S3*100/TOC
PI = S1/(S1+S2)
S1/TOC = S1*100/TOC

NOTES:
Check
c = samples analysis confirmed
Pyrogram
n = normal
ltS2sh = low temperature S2 shoulder

Humble Geochemical Services

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Geochemical Services for Exploration, Development and Production

May 31, 1996

Harold Davis
Anadarko Petroleum
17001 Northchase Drive
Houston, TX 77060

Dear Dr. Davis:

The following is the completed report for the W. Dease #1 well from Alaska sent to us for analyses. Also included is in an invoice for this service.

Please let me know if you have any questions or if I may be of further assistance.

Best Regards,

Bob Elsinger

Robert J. Elsinger

RJE/cb

GMC Data Report No. 269

ANADARKO PETROLEUM

OPERATOR: USGS/HUSKY
WELL NAME: W. DEASE #1 ALASKA
ATTN: Harold Davis

SAMPLE NO.	SAMPLE DESCRIPTION	DEPTH 1 FT		TOC AND ROCK-EVAL DATA TOC	S1	S2	S3	TMAX	INTERPRETIVE RATIOS HI	OI	S2/S3	PI	S1/TOC	NOTES Check	Pyrogram
1	110-120			0.81											
2	140-150			0.92											
3	170-180			1.00	0.10	0.51	3.15	426	51	315	0.16	0.16	10	c	n
4	200-210			0.89											
5	230-240			0.56											
6	260-270			0.68											
80	300-330	extracted		1.73	0.17	2.02	2.18	436	117	126	0.93	0.08	10		n
81	330-360	extracted		1.68	0.12	2.45	1.86	431	146	111	1.32	0.05	7		n
82	360-390	extracted		1.66	0.17	2.03	2.14	428	122	129	0.95	0.08	10		n
83	390-420	extracted		1.40	0.18	1.22	2.28	425	87	163	0.54	0.13	13		n
84	420-450	extracted		1.32	0.16	1.21	1.76	435	92	133	0.69	0.12	12		n
85	510-540	extracted		1.33	0.08	1.02	2.25	430	77	169	0.45	0.07	6		n
86	570-600	extracted		1.34	0.12	1.07	1.88	431	80	140	0.57	0.10	9		n
87	630-660	extracted		1.36	0.12	1.06	1.73	433	78	127	0.61	0.10	9		n
88	720-750	extracted		1.62	0.12	1.74	2.20	435	107	136	0.79	0.06	7		n
89	810-840	extracted		1.57	0.08	1.00	2.30	436	64	146	0.43	0.07	5		n
90	900-930	extracted		1.33	0.06	0.80	1.66	448	60	125	0.48	0.07	5		n
91	1050-1080	extracted		1.10	0.04	0.70	1.49	430	64	135	0.47	0.05	4		n
92	1130-1160	extracted		1.11	0.06	0.69	1.31	445	62	118	0.53	0.08	5		n
93	1250-1280	extracted		1.13	0.05	0.69	1.46	440	61	129	0.47	0.07	4		n
94	1340-1370	extracted		1.09	0.04	0.62	1.31	438	57	120	0.47	0.06	4		n
95	1430-1460	extracted		1.48	0.14	1.14	2.74	434	77	185	0.42	0.11	9		n
96	1520-1550	extracted		1.29	0.07	0.86	1.58	443	67	122	0.54	0.08	5		n
97	1610-1640	extracted		1.19	0.11	0.86	1.78	436	72	150	0.48	0.11	9		n
98	1730-1760	extracted		1.42	0.12	0.80	1.93	436	56	136	0.41	0.13	8		n

HGS 96A-82

ANADARKO PETROLEUM

OPERATOR: USGS/HUSKY
WELL NAME: W. DEASE #1 ALASKA
ATTN: Harold Davis

SAMPLE NO.	SAMPLE DESCRIPTION	DEPTH 1 FT	TOC AND ROCK-EVAL DATA					INTERPRETIVE RATIOS					NOTES	
			TOC	S1	S2	S3	TMAX	HI	OI	S2/S3	PI	S1/TOC	Check	Pyrogram
99	1850-1880	extracted	1.26	0.04	0.54	1.18	428	43	94	0.46	0.07	3		n
100	1940-1970	extracted	1.33	0.04	0.58	1.23	438	44	92	0.47	0.06	3		n
101	2060-2090	extracted	1.34	0.03	0.57	1.01	439	43	75	0.56	0.05	2	c	n
102	2150-2180	extracted	1.27	0.03	0.53	1.21	437	42	95	0.44	0.05	2		n
103	2240-2270	extracted	1.30	0.04	0.55	1.21	438	42	93	0.45	0.07	3		n
104	2330-2360	extracted	1.43	0.06	0.70	1.30	438	49	91	0.54	0.08	4		n
105	2450-2480	extracted	1.30	0.05	0.57	1.16	438	44	89	0.49	0.08	4		n
106	2540-2570	extracted	1.49	0.05	1.01	1.10	435	68	74	0.92	0.05	3		n
107	2630-2660	extracted	1.41	0.03	0.87	0.76	431	62	54	1.14	0.03	2	c	n
108	2660-2670	extracted	1.32	0.05	0.74	0.97	431	56	73	0.76	0.06	4		n
109	2740-2750	extracted	1.37	0.05	0.71	0.96	428	52	70	0.74	0.07	4		n
110	2800-2810	extracted	1.33	0.04	0.75	0.91	434	56	68	0.82	0.05	3		n
111	2890-2900	extracted	1.25	0.05	0.78	0.73	440	62	58	1.07	0.06	4		n
112	2920-2930	extracted	1.37	0.04	1.02	0.53	444	74	39	1.92	0.04	3		n
113	2960-2970	extracted	1.37	0.07	0.91	1.09	437	66	80	0.83	0.07	5	c	n
114	3000-3010	extracted	1.76	0.11	1.44	1.46	438	82	83	0.99	0.07	6		n
42	3020-3050		2.41	0.26	1.90	2.25	436	79	93	0.84	0.12	11		n
115	3090-3100	extracted	2.12	0.10	1.06	1.10	434	50	52	0.96	0.09	5		n
116	3130-3140	extracted	2.10	0.07	1.21	0.85	436	58	40	1.42	0.05	3		n
117	3160-3170	extracted	2.23	0.10	2.96	0.97	431	133	43	3.05	0.03	4		n
71	3190-3200	extracted	1.99	0.06	0.85	0.96	438	43	48	0.89	0.07	3		n
72	3220-3230	extracted	2.19	0.09	1.31	1.00	438	60	46	1.31	0.06	4		n
73	3250-3260	extracted	2.09	0.06	1.21	0.68	434	58	33	1.78	0.05	3		n
118	3280-3290	extracted	1.78	0.08	1.39	0.69	429	78	39	2.01	0.05	4		n
119	3310-3320	extracted	1.47	0.06	0.91	0.91	433	62	62	1.00	0.06	4	c	n

ANADARKO PETROLEUM

OPERATOR: USGS/HUSKY
WELL NAME: W. DEASE #1 ALASKA
ATTN: Harold Davis

SAMPLE NO.	SAMPLE DESCRIPTION	DEPTH 1 FT		TOC AND ROCK-EVAL DATA TOC	S1	S2	S3	TMAX	INTERPRETIVE RATIOS HI	OI	S2/S3	PI	S1/TOC	NOTES Check	Pyrogram
120	3340-3350	extracted		1.70	0.09	1.58	0.64	436	93	38	2.47	0.05	5		n
121	3370-3380	extracted		1.16	0.08	1.01	0.57	438	87	49	1.77	0.07	7		n
122	3400-3410	extracted		0.30	0.09	1.12	0.90	456	373	300	1.24	0.07	30		htS2sh
123	3430-3440	extracted		1.33	0.21	1.82	0.84	443	137	63	2.17	0.10	16	c	n
124	3460-3470	extracted		1.48	0.12	1.45	0.77	432	98	52	1.88	0.08	8		n
77	3490-3500	extracted		2.15	0.03	0.92	0.66	436	43	31	1.39	0.03	1		n
78	3530-3540	extracted		2.44	0.02	0.76	0.55	444	31	23	1.38	0.03	1		n
79	3560-3570	extracted		1.47	0.03	1.12	0.81	433	76	55	1.38	0.03	2		n
125	3590-3600	extracted		1.88	0.07	1.27	0.56	433	68	30	2.27	0.05	4		n
126	3630-3640	extracted		1.72	0.08	1.16	0.96	439	67	56	1.21	0.06	5		n
127	3660-3670	extracted		1.45	0.16	1.50	1.14	436	103	79	1.32	0.10	11		n
128	3690-3700	extracted		1.34	0.07	0.99	1.07	439	74	80	0.93	0.07	5		n
129	3710-3720	extracted		1.88	0.07	1.35	0.60	437	72	32	2.25	0.05	4		n
64	3782			0.65											
65	3797-3799			0.55											
66	3850-3860			1.07	0.14	1.79	0.74	441	167	69	2.42	0.07	13	c	n
67	3880-3890			0.55											
68	3890-3900			1.04	0.12	1.32	0.40	436	127	38	3.30	0.08	12		n
69	4030-4040			1.21	0.68	1.97	0.71	438	163	59	2.77	0.26	56		n
130	4060-4070	extracted		1.17	0.28	1.40	1.54	433	120	132	0.91	0.17	24	c	ltS2sh

NOTE: Extracted samples were cold soaked in methanol

* Tmax data not reliable due to low kerogen S2 value

TOC = weight percent organic carbon
S1,S2 = mg hydrocarbons/g rock
S3 = mg carbon dioxide/g rock
Tmax = Degree C

HI = S2*100/TOC
OI = S3*100/TOC
PI = S1/(S1+S2)
S1/TOC = S1*100/TOC

NOTES:
Check
c = samples analysis confirmed
Pyrogram
n = normal
ltS2sh = low temperature S2 shoulder

Humble Geochemical Services

Division of Humble Instruments & Services, Inc.

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218 Higgins Street • Humble, Texas 77338

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Geochemical Services for Exploration, Development and Production

April 22, 1996

Mr. Harold Davis
Anadarko Petroleum Company
17001 Northchase Drive
Houston , TX 77251

Dear Harold:

Attached are the pyrograms for the Rock-Eval/TOC analysis for the W. Dease #1 well. As I stated in my fax, most of the samples exhibited an abnormal S2 peak shape. This abnormal shape is the type we usually attribute to salt ionization. In the case of your samples, the drilling mud may have been a high salt mud and since the samples were not washed prior to storage and subsequent drying, the residual salt has been added to the cuttings. I have also included with the pyrograms, the pyrograms of our standard (99986) analysis to show that the Rock-Eval instrument was performing correctly. All of the samples were washed with fresh water prior to analysis, but evidently the salts were not removed by this treatment. We think there is a solution to your problem. We selected three samples (3190-3200, 3220-3230, and 3250-3260) that appeared to have a kerogen peak in the original pyrogram and extracted these in hot methanol. This treatment appears to do a very good job of removing the salts. I have attached as Figures 1-3, pyrogram displays that contain the before and after extraction pyrograms to illustrate the differences. I have also noted on these displays the Rock-Eval/TOC data for these analysis. Give me a call after you have examined these results and we can discuss any further action on these samples.

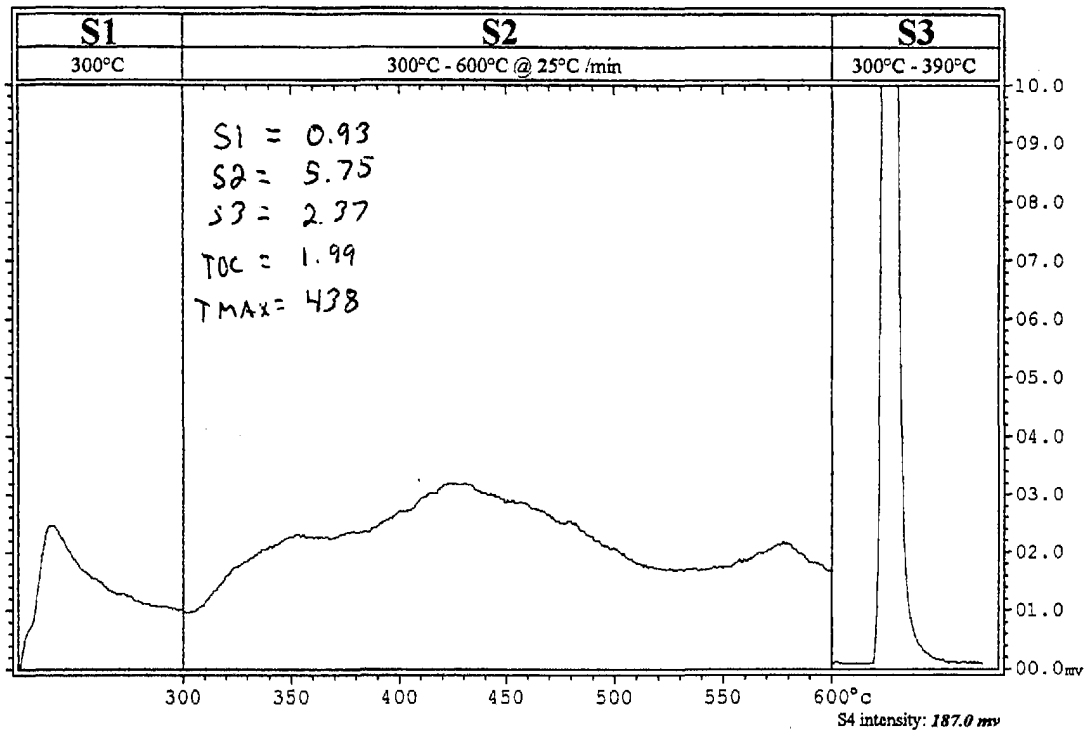
Sincerely,

Robert J. Elsinger

Enclosures: Figures 1-3

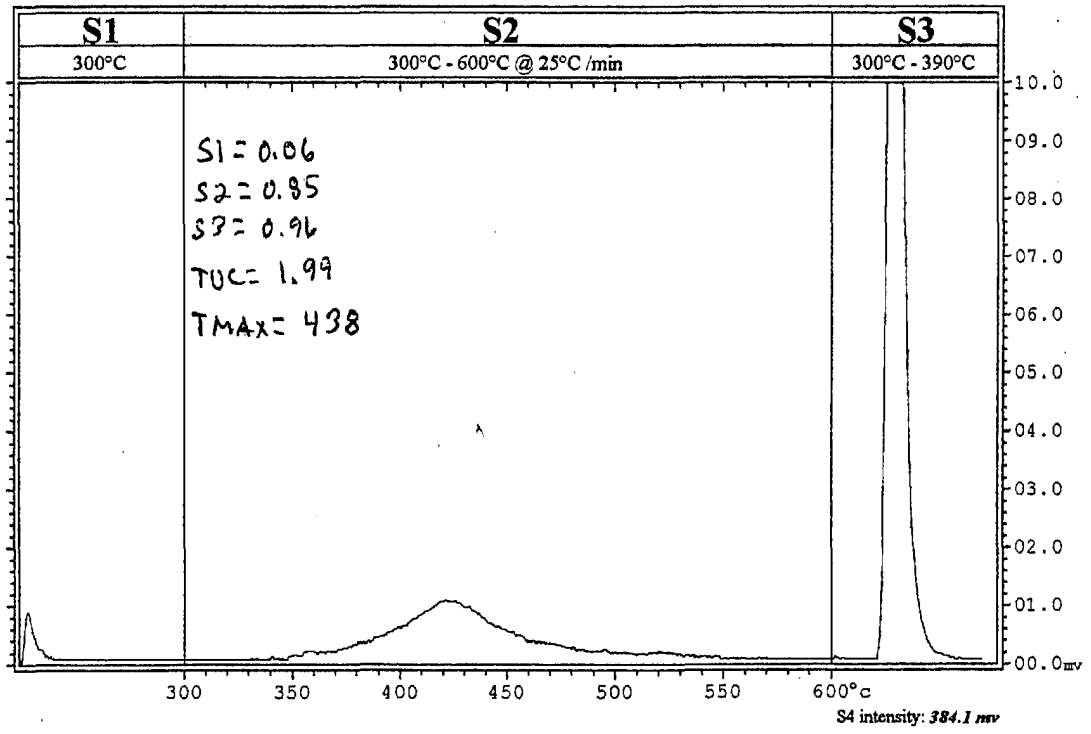
Attachments: Pyrograms

Company: *USGS/HUSKEY W. DEASE #1*
Customer sample ID: *3190-3200*
Humble Geochemical ID: *82-46*



BEFORE:
WATER WASHED ONLY

Customer sample ID: *3190-3200 EXTRACTED*
Humble Geochemical ID: *82-71*



AFTER:
FOLLOWING HOT METHANOL WASH.

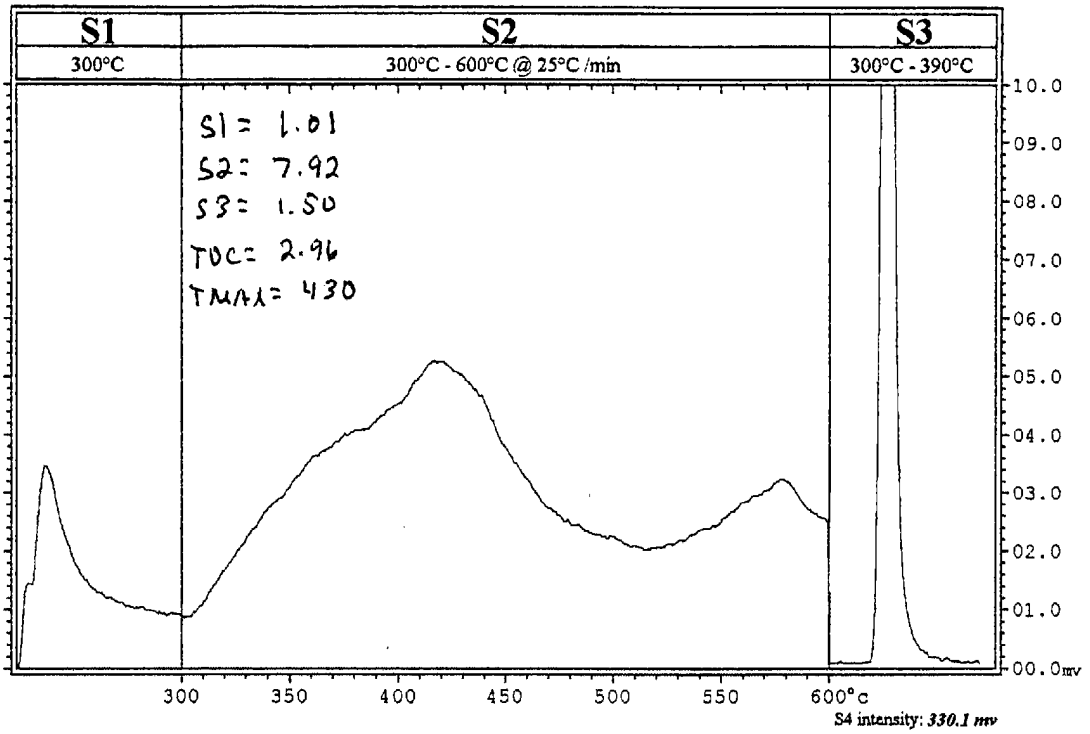
HI&S filename: 04129646.RCK /6
HI&S filename: 04199603.RCK /6

Humble Geochemical Services
RE_Display Version 1.9, April 19, 1996

Sat April 13 1996 / 03:33 AM
Fri April 19 1996 / 04:48 PM

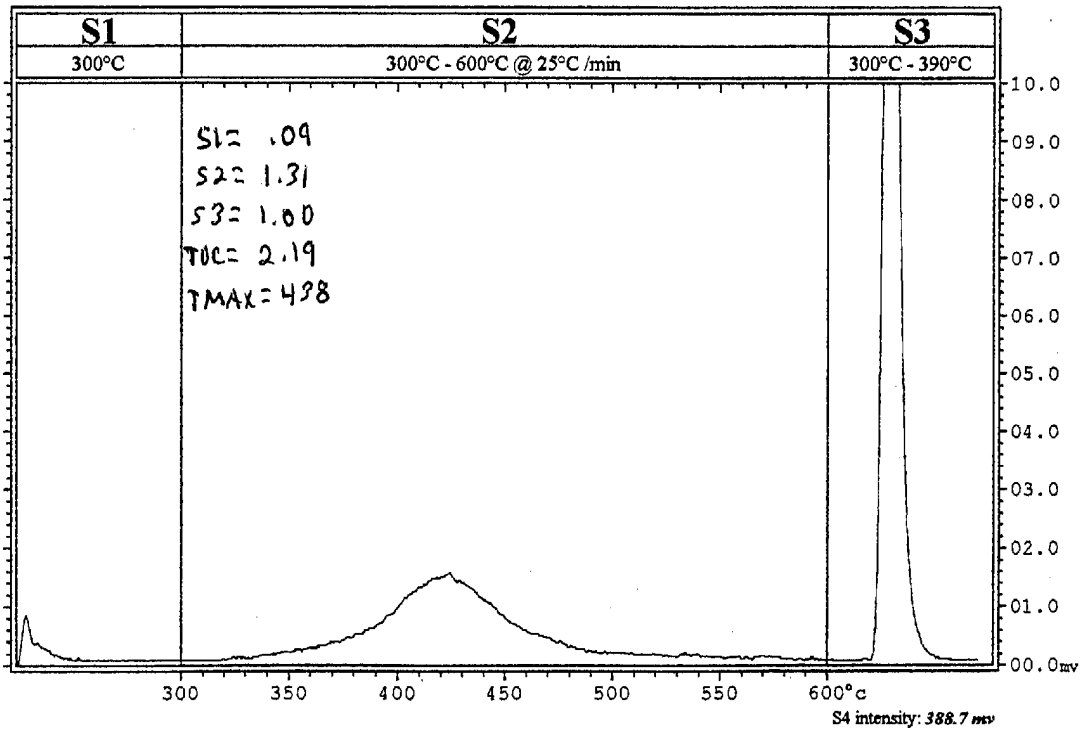
Fig. 2

Company: *USGS/HUSKEY W. DEASE #1*
Customer sample ID: *3220-3230*
Humble Geochemical ID: *82-47*



BEFORE: WATER WASHED ONLY

Customer sample ID: *3220-3230 EXTRACTED*
Humble Geochemical ID: *82-72*



AFTER: FOLLOWING HOT METHANOL

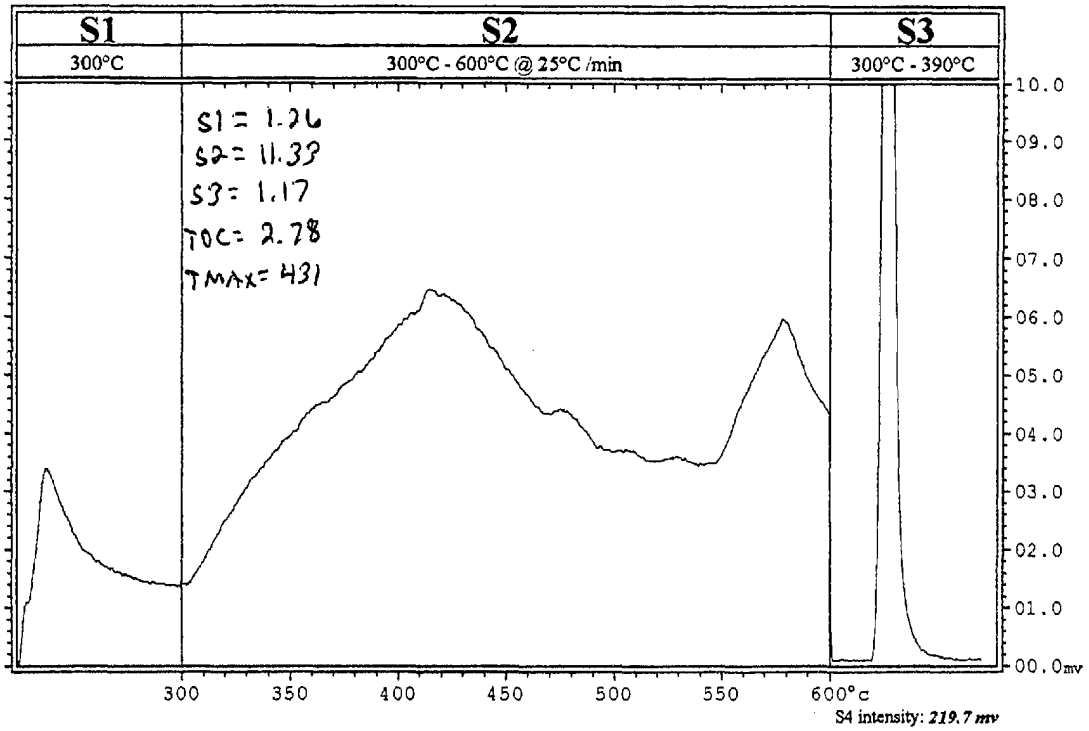
HI&S filename: 04129647.RCK /6
HI&S filename: 04199604.RCK /6

Humble Geochemical Services
RE_Display Version 1.9, April 19, 1996

Sat April 13 1996 / 03:55 AM
Fri April 19 1996 / 05:10 PM

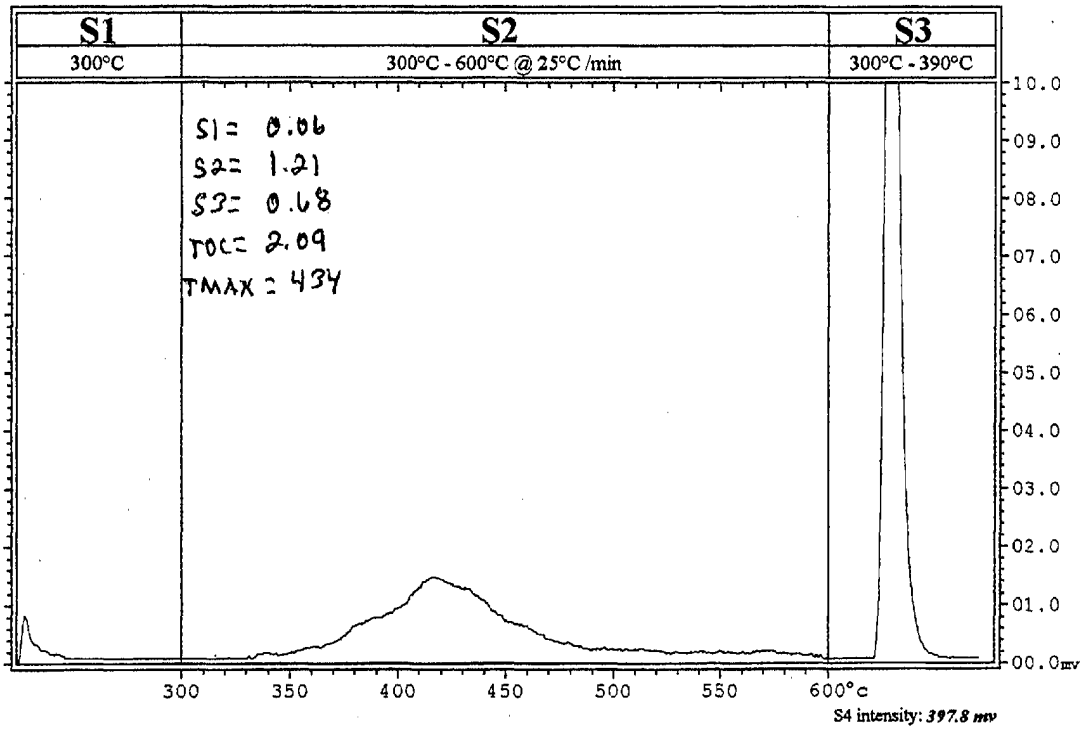
Fig. 2

Company: *USGS/HUSKEY W. DEASE #1*
Customer sample ID: *3250-3260*
Humble Geochemical ID: *82-48*



BEFORE

Customer sample ID: *3250-3260 EXTRACTED*
Humble Geochemical ID: *82-73*



AFTER

HI&S filename: 04129648.RCK /6
HI&S filename: 04199605.RCK /6

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