

VITRINITE REFLECTANCE DATA

WELL: DAVID RIVER (ADDITIONAL DATA)
LOCATION: BRISTOL BAY ALASKA

DEPTH (ft)	REFLECTANCE VALUES(%R _o)	COMMENTS
7130	.69(14).54(7)	STR BW+S BS/PL V PAR+W/PL COAL FR (LT-M O FL)
7130	.86(1)	STR BW+S BS/PL V PAR+W/PL COAL FR (LT-M O FL)
7250	.7(20)	BW+SBS/PL COAL FR+VW IN SLT/OX (M O FL)
7380	.74(20)	BW/PL VST+W+PAR (M O FL)
7530	.92(7).8(3)	BW+BS/PL VW+PAR (M O FL)
7530	.71(9)	BW+BS/PL VW+PAR (M O FL)
7680	.78(20)	BW+S BS/V PAR+W (M O FL)
7870	.47(9).76(11)	S BS+W/LOW R _o -LGN/HIGH R _o -VW IN SLT/OX
8000	.67(5).75(15)	S BS+PL W/V PAR+W
8320	.97(20)	BW+S BS/PL VST+W+PAR/OX
8580	.92(4).76(2)	BW+S BS/PL GOOD VST (M O FL)
8580	1.07(14)	BW+S BS/PL GOOD VST (M O FL)
8750	.91(3)1.03(18)	SH-STR BS/PL GOOD VST/COAL-V (M O FL)
8900	.82(4).99(17)	BW+BS/GN VW+PAR/OX (M O FL)
9400	.98(4).75(5)	STR BW+S BS/VW+PAR-VARIABLE R _o /OX (M O FL)
9400	.86(11)	STR BW+S BS/VW+PAR-VARIABLE R _o /OX (M O FL)
9600	1.19(23)	STR BS IN SH/PL VST IN CARB/S COAL/OX
10050	1.01(2)1.48(19)	SH-HEAVY BS/COAL-STRUCTURELESS/OX (M O FL)
10610	.96(11)1.21(10)	OBS+BW/VW+PAR
11300	1.25(20)	BW+S BS/VST+W/S COAL PAR
11800	0(0)	NDP
12140	0(0)	NDP
12780	1.75(21)	STR BS/V+I PAR-SMALL
13660	1.32(5)	STR OBS/TR SP V+I

FIGURES IN PARENTHESES INDICATE NUMBER OF READINGS

TABLE 1

VITRINITE REFLECTANCE DATA

WELL: DAVID RIVER-1A
LOCATION: BRISTOL BAY ALASKA

DEPTH (ft)	REFLECTANCE VALUES(%R _o)	COMMENTS
540	.28(24)	BW/S BS/LOW CONTENT V W+PAR (Y/O FL)
1170	.25(22)	G CLEAN LGN/RES RICH
1500	.3(19)	S BW/TR V PAR IN SH/ S OX (Y/O FL)
2210	.33(14).23(1)	BW/TR V PAR+W PAR/S OX
2210	.48(1)	BW/TR V PAR+W PAR/S OX
2660	.45(17).35(3)	BW/S VW+PAR/S OX (Y/O FL)
2660	.56(1)	BW/S VW+PAR/S OX (Y/O FL)
3320	.45(14).59(4)	PL BW/VW+PAR (Y/O FL)
3320	.34(2)	PL BW/VW+PAR (Y/O FL)
3710	.64(16).45(7)	V PAR+W-GN/VARIABLE R _o (Y O+LT O FL)
4050	.57(14).46(3)	PL BW/V PAR+W (Y-LT O)
4050	.7(5)	PL BW/V PAR+W (Y-LT O)
4320	.53(21).36(1)	S BS+W IN SH/COAL-LGN (LT O FL)
4590	.58(14).7(7)	STR BS+W IN SH/PL V PAR+ST/COAL FR/S OX (LT O FL)
4590	.44(1)	STR BS+W IN SH/PL V PAR+ST/COAL FR/S OX (LT O FL)
4980	.64(16).53(3)	STR OBS+W/COAL FR+PL VST+W+PAR/OX (LT-M O FL)
4980	.84(3)	STR OBS+W/COAL FR+PL VST+W+PAR/OX (LT-M O FL)
5310	.61(8).49(10)	STR BS+W/VST+PAR/CTGS OX (DULL M O FL)
5310	.74(1)	STR BS+W/VST+PAR/CTGS OX (DULL M O FL)
5480	.71(11).55(6)	S BS+PL W/V PAR+W-PL LGN FR (M O FL)
5800	.67(20)	STR BS/PL CPAL FR/OX
5990	.69(17).54(3)	STR BS+W/PL VST+PAR/OX (M O FL)
5990	.42(1)	STR BS+W/PL VST+PAR/OX (M O FL)
6250	.63(8).52(13)	STR BS+BW/R COAL FR+VW+PAR (M O FL)
6460	.71(17).63(6)	STR BS+W/PL COAL FR+V PAR/OX
6630	.75(17).65(3)	PL STR BW+S BS/PL V PAR+W-COAL FR/OX (M O FL)
6700	.64(11).77(9)	S BS+W/PL V PAR+W/PL COAL FR/OX (M O FL)
6700	.88(1)	S BS+W/PL V PAR+W/PL COAL FR/OX (M O FL)
6840	.76(10).64(7)	STR BS+PL W/PL COAL FR+PL VW+PAR/OX (M O FL)

FIGURES IN PARENTHESES INDICATE NUMBER OF READINGS
SEE LIST OF ABBREVIATIONS OVERLEAF

TABLE 1A

VITRINITE TABLE ABBREVIATIONS

ANS - ANISOTROPIC	B - BITUMEN
BS - BITUMEN STAINING	BW - BITUMEN WISPS
BAR - VIRTUALLY BARREN	CAV - CAVED
CARB - CARBARGILITE	COR - CORRODED
CTGS - CUTTINGS	DD - DIFFERENTIATION DIFFICULT
DMA - DRILLING MUD ADDITIVE	DOM - DOMINANT
F - FEW	FL - FLUORESCENCE
FR - FRAGMENTS	G - GOOD
GN - GNARLED	GRAN - GRANULARITY
I - INERTINITE	INST - INTERSTITIAL
IGN - IGNEOUS TRACES	IRON - IRON OXIDES
L - LOW ORGANIC CONTENT	LGN - LIGNITE
LOW - LOWEST REFLECTANCES MEASURED	M - MOSTLY
MOD - MODERATE ORGANIC CONTENT	NDP - NO DETERMINATION POSSIBLE
NTV - NO TRUE VITRINITE	OBS - OVERALL BITUMEN STAINING
OCC - OCCASIONAL	OX - INDICATIONS OF OXIDATION
P - POOR	PAR - PARTICLES
PL - PLENTIFUL-PLenty	POS - POSSIBLY
R - REWORKED	RM - REWORKED MATERIAL
RO - REFLECTANCE MEASUREMENT	RES - RESIN
RICH - RICH-HIGH ORGANIC CONTENT	S - SOME
SC - SCRUFFY	SH - SHALE
SLT - SILTSTONE	SML - SMALL
SP - SPECKS	SUB - SUBORDINATE
STC - STRUCTURE	STR - STRONGLY
TB - TURBO-DRILLED	TR - TRACE
TEL - TELINITIC	V - VITRINITE
VL - V. LOW ORGANIC CONTENT	VW - VITRINITE WISPS
VAR - VARIABLE (HIGH) RO	VST - VITRINITE STRINGERS
W - WISPS-WISPY	WH - WHOLLY
* - ALLOCTHONOUS	= - EQUAL PROPORTIONS
? - QUESTIONABLE	
BL - BLEBS	PHY - PHYTOCLASTS (CONTENT)

(SPORE FLUORESCENCE COLOURS UNDER U.V. LIGHT)

G - GREEN	Y - YELLOW
O - ORANGE	R - RED
LT - LIGHT	M - MID
D - DEEP	P - PALE

TABLE 2
VISUAL KEROGEN DESCRIPTIONS

WELL: DAVID RIVER-1A
LOCATION: BRISTOL BAY ALASKA

DEPTH(ft) SPORE COLOUR ESTIMATED SOURCE POTENTIAL

540	1/2	MODERATE-GOOD GAS
1170	1/2	GOOD GAS
1950	2	NONE-POOR GAS
2210	2-2/3	NONE-POOR GAS
3320	2/3-3	MODERATE-GOOD GAS
3710	3-3/4	MODERATE GAS
4320	3	GOOD GAS/SUB OIL
4770	3	MODERATE-GOOD GAS
5310	3	GOOD GAS
5800	3-3/4	GOOD GAS
5990	3-3/4	GOOD GAS
6460	3-3/4	GOOD GAS
6630	3-3/4	GOOD GAS
6840	3/4	GOOD GAS
7250	3/4-4	GOOD GAS
7380	3/4-4	GOOD GAS
7680	3/4	GOOD GAS
8000	3/4-4	GOOD GAS
8580	3/4-4	GOOD GAS
8750	3/4-4	GOOD GAS
8900	3/4-4	GOOD GAS
9400	3/4-4	MODERATE-GOOD GAS
9600	3/4-4	GOOD GAS
10030	4	GOOD GAS
10610	4	GOOD GAS
11300	3/4-4	MODERATE-GOOD GAS
11800	4/5	POOR GAS
12250	4/5	NONE-POOR GAS
12780	4/5	NONE
13350	4/5	NONE
13660	5-5/6	NONE

DAVID RIVER 1A

KEY	Depth in		Type	Amount of Organic Matter		Trace/Rare Common Frequent Abundant		MIOSPORES		PHYTOPLANKTON EXCLUDING TASMANITIDS		TASMANITIDS		FORAM LININGS		MEGASPORES		OTHER MICROFOSSILS		CUTICLES		OTHER TISSUES		BROWN 'WOOD': LIGNITE		BLACK 'WOOD': VITRINITE + INERTINITE		BLACK 'WOOD': INERTINITE ONLY		FINELY DISSEMINATED PARTICLES		AMORPHOUS VASCULAR PLANT MATERIAL		AMORPHOUS MATTER OF ALGAL ORIGIN, MARINE (M) /NON MARINE (N)		good fair poor		PRESERVATION STATE		Reworking		undiff. mar. open mar. restricted mar. nr. shore mar./strong terrig. intl some mar. influence/brackish non-mar./freshwater.		COLOUR/MATURATION		SOURCE POTENTIAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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DAVID RIVER 1A

KEY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123
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TABLE 3
ROCK-EVAL AND PYROLYSIS DATA

WELL: DAVID RIVER-1A
LOCATION: BRISTOL BAY ALASKA

DEPTH (ft)	P1 KG/TONNE	P2 KG/TONNE	GOGI	TOC (%wt)	HYDROGEN INDEX
540	0	1.1		2	54
1170	0	.3		.85	35
1500	0	0			
1950	0	0			
2210	0	0			
2660	0	.6		1.5	40
2660 COAL	1.6	80			
3320	0	1		1.5	66
3710	0	.2		.78	25
4050	0	.9		1.6	56
4140	0	1.2		2.1	57
4140 COAL	1.4	55.4			
4590	0	.7		1	70
4590 COAL	.2	21	.88		
4770	0	0			
4770 COAL	.3	21.3	.99		
4980	.1	15.5	.83	17.1	90
5310	0	.5		1.6	31
5480	0	.5		1.2	41
5480 COAL	1.7	45.7	.65		
5710	0	.8		1.8	44
5800	.7	20.6	.65	14.6	141
5900	0	.6			
6130	0	.7		2.4	29
6130 COAL	.6	41.2			
6250 COAL	.6	31.8	.87	26	122
6460	.1	2.7	.94	5.7	47
6630	0	.8		3.1	25
6630 COAL	1.1	69.1			
6700	.1	3.1	.99	4	77
6840	.1	1.8		3.3	54
6970	0	.6		1.9	31
7130	.1	2.4	.81	3.2	75
7250	0	1.4		2.3	60
7380	.1	2.5	.85	3	83

TABLE 3
ROCK-EVAL AND PYROLYSIS DATA

WELL: DAVID RIVER (ADDITIONAL DATA)
LOCATION: BRISTOL BAY ALASKA

DEPTH (ft)	P1 KG/TONNE	P2 KG/TONNE	GOGI	TOC (%wt)	HYDROGEN INDEX
7530	0	1.2		2.3	52
7680	.1	2.9	.92	2.2	131
7810	0	1		2.3	43
8000	0	.6		2.1	28
8320	0	.6		2	30
8450	.1	2.5		16.5	15
8580	.1	2.2		2.3	95
8680	0	1.7			
8680 COAL	1.3	45.3			
8750	0	1.6		1.9	84
8750 COAL	.7	30	.84	22.7	132
8900	0	.3		1.5	20
9070	0	.5		.84	59
9400	0	.1		.92	10
9600	0	.9		1.6	56
9600 COAL	.2	7.5	1.08	15.8	47
9750	0	.3		2	15
9750 COAL	.4	26.8			
9950	.1	1.9		2.4	79
10050	.2	3.1	1.45	12.9	24
10300	0	1		2.8	35
10300 COAL	6	16			
10610	0	.3		1.5	20
10900	0	.4		1.2	33
10900 COAL	.2	2.7			
11300	0	.3		2	15
11580	.1	2		2	100
11580 COAL	1.1	19.3			
11800	.1	.7		1.7	41
12140	0	.1		.4	25
12250	.1	0			
12520	.1	.2		.91	21
12780	0	0			
13060	0	0			
13350	0	0			
13660	0	0			

TABLE 4

LITHOLOGY AND TOC DATA

WELL: DAVID RIVER-1A

LOCATION: BRISTOL BAY ALASKA

DEPTH(ft)	AGE/FM	PICKED LITHOLOGY	%TOC	%CARBONATE
540	QUAT/MILK RVR	C-MUDSTONE	2	18.6
1170	QUAT/MILK RVR	C-SANDSTONE	0.85	21
1500	QUAT/MILK RVR	C-SANDSTONE	0.13	14.4
1950	EOCENE/BEAR L	C-SANDSTONE	0.06	16.5
2210	EOCENE/BEAR L	C-MUDSTONE	0.12	18.4
2660	EOCENE/BEAR L	C-MUDSTONE	1.5	24
3320	EOCENE/BEAR L	C-SILTSTONE	1.5	10.8
3710	EOCENE/BEAR L	C-SILTSTONE	0.78	15.8
4050	EOCENE/BEAR L	C-SILTSTONE	1.6	13
4140	EOCENE/BEAR L	C-SILTSTONE	2.1	18.7
4320	EOCENE/BEAR L	C-SILTSTONE	2.4	21.8
4590	EOCENE/STEPOVAK	C-SILTSTONE	1	18.72
4770	EOCENE/STEPOVAK	C-SILTSTONE	1.4	17.2
4980	EOCENE/STEPOVAK	C-COAL	17.1	15.2
5310	EOCENE/STEPOVAK	C-SILTSTONE	1.6	24.3
5480	EOCENE/STEPOVAK	C-SILTSTONE	1.2	23
5710	EOCENE/STEPOVAK	C-SILTSTONE	1.8	19.2
5800	EOCENE/STEPOVAK	C-COAL	14.6	19.5
5800	EOCENE/STEPOVAK	C-SILTSTONE	1.3	26.5
5990	EOCENE/STEPOVAK	C-SILTSTONE	1.1	14.2
6130	EOCENE/STEPOVAK	C-SILTSTONE	2.4	19.9
6250	EOCENE/STEPOVAK	C-SILTSTONE	2	15.3
6250	EOCENE/STEPOVAK	C-COAL	26	11.7
6460	EOCENE/STEPOVAK	C-SILTSTONE	5.7	13
6630	EOCENE/STEPOVAK	C-SILTSTONE	3.1	10.9
6700	EOCENE/STEPOVAK	C-SILTSTONE	4	20.1
6840	EOCENE/STEPOVAK	C-SILTSTONE	3.3	17.7
6970	EOCENE/STEPOVAK	C-SILTSTONE	1.9	12.5
7130	EOCENE/STEPOVAK	C-SILTSTONE	3.2	14.3
7250	EOCENE/STEPOVAK	C-SILTSTONE	2.3	17.8
7380	EOCENE/TOLSTOI	C-SILTSTONE	3	17.2

SAMPLE TYPES :-

N-CORE SAMPLE

S-SIDEWALL CORE

O-OUTCROP

C-CUTTINGS

TABLE 4

LITHOLOGY AND TOC DATA

WELL: DAVID RIVER (ADDITIONAL DATA)

LOCATION: BRISTOL BAY ALASKA

DEPTH(ft)	AGE/FM	PICKED LITHOLOGY	%TOC	%CARBONATE
7530	EOCENE/TOLSTOI	C-SILTSTONE	2.3	15
7680	EOCENE/TOLSTOI	C-SILTSTONE	2.2	16.9
7810	EOCENE/TOLSTOI	C-SILTSTONE	2.3	14.3
8000	EOCENE/TOLSTOI	C-SILTSTONE	2.1	14.4
8320	EOCENE/TOLSTOI	C-SILTSTONE	2	11.2
8450	EOCENE/TOLSTOI	C-COAL/SILTST	16.5	25.8
8580	EOCENE/TOLSTOI	C-SILTSTONE	2.3	22.5
8750	EOCENE/TOLSTOI	C-SILTSTONE	1.9	15.7
8750	EOCENE/TOLSTOI	C-COAL	22.7	28.1
8900	EOCENE/TOLSTOI	C-SILTSTONE	1.5	18.5
9070	EOCENE/TOLSTOI	C-SILTSTONE	0.84	16.4
9400	EOCENE/TOLSTOI	C-SILTSTONE	0.92	19.3
9600	EOCENE/TOLSTOI	C-SILTSTONE	1.6	24.9
9600	EOCENE/TOLSTOI	COAL/SILTST	15.8	19.6
9600	EOCENE/TOLSTOI	COAL/SILTST	15.8	19.6
9750	EOCENE/TOLSTOI	C-SILTSTONE	2	16
9950	EOCENE/TOLSTOI	C-SILTSTONE	2.4	18.5
10050	EOCENE/TOLSTOI	C-COAL/SILTST	12.9	13.1
10300	EOCENE/TOLSTOI	C-SILTSTONE	2.8	14.4
10610	EOCENE/TOLSTOI	C-SILTSTONE	1.5	14.7
10900	EOCENE/TOLSTOI	C-SILTSTONE	1.2	15.2
10900	EOCENE/TOLSTOI	C-SILTSTONE	1.2	15.2
11300	EOCENE/TOLSTOI	C-SILTSTONE	2	15.7
11580	EOCENE/TOLSTOI	C-SILTSTONE	2	15.5
11800	CRET/CHIGNIK	C-SILTSTONE	1.7	12.8
12140	CRET/CHIGNIK	C-SILTSTONE	0.4	8.4
12250	CRET/CHIGNIK	C-SILTSTONE	0.73	15.6
12520	CRET/CHIGNIK	C-SILTSTONE	0.91	13.5
12780	CRET/CHIGNIK	C-SILTSTONE	0.4	12.3
13060	CRET/CHIGNIK	C-SILTSTONE	0.53	11.5

SAMPLE TYPES :-

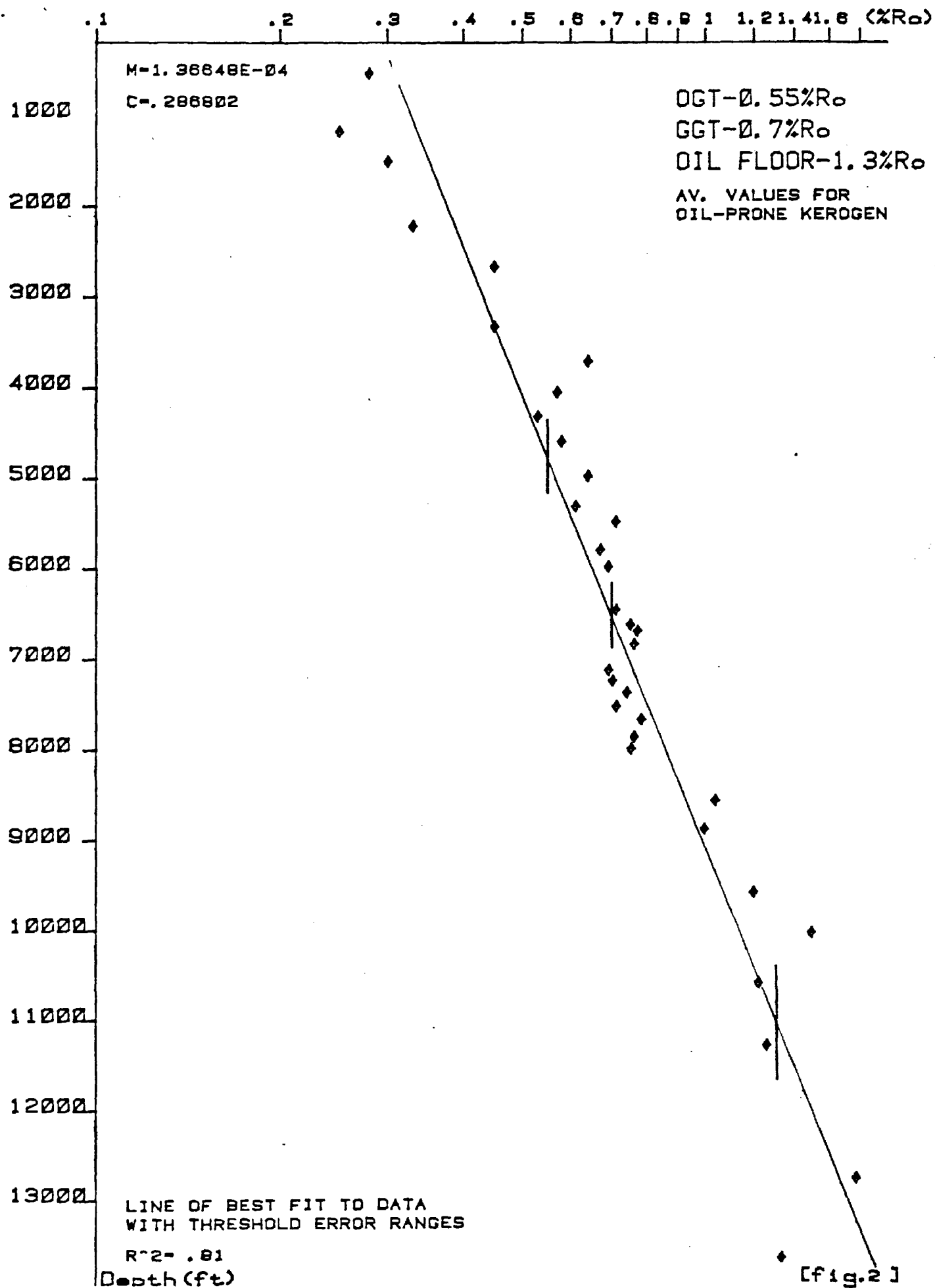
N-CORE SAMPLE

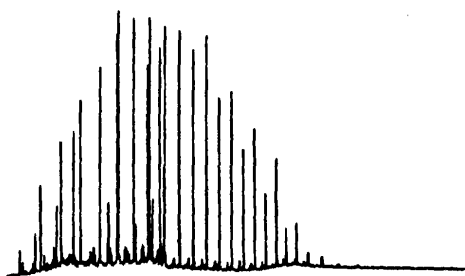
S-SIDEWALL CORE

O-OUTCROP

C-CUTTINGS

for well: DAVID RIVER

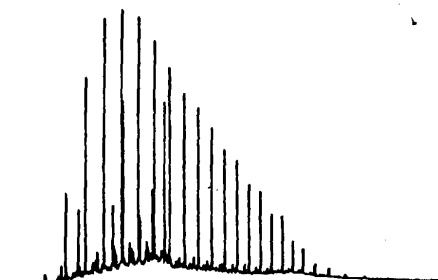




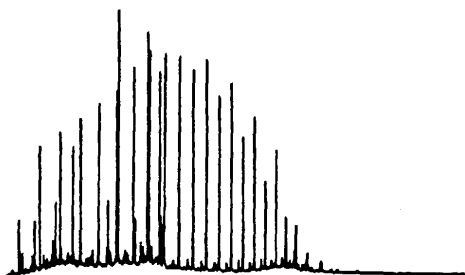
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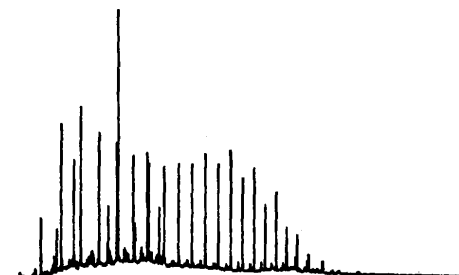
SAMPLE: 6408-6528 ft



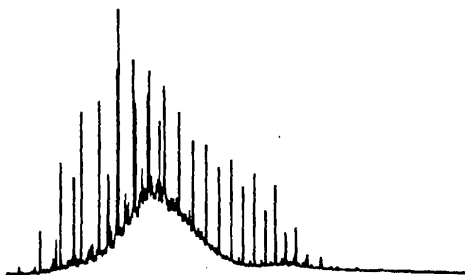
SAMPLE: 11508-11638 ft



SAMPLE: 4988-5128 ft



SAMPLE: 7128-7268 ft



SAMPLE: 5028-5058 ft

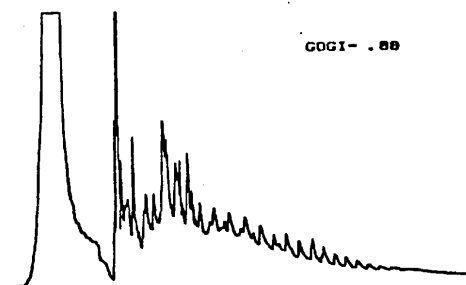


SAMPLE: 7308-7448 ft

GEOCHEMISTRY BRANCH, BP SUNBUR
OPERATIONS GROUP

SAC FRACTION GAS CHROMATOGRAMS

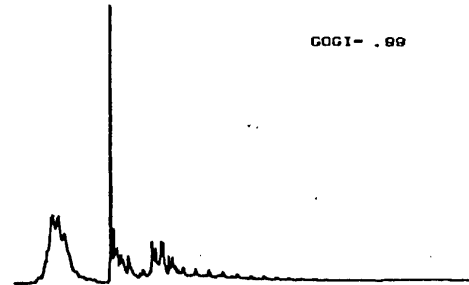
[fig. 2]



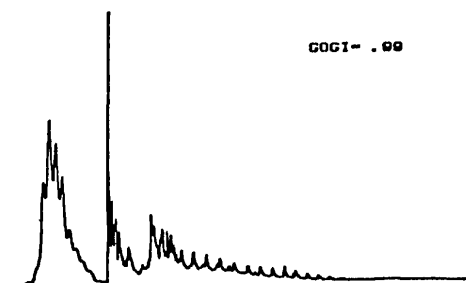
SAMPLE: 4588f% COAL



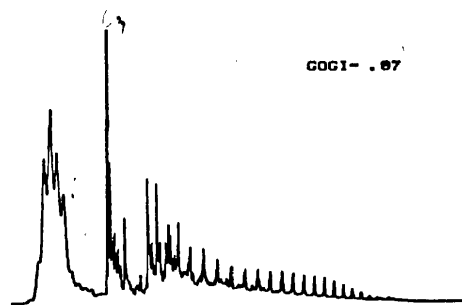
SAMPLE: 5488f% COAL



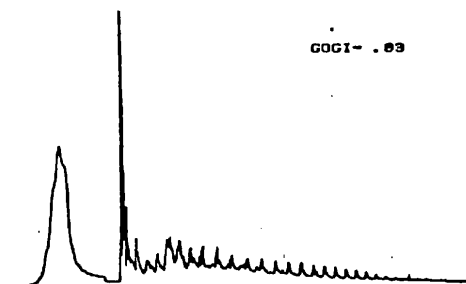
SAMPLE: 6788f% SILTST



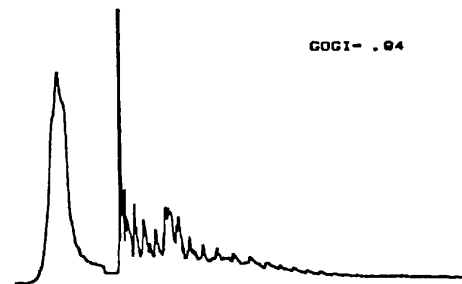
SAMPLE: 4778f% COAL



SAMPLE: 8258f% COAL



SAMPLE: 4988f% COAL

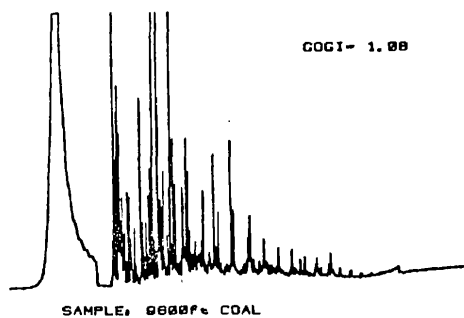
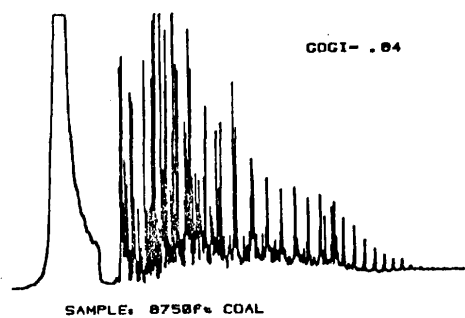
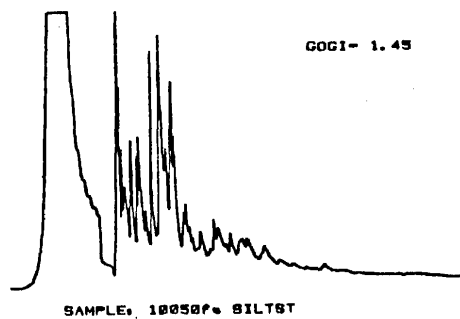
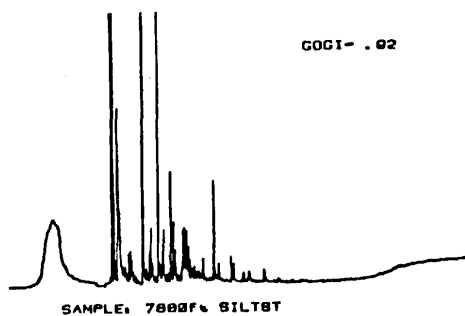


SAMPLE: 8488f% SILTST

GEOCHEMISTRY BRANCH, BP SUNBURY
OPERATIONS GROUP

KEROGEN PYROLYSATES (P2)

[fig.4]



GEOCHEMISTRY BRANCH, BP SU
OPERATIONS GROUP

KEROGEN PYROLYSATES (P2

[

1. GOM = Gas/Oil Generation Index (PBC): P_1 = Hydrocarbon Yield at 750°C, (Rock Eval); P_2 = Pyrolyzed Hydrocarbon Yield from 750-550°C (Oil plus Gas), (Rock Eval).
2. Source Rock Potential Ratings for PBC and Rock Eval (P_2 only) Yields are: < 0.5, Poor; 0.5-1.5, Fair; 1.5-3, Moderate; 3-6, Good; > 15, Very Good.
3. Values represent Maximum Theoretical Yields in kg/Hmm. Amount of Hydrocarbons actually reaching the sand may be only 1% of this Value.
4. Samples with Oil Yields of < 1.5 kg/tonne or TOC's of < 0.5 % are unlikely to generate sufficient Oil to encourage migration.

WELL: DAVID - RIVER - 1A
 LOCATION: BRISTOL BAY, ALASKA.
 OPERATOR: PAN AMERICAN.

Date Spudded: 11/6/68
 Date Completed: 31/6/69
 TD: 13769 ft

BP RESEARCH
 PETROLEUM

MATURITY INDICATORS

SPORE COLOUR		VITRINITE REFLECTANCE %			GENERATION INDICES %**		CARBON PREFERENCE INDEX	
IMMATURE	* THRESHOLD	IMMATURE	* THRESHOLD	PEAK OIL	TSE	* THRESHOLD	2.0	1.0
1, 2, 3, 4, 5, 6, 7		0.2	0.55	0.8	TOC	100		
				OIL FLOOR	SAC	30		
					TOC			

GEOLOGICAL AND WELL DATA

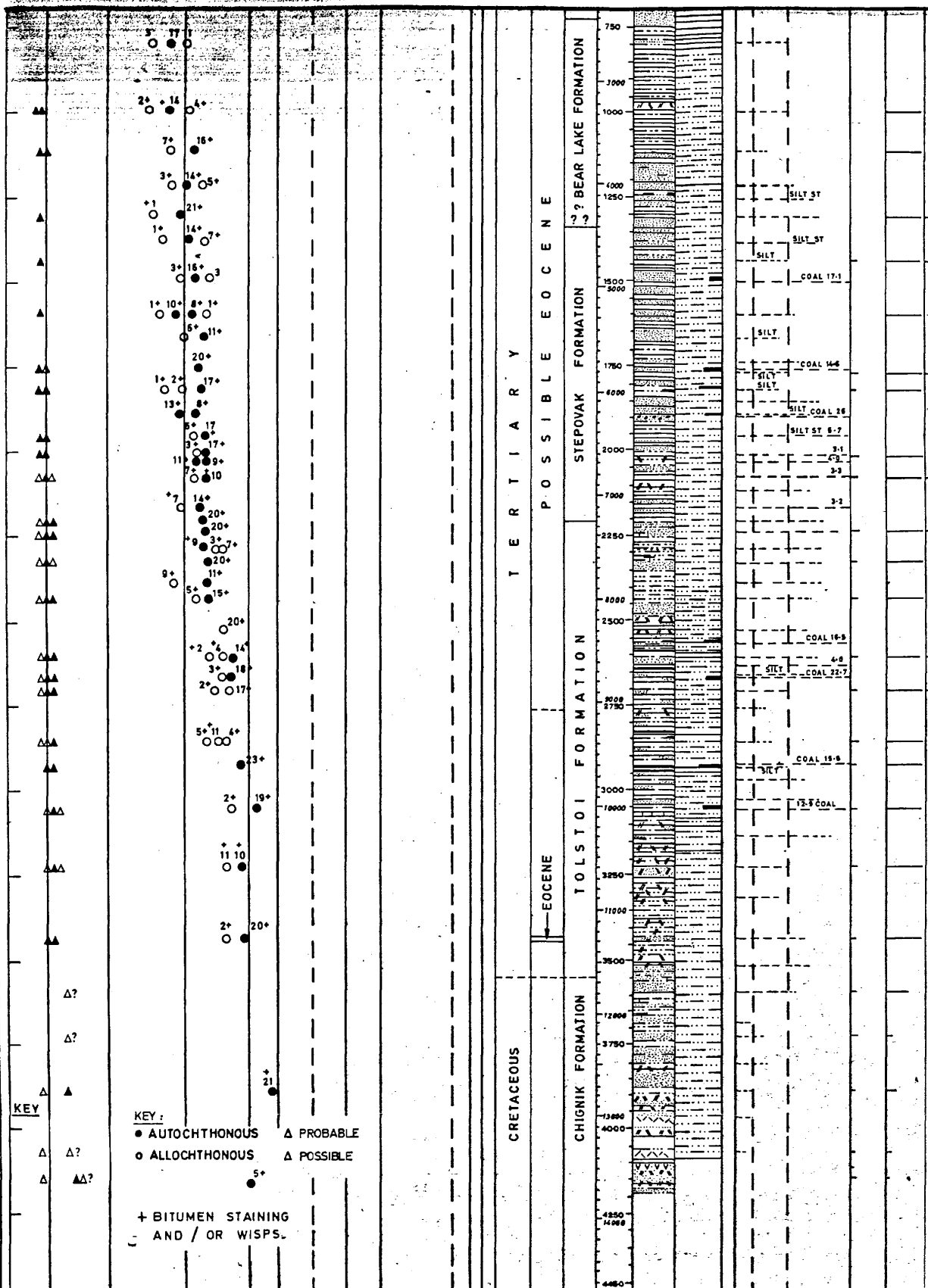
Sample No.	STRATIGRAPHY	Depth ft & m	Graphic Log	Picked Log	TOTAL ORGANIC CARBON %		
					CUTTINGS	SWC	
					POOR	MODERATE	GOOD
					0.5	1.5	3.0
	QUATERNARY						
	MILK RIVER FORMATION	250					
		1000					
		500					
		2000					
		750					
	BEAR LAKE FORMATION	3000					
		1000					
		4000					
		1250			SILT ST		
					SILT ST		
					SILT		
		1500			COAL 17-1		
		5000					
	STEPOVAK FORMATION	1750			COAL 14-6		
		8000			SILT		
					SILT COAL 7-6		
		2000			SILT ST 8-7		
		7000			3-1		
					2-2		
		2250			3-1		
		8000					
		2500			COAL 16		
					SILT		
					COAL 22		
		2750					
					COAL 10-1		

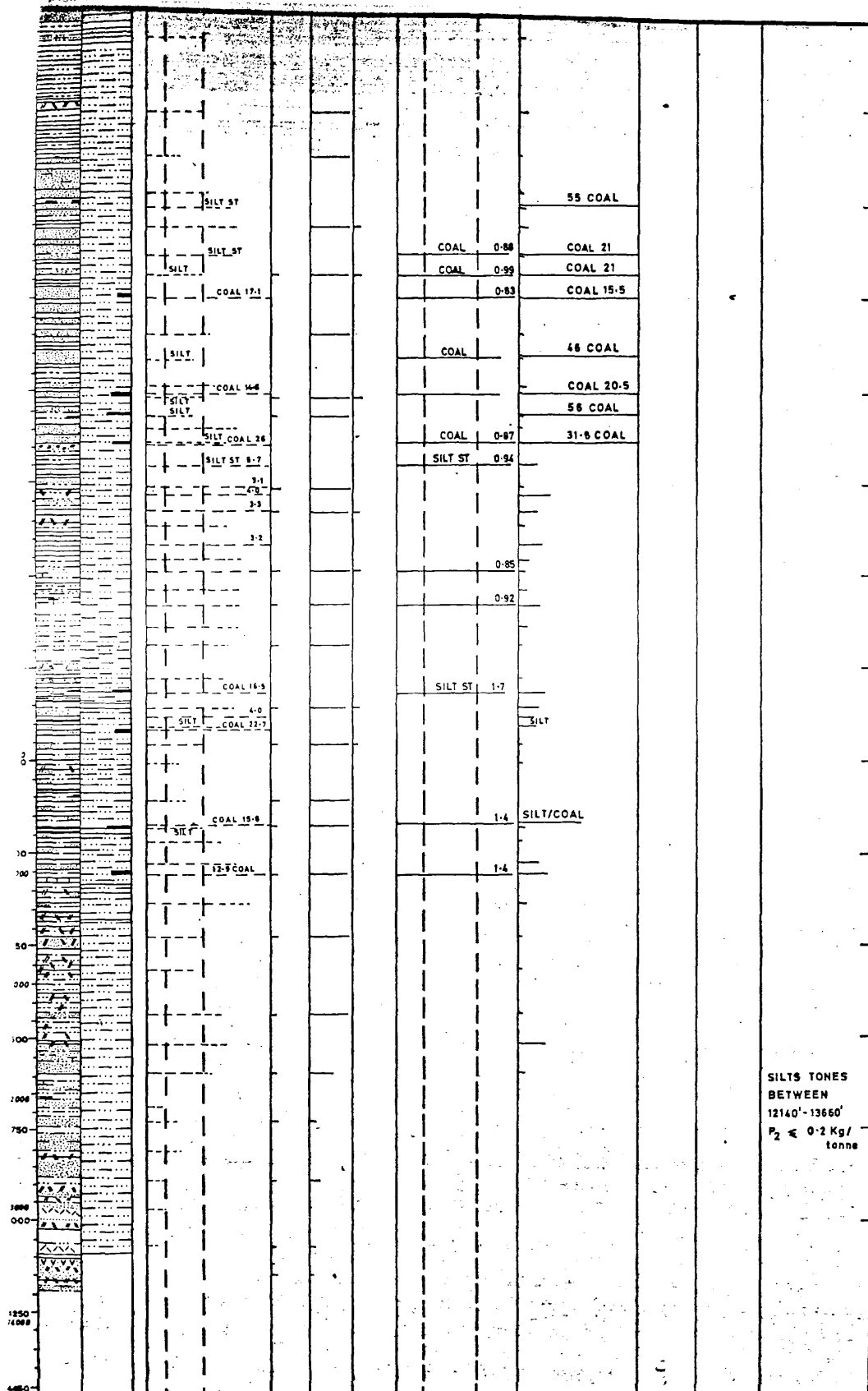
T D: 13769 ft

PETROLEUM GEOCHEMICAL LOG

SCALE = 1 : 10,000

[illegible]





SILTS TONES
BETWEEN
12140' - 13660'
 $P_2 \leq 0.2 \text{ Kg/tonne}$

Generation Index (P&C): P_1 = Hydrocarbon Yield at 250°C, (Rock-Eval). P_2 = Pyrolyzed Hydrocarbon Yield from 250-550°C (Oil plus Gas), (Rock-Eval).
Maturity Ratings for P&C and Rock Eval (P_2 only) Yields are: < 0.5, Insig: < 1.5, Poor: > 1.5-5, Moderate: > 5-15, Good: > 15, Very Good.
Maximum Theoretical Yields in kg/tonne. Amount of Hydrocarbons actually reaching the reservoir may be only 1% of this Value.
Yields of < 1.5 kg/tonne or TOC's of < 0.5% are unlikely to generate sufficient Oil to commence migration.

TABLE 1

VITRINITE REFLECTANCE DATA

WELL: HOODOO LAKE UNIT 2
LOCATION: BRISTOL BAY, ALASKA

DEPTH (ft)	REFLECTANCE VALUES(%R _o)	COMMENTS
780	.24(8)	BAR/F BW+VW+VPAR/ONE LGN CTC - NO FL
1800	.37(5).53(4)	OCC BW/TR PHYT/F PAR V+I - NO FL
2160	.52(5).68(6)	LIGHT BS+W/TR PHYT/F VW/OX - LT O
2520	.42(6).63(2)	BAR/OCC BW/F COR V SP - NO FL
2910	.5(2).77(5)	BW/TR VPAR+W-VAR - NO FL
3300	.42(1).8(4)	BAR/BW/F COR VW+PAR-VAR - DO
3660	.5(1).73(5)	BAR/OCC BW/F VPAR-VAR - NO FL
4020	.55(2).74(5)	BAR/BW/F VW+PAR - NO FL
4400	.54(1).71(11)	BW+LIGHT BS/TR VPAR+WPAR - M-DO
4780	.74(12)	BW+LIGHT-MOD S/F IPAR=VW - NO FL
5280	.8(21)	LIGHT-MOD BS+W/F VPAR+W/L PHYT - NO FL
5520	.88(22)	LIGHT-MOD BS/VW+PAR/L PHYT
5800	.94(23)	LIGHT BS+W/F VW+PAR/L PHYT - NO FL
6000	1.07(23)	STR OBS/PL LARGE VST+PAR/MOD PHYT
6200	1.12(21)	STR BS/LARGE VW+PAR/F COAL FR/MOD PHYT
6400	1.27(23)	MOD-STR OBS/LARGE VST+PAR/COAL FR
6600	1.12(22)	STR BS/VST+PAR/COAL CTGS/MOD PHYT
6760	1.4(22)	STR BS/LARGE VST+PAR/F COAL FR/MOD PHYT - NO FL
7100	1.37(22)	STR OBS/VPAR+W/L-MOD PHYT
7540	1.36(23)	VAR BS/VST+W+PAR/L-MOD PHYT - NO FL
7980	1.78(5)	BAR/TR B/F VPAR
8050	2.14(23)	STR BS/PL COAL FR
8250	2.19(21)	VAR BS/VST+W+PAR/MOD-RICH PHYT - NO FL
8500	2.15(20)	MOD BS+W/F V+IPAR+WPAR/L PHYT
8950	2.37(4)	BAR/VAR BS/F ORGANIC SP - NO FL
9450	1.74(2)	BAR/OCC MOD BS/F INST B AREAS - NO FL
9700	2.31(12)	MOD BS+W/TR HIGH RO PAR - NO FL
9900	2.05(21)	MOD BS/TR VPAR+LOOSE FR/L B - NO FL
10700	2.23(1)	BAR/OCC BW/F PHYT SP - NO FL
11010	2.39(9)	VAR MOD BS/TR HIGH RO PHYT - NO FL

FIGURES IN PARENTHESES INDICATE NUMBER OF READINGS
SEE LIST OF ABBREVIATIONS OVERLEAF

TABLE 1A

VITRINITE TABLE ABBREVIATIONS

ANS - ANISOTROPIC	B - BITUMEN
BS - BITUMEN STAINING	BW - BITUMEN WISPS
BAR - VIRTUALLY BARREN	CAV - CAVED
CARB - CARBARGILITE	COR - CORRODED
CTGS - CUTTINGS	DD - DIFFERENTIATION DIFFICULT
DMA - DRILLING MUD ADDITIVE	DOM - DOMINANT
F - FEW	FL - FLUORESCENCE
FR - FRAGMENTS	G - GOOD
GN - GNARLED	GRAN - GRANULARITY
I - INERTINITE	INST - INTERSTITIAL
IGN - IGNEOUS TRACES	IRON - IRON OXIDES
L - LOW ORGANIC CONTENT	LGN - LIGNITE
LOW - LOWEST REFLECTANCES MEASURED	M - MOSTLY
MOD - MODERATE ORGANIC CONTENT	NDP - NO DETERMINATION POSSIBLE
NTV - NO TRUE VITRINITE	OBS - OVERALL BITUMEN STAINING
OCC - OCCASIONAL	OX - INDICATIONS OF OXIDATION
P - POOR	PAR - PARTICLES
PL - PLENTIFUL-PLENTY	POS - POSSIBLY
R - REWORKED	RM - REWORKED MATERIAL
RO - REFLECTANCE MEASUREMENT	RES - RESIN
RICH - RICH-HIGH ORGANIC CONTENT	S - SOME
SC - SCRUFFY	SH - SHALE
SLT - SILTSTONE	SML - SMALL
SP - SPECKS	SUB - SUBORDINATE
STC - STRUCTURE	STR - STRONGLY
TB - TURBO-DRILLED	TR - TRACE
TEL - TELINITIC	V - VITRINITE
VL - V.LOW ORGANIC CONTENT	VW - VITRINITE WISPS
VAR - VARIABLE (HIGH) RO	VST - VITRINITE STRINGERS
W - WISPS-WISPY	WH - WHOLLY
* - ALLOCTHONOUS	= - EQUAL PROPORTIONS
? - QUESTIONABLE	
BL - BLEBS	PHY - PHYTOCLASTS (CONTENT)

(SPORE FLUORESCENCE COLOURS UNDER U.V. LIGHT)

G - GREEN	Y - YELLOW
O - ORANGE	R - RED
LT - LIGHT	M - MID
D - DEEP	P - PALE

TABLE 2
VISUAL KEROGEN DESCRIPTIONS

WELL: HOODOO LAKE UNIT 2
LOCATION: BRISTOL BAY, ALASKA

DEPTH(ft) SPORE COLOUR ESTIMATED SOURCE POTENTIAL

780	2	POOR GAS
1800	2/3	NONE-POOR GAS
2160	3	POOR-?MOD GAS
2520	3	POOR-?MOD GAS
3300	3	NONE-POOR GAS
3660	3-3/4	POOR GAS
4020	3-3/4	POOR GAS
4780	3-3/4	POOR GAS
5280	3-3/4	POOR GAS
5800	3-3/4	GOOD GAS/SUB OIL ?
6100	3-3/4	GOOD GAS/SUB OIL ?
6300	3-3/4	GOOD GAS/SUB OIL ?
6500	3-3/4	GOOD GAS/SUB OIL ?
6600	3-3/4	GOOD GAS/SUB OIL ?
6960	3-3/4	GOOD GAS/SUB OIL ?
7100	3-3/4	GOOD GAS/SUB OIL ?
7240	3/4-4	GOOD GAS/SUB OIL ?
8050	4-4/5	GOOD GAS
8250	4/5-5	GOOD GAS
8500	4/5-5	MOD GAS
8950	5	POOR GAS
9700	5	MOD GAS
9900	5	GOOD GAS
10700	5/6-6	NONE-POOR GAS

TABLE 3

ROCK-EVAL AND PYROLYSIS DATA

WELL: HOODOO LAKE UNIT 2
LOCATION: BRISTOL BAY, ALASKA

DEPTH (ft)	P1 KG/TONNE	P2 KG/TONNE	GOGI	TOC (%wt)	HYDROGEN INDEX
780	0	0			
1410	0	.2			
1800	0	0			
2160	0	.1			
2520	0	.1			
2910	0	.1			
3300	0	0			
3660	0	0			
4020	0	0			
4400	0	0			
4780	0	0			
5280	0	0			
5520	0	0			
5800	0	0			
5900	.1	1.6	1.21		
6000	.1	1.8	1.03		
6100	.3	3.9	1		
6200	.1	3.8	1.09		
6300	.3	3.5	1.16		
6400	.1	3.1	1.07		
6500	.6	8.2	.93		
6600	.6	5.2	1.04		
6760	1	14.4	1.01		
6960	.6	4.3	1.36		
7100	.2	2.7	.89		
7360	1.4	11.9	1.07		
7540	0	.5			
7620	.1	.5			
7980	0	0			
8050	0	0			
8150	0	0			
8250	0	0			
8500	0	0			
8950	0	0			
9450	0	0			
9700	0	0			
9900	0	0			
10700	0	0			
11010	0	0			

TABLE 4

LITHOLOGY AND TOC DATA

WELL: HOODOO LAKE UNIT 2
LOCATION: BRISTOL BAY, ALASKA

DEPTH(ft)	AGE/FM	PICKED LITHOLOGY	%TOC	%CARBONATE
780	TERT/BEAR LAKE	C-CLAY	n.d.	n.d.
1410	TERT/BEAR LAKE	C-CLAY	n.d.	n.d.
1800	TERT/BEAR LAKE	C-CLAY	n.d.	n.d.
2160	TERT/BEAR LAKE	C-SILTSTONE	n.d.	n.d.
2520	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
2910	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
3300	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
3660	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
4020	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
4400	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
4780	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
5280	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
5520	TERT/STEPOVAK	C-SILTSTONE	n.d.	n.d.
5800	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
5900	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6000	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6100	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6200	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6300	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6400	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6500	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6600	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
6760	TERT/TOLSTOI	C-COALY SLTST	n.d.	n.d.
6960	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
7100	TERT/TOLSTOI	C-SILTSTONE	n.d.	n.d.
7360	CRET/CHIGNIK	C-COALY SLTST	n.d.	n.d.
7540	CRET/CHIGNIK	C-SILTSTONE	n.d.	n.d.
7620	CRET/CHIGNIK	C-SILTSTONE	n.d.	n.d.
7980	CRET/CHIGNIK	C-CALC SLTST	n.d.	n.d.
8050	CRET/CHIGNIK	C-SILTSTONE	n.d.	n.d.
8150	CRET/CHIGNIK	C-SILTSTONE	n.d.	n.d.
8250	CRET/CHIGNIK	C-SILTSTONE	n.d.	n.d.
8500	CRET/CHIGNIK	C-SILTSTONE	n.d.	n.d.
8950	CRET/HERENDEEN	C-LIMESTONE	n.d.	n.d.
9450	CRET/HERENDEEN	C-LIMESTONE	n.d.	n.d.
9700	JURASSIC	C-CALC SLTST	n.d.	n.d.
9900	JURASSIC	C-CALC SLTST	n.d.	n.d.
10700	JURASSIC	C-CALC SLTST	n.d.	n.d.
11010	JURASSIC	C-SILTSTONE	n.d.	n.d.

SAMPLE TYPES :-

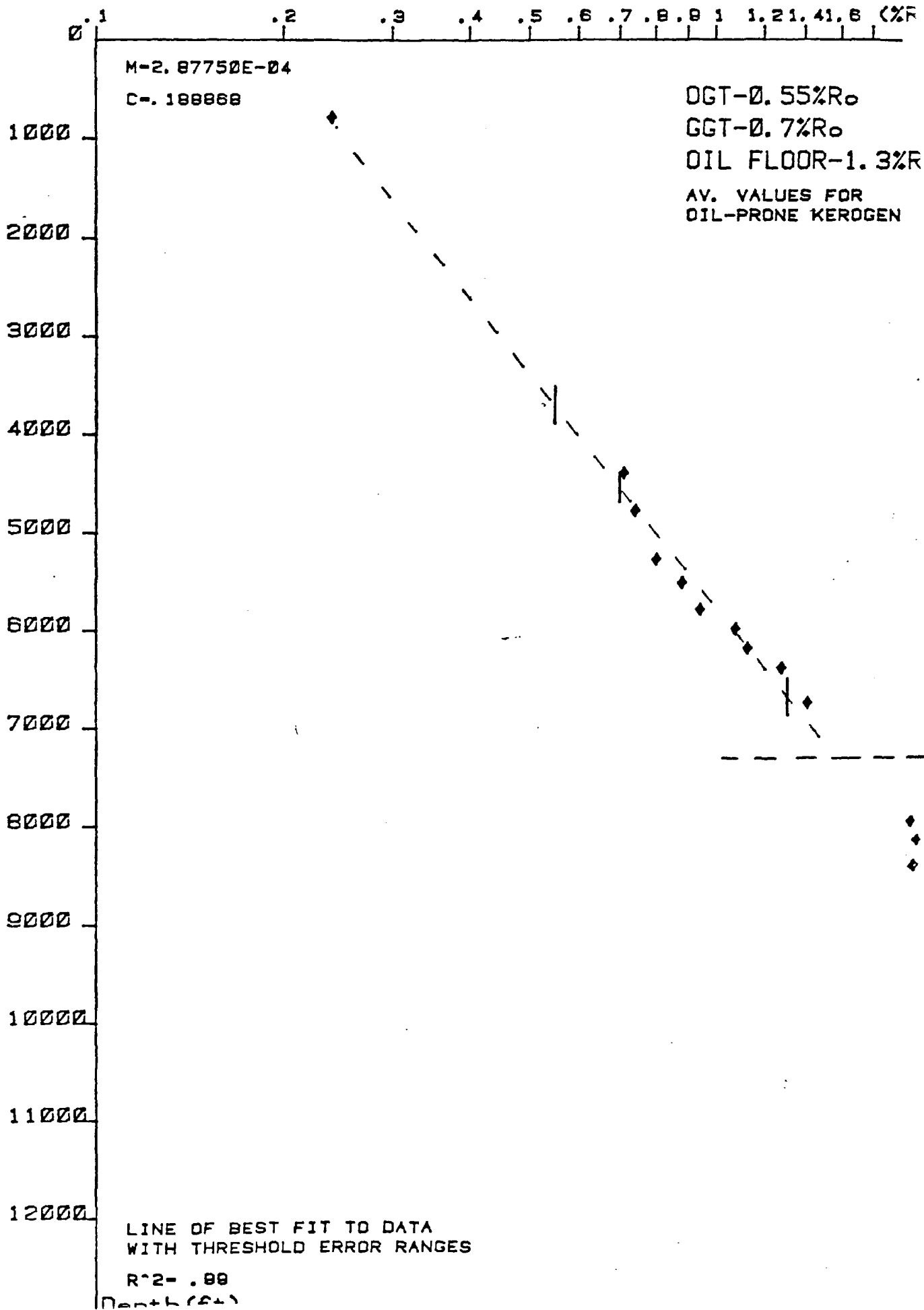
N-CORE SAMPLE
S-SIDEWALL CORE

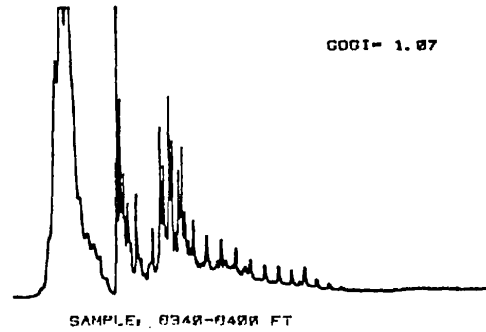
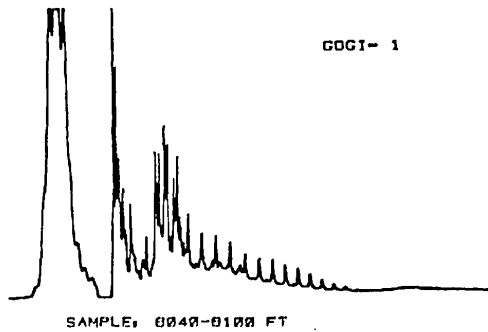
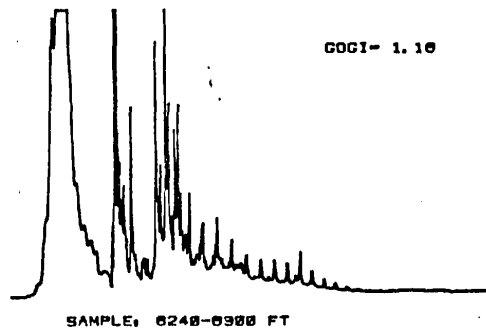
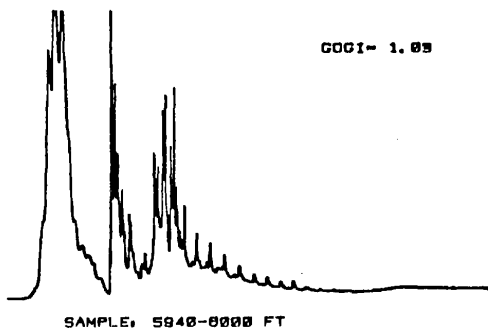
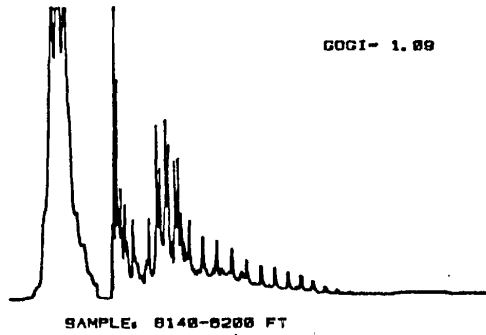
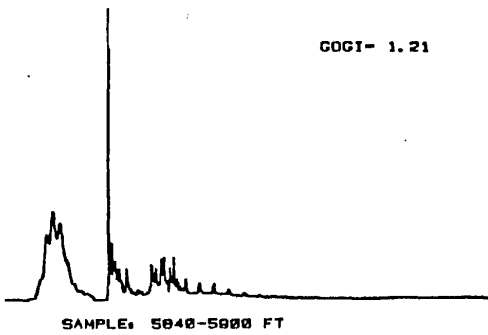
O-OUTCROP
C-CUTTINGS

6 1st SLIDE ONLY
7 BLACK NETS
8 FUNGAL REMAINS
9 OXIDATION PRODUCTS

SAMPLES	Depth in metres / feet		Type	Amount of Organic Matter						
					Trace/present	Common	Frequent	Abundant	MIOPORES	
	780	1800	SHALL							DINOFLAGELLATE CYSTS AND ACRITARCHS
	2100	2500	SHALL							
	3300	3600	SHALL							TASMANITIDS AND LEIOSPHERES
	4000	4100	SHALL							
	5800	6500	SHALL							FORAM LININGS
	6000	6500	SHALL							
	6800	7500	SHALL							MEGASPORES
	8200	8500	SHALL							
	9100	9400	SHALL							OTHER MICROFOSSILS 1
	10100		SHALL							
										OTHER MICROFOSSILS 2, MISCELLANEOUS PHYTOCLASTS
										CUTICLES
										OTHER TISSUES
										BROWN 'WOOD' HUMINITE + VITRINITE
										BLACK 'WOOD' VITRINITE + INERTINITE
										BLACK WOOD INERTINITE ONLY
										FINELY DISSEMINATED PARTICLES
										AMORPHOUS VASCULAR PLANT MATERIAL
										AMORPHOUS MATTER OF ALGAL ORIGIN, MARINE (M) NON MARINE (N)
										PRESERVATION STATE
										Reworking (/ = present)
										ENVIRONMENT OF DEPOSITION
										nr. shore mar./strong terrig. infl. some mar. influence/brackish non-mar./freshwater
										COLOUR/MATURATION
										SOURCE POTENTIAL FOR OIL (O) AND GAS (G)

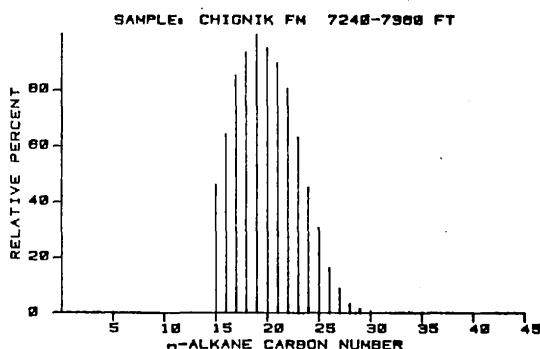
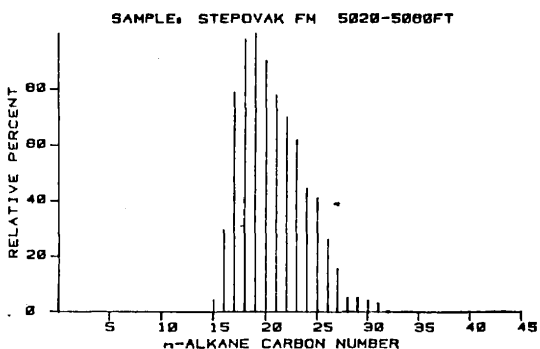
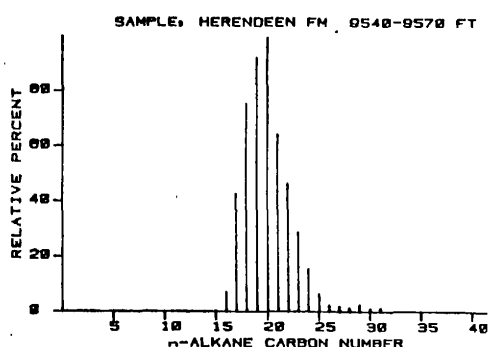
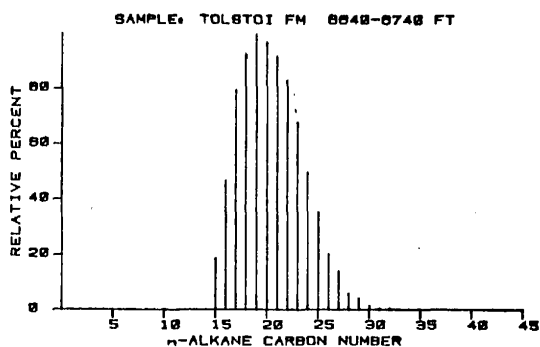
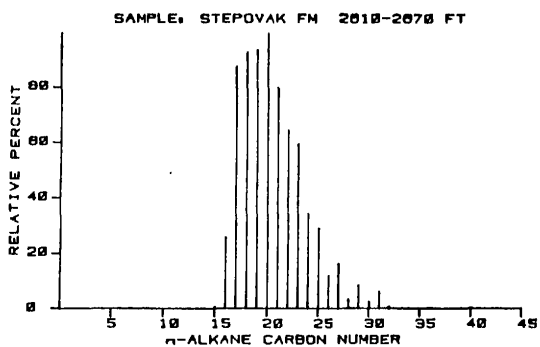
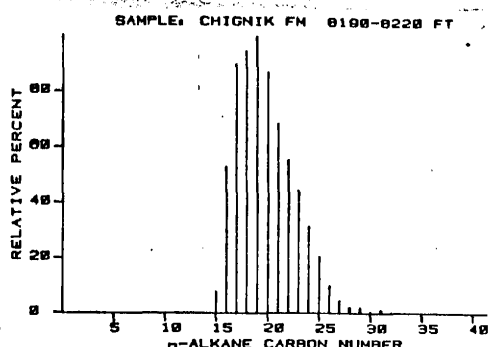
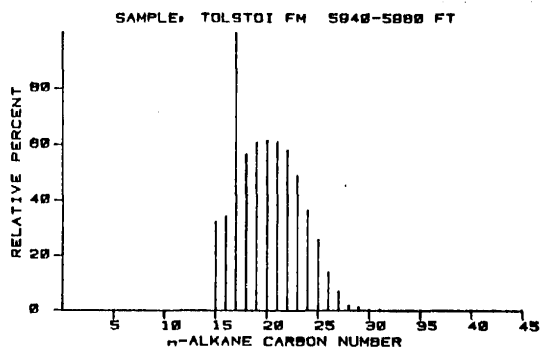
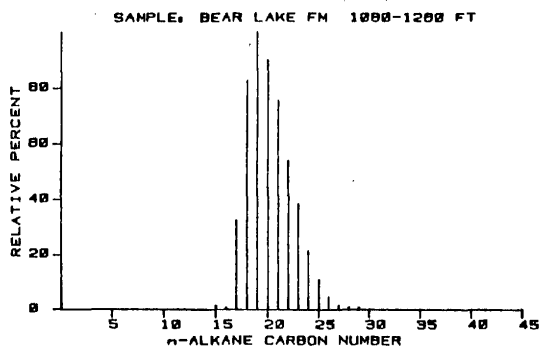
Vitrinite Reflectance Analysis
for well: HOODOO LAKE UNIT 2





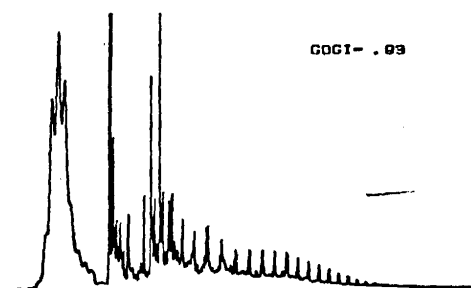
GEOCHEMISTRY BRANCH, BP SUNBI
OPERATIONS & DEVELOPMENT GRO

KEROGEN PYROLYSATES (P2)



GEOCHEMISTRY BRANCH, BP SUNBUR
OPERATIONS & DEVELOPMENT GROUP

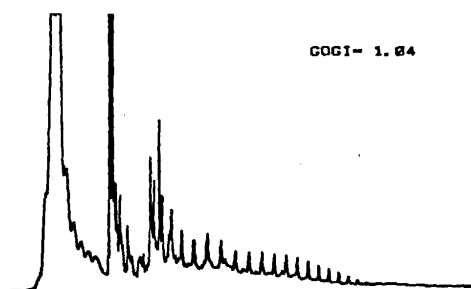
NORMALISED n-ALKANE DISTRIBUTION



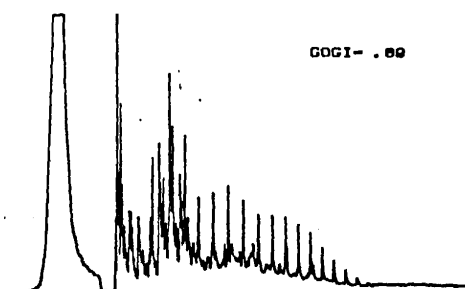
SAMPLE: 8440-8500 FT



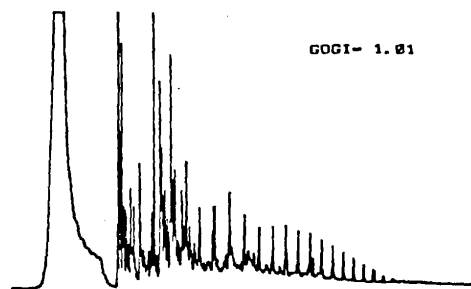
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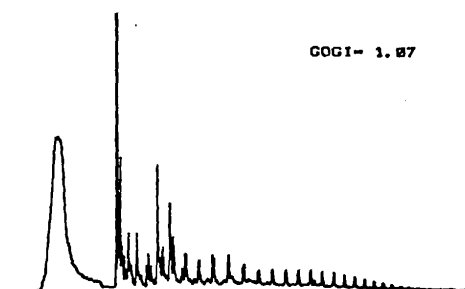
SAMPLE: 8540-8600 FT



SAMPLE: 7040-7100 FT



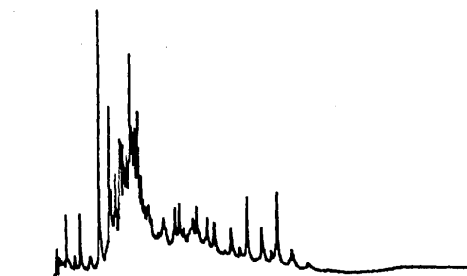
SAMPLE: 8700-8780 FT



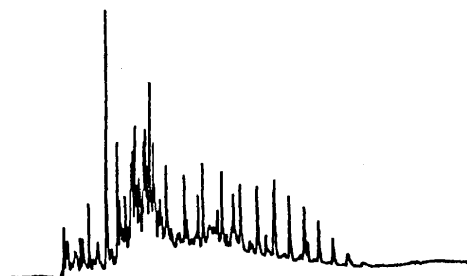
SAMPLE: 7300-7380 FT

GEOCHEMISTRY BRANCH, B
OPERATIONS & DEVELOPM

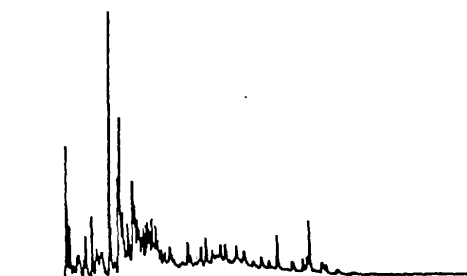
KEROGEN PYROLYSATES



SAMPLE: 8540-8600 FT



SAMPLE: 8900-8980 FT



SAMPLE: 7300-7380 FT

GEOCHEMISTRY BRANCH, BP SUN
OPERATIONS & DEVELOPMENT CO

THERMAL VOLATILES (P1)

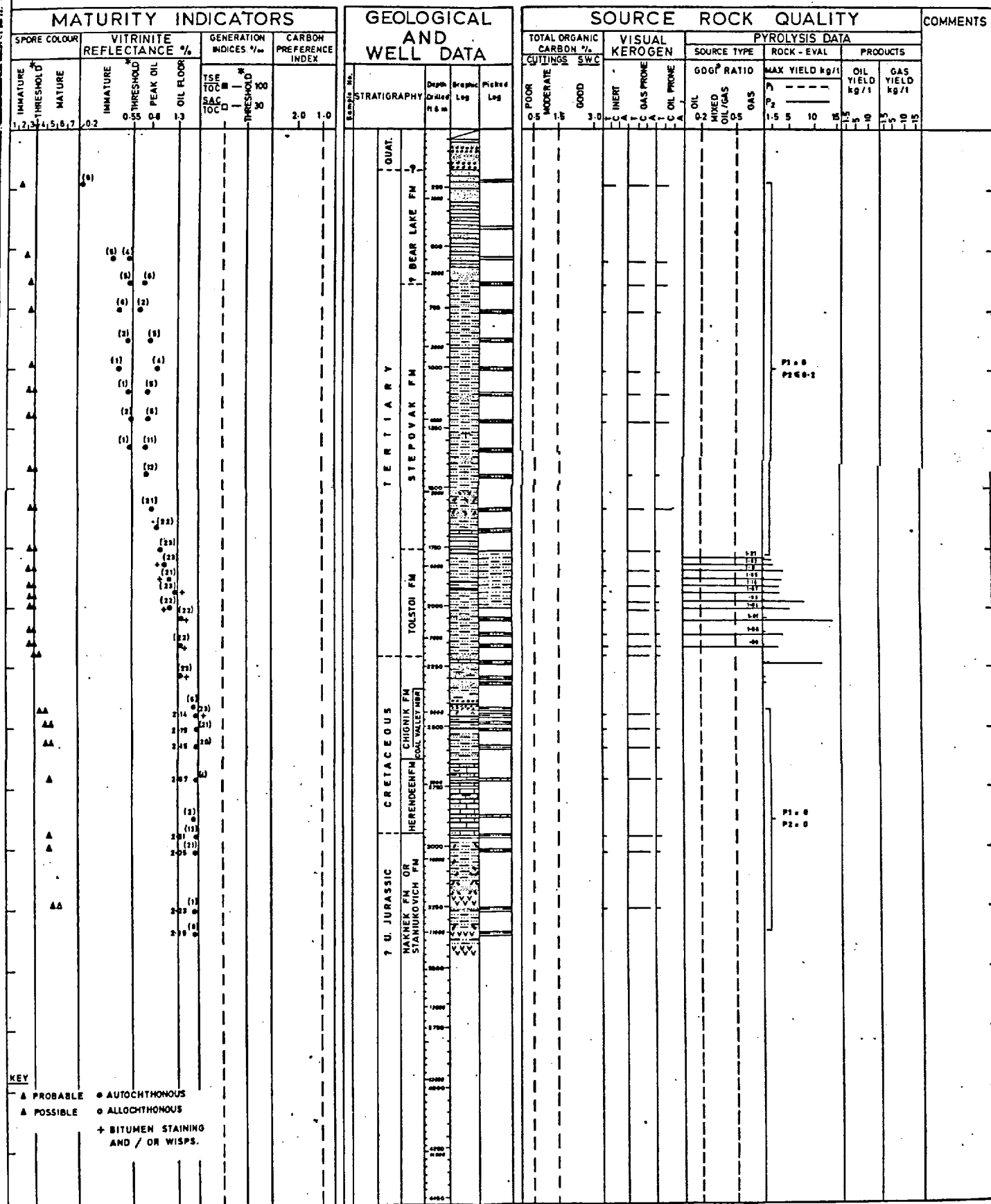
WELL: HOODOO LAKE UNIT #2
 LOCATION: BRISTOL BAY, ALASKA.
 OPERATOR: SOCAL

Date Spudded: 13-2-70
 Date Completed: 21-4-70
 TD: 11,243 ft

BP RESEARCH CENTRE, SUNBURY OPERATIONAL SERVICES GROUP.

PETROLEUM GEOCHEMICAL LOG

SCALE = 1:10,000



F

POOR
0.5
MODERATE
1.5

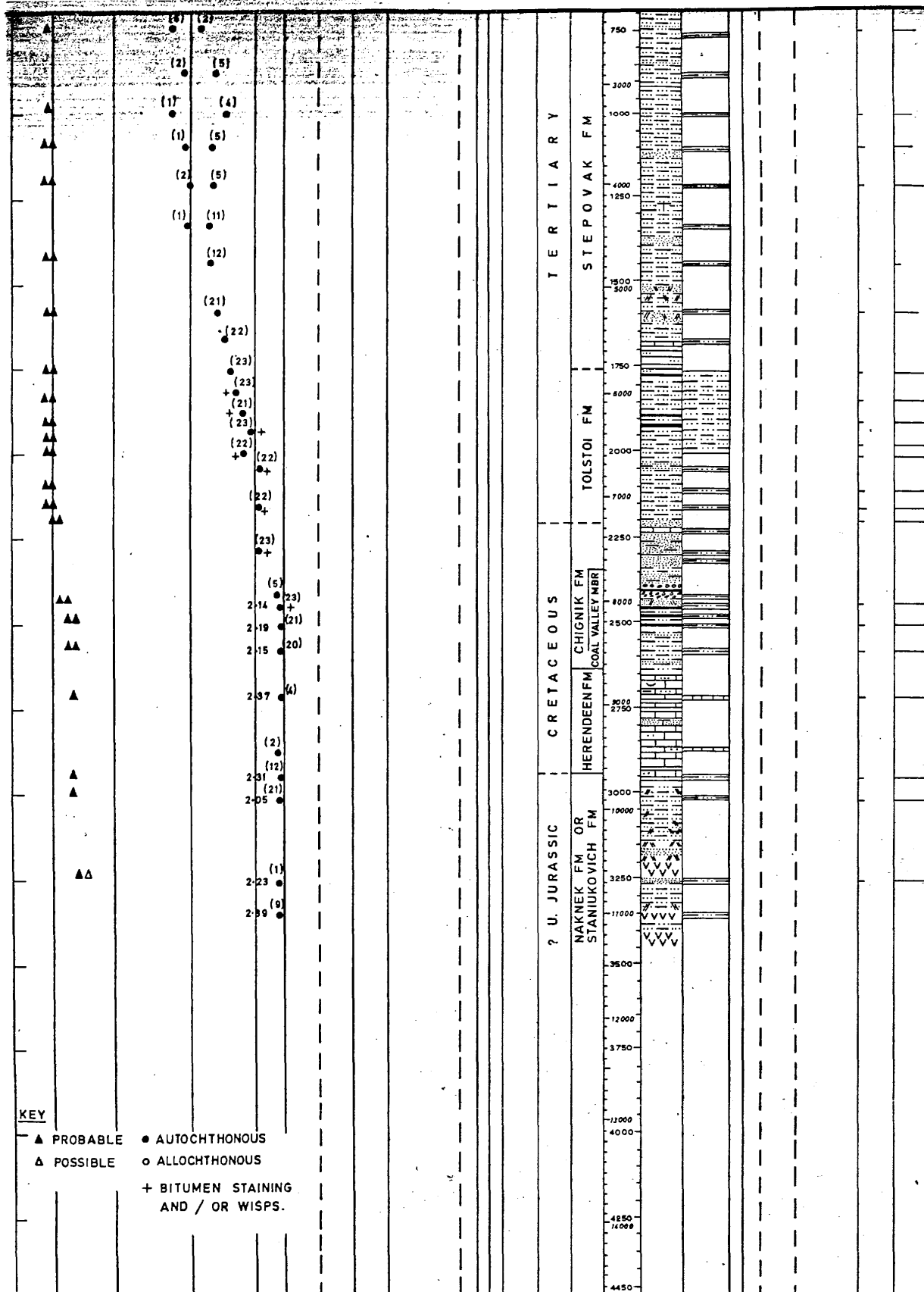
Sample No.	STRATIGRAPHY				Depth Drilled ft & m	Graphic Log	Picked Log
	T E R T I A R Y						
	QUAT.						
	BEAR LAKE FM				250		
	STEPONAK FM				1000		
	TOLSTOI FM				500		
	CHIGNIK FM				2000		
	HERENDEN FM				750		
	COAL VALLEY MBR				3000		

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PETROLEUM GEOCHEMICAL LOG

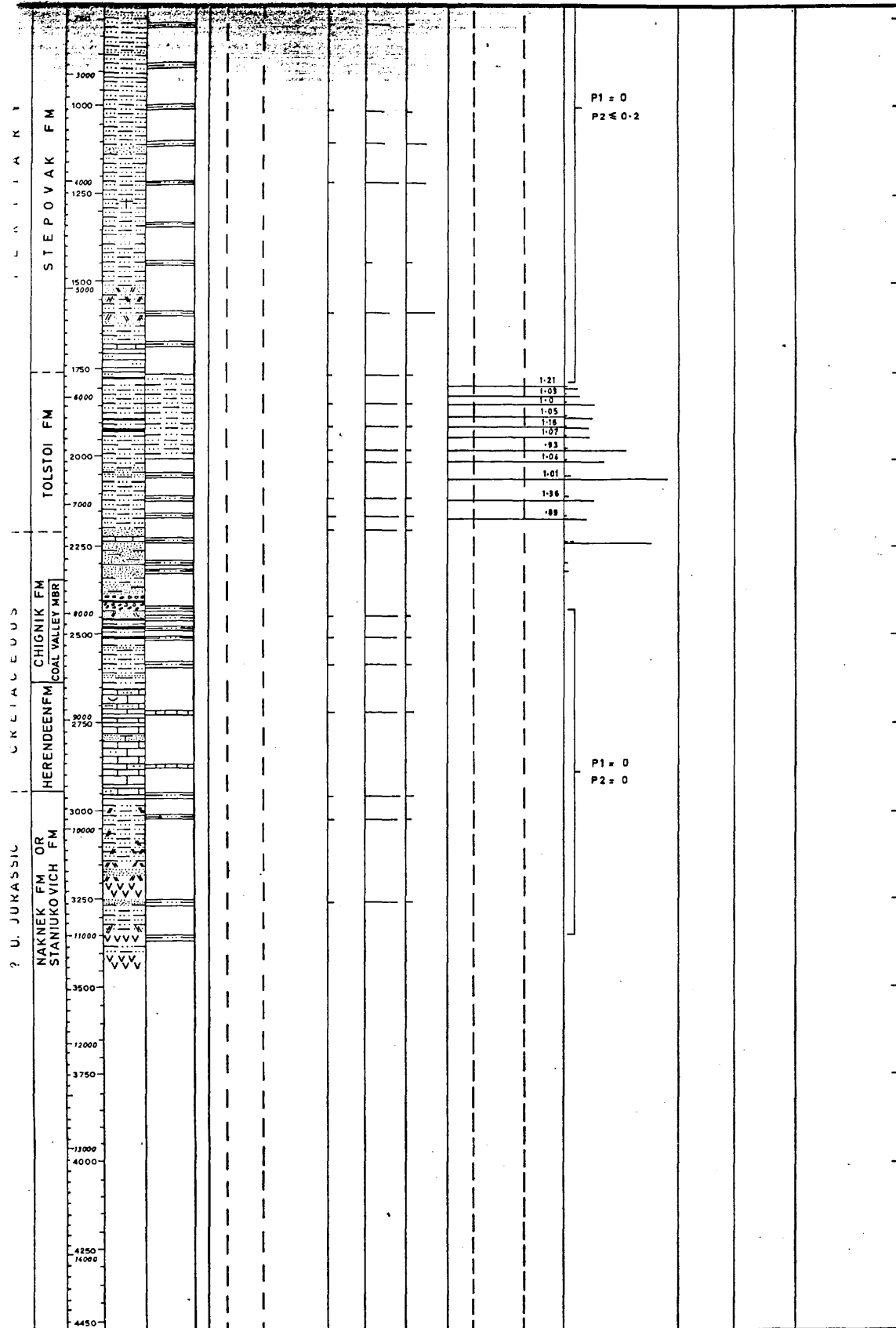
SCALE = 1 : 10,000

[illegible]



Note

1. GOGI = Gas/Oil Generation Index (PGC):P₁ = Hydrocarbon Yield at 250°C, (Rock-Eval).
2. Source Rock Potential Ratings for PGC and Rock Eval (P₂ only) Yields are :-<C
3. Values represent Maximum Theoretical Yields in kg/tonne. Amount of Hydrocarbons
4. Samples with Oil Yields of <1.5 kg/tonne or TOC'S of <0.5% are unlikely to



= Gas/Oil Generation Index (PGI): P₁ = Hydrocarbon Yield at 250°C, (Rock-Eval). P₂ = Pyrolysed Hydrocarbon Yield from 250-550°C (Oil plus Gas), (Rock-Eval).

* Rock Potential Ratings for PGI and Rock Eval (P₂ only) Yields are: < 0.5, Insig: < 1.5, Poor: > 1.5-5, Moderate: > 5-15, Good: > 15, Very Good.

s represent Maximum Theoretical Yields in kg/tonne. Amount of Hydrocarbons actually reaching the reservoir may be only 1% of this Value.

les with Oil Yields of < 1.5 kg/tonne or TOC's of < 0.5% are unlikely to generate sufficient Oil to commence migration.

TABLE 1

VITRINITE REFLECTANCE DATA

WELL: SANDY RIVER-1
LOCATION: BRISTOL BAY, ALASKA

DEPTH (FT)	REFLECTANCE VALUES(%RO)	COMMENTS
2820	.43(20)	F COAL CTGS /S BS - NO FL
3420	0(0)	NDP
3630	.24(3)	BAR - Y/O(SPOFES+HC SP)
4290	.27(20)	LT BS+BW/VW+W PAR - Y/O+LTO
4860	.3(21)	PL COAL CTGS V/VAR RO - FL HC SP
5100	.37(21)	FULL RANGE MACERALS - Y/O
5320	.31(22)	COAL V - Y/O
5710	.3(20)	V - Y+Y/O(SPOFES+HC SP)
6010	.32(22)	V - Y/O
6310	.29(20)	LIGNITE/F DIRTY CTGS - Y/O
6520	.32(23)	COAL FULL RANGE MACERALS - Y+Y/O
6760	.31(23)	M LIGNITE V/VAR RO - Y/O
7150	.33(22)	EW/L PHY/VW+W PAR - LTO
7600	2.04(3)	BAR F SP HIGH RO - NO FL
9075	.35(22)	LIGNITE V/SH VW BS - Y/O
9270	.37(21)	V - Y/O+LTO
9645	.36(22)	MOD/BS+BW/VW PAR W+VST - LTO
9975	.39(22)	V - L/MO
10305	.57(21)	VAR RO - DULL LTO+MO
10515	.61(22)	LIG V/SH PL VW+VST - Y(PES) Y/O (SPOFES)
10755	.65(21)	V/SH BS VST - L+MO
11050	.62(22)	COAL V/SH BS+VST - MO
11300	.64(22)	VW+VST - LTO+MO
11550	.63(22)	VW+VST - LTO
12000	.67(21)	VW+VST - LTO+MO
12220	.66(20)	EW+BS/L/VW+W PAR/TR I PAR - LTO
12790	.66(20)	PL BW+BS/L/VW+W PAR/TR I PAR - MO
13050	.63(7) 1.17(6)	EW+BS/L/V PAR/VAR RO CTG TO CTG - LTO/MO

FIGURES IN PARENTHESES INDICATE NUMBER OF READINGS -
SEE LIST OF ABBREVIATIONS OVERLEAF

(P)RINT ANOTHER REPORT, (R)ETURN TO MAIN DATA ENTRY,
(A)SSIGN A NEW FILE OR (G)UIT ?

TABLE 1A

VITRINITE TABLE ABBREVIATIONS

ANS - ANISOTROPIC	B - BITUMEN
BS - BITUMEN STAINING	BW - BITUMEN WISPS
BAR - VIRTUALLY BARREN	CAV - CAVED
CARB - CARBARGILITE	COR - CORRODED
CTGS - CUTTINGS	DD - DIFFERENTIATION DIFFICULT
DMA - DRILLING MUD ADDITIVE	DOM - DOMINANT
F - FEW	FL - FLUORESCENCE
FR - FRAGMENTS	G - GOOD
GN - GNARLED	GRAN - GRANULARITY
I - INERTINITE	INST - INTERSTITIAL
IGN - IGNEOUS TRACES	IRON - IRON OXIDES
L - LOW ORGANIC CONTENT	LGN - LIGNITE
LOW - LOWEST REFLECTANCES MEASURED	M - MOSTLY
MOD - MODERATE ORGANIC CONTENT	NDP - NO DETERMINATION POSSIBLE
NTV - NO TRUE VITRINITE	OBS - OVERALL BITUMEN STAINING
OCC - OCCASIONAL	OX - INDICATIONS OF OXIDATION
P - POOR	PAR - PARTICLES
PL - PLENTIFUL-PLENTY	POS - POSSIBLY
R - REWORKED	RM - REWORKED MATERIAL
RO - REFLECTANCE MEASUREMENT	RES - RESIN
RICH - RICH-HIGH ORGANIC CONTENT	S - SOME
SC - SCRUFFY	SH - SHALE
SLT - SILTSTONE	SML - SMALL
SP - SPECKS	SUB - SUBORDINATE
STC - STRUCTURE	STR - STRONGLY
TB - TURBO-DRILLED	TR - TRACE
TEL - TELINITIC	V - VITRINITE
VL - V.LOW ORGANIC CONTENT	VW - VITRINITE WISPS
VAR - VARIABLE (HIGH) RO	VST - VITRINITE STRINGERS
W - WISPS-WISPY	WH - WHOLLY
* - ALLOCTHONOUS	= - EQUAL PROPORTIONS
? - QUESTIONABLE	
BL - BLEBS	PHY - PHYTOCLASTS (CONTENT)

(SPORE FLUORESCENCE COLOURS UNDER U.V. LIGHT)

G - GREEN	Y - YELLOW
O - ORANGE	R - RED
LT - LIGHT	M - MID
D - DEEP	P - PALE

TABLE 2

VISUAL KEROGEN DESCRIPTIONS

WELL: SANDY RIVER-1
LOCATION: BRISTOL BAY, ALASKA

DEPTH(ft)	SPORE COLOUR	ESTIMATED SOURCE POTENTIAL
3420	2	NONE
4290	2	POOR-?MOD GAS
5100	2	GOOD GAS
5320	2	GOOD GAS
5710	2	GOOD GAS
6010	2	GOOD GAS
6760	2	GOOD GAS
8150	2	GOOD GAS
9270	2	GOOD GAS
9510	2	GOOD GAS
9975	2-2/3	MOD GAS
10125	2/3	GOOD GAS
10305	2/3	GOOD GAS
10515	2/3	GOOD GAS
11050	2/3	GOOD GAS
11170	2/3	GOOD GAS
11300	2/3	GOOD GAS
11400	2/3	GOOD GAS
11820	2/3	GOOD GAS
12220	2/3	GOOD GAS
12410	2/3	GOOD GAS
12790	3	MOD-GOOD GAS

TABLE 2A

Number	Depth in metres / feet	Type	Amount of Organic Matter	MIOPORES			DINOFLAGELLATE CYSTS AND ACRITARCHS	TASMANITIDS AND LEIOSPHERES	FORAM LININGS	MEGASPORES	OTHER MICROFOSSILS 1	OTHER MICROFOSSILS 2, MISCELLANEOUS PHYTOCLASTS	CUTICLES
				Trace/present	Common	Frequent							
3420		Small	0	1	2	3							
4240		Small	0	1	2	3							
5000		Long	0	1	2	3							
5320		Long	0	1	2	3							
5710		Long	0	1	2	3							
6010		Long	0	1	2	3							
6760		Long	0	1	2	3							
8130		Long	0	1	2	3							
9120		Long	0	1	2	3							
9510		Long	0	1	2	3							
9975		Small	0	1	2	3							
10125		Long	0	1	2	3							
10305		Long	0	1	2	3							
10515		Long	0	1	2	3							
11000		Long	0	1	2	3							
11170		Long	0	1	2	3							
11300		Long	0	1	2	3							
11400		Long	0	1	2	3							
11820		Long	0	1	2	3							
12305		Long	0	1	2	3							
12410		Long	0	1	2	3							
12710		Long	0	1	2	3							

TABLE 3

ROCK-EVAL AND PYROLYSIS DATA

WELL: SANDY RIVER-1
LOCATION: BRISTOL BAY, ALASKA

DEPTH (ft)	P1 KG/TONNE	P2 KG/TONNE	GOGI	TOC (%wt)	HYDROGEN INDEX
2820	0	0			
3180	0	0			
3420	.1	0			
3630	0	0			
3930	0	0			
4080	0	0			
4290	.3	.4			
4560	.2	0			
4860	.2	.4			
5100	.8	76.1	.71	47.3	160
5320	1.4	74.6	.78	46.8	159
5710	.2	0			
6010	.3	1.1			
6310	.1	1		1.7	58
6520	.4	.3			
6760	.2	.7		1.1	63
7150	.5	.6			
7600	1.3	.9		1	90
8150	.2	.7			
9075	1	1			
9270	.6	1		1.3	76
9510	.9	.4			
9645	3.6	79.4	.47	44.7	177
9975	1.1	.8			
10125	2.5	105.4	.54	37.5	291
10305	1.7	94.8	.65	45.1	210
10515	.8	108	.48	41.9	257
10755	2.6	136	.54	54.1	251
10845	2.1	1.2			
11050	4.9	161.1	.41	50.2	320
11170	3.3	20.7	.73	5.9	350
11300	5.7	178.3	.37	47.3	376
11440	1	5.2	.76	3.3	157
11550	1.8	4.4	.78	3.2	137
11820	2.1	15.8		4.2	376
12000	.5	1.6	.31	1.4	114
12220	.5	1.4			
12410	.5	1.2			
12790	.4	.9			
13050	6.2	24.4	1.15	9.5	256

TABLE 4

LITHOLOGY AND TOC DATA

WELL: SANDY RIVER-1
LOCATION: BRISTOL BAY, ALASKA

DEPTH(FT)	AGE/FM	PICKED LITHOLOGY	%TOC	%CARBONATE
3420	U.MIO-PLIO	SILTST	0.31	11
3930	U.MIO-PLIO	SILTST	0.25	7.4
4560	U.OLIG-M.MIO	MDST	0.63	14.5
5100	U.OLIG-M.MIO	COAL	47.3	14.9
5320	U.OLIG-M.MIO	COAL	46.8	18.3
6310	U.OLIG-M.MIO	SILTST	1.7	13.9
6760	U.OLIG-M.MIO	SILTST	1.1	11.9
7600	U.OLIG-M.MIO"	SILTST	1	13.5
9270	U.OLIG-M.MIO	SILTST	1.3	10.7
9645	U.OLIG-M.MIO	COAL	44.7	11.2
10125	U.OLIG-M.MIO	COAL	37.5	3.3
10305	U.OLIG-M.MIO	COAL	45.1	.18
10515	U.OLIG-M.MIO	COAL	41.9	2.5
10755	U.OLIG-M.MIO	COAL	54.1	2.1
11050	U.OLIG-M.MIO	COAL	50.2	2.7
11170	U.OLIG-M.MIO	MDST	5.9	5.2
11300	U.OLIG-M.MIO	COAL	47.3	2.5
11440	U.OLIG-M.MIO	MDST	3.3	8.8
11550	U.OLIG-M.MIO	SILTST	3.2	15.7
11920	U.OLIG-M.MIO	SILTST	4.2	5.3
12000	MID-U.OLIG	MDST	1.4	7.1
13050	MID-U.OLIG	MDST	9.5	4.6

TABLE 5

SEDIMENTS SOLUBLE EXTRACT DATA

WELL: SANDY RIVER-1

LOCATION: BRISTOL BAY, ALASKA

DEPTH (ft)	TOC %wt	TSE/TOC o/o	SAC/TOC o/o	CPI	ASPHALTENES %wt
10125	37.5	22	7	2.01	9.2
10755	54.1	15	2	1.88	21.8
11170	5.9	39	24	1.32	n.d.
11440	3.3	76	33	1.25	n.d.
11550	3.2	156	62	n.d.	11.5
12000	1.4	136	40	n.d.	17.3
13050	9.5	40	18	n.d.	17.4

TABLE 6

SEDIMENTS SOLUBLE EXTRACT DATA

WELL: SANDY RIVER-1
LOCATION: BRISTOL BAY, ALASKA

DEPTH(ft)	ZSAC	ZTSE	PRIST/PHYT	PRIST/C-17	PHYT/C-18
10125	29.4	.8	6	2.13	.57
10755	14.7	.8	10.6	3.18	.47
11170	62.1	.2	4.29	1.02	.69
11440	43.2	.3	4.05	.93	.59
11550	39.9	.5	3.41	.97	.69
12000	29.1	.2	4.81	.88	.58

TABLE 7

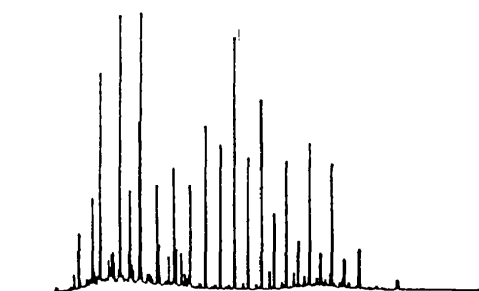
CARBON ISOTOPES DATA

WELL: SANDY RIVER-1
LOCATION: BRISTOL BAY, ALASKA

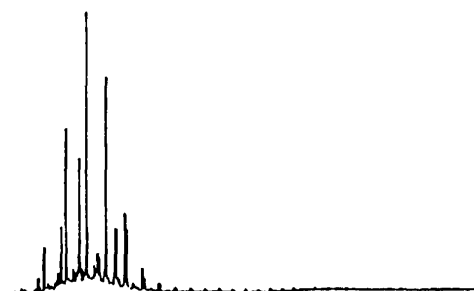
DEPTH (ft)	ISOTOPE RATIO PERMIL	SAMPLE TYPE
---------------	-------------------------	-------------

10125	-25.4	KEROGEN
10755	-25.8	KEROGEN
11170	-25.6	KEROGEN
11440	-25.5	KEROGEN
11550	-25.3	KEROGEN
11820	-25.3	KEROGEN
12000	-25.1	KEROGEN
13050	-25.1	KEROGEN

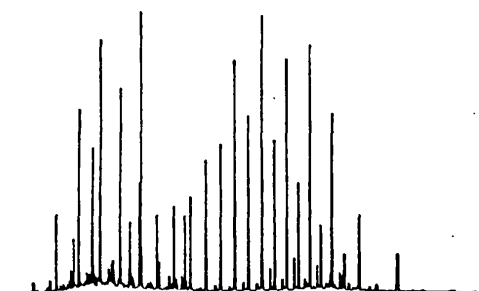
C-13/C-12 ISOTOPE RATIOS RELATIVE TO PDB STANDARD
SECONDARY STANDARD: NBS-22 AT -29.4 PERMIL



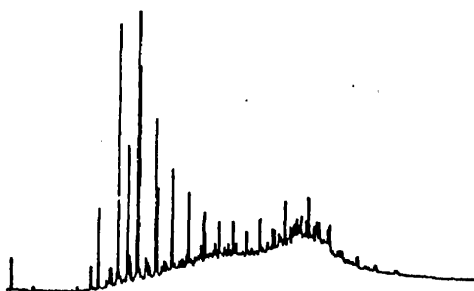
SAMPLE: 10125 ft



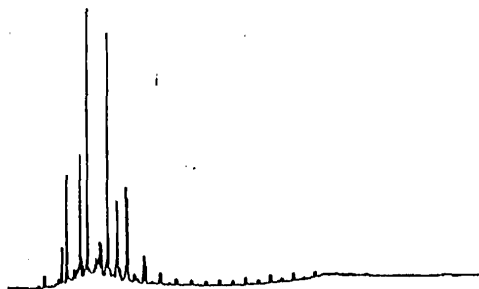
SAMPLE: 11440 ft



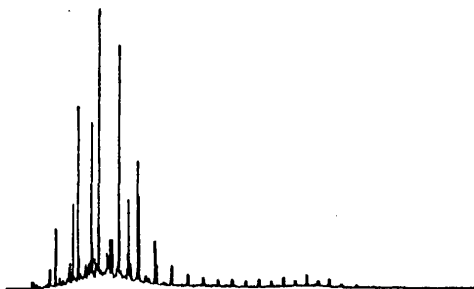
SAMPLE: 10755 ft



SAMPLE: 11550 ft



SAMPLE: 11170 ft



SAMPLE: 12000 ft

GEOCHEMISTRY BRANCH, BP SUNBUR
OPERATIONS GROUP

SAC FRACTION GAS CHROMATOGRAMS

WELL: SANDY RIVER No.1
 LOCATION: BRISTOL BAY, ALASKA
 OPERATOR: GULF OIL CORP.

Date Spudded: 4-9-63
 Date Completed: 28-11-63
 TD: 13063 ft.

BP RESEARCH CENTRE, SUNBURY, OPERATIONAL SERVICES GROUP.

PETROLEUM GEOCHEMICAL LOG

SCALE = 1:10,000

MATURITY INDICATORS										GEOLOGICAL AND WELL DATA				SOURCE ROCK QUALITY										COMMENTS
SPORE COLOUR		VITRINITE REFLECTANCE %		GENERATION INDICES %		CARBON PREFERENCE INDEX		STRATIGRAPHY		TOTAL ORGANIC CARBON %		VISUAL KEROGEN		PYROLYSIS DATA										
IMMATURE THRESHOLD		IMMATURE THRESHOLD		IMMATURE THRESHOLD		IMMATURE THRESHOLD		STRATIGRAPHY		CUTTINGS SWC		INERT		SOURCE TYPE		ROCK - EVAL		PRODUCTS						
1,2,3	4,5,6,7	0,2	0,55	0,8	1,3	1,5F	1,5C	1,5D	1,5E	Depth	Gravel	Picked	POOR	MODERATE	GOOD	INERT	GAS PRONE	OIL PRONE	GOGI RATIO	MAX YIELD kg/t	OIL YIELD kg/t	GAS YIELD kg/t		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
										TERTIARY		UPPER Oligocene		Middle Oligocene		UPPER Miocene		Middle Miocene		UPPER Pliocene		Middle Pliocene		

WELL: SANDY RIVER No.1

LOCATION: BRISTOL BAY, ALASKA

OPERATOR: GULF OIL CORP.

Date Spudded : 4-9-63

Date Completed: 28-11-63

T D: 13063 ft.

BP RESEA

PET F

MATURITY INDICATORS

[illegible]

GEOLOGICAL
AND
WELL DATA

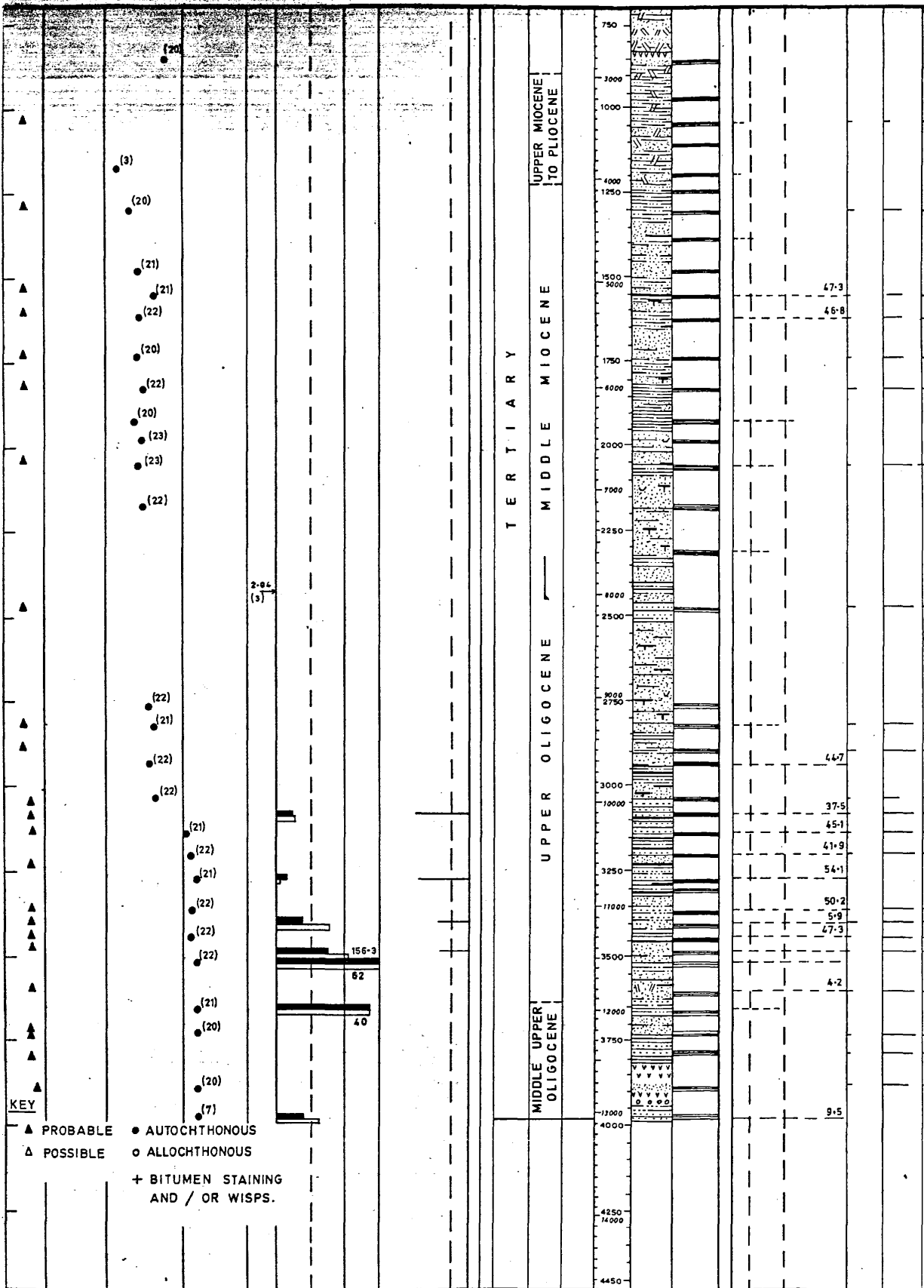
Sample No.	STRATIGRAPHY		Depth Drilled ft & m	Graphic Log	Picked Log	POOR 0.5	MODERATE 1.5	GOOD 3.0
	TERTIARY							
	OLIGOCENE	MIDDLE MIOCENE						
		UPPER MIOCENE TO PLOCIENE						
	PLIOCENE							
			3500					
			3000					
			2500					
			2000					
			1500					
			1000					
			750					
			500					
			250					
			0					
			3000					
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			2000					
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			1500					
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			750					
			500					
			250					
			0					
			3000					
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			2500					
			2000					
			1750					
			1500					
			1250					
			1000					
			750					
			500					
			250					
			0					
			3000					
			2750					
			2500					
			2000					
			1750					
			1500					
			1250					
			1000					
			750					
			500					
			250					
			0					
			3000					
			2750					
			2500					
			2000					
			1750					
			1500					
			1250					
			1000					
			750					
			500					
			250					
			0					
			3000					
			2750					
			2500					
			2000					
			1750					
			1500					
			1250					
			1000					
			750					
			500					
			250					
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			3000					
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BP RESEARCH CENTRE, SUNBURY. OPERATIONAL SERVICES GROUP.

PETROLEUM GEOCHEMICAL LOG

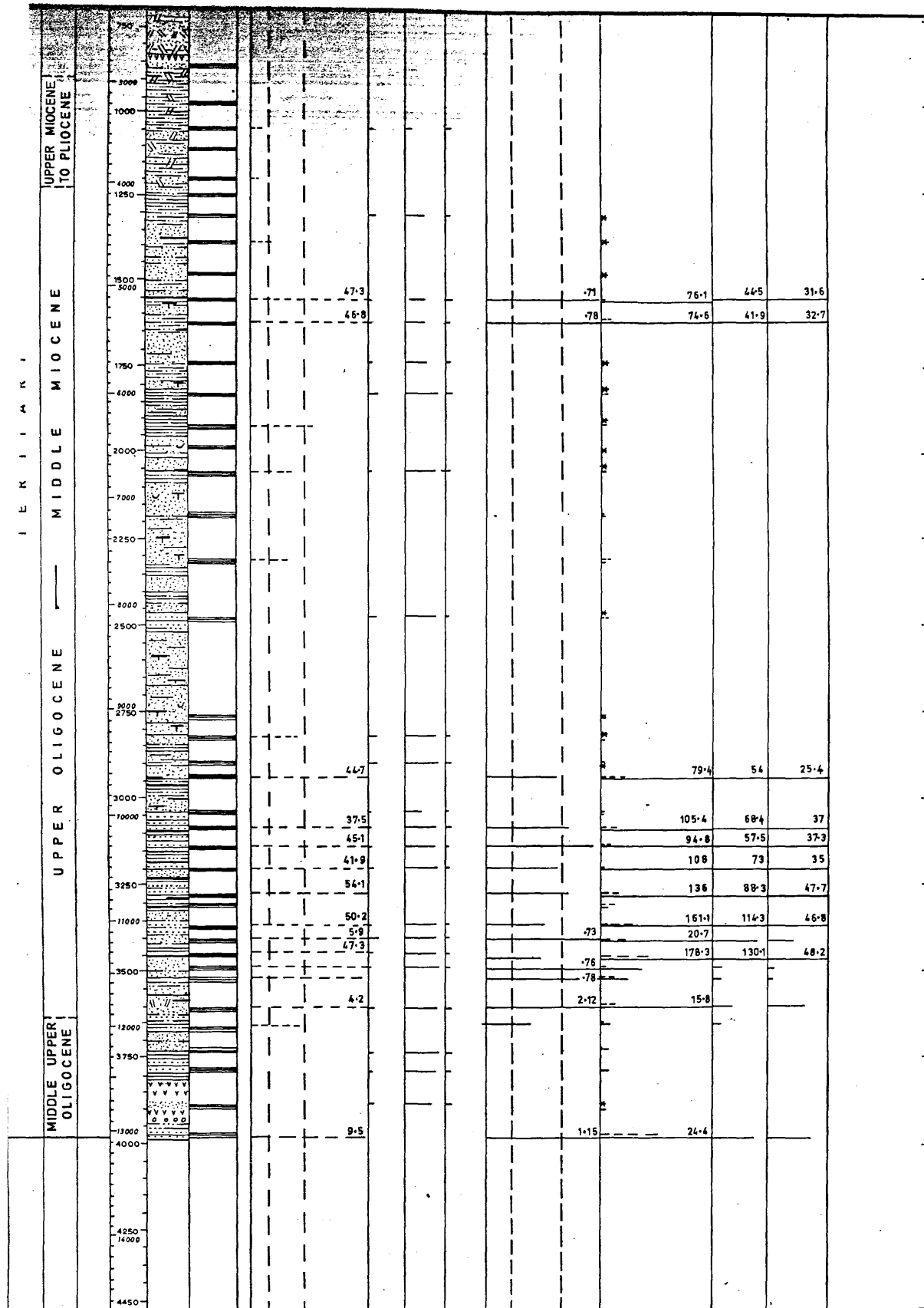
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Notes

- GOGI = Gas/Oil Generation Index (PGC); P₁ = Hydrocarbon Yield at 250°C, (Rock-E
- Source Rock Potential Ratings for PGC and Rock Eval (P₂ only) Yields are :-<
- Values represent Maximum Theoretical Yields in kg/tonne. Amount of Hydrocarbons
- Samples with Oil Yields of <1.5 kg/tonne or TOC's of <0.5%, are unlikely to



- Note**
1. GOC = Gas/Oil Generation Index (PGC): P₁ = Hydrocarbon Yield at 250°C, (Rock-Eval), P₂ = Pyrolysed Hydrocarbon Yield from 250-550°C (Oil plus Gas), (Rock-Eval).
 2. Source Rock Potential Ratings for PGC and Rock Eval (P₂ only) Yields are :- <0.5, Insig: <1.5, Poor: >1.5-5, Moderate: >5-15, Good: >15, Very Good.
 3. Values represent Maximum Theoretical Yields in kg/tonne. Amount of Hydrocarbons actually reaching the reservoir may be only 1% of this Value.
 4. Samples with Oil Yields of <1.5 kg/tonne or TOC'S of <0.5% are unlikely to generate sufficient Oil to commence migration.