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ROCK-EVAL/TOC DATA FOR 12 SOUTHEAST ALBERTA WELLS

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ROCK-EVAL/TOC DATA FOR TWELVE SOUTHEAST ALBERTA WELLS

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Cuttings samples have been analyzed using a Rock-Eval/TOC pyrolysis apparatus on a 30 foot or 10 metre spacing over the depth intervals noted for the twelve wells listed below from southeastern Alberta. The samples are from the Geological Survey of Canada archive set for Alberta wells and therefore a maximum of 100 mg of material is available for any depth. Duplicate or repeat analyses cannot be run if an instrument failure is suspected and thus the data are presented in an unedited form and must be used with caution. Every effort is made to obtain a representative sample from the vial of cuttings, but because of the small sample size, mixed lithology samples may not be completely representative and mixed lithology intervals may yield some scatter in the data.

Well name and location	**Depth Range**	
CMG Aden 10-04-01-09W4	400	1540 m
Delhi-B.A-Antelope Hills 11-7-21-1W4	400	4300 ft
NCO Atlee 7-29-20-5W4	0	3350 ft
C.P.O.G. Duchess 7-27-20-14W4	400	3570 ft
GPD Ashland Grand Forks 6-4-11-14W4	600	1820 m
Allenbee et al Medicine Hat 2-22-15-1W4	1500	5710 ft
Guyer Medicine Hat 10-27-10-5W4	1490	3390 ft
Canadian-Montana 11-35-5-5W4	1000	5410 ft
Chevron Princess 16-11-20-12W4	2400	5550 ft
Allenbee Suffield 10-22-15-10W4	1000	4080 ft
Gulf AEC Berard Suffield 3-32-15-5W4	500	1715 m
Evans Union Twin River 6-31-1-20W4	2000	4440 ft

Depth units used (feet or metres) are those in which the original well was drilled and logged, and in which the samples are currently labelled. Formation names and depths listed at the end of each well are those in the AEUB (formerly ERCB) files.

CMG Aden 10-04-01-09W4

The thermal maturity ranges from the beginning of the oil window (Tmax ≈ 435°C) in the Fish Scales (450 m) to just into the oil window for the Beaverhill Lake Group to Cambrian (1500 m). Tmax suppression may be visible in the central portion of the Bow Island Formation where the TOC content and HI are both somewhat elevated relative to the surrounding rocks.

The maturity increases more or less smoothly as depth increases, with no apparent discontinuity associated with the unconformity at the base of the Mannville.

TOC contents are generally below 2.5% with the highest samples from the Second White Specks, Bow Island and Mannville formations. In addition, a few samples of the Livingston Formation have TOC contents above 1% with a single sample showing 5.2%. This high TOC sample has an anomalous Tmax and thus may indicate contamination.

Several of the Mesozoic samples have Hydrogen Index (HI) values somewhat above those typical of Type III kerogen and indicate the presence of some better quality source potential. High HI values in the Paleozoic section generally correspond to low TOC contents and thus are unreliable (HI = 100 X S2 / TOC).

Delhi-B.A-Antelope Hills 11-7-21-1W4

The estimated level of thermal maturity for this well is close to the beginning of the oil window (about 435°C, equivalent to about 0.7% vitrinite reflectance) or just a little above. The high Tmax values present in the Foremost, Pakowki and Milk River Formations are attributed to the presence of reworked and/or oxidized organic matter. Tmax suppression is clearly evident for the Second White Speckled shale and Fish Scales zones in the Mesozoic and in the Exshaw Formation and the upper portion of the Wabamun Group (almost certainly Exshaw cuttings mixing into the deeper samples). Again, the Tmax suppression corresponds with somewhat elevated TOC and HI values, particularly for the Exshaw samples.

TOC contents range up to 65% in coaly units near the top of the Pakowki Formation, and exceed 5% for several samples in the Foremost Formation. The Second White Specks and Fish Scales have TOC contents typically in the 2-5% range. The single Exshaw sample contains 11% TOC, and two Wabamun samples contain 3.5% and 5% TOC.

The highest HI values are present in the Second White Specks, Fish Scales and especially the upper portion of the Exshaw, with values indicating variable contributions of Type II and Type III organic matter.

NCO Atlee 7-29-20-5W4

The Tmax data are highly scattered reflecting either low S2 yields (low organic content and/or inert organic matter) or the presence of reworked and oxidized organic debris. The maturity is interpreted to be near the beginning of the oil window on the basis of data in nearby wells and on the data in the Viking and Mannville Group. Tmax suppression is again visible for the Second White Speckled Shale and Fish Scale units.

The Second White Specks contains up to 8.8% TOC, in contrast to the more typical 2-5% seen in the wells discussed above. High TOC contents are also present in the coaly intervals in the upper portion of this well.

The Second White Specks HI values exceed those of Type III organic matter and probably reflect a mixture of Type II and Type III organic matter. A single high HI sample in the Colorado Group (HI = 1500 mg HC/ g TOC) is almost certainly due to an analytical error of the TOC. This can occur if the TOC oven door jams and the TOC estimate is based solely on the carbon content of the S1 and S2 peaks.

C.P.O.G. Duchess 7-27-20-14W4

Irregular Tmax data for this well show values of around 450°C for many of the samples down to and including the Colorado Group, 475-500°C for the Second White Specks and 440-445°C for the interval below about 2500m (Fish Scales through Pekisko). These samples may have been damaged (heat dried) at some point during their collection, clean-up or storage.

TOC contents are highest in the coaly sections in the Pakowki and Milk River units (up to 7%) with the Colorado Group showing a 2-5% TOC range. The Second White Specks and Fish Scales samples have less than 2.5% TOC but the fact that these units have lower maximum TOC contents than the Colorado Group shales may again be related to sample damage by heat drying at some point in the storage history of this sample set.

Maximum Hydrogen Index values are just less than 200 mg HC/g TOC and these occur in the Fish Scales unit. The organic matter type must be interpreted as dominated by terrestrial, higher land plant debris (Type III), but again, this may reflect heat damaged samples.

GPD Ashland Grand Forks 6-4-11-14W4

The thermal maturity interpreted for this entire well (600 to 1800 m) is about at the beginning of the oil window (435°C or equivalent to about 0.7 %VRo).

TOC contents are generally below 2%, with the single Exshaw sample (5.36% TOC) being the exception.

The elevated Hydrogen Index values through much of the Paleozoic section may be artifacts resulting from relatively low TOC contents and instrumental analysis error or noise. The Exshaw sample at 1230 m has an HI of 274 mg HC/g TOC and one of the overlying Bakken samples also has an elevated HI value of 334 mg HC/g TOC. In addition, two samples from the Elk Point Group (1730 and 1740 m) have elevated HI values (429 and 614 mg HC/g TOC, respectively) along with sufficient TOC and S2 concentrations to provide reasonably reliable results.

Allenbee et al Medicine Hat 2-22-15-1W4

Tmax values for samples at about 1500 feet (450 m) in this well are somewhat below 435°C, the beginning of the oil window, and rise to about that value at 5700 feet (1700 m).

Tmax suppression of about 10°C is evident for the upper portions of both the Second White Specks and Fish Scales.

TOC contents of the Second White Specks are generally in the 2 to 4% range and the Exshaw sample at 7.5% TOC. Other units generally have somewhat below 2% TOC. One TOC of 85.5% (3880 feet) from the Pekisko Formation could be coaly material or possibly sample contamination.

Elevated Hydrogen Index values are present for most of the Second White Specks samples (up to 377 mg HC/g TOC), the Exshaw sample (256mg HC/g TOC) and a couple of samples in the Jefferson Formation (about 440 mg HC/g TOC). Other high HI values are probably artifacts resulting from anomalously low TOC contents coupled with low S2 yields and some instrumental error.

Guyer Medicine Hat 10-27-10-5W4

Analytical data for this well are all suspected of having been altered due to heat drying of the samples. Scattered Tmax results, low TOC contents for the Second White Specks and Fish Scales and very low Hydrogen Index values all lead to this conclusion. Some Tmax values for the Mannville Group samples (about 430°C, equivalent to about 0.6 %VRo) may actually reflect the maturity of this interval. This interpretation is based on results obtained for samples of this interval in nearby wells.

Canadian-Montana 11-35-5-5W4

Thermal maturity for this well is essentially constant throughout the drilled interval and is close to the beginning of the oil window (Tmax ≈ 435°C). Suppression of the Tmax is visible in the upper portions of the Second White Speckled Shale and Fish Scales.

TOC contents of the Second White Specks are generally low (2% or less) with somewhat higher values noted for the Fish Scales. TOC contents in the 3 to 8% range are present in coaly sections of the Lower Milk River, Medicine Hat and Bow Island units. No samples from within the Exshaw (4910 to 4920 feet) were analyzed, but the first sample below this interval contains 2.86% TOC with a Hydrogen Index of 247 mg HC/g TOC reflecting the presence of Exshaw cuttings diluted by the Wabamun.

Hydrogen Index values of up to about 300 mg HC/g TOC are present in the Second White Specks, Fish Scales, Bakken and Wabamun. High HI values in the Livingstone Formation are due to anomalously low TOC contents (HI = 100 X S2 / TOC) and cannot be considered as reliable results.

Chevron Princess 16-11-20-12W4

Tmax values for most samples from this well increase from about 435°C at 2400 feet (730 m) to just above this value at 5500 feet (1675 m), that is, just at the beginning of the oil window.

TOC contents are generally less than about 1.5% except for a coaly unit in the Mannville and a few samples in the Banff and Exshaw formations where TOC contents are as high as 7%.

Organic matter is dominated higher land plant, terrestrial debris (Type III) except for the Exshaw which has a significant contribution of Type II material as evidenced by it HI value of 433 mg HC/g TOC. A single sample in the Arcs Member (3890 feet 1186 m) also has a significant amount of Type II organic matter indicated by its HI of 453 mg HC/g TOC.

Allenbee Suffield 10-22-15-10W4

The level of thermal maturity for this well is just at the beginning of the oil window (Tmax ≈ 435°C equivalent to about 0.7% VRo) with a slight suppression apparent for the the Second White Speckled shale unit.

TOC contents are quite low for all units except the Colorado Group, Second White Specks and Fish Scales where values of up to 4.5% are present. No Exshaw samples were analyzed for this well.

The only Type II organic matter is present in the Second White Specks and immediately surrounding shales with maximum Hydrogen Index values reaching just over 400 mg HC/g TOC.

Gulf AEC Berard Suffield 3-32-15-5W4

Tmax values in this well range from just below 435°C at about 500 m to about 435°C at 1700 m indicating that the entire section is marginally mature, or just at the beginning of the oil window.

One Second White Specks sample (615 m) is shown as having 83.4% TOC, but this is almost certainly an analytical error or contamination of the sample. The other Second White Specks samples contain the more normal 2 to 4% TOC. If the sample is contaminated, then the organic carbon must be completely inert, because the S1 and S2 peaks are quite small and hence calculated HI and OI values are unrealistically low (1 mg HC/g TOC and 1 mg CO_2/g TOC, respectively).

HI values for the Second White Specks are lower than for other wells in this data set (less than 250 mg HC/g TOC). A single Arcs Member sample has a Hydrogen Index of 354 mg HC/g TOC, indicating the presence of mixed Type II/Type III organic matter, but the TOC content is marginal at best (0.5%).

Evans Union Twin River 6-31-1-20W4

The thermal maturity trend in this well appears to to be inverted. That is, many samples in the Lower Colorado Group have Tmax values of about 440 to 445°C, while deeper samples from the Mannville Group tend to have Tmax values in the 435 to 440°C range. This phenomenon is interpreted to be due to Tmax errors in the Lower Colorado. Examples of the types of errors include damaged samples (heat dried at some point during collection and storage) or contamination of the samples by oxidized and/or reworked cavings from higher sections in the well. It is difficult to evaluate the probability of this circumstance because samples shallower than 2000 feet were not available in the archive set.

Only a single sample from this well (Second White Speckled shale, 2880 feet) contains more than 2% TOC.

Similarly, only Second White Specks samples have elevated Hydrogen Index Values, with two samples exceeding 300 mg HC/g TOC. All other intervals must be interpreted to be dominated by Type III organic matter.

CMG Aden 10-04-01-09W4 **400 1540 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
430M	2.59	.01	8.63	442	.12	8.51	.45	328	17
440	3.17	.03	12.93	425	.38	12.55	.52	395	16
450	2.87	.03	10.54	423	.35	10.19	.71	355	24
460	2.10	.03	6.21	430	.18	6.03	.51	287	24
470	1.70	.03	4.19	432	.14	4.05	.43	238	25
480	2.50	.03	7.67	426	.24	7.43	.64	297	25
490	1.35	.03	2.36	439	.08	2.28	.34	168	25
500	1.06	.03	1.30	440	.04	1.26	.41	118	38
510	.95	.02	1.23	440	.03	1.20	.23	126	24
520	1.43	.03	2.01	437	.07	1.94	.26	135	18
530	1.33	.02	1.88	437	.04	1.84	.35	138	26
540	1.35	.04	2.49	436	.09	2.40	.26	177	19
550	1.48	.02	2.04	433	.05	1.99	.34	134	22
560	1.91	.03	3.77	429	.10	3.67	.53	192	27
570	2.36	.03	7.75	424	.22	7.53	.52	319	22
580	.91	.02	.86	436	.02	.84	.15	92	16
590	.93	.00	.87	436	.00	.87	.14	93	15
600	.83	.03	.64	435	.02	.62	.18	74	21
610	1.11	.08	1.07	437	.09	.98	.24	88	21
620	.94	.07	.84	436	.06	.78	.21	82	22
630	.90	.02	.87	436	.02	.85	.18	94	20
640	2.36	.08	2.93	437	.22	2.71	.43	114	18
650	1.62	.03	2.97	434	.10	2.87	.34	177	20
660	1.60	.04	3.58	436	.16	3.42	.35	213	21
670	1.81	.03	4.09	432	.13	3.96	.43	218	23
680	2.74	.03	7.66	430	.22	7.44	.59	271	21
700	1.77	.04	4.62	433	.19	4.43	.41	250	23
720	1.39	.05	2.56	438	.14	2.42	.40	174	28
730	1.41	.03	2.22	438	.07	2.15	.40	152	28
740	1.19	.04	.48	447	.02	.46	.34	38	28
750	.41	.00	.12	448	.00	.12	.15	29	36
760	.66	.20	.56	438	.11	.45	.12	68	18
770	.68	.19	.54	439	.10	.44	.12	64	17
780	.49	.04	.27	436	.01	.26	.09	53	18
790	.36	.12	.67	430	.08	.59	.16	163	44
800	.39	.21	.42	432	.09	.33	.13	84	33
810	.41	.09	.34	435	.03	.31	.09	75	21
850	.73	.04	.57	436	.02	.55	.08	75	10
860	.67	.11	.64	439	.07	.57	.09	85	13
870	1.01	.07	1.37	436	.09	1.28	.29	126	28
880	.77	.16	.63	438	.10	.53	.12	68	15
895	1.14	.06	1.60	441	.09	1.51	.22	132	19
900	1.20	.10	1.15	441	.11	1.04	.26	86	21
910	1.29	.07	2.09	439	.15	1.94	.23	150	17
920	1.29	.04	2.49	441	.10	2.39	.26	185	20
930	1.36	.03	2.11	439	.07	2.04	.24	150	17
940	1.14	.07	1.88	441	.13	1.75	.26	153	22
950	1.55	.03	2.19	438	.07	2.12	.38	136	24
960	1.00	.12	1.57	438	.19	1.38	.29	138	29

CMG Aden 10-04-01-09W4 **400 1540 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
970	2.30	.12	3.83	437	.47	3.36	.50	146	21
980	1.79	.05	4.29	436	.22	4.07	.43	227	24
990	1.08	.05	1.64	438	.09	1.55	.26	143	24
1000	.21	.06	2.58	437	.15	2.43	.36	1157	171
1010	1.04	.05	.87	436	.04	.83	.21	79	20
1020	5.20	.03	2.66	447	.07	2.59	.94	49	18
1030	.21	.31	.26	430	.08	.18	.05	85	23
1040	.18	.31	.13	441	.04	.09	.05	50	27
1050	.46	.07	.86	440	.06	.80	.13	173	28
1060	.68	.11	1.65	439	.18	1.47	.23	216	33
1070	.55	.07	1.83	439	.13	1.70	.28	309	50
1080	.54	.08	.93	440	.07	.86	.28	159	51
1090	.18	.16	.19	440	.03	.16	.10	88	55
1100	.18	.45	.20	433	.09	.11	.17	61	94
1110	.39	.17	.52	433	.09	.43	.19	110	48
1120	.18	.07	.15	434	.01	.14	.09	77	50
1130	.11	.00	.03	438	.00	.03	.03	27	27
1140	2.71	.04	1.06	438	.04	1.02	1.43	37	52
1150	.34	.19	.16	441	.03	.13	.26	38	76
1160	.19	.08	.13	428	.01	.12	.10	63	52
1170	.76	.13	.61	439	.08	.53	.53	69	69
1180	.72	.02	.50	437	.01	.49	.31	68	43
1190	.24	.03	.64	447	.02	.62	.07	258	29
1200	.27	.37	.59	435	.22	.37	.13	137	48
1210	.11	.20	.15	439	.03	.12	.11	109	100
1220	.12	.42	.19	433	.08	.11	.04	91	33
1230	.14	.34	.35	440	.12	.23	.01	164	7
1240	.14	.18	.33	445	.06	.27	.04	192	28
1250	.46	.12	1.28	440	.15	1.13	.11	245	23
1260	.18	.05	.19	436	.01	.18	.15	100	83
1270	.09	.50	.16	441	.08	.08	.05	88	55
1280	.21	.16	.77	438	.12	.65	.08	309	38
1290	.09	.47	.17	442	.08	.09	.11	100	122
1300	.04	.29	.07	440	.02	.05	.08	125	200
1310	.11	.50	.40	440	.20	.20	.12	181	109
1320	.09	.34	.29	442	.10	.19	.08	211	88
1330	.21	.09	.22	434	.02	.20	.03	95	14
1340	.23	.31	.52	439	.16	.36	.06	156	26
1350	.16	.09	.23	442	.02	.21	.06	131	37
1360	.19	.00	.13	437	.00	.13	.04	68	21
1370	.15	.09	.22	442	.02	.20	.05	133	33
1380	.13	.27	.26	443	.07	.19	.03	146	23
1390	.11	.25	.16	439	.04	.12	.01	109	9
1400	.19	.21	.29	445	.06	.23	.06	121	31
1410	.08	.09	.11	444	.01	.10	.06	125	75
1420	.07	.31	.13	442	.04	.09	.04	128	57
1430	.12	.30	.27	436	.08	.19	.35	158	291
1440	.11	.09	.11	441	.01	.10	.07	90	63
1450	.11	.17	.23	444	.04	.19	.09	172	81

CMG Aden 10-04-01-09W4 **400 1540 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1460	.24	.22	.65	442	.14	.51	.14	212	58
1470	.14	.32	.38	441	.12	.26	.17	185	121
1480	.23	.31	.54	445	.17	.37	.14	160	60
1490	.20	.20	.46	445	.09	.37	.07	185	35
1500	.05	1.00	.06	0	.06	.00	.26	0	520
1510	.22	.27	.33	434	.09	.24	.09	109	40
1520	.04	.17	.06	438	.01	.05	.01	125	25
1530	.82	.00	.43	451	.00	.43	.56	52	68
1540	.06	.54	.13	408	.07	.06	.04	100	66

Second White Specks	392M
Fish Scales Base	451
Bow Island Fm	508
Basal Colorado Ss	630
Mannville Grp	662
Livingstone Fm	825
Exshaw Fm	1111
Big Valley Fm	1116
Stettler Fm	1131
Arcs Mbr	1169
Peechee Mbr	1196
Cairn Fm	1286
Cooking Lake Fm	1396
Beaver Hill Lake Grp	1451
Elk Point Grp	1495
Cambrian System	1505

Delhi-B.A-Antelope Hills 11-7-21-1W4 400 4300 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
460F	12.00	.01	3.61	478	.03	3.58	7.65	29	63
490	2.42	.01	1.43	459	.01	1.42	2.68	58	110
520	7.81	.02	4.62	444	.11	4.51	6.45	57	82
550	4.17	.00	1.05	455	.00	1.05	2.29	25	54
580	5.49	.03	1.69	447	.05	1.64	3.82	29	69
610	6.10	.02	3.46	442	.08	3.38	2.90	55	47
640	1.19	.00	.26	448	.00	.26	.69	21	57
680	2.37	.00	.76	452	.00	.76	1.02	32	43
690	1.19	.00	.20	464	.00	.20	.62	16	52
720	51.74	.01	23.43	446	.20	23.23	14.84	44	28
730	65.60	.00	20.09	461	.09	20.00	22.88	30	34
760	2.92	.01	.93	454	.01	.92	1.34	31	45
790	32.22	.01	10.51	448	.11	10.40	9.59	32	29
820	1.61	.00	.44	448	.00	.44	.74	27	45
850	1.74	.00	.45	443	.00	.45	.80	25	45
880	1.60	.00	.62	441	.00	.62	.72	38	45
910	.97	.03	.31	439	.01	.30	.43	30	44
940	.32	.00	.13	440	.00	.13	.23	40	71
980	1.16	.00	.36	441	.00	.36	.52	31	44
1000	1.33	.00	.48	444	.00	.48	.55	36	41
1030	1.36	.00	.35	442	.00	.35	.76	25	55
1060	.50	.00	.09	444	.00	.09	.55	18	109
1090	.69	.00	.11	444	.00	.11	.65	15	94
1120	2.04	.00	.58	439	.00	.58	.95	28	46
1150	.94	.00	.25	436	.00	.25	.39	26	41
1190	1.47	.00	.22	445	.00	.22	.73	14	49
1210	2.51	.00	.30	462	.00	.30	.87	11	34
1240	2.48	.00	.50	483	.00	.50	.92	20	37
1270	.85	.00	.23	443	.00	.23	.49	27	57
1300	.86	.33	.06	407	.02	.04	.34	4	39
1330	.93	.00	.01	0	.00	.01	.44	1	47
1360	1.10	.00	.30	442	.00	.30	.61	27	55
1360	1.31	.00	.25	453	.00	.25	.53	19	40
1400	.90	.06	.36	437	.02	.34	.26	37	28
1430	.69	.00	.06	388	.00	.06	.06	8	8
1450	.91	.00	.04	0	.00	.04	.29	4	31
1500	1.37	.11	.66	459	.07	.59	1.58	43	115
1540	.77	.00	.15	444	.00	.15	.40	19	51
1570	.92	.00	.24	438	.00	.24	.43	26	46
1610	1.22	.02	.65	432	.01	.64	.37	52	30
1630	1.37	.01	1.63	437	.02	1.61	.40	117	29
1670	1.27	.01	.75	440	.01	.74	.37	58	29
1700	1.52	.03	1.84	432	.06	1.78	.46	117	30
1780	1.81	.00	1.05	430	.00	1.05	.56	58	30
1800	1.01	.05	.58	435	.03	.55	.46	54	45
1830	.95	.00	.29	440	.00	.29	.39	30	41
1850	.91	.00	.35	440	.00	.35	.29	38	31
1910	1.32	.03	1.55	438	.04	1.51	.29	114	21
1930	1.46	.02	1.82	440	.04	1.78	.35	121	23

Delhi-B.A-Antelope Hills 11-7-21-1W4 400 4300 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1960	2.83	.06	7.29	436	.42	6.87	1.23	242	43
2000	1.23	.04	1.39	440	.06	1.33	.32	108	26
2030	1.31	.00	.55	445	.00	.55	.42	41	32
2070	.91	.03	.34	441	.01	.33	.41	36	45
2090	3.60	.02	9.45	426	.16	9.29	1.16	258	32
2120	3.08	.02	8.90	423	.15	8.75	.76	284	24
2150	4.67	.02	17.56	420	.38	17.18	1.02	367	21
2180	2.25	.01	6.18	431	.09	6.09	.53	270	23
2210	2.04	.02	5.22	440	.08	5.14	.47	251	23
2240	1.57	.01	2.42	443	.03	2.39	.35	152	22
2270	2.73	.02	7.33	427	.11	7.22	.70	264	25
2300	3.27	.02	6.98	422	.14	6.84	.81	209	24
2330	2.00	.01	3.58	433	.05	3.53	.56	176	27
2360	2.06	.02	5.62	430	.10	5.52	.59	267	28
2390	2.16	.01	3.80	434	.05	3.75	.83	173	38
2420	2.14	.05	2.84	440	.15	2.69	.77	125	35
2460	1.97	.06	2.57	445	.15	2.42	.54	122	27
2480	1.85	.03	3.15	437	.11	3.04	.46	164	24
2510	1.47	.06	1.40	439	.08	1.32	.60	89	40
2540	1.56	.03	1.51	443	.04	1.47	.58	94	37
2570	1.11	.00	.43	437	.00	.43	.58	38	52
2600	1.06	.00	.63	436	.00	.63	.59	59	55
2630	1.16	.02	.50	439	.01	.49	.54	42	46
2660	1.04	.00	.52	437	.00	.52	.41	50	39
2690	1.47	.02	1.41	438	.03	1.38	.46	93	31
2720	1.42	.02	1.11	440	.02	1.09	.48	76	33
2750	1.15	.02	1.02	439	.02	1.00	.30	86	26
2780	1.08	.06	.70	441	.04	.66	.14	61	12
2820	1.07	.02	.63	439	.01	.62	.40	57	37
2860	.76	.19	.67	451	.13	.54	.39	71	51
2890	.42	.00	.39	437	.00	.39	.12	92	28
2920	2.98	.03	3.02	439	.09	2.93	.87	98	29
2960	1.09	.04	.89	437	.04	.85	.21	77	19
2980	2.68	.13	2.11	439	.27	1.84	.44	68	16
3010	1.36	.04	1.91	443	.08	1.83	.28	134	20
3040	1.13	.04	2.75	435	.12	2.63	.76	232	67
3070	.95	.07	.71	442	.05	.66	.16	69	16
3100	.69	.27	.91	434	.25	.66	.39	95	56
3130	1.64	.01	.90	444	.01	.89	.70	54	42
3160	.56	.00	.20	435	.00	.20	.14	35	25
3190	.72	.02	1.24	436	.02	1.22	.21	169	29
3220	.60	.02	.57	439	.01	.56	.12	93	20
3250	.46	.15	.39	436	.06	.33	.15	71	32
3280	.69	.15	.74	436	.11	.63	.15	91	21
3310	1.34	.54	5.68	430	3.05	2.63	.48	196	35
3340	.21	.00	.09	453	.00	.09	.24	42	114
3370	1.45	.04	1.17	441	.05	1.12	.43	77	29
3400	.84	.11	.56	442	.06	.50	.28	59	33
3430	.75	.11	.54	445	.06	.48	.91	64	121

Delhi-B.A-Antelope Hills 11-7-21-1W4 400 4300 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
3460	1.12	.00	.53	440	.00	.53	.20	47	17
3490	.71	.04	1.12	437	.04	1.08	.14	152	19
3520	11.04	.05	55.44	418	2.88	52.56	2.65	476	24
3550	5.03	.03	20.22	425	.70	19.52	1.17	388	23
3580	3.56	.03	12.10	429	.34	11.76	.80	330	22
3610	.61	.05	1.35	427	.07	1.28	.21	209	34
3640	.17	.11	.19	435	.02	.17	.08	100	47
3670	.22	.00	.15	436	.00	.15	.05	68	22
3700	.74	.00	.40	433	.00	.40	.45	54	60
3730	.42	.04	.27	436	.01	.26	.13	61	30
3760	.51	.04	.28	439	.01	.27	.25	52	49
3790	.71	.07	.60	432	.04	.56	.25	78	35
3820	.47	.00	.38	437	.00	.38	.11	80	23
3850	.68	.03	.68	432	.02	.66	.11	97	16
3880	.26	.04	.24	437	.01	.23	.01	88	3
3910	.43	.04	.74	434	.03	.71	.19	165	44
3940	.25	.07	.29	428	.02	.27	.04	108	16
3970	.43	.00	.28	427	.00	.28	.06	65	13
4000	.23	.22	.36	409	.08	.28	.01	121	4
4030	.24	.05	.20	427	.01	.19	.01	79	4
4060	.27	.08	.24	431	.02	.22	.01	81	3
4090	.22	.00	.11	435	.00	.11	.01	50	4
4120	.32	.00	.21	434	.00	.21	.05	65	15
4150	.18	.00	.15	438	.00	.15	.01	83	5
4180	.25	.04	.25	430	.01	.24	.01	96	4
4200	.23	.00	.11	429	.00	.11	.01	47	4

Foremost Fm	545F
Pakowki Fm	715
Milk River Fm	1160
Colorado Grp	1560
Second White Specks	2045
Fish Scales Base	2240
Bow Island Ss	2430
Blairmore Grp	2720
Detrital	2965
Pekisko Fm	3060
Bakken Fm	3360
Exshaw Fm	3510
Wabamun Grp	3520
Stettler Fm	3605
Jefferson Fm	3725
Cooking Lake Fm	4055

NCO Atlee 7-29-20-5W4 **0 3350 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
30F	.03	.67	.03	449	.02	.01	.04	33	133
60	.03	.00	.01	0	.00	.01	.01	33	33
90	.08	.00	.01	0	.00	.01	.04	12	50
120	.09	.50	.02	344	.01	.01	.14	11	155
150	.05	.67	.03	317	.02	.01	.11	20	220
180	.15	.43	.07	332	.03	.04	.57	26	380
210	.08	.40	.05	0	.02	.03	.56	37	699
240	.32	.51	.43	400	.22	.21	.87	65	271
270	.79	.38	.55	418	.21	.34	.72	43	91
300	.22	.69	.13	358	.09	.04	.26	18	118
330	.26	.43	.07	0	.03	.04	.19	15	73
380	.22	.86	.14	322	.12	.02	.57	9	259
400	.35	.38	.21	420	.08	.13	.21	37	59
430	.32	.57	.67	353	.38	.29	.33	90	103
460	.66	.53	1.48	356	.79	.69	.54	104	81
490	1.32	.54	.74	359	.40	.34	1.25	25	94
520	14.17	.03	10.58	436	.30	10.28	19.70	72	139
550	4.94	.05	1.02	453	.05	.97	3.61	19	73
580	10.72	.02	11.56	431	.24	11.32	11.96	105	111
600	3.36	.07	1.70	433	.12	1.58	3.96	47	117
630	2.88	.15	.79	439	.12	.67	2.68	23	93
870	.72	.62	.34	387	.21	.13	1.10	18	152
900	.54	.45	.38	341	.17	.21	.94	38	174
930	1.97	.09	2.51	424	.22	2.29	1.29	116	65
960	.19	.60	.10	409	.06	.04	.29	21	152
990	.67	.25	.32	434	.08	.24	.78	35	116
1020	1.45	.29	.68	426	.20	.48	1.74	33	120
1140	.80	.12	.41	440	.05	.36	.35	45	43
1170	1.20	.15	.40	426	.06	.34	1.09	28	90
1230	2.28	.09	.34	378	.03	.31	1.62	13	71
1260	.48	.00	.01	438	.00	.01	.50	2	104
1350	1.09	.31	1.14	391	.35	.79	1.52	72	139
1380	1.10	.20	.44	420	.09	.35	1.54	31	140
1410	1.45	.00	.07	346	.00	.07	7.84	4	540
1430	.48	.26	.19	419	.05	.14	.78	29	162
1490	8.07	.22	2.80	419	.62	2.18	5.83	27	72
1520	.02	.00	.30	398	.00	.30	.01	1500	50
1550	4.94	1.00	.45	0	.45	.00	3.29	0	66
1580	.66	.46	.13	421	.06	.07	.50	10	75
1600	3.01	.29	.63	396	.18	.45	2.07	14	68
1640	.68	.21	.14	312	.03	.11	.65	16	95
1680	4.22	.12	3.15	345	.37	2.78	5.81	65	137
1710	6.17	.12	6.91	355	.86	6.05	35.48	98	575
1740	2.59	.92	.37	359	.34	.03	1.64	1	63
1770	1.34	.33	.45	315	.15	.30	.65	22	48
1800	1.78	1.00	.10	0	.10	.00	.60	0	33
1830	1.60	.18	.39	422	.07	.32	1.48	20	92
1860	1.15	.09	.65	423	.06	.59	1.20	51	104
1890	1.97	.15	1.03	357	.15	.88	2.60	44	131

NCO Atlee 7-29-20-5W4 **0 3350 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1920	1.27	.11	.45	437	.05	.40	.88	31	69
1950	2.06	.88	.48	420	.42	.06	.79	2	38
1980	1.33	.11	.09	436	.01	.08	.63	6	47
2010	1.06	.10	.67	435	.07	.60	1.09	56	102
2040	1.28	.19	.21	488	.04	.17	.51	13	39
2070	2.05	.35	.17	467	.06	.11	.68	5	33
2100	4.84	.02	14.95	421	.37	14.58	1.42	301	29
2130	6.60	.04	25.03	406	.95	24.08	5.34	364	80
2160	5.28	.03	20.20	409	.62	19.58	2.29	370	43
2190	8.87	.03	23.92	408	.75	23.17	2.32	261	26
2220	5.31	.04	20.88	420	.83	20.05	1.68	377	31
2250	1.78	.08	2.52	424	.20	2.32	1.97	130	110
2280	5.55	.03	18.09	412	.55	17.54	3.17	316	57
2310	4.14	.04	12.71	410	.45	12.26	2.68	296	64
2350	4.45	.05	4.82	419	.25	4.57	2.96	102	66
2370	2.19	.03	3.52	417	.10	3.42	1.56	156	71
2400	3.46	.02	8.92	414	.18	8.74	2.10	252	60
2430	1.93	.02	3.05	424	.06	2.99	1.39	154	72
2460	1.86	.06	1.93	421	.12	1.81	1.08	97	58
2500	2.07	.05	2.68	420	.14	2.54	1.22	122	58
2530	2.20	.18	2.73	415	.48	2.25	4.15	102	188
2560	1.59	.10	1.12	421	.11	1.01	1.33	63	83
2590	2.27	.06	3.55	420	.21	3.34	3.78	147	166
2620	2.31	.10	.58	426	.06	.52	1.90	22	82
2650	1.70	.01	2.05	431	.03	2.02	.90	118	52
2680	1.58	.04	.93	430	.04	.89	1.50	56	94
2710	1.55	.03	1.30	430	.04	1.26	1.10	81	70
2740	1.57	.09	.22	438	.02	.20	1.19	12	75
2770	1.22	.09	.65	426	.06	.59	1.11	48	90
2800	1.06	.44	.09	438	.04	.05	.98	4	92
2830	.82	.35	.20	429	.07	.13	.81	15	98
2860	.86	.21	.33	435	.07	.26	.85	30	98
2880	1.16	.03	.37	433	.01	.36	1.05	31	90
3100	4.83	.09	1.17	434	.11	1.06	2.46	21	50
3130	2.56	.08	1.00	421	.08	.92	2.05	35	80
3160	1.61	.05	1.89	428	.09	1.80	.97	111	60
3190	1.15	.04	.97	425	.04	.93	.93	80	80
3200	1.41	.10	1.44	424	.14	1.30	1.02	92	72
3240	.16	.36	.14	418	.05	.09	.23	56	143
3270	.50	.22	.40	410	.09	.31	1.12	62	223
3300	.22	.20	.05	423	.01	.04	.43	18	195

Pakowki Fm	893F
Milk River Fm	1148
Colorado Grp	1496
Medicine Hat Ss	1594
Second White Speck	2108
Fish Scale Base	2311
Viking Ss	2515
Mannville Grp	2839

NCO Atlee 7-29-20-5W4 **0 3350 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
Banff Fm			3311						

C.P.O.G. Duchess 7-27-20-14W4 **400 3570 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
480F	1.59	.08	.25	479	.02	.23	.92	14	57
510	1.84	.00	.47	454	.00	.47	1.02	25	55
540	1.63	.00	.45	452	.00	.45	.96	27	58
570	1.40	.02	.59	447	.01	.58	1.18	41	84
600	2.09	.01	.91	449	.01	.90	1.02	43	48
630	4.22	.00	.90	467	.00	.90	1.75	21	41
660	2.52	.03	1.00	448	.03	.97	1.33	38	52
690	1.94	.02	.81	448	.02	.79	.88	40	45
720	2.05	.00	.51	467	.00	.51	1.53	24	74
750	.27	.00	.04	423	.00	.04	.35	14	129
780	.33	.00	.06	401	.00	.06	.33	18	100
810	.21	.00	.05	388	.00	.05	.33	23	157
840	.07	.00	.01	0	.00	.01	.12	14	171
870	.27	.13	.08	495	.01	.07	.45	25	166
900	.23	.16	.19	458	.03	.16	.68	69	295
930	6.65	.02	3.99	447	.08	3.91	1.88	58	28
960	7.12	.04	1.54	449	.06	1.48	2.11	20	29
990	6.67	.01	2.58	445	.03	2.55	1.98	38	29
1020	1.29	.00	.28	452	.00	.28	.65	21	50
1050	1.10	.00	.30	448	.00	.30	.52	27	47
1110	1.49	.00	.48	446	.00	.48	.68	32	45
1140	2.87	.03	.76	454	.02	.74	1.30	25	45
1170	1.77	.05	.37	463	.02	.35	1.08	19	61
1200	4.72	.03	1.85	449	.05	1.80	1.86	38	39
1230	5.62	.02	1.93	452	.04	1.89	2.18	33	38
1260	2.36	.00	.57	460	.00	.57	1.07	24	45
1290	1.59	.04	.28	486	.01	.27	1.11	16	69
1320	4.38	.00	2.36	442	.01	2.35	1.28	53	29
1350	3.05	.02	1.08	456	.02	1.06	1.39	34	45
1380	1.79	.03	.58	447	.02	.56	.80	31	44
1410	3.32	.02	1.13	445	.02	1.11	1.35	33	40
1440	1.84	.04	1.29	446	.05	1.24	1.78	67	96
1470	2.80	.01	.99	457	.01	.98	1.52	35	54
1500	3.46	.01	1.54	454	.02	1.52	1.56	43	45
1530	2.08	.03	.89	451	.03	.86	1.09	41	52
1560	1.91	.04	1.06	447	.04	1.02	1.22	53	63
1590	2.51	.04	.75	451	.03	.72	1.53	28	60
1620	2.87	.02	1.08	455	.02	1.06	1.49	36	51
1650	2.39	.00	.60	452	.00	.60	.87	25	36
1680	2.40	.03	.71	454	.02	.69	.92	28	38
1710	2.19	.00	.70	451	.00	.70	.92	31	42
1740	1.11	.02	.48	443	.01	.47	.59	42	53
1770	.98	.02	.60	447	.01	.59	1.07	60	109
1800	1.51	.05	.98	449	.05	.93	1.01	61	66
1830	3.41	.01	1.04	454	.01	1.03	1.62	30	47
1860	1.47	.04	1.48	440	.06	1.42	.70	96	47
1890	1.97	.01	.87	443	.01	.86	.92	43	46
1920	1.60	.02	.53	444	.01	.52	.75	32	46
1950	.86	.00	.42	455	.00	.42	1.24	48	144

C.P.O.G. Duchess 7-27-20-14W4 **400 3570 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1980	2.33	.03	1.87	452	.05	1.82	2.43	78	104
2010	1.47	.01	.74	445	.01	.73	.63	49	42
2040	.97	.00	.17	436	.00	.17	.70	17	72
2070	.98	.05	.60	439	.03	.57	.43	58	43
2100	1.30	.00	.24	449	.00	.24	.61	18	46
2130	4.72	.03	1.56	450	.05	1.51	2.31	31	48
2190	2.02	.09	.45	457	.04	.41	1.08	20	53
2200	2.08	.06	.49	448	.03	.46	.90	22	43
2210	2.78	.04	.81	458	.03	.78	.96	28	34
2220	2.77	.02	1.28	450	.03	1.25	1.27	45	45
2250	4.40	.00	.56	477	.00	.56	1.72	12	39
2280	1.43	.28	.18	484	.05	.13	.84	9	58
2310	2.14	.54	.26	486	.14	.12	.73	5	34
2340	1.00	.86	.07	395	.06	.01	.33	1	33
2370	1.70	.36	.25	489	.09	.16	.67	9	39
2400	1.27	.86	.07	377	.06	.01	.30	0	23
2430	1.82	.07	.15	500	.01	.14	.43	7	23
2460	1.90	.92	.12	418	.11	.01	.55	0	28
2490	2.11	.17	.48	454	.08	.40	.50	18	23
2520	2.16	.09	1.31	439	.12	1.19	.61	55	28
2550	1.80	.02	.83	441	.02	.81	.57	45	31
2580	2.02	.03	1.57	438	.05	1.52	.67	75	33
2610	2.30	.03	3.44	437	.11	3.33	.78	144	33
2640	2.37	.02	4.00	432	.08	3.92	.84	165	35
2670	1.77	.08	2.59	437	.20	2.39	.73	135	41
2700	1.18	.04	1.12	444	.05	1.07	.45	90	38
2730	1.36	.11	.53	441	.06	.47	.48	34	35
2760	1.38	.07	1.34	444	.09	1.25	.43	90	31
2790	1.15	.03	.39	445	.01	.38	.34	33	29
2820	1.43	.03	1.21	443	.04	1.17	.38	81	26
2850	1.57	.03	1.37	446	.04	1.33	.37	84	23
2880	1.43	.02	1.02	442	.02	1.00	.38	69	26
2910	1.81	.04	.99	449	.04	.95	.83	52	45
2940	1.38	.08	1.40	440	.11	1.29	.43	93	31
2970	1.38	.04	2.30	440	.09	2.21	.36	160	26
3000	1.48	.03	1.26	436	.04	1.22	.45	82	30
3030	1.52	.06	1.35	437	.08	1.27	.40	83	26
3060	1.01	.06	.64	440	.04	.60	.20	59	19
3090	.76	.06	.34	444	.02	.32	.11	42	14
3120	.66	.00	.02	440	.00	.02	.17	3	25
3150	1.20	.10	.10	452	.01	.09	.40	7	33
3180	.79	.00	.15	452	.00	.15	.32	18	40
3210	1.50	.00	.49	443	.00	.49	.48	32	32
3240	2.79	.04	.83	449	.03	.80	.77	28	27
3270	1.21	.00	.25	478	.00	.25	.43	20	35
3300	1.18	.00	.21	453	.00	.21	.40	17	33
3330	.76	.00	.18	452	.00	.18	.25	23	32
3360	1.09	.04	.54	441	.02	.52	.25	47	22
3390	2.23	.01	.92	441	.01	.91	.42	40	18

C.P.O.G. Duchess 7-27-20-14W4 **400 3570 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
3420	1.05	.00	.60	450	.00	.60	.23	57	21
3450	2.24	.03	1.75	442	.05	1.70	.78	75	34
3480	.84	.05	.56	442	.03	.53	.23	63	27
3510	.23	.21	.14	442	.03	.11	.14	47	60
3540	.57	.00	.29	445	.00	.29	.15	50	26
3570	.39	.05	.19	437	.01	.18	.22	46	56

Pakowki Fm	955F
Milk River Fm	1162
Colorado Grp	1455
Second White Specks	2270
Fish Scale Base	2533
Bow Island Fm	2675
Basal Colorado Ss	3005
Blairmore Grp	3015
Detrital	3430
Pekisko Fm	3525

GPD Ashland Grand Forks 6-4-11-14W4 600 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
610M	1.95	.03	3.88	422	.10	3.78	.27	193	13
620	2.06	.03	3.54	430	.11	3.43	.39	166	18
630	2.46	.05	2.32	432	.12	2.20	.83	89	33
640	2.25	.26	3.32	428	.86	2.46	1.20	109	53
650	1.68	.33	2.49	430	.82	1.67	.67	99	39
660	1.66	.19	1.75	432	.34	1.41	.62	84	37
670	1.04	.09	1.10	436	.10	1.00	.22	96	21
680	1.29	.09	1.70	434	.15	1.55	.62	120	48
690	3.96	.04	2.93	439	.12	2.81	.62	70	15
700	1.32	.09	1.17	437	.10	1.07	.37	81	28
720	1.16	.19	1.30	432	.25	1.05	.36	90	31
730	1.67	.13	1.52	436	.20	1.32	.46	79	27
740	.78	.19	.47	431	.09	.38	.16	48	20
760	1.01	.24	.33	436	.08	.25	.29	24	28
780	.91	.41	.32	436	.13	.19	.19	20	20
790	.69	.23	.26	439	.06	.20	.21	28	30
800	.67	.38	.08	454	.03	.05	.23	7	34
810	.87	.14	.63	431	.09	.54	.30	62	34
820	.61	.13	.23	439	.03	.20	.21	32	34
830	1.01	.20	.56	434	.11	.45	.28	44	27
840	1.15	.11	.80	433	.09	.71	.54	61	46
850	.86	.09	.55	432	.05	.50	.26	58	30
860	.93	.15	.54	433	.08	.46	.41	49	44
870	1.17	.10	.50	437	.05	.45	.35	38	29
880	1.73	.15	1.17	436	.18	.99	.39	57	22
890	.31	.50	.14	443	.07	.07	.20	22	64
900	2.97	.07	2.13	442	.15	1.98	.54	66	18
910	.84	.21	.56	432	.12	.44	.30	52	35
920	1.06	.20	.54	431	.11	.43	.18	40	16
930	1.34	.17	.52	434	.09	.43	.19	32	14
940	.44	.37	.41	429	.15	.26	.09	59	20
950	.59	.22	.32	434	.07	.25	.19	42	32
960	.90	.37	.19	464	.07	.12	.14	13	15
970	.09	1.00	.02	0	.02	.00	.01	0	11
980	.03	.33	.09	375	.03	.06	.01	200	33
990	.12	.53	.15	365	.08	.07	.04	58	33
1000	.21	.20	.05	335	.01	.04	.02	19	9
1030	1.10	.47	.17	505	.08	.09	.38	8	34
1040	.20	.38	.13	429	.05	.08	.29	40	145
1050	.15	1.00	.03	0	.03	.00	.19	0	126
1060	.03	1.00	.01	0	.01	.00	.09	0	300
1070	1.06	.83	.06	0	.05	.01	.30	0	28
1080	.05	1.00	.02	0	.02	.00	.13	0	260
1090	.92	.26	.46	438	.12	.34	.30	36	32
1100	.08	1.00	.05	0	.05	.00	.14	0	174
1110	.09	.62	.13	354	.08	.05	.12	55	133
1120	.22	.75	.12	358	.09	.03	.13	13	59
1130	.34	.85	.13	309	.11	.02	.19	5	55
1140	.62	.52	2.16	426	1.12	1.04	.46	167	74

GPD Ashland Grand Forks 6-4-11-14W4 600 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1150	.41	.35	.48	433	.17	.31	.34	75	82
1160	.56	.34	.44	443	.15	.29	.35	51	62
1170	.57	.37	.27	456	.10	.17	.35	29	61
1180	.36	.38	.21	443	.08	.13	.26	36	72
1190	1.27	.38	.77	437	.29	.48	.45	37	35
1200	1.98	.05	6.98	434	.36	6.62	.75	334	37
1210	.20	.72	.18	429	.13	.05	.21	25	105
1220	.25	.59	.76	407	.45	.31	.59	124	236
1230	5.36	.03	15.20	435	.51	14.69	1.22	274	22
1240	.21	.62	.21	422	.13	.08	.26	38	123
1250	.24	.35	.62	428	.22	.40	.26	166	108
1260	.13	.69	.39	427	.27	.12	.25	92	192
1270	.12	.42	.12	397	.05	.07	.06	58	50
1280	.35	.30	.76	429	.23	.53	.16	151	45
1290	.13	.60	.43	400	.26	.17	.09	130	69
1300	.08	.58	.19	404	.11	.08	.04	100	50
1310	.15	.47	.15	418	.07	.08	.20	53	133
1320	.08	.40	.15	433	.06	.09	.13	112	162
1330	.27	.12	1.40	439	.17	1.23	.31	455	114
1340	.14	.37	.19	437	.07	.12	.15	85	107
1350	.11	.63	.19	423	.12	.07	.12	63	109
1360	.26	.48	.29	424	.14	.15	.16	57	61
1370	.21	.50	.52	427	.26	.26	.19	123	90
1380	.20	.43	.40	425	.17	.23	.18	115	90
1390	.16	.92	.13	357	.12	.01	.06	6	37
1400	.30	.42	.88	433	.37	.51	.31	170	103
1410	.24	.57	.61	434	.35	.26	.17	108	70
1420	.27	.39	.18	438	.07	.11	.38	40	140
1430	.36	.28	.50	433	.14	.36	.06	100	16
1440	.26	.26	.39	433	.10	.29	.01	111	3
1450	.25	.36	.58	431	.21	.37	.10	148	40
1460	.16	.22	.36	436	.08	.28	.01	174	6
1470	.32	.41	.27	434	.11	.16	.03	50	9
1480	.07	.69	.13	409	.09	.04	.01	57	14
1490	.41	.25	1.00	436	.25	.75	.01	182	2
1500	.43	.24	.45	435	.11	.34	.01	79	2
1510	.17	.29	.21	437	.06	.15	.01	88	5
1520	.29	.17	.64	437	.11	.53	.02	182	6
1530	.09	.83	.06	443	.05	.01	.01	11	11
1540	.16	.40	.15	433	.06	.09	.01	56	6
1550	.11	.37	.19	436	.07	.12	.01	109	9
1560	.11	.54	.24	413	.13	.11	.07	100	63
1570	.12	.26	.23	438	.06	.17	.01	141	8
1580	.11	.33	.24	434	.08	.16	.01	145	9
1590	.11	.63	.16	432	.10	.06	.01	54	9
1600	.08	.70	.10	371	.07	.03	.02	37	25
1610	.08	.53	.15	431	.08	.07	.01	87	12
1620	.09	.62	.13	369	.08	.05	.01	55	11
1630	.11	.38	.21	437	.08	.13	.01	118	9

GPD Ashland Grand Forks 6-4-11-14W4 600 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1640	.20	.47	.34	428	.16	.18	.01	90	5
1650	.10	.45	.20	436	.09	.11	.01	110	10
1660	.22	.33	.55	435	.18	.37	.01	168	4
1670	.16	.29	.35	435	.10	.25	.01	156	6
1680	.15	.20	.49	437	.10	.39	.01	260	6
1690	.04	.25	.08	440	.02	.06	.01	150	25
1700	.11	.29	.24	441	.07	.17	.01	154	9
1710	.12	.32	.19	442	.06	.13	.01	108	8
1720	.13	.40	.20	424	.08	.12	.01	92	7
1730	.62	.12	3.03	435	.37	2.66	.07	429	11
1740	.97	.04	6.22	431	.26	5.96	.14	614	14
1750	.15	.32	.38	437	.12	.26	.01	173	6
1760	.31	.32	.40	435	.13	.27	.04	87	12
1770	.09	.65	.26	393	.17	.09	.05	100	55
1780	.11	.57	.21	412	.12	.09	.05	81	45
1790	.05	.83	.12	0	.10	.02	.01	40	20
1800	.09	.67	.27	377	.18	.09	.01	100	11
1810	.13	.61	.28	406	.17	.11	.01	84	7
1820	.19	.67	.21	340	.14	.07	.01	36	5

Colorado Grp	293M
Jumping Pound Ss	549
Fish Scales Base	634
Bow Island Fm	665
Bow Island Ss	671
Mannville Grp	806
Livingstone Fm	949
Banff Fm	1081
Bakken Fm	1191
Exshaw Fm	1229
Big Valley Fm	1231
Stettler Fm	1236
Arcs Fm	1310
Peechee Mbr	1347
Cooking Lake Fm	1529
Beaverhill Lake Grp	1585
Elk Point Grp	1716
Red River Fm	1748
Finnegan Fm	1775
Deadwood Fm	1791

Allenbee et al Medicine Hat 2-22-15-1W4 1500 - 5710 feet

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1530F	.55	.30	.27	439	.08	.19	1.05	34	190
1560	1.02	.26	.46	430	.12	.34	1.58	33	154
1590	.71	.33	.24	447	.08	.16	1.41	22	198
1620	.59	.35	.37	430	.13	.24	1.80	40	305
1650	.80	.24	.41	435	.10	.31	1.75	38	218
1680	6.03	.06	1.07	455	.06	1.01	6.80	16	112
1710	1.71	.09	1.86	433	.16	1.70	2.11	99	123
1740	1.61	.15	2.80	428	.41	2.39	2.38	148	147
1770	2.06	.23	1.02	430	.23	.79	2.90	38	140
1800	.57	.23	.70	426	.16	.54	1.64	94	287
1830	.55	.33	.33	420	.11	.22	1.05	40	190
1860	.77	.17	.58	427	.10	.48	1.41	62	183
1890	1.03	.14	.35	428	.05	.30	1.23	29	119
1920	.68	.26	.87	427	.23	.64	1.41	94	207
1950	.99	.18	.49	435	.09	.40	1.97	40	198
1970	.95	.19	.52	432	.10	.42	1.30	44	136
2010	1.37	.11	.97	432	.11	.86	1.87	62	136
2040	1.34	.13	1.09	429	.14	.95	1.27	70	94
2070	1.22	.09	1.48	430	.14	1.34	1.38	109	113
2100	.63	.17	.24	430	.04	.20	3.17	31	503
2130	1.12	.06	2.46	424	.14	2.32	1.29	207	115
2160	1.43	.06	2.30	433	.14	2.16	2.02	151	141
2190	.79	.15	.41	438	.06	.35	1.69	44	213
2220	1.03	.12	.57	428	.07	.50	1.45	48	140
2250	1.13	.17	.47	426	.08	.39	1.60	34	141
2280	3.44	.04	12.07	419	.54	11.53	2.84	335	82
2310	2.35	.04	6.20	422	.25	5.95	2.18	253	92
2340	4.28	.04	16.82	419	.65	16.17	2.52	377	58
2370	3.55	.02	13.12	424	.32	12.80	2.36	360	66
2400	1.87	.03	6.92	436	.23	6.69	1.39	357	74
2430	2.63	.03	9.10	432	.25	8.85	1.99	336	75
2460	2.44	.03	4.47	423	.14	4.33	2.49	177	102
2490	2.02	.02	4.05	421	.07	3.98	1.66	197	82
2520	2.39	.05	2.97	423	.15	2.82	2.20	117	92
2550	1.43	.10	.99	431	.10	.89	3.81	62	266
2580	1.60	.12	.86	435	.10	.76	1.84	47	115
2610	1.10	.19	.32	433	.06	.26	1.31	23	119
2640	1.42	.16	1.64	436	.27	1.37	1.77	96	124
2670	.91	.10	.92	435	.09	.83	1.00	91	109
2700	.64	.07	1.04	435	.07	.97	.78	151	121
2730	1.55	.05	2.74	434	.13	2.61	1.04	168	67
2760	.73	.15	.27	440	.04	.23	1.38	31	189
2790	2.20	.06	4.71	432	.26	4.45	1.84	202	83
2820	1.37	.09	1.71	437	.15	1.56	2.25	113	164
2850	1.88	.07	2.49	434	.17	2.32	1.90	123	101
2880	1.30	.11	.98	430	.11	.87	1.36	66	104
2910	1.10	.13	.63	430	.08	.55	1.17	50	106
2940	.98	.30	.30	434	.09	.21	1.32	21	134
2970	1.04	.19	.36	431	.07	.29	1.25	27	120

Allenbee et al Medicine Hat 2-22-15-1W4 1500 - 5710 feet

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
3000	.88	.21	.42	436	.09	.33	1.29	37	146
3030	.84	.16	.38	433	.06	.32	.69	38	82
3060	1.06	.09	.93	434	.08	.85	.97	80	91
3090	.88	.12	.78	437	.09	.69	.84	78	95
3120	.83	.11	1.79	434	.20	1.59	.84	191	101
3150	.17	.17	.06	437	.01	.05	.65	29	382
3180	1.03	.22	.18	437	.04	.14	1.45	13	140
3210	4.08	.23	1.05	431	.24	.81	3.78	19	92
3240	.67	1.00	.01	0	.01	.00	.99	0	147
3270	2.65	.06	1.18	415	.07	1.11	1.67	41	63
3300	.16	.30	.10	421	.03	.07	.50	43	312
3330	.96	.12	.49	428	.06	.43	1.18	44	122
3360	.54	.33	.03	433	.01	.02	1.31	3	242
3390	.45	.14	.28	438	.04	.24	.36	53	80
3420	.27	.17	.06	427	.01	.05	.28	18	103
3450	1.26	.14	.44	434	.06	.38	1.16	30	92
3540	.63	.08	.73	434	.06	.67	.36	106	57
3570	1.32	.10	1.00	434	.10	.90	.60	68	45
3600	.51	.09	.65	432	.06	.59	.32	115	62
3630	.13	.33	.15	423	.05	.10	.19	76	146
3660	.50	.15	.20	432	.03	.17	.33	34	66
3690	.25	.19	.16	430	.03	.13	1.07	52	428
3720	.01	.14	.07	419	.01	.06	.14	6001399	
3750	.27	.17	.18	433	.03	.15	.20	55	74
3780	.17	.21	.19	445	.04	.15	.20	88	117
3810	.07	.33	.09	392	.03	.06	.01	85	14
3840	.31	.24	.37	421	.09	.28	.17	90	54
3880	85.47	.43	.07	343	.03	.04	.04	0	0
3900	5.14	.22	11.84	438	2.61	9.23	.64	179	12
3930	.30	.13	.39	359	.05	.34	.08	113	26
3960	.03	.00	.01	451	.00	.01	.03	33	100
3990	1.37	.07	3.39	428	.23	3.16	.96	230	70
4020	.06	.30	.10	438	.03	.07	.08	116	133
4050	.52	.16	.45	441	.07	.38	.54	73	103
4080	.24	.14	.28	419	.04	.24	.10	100	41
4110	.55	.12	.73	436	.09	.64	.42	116	76
4140	7.50	.04	19.97	422	.71	19.26	3.57	256	47
4170	.31	.26	.27	433	.07	.20	.83	64	267
4200	.76	.06	1.46	423	.09	1.37	.52	180	68
4230	.19	.25	.36	432	.09	.27	.25	142	131
4260	.22	.27	.26	435	.07	.19	.29	86	131
4290	.69	.12	.41	434	.05	.36	.60	52	86
4320	.23	.23	.39	431	.09	.30	.29	130	126
4350	.33	.05	.21	430	.01	.20	.41	60	124
4380	.48	.05	2.23	422	.12	2.11	.32	439	66
4410	.62	.05	2.58	434	.13	2.45	.37	395	59
4440	.26	.12	.68	433	.08	.60	.22	230	84
4470	.16	.17	.23	424	.04	.19	.12	118	75
4500	.18	.43	.14	423	.06	.08	.27	44	150

Allenbee et al Medicine Hat 2-22-15-1W4 1500 - 5710 feet

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
4530	.13	.17	.12	436	.02	.10	.37	76	284
4560	.13	.14	.14	445	.02	.12	.33	92	253
4590	.27	.13	.16	435	.02	.14	.24	51	88
4620	2.36	.06	1.02	425	.06	.96	1.87	40	79
4650	.12	.30	.20	432	.06	.14	.21	116	175
4680	.14	.00	.02	428	.00	.02	.13	14	92
4710	.40	.10	.20	435	.02	.18	.21	45	52
4740	.08	.00	.03	415	.00	.03	.13	37	162
4770	.32	.07	.14	430	.01	.13	.18	40	56
4800	.52	.11	.38	433	.04	.34	.40	65	76
4830	.46	.05	1.07	434	.05	1.02	.43	221	93
4860	.31	.10	.61	430	.06	.55	.17	177	54
4890	.40	.14	.88	434	.12	.76	.25	190	62
4920	.08	.00	.07	438	.00	.07	.06	87	75
4950	.91	.09	1.52	430	.14	1.38	.69	151	75
4980	.26	.16	.69	435	.11	.58	.43	223	165
5010	.25	.08	.90	433	.07	.83	.23	332	92
5040	.08	.06	.17	438	.01	.16	.07	200	87
5070	.02	.23	.26	432	.06	.20	.22	10001	100
5100	.17	.04	.26	429	.01	.25	.02	147	11
5130	.22	.30	.10	443	.03	.07	.21	31	95
5160	.03	.09	.45	432	.04	.41	.29	1366	966
5190	.05	.18	.11	443	.02	.09	.09	180	180
5250	.40	.03	2.25	430	.06	2.19	.14	547	35
5280	.08	.50	.02	430	.01	.01	.25	12	312
5310	.09	1.00	.01	0	.01	.00	.19	0	211
5340	.12	.25	.04	385	.01	.03	.20	25	166
5370	.36	.26	.19	430	.05	.14	.44	38	122
5400	.07	.21	.14	425	.03	.11	.11	157	157
5430	.36	.11	.27	436	.03	.24	.34	66	94
5460	.24	.10	.48	433	.05	.43	.25	179	104
5490	.72	.09	1.17	428	.11	1.06	.52	147	72
5520	.56	.07	1.83	423	.12	1.71	.26	305	46
5550	.50	.09	.75	428	.07	.68	.38	136	76
5580	.46	.25	.36	425	.09	.27	.46	58	100
5610	.46	.16	.25	428	.04	.21	.43	45	93
5640	.21	.20	.20	433	.04	.16	.17	76	80
5670	.22	.22	.23	434	.05	.18	.15	81	68
5700	.30	.07	.30	425	.02	.28	.50	93	166
5710	.11	.46	.13	430	.06	.07	.16	63	145

Pakowki Fm	870F
Milk River Fm	1340
Colorado Grp	1695
Medicine Hat Ss	1773
Second White Specks	2250
Fish Scales Base	2465
Bow Island Fm	2680
Blairmore Grp	3027
Basel Blairmore	3266

Allenbee et al Medicine Hat 2-22-15-1W4 1500 - 5710 feet

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
Pekisko Fm				3465					
Banff Fm				4050					
Exshaw Fm				4132					
Wabamun Grp				4142					
Stettler Fm				4205					
Jefferson Fm				4325					
Cooking Lake Fm				4463					
Elk Point Grp				5685					

Guyer Medicine Hat 10-27-10-5W4 1400 3390 feet

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1490F	1.43	.68	.19	430	.13	.06	1.12	4	78
1520	1.16	.40	.25	432	.10	.15	1.32	12	113
1550	1.57	.06	2.27	423	.14	2.13	1.02	135	64
1580	.90	.04	.24	430	.01	.23	.87	25	96
1610	.59	.45	.20	434	.09	.11	.32	18	54
1640	.83	.23	.22	432	.05	.17	.58	20	69
1670	.76	.21	.29	434	.06	.23	.62	30	81
1700	.79	.32	.73	442	.23	.50	1.84	63	232
1730	.46	.62	.13	451	.08	.05	.31	10	67
1760	.48	1.00	.04	0	.04	.00	.50	0	104
1790	.54	.38	.08	394	.03	.05	.48	9	88
1820	.78	1.00	.02	0	.02	.00	.58	0	74
1850	.99	1.00	.11	0	.11	.00	.68	0	68
1880	.71	1.00	.07	0	.07	.00	.38	0	53
1910	.69	.46	.13	442	.06	.07	.65	10	94
1940	.59	.45	.11	389	.05	.06	.58	10	98
1970	.71	.71	.24	371	.17	.07	.41	9	57
2000	.55	.79	.14	339	.11	.03	.30	5	54
2030	.26	1.00	.04	0	.04	.00	.23	0	88
2060	1.04	.67	.03	354	.02	.01	.47	0	45
2090	.74	.87	.15	425	.14	.03	.19	4	25
2120	1.63	.61	.36	434	.22	.14	.93	8	57
2150	1.39	.73	.15	453	.11	.04	.97	2	69
2180	.67	1.00	.14	0	.14	.00	.38	0	56
2210	1.63	.57	.28	447	.16	.12	1.09	7	66
2240	1.14	.93	.27	360	.25	.02	.51	1	44
2270	1.29	.85	.20	300	.17	.03	.77	2	59
2300	1.37	.40	.43	433	.17	.26	.89	18	64
2330	1.17	1.00	.28	0	.28	.00	.41	0	35
2360	1.49	1.00	.36	0	.36	.00	.57	0	38
2390	1.54	1.00	.27	0	.27	.00	.67	0	43
2420	1.12	1.00	.12	0	.12	.00	.51	0	45
2450	.59	1.00	.11	0	.11	.00	.28	0	47
2480	.49	1.00	.14	0	.14	.00	.23	0	46
2510	.95	.72	.18	463	.13	.05	.42	5	44
2540	.94	.79	.19	317	.15	.04	.12	4	12
2570	.62	.87	.15	304	.13	.02	.01	3	1
2600	.95	.75	.18	409	.12	.05	.27	5	28
2630	.99	.88	.17	376	.15	.02	.38	2	38
2660	.77	1.00	.09	0	.09	.00	.33	0	42
2690	.99	.90	.29	340	.26	.03	.34	3	34
2720	.79	1.00	.05	0	.05	.00	.43	0	54
2750	.72	1.00	.04	0	.04	.00	.41	0	56
2780	3.23	.22	.73	451	.16	.57	1.46	17	45
2810	1.20	1.00	.09	0	.09	.00	.51	0	42
2850	1.46	.11	.66	439	.07	.59	.99	40	67
2880	1.03	.29	.48	429	.14	.34	.68	33	66
2910	1.09	.17	.24	437	.04	.20	.49	18	44

Guyer Medicine Hat 10-27-10-5W4 1400 3390 feet

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
2940	.86	.07	.86	429	.06	.80	.69	93	80
2970	.49	.50	.08	435	.04	.04	.25	8	51
3000	.93	.13	.46	431	.06	.40	.59	43	63
3030	.39	.43	.14	427	.06	.08	.19	20	48
3060	.81	.12	.49	433	.06	.43	.40	53	49
3090	1.16	.08	1.69	429	.13	1.56	.42	134	36
3120	1.00	.12	.34	429	.04	.30	.71	30	71
3150	1.16	.10	.92	432	.09	.83	.73	71	62
3180	.40	.21	.48	426	.10	.38	.21	95	52
3210	.38	.11	.28	424	.03	.25	.30	65	78
3240	2.78	.05	2.06	428	.11	1.95	1.35	70	48
3270	.68	.21	.24	433	.05	.19	.43	27	63
3300	.55	.56	.27	430	.15	.12	.33	21	60
3360	.18	1.00	.03	0	.03	.00	.17	0	94
3390	.36	.42	.12	388	.05	.07	.22	19	61

Pakowki Fm	872F
Milk River Fm	1155
Colorado Grp	1441
Medicine Hat Ss	1537
Second White Specks	2145
Fish Scales Base	2389
Bow Island Fm	2520
Bow Island Ss	2606
Joli Fou Fm	2880
Mannville Grp	2961
Rierdon Fm	3222
Sawtooth Fm	3341
Livingstone Fm	3359

Canadian Montana 11-35-5-5W4 1000 - 5710 feet

1000F	.98	.32	.99	431	.32	.67	1.76	68	179
1030	1.27	.09	3.13	403	.29	2.84	1.71	223	134
1060	1.88	.15	1.16	435	.17	.99	3.02	52	160
1090	1.28	.29	.91	430	.26	.65	2.37	50	185
1120	1.29	.31	1.02	425	.32	.70	3.43	54	265
1150	1.09	.40	.87	432	.35	.52	3.21	47	294
1180	1.25	.16	.56	432	.09	.47	1.62	37	129
1210	2.01	.09	.96	439	.09	.87	3.04	43	151
1240	.46	.11	.19	438	.02	.17	1.31	36	284
1270	1.30	.40	1.00	429	.40	.60	3.93	46	302
1300	.53	.36	.44	433	.16	.28	1.43	52	269
1330	1.18	.55	1.21	429	.67	.54	2.06	45	174
1360	2.50	.35	2.03	436	.71	1.32	3.03	52	121
1390	1.54	.42	1.54	433	.65	.89	2.44	57	158
1420	2.41	.24	5.34	426	1.28	4.06	3.41	168	141
1450	1.31	.41	2.37	430	.96	1.41	2.89	107	220
1480	4.26	.24	2.05	435	.50	1.55	4.78	36	112
1510	2.76	.16	1.19	445	.19	1.00	3.21	36	116
1540	2.09	.16	.89	442	.14	.75	3.20	35	153
1570	2.66	.20	.75	456	.15	.60	2.98	22	112
1600	4.00	.11	1.89	441	.21	1.68	3.76	42	94
1630	3.37	.28	2.74	434	.76	1.98	3.99	58	118
1670	4.01	.24	2.02	441	.48	1.54	4.54	38	113
1690	.75	.29	.31	441	.09	.22	1.35	29	180
1720	.26	.38	.13	424	.05	.08	.50	30	192
1750	.20	1.00	.01	0	.01	.00	.28	0	140
1780	.66	.28	.29	436	.08	.21	1.33	31	201
1810	.66	.34	.35	432	.12	.23	1.48	34	224
1840	.41	.29	.45	426	.13	.32	1.53	78	373
1870	1.57	.10	.63	438	.06	.57	1.99	36	126
1900	1.28	.16	.76	437	.12	.64	1.72	50	134
1930	.76	.22	.55	436	.12	.43	1.14	56	150
1960	.70	.18	.44	433	.08	.36	.97	51	138
1990	.44	.44	.16	430	.07	.09	1.26	20	286
2020	2.43	.13	2.07	429	.27	1.80	2.70	74	111
2050	.73	.18	.38	438	.07	.31	1.65	42	226
2080	1.13	.18	.57	431	.10	.47	1.61	41	142
2110	.44	.11	.18	438	.02	.16	1.16	36	263
2140	1.10	.07	.56	434	.04	.52	1.78	47	161
2170	1.83	.19	.52	445	.10	.42	1.65	22	90
2200	7.62	.03	4.27	441	.11	4.16	5.96	54	78
2230	5.43	.04	3.93	438	.17	3.76	4.03	69	74
2260	2.81	.05	1.94	440	.09	1.85	2.43	65	86
2290	1.68	.13	.46	439	.06	.40	1.20	23	71
2320	2.50	.04	2.29	434	.10	2.19	1.85	87	74
2350	.65	.14	.50	435	.07	.43	1.12	66	172
2380	1.54	.38	1.81	433	.69	1.12	1.42	72	92
2410	.60	.00	.18	431	.00	.18	1.50	30	250
2440	.96	.13	.62	437	.08	.54	1.13	56	117

Canadian Montana 11-35-5-5W4 1000 - 5710 feet

2470	.72	.15	.27	470	.04	.23	1.32	31	183
2500	1.09	.07	1.19	432	.08	1.11	2.18	101	200
2530	.96	.22	.49	434	.11	.38	1.23	39	128
2560	1.91	.04	4.99	430	.22	4.77	1.30	249	68
2590	1.53	.05	3.76	425	.17	3.59	1.56	234	101
2620	1.33	.04	4.16	423	.18	3.98	1.43	299	107
2650	1.65	.04	3.06	427	.13	2.93	3.07	177	186
2680	.92	.05	1.84	431	.10	1.74	.79	189	85
2710	.93	.12	.59	430	.07	.52	1.01	55	108
2740	.57	.06	.94	431	.06	.88	.56	154	98
2770	2.02	.03	2.60	428	.07	2.53	1.26	125	62
2800	2.00	.03	3.98	421	.10	3.88	1.06	194	53
2830	3.27	.03	7.15	415	.19	6.96	1.74	212	53
2860	2.74	.02	4.76	420	.10	4.66	1.50	170	54
2890	2.26	.03	3.19	425	.11	3.08	1.77	136	78
2920	2.65	.03	7.93	424	.27	7.66	1.67	289	63
2950	3.54	.03	7.88	418	.22	7.66	1.87	216	52
2980	1.18	.07	1.98	431	.14	1.84	1.90	155	161
3010	1.97	.06	4.44	421	.28	4.16	1.69	211	85
3040	1.34	.07	2.42	433	.18	2.24	1.11	167	82
3070	2.00	.05	3.36	430	.16	3.20	1.26	160	63
3100	2.26	.03	4.87	418	.15	4.72	1.51	208	66
3120	3.23	.21	4.13	435	.88	3.25	2.27	100	70
3160	.92	.13	.39	438	.05	.34	1.79	36	194
3190	1.50	.08	2.49	434	.19	2.30	1.56	153	104
3220	2.01	.26	1.55	435	.41	1.14	1.74	56	86
3250	1.19	.17	1.37	428	.23	1.14	.97	95	81
3280	1.78	.15	1.44	434	.22	1.22	1.60	68	89
3310	2.99	.12	1.45	435	.18	1.27	3.67	42	122
3340	1.36	.21	1.31	434	.28	1.03	1.31	75	96
3370	1.40	.19	2.97	435	.55	2.42	1.36	172	97
3400	1.67	.15	1.56	434	.23	1.33	1.47	79	88
3430	1.73	.05	2.68	433	.13	2.55	1.56	147	90
3460	1.18	.07	1.37	437	.10	1.27	1.20	107	101
3490	.54	.08	.59	435	.05	.54	.88	100	162
3520	.52	.26	.77	432	.20	.57	.90	109	173
3550	.33	.25	.44	435	.11	.33	.80	100	242
3580	.30	.27	.30	423	.08	.22	.84	73	280
3610	.69	.41	1.37	433	.56	.81	1.26	117	182
3640	.19	.59	.22	422	.13	.09	.66	47	347
3670	.48	.32	.31	441	.10	.21	.65	43	135
3700	.64	.19	.27	446	.05	.22	.63	34	98
3730	3.21	.17	.29	438	.05	.24	.74	7	23
3760	3.37	.10	1.30	440	.13	1.17	1.24	34	36
3790	.69	.30	.54	431	.16	.38	.94	55	136
3810	1.22	.10	1.47	436	.14	1.33	.99	109	81
3850	.43	.50	.06	441	.03	.03	.38	6	88
3880	3.67	.31	.51	432	.16	.35	.68	9	18
3910	.64	.34	.59	438	.20	.39	1.24	60	193

Canadian Montana 11-35-5-5W4 1000 - 5710 feet

3940	.22	.47	.75	429	.35	.40	1.00	181	454
3970	.41	.32	.34	429	.11	.23	.81	56	197
4000	.17	.21	.58	435	.12	.46	.47	270	276
4030	.37	.11	.88	438	.10	.78	.56	210	151
4060	.14	.50	.04	440	.02	.02	.42	14	300
4090	.64	.16	1.19	440	.19	1.00	.61	156	95
4120	.07	.50	.14	430	.07	.07	.49	100	700
4150	.17	.43	.47	434	.20	.27	.66	158	388
4180	.35	.23	.39	433	.09	.30	.40	85	114
4210	.01	.00	.04	427	.00	.04	.16	400	1600
4240	.03	1.00	.01	0	.01	.00	.19	0	633
4270	.01	.00	.05	433	.00	.05	.16	500	1600
4300	.01	1.00	.01	0	.01	.00	.23	0	2300
4330	.01	.29	.07	387	.02	.05	.24	500	2400
4360	.01	.00	.01	0	.00	.01	.15	100	1500
4390	.01	.33	.03	355	.01	.02	.19	200	1900
4420	.01	.67	.03	306	.02	.01	.19	100	1900
4450	.37	.13	.55	441	.07	.48	.42	129	113
4480	.01	.00	.01	0	.00	.01	.25	100	2500
4510	.02	.63	.08	373	.05	.03	.33	150	1650
4540	.17	.30	.20	439	.06	.14	.30	82	176
4570	.21	.29	.14	422	.04	.10	.31	47	147
4600	.20	.60	.05	363	.03	.02	.22	10	110
4630	.22	.59	.17	394	.10	.07	.31	31	140
4660	.42	.09	1.02	431	.09	.93	.32	221	76
4690	.53	.05	1.74	428	.08	1.66	.32	313	60
4720	3.87	.11	.56	437	.06	.50	.55	12	14
4750	.67	.05	1.81	436	.09	1.72	.40	256	59
4780	.55	.04	1.85	434	.07	1.78	.34	323	61
4810	2.02	.07	1.98	437	.13	1.85	.66	91	32
4840	.28	.07	.30	438	.02	.28	.21	100	75
4870	.59	.06	1.52	438	.09	1.43	.41	242	69
4900	.26	.09	.22	433	.02	.20	.10	76	38
4930	2.86	.05	7.44	427	.35	7.09	1.09	247	38
4960	.49	.17	.53	433	.09	.44	.42	89	85
4990	.11	.31	.16	428	.05	.11	.08	100	72
5020	.30	.19	.26	433	.05	.21	.17	70	56
5050	.30	.25	.32	430	.08	.24	.28	80	93
5070	.02	.00	.01	0	.00	.01	.01	50	50
5100	.72	.47	1.33	433	.62	.71	2.55	98	354
5130	.13	.16	.19	433	.03	.16	.19	123	146
5160	.58	.06	1.95	419	.12	1.83	.73	315	125
5190	.13	.05	.20	433	.01	.19	.10	146	76
5220	.11	.45	.20	426	.09	.11	.20	100	181
5250	.12	.35	.23	430	.08	.15	.27	125	225
5280	.75	.06	3.79	426	.21	3.58	.58	477	77
5310	.21	.27	.30	438	.08	.22	.47	104	223
5340	.07	.17	.12	431	.02	.10	.40	142	571
5370	.19	.13	.24	436	.03	.21	.61	110	321

Canadian Montana 11-35-5-5W4 1000 - 5710 feet

5410	.30	.21	.56	434	.12	.44	.87	146	290

Pakowki Fm	972F
Milk River Fm	1458
Lower Milk River Fm	1515
Colorado Grp	1795
Medicine Hat Ss	1904
Second White Specks	2538
Fish Scale Base	2825
Bow Island Fm	2970
Bow Island Ss	3062
Blairmore Grp	3400
Basel Blairmore	3808
Ellis Grp	3845
Sawtooth Fm	3990
Livingstone Fm	4093
Banff Fm	4390
Bakken Fm	4840
Exshaw Fm	4910
Wabamun Grp	4920

Chevron Princess 16-11-20-12W4 **2400 5550 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
2490F	1.35	.05	2.01	434	.11	1.90	.55	140	40
2520	1.25	.13	2.47	436	.31	2.16	.51	172	40
2550	1.18	.06	1.70	435	.10	1.60	.53	135	44
2580	1.26	.09	2.10	436	.18	1.92	.61	152	48
2610	1.54	.10	1.66	436	.17	1.49	1.03	96	66
2640	1.38	.20	.84	441	.17	.67	.70	48	50
2670	1.45	.07	1.87	431	.14	1.73	1.69	119	116
2700	1.19	.08	1.54	437	.13	1.41	1.61	118	135
2730	1.74	.08	2.45	414	.20	2.25	1.93	129	110
2760	1.78	.18	.67	440	.12	.55	1.05	30	58
2790	1.38	.07	1.37	415	.09	1.28	1.19	92	86
2820	1.09	.04	.52	429	.02	.50	.86	45	78
2850	1.38	.09	1.69	435	.16	1.53	.66	110	47
2880	1.07	.03	.63	430	.02	.61	.60	57	56
2910	.85	.11	.83	430	.09	.74	1.28	87	150
2940	1.10	.07	1.21	431	.09	1.12	.66	101	60
2970	5.75	.04	12.55	425	.56	11.99	5.10	208	88
3000	9.47	.04	20.55	429	.92	19.63	12.64	207	133
3030	4.99	.04	5.01	434	.22	4.79	2.10	95	42
3060	7.08	.02	11.83	431	.27	11.56	4.70	163	66
3090	3.45	.06	2.03	441	.13	1.90	1.92	55	55
3120	2.12	.09	2.22	437	.20	2.02	1.31	95	61
3150	1.23	.29	.52	440	.15	.37	.59	30	47
3180	.89	.13	2.64	434	.33	2.31	.40	259	44
3210	.11	.32	.34	429	.11	.23	.11	209	100
3240	.47	.29	.45	439	.13	.32	.22	68	46
3270	1.13	.19	.97	435	.18	.79	.51	69	45
3300	1.62	.08	1.24	422	.10	1.14	.54	70	33
3330	.66	.19	.73	439	.14	.59	.25	89	37
3360	.58	.17	.83	437	.14	.69	.30	118	51
3390	.85	.12	.77	439	.09	.68	.41	80	48
3420	.95	.15	1.69	435	.25	1.44	.41	151	43
3460	.51	.20	.88	437	.18	.70	.34	137	66
3490	.19	.30	.33	441	.10	.23	.25	121	131
3520	1.09	.11	1.12	439	.12	1.00	.45	91	41
3550	2.83	.10	3.06	436	.32	2.74	.97	96	34
3580	1.32	.32	.72	437	.23	.49	.89	37	67
3610	.12	.65	.23	411	.15	.08	.13	66	108
3620	.35	.06	.16	433	.01	.15	.23	42	65
3630	2.76	.05	2.61	435	.13	2.48	1.06	89	38
3640	7.00	.05	31.90	423	1.57	30.33	1.87	433	26
3650	3.25	.04	5.27	432	.19	5.08	1.19	156	36
3660	3.71	.04	2.24	440	.08	2.16	2.51	58	67
3670	.94	.12	1.12	435	.14	.98	.51	104	54
3700	.56	.26	.53	437	.14	.39	.33	69	58
3730	.64	.15	.55	434	.08	.47	.27	73	42
3770	.76	.09	.54	437	.05	.49	.37	64	48
3800	1.59	.10	.84	436	.08	.76	.91	47	57
3830	.52	.17	.47	433	.08	.39	.37	75	71

Chevron Princess 16-11-20-12W4 **2400 5550 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
3860	.50	.24	.78	436	.19	.59	.34	118	68
3890	.35	.27	.56	435	.15	.41	.21	117	59
3960	.31	.26	.35	433	.09	.26	.23	83	74
3980	.54	.10	2.73	431	.28	2.45	.24	453	44
4040	.34	.32	.44	438	.14	.30	.30	88	88
4070	.11	.20	.20	437	.04	.16	.10	145	90
4100	.13	.24	.33	435	.08	.25	.13	192	100
4130	.09	.38	.16	427	.06	.10	.06	111	66
4160	.09	.25	.08	427	.02	.06	.09	66	100
4190	.12	.56	.36	410	.20	.16	.10	133	83
4220	.17	.51	.51	369	.26	.25	.16	147	94
4250	.13	.48	.44	413	.21	.23	.14	176	107
4280	.13	.35	.17	428	.06	.11	.09	84	69
4310	.26	.27	.45	426	.12	.33	.19	126	73
4340	.21	.41	.39	433	.16	.23	.11	109	52
4370	.51	.14	1.30	429	.18	1.12	.18	219	35
4400	.11	.43	.23	433	.10	.13	.10	118	90
4430	.43	.49	1.89	429	.92	.97	.26	225	60
4460	.12	.30	.53	437	.16	.37	.25	308	208
4490	.10	.78	.18	413	.14	.04	.15	40	150
4520	.14	.27	.26	439	.07	.19	.29	135	207
4550	.12	.26	.27	439	.07	.20	.15	166	125
4580	.13	.25	.32	440	.08	.24	.21	184	161
4610	.16	.34	.41	433	.14	.27	.18	168	112
4640	.45	.14	1.58	433	.22	1.36	.22	302	48
4670	.11	.13	.30	438	.04	.26	.09	236	81
4700	.08	.07	.15	441	.01	.14	.09	174	112
4730	.15	.24	.37	442	.09	.28	.16	186	106
4760	.12	.35	.26	440	.09	.17	.12	141	100
4790	.17	.37	.46	438	.17	.29	.21	170	123
4820	.19	.14	.63	441	.09	.54	.15	284	78
4850	.05	.16	.19	436	.03	.16	.04	320	80
4880	.14	.43	.30	436	.13	.17	.18	121	128
4910	.05	.23	.13	437	.03	.10	.02	200	40
4950	.15	.40	.20	428	.08	.12	.14	80	93
4980	.21	.32	.40	430	.13	.27	.28	128	133
5010	.06	.60	.15	419	.09	.06	.08	100	133
5040	.16	.25	.28	436	.07	.21	.19	131	118
5100	.08	.24	.21	434	.05	.16	.04	200	50
5130	.12	.28	.18	437	.05	.13	.08	108	66
5160	.14	.50	.16	431	.08	.08	.16	57	114
5190	.17	.80	.10	339	.08	.02	.07	11	41
5220	.21	.17	.42	439	.07	.35	.10	166	47
5250	.15	.75	.04	434	.03	.01	.04	6	26
5280	.37	.13	.68	441	.09	.59	.16	159	43
5310	.29	.22	.09	486	.02	.07	.04	24	13
5440	.83	.62	.21	396	.13	.08	.31	9	37
5470	.09	.74	.19	341	.14	.05	.01	55	11
5500	.03	.81	.16	0	.13	.03	.01	100	33

Chevron Princess 16-11-20-12W4 **2400 5550 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
5530	.01	1.00	.06	0	.06	.00	.01	0	100
5550	.03	.86	.14	304	.12	.02	.01	66	33

Pakowki Fm	867F
Milk River Fm	1055
Colorado Grp	1373
Second White Specks	2120
Fish Scales Base	2344
Bow Island Ss	2493
Basal Colorado Ss	2821
Mannville Grp	2846
Pekisko Fm	3250
Banff Fm	3454
Exshaw Fm	3643
Big Valley Fm	3655
Stettler Fm	3680
Arcs Mbr	3941
Peechee Mbr	4073
Cairn Fm	4492
Cooking Lake Fm	4758
Beaver Hill Lake Grp	4940
Elk Point Grp	5428
Finnegan Fm	5479

Allenbee Suffield 10-22-15-10W4 **1000 4080 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1010F	1.29	.13	.88	445	.11	.77	.73	59	56
1040	.98	.26	.47	438	.12	.35	.70	35	71
1070	.61	.33	.09	455	.03	.06	.54	9	88
1100	.72	.20	.30	438	.06	.24	.49	33	68
1130	1.46	.11	.47	442	.05	.42	.80	28	54
1160	.85	.15	.60	427	.09	.51	1.01	60	118
1610	1.65	.05	3.46	433	.16	3.30	.66	200	40
1640	3.09	.06	1.58	439	.09	1.49	1.37	48	44
1670	4.67	.05	2.38	440	.13	2.25	1.83	48	39
1700	2.82	.11	1.35	439	.15	1.20	1.35	42	47
1730	4.35	.07	3.44	437	.25	3.19	1.86	73	42
1760	2.33	.05	2.60	437	.12	2.48	1.15	106	49
1800	3.03	.05	2.10	442	.10	2.00	1.15	66	37
1810	3.21	.06	2.36	437	.14	2.22	1.16	69	36
1820	1.96	.10	1.04	437	.10	.94	.81	47	41
1870	1.40	.20	.74	435	.15	.59	.78	42	55
1900	2.54	.06	1.23	443	.07	1.16	.95	45	37
1930	1.72	.11	1.94	437	.22	1.72	.99	100	57
1970	2.77	.06	5.46	427	.32	5.14	1.04	185	37
2000	4.48	.04	19.30	417	.72	18.58	.98	414	21
2030	1.04	.06	.88	435	.05	.83	.43	79	41
2060	1.65	.05	3.07	429	.15	2.92	.60	176	36
2090	1.57	.05	2.07	427	.11	1.96	.59	124	37
2120	2.44	.03	6.04	427	.21	5.83	.77	238	31
2150	2.20	.05	3.69	432	.17	3.52	.79	160	35
2180	1.70	.10	1.44	428	.15	1.29	.68	75	40
2210	2.16	.05	3.84	429	.20	3.64	.68	168	31
2240	2.98	.03	10.57	429	.29	10.28	.72	344	24
2270	2.11	.06	2.66	425	.15	2.51	.80	118	37
2300	2.07	.04	4.44	429	.17	4.27	.68	206	32
2330	1.32	.06	1.31	437	.08	1.23	.50	93	37
2360	1.22	.08	.90	435	.07	.83	.40	68	32
2390	1.20	.12	.43	431	.05	.38	.65	31	54
2420	.97	.15	.26	445	.04	.22	.44	22	45
2450	1.70	.10	.86	433	.09	.77	.67	45	39
2480	1.14	.14	.59	437	.08	.51	.53	44	46
2520	1.88	.06	2.25	436	.14	2.11	.70	112	37
2550	1.35	.07	.96	441	.07	.89	.57	65	42
2580	1.32	.04	1.84	439	.08	1.76	.37	133	28
2610	1.05	.08	.91	440	.07	.84	.46	80	43
2640	.95	.16	.38	435	.06	.32	.35	33	36
2670	1.06	.12	.60	432	.07	.53	.50	50	47
2700	1.40	.07	1.46	435	.10	1.36	.38	97	27
2730	1.30	.06	1.68	437	.10	1.58	.36	121	27
2760	.83	.13	.46	437	.06	.40	.29	48	34
2790	1.12	.11	.74	436	.08	.66	.42	58	37
2820	.71	.23	.26	437	.06	.20	.35	28	49
2850	.92	.23	.31	442	.07	.24	.36	26	39
2880	.93	.12	.42	438	.05	.37	.35	39	37

Allenbee Suffield 10-22-15-10W4 **1000 4080 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
2910	.92	.10	.52	440	.05	.47	.41	51	44
2940	1.11	.07	.72	439	.05	.67	.49	60	44
2970	1.10	.07	.44	440	.03	.41	.71	37	64
3000	1.16	.09	.79	437	.07	.72	.50	62	43
3030	1.35	.38	.08	456	.03	.05	.67	3	49
3060	.62	.47	.17	366	.08	.09	.46	14	74
3090	1.20	.07	.27	434	.02	.25	.43	20	35
3120	1.58	.05	.64	434	.03	.61	.55	38	34
3150	88.63	.05	1.59	431	.08	1.51	1.04	1	1
3180	1.08	.06	1.58	428	.09	1.49	.40	137	37
3210	.47	.21	.24	440	.05	.19	.22	40	46
3240	89.02	.33	.06	367	.02	.04	.18	0	0
3270	.35	.07	.15	440	.01	.14	.06	39	17
3300	.86	.16	.38	438	.06	.32	.24	37	27
3330	1.18	.08	.75	435	.06	.69	.29	58	24
3360	.60	.22	.18	448	.04	.14	.29	23	48
3390	.41	.33	.06	358	.02	.04	.17	9	41
3420	1.08	.21	.24	439	.05	.19	.37	17	34
3450	.25	.00	.01	0	.00	.01	.05	4	20
3480	.82	.12	.76	435	.09	.67	.27	81	32
3510	.04	.00	.01	0	.00	.01	.01	25	25
3540	.14	1.00	.02	0	.02	.00	.06	0	42
3570	.30	.43	.07	302	.03	.04	.07	13	23
3600	.31	.21	.19	431	.04	.15	.13	48	41
3630	.30	.33	.03	408	.01	.02	.06	6	20
3660	.45	.07	.28	435	.02	.26	.13	57	28
3690	.38	.25	.12	437	.03	.09	.13	23	34
3720	.89	.05	1.27	429	.06	1.21	.23	135	25
3750	.86	.09	.47	433	.04	.43	.26	50	30
3780	.61	.50	.04	443	.02	.02	.31	3	50
3810	1.13	.13	.79	440	.10	.69	.29	61	25
3870	.46	.11	.55	435	.06	.49	.27	106	58
3900	.23	.29	.07	426	.02	.05	.15	21	65
3930	.95	.08	.78	443	.06	.72	.39	75	41
3960	.50	.08	.51	438	.04	.47	.36	94	72
3990	.74	.05	.38	442	.02	.36	.30	48	40
4020	.20	.13	.15	444	.02	.13	.10	65	50
4050	.28	.13	.32	439	.04	.28	.11	100	39
4080	.29	.16	.31	433	.05	.26	.13	89	44

Pakowki Fm	297F
Milk River Fm	928
Colorado Grp	1218
Second White Specks	1984
Fish Scales Base	2242
Bow Island Fm	2428
Blairmore Grp	2780
Detrital	3146
Pekisko Fm	3200
Banff Fm	3673

Allenbee Suffield 10-22-15-10W4 **1000 4080 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
Bakken Fm				3695					
Exshaw Fm				3770					
Wabamun Grp				3780					
Stettler Fm				3806					
Jefferson Fm				4060					

Gulf AEC Berard Suffield 3-32-15-5w4 500 1715 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
540M	1.81	.08	1.68	425	.14	1.54	1.24	85	68
550	3.60	.02	9.06	417	.22	8.84	1.37	245	38
565	2.14	.03	2.49	425	.07	2.42	1.18	113	55
575	3.06	.06	3.45	419	.19	3.26	1.71	106	55
585	2.53	.50	.26	427	.13	.13	1.38	5	54
595	1.71	.04	1.84	431	.07	1.77	.82	103	47
605	1.96	.21	.72	428	.15	.57	1.01	29	51
615	83.40	.12	1.21	424	.15	1.06	1.11	1	1
685	1.15	.06	.70	427	.04	.66	.68	57	59
695	1.10	.29	.21	437	.06	.15	.45	13	40
705	1.05	.35	.26	438	.09	.17	.48	16	45
725	.79	.29	.07	436	.02	.05	.56	6	70
785	.34	.67	.03	356	.02	.01	.01	2	2
830	.80	.05	.21	428	.01	.20	.34	25	42
835	2.86	.08	.53	439	.04	.49	.94	17	32
875	1.09	.92	.12	451	.11	.01	.39	0	35
885	.55	.10	.30	426	.03	.27	.20	49	36
895	.27	.29	.07	420	.02	.05	.06	18	22
905	.10	.38	.08	363	.03	.05	.01	50	10
910	.37	.17	.12	442	.02	.10	.06	27	16
920	.43	.20	.25	429	.05	.20	.03	46	6
925	.65	.13	.08	444	.01	.07	.12	10	18
935	.32	.20	.20	429	.04	.16	.21	50	65
975	1.27	.24	.34	429	.08	.26	.44	20	34
980	.48	.17	.36	426	.06	.30	.30	62	62
995	.30	.25	.24	433	.06	.18	.25	60	83
1005	.20	.29	.14	440	.04	.10	.16	50	80
1015	.33	.12	.43	426	.05	.38	.22	115	66
1025	.38	.16	.31	424	.05	.26	.21	68	55
1035	.70	.13	.48	420	.06	.42	.29	59	41
1045	.10	.31	.13	409	.04	.09	.15	90	150
1055	.13	.24	.17	423	.04	.13	.13	100	100
1065	.59	.14	.49	428	.07	.42	.31	71	52
1075	.66	.32	.19	422	.06	.13	.38	19	57
1085	1.45	.11	.61	431	.07	.54	.49	37	33
1095	.75	.09	.76	426	.07	.69	.30	92	40
1105	1.52	.06	1.24	426	.07	1.17	.48	76	31
1115	.84	.10	.69	425	.07	.62	.35	73	41
1125	.58	.16	.63	434	.10	.53	.30	91	51
1135	.17	.33	.27	425	.09	.18	.13	105	76
1145	.70	.12	.58	428	.07	.51	.29	72	41
1155	.17	.34	.29	415	.10	.19	.13	111	76
1165	.23	.30	.30	427	.09	.21	.17	91	73
1175	.40	.41	.91	412	.37	.54	.15	135	37
1185	.74	.17	.36	441	.06	.30	.27	40	36
1195	.38	.11	.76	419	.08	.68	.15	178	39
1205	.50	.09	1.95	429	.18	1.77	.18	354	36
1215	.21	.36	.33	414	.12	.21	.19	100	90
1225	.29	.21	.42	423	.09	.33	.16	113	55

Gulf AEC Berard Suffield 3-32-15-5w4 500 1715 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
1225	.22	.26	.31	419	.08	.23	.15	104	68
1235	.22	.32	.40	417	.13	.27	.17	122	77
1245	.17	.33	.27	418	.09	.18	.20	105	117
1265	.17	.23	.31	425	.07	.24	.12	141	70
1275	.23	.55	.75	423	.41	.34	.17	147	73
1285	.25	.18	.28	421	.05	.23	.19	92	76
1295	.26	.20	.50	425	.10	.40	.17	153	65
1305	.16	.35	.26	435	.09	.17	.15	106	93
1315	.47	.22	.18	428	.04	.14	.20	29	42
1325	.24	.20	.15	432	.03	.12	.08	50	33
1335	.29	.33	.39	431	.13	.26	.08	89	27
1345	.20	.23	.22	431	.05	.17	.04	85	20
1355	.14	.29	.21	428	.06	.15	.10	107	71
1365	.10	.06	.17	437	.01	.16	.10	160	100
1375	.25	.17	.52	432	.09	.43	.13	172	52
1385	.11	.22	.09	423	.02	.07	.01	63	9
1395	.24	.18	.28	432	.05	.23	.04	95	16
1405	.27	.29	.35	435	.10	.25	.12	92	44
1415	.29	.19	.43	432	.08	.35	.09	120	31
1425	.24	.27	.15	441	.04	.11	.15	45	62
1435	.09	.50	.04	445	.02	.02	.09	22	100
1445	.24	.23	.35	437	.08	.27	.13	112	54
1455	.17	.29	.17	424	.05	.12	.03	70	17
1465	.14	.38	.13	419	.05	.08	.03	57	21
1475	.34	.22	.37	426	.08	.29	.11	85	32
1485	.17	.38	.13	402	.05	.08	.02	47	11
1495	.20	.22	.23	429	.05	.18	.03	90	15
1505	.20	.37	.41	429	.15	.26	.04	130	20
1515	.25	.19	.27	428	.05	.22	.01	88	4
1525	.22	.24	.29	428	.07	.22	.01	100	4
1535	.41	.16	.75	435	.12	.63	.07	153	17
1545	.35	.20	.44	432	.09	.35	.31	100	88
1550	.30	.22	.32	432	.07	.25	.01	83	3
1565	.32	.30	.27	430	.08	.19	.11	59	34
1575	.32	.17	.66	432	.11	.55	.08	171	25
1585	.33	.27	.44	430	.12	.32	.10	96	30
1595	.38	.56	.09	435	.05	.04	.38	10	100
1605	.11	1.00	.01	0	.01	.00	.10	0	90
1615	.33	.50	.06	303	.03	.03	.14	9	42
1625	.55	.09	.86	427	.08	.78	.37	141	67
1635	.32	.26	.23	432	.06	.17	.28	53	87
1645	.10	1.00	.02	0	.02	.00	.16	0	160
1655	.05	1.00	.01	0	.01	.00	.19	0	380
1665	.13	.39	.18	418	.07	.11	.22	84	169
1675	.16	.44	.25	415	.11	.14	.16	87	100
1685	.20	.29	.17	424	.05	.12	.15	60	75
1695	.21	.29	.24	427	.07	.17	.18	80	85
1705	.47	.32	.31	424	.10	.21	.22	44	46
1715	.06	.56	.09	347	.05	.04	.04	66	66

Gulf AEC Berard Suffield 3-32-15-5w4 **500 1715 m**

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
Milk River Fm				255M					
Colorado Grp				348					
Medecine Hat Ss				382					
Second white Specks				553					
Fish Scales Base				620					
Bow Island Fm				667					
Mannville Grp				787					
Pekisko Fm				887					
Banff Fm				1051					
Exshaw Fm				1106					
Big valley Fm				1109					
Stettler Fm				1120					
Arcs Mbr				1174					
Peechee Mbr				1210					
Cooking Lake Fm				1405					
Beaverhill Lake Grp				1458					
Elk Point Grp				1605					
Prairie Evaporite Fm				1618					
Winnipegosis Fm				1643					
Deadwood Fm				1686					

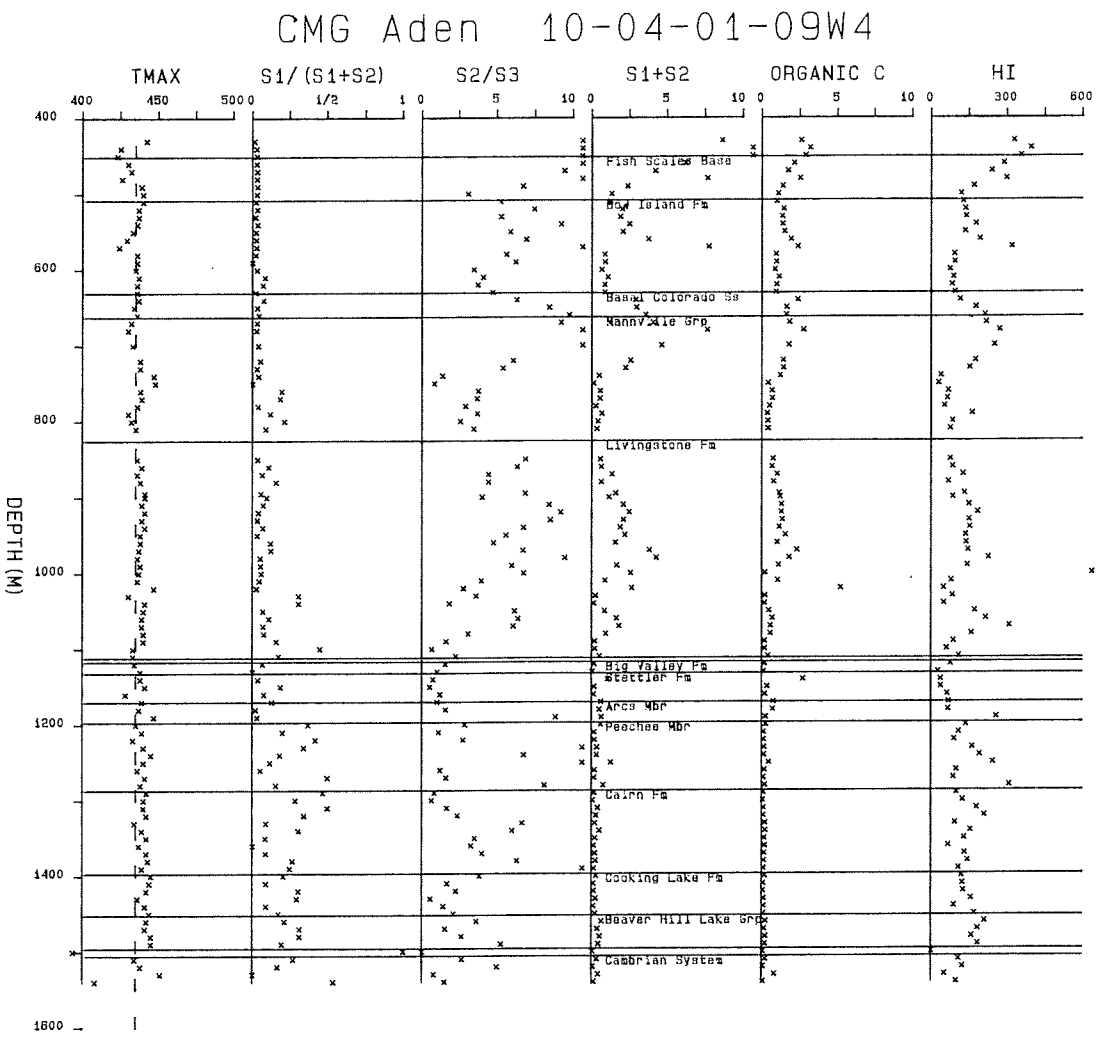
Evans Union Twin River 6-31-1-20W4 2000 4440 m

DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
2040F	.91	.06	1.33	439	.08	1.25	.07	137	7
2070	1.08	.08	1.82	438	.14	1.68	.29	155	26
2100	1.17	.05	2.02	441	.10	1.92	.28	164	23
2130	.99	.05	1.63	442	.08	1.55	.12	156	12
2160	.90	.06	1.01	440	.06	.95	.11	105	12
2190	.81	.06	.70	439	.04	.66	.10	81	12
2220	.85	.08	.74	441	.06	.68	.08	80	9
2250	.92	.02	.61	441	.01	.60	.09	65	9
2280	.62	.07	.29	439	.02	.27	.17	43	27
2310	1.04	.13	.23	464	.03	.20	.48	19	46
2340	.85	.00	.13	457	.00	.13	.42	15	49
2370	.95	.06	.68	443	.04	.64	.43	67	45
2400	1.05	.00	.32	438	.00	.32	.50	30	47
2430	1.03	.02	.50	441	.01	.49	.43	47	41
2460	1.24	.05	.20	446	.01	.19	.68	15	54
2490	.98	.06	1.44	442	.08	1.36	.02	138	2
2520	1.12	.04	1.82	445	.07	1.75	.06	156	5
2550	.87	.02	.88	446	.02	.86	.08	98	9
2580	.89	.05	1.18	445	.06	1.12	.10	125	11
2610	.85	.07	.91	446	.06	.85	.08	100	9
2640	.85	.06	.82	444	.05	.77	.14	90	16
2670	1.79	.03	1.73	444	.06	1.67	.29	93	16
2700	.88	.07	1.01	440	.07	.94	.06	106	6
2730	.62	.05	.40	444	.02	.38	.11	61	17
2760	1.01	.05	1.53	442	.08	1.45	.13	143	12
2790	1.09	.03	2.65	446	.08	2.57	.36	235	33
2820	.77	.04	1.36	444	.05	1.31	.12	170	15
2850	.91	.04	1.14	444	.04	1.10	.19	120	20
2880	2.14	.03	9.15	439	.32	8.83	.46	412	21
2910	1.19	.02	1.40	443	.03	1.37	.42	115	35
2940	.86	.04	2.73	437	.11	2.62	.19	304	22
2970	.90	.03	1.50	444	.05	1.45	.11	161	12
3000	.82	.05	1.27	444	.06	1.21	.16	147	19
3030	.79	.03	1.19	440	.04	1.15	.13	145	16
3060	.80	.02	.64	445	.01	.63	.09	78	11
3090	.76	.04	.71	438	.03	.68	.14	89	18
3120	.56	.06	.48	442	.03	.45	.01	80	1
3150	.98	.06	1.98	436	.12	1.86	.60	189	61
3180	.80	.02	1.03	439	.02	1.01	.26	126	32
3210	.73	.02	.42	447	.01	.41	.20	56	27
3240	.76	.03	.63	446	.02	.61	.20	80	26
3270	.65	.03	.32	443	.01	.31	.13	47	20
3300	.38	.05	.20	446	.01	.19	.19	50	50
3330	.88	.03	1.00	440	.03	.97	.07	110	7
3360	.74	.06	1.00	443	.06	.94	.10	127	13
3390	1.02	.05	.64	436	.03	.61	.07	59	6
3420	.88	.05	.83	436	.04	.79	.15	89	17
3450	.94	.05	.87	436	.04	.83	.16	88	17
3480	.71	.03	.67	439	.02	.65	.06	91	8

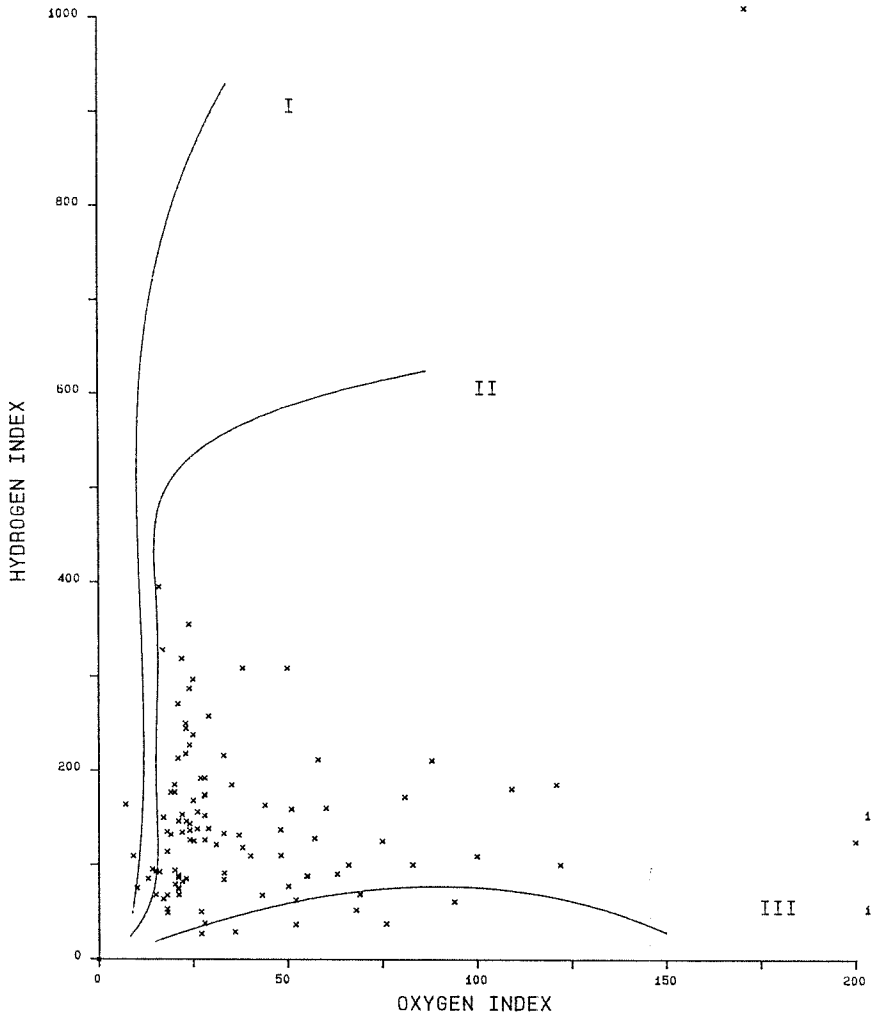
Evans Union Twin River 6-31-1-20W4 2000 4440 m

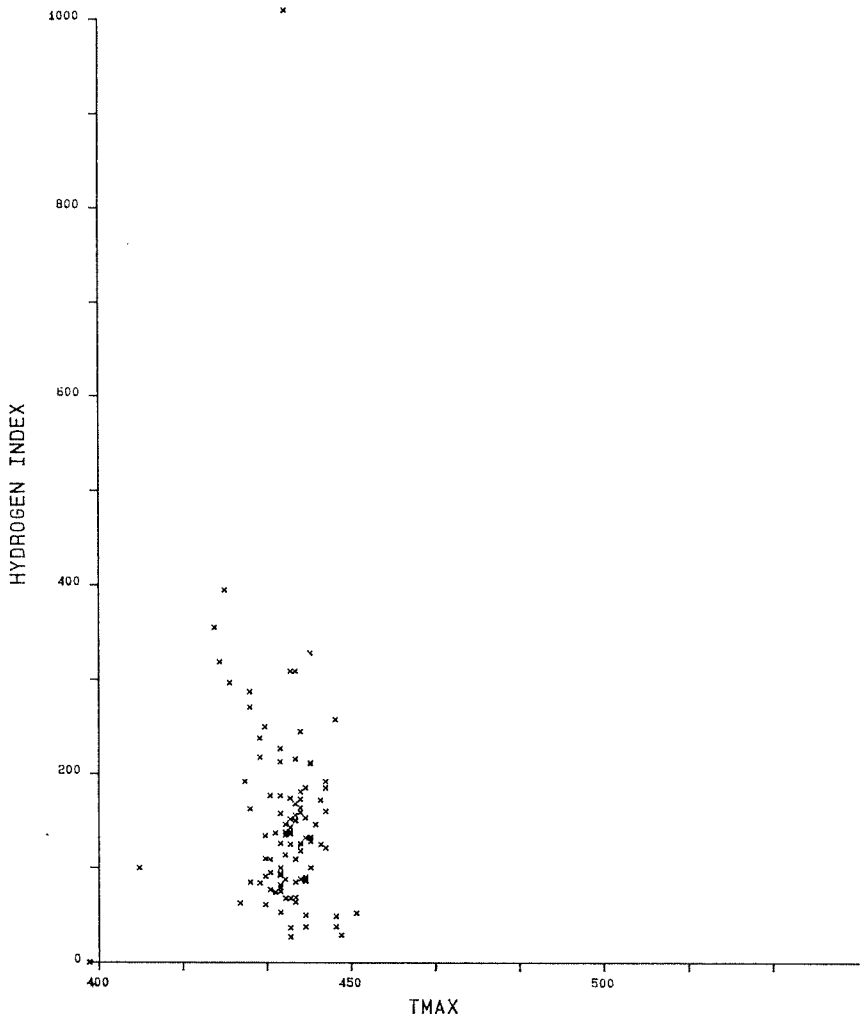
DEPTH	TOC	PI	S1+S2	TMAX	S1	S2	S3	HI	OI
3510	1.43	.07	1.80	438	.13	1.67	.34	116	23
3540	1.19	.04	1.02	439	.04	.98	.19	82	15
3570	.71	.07	.56	438	.04	.52	.08	73	11
3600	.71	.04	.74	444	.03	.71	.09	100	12
3630	.61	.05	.39	441	.02	.37	.10	60	16
3660	.83	.08	.49	439	.04	.45	.16	54	19
3690	.60	.03	.31	441	.01	.30	.06	50	10
3720	.70	.02	.54	447	.01	.53	.05	75	7
3750	.62	.05	.59	435	.03	.56	.01	90	1
3780	.65	.06	.68	438	.04	.64	.07	98	10
3810	.31	.00	.14	442	.00	.14	.01	45	3
3840	.63	.02	.52	435	.01	.51	.01	80	1
3870	.51	.06	.33	443	.02	.31	.01	60	1
3900	.57	.05	.56	437	.03	.53	.01	92	1
3930	.79	.02	.51	445	.01	.50	.13	63	16
3960	.43	.06	.18	440	.01	.17	.08	39	18
3990	.67	.05	.58	437	.03	.55	.06	82	8
4020	.34	.05	.19	443	.01	.18	.01	52	2
4050	1.14	.02	.65	437	.01	.64	.14	56	12
4080	.49	.04	.27	436	.01	.26	.01	53	2
4110	.53	.04	.23	439	.01	.22	.01	41	1
4140	.40	.14	.42	437	.06	.36	.13	90	32
4170	.37	.06	.33	438	.02	.31	.03	83	8
4200	.38	.04	.28	437	.01	.27	.01	71	2
4230	.42	.05	.22	437	.01	.21	.27	50	64
4260	.35	.05	.20	441	.01	.19	.10	54	28
4290	.43	.00	.41	440	.00	.41	.13	95	30
4320	.62	.03	.40	438	.01	.39	.19	62	30
4350	.92	.02	.59	444	.01	.58	.29	63	31
4390	.39	.09	.33	443	.03	.30	.16	76	41
4410	.38	.10	.29	438	.03	.26	.21	68	55
4440	.36	.11	.35	440	.04	.31	.19	86	52

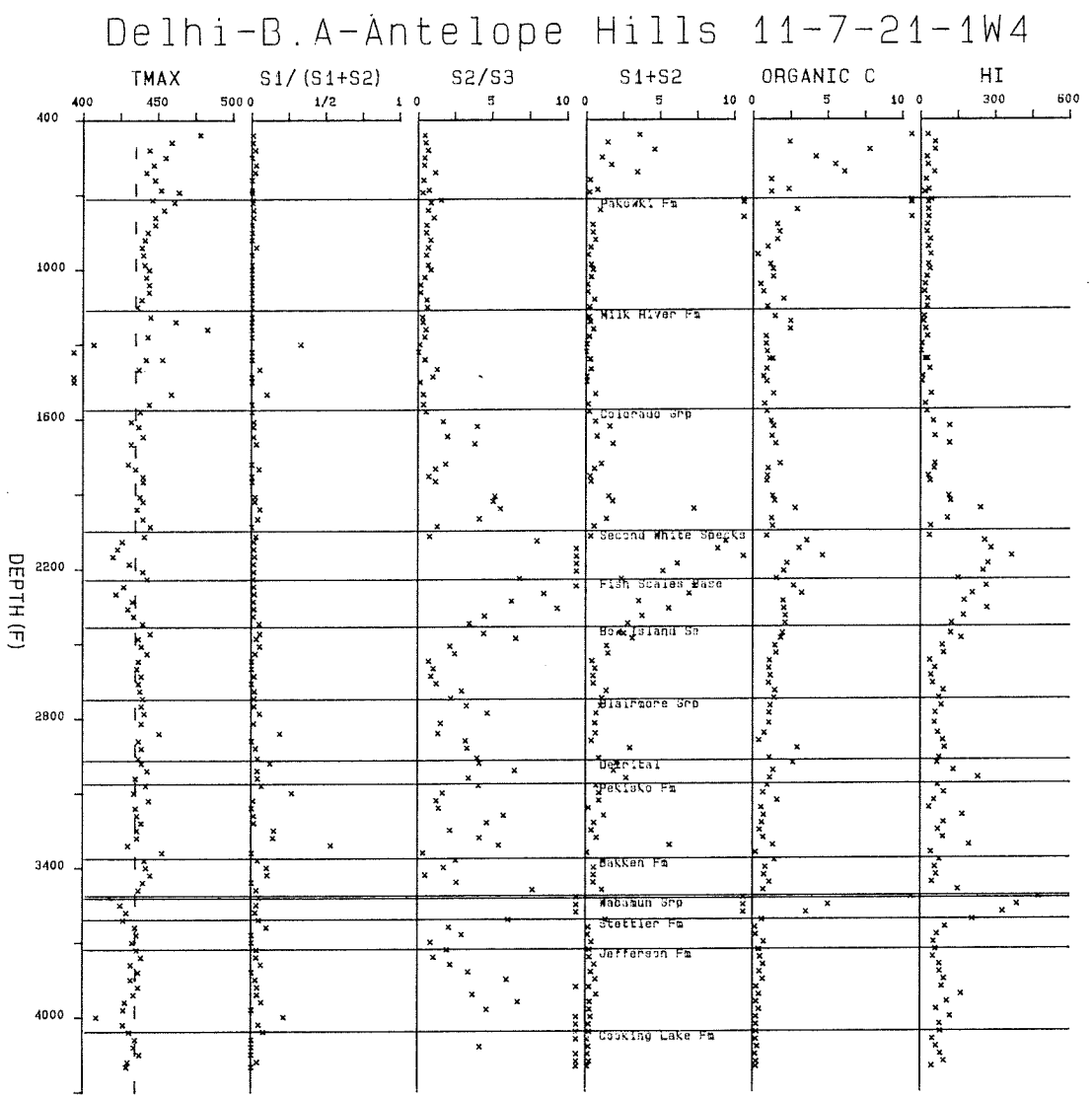
Pakowki	1254F
Upper Milk River	1332
Lower Milk River	1550
Colorado Grp	1806
Second White Specks	2786
Fieh Scales Zone	2966
Fish scales Base	3007
Bow Island Fm	3044
Mannville Grp	3512
Rierdon Fm	4206
Livingstone Fm	4396


CMG Aden 10-04-01-09W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
DEPTH (M)
400
600
800
1000
1200
1400
1600
Fish Scales Base
Bow Island Fm
Basal Colorado Ss
Mannville Grp
Livingstone Fm
Big Valley Fm
Stettler Fm
Arcs Mbr
Peachee Mbr
Cairn Fm
Cooking Lake Fm
Beaver Hill Lake Grp
Cambrian System

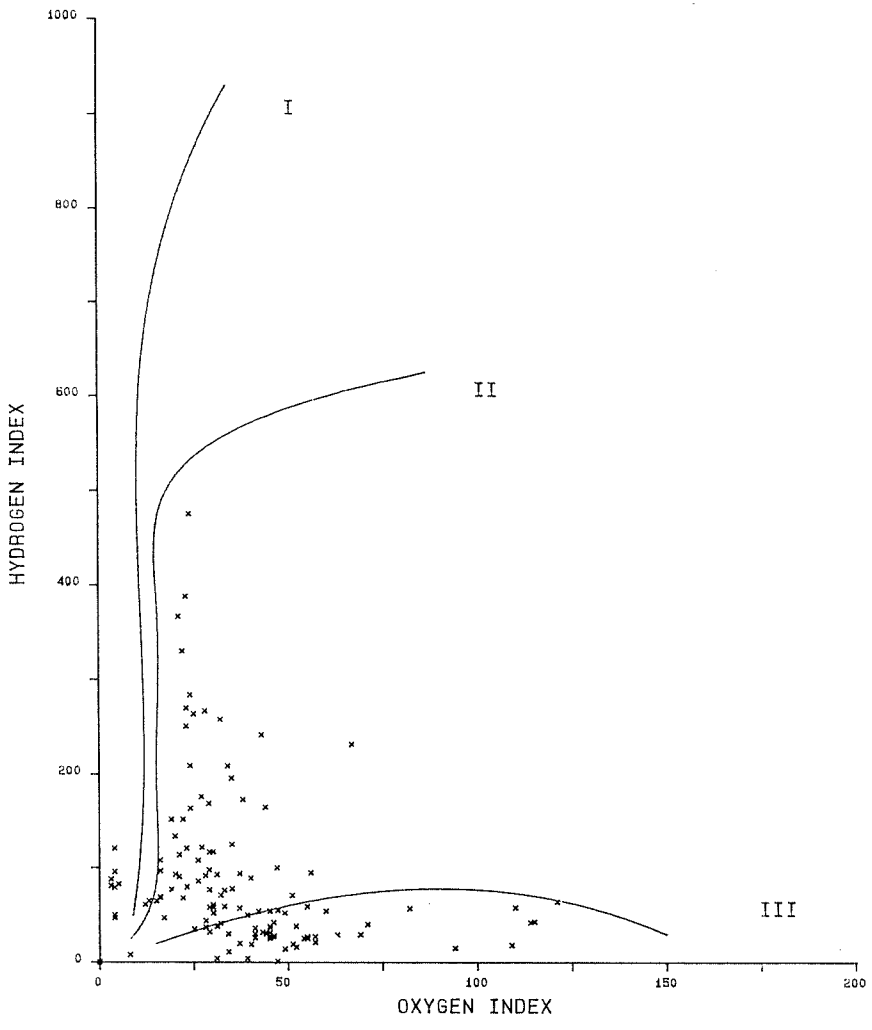
CMG Aden 10-04-01-09W4

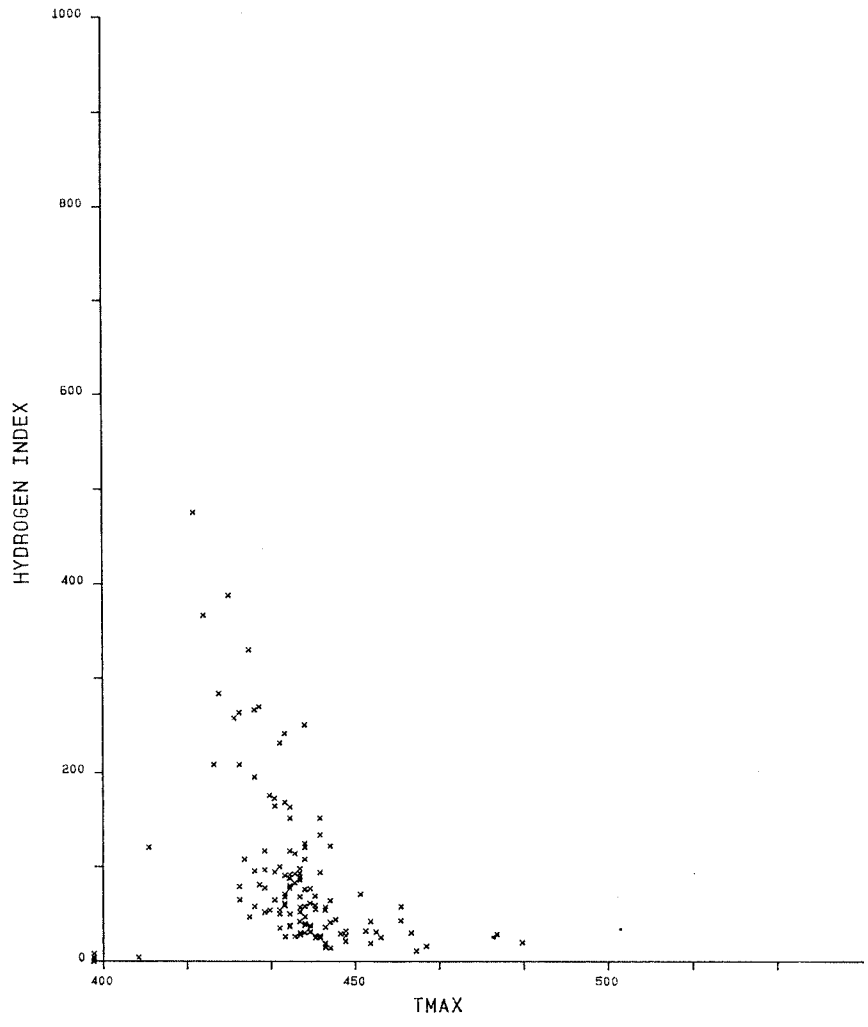


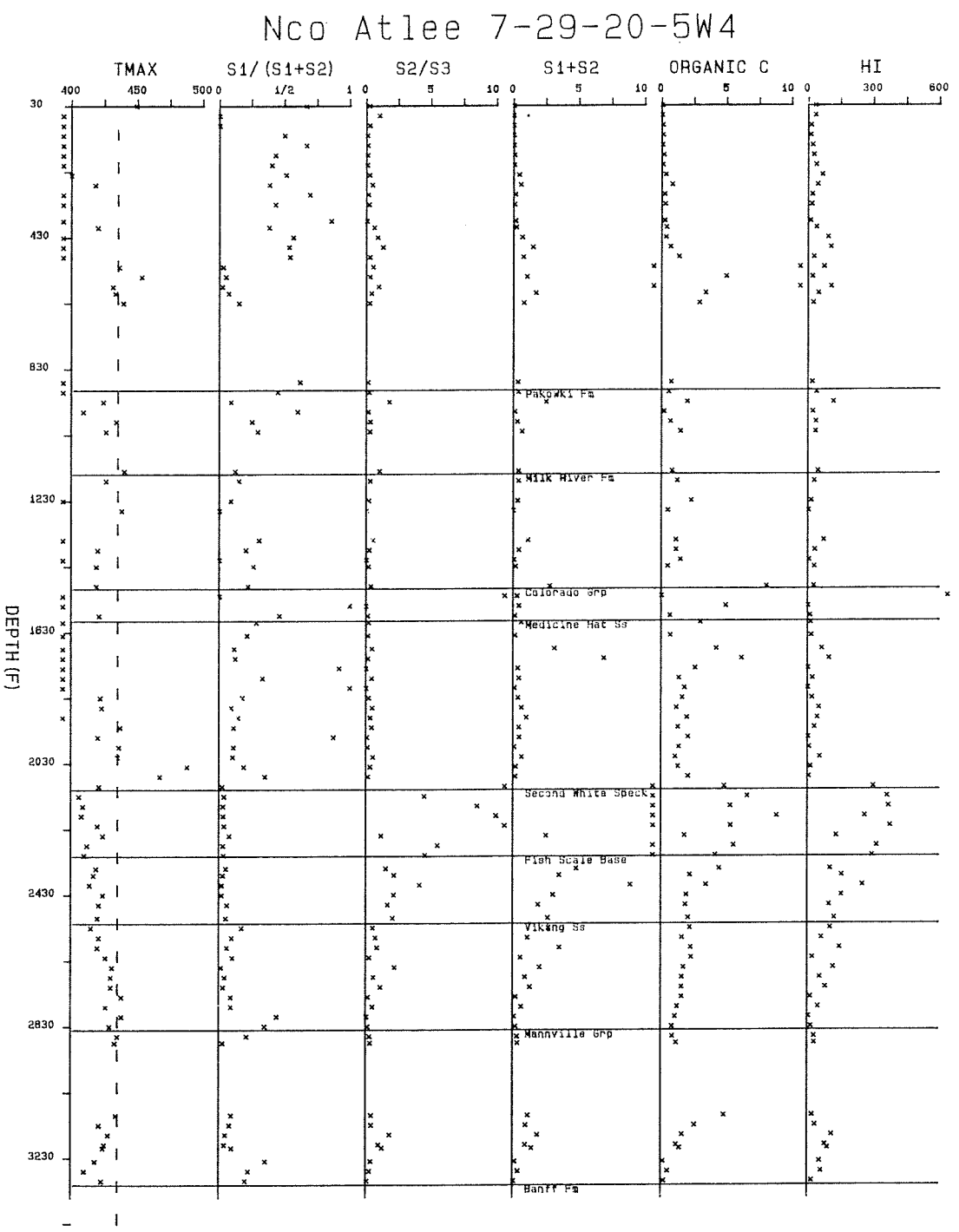



Delhi-B.A-Antelope Hills 11-7-21-1W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
DEPTH (F)
400
1000
1600
2200
2800
3400
4000
Pakowki Fm
Milk River Fm
Colorado Grp
Second White Specks
Fish Scales Zone
Belly River Gp
Blairmore Grp
Detrital
Peklako Fm
Bakken Fm
Mabaraun Grp
Stettler Fm
Jefferson Fm
Cooking Lake Fm

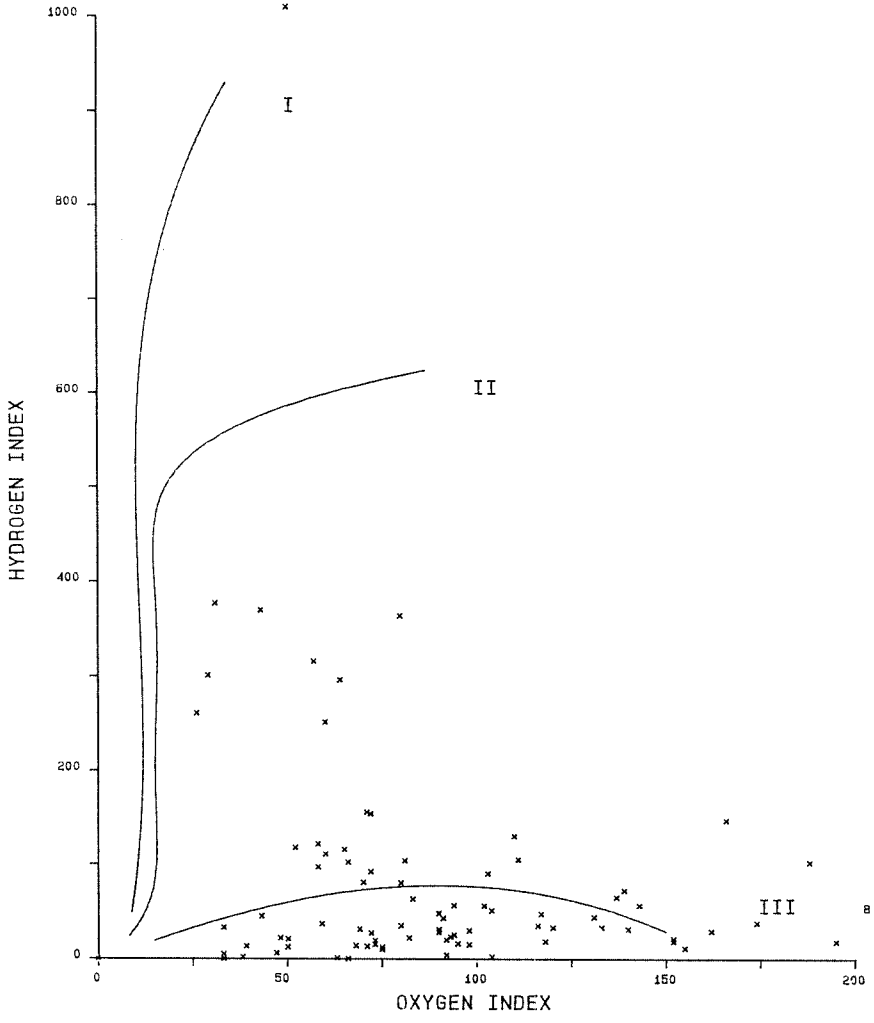
Delhi-B.A-Antelope Hills 11-7-21-1W4

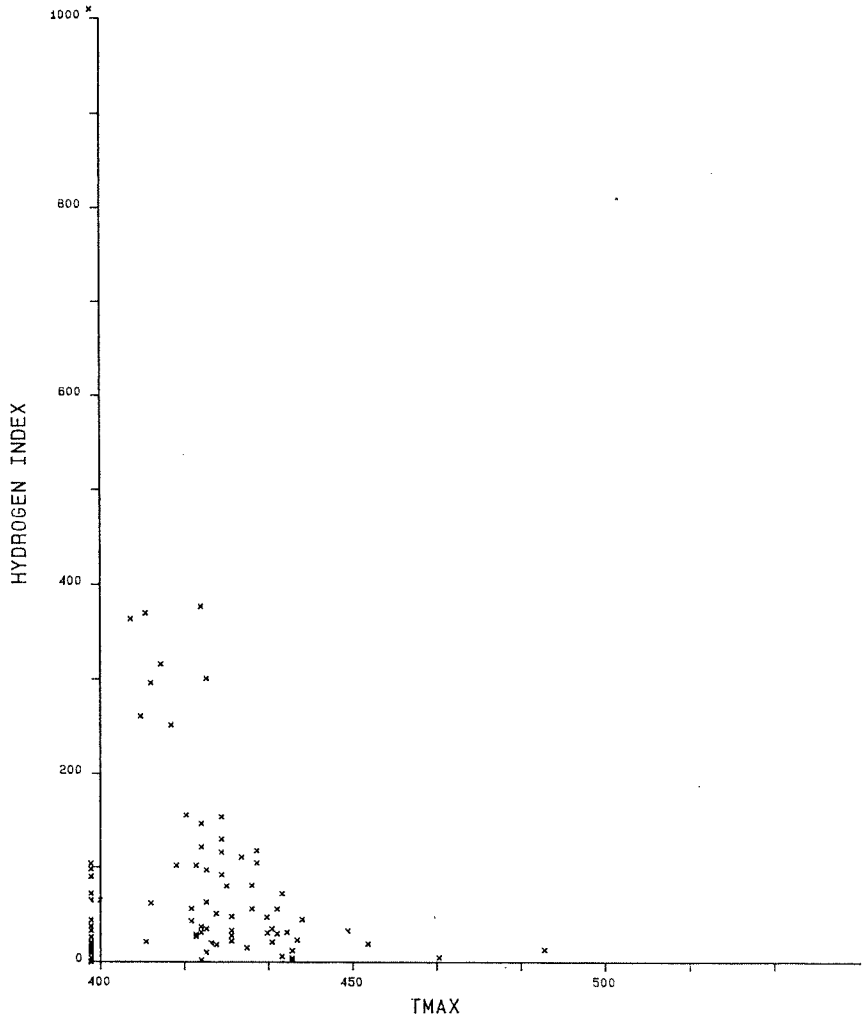


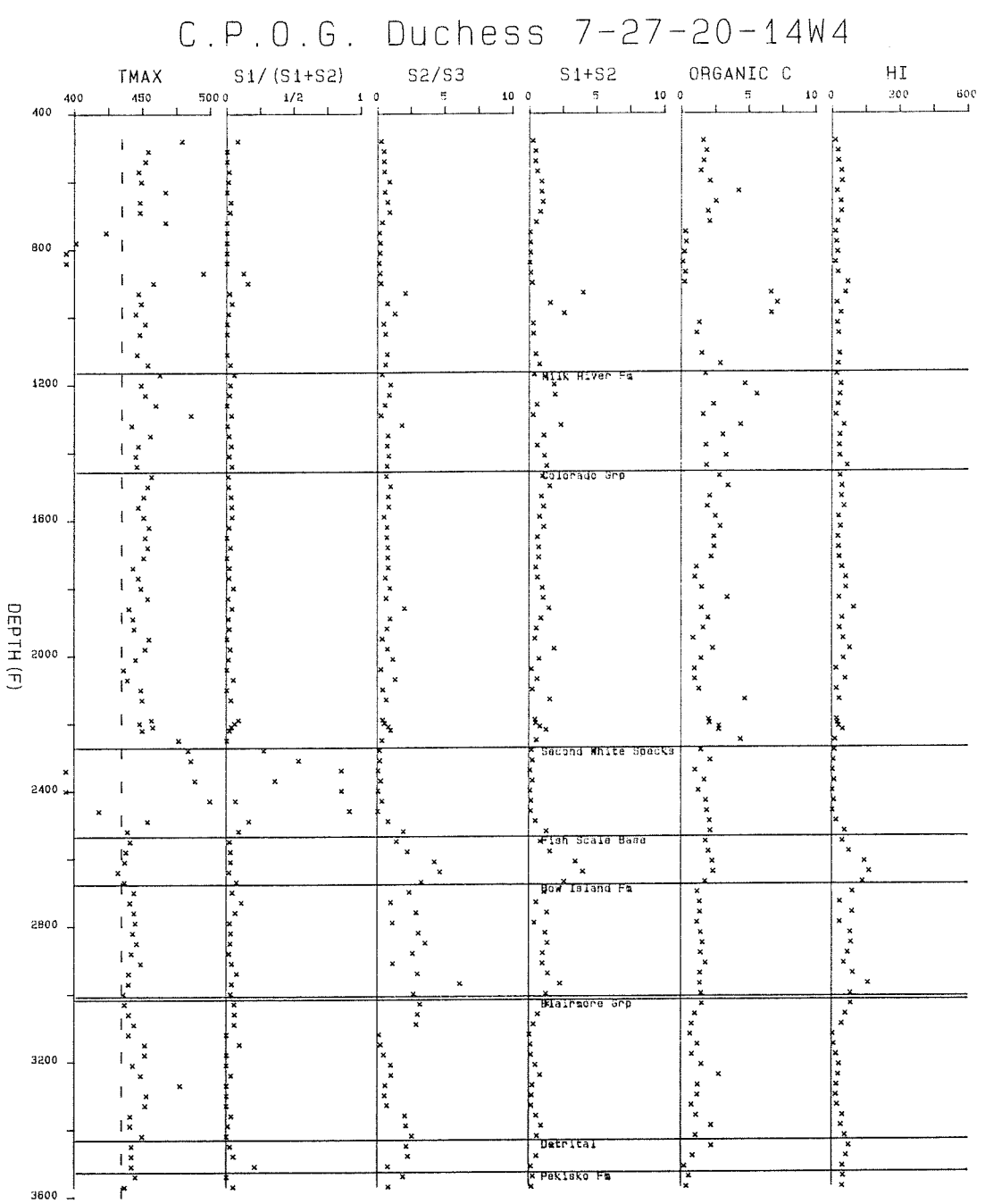



Nco Atlee 7-29-20-5W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
30
430
830
1230
1630
2030
2430
2830
3230
DEPTH (F)
Pakowki Fm
Milk River Fm
Colorado Grp
Medicine Hat Ss
Second White Speck
Fish Scale Base
Viking Ss
Mannville Grp
Banff Fm

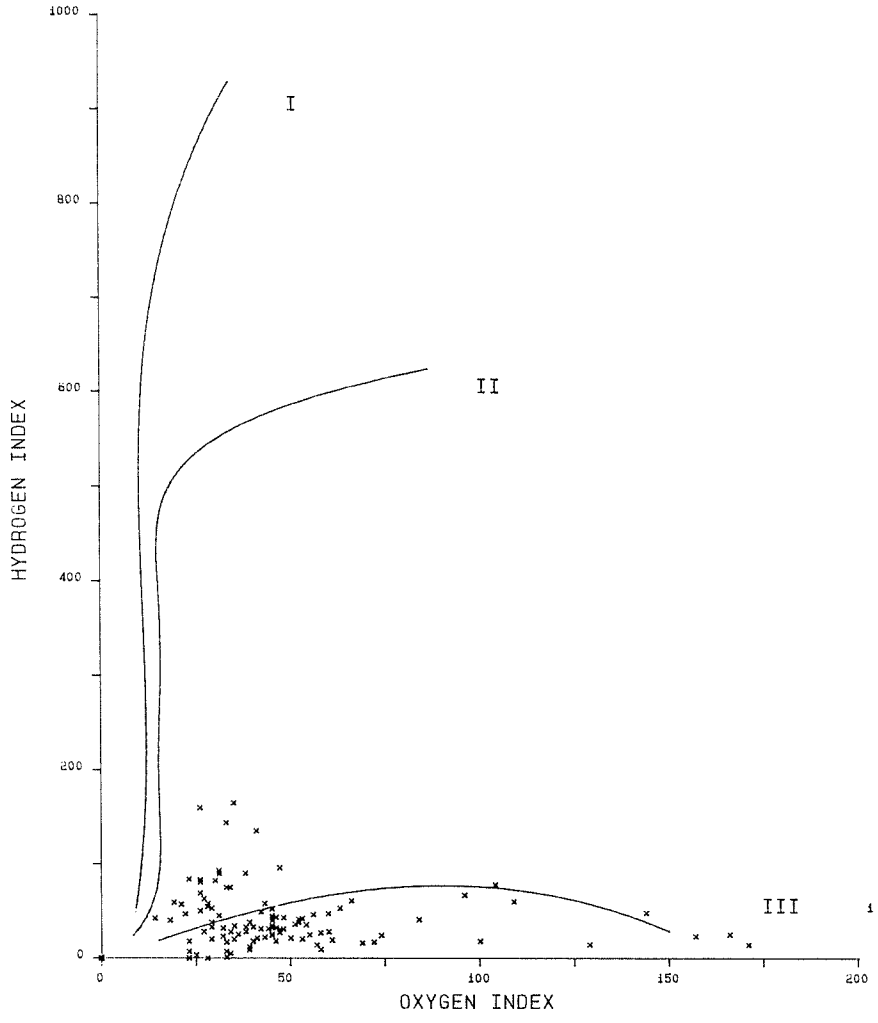
Nco Atlee 7-29-20-5W4

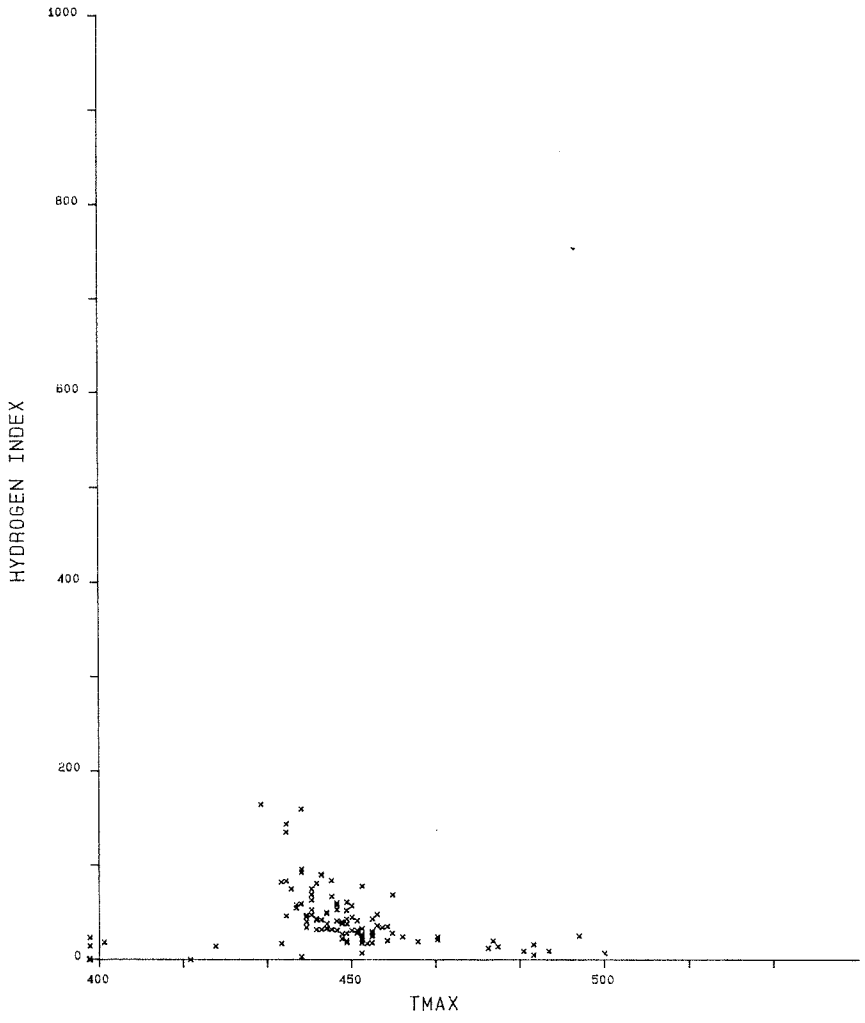


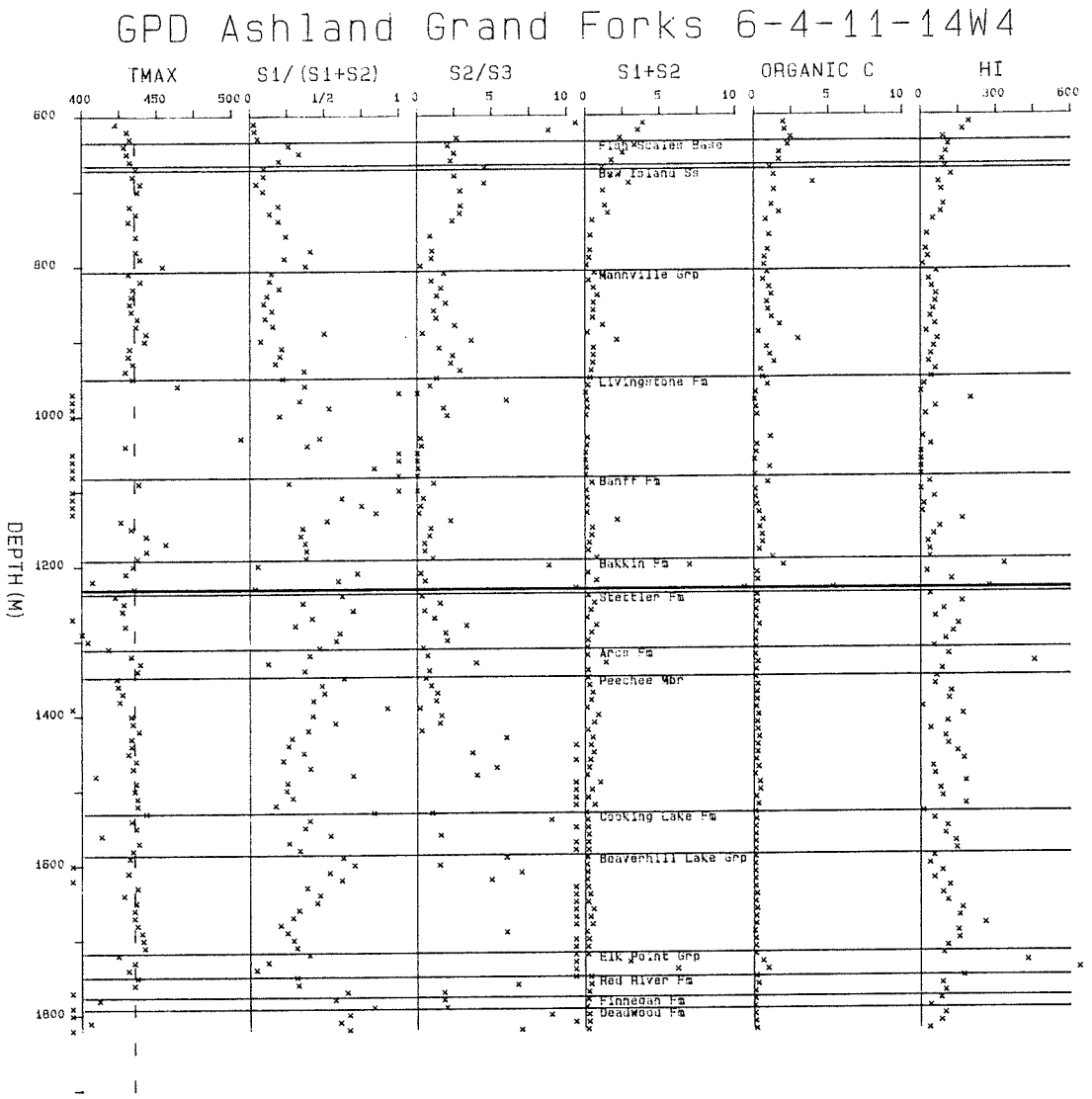



C.P.O.G. Duchess 7-27-20-14W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
400
800
1200
1600
2000
2400
2800
3200
3600
DEPTH (F)
Milk River Fm
Colorado Grp
Second White Specks
Fish Scale Band
Bow Island Fm
Blairmore Grp
Detrital
Peklsko Fm

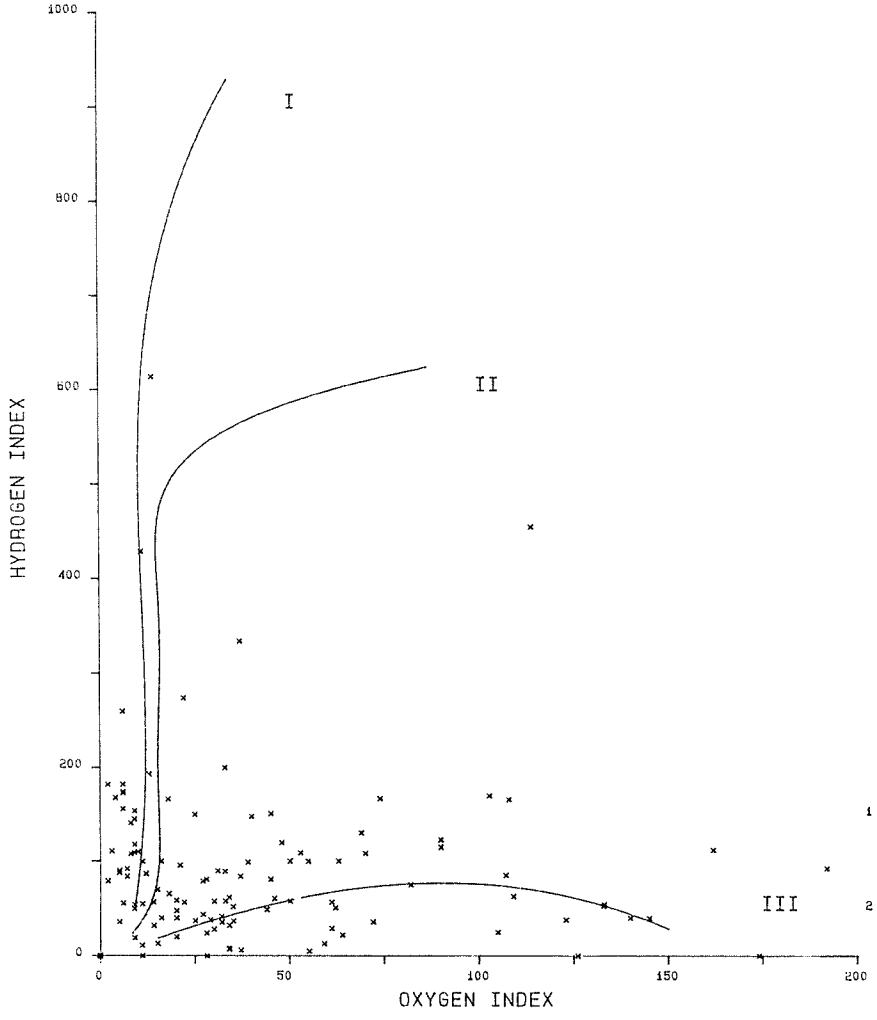
C.P.O.G. Duchess 7-27-20-14W4

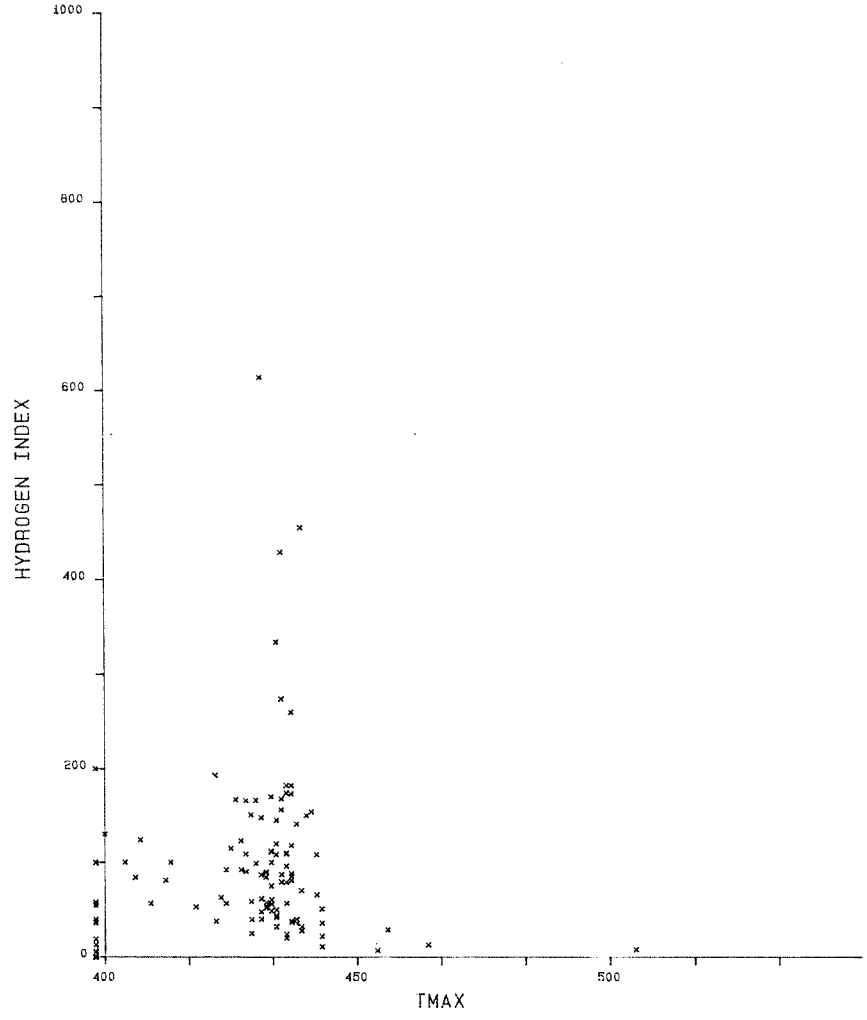


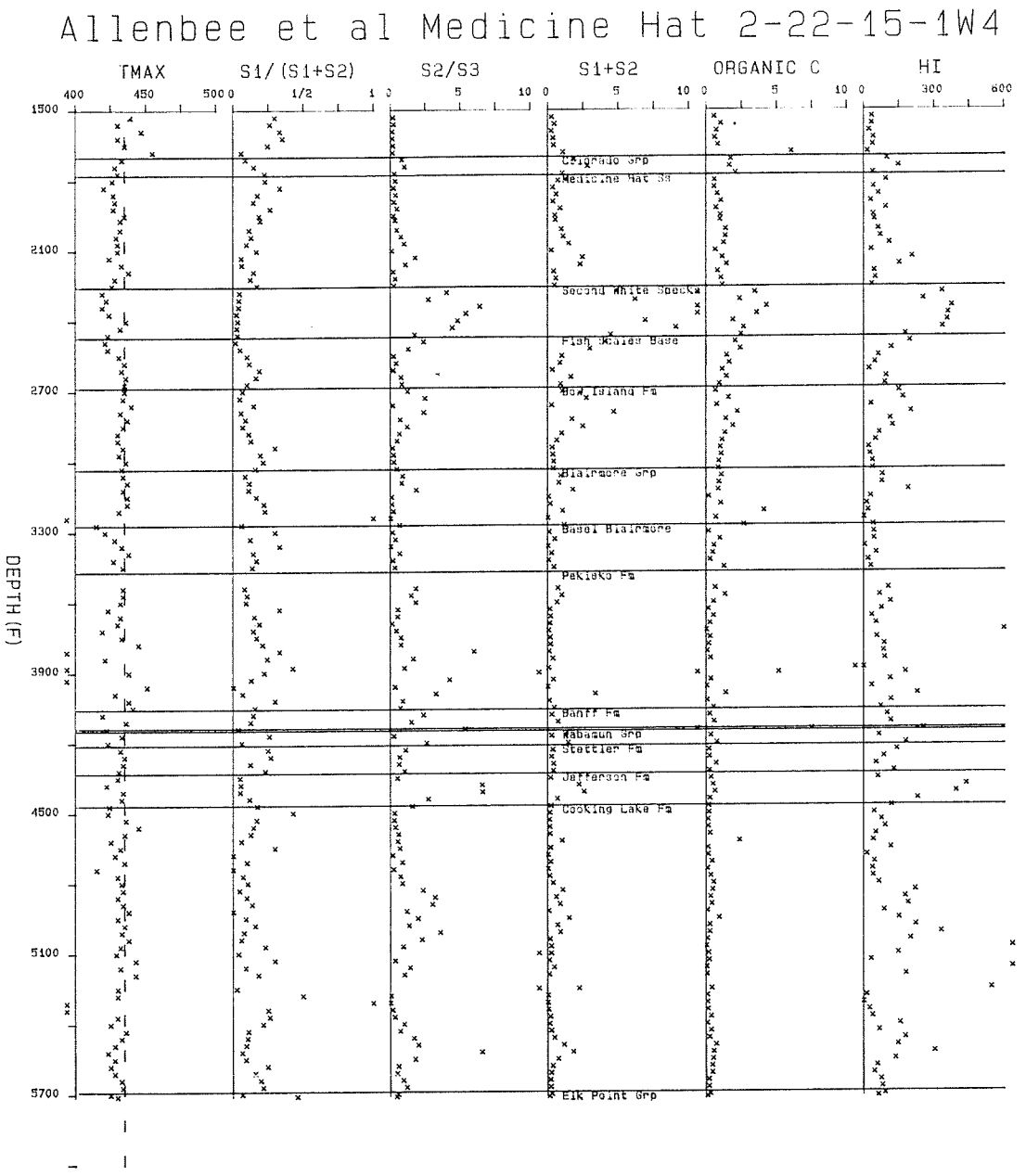



GPD Ashland Grand Forks 6-4-11-14W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
600
800
1000
1200
1400
1600
1800
DEPTH (M)
Fish Scales Base
Bow Island Ss
Mannville Grp
Livingstone Fm
Banff Fm
Bakkin Fm
Stettler Fm
Arch Fm
Peechee Mbr
Cooking Lake Fm
Beaverhill Lake Grp
Elk Point Grp
Red River Fm
Pinnedah Fm
Deadwood Fm

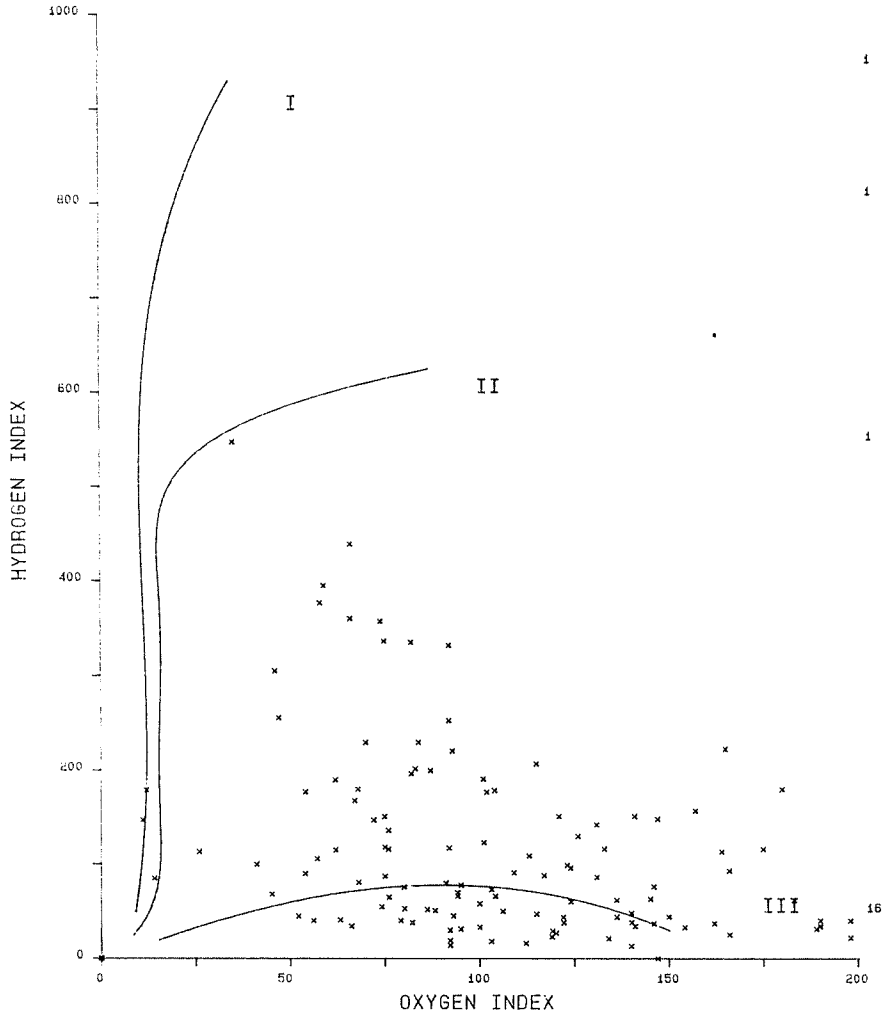
GPD Ashland Grand Forks 6-4-11-14W4

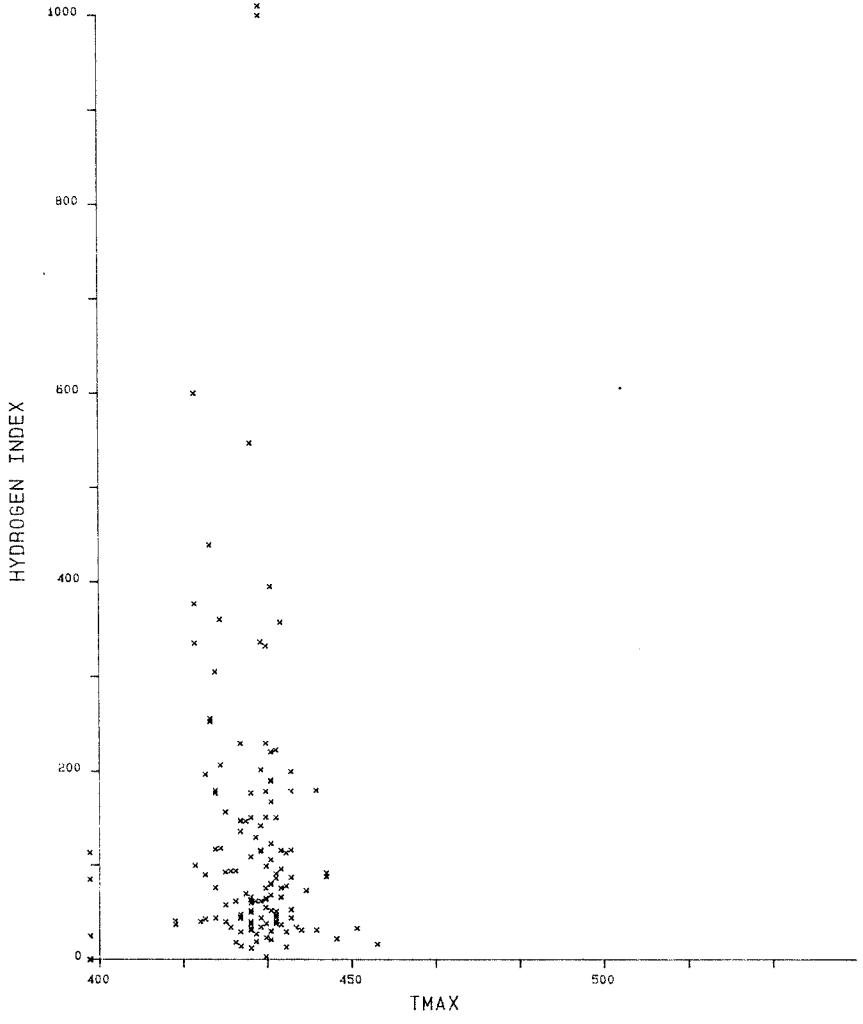


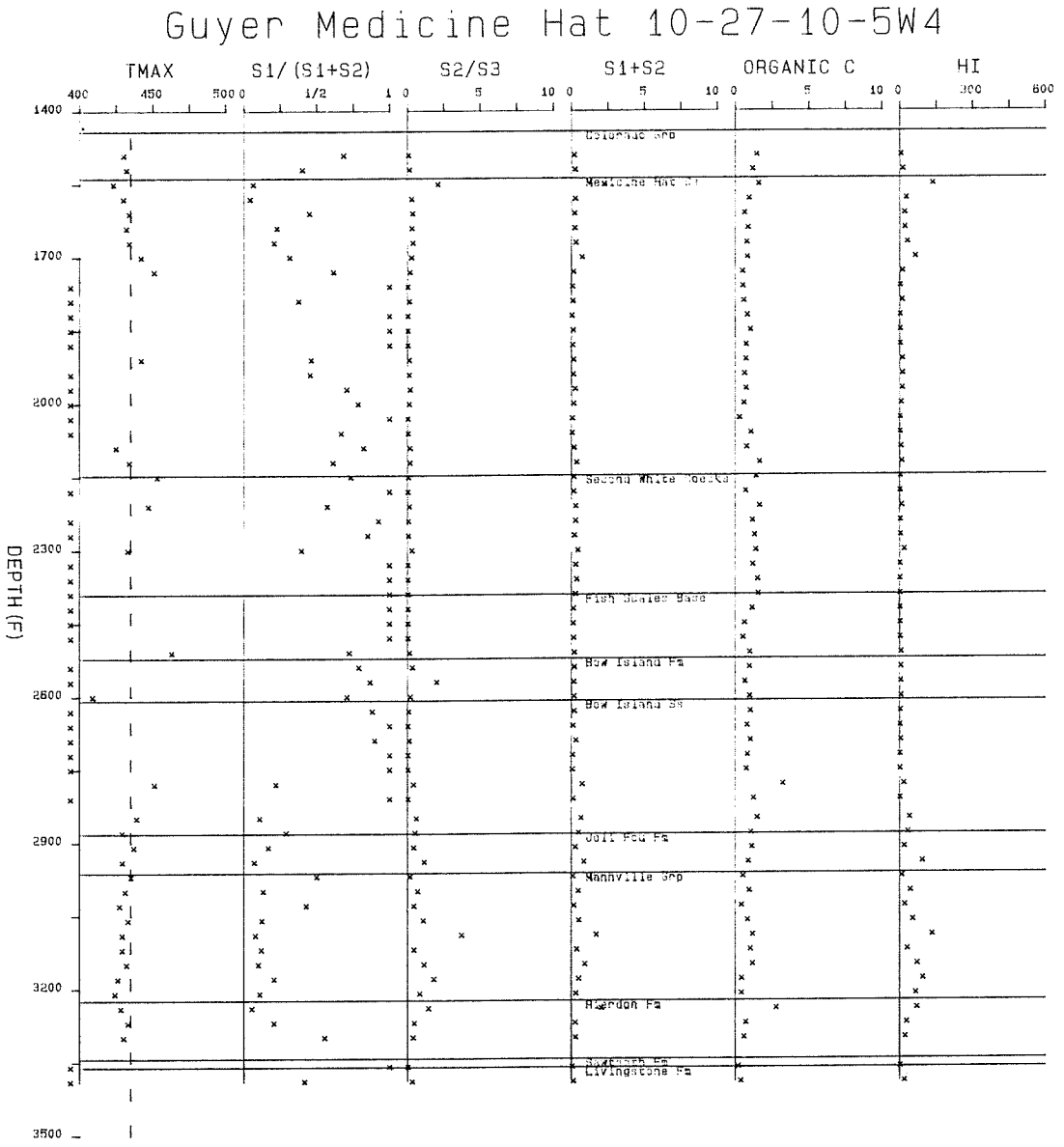



Allenbee et al Medicine Hat 2-22-15-1W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
1500
2100
2700
3300
3900
4500
5100
5700
DEPTH (F)
Colorado Grp
Medicine Hat Ss
Second White Specks
Fish Scales Base
Bow Island Fm
Blairmore Grp
Base Blairmore
Peklako Fm
Banff Fm
Wabamun Grp
Stettler Fm
Jefferson Fm
Cooking Lake Fm
Elk Point Grp

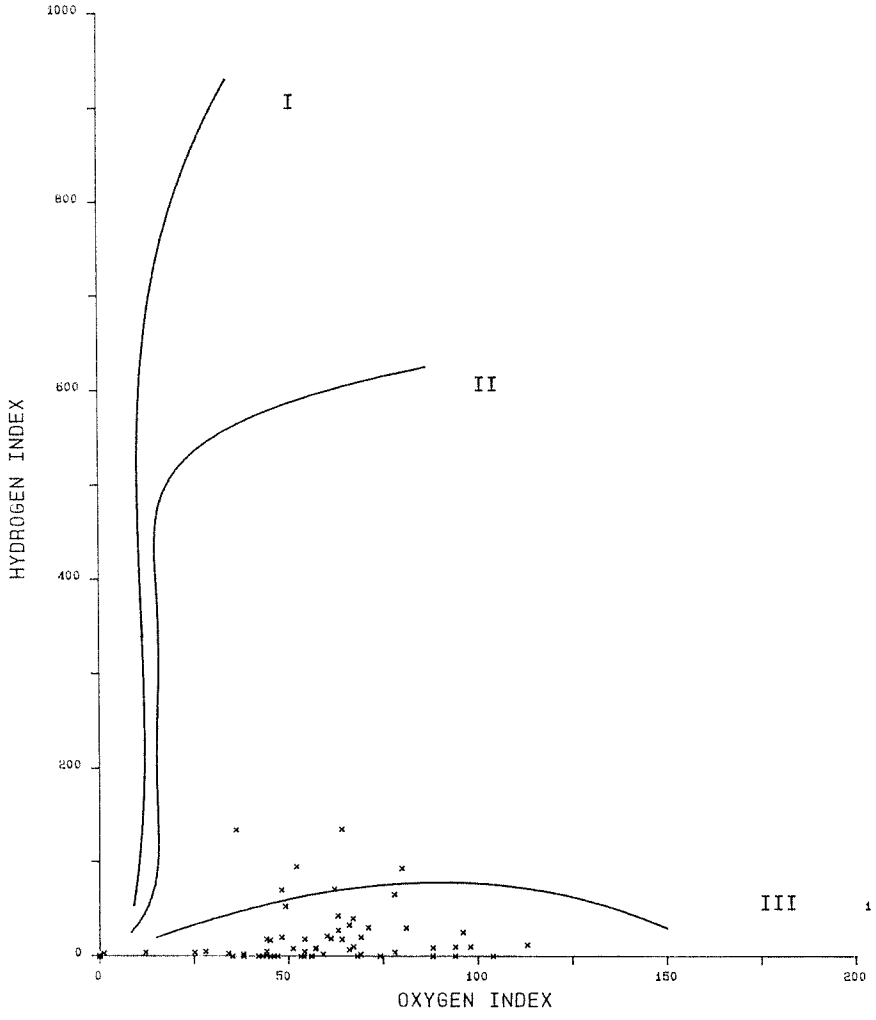
Allenbee et al Medicine Hat 2-22-15-1W4

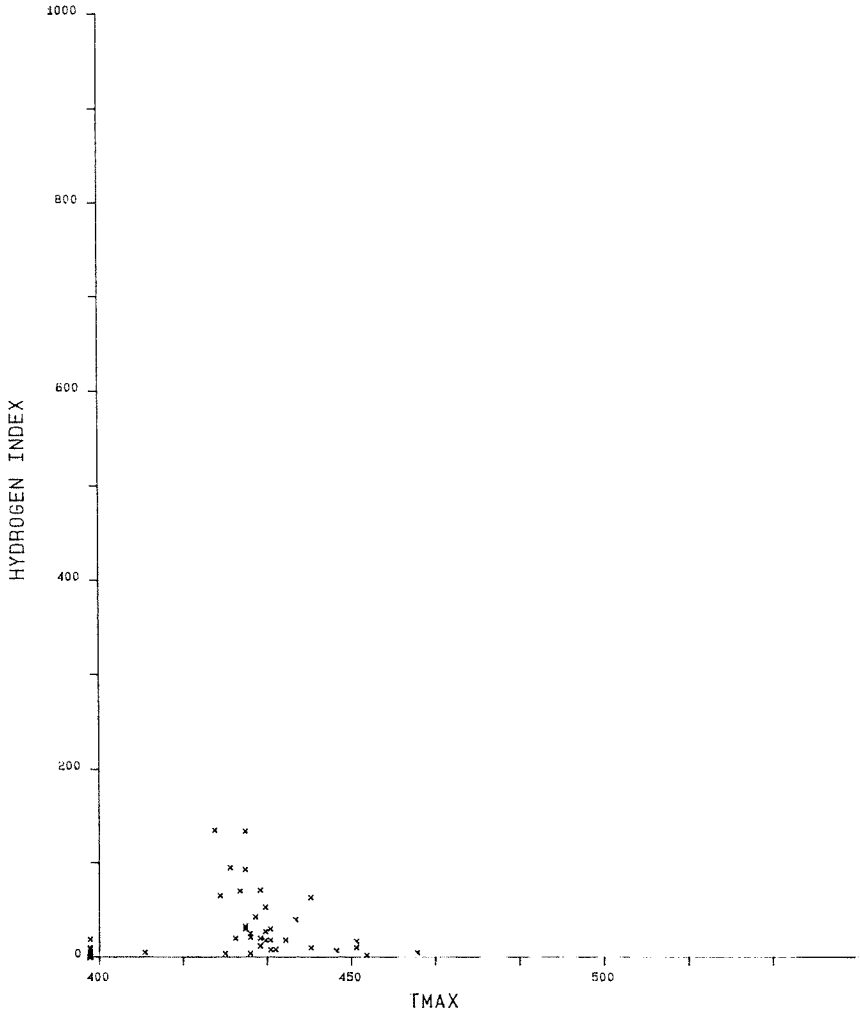


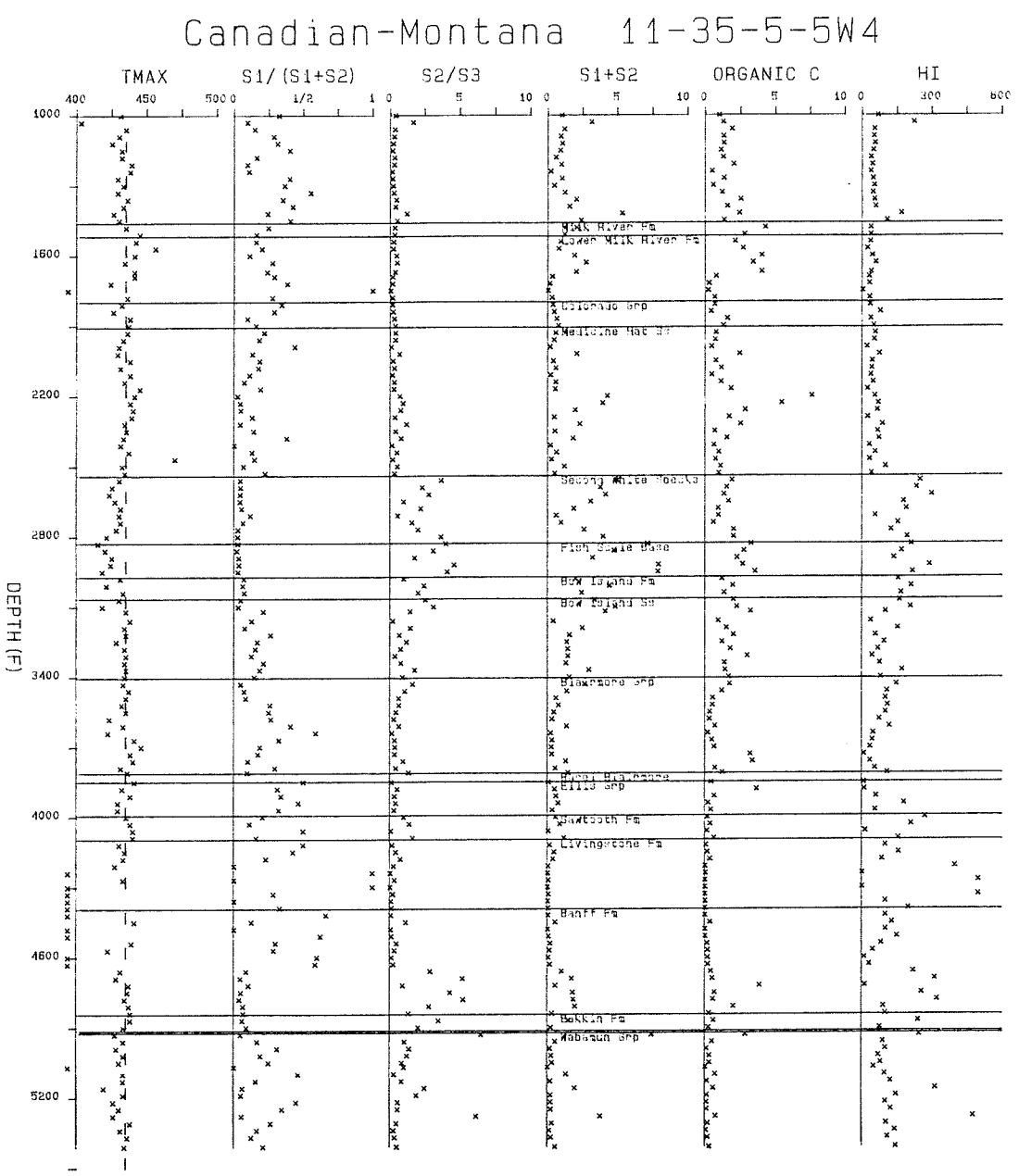



Guyer Medicine Hat 10-27-10-5W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
1400
1700
2000
2300
2600
2900
3200
3500
DEPTH (F)
Medicine Hat Gl
Second White Specks
Fish Scales Base
Bow Island Fm
Bow Island Ss
Colt Peg Fm
Mannville Grp
Blairmore Fm
Livingstone Fm

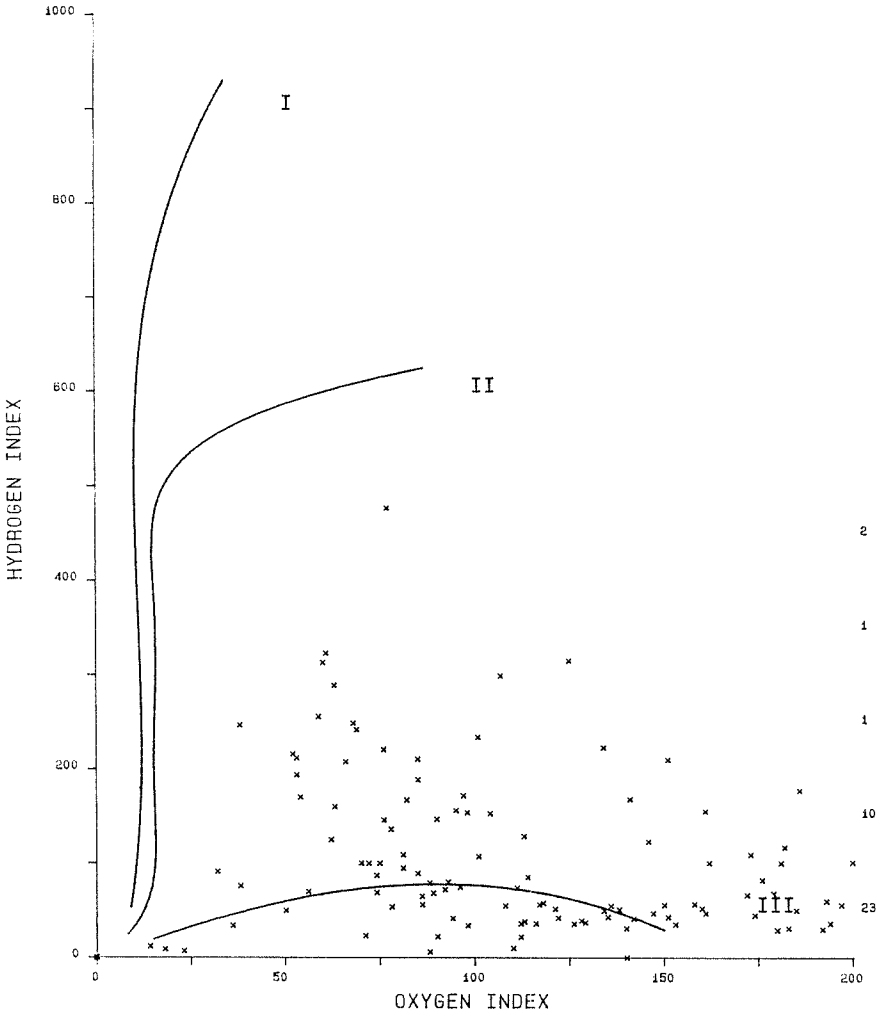
Guyer Medicine Hat 10-27-10-5W4

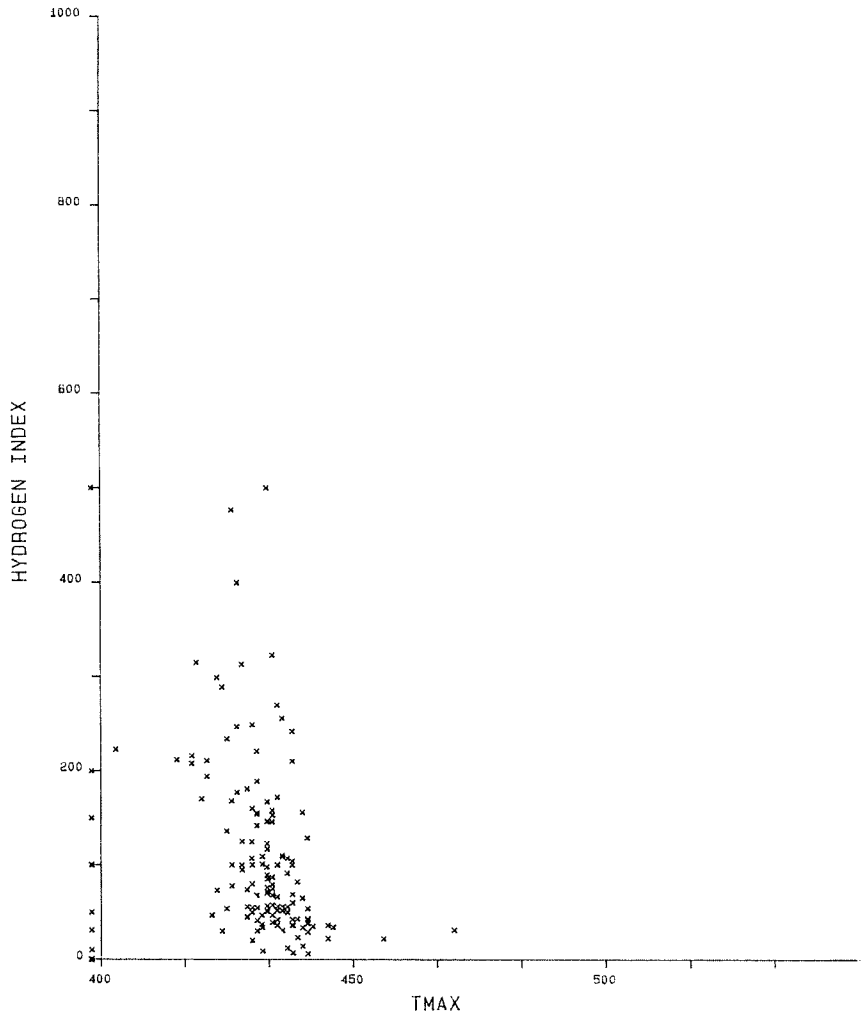


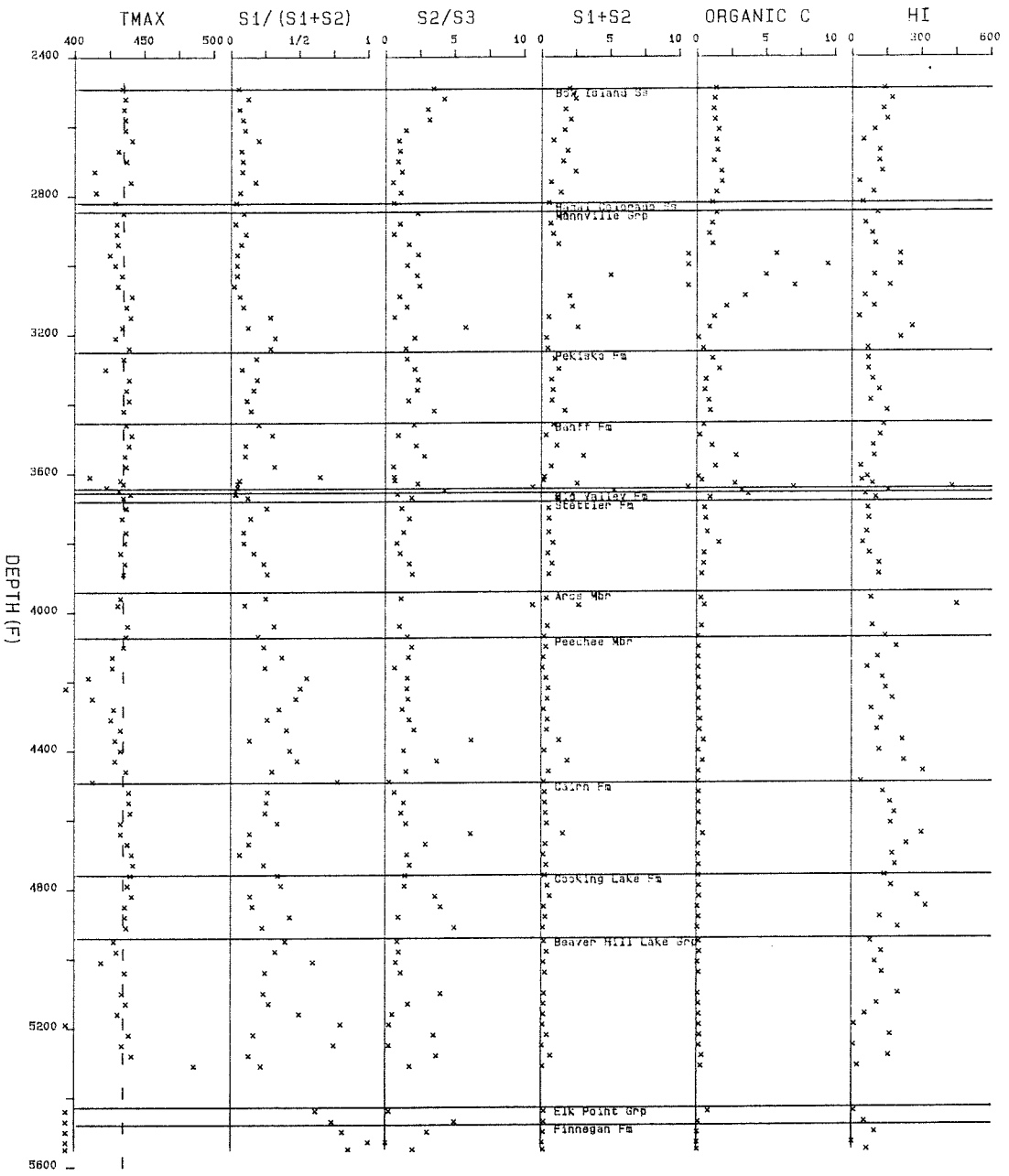



Canadian-Montana 11-35-5-5W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
1000
1600
2200
2800
3400
4000
4600
5200
DEPTH (F)
Milk River Fm
Lower Milk River Fm
Colorado Grp
Medicine Hat Sd
Second White Specks
Fish Scale Base
Bow Island Fm
Bow Island Sd
Blairmore Grp
Basal Blairmore
Ellis Grp
Sawtooth Fm
Livingstone Fm
Banff Fm
Bakken Fm
Mabaraun Grp

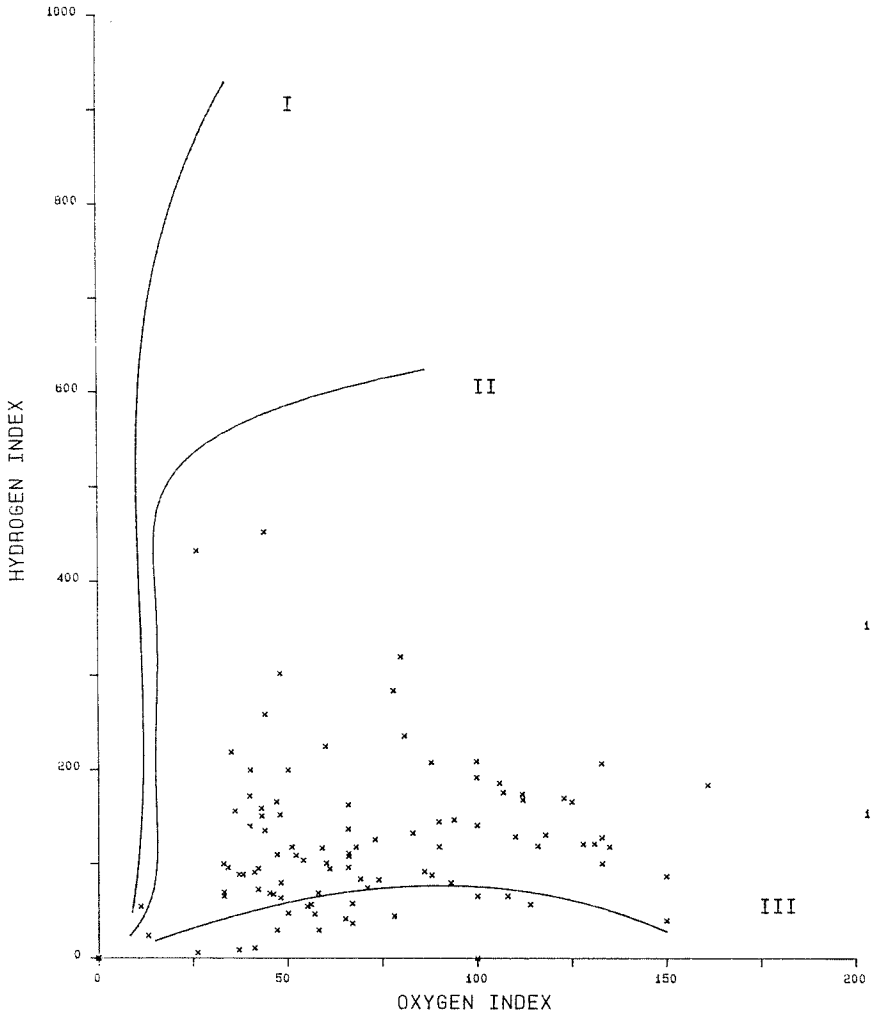
Canadian-Montana 11-35-5-5W4

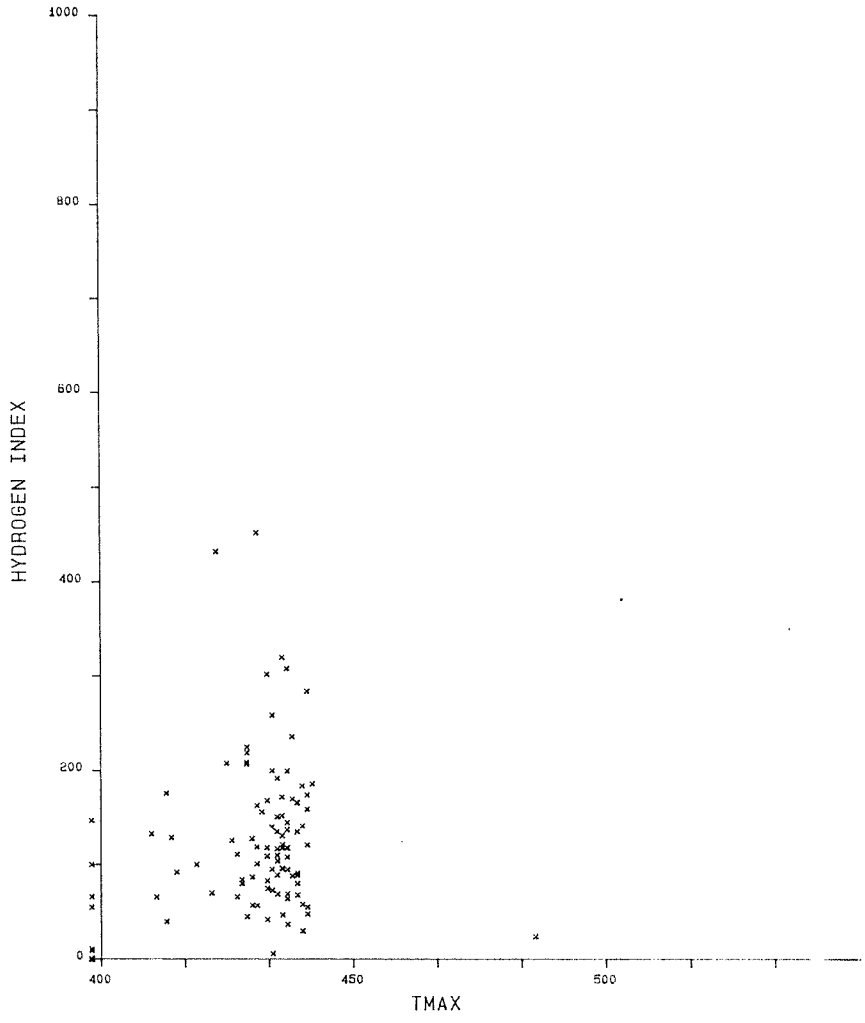


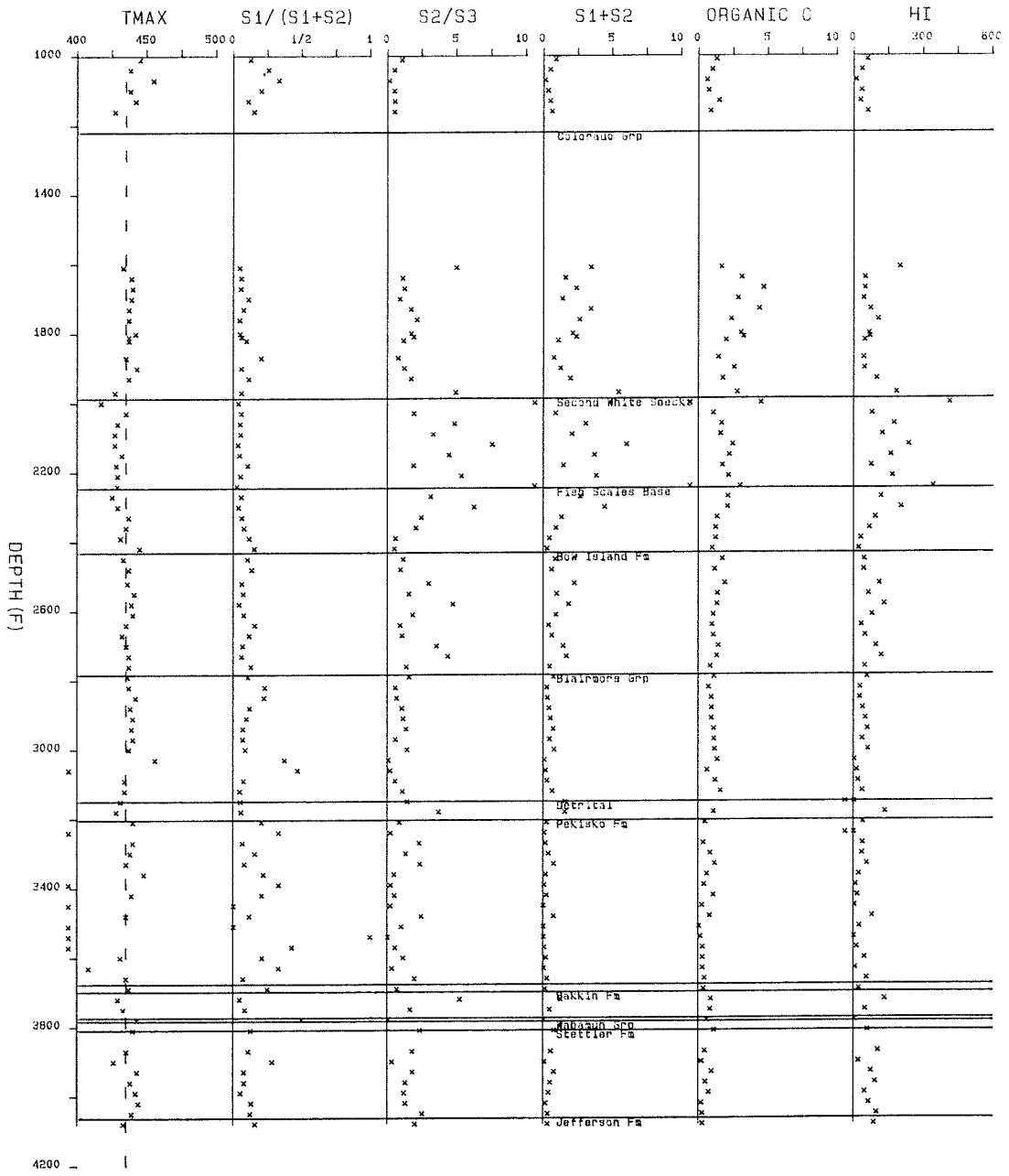



Chevron Princess 16-11-20-12W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
2400
2800
3200
3600
4000
4400
4800
5200
5600
DEPTH (F)
Box Island Sd
Wapiti Formation Sd
Wapiti Fm
Wapiti Volcanic Sd
Wapiti Grp
Pekisko Fm
Banff Fm
Elk Valley Fm
Stettler Fm
Ares Mbr
Peechee Mbr
Cairn Fm
Cooking Lake Fm
Beaver Hill Lake Grp
Elk Point Grp
Finnegan Fm

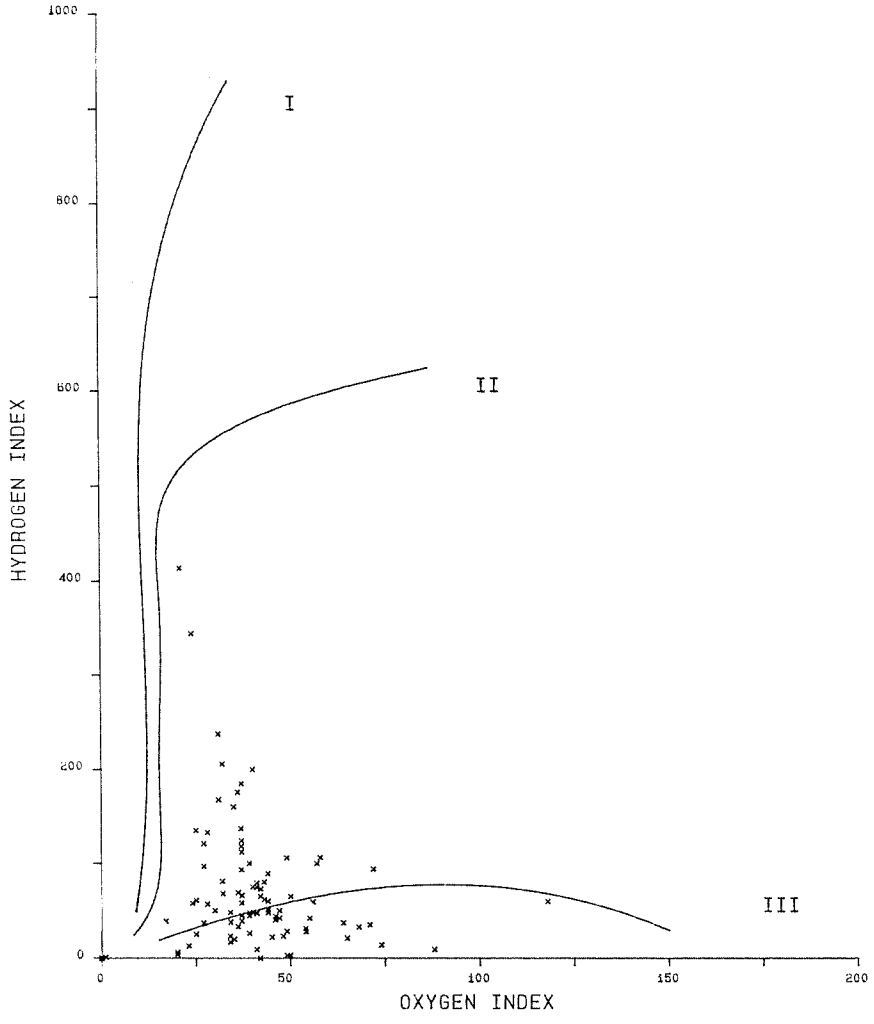
Chevron Princess 16-11-20-12W4

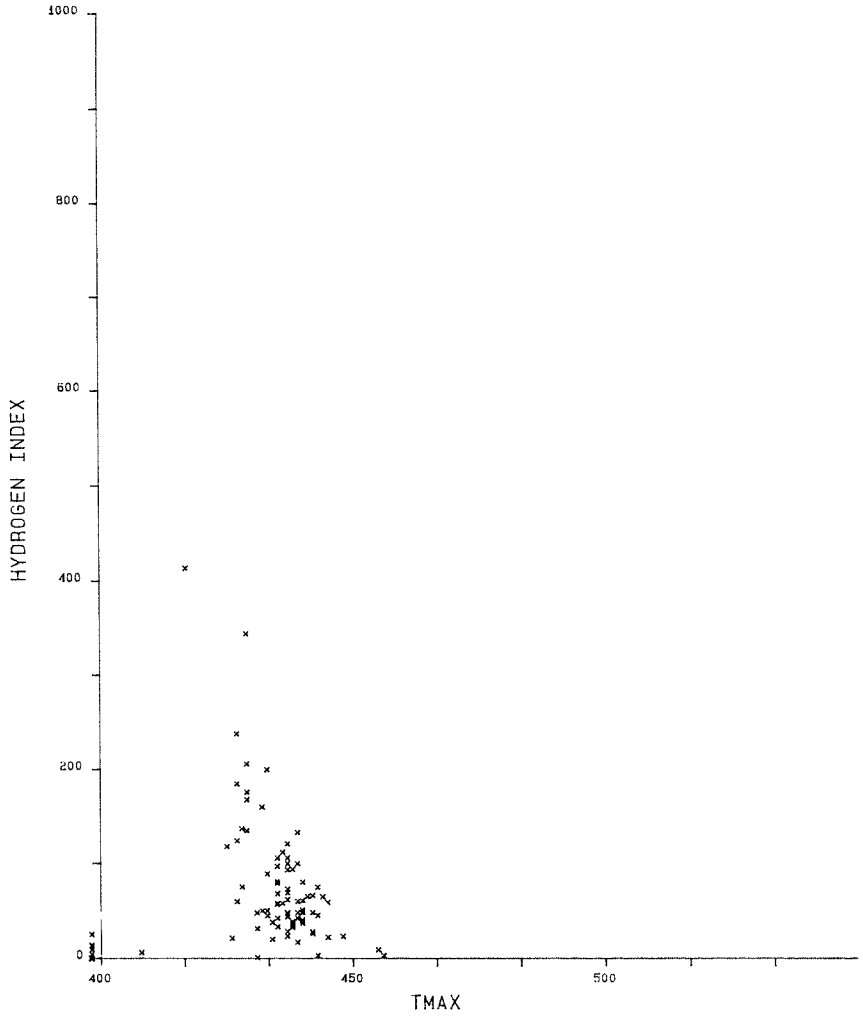


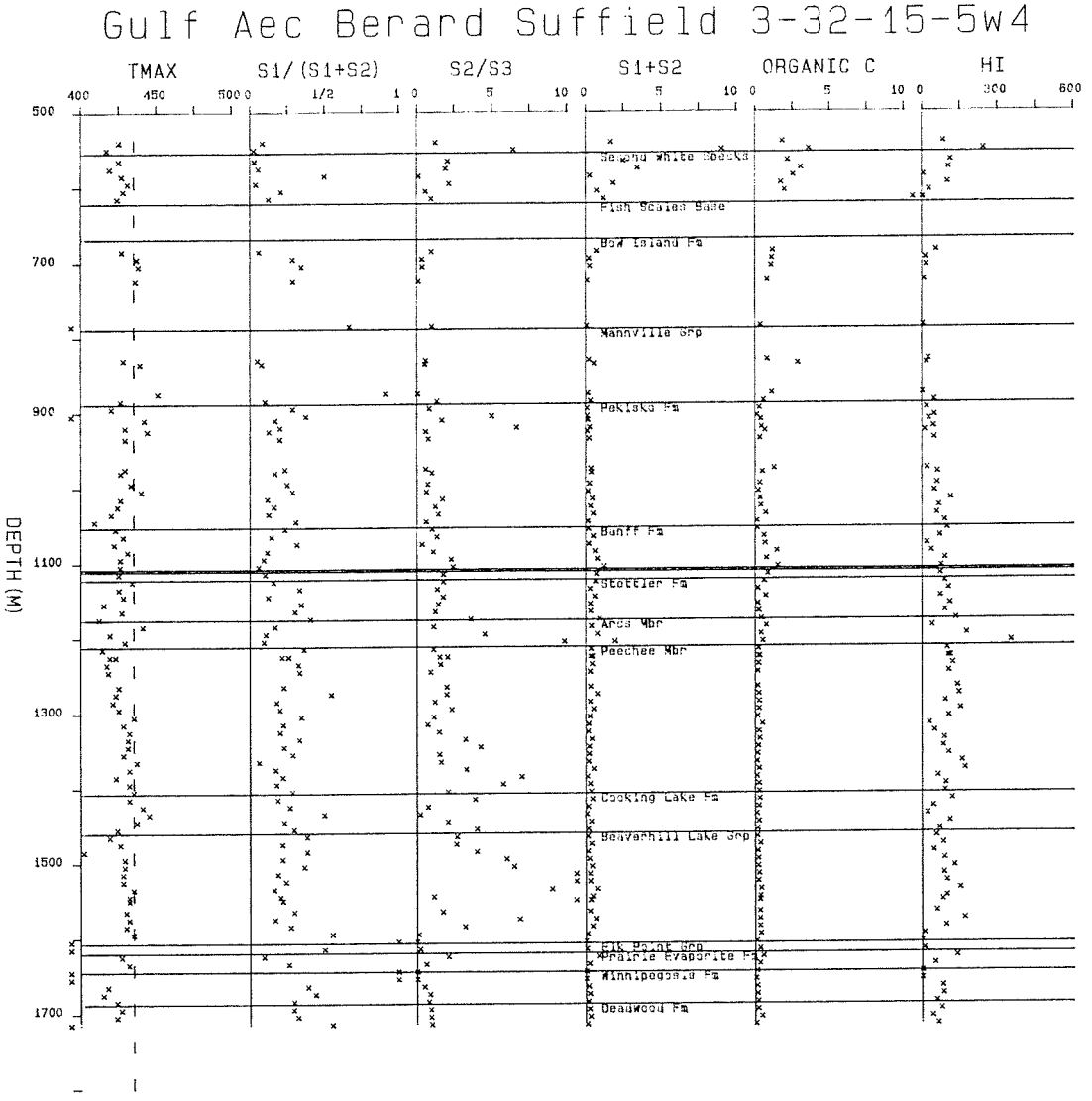



Allenbee Suffield 10-22-15-10W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
1000
1400
1800
2200
2600
3000
3400
3800
4200
DEPTH (F)
Colorado Grp
Second White Specks
Fish Scales Base
Bow Island Fm
Blairmore Grp
Mannville
Peklko Fm
Bakkin Fm
Mabaraw Grp
Stettler Fm
Jefferson Fm

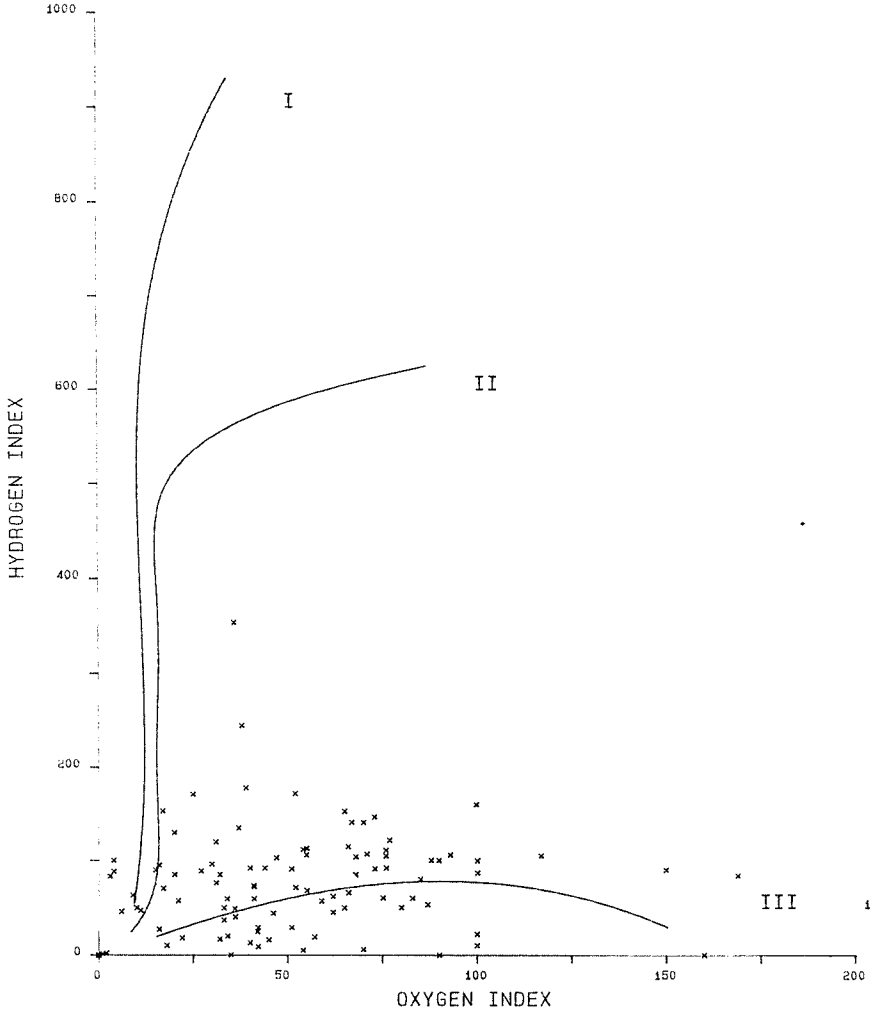
Allenbee Suffield 10-22-15-10W4

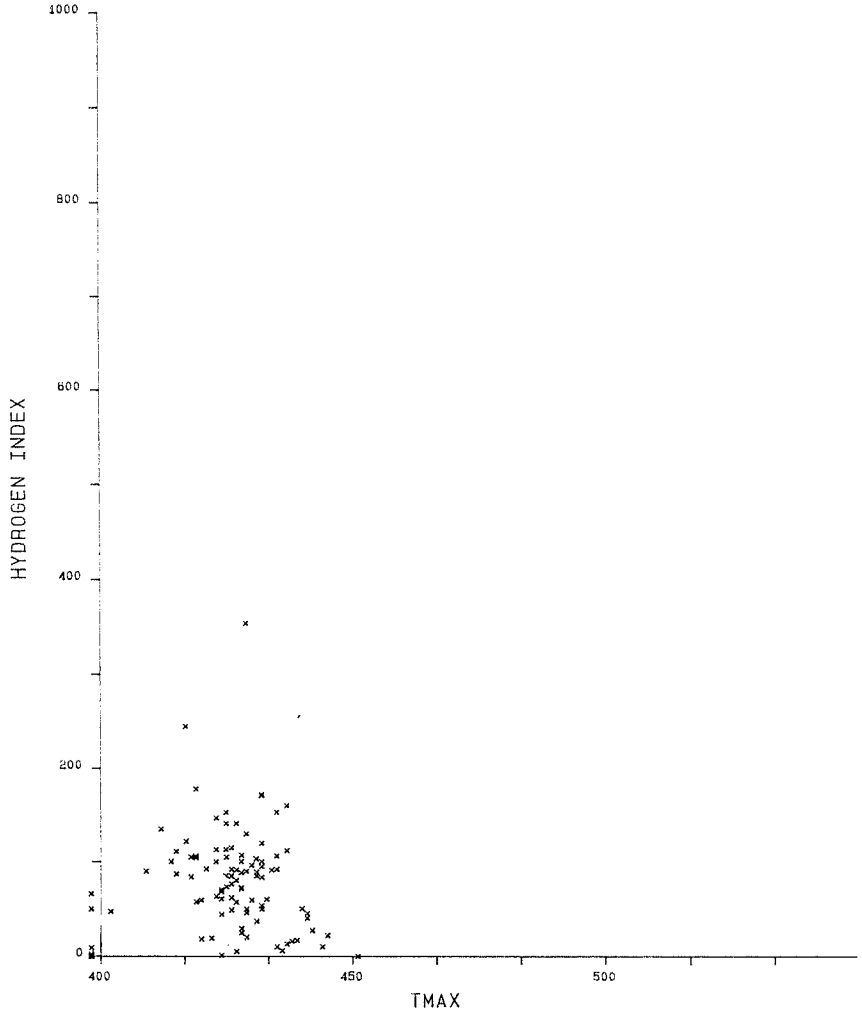


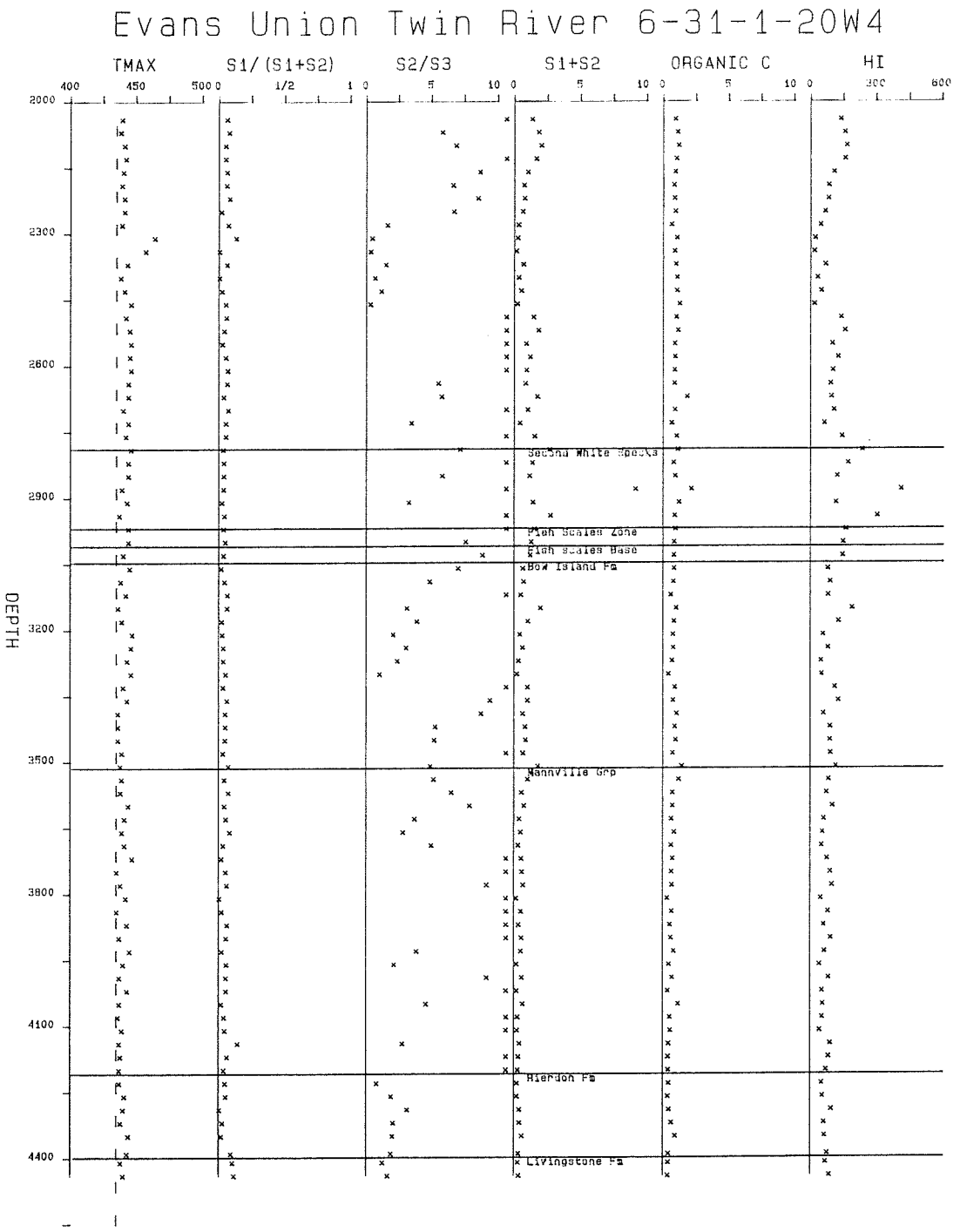



Gulf Aec Berard Suffield 3-32-15-5w4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
500
700
900
1100
1300
1500
1700
DEPTH (M)
Second White Specks
Fish Scales Sstr
Bow Island Fm
Mannville Grp
Paklaka Fm
Banff Fm
Stettler Fm
Argo Mbr
Peechee Mbr
Cooking Lake Fm
Beaverhill Lake Grp
Elk Point Grp
Prairie Evaporite Fm
Winnipegosis Fm
Deadwood Fm

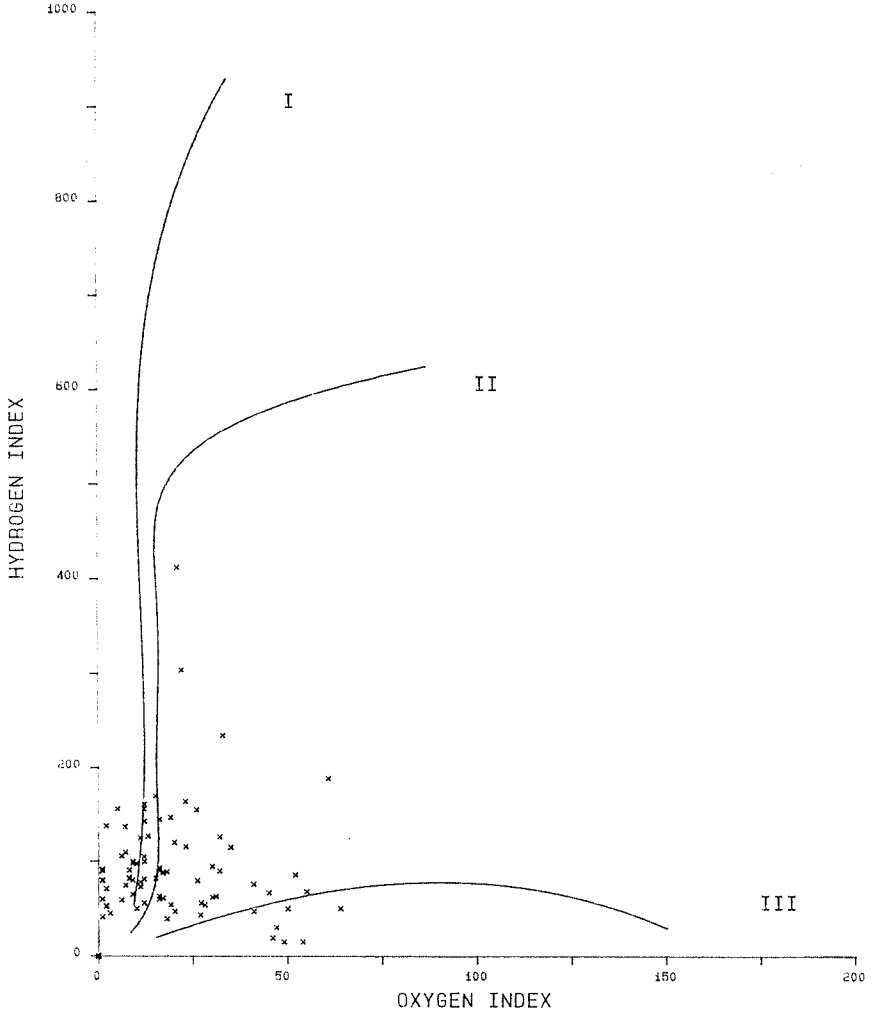
Gulf Aec Berard Suffield 3-32-15-5w4

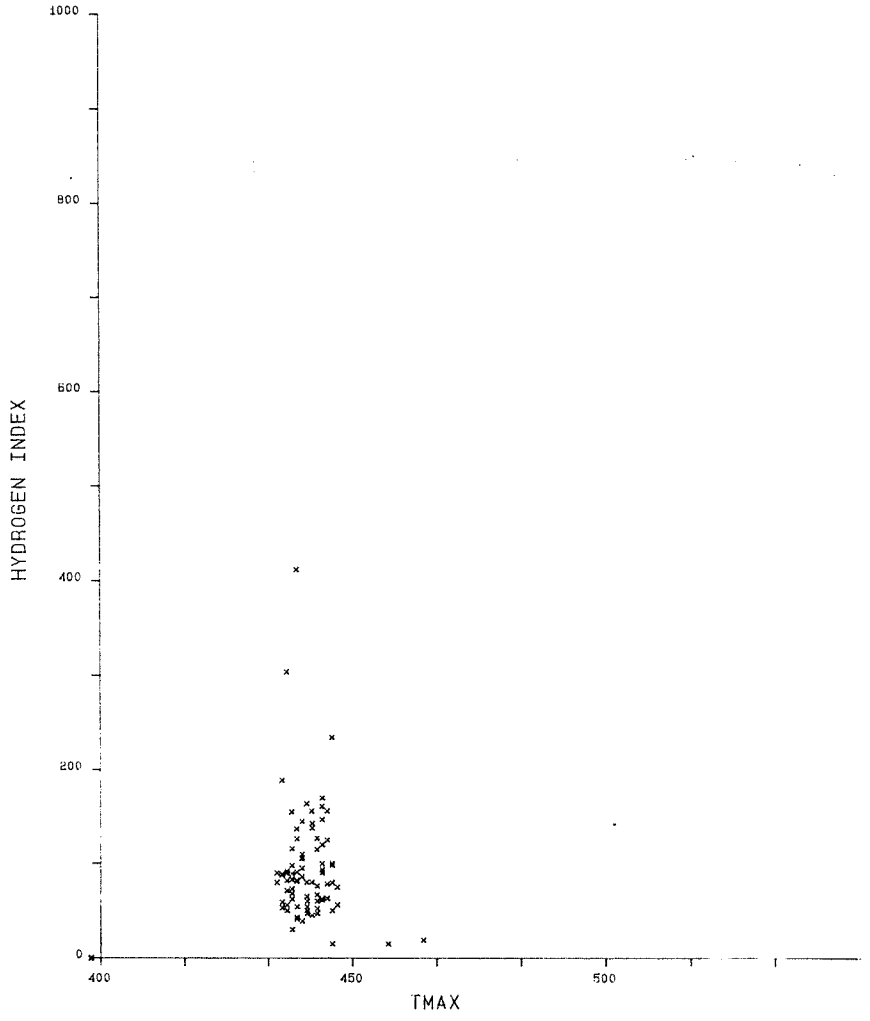





Evans Union Twin River 6-31-1-20W4
TMAX
S1/(S1+S2)
S2/S3
S1+S2
ORGANIC C
HI
400
450
500
0
1/2
1
0
5
10
0
5
10
0
5
10
0
300
600
2000
2300
2600
2900
3200
3500
3800
4100
4400
DEPTH
Second White Speckled
Fish Scales Zone
Fish Scales Base
Bow Island Fm
Mannville Grp
Blairdon Fm
Livingstone Fm

Evans Union Twin River 6-31-1-20W4





Other GSC Rock-Eval/TOC Data Available in GSC Open File Reports

Fowler, M.G. and L.R. Snowdon (1988) Rock-Eval/TOC data from an additional seven wells located within the Jeanne d'Arc Basin, offshore Newfoundland; Geological Survey of Canada Open File Report #1735, 48p.

Fowler, M.G. and L.R. Snowdon (1989) Rock-Eval/TOC data from wells located in the southern Grand Banks and the Jeanne d'Arc basin, offshore Newfoundland; Geological Survey of Canada Open File Report #2025, 37p.

Fowler, M.G., L.R. Snowdon, K.R. Stewart and K.D. McAlpine (1990) Rock-Eval/TOC data from 9 wells located offshore Newfoundland; Geological Survey of Canada Open File Report #2271, 74p.

Fowler, M.G., L.R. Snowdon, K.R. Stewart and K.D. McAlpine (1991) Rock-Eval/TOC data from five wills located within the Jeanne d'Arc Basin, offshore Newfoundland; Geological Survey of Canada Open File Report #2392, 41p.

Leckie, D.A., W.D. Kalkreuth and L.R. Snowdon (1987) Results of Rock-Eval/ TOC analysis of core through the Lower Cretaceous; Monkman Pass area, northeastern British Columbia; Geological Survey of Canada Open File Report #1516, 49p.

Núñez-Betelu, L.K. (1993) Rock-Eval/TOC pyrolysis data from the Bastion Ridge Formation (Upper Albian), Glacier Fiord, Ellesmere Islands, Canadian Arctic; Geological Survey of Canada Open File Report #2687, 11p.

Núñez-Betelu, L.K. (1993) Rock-Eval/TOC pyrolysis data from the Kanguk Formation (Upper Cretaceous), Axel Hieberg and Ellesmere Islands, Canadian Arctic; Geological Survey of Canada Open File Report #2727, 29p.

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Snowdon, L.R. (1995) Rock-Eval/TOC data for three southeast British Columbia wells; Geological Survey of Canada Open File Report #3010, 43p.

Snowdon, L.R. and C.L. Riediger (1995) Rock-Eval/TOC data for 10 east central Alberta Wells (Townships 25 to 33 and Ranges 1 to 10W4); Geological Survey of Canada Open File Report #2989, 44p.

Snowdon, L.R. and C.L. Riediger (1995) Rock-Eval/TOC data for 19 southern Alberta wells (Townships 7 to 29 and Ranges 15W4 to 3W5); Geological Survey of Canada Open File Report #2990, 125p.

Snowdon, L.R. and M.G. Fowler (1986a) Rock-Eval/TOC data from seven wells located within the Jeanne d'Arc Basin, offshore Newfoundland; Geological Survey of Canada Open File Report #1382, 42p.

Snowdon, L.R. and M.G. Fowler (1986b) Oil Show Analyzer, Rock-Eval and TOC data for six Scotian Shelf wells; Geological Survey of Canada Open File Report #1403, 49p.

Snowdon, L.R. and P.W. Price (1994) Rock-Eval/TOC data for three wells in the Kandik Basin, western Yukon Territory; Geological Survey of Canada Open File Report #2899, 31p.

Snowdon, L.R. (1994) Rock-Eval/TOC data for 10 southwest Alberta wells (Townships 16 to 30 Ranges 2 to 10W5); Geological Survey of Canada Open File Report #2916, 113p.

Snowdon, L.R. (1994) Rock-Eval/TOC data for 13 south-central Alberta wells (Townships 36 to 59 Ranges 3 to 21W5); Geological Survey of Canada Open File Report #2935, 87p.

Snowdon, L.R. (1993) Rock-Eval/TOC results from 14 southwest Alberta wells, Townships 3-26: Ranges 1-8W5; Geological Survey of Canada Open File Report #2670, 190p.

Snowdon, L.R. (1990) Rock-Eval/TOC results from 29 Beaufort-Mackenzie wells; Geological Survey of Canada Open File Report #2192, 209p.

Snowdon, L.R. (1990) Rock-Eval/TOC data for 55 northwest and Yukon Territories wells (60-69 degrees N); Geological Survey of Canada Open File Report #2327, 211p.

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