

Open File 2699

ROCK-EVAL/TOC DATA FROM THE  
LOWER CRETACEOUS OSTRACODE  
ZONE (MANNVILLE GROUP),  
CALCAREOUS MEMBER (GLADSTONE  
FORMATION) AND MOOSEBAR  
FORMATION, ALBERTA, WESTERN  
CANADA SEDIMENTARY BASIN

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AND PETROLEUM GEOLOGY

**Mount Yamnuska, Alberta.**

Lower Paleozoic carbonates thrust  
over Mesozoic clastics.

Cover photo by G.M. Mossop



GEOLOGICAL SURVEY OF CANADA  
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ROCK-EVAL/TOC DATA FROM THE LOWER  
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GROUP), CALCAREOUS MEMBER (GLADSTONE  
FORMATION) AND MOOSEBAR FORMATION,  
ALBERTA, WESTERN CANADA SEDIMENTARY BASIN

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**ROCK-EVAL/TOC DATA FROM THE LOWER CRETACEOUS OSTRACODE  
ZONE (MANNVILLE GROUP), CALCAREOUS MEMBER (GLADSTONE  
FORMATION) AND MOOSEBAR FORMATION, ALBERTA, WESTERN  
CANADA SEDIMENTARY BASIN**

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This Open File Report contains raw data from Rock-Eval type analysis of drill core and outcrop samples from the Western Canada Sedimentary Basin (WCSB) in southern and southeastern Alberta. The database includes 162 core samples from 21 well and 82 samples from 5 outcrop locations (Figure 1). Riediger was responsible for logging and sampling cores at locations 1, 4, 6, 7, 9, 14, 15, 16, 17, 18, 19 and 20; Banerjee logged and sampled all other cores and the outcrop sections.

All samples were run in duplicate. There has been no attempt to remove spurious results. For example, some samples show high Production Index values, suggesting that these samples are stained by migrated hydrocarbons. The values of Tmax, Hydrogen Index (HI) and Oxygen Index (OI) are also affected by staining. Other samples have low Total Organic Carbon (TOC) contents and S2 values, which result in unreliable Tmax and HI values. Lithologic logs are provided for the outcrop samples (Figure 2), and a geophysical log is given for the FCD 7722 coal core (Figure 3). It is assumed that persons using this data have access to geophysical well logs for subsurface core locations 1 to 20. Discussions of the depositional setting of the Ostracode Zone are given in Banerjee and Davies (1988), Banerjee (1990), Banerjee and Kidwell (1991) and Hayes (1986). Preliminary results of organic geochemical studies are provided in Riediger et al. (1993a; b).

Standard rock samples were run with the core samples, to ensure that the analytical conditions remained consistent, and within acceptable margins of error ( $\pm 2^{\circ}\text{C}$  on Tmax values,  $\pm 10\%$  on the measured parameters S1, S2, S3 and TOC). Standard samples were run at the beginning of each set, every fifteenth sample during the analyses, and at the end of each sample set.

The column headings in the table include the following:

Tmax, S1, S2, S3: standard Rock-Eval parameters (Espitalié et al., 1977; 1985)

PI = Production Index =  $S1/(S1+S2)$

TOC = Total Organic Carbon

HI = Hydrogen Index =  $(S2/TOC) \times 100$

OI = Oxygen Index =  $(S3/TOC) \times 100$

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## FIGURES

- FIGURE 1. Map showing the locations of drillcore and outcrops sampled for this report.
- FIGURE 2. Stratigraphic columns of the five measured outcrop sections (locations G, W, HY, E and CR, Figure 1), showing sampling points.
- FIGURE 3. Geophysical log for FCD 7722 coal core, showing sampling points.



## WELL LOCATIONS

### LOCATION 1: 16-5-13-19W4

SAMPLE DEPTH (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1124.3	100.3	438	0.59	39.22	0.71	0.01	4.41	889	16
1124.3	100.4	439	0.55	38.08	0.61	0.01	4.36	873	13
1126	100.3	443	0.21	1.73	0.51	0.11	0.98	176	52
1126	100.9	440	0.20	1.46	0.46	0.12	1.07	136	42

### LOCATION 2: 10-5-25-19W4

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
4573	100.2	433	0.23	0.76	0.17	0.23	1.27	59	14
4573	100.0	432	0.23	0.75	0.19	0.23	1.25	60	15
4577	100.0	437	0.27	1.82	0.30	0.13	1.43	127	21
4577	100.6	436	0.26	1.79	0.31	0.13	1.41	126	22
4604	100.1	430	0.32	0.77	0.29	0.30	1.89	40	15
4604	100.5	431	0.32	0.85	0.31	0.28	1.83	46	17
4634	102.1	444	3.18	44.21	0.80	0.07	5.03	878	16
4634	101.4	445	3.04	43.94	1.04	0.06	5.03	873	21
4640	100.5	440	0.37	2.95	0.20	0.11	1.04	283	20
4640	100.5	440	0.39	3.41	0.10	0.10	1.11	307	8

### LOCATION 3: 8-29-30-23W4

SAMPLE DEPTH (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1509.0	100.5	441	0.25	5.24	0.46	0.05	1.58	331	29
1509.0	99.9	442	0.27	5.17	0.46	0.05	1.59	325	28
1509.5	100.0	442	0.21	2.96	0.41	0.07	1.55	190	26
1509.5	99.7	443	0.22	2.98	0.42	0.07	1.55	192	27
1512.5	100.4	443	3.97	43.24	0.55	0.08	7.01	616	7
1512.5	100.3	441	4.16	42.75	0.59	0.09	7.06	605	8
1513.2	100.1	448	1.35	35.02	0.27	0.04	4.10	854	6
1513.2	99.6	446	1.45	34.68	0.32	0.04	4.08	850	7
1514.0	100.7	443	0.19	1.04	0.10	0.16	0.96	108	10
1514.0	99.6	441	0.20	1.17	0.18	0.15	0.98	119	18
1519.0	100.6	443	1.31	6.48	0.34	0.17	1.86	348	18
1519.0	100.3	445	1.30	7.00	0.32	0.16	1.82	384	17

1519.5	99.7	444	0.61	9.83	0.41	0.06	2.92	336	14
1519.5	99.9	446	0.58	9.41	0.31	0.06	2.81	334	11
1521.0	100.5	446	0.31	6.65	0.19	0.04	1.52	437	12
1521.0	99.7	448	0.31	6.33	0.14	0.05	1.45	436	9

#### LOCATION 4: 2-11-35-6W4

SAMPLE DEPTH (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
951.4	100.7	429	0.66	8.20	0.50	0.07	1.68	488	29
951.4	100.0	431	0.64	8.07	0.51	0.07	1.70	474	30
953.2	100.5	429	0.71	9.25	0.82	0.07	2.21	418	37
953.2	100.1	425	0.74	9.03	0.83	0.08	2.15	420	38

#### LOCATION 5: 6-33-35-25W4

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
5812.0	100.3	452	1.04	18.76	0.36	0.05	2.35	798	15
5812.0	100.4	453	1.07	17.58	0.28	0.06	2.29	767	12
5825.0	99.6	443	0.17	1.26	0.04	0.12	0.81	155	4
5825.0	99.7	444	0.15	1.32	0.13	0.10	0.80	165	16
5827.5	100.4	451	0.24	8.19	0.21	0.03	1.33	615	15
5827.5	100.1	452	0.23	8.30	0.13	0.03	1.33	624	9
5829.5	99.8	444	0.13	1.24	0.17	0.10	0.64	193	26
5829.5	100.0	445	0.14	1.44	0.21	0.09	0.67	214	31
5836.5	100.6	446	0.33	4.29	0.25	0.07	1.20	357	20
5836.5	99.7	448	0.31	4.33	0.28	0.07	1.18	366	23
5838.5	100.4	443	0.38	5.76	0.23	0.06	1.26	457	18
5838.5	99.8	446	0.33	5.78	0.23	0.05	1.24	466	18
5841.0	100.3	446	2.04	19.60	0.22	0.09	3.00	653	7
5841.0	100.0	447	1.95	19.41	0.23	0.09	2.98	651	7
5843.5	99.9	443	1.14	7.73	0.33	0.13	1.62	477	20
5843.5	100.7	444	1.17	7.03	0.37	0.14	1.58	444	23
5846.0	99.8	444	0.22	2.37	0.16	0.09	0.53	447	30
5846.0	99.6	444	0.18	2.23	0.23	0.07	0.60	371	38
5853.0	100.0	444	0.42	4.97	0.20	0.08	1.47	338	13
5853.0	99.9	444	0.43	4.88	0.21	0.08	1.41	346	14

**LOCATION 6: 11-27-37-4W4**

SAMPLE DEPTH (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
811.4	100.1	435	0.22	4.14	0.23	0.05	1.05	394	21
811.4	100.3	434	0.20	4.06	0.29	0.05	1.03	394	28
812.5	99.7	434	0.24	3.38	0.49	0.07	0.89	379	55
812.5	100.8	432	0.28	4.06	0.50	0.06	0.98	414	51
812.9	100.0	437	0.74	12.68	1.55	0.06	3.19	397	48
812.9	99.9	436	0.72	12.67	1.53	0.05	3.17	399	48
814.3	100.6	430	1.17	6.55	0.73	0.15	1.44	454	50
814.3	100.8	430	1.16	6.37	0.72	0.15	1.40	455	51
814.7	100.1	431	0.78	4.09	0.55	0.16	1.15	355	47
814.7	99.8	430	0.82	4.68	0.57	0.15	1.15	406	49

**LOCATION 7: 5-18-37-7W4**

SAMPLE DEPTH (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
991.1	99.9	433	0.55	8.83	0.77	0.06	1.80	490	42
991.1	100.0	431	0.54	8.18	0.73	0.06	1.80	454	40
991.7	99.9	432	0.30	7.82	0.58	0.04	1.60	488	36
991.7	99.9	430	0.30	7.78	0.67	0.04	1.66	468	40
992.6	100.4	433	0.41	7.94	0.76	0.05	2.09	379	36
992.6	100.4	434	0.40	8.78	0.90	0.04	2.10	418	42
994.6	100.3	430	1.86	32.75	0.81	0.05	3.79	864	21
994.6	99.6	431	1.82	32.85	0.73	0.05	3.74	878	19

**LOCATION 8: 7-1-37-24W4**

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
5116.5	100.8	435	0.73	9.23	0.92	0.07	4.76	193	19
5116.5	99.7	432	0.74	9.21	0.90	0.07	4.71	195	19
5120.8	100.2	433	0.79	13.74	1.41	0.05	6.69	205	21
5120.8	99.8	433	0.82	14.28	1.42	0.05	6.70	213	21
5125.0	100.3	433	1.10	15.01	2.69	0.07	8.29	181	32
5125.0	100.0	433	1.09	14.78	2.76	0.07	8.36	176	33
5130.0	100.6	435	0.86	10.62	1.11	0.07	6.33	167	17
5130.0	100.3	435	0.85	9.92	1.14	0.08	6.21	159	18
5132.0	99.5	434	2.19	16.70	1.12	0.12	11.63	143	9
5132.0	99.8	435	2.16	15.88	1.09	0.12	11.66	136	9

**LOCATION 9: 13-32-38-4W5**

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
2259.6	100.4	442	1.47	13.53	0.24	0.10	3.93	344	6
2259.6	100.1	443	1.47	13.58	0.26	0.10	4.03	336	6
2263.6	100.3	443	2.34	20.78	0.27	0.10	4.24	490	6
2263.6	99.1	445	2.25	20.48	0.26	0.10	4.16	492	6
2264	100.3	444	1.79	9.03	0.32	0.17	2.50	361	12
2264	99.5	446	1.78	9.09	0.26	0.16	2.53	359	10
2269.4	99.5	446	0.84	12.19	0.36	0.06	2.49	489	14
2269.4	99.8	445	0.86	11.02	0.33	0.07	2.45	449	13

**LOCATION 10: 11-8-41-24W4**

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
5005.0	100.2	449	0.72	5.31	0.41	0.12	2.90	183	14
5005.0	101.3	448	0.69	5.48	0.43	0.11	2.86	191	15
5006.0	102.9	455	0.45	4.22	0.61	0.10	2.37	178	25
5006.0	100.2	456	0.46	4.49	0.50	0.09	2.27	197	22
5019.0	100.4	446	0.35	2.15	0.61	0.14	1.44	149	42
5019.0	102.6	447	0.35	2.14	0.74	0.14	1.44	148	51
5031.0	103.4	448	0.92	7.03	0.66	0.12	3.66	192	18
5031.0	100.2	449	0.92	6.86	0.63	0.12	3.84	178	16
5033.0	103.5	446	0.99	12.75	0.62	0.07	4.00	318	15
5033.0	101.8	446	0.96	12.77	0.61	0.07	4.00	319	15
5034.0	100.4	447	0.69	10.56	0.56	0.06	3.45	306	16
5034.0	102.7	449	0.68	10.20	0.58	0.06	3.42	298	16
5036.0	100.9	452	0.52	6.37	0.49	0.08	2.58	246	18
5036.0	102.0	449	0.52	6.43	0.51	0.07	2.65	242	19
5047.0	100.0	449	1.11	13.12	0.63	0.08	4.89	268	12
5047.0	101.7	449	1.09	12.58	0.61	0.08	4.65	270	13
5051.0	99.4	445	0.25	0.85	0.24	0.23	1.31	64	18
5051.0	102.7	445	0.24	0.88	0.29	0.21	1.39	63	20
5052.0	101.4	449	0.63	4.04	0.34	0.14	3.02	133	11
5052.0	100.9	447	0.61	4.08	0.40	0.13	2.85	143	14
5054.0	100.4	446	0.43	2.93	0.35	0.13	2.04	143	17
5054.0	100.7	446	0.43	2.84	0.37	0.13	2.01	141	18
5056.0	101.6	442	0.35	1.28	0.30	0.22	1.18	108	25
5056.0	100.4	444	0.39	1.37	0.31	0.22	1.15	119	26
5057.0	102.8	449	0.31	3.77	0.35	0.08	2.01	187	17
5057.0	100.3	448	0.28	3.79	0.32	0.07	2.00	189	16

5059.0	100.4	447	0.87	7.38	0.63	0.11	2.91	253	21
5059.0	101.3	449	0.88	7.16	0.60	0.11	2.93	244	20
5061.0	100.7	447	0.81	9.40	0.66	0.08	3.58	262	18
5061.0	102.0	446	0.82	9.21	0.63	0.08	3.66	251	17
5063.0	101.5	451	0.42	8.45	0.56	0.05	2.66	317	21
5063.0	101.4	448	0.43	8.53	0.57	0.05	2.85	299	20
5065.0	101.8	443	0.83	3.72	1.07	0.18	1.98	187	54
5065.0	100.1	444	0.82	3.82	1.06	0.18	2.12	180	50
5074.0	103.2	447	0.67	7.90	0.74	0.08	3.06	258	24
5074.0	101.0	447	0.66	7.94	0.76	0.08	3.04	261	25
5076.0	103.4	448	0.60	4.00	0.66	0.13	2.92	136	22
5076.0	100.7	451	0.58	3.87	0.67	0.13	2.96	130	22
5078.0	100.5	445	1.44	14.22	0.60	0.09	4.35	326	13
5078.0	100.7	446	1.48	14.59	0.63	0.09	4.33	336	14
5081.0	101.7	447	0.63	9.39	0.47	0.06	2.09	449	22
5081.0	102.1	445	0.80	11.36	0.47	0.07	2.09	543	22

#### LOCATION 11: 1-14-44-15W4

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
3167.0	100.4	438	0.50	3.71	1.15	0.12	2.04	181	56
3167.0	100.0	439	0.48	3.73	1.09	0.11	2.02	184	53
3189.5	99.8	424	1.07	7.73	0.66	0.12	4.82	160	13
3189.5	99.7	424	1.09	8.85	0.62	0.11	4.66	189	13
3191.0	100.3	429	0.71	7.93	0.40	0.08	2.70	293	14
3191.0	100.1	431	0.71	7.94	0.33	0.08	2.66	298	12

#### LOCATION 12: 14-32-44-25W4

SAMPLE DEPTH (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1471.4	100.0	442	1.12	8.71	0.51	0.11	3.16	275	16
1471.4	100.3	442	1.11	8.96	0.53	0.11	3.21	279	16
1472.9	100.4	442	0.86	13.88	0.41	0.06	3.46	401	11
1472.9	99.8	443	0.89	14.89	0.41	0.06	3.48	427	11
1475.7	100.0	442	1.24	18.52	0.47	0.06	4.43	418	10
1475.7	100.2	441	1.26	18.53	0.47	0.06	4.23	438	11
1481.0	100.3	445	0.59	7.55	0.26	0.07	2.09	361	12
1481.0	100.2	445	0.61	7.47	0.21	0.08	2.11	354	9

**LOCATION 13: 15-21-47-23W4**

SAMPLE DEPTH (ft)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
4254.5	100.5	441	0.83	12.06	0.76	0.06	2.91	414	26
4254.5	100.2	441	0.81	12.17	0.76	0.06	2.90	419	26
4257.0	99.4	441	0.71	13.97	0.79	0.05	3.23	432	24
4257.0	99.8	441	0.69	14.69	0.76	0.04	3.19	460	23
4258.0	100.4	441	1.05	11.67	0.84	0.08	2.92	399	28
4258.0	99.8	441	1.09	12.25	0.84	0.08	2.98	411	28
4259.0	99.5	440	0.99	11.64	0.90	0.08	3.51	331	25
4259.0	100.0	439	0.99	11.42	0.92	0.08	3.49	327	26
4263.0	100.5	444	0.37	10.02	0.55	0.04	1.93	519	28
4263.0	100.1	444	0.36	9.87	0.57	0.04	1.93	511	29
4264.0	100.4	440	1.55	15.92	0.99	0.09	4.72	337	20
4264.0	100.2	439	1.59	16.41	0.96	0.09	4.83	339	19
4265.0	99.6	440	0.76	15.88	0.77	0.05	3.08	515	25
4265.0	99.8	442	0.75	15.18	0.73	0.05	3.07	494	23
4280.0	99.7	437	1.46	5.29	0.53	0.22	2.31	229	22
4280.0	99.6	437	1.45	5.71	0.54	0.20	2.27	251	23
4286.0	100.3	439	1.26	9.90	0.59	0.11	3.55	278	16
4286.0	99.8	438	1.30	9.49	0.61	0.12	3.51	270	17
4299.0	100.4	437	2.61	10.29	0.62	0.20	2.75	374	22
4299.0	100.5	438	2.56	10.19	0.61	0.20	2.71	376	22
4319.0	100.4	437	1.01	2.58	0.14	0.28	1.17	220	11
4319.0	100.9	439	0.98	2.62	0.17	0.27	1.17	223	14
4322.0	100.5	438	0.92	1.71	0.16	0.35	1.05	162	15
4322.0	100.0	434	0.90	1.66	0.16	0.35	1.07	155	14
4323.5	100.2	434	0.72	1.08	0.12	0.40	0.64	168	18
4323.5	99.5	430	0.76	1.24	0.16	0.38	0.69	179	23

**LOCATION 14: 6-32-49-3W5**

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1630	99.4	447	0.35	7.12	0.22	0.05	1.86	382	11
1630	99.3	449	0.35	6.97	0.20	0.05	1.83	380	10
1633.4	100.2	441	0.76	13.45	0.24	0.05	3.10	433	7
1633.4	100.2	439	0.74	13.18	0.25	0.05	3.12	422	8
1634	100.4	439	0.70	17.75	0.21	0.04	3.35	529	6
1634	99.6	440	0.76	17.90	0.22	0.04	3.47	515	6
1634.7	99.4	442	0.67	16.44	0.18	0.04	3.03	542	5
1634.7	101.2	442	0.65	15.95	0.15	0.04	3.02	528	4

1635.3	100.4	445	0.54	11.17	0.19	0.05	2.59	431	7
1635.3	100.9	447	0.54	11.25	0.16	0.05	2.51	448	6

### LOCATION 15: 6-34-49-5W5

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1702.3-1703	99.4	445	0.46	5.50	0.27	0.08	0.81	679	33
1702.3-1703	100.2	447	0.46	5.34	0.19	0.08	0.79	675	24
1703.8-1704	100	448	0.69	6.42	0.32	0.10	0.99	648	32
1703.8-1704	100.5	450	0.65	6.58	0.21	0.09	0.98	671	21

### LOCATION 16: 10-35-49-13W5

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
2431.8	101	472	0.40	1.75	0.15	0.19	1.00	175	15
2431.8	99.7	470	0.39	1.63	0.15	0.19	0.96	169	15
2437.3	100.6	466	1.46	6.01	0.43	0.20	3.09	194	13
2437.3	100.6	464	1.47	5.82	0.41	0.20	2.99	194	13
2438	100.7	463	0.90	3.06	0.34	0.23	1.58	193	21
2438	101.2	461	0.90	3.04	0.32	0.23	1.57	193	20
2441	100.7	460	0.78	2.81	0.28	0.22	1.32	212	21
2441	99.2	459	0.76	2.78	0.31	0.21	1.30	213	23
2441.9	99.5	467	0.36	1.22	0.13	0.23	0.71	171	18
2441.9	99.7	457	0.39	1.37	0.17	0.22	0.74	185	22
2444.8	100.5	469	0.83	4.20	0.32	0.17	1.47	285	21
2444.8	101.3	467	0.84	4.12	0.21	0.17	1.52	271	13
2445.7	100.7	464	0.79	5.94	0.29	0.12	2.35	252	12
2445.7	100.5	467	0.76	5.43	0.30	0.12	2.27	239	13
2446	100.4	466	1.07	6.32	0.21	0.14	2.52	250	8
2446	99.9	461	1.45	8.83	0.34	0.14	3.33	265	10
2449.4	100.7	460	0.28	1.24	0.24	0.18	1.53	81	15
2449.4	99.6	457	0.30	1.36	0.25	0.18	1.56	87	16
2450.6	100.4	464	0.19	1.30	0.07	0.13	0.86	151	8
2450.6	99.5	458	0.21	1.41	0.11	0.13	0.92	153	11

### LOCATION 17: 6-5-51-6W5

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1710	99.9	437	0.67	14.99	0.28	0.04	4.05	370	6
1710	100.5	436	0.64	13.29	0.25	0.05	3.96	335	6

1711.1	100.3	437	0.40	6.51	0.28	0.06	2.53	257	11
1711.1	100	439	0.41	6.54	0.26	0.06	2.55	256	10
1714.6	100.1	445	0.51	9.14	0.20	0.05	2.58	354	7
1714.6	99.3	445	0.52	8.91	0.21	0.06	2.53	352	8
1715.2	100.8	445	0.50	11.71	0.23	0.04	2.77	422	8
1715.2	100.1	444	0.48	11.77	0.24	0.04	2.80	420	8
1718	100.8	443	0.65	11.28	0.29	0.05	3.63	310	7
1718	100.6	442	0.66	11.45	0.31	0.05	3.66	312	8
1718.5	100.6	446	0.23	3.99	0.18	0.05	1.35	295	13
1718.5	100.4	442	0.25	4.25	0.15	0.06	1.37	310	10
1722.5	100.2	448	0.25	6.29	0.20	0.04	1.67	376	11
1722.5	99.8	447	0.25	6.09	0.22	0.04	1.67	364	13
1726.1	100.2	438	0.35	3.51	0.72	0.09	2.19	160	32
1726.1	101	439	0.35	3.28	0.68	0.10	2.18	150	31
1727.1	99.2	439	0.33	3.66	0.68	0.08	2.17	168	31
1727.1	99.5	438	0.34	3.45	0.64	0.09	2.19	157	29
1727.8	99.8	440	0.36	3.67	1.04	0.09	3.22	113	32
1727.8	99.4	440	0.36	3.32	0.75	0.10	2.24	148	33
1729	100	440	0.43	3.48	0.14	0.11	1.11	313	12
1729	100.9	440	0.43	3.52	0.16	0.11	1.12	314	14
1730.3	100	437	0.29	1.42	0.28	0.17	1.27	111	22
1730.3	99.5	437	0.29	1.48	0.28	0.16	1.26	117	22

#### LOCATION 18: 9-8-52-11W5

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
2087.2	99.6	451	0.60	4.73	0.27	0.11	1.69	279	15
2087.2	100.9	450	0.62	4.32	0.25	0.13	1.76	245	14
2088	101	445	0.76	8.53	0.30	0.08	3.02	282	9
2088	99.7	448	0.73	8.37	0.34	0.08	3.01	278	11
2088.7	99.4	447	0.72	6.90	0.31	0.09	2.91	237	10
2088.7	101.1	449	0.71	7.18	0.27	0.09	2.88	249	9
2090.1	100	450	0.84	5.71	0.28	0.13	1.81	315	15
2090.1	100.6	449	0.84	5.56	0.28	0.13	1.84	302	15
2092.7	100.5	446	1.03	4.97	0.40	0.17	1.83	271	21
2092.7	100.8	448	1.04	4.96	0.28	0.17	1.83	271	15
2093.8	100	451	0.50	2.51	0.26	0.17	1.15	218	22
2093.8	99.8	452	0.51	2.47	0.25	0.17	1.18	209	21

**LOCATION 19: 6-18-54-7W5**

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1617.3	100.9	440	1.62	17.08	0.50	0.09	4.18	408	11
1617.3	100.3	442	1.66	17.74	0.52	0.09	4.30	412	12
1619.4-1619.8	99.8	440	1.10	11.59	0.37	0.09	2.72	426	13
1619.4-1619.8	100.8	443	1.09	11.63	0.43	0.09	2.70	430	15
1621.4	100.1	449	0.96	9.21	0.35	0.09	2.40	383	14
1621.4	100.9	446	1.06	9.56	0.37	0.10	2.48	385	14

**LOCATION 20: 6-22-55-5W5**

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
1405.8	99.7	434	0.93	11.54	1.04	0.07	3.92	294	26
1405.8	100.1	434	0.96	11.61	0.94	0.08	3.84	302	24
1406.6	99.9	431	0.85	9.76	0.84	0.08	2.54	384	33
1406.6	101	436	0.82	9.80	0.79	0.08	2.57	381	30
1407	99.5	436	0.57	9.96	0.71	0.05	2.32	429	30
1407	101.6	435	0.56	9.45	0.69	0.06	2.34	403	29
1407.9	100	434	0.64	12.00	0.46	0.05	2.76	434	16
1407.9	99.8	435	0.64	12.46	0.47	0.05	2.87	434	16
1409.3-1409.4	100.5	445	0.47	9.75	0.31	0.05	2.31	422	13
1409.3-1409.4	99.5	443	0.54	10.44	0.36	0.05	2.58	404	13

**LOCATION FCD: FCD 7722 (COAL CORE). 52°13'30"N, 115°25'30"W**

SAMPLE DEPTH(m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
56.1	101.6	461	0.32	1.63	0.30	0.16	1.85	88	16
56.1	100.6	459	0.32	1.60	0.26	0.17	1.83	87	14
57.9	101.6	459	0.24	0.99	1.18	0.20	2.06	48	57
57.9	99.9	452	0.27	1.03	1.24	0.21	2.02	50	61
59.7	102.3	454	0.12	0.92	0.07	0.12	1.08	85	6
59.7	101.9	454	0.11	1.00	0.03	0.10	1.05	95	2
64.0	102.8	465	0.75	3.72	0.16	0.17	1.98	187	8
64.0	101.6	464	0.69	3.56	0.19	0.16	1.77	201	10
64.0	101.1	458	0.78	3.74	0.21	0.17	2.18	171	9
64.0	100.5	459	0.73	3.50	0.24	0.17	2.01	174	11
65.8	101.5	453	0.26	4.15	0.66	0.06	3.31	125	19
65.8	101.6	453	0.26	4.25	0.68	0.06	3.22	131	21

66.8	101.8	457	0.49	4.86	0.29	0.09	2.39	203	12
66.8	101.3	457	0.46	4.80	0.27	0.09	2.23	215	12
68.9	102.1	456	0.77	4.14	0.22	0.16	2.64	156	8
68.9	101.1	457	0.73	3.76	0.26	0.16	2.64	142	9
68.9	100.1	449	0.71	3.85	0.28	0.16	2.55	150	10
68.9	102.2	455	0.69	3.52	0.35	0.16	2.59	135	13
71.9	102.2	457	0.47	8.55	0.35	0.05	3.50	244	10
71.9	100.3	456	0.48	8.40	0.42	0.05	3.49	240	12
76.2	100.8	451	0.40	2.70	0.41	0.13	2.48	108	16
76.2	102.0	454	0.38	2.62	0.39	0.13	2.41	108	16
77.1	100.9	455	0.47	1.95	0.56	0.19	2.78	70	20
77.1	101.7	456	0.50	1.90	0.56	0.21	2.73	69	20
77.7	102.2	458	0.67	6.45	0.28	0.09	3.02	213	9
77.7	100.3	458	0.62	6.52	0.35	0.09	2.98	218	11
79.2	100.8	452	0.65	4.68	0.57	0.12	3.26	143	17
79.2	101.2	450	0.66	4.58	0.55	0.13	3.23	141	17
80.5	102.3	453	1.28	8.33	0.41	0.13	3.99	208	10
80.5	101.6	457	1.21	8.05	0.44	0.13	3.82	210	11
82.3	100.1	456	0.67	7.03	0.36	0.09	2.81	250	12
82.3	100.6	459	0.61	6.51	0.40	0.09	2.74	237	14
82.3	101.9	450	0.72	7.21	0.36	0.09	2.85	252	12
82.3	100.1	453	0.63	6.19	0.38	0.09	2.75	225	13
82.6	100.1	452	0.42	1.78	0.26	0.19	1.28	139	20
82.6	101.1	459	0.41	1.91	0.23	0.18	1.15	166	20
83.8	101.9	457	0.59	4.79	0.23	0.11	2.09	229	11
83.8	102.3	457	0.58	5.23	0.29	0.10	2.01	260	14
84.7	100.3	451	0.44	1.57	0.29	0.22	1.10	142	26
84.7	100.7	448	0.44	1.48	0.21	0.23	1.10	134	19
85.3	102.3	455	0.24	0.74	0.97	0.24	1.08	68	89
85.3	101.9	452	0.24	0.73	0.98	0.25	0.98	74	100
86.0	100.8	452	0.34	1.49	0.24	0.19	0.74	201	32
86.0	101.0	450	0.32	1.35	0.16	0.19	0.76	177	21
87.8	101.7	452	0.48	2.62	0.44	0.15	1.75	149	25
87.8	100.3	448	0.54	2.90	0.48	0.16	1.80	161	26
88.1	100.0	441	0.31	1.50	0.88	0.17	1.43	104	61
88.1	100.0	444	0.27	1.30	0.92	0.17	1.40	92	65
88.4	101.2	451	1.04	6.18	0.58	0.14	4.21	146	13
88.4	102.0	450	1.01	6.05	0.56	0.14	4.00	151	14
89.3	100.7	455	0.94	4.96	0.45	0.16	2.27	218	19
89.3	102.4	457	0.93	5.38	0.39	0.15	2.22	242	17
91.4	101.2	457	1.55	9.18	0.35	0.14	3.92	234	8
91.4	100.3	457	1.52	9.84	0.41	0.13	3.76	261	10

91.7	100.0	448	0.79	4.31	0.73	0.15	2.57	167	28
91.7	101.9	453	0.76	4.12	0.70	0.16	2.56	160	27
92.7	102.2	455	0.64	2.69	0.87	0.19	1.69	159	51
92.7	101.3	454	0.64	2.46	0.84	0.21	1.70	144	49
93.0	101.2	454	0.66	2.60	0.26	0.20	1.81	143	14
93.0	99.8	459	0.63	2.87	0.25	0.18	1.71	167	14
93.6	101.3	458	0.33	0.97	0.18	0.25	1.19	81	15
93.6	102.0	454	0.33	0.94	0.14	0.26	1.10	85	12

## OUTCROP LOCATIONS

### LOCATION G: GLADSTONE. 49°24'25"N, 114°10'12"W

HEIGHT A.B.* (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
0.0	102.4	0	0.00	0.00	0.14	0.00	0.30	0	46
0.0	102.2	0	0.00	0.00	0.13	0.00	0.31	0	41
7.1	100.7	0	0.00	0.00	0.27	0.00	0.05	0	540
7.1	102.1	0	0.00	0.00	0.28	0.00	0.04	0	700
7.5	100.9	0	0.00	0.00	0.17	0.00	0.00	0	0
7.5	100.2	0	0.00	0.00	0.17	0.00	0.00	0	0
7.7	101.6	0	0.00	0.01	0.09	0.00	0.18	5	50
7.7	102.2	0	0.00	0.00	0.09	0.00	0.24	0	37
9.2	101.0	317	0.00	0.04	0.14	0.00	0.17	23	82
9.2	100.9	381	0.00	0.04	0.13	0.00	0.18	22	72
10.8	100.3	0	0.00	0.00	0.02	0.00	0.06	0	33
10.8	100.4	0	0.00	0.00	0.02	0.00	0.09	0	22
12.5	100.3	449	0.18	3.36	0.13	0.05	1.41	238	9
12.5	99.9	447	0.15	3.34	0.22	0.04	1.42	235	15

### LOCATION W: WHITE CREEK. 49°58'45"N, 114°22'08"W

HEIGHT A.B.* (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
11.0	101.1	396	0.01	0.06	0.14	0.17	0.17	35	82
11.0	101.6	322	0.00	0.02	0.09	0.00	0.17	11	52
16.1	101.8	329	0.00	0.01	0.15	0.00	0.69	1	21
16.1	100.4	0	0.00	0.00	0.16	0.00	0.65	0	24
16.7	101.5	353	0.00	0.01	0.31	0.00	1.37	0	22
16.7	100.1	334	0.00	0.01	0.32	0.00	1.37	0	23
17.6	100.4	381	0.00	0.04	0.18	0.00	0.91	4	19
17.6	102.0	368	0.00	0.05	0.17	0.00	0.88	5	19

### LOCATION HY: HIGHWAY 541. 50°22'50"N, 114°38'55"W

HEIGHT A.B.* (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
0.0	101.7	379	0.00	0.02	0.15	0.00	0.06	33	250
0.0	100.5	0	0.00	0.00	0.12	0.00	0.02	0	600
0.5	100.0	346	0.00	0.01	0.24	0.00	0.44	2	54
0.5	102.6	357	0.00	0.01	0.22	0.00	0.43	2	51

2.2	102.1	491	0.05	0.42	0.20	0.11	1.27	33	15
2.2	101.0	491	0.04	0.42	0.18	0.09	1.22	34	14
2.8	101.9	0	0.00	0.00	0.19	0.00	0.26	0	73
2.8	102.6	340	0.00	0.01	0.18	0.00	0.24	4	75
3.0	101.2	479	0.20	0.59	0.49	0.26	1.68	35	29
3.0	101.7	471	0.17	0.49	0.45	0.26	1.65	29	27
3.2	100.0	0	0.02	0.00	0.12	1.00	0.25	0	48
3.2	100.6	0	0.01	0.00	0.11	0.00	0.26	0	42
3.6	102.4	472	0.41	1.40	0.12	0.23	2.46	56	4
3.6	102.2	474	0.40	1.34	0.14	0.23	2.04	65	6
4.0	100.9	489	0.07	0.27	0.07	0.21	0.79	34	8
4.0	100.6	487	0.07	0.32	0.07	0.18	0.74	43	9
4.2	102.9	491	0.03	0.25	0.20	0.11	0.89	28	22
4.2	100.0	488	0.05	0.29	0.13	0.15	0.92	31	14
5.0	102.7	481	0.06	0.31	0.09	0.17	0.76	40	11
5.0	102.5	478	0.04	0.20	0.09	0.17	0.78	25	11
5.4	101.5	496	0.04	0.25	0.17	0.14	1.08	23	15
5.4	102.9	484	0.05	0.33	0.16	0.13	1.10	30	14
7.0	101.5	0	0.02	0.00	0.00	1.00	0.09	0	0
7.0	101.5	345	0.03	0.02	0.00	0.75	0.11	18	0
7.5	102.0	435	0.00	0.08	0.11	0.00	0.72	11	15
7.5	101.9	425	0.01	0.11	0.11	0.08	0.73	15	15
7.8	100.4	340	0.02	0.05	0.00	0.33	0.13	38	0
7.8	102.8	0	0.01	0.00	0.00	0.00	0.13	0	0
8.3	100.8	492	0.06	0.16	0.00	0.27	0.65	24	0
8.3	100.2	489	0.05	0.16	0.00	0.25	0.43	37	0
8.8	100.9	465	0.26	1.34	0.21	0.16	2.69	49	7
8.8	101.8	460	0.23	1.21	0.25	0.16	2.66	45	9
9.1	100.6	471	0.14	0.65	0.26	0.18	1.91	34	13
9.1	101.2	480	0.16	0.70	0.27	0.19	1.80	38	15
9.5	102.2	465	0.18	1.05	0.44	0.15	3.07	34	14
9.5	101.9	461	0.18	1.08	0.44	0.14	3.06	35	14
9.8	101.3	431	0.04	0.04	0.12	0.50	0.46	8	26
9.8	102.7	486	0.05	0.08	0.13	0.42	0.52	15	25
11.8	100.4	481	0.08	0.28	0.30	0.22	1.57	17	19
11.8	101.3	485	0.08	0.26	0.27	0.24	1.58	16	17
12.0	99.8	476	0.17	0.37	0.21	0.31	0.96	38	21
12.0	102.0	485	0.19	0.39	0.12	0.33	0.97	40	12
12.5	100.0	476	0.10	0.28	0.16	0.26	0.95	29	16
12.5	101.3	483	0.09	0.26	0.15	0.26	0.95	27	15
12.9	100.4	490	0.02	0.16	0.14	0.11	0.81	19	17
12.9	100.1	465	0.01	0.09	0.13	0.10	0.91	9	14

13.2	101.8	512	0.01	0.19	0.10	0.05	0.90	20	10
13.2	102.1	518	0.01	0.19	0.08	0.05	1.00	19	8
14.0	102.0	508	0.00	0.10	0.12	0.00	0.80	12	15
14.0	100.2	521	0.02	0.16	0.13	0.11	0.77	20	16
15.2	101.2	479	0.00	0.10	0.15	0.00	0.77	12	19
15.2	100.9	467	0.00	0.10	0.08	0.00	0.71	14	11
16.2	101.1	501	0.02	0.10	0.15	0.17	0.57	17	26
16.2	99.9	432	0.01	0.04	0.11	0.25	0.55	7	20
17.0	100.0	516	0.02	0.13	0.04	0.14	0.53	24	7
17.0	102.8	505	0.00	0.09	0.02	0.00	0.51	17	3
22.0	101.7	336	0.00	0.06	0.27	0.00	0.49	12	55
22.0	102.9	0	0.00	0.00	0.28	0.00	0.48	0	58
30.0	100.4	0	0.00	0.00	0.04	0.00	0.11	0	36
30.0	100.1	0	0.00	0.00	0.03	0.00	0.10	0	30
50.0	101.2	0	0.00	0.00	0.14	0.00	0.08	0	175
50.0	102.0	0	0.00	0.02	0.11	0.00	0.08	25	137

**LOCATION E: ELBOW RIVER. 50°51'36"N, 114°45'10"W**

HEIGHT A.B.* (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
0.0	100.1	529	0.00	0.45	0.66	0.00	2.69	16	24
0.0	100.5	533	0.00	0.38	0.65	0.00	2.90	13	22
4.5	102.7	358	0.00	0.01	0.28	0.00	0.20	5	140
4.5	99.7	334	0.00	0.01	0.31	0.00	0.24	4	129
6.5	102.6	509	0.04	1.33	0.36	0.03	3.52	37	10
6.5	101.5	505	0.04	1.29	0.35	0.03	3.44	37	10
8.2	99.8	518	0.00	0.11	0.19	0.00	0.46	23	41
8.2	99.8	524	0.00	0.13	0.18	0.00	0.48	27	37
8.3	101.8	516	0.01	0.49	0.13	0.02	1.22	40	10
8.3	102.9	511	0.03	0.51	0.12	0.06	1.20	42	10
13.5	100.1	502	0.03	0.50	0.09	0.06	1.20	41	7
13.5	101.5	506	0.04	0.49	0.06	0.08	1.27	38	4
15.5	101.0	485	0.00	0.11	0.22	0.00	0.57	19	38
15.5	100.3	493	0.00	0.12	0.18	0.00	0.52	23	34
26.0	100.2	437	0.00	0.02	0.09	0.00	0.11	18	81
26.0	102.7	378	0.00	0.03	0.05	0.00	0.12	25	41
28.5	100.1	530	0.00	0.26	0.07	0.00	1.28	20	5
28.5	100.2	536	0.00	0.19	0.07	0.00	1.30	14	5
30.5	101.4	0	0.00	0.00	0.01	0.00	0.09	0	11
30.5	100.5	0	0.00	0.00	0.01	0.00	0.11	0	9

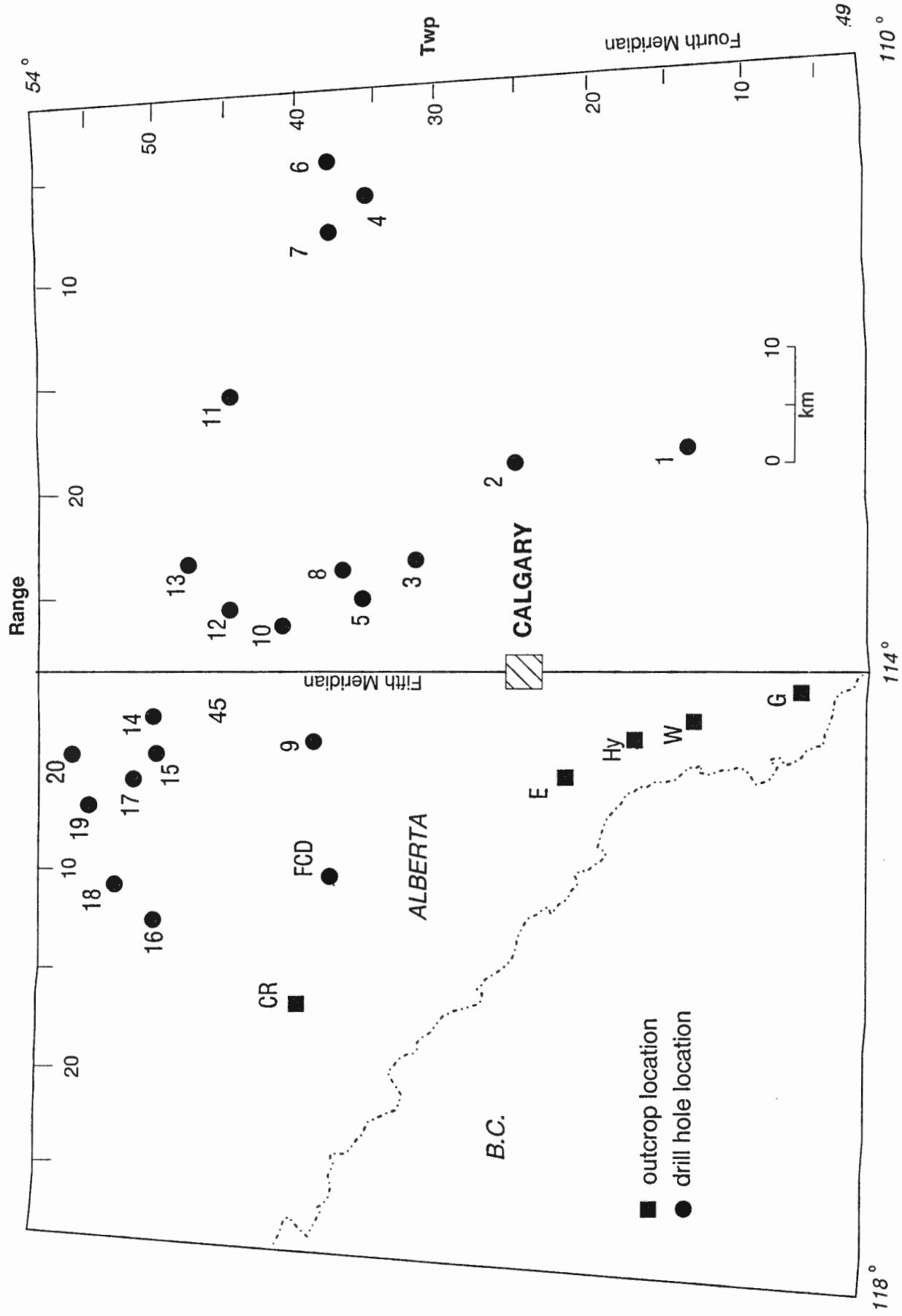
**LOCATION CR: CRESCENT FALLS. 52°23'07"N, 116°21'08"W**

HEIGHT A.B.* (m)	WEIGHT (mg)	TMAX (°C)	S1*	S2*	S3*	PI*	TOC (wt %)	HI*	OI*
0.50	101.4	485	0.16	1.22	0.07	0.12	1.58	77	4
0.50	102.0	485	0.15	1.13	0.08	0.12	1.46	77	5
0.75	101.0	483	0.44	3.37	0.11	0.12	3.35	100	3
0.75	101.7	482	0.45	3.43	0.18	0.12	3.53	97	5
1.00	101.2	481	0.74	3.42	0.23	0.18	3.02	113	7
1.00	100.3	486	0.73	3.40	0.21	0.18	3.26	104	6
1.50	100.0	484	0.84	2.94	0.27	0.22	3.59	81	7
1.50	99.6	485	0.83	3.10	0.24	0.21	3.49	88	6
1.75	101.7	487	0.94	4.76	0.28	0.16	4.21	113	6
1.75	101.9	488	0.94	4.84	0.32	0.16	4.41	109	7
4.00	102.7	497	0.10	0.69	0.25	0.13	1.44	47	17
4.00	101.2	484	0.11	0.71	0.25	0.13	1.43	49	17
4.30	102.3	487	0.07	0.45	0.20	0.13	1.24	36	16
4.30	101.3	484	0.08	0.46	0.13	0.15	1.28	35	10
4.60	101.6	479	0.12	0.57	0.03	0.18	1.06	53	2
4.60	101.2	482	0.13	0.54	0.02	0.20	0.93	58	2
6.80	99.8	485	0.13	0.61	0.22	0.18	1.34	45	16
6.80	101.5	485	0.12	0.55	0.11	0.18	1.30	42	8
7.50	101.3	483	0.08	0.40	0.07	0.17	1.07	37	6
7.50	99.8	482	0.08	0.39	0.08	0.17	1.14	34	7
7.80	101.6	482	0.05	0.40	0.10	0.11	1.24	32	8
7.80	102.3	486	0.06	0.43	0.11	0.12	1.24	34	8
8.50	100.9	485	0.01	0.30	0.30	0.03	1.32	22	22
8.50	101.2	492	0.01	0.28	0.28	0.04	1.32	21	21
9.50	102.9	486	0.05	0.44	0.41	0.10	1.29	34	31
9.50	102.5	487	0.05	0.39	0.29	0.11	1.15	33	25
10.00	102.7	485	0.07	0.37	0.20	0.16	1.07	34	18
10.00	100.7	484	0.09	0.37	0.16	0.20	0.97	38	16
10.50	101.6	482	0.13	0.71	0.07	0.15	1.22	58	5
10.50	102.5	483	0.12	0.61	0.03	0.17	1.19	51	2
12.10	100.5	487	0.10	0.45	0.10	0.19	1.08	41	9
12.10	101.6	483	0.12	0.57	0.09	0.18	1.29	44	6
12.60	101.1	484	0.12	0.52	0.09	0.19	1.27	40	7
12.60	100.8	484	0.13	0.54	0.06	0.20	1.32	40	4
13.00	100.5	487	0.07	0.42	0.10	0.15	1.27	33	7
13.00	101.8	484	0.07	0.42	0.09	0.15	1.28	32	7
13.30	102.9	495	0.05	0.30	0.35	0.15	1.11	27	31
13.30	101.2	496	0.04	0.25	0.34	0.14	1.15	21	29

13.60	100.7	487	0.05	0.52	0.46	0.09	1.49	34	30
13.60	100.4	490	0.07	0.61	0.38	0.10	1.54	39	24
14.00	101.0	479	0.12	0.46	0.08	0.21	1.02	45	7
14.00	100.6	477	0.12	0.43	0.07	0.22	0.98	43	7
14.60	99.6	510	0.07	0.39	0.25	0.15	1.27	30	19
14.60	99.7	480	0.07	0.45	0.23	0.13	1.29	34	17
15.40	100.3	499	0.02	0.28	0.32	0.07	1.07	26	29
15.40	100.5	492	0.02	0.31	0.27	0.06	1.09	28	24
15.70	101.2	491	0.04	0.48	0.19	0.08	1.18	40	16
15.70	101.3	489	0.03	0.44	0.18	0.07	1.22	36	14
16.00	100.8	484	0.06	0.65	0.12	0.09	1.33	48	9
16.00	102.1	479	0.05	0.63	0.11	0.07	1.23	51	8
19.30	102.3	489	0.11	0.88	0.49	0.11	1.95	45	25
19.30	101.5	490	0.12	0.91	0.48	0.12	2.04	44	23
19.70	101.6	488	0.09	0.80	0.39	0.10	1.82	43	21
19.70	101.8	482	0.09	0.84	0.38	0.10	1.84	45	20
20.20	101.0	485	0.07	0.91	0.24	0.07	1.89	48	12
20.20	101.6	486	0.08	0.91	0.26	0.08	1.91	47	13
20.50	100.7	486	0.15	2.32	0.32	0.06	3.25	71	9
20.50	99.8	484	0.17	2.12	0.32	0.07	3.02	70	10
20.80	100.4	490	0.20	2.80	0.32	0.07	3.76	74	8
20.80	100.6	486	0.18	2.89	0.34	0.06	3.74	77	9

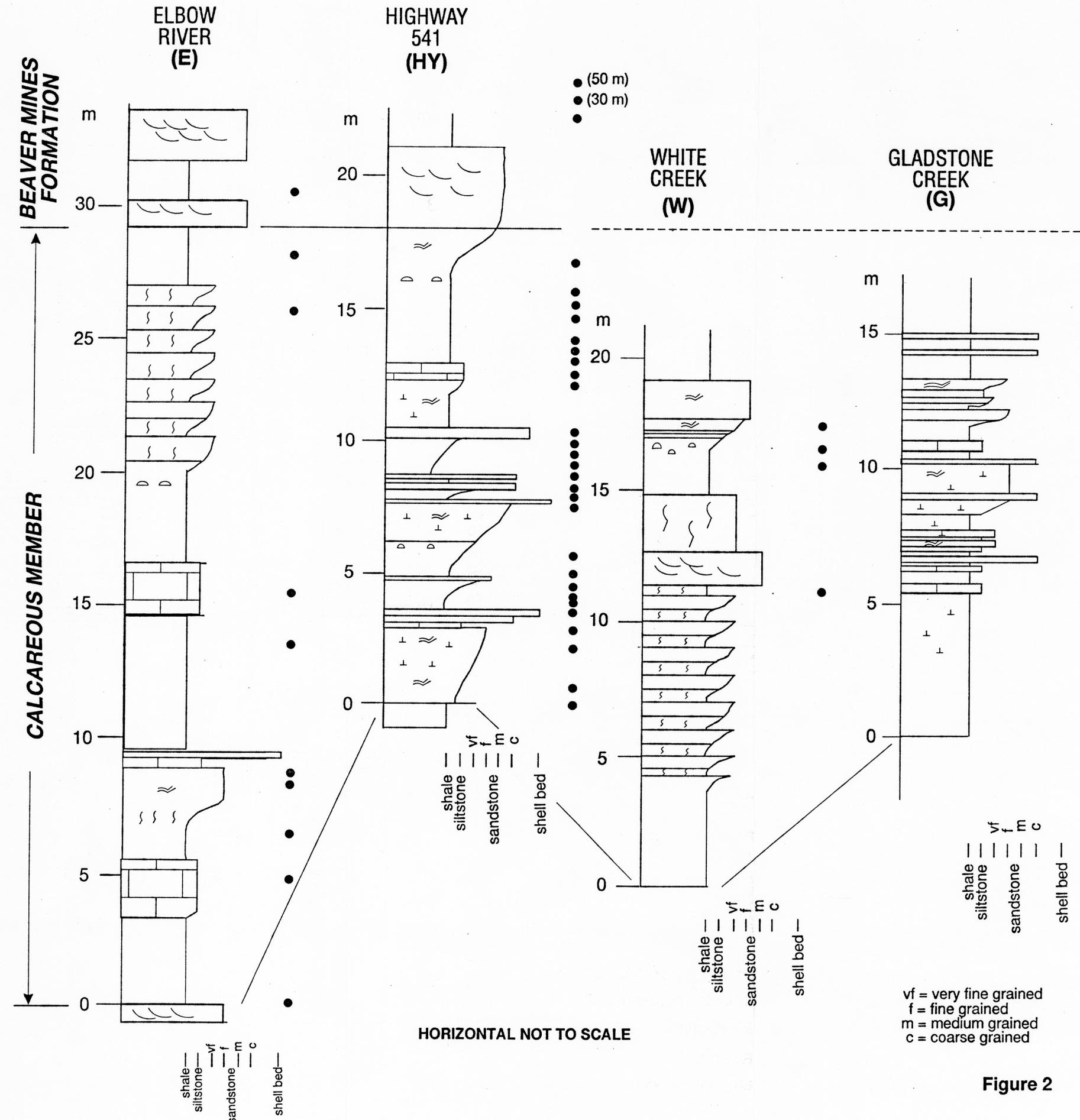
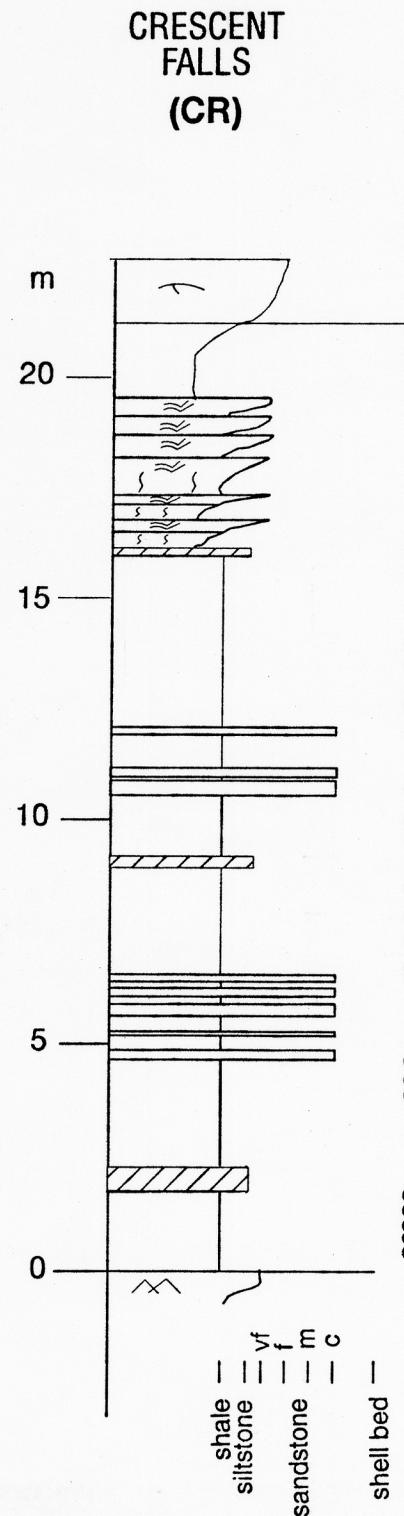
\* A.B.: above base; S1 and S2: mg HC/g ROCK; S3: mg CO<sub>2</sub>/g ROCK; PI:S1/(S1+S2);  
 HI: mg HC/g TOC; OI: mg CO<sub>2</sub>/g TOC

Figure 1



NORTHWEST

SOUTHEAST



vf = very fine grained  
f = fine grained  
m = medium grained  
c = coarse grained

Figure 2

**FCD 7722\***

