























### DRILLERS LOG

PROPERTY: McIvor Lake  
 HOLE NO.: 88-01  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0 - 1.83	1.83	Yellow Sand	
1.83-8.53	6.70	Clay	
8.53-18.59	10.06	Silty Grey Clay	
18.59-27.43	8.84	Brown Silty Sand	
27.43-30.48	3.05	Blue Grey Clay	
30.48-39.32	8.84	Silty Sand	
39.32-48.16	8.84	Gravels	15 gal/min.
48.16-50.29	2.13	Blue Grey Clay	
50.29-58.22	7.93	Silt	Some
58.22-64.01	5.79	Sand and Gravels (Boulders up to 1.3m)	40 gal/min.
64.01-76.20	12.19	Silts	
76.20-85.34	9.14	Grey Clay with Sand Lenses	
85.34-88.39	3.05	Tight Dense Sand	
88.39-93.88	5.49	Sand and Clay	
93.88-98.15	4.27	Sand and Boulders	40 gal/min.
98.15-103.63	5.48	Salt & Pepper Sandstone	
103.63-106.68	3.05	Siltstone	
106.68-114.30	7.62	Shales	
114.30-120.40	6.10	Siltstones & Mudstones	
120.40-146.91	26.51	Sandstone	
146.91-153.92	7.01	Brown to Black Shales Coal Traces	
153.92-157.28	3.36	Brown Shale	
157.28-158.19	0.91	Green Sandstone	
158.19-165.20	7.01	Green Sandstone - Shale Traces	

165.20-193.55	28.35	Black Shale	
193.55-195.07	1.52	Black Shale - Fractured	40-50 gal/min
		Some Coal	
195.07-219.46	24.39	Green Sandstone	
		(Fractured 197.51)	40-50 gal/min
219.46-220.98	1.52	Brown to Black Shale	
		Coal ??	
220.98-243.84	22.86	Green Sandstones	

T.D. 243.84 meters.

- NOTE:
- Basement may have been encountered, but hole was washing out too bad to tell.
  - Hole abandoned before water could affect environment.
  - Bottom of hole water was saline.

**DRILLERS LOG**

PROPERTY: McIvor Lake  
 HOLE NO.: 88-04 Core  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval (m)</u>	<u>Thickness (m)</u>	<u>Lithology</u>	<u>Water</u>
0 - 5.49	5.49	Sand and Clay	
5.49-18.29	18.29	Blue Clay	
18.29-30.48	12.19	Silty Blue Clay	
30.48-36.58	6.10	Tight Brown Clay	
36.58-42.67	6.10	Tight Grey Clay	
42.67-79.25	36.58	Silty Sand	
79.25-85.34	6.09	Gravel	
85.34-88.39	3.05	Tight Grey Clay	
		Traces of Burnt Wood	
88.39-106.07	17.68	Tight Grey Clay	
106.07-106.68	0.61	Broken' Sandstone	
106.68-108.51	1.83	Coarse Salt & Pepper Sandstone	
108.51-124.97	16.46	Conglomerate	
124.97-126.80	1.83	Conglomerate to Sandstone	
126.80-127.41	0.61	White & Brown Sandstone	
		Calcite?	Some
127.41-129.84	2.43	Reddish to Light Sandstone	
129.84-133.20	3.36	Green Conglomerate	
133.20-135.33	2.13	White Sandstone	
135.33-135.64	0.31	Shale	
135.64-158.98	23.34	Cored	

T.D. 158.98 Meters

NOTE: Basement was encountered at 150.75 meters in the core.

## DRILLERS LOG

PROPERTY: McIvor Lake  
 HOLE NO.: 88-05 Core  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0 - 15.24	15.24	Gravel & Boulders	
15.24-24.38	9.14	Clay & Cobble Stones	
24.38-27.43	3.05	Sand and Gravel	
27.43-36.58	9.15	Clay	
36.58-67.06	30.48	Silt, Coarse Gravel	Some
67.06-69.19	2.13	Brown Shale	
69.19-79.71	10.52	Core Runs 1,2,3 & 4	
79.71-80.47	0.76	Brown Shale	
80.47-81.38	0.91	Sandstone	
81.38-84.43	3.05	Shale	
		Coal Traces	
84.43-85.65	1.22	Siltstone	
85.65-87.78	2.13	Sandstone	
87.78-89.92	2.14	Grey to Brown Shale	
		Coal Traces	
89.92-90.53	0.61	Siltstone	
90.53-98.15	7.62	Salt & Pepper Sandstone	
98.15-98.60	0.45	Black Shale	
		Coal Traces	
98.60-110.19	11.59	Core Runs 5, 6, 7 & 8	
110.19-118.87	8.68	Grey Sandstone	
118.87-123.44	4.57	Grey Shale	
123.44-145.39	21.95	Salt & Pepper Sandstone	
145.39-146.61	1.22	Grey Shale	
146.61-151.79	5.18	Sandstone	
151.79-153.62	1.83	Grey to Brown Shale	
		Some Coal	

153.62-155.75	2.13	Grey Shale
155.75-156.67	0.92	Grey Brown Shale
		Coal Traces
156.67-168.55	11.88	Sandstone
168.55-170.08	1.53	Grey to Brown Shale
		Coal??
170.08-178.00	7.92	Sandstone
178.00-179.53	1.53	Grey Shale
179.53-191.41	11.88	Sandstone
191.41-194.46	3.05	Grey Shale
194.46-210.92	16.46	Sandstone
210.92-217.63	6.71	Grey Shale
217.63-235.00	17.37	Salt & Pepper Sandstone
235.00-238.66	3.66	Grey Shale
238.66-245.06	6.40	Salt & Pepper Sandstone
245.06-250.24	5.18	Conglomerate
250.24-266.70	16.46	Salt & Pepper Sandstone
266.70-272.80	6.10	Grey Shale
272.80-277.37	4.57	Conglomerate
277.37-281.94	4.57	Sandstone
281.94-284.99	3.05	Grey Shale
284.99-285.90	0.91	Brown to Black Shale
		Some Coal
285.90-289.86	3.96	Grey Shale
289.86-297.18	7.32	Sandstone
297.18-299.01	1.83	Grey-Green Shale
299.01-299.92	0.91	Siltstone
299.92-327.36	27.44	Grey & Black Shale
		Some Coal

327.36-347.47	20.11	Siltstone
347.47-360.88	13.41	Sandstone
360.88-363.93	3.05	Grey Black Shale
363.93-365.76	1.83	Sandstone

T.D. 365.76 Meters

NOTE: - 365.76 meters was total drill stem available.  
- No significant water zones encountered.  
- The No. 1 seam of coal at 3.3 meters is assumed to be at 390 meters depth.



**DRILLERS LOG**

PROPERTY: McIvor Lake  
 HOLE NO.: 88-06  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0 - 3.05	3.05	Yellow Sand	
3.05-4.27	1.22	White Sand	
4.27-9.14	4.87	Grey Clay	
9.14-30.48	21.34	Silty Blue Clay	
30.48-48.78	18.29	Tighter Blue Clay	
48.78-54.86	6.08	Silty Clay	
54.86-69.79	14.94	Silty Sand	
69.79-74.98	5.19	Salt & Pepper Sandstone	
74.98-78.94	3.96	Conglomerate	
78.94-79.86	0.92	Grey Shale	
79.86-82.30	2.44	Green Sandstone	Some
82.30-85.04	2.74	Basement - Green Volcanics	
85.04-88.39	3.35	Basement - Purple Volcanics	
88.39-91.44	3.05	Basement - Greenish Grey Volcanics	

T.D. 91.44 Meters

NOTE: - No Significant water levels were encountered.  
 - Sediments were intersected most likely only slightly stratigraphically lower than the No. 1 coal seam.

**DRILLERS LOG**

PROPERTY: McIvor Lake  
 HOLE NO.: 88-08  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0-18.29	18.29	Boulders and Gravel	
18.29-39.62	21.33	Clay	
39.62-45.72	6.1	Gravel (Wood Fragments)	
45.72-63.09	17.37	Tight Clay	
63.09-76.20	13.11	Gravels (Wood Fragments)	
76.20-86.87	10.69	Shales & Bentonite	
		Coal Trace at 77.72	
		Coal Trace at 83.21	
86.87-96.01	9.14	Sandstone	
96.01-97.54	1.53	Grey Shale	
97.54-99.06	1.52	Siltstone	
99.06-109.73	10.67	Grey to Brown Shale	
		Coal at 99.06	
		Coal at 105.77	
		Coal at 106.98	
		Coal at 109.42	
109.73-111.25	1.52	Sandstone	
111.25-112.78	1.53	Grey Shale	
112.78-115.21	2.43	Siltstone	
115.21-117.04	1.83	Grey Shale	
117.04-120.70	3.66	Brown & Black Shale	
		Coal Stringers	
120.70-123.75	3.05	Grey Shale	
123.75-131.06	7.31	Sandstone	
131.06-132.59	1.53	Shale	
		Coal Traces	
132.59-133.50	0.91	Salt & Pepper Sandstone	
133.50-134.72	1.22	Grey Shale & Bentonite	

134.72-138.99	4.27	Greenish Grey Sandstone
138.99-141.73	2.74	Grey Shale
141.73-144.17	2.44	Sandstone
144.17-147.52	3.35	Grey Shale
147.52-149.66	2.14	Grey to Green Sandstone
149.66-150.27	0.61	Grey Shale
150.27-150.88	0.61	Brown to Black Shale
		Coal ?
150.88-154.88	3.96	Brown to Black Shale
154.84-155.45	0.61	Brown to Black Shale
		Coal Stringer
155.45-156.06	0.61	Grey Shale
156.06-158.80	2.74	Siltstone
158.80-160.93	2.13	Grey Shale
		(Brown to Black Stringer)
160.93-162.76	1.83	Siltstone
162.76-163.68	0.92	Grey Shale
163.68-164.59	0.91	Sandstone
164.59-166.42	1.83	Grey Shale
166.42-168.25	1.83	Sandstone
168.25-169.47	1.22	Grey to Brown Shale
		Coal
169.47-170.38	0.91	Grey Shale
170.38-171.30	0.92	Siltstone
171.30-175.56	4.26	Sandstone
175.56-183.49	7.93	Grey Shale
183.49-186.23	2.74	Grey Shale
186.23-197.51	11.28	Sandstone
197.51-200.86	3.35	Grey Shale
200.86-201.47	0.61	Black to Brown Shale
		Coal Traces ?

201.47-202.69	1.22	Siltstone
202.69-208.78	6.09	Salt & Pepper Sandstone
208.78-210.31	1.53	Siltstone
210.31-214.88	4.57	Salt & Pepper Sandstone
214.88-233.17	18.29	Conglomerate with Sandstone Layers
233.17-234.39	1.22	Shale Coal
234.39-236.22	1.83	Conglomerate
236.22-240.18	3.96	Sandstone
240.18-242.93	2.75	Black to Brown Shale
242.93-244.75	1.82	Grey Shale
244.75-248.11	3.36	Grey Siltstone
248.11-265.48	17.37	Salt & Pepper Sandstone
265.48-266.40	0.92	Grey Shale
266.40-268.53	2.13	Sandstone
268.53-269.44	0.91	Conglomerate
269.44-273.41	3.97	Sandstone
273.41-277.37	3.96	Grey Shale
277.37-280.42	3.05	Salt & Pepper Sandstone
280.42-281.64	1.22	Shale Coal
281.64-282.85	1.21	Shale
282.85-290.47	7.62	Sandstone
290.47-291.39	0.92	Shale Coal
291.39-293.22	1.83	Salt & Pepper Sandstone
293.22-293.83	0.61	Grey to Black Shale Coal ?
293.83-297.18	3.35	Grey Shale
297.18-299.62	2.44	Siltstone
299.62-301.14	1.52	Grey to Brown Shale Coal Traces
301.14-301.75	0.61	Grey Shale

Hole 88-08

- 4 -

301.75-302.67	0.92	Brown to Black Shale Coal
302.67-307.24	4.57	Grey Shale
307.24-310.90	3.66	Sandstone

T.D. 310.90 meters

NOTE: - Basement was not encountered.  
- There were no significant zones of water.

**DRILLERS LOG**

PROPERTY: McIvor Lake  
 HOLE NO.: 88-09  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0 - 22.86	22.86	Gravel	
22.86-28.96	6.10	Till	
28.96-32.00	3.04	Gravels	Some
32.00-35.05	3.05	Till	
35.05-39.01	3.96	Gravels	Some
39.01-44.81	5.80	Till	
44.81-53.05	8.23	Silty Grey Clay	
53.04-53.64	0.60	Conglomerate	
53.64-57.91	4.27	Shales	
		Coal Traces	
57.91-58.22	0.31	Sandstone	
58.22-65.23	7.01	Shale	
65.23-67.06	1.83	Sandstone	
67.06-71.02	3.96	Grey Shale	
71.02-72.54	1.52	Grey to Black Shale	
72.54-76.20	3.66	Grey Shale	
76.20-84.12	7.92	Sandstone	
84.12-85.65	1.53	Grey Shale	
85.65-91.44	5.79	Sandstone	
91.44-92.66	1.22	Grey Brown Shale	
92.66-93.57	0.91	Sandstone	
93.57-94.49	0.92	Grey to Brown Shale	
		Carbonaceous	
94.49-96.62	2.13	Grey Shale	
96.62-103.94	7.32	Sandstone (Fractures)	
103.94-106.07	2.13	Grey Shale	

106.07-107.90	1.83	Sandstone	
107.90-110.34	2.44	Grey to Brown Shale	
110.34-114.00	3.66	Sandstone	
114.00-115.82	1.82	Grey Shale	
115.82-117.96	2.14	Sandstone	
117.96-126.19	8.23	Grey Brown Shale	Some
		Coal Traces	
126.19-127.41	1.22	Sandstone	
127.41-128.63	1.22	Grey Shale	
128.63-133.50	4.87	Sandstone	
133.50-135.64	2.14	Shale	
135.64-137.46	1.82	Sandstone (Fracture @ 135.94)	
137.46-138.88	1.53	Grey Brown Shale	
138.99-140.82	1.83	Sandstone	
140.82-142.95	2.13	Grey Shale (Fracture @ 141.43)	
142.95-148.74	5.79	Sandstone	
148.74-153.31	4.57	Grey and Brown Shale	
		Coal??	
153.31-154.84	1.53	Sandstone	
154.84-159.72	4.88	Shale	
159.72-161.24	1.52	Grey to Green Siltstone	
161.24-163.98	2.74	Grey to Brown Shale	
163.98-165.20	1.22	Sandstone	
165.20-172.21	7.01	Reddish Brown Shale	
172.21-173.13	0.92	Green Silstone	
173.13-174.65	1.52	Grey Shale (Fractured)	
174.65-176.17	1.52	Green Sandstone (Fractured)	
176.17-180.14	3.97	Grey Green Shales	
180.14-193.24	13.10	Green Sandstones	
193.24-201.17	7.93	Basement - Basalt	

T.D. 201.17 Meters

**DRILLERS LOG**

PROPERTY: McIvor Lake  
 HOLE NO.: 88-10  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0 - 6.10	6.10	Sand	
6.10-22.25	16.15	Blue Grey Clay	
22.25-39.62	17.37	Silty Clay	
39.62-66.45	26.83	Grey Silt	
66.45-76.20	9.75	Boulders & Cobbles (0.12 - 1.3 m)	
76.20-82.30	6.10	Silty Clay	
82.30-85.65	3.35	Gravels	100 gal/min.
85.65-103.63	17.98	Sand & Gravel	100 + gal/min.
103.63-109.12	5.49	Gravel	100 gal/min.
109.12-123.44	14.32	Coarse' Salt & Pepper Sandstone	
123.44-128.02	4.58	Grey Siltstone Fracture at 124.36	Some
128.02-141.73	13.71	Conglomerate, Fractured	
141.73-143.87	2.14	Coarse Grained Sandstone	
143.87-146.61	2.74	Coal, Minor Shale	
146.61-149.05	2.44	Black Shales	
149.05-151.79	2.74	Grey and Brown Shales	
151.79-153.01	1.22	Red Shale	
153.01-154.84	1.83	Conglomerate	
154.84-156.67	1.83	Green to Grey Shales	
156.67-158.19	1.52	Green Sandstone	
158.19-164.90	6.71	Green to Brown Shales	
164.90-179.22	14.32	Green Siltstone (Fractured 168-172) 167.9 m. water	Some



Hole 88-10

- 2 -

179.22-184.10	4.88	Grey Siltstone	
		Fracture @ 179.53 m.	Some
184.10-185.93	1.83	Grey to Brown Shales	
185.93-187.76	1.83	Grey Shales	
187.76-201.17	13.41	Basement - Green Volcanics	

T.D. 201.17 Meters

NOTE: - Another coal seam was identified on the E-Log from  
169.2 m. to 170.4 m.

### DRILLERS LOG

PROPERTY: McIvor Lake  
 HOLE NO.: 88-11  
 CONTRACTOR: Alberta Southern Drilling

<u>Interval(m)</u>	<u>Thickness(m)</u>	<u>Lithology</u>	<u>Water</u>
0-3.05	3.05	Yellow Sand	15 gal/min.
3.05-762	4.57	Grey Silty Sand	
7.62-35.97	28.35	Silty Grey Clay	
35.97-42.67	6.71	Tight Grey Clay	
42.67-45.72	3.05	Sand	10 gal/min.
45.72-46.63	0.91	Sand and Gravels	20 gal/min.
46.63-54.86	8.23	Tight Silty Sand	
54.86-71.63	16.77	Fine Grey Sand	30 gal/min.
71.63-74.68	3.05	Gravels	
74.68-75.29	0.61	Hard Black Sandstone (Fractured)	5 gal/min.
75.29-91.44	16.15	Green Sandstone (Conglomerate Layers)	
91.44-104.24	12.80	Green Sandstones	
104.24-112.78	8.54	Light Coloured Green Sandstone	
112.78-124.36	11.58	Basement	
124.36-125.88	1.52	Basement	
125.88-134.11	8.23	Basement	15 gal/min.

T.D. 134.11 meters

NOTE: The sandstones and conglomeritic sandstones were composed of basement material and the actual basement contact was difficult to ascertain.





COMPLETE SUITE OF CORES  
FOR DRILL HOLE 88-04

COMPLETE SUITE OF CORES  
FOR DRILL HOLE 88-05





TEN FOOT CORE OF SANDSTONE IN THE SPLIT TUBE  
CORE BARREL AT DRILL HOLE 88-05



SANDSTONE CORE FROM DRILL HOLE 88-05



PULLING WIRELINE CORE BARREL FROM HOLE 88-05



PREPARING TO PUT SPLIT TUBE CORE BARREL BACK  
IN HOLE 88-05



CEMENTING DRILL HOLE 88-08 ON B.C. FOREST PRODUCTS  
LOGGING ROAD.



DRILL HOLE 88-10 CLEANED UP AND CEMENTED.  
LOCATED ON GEORGE KNOWLES' PROPERTY.



CEMENTING DRILL HOLE 88-09 ON B.C. HYDRO RIGHT-OF-WAY



SEEDING DRILL SITE 88-09





SETTING CASING ON DRILL HOLE 88-11