

NORMAC AES LTD.

GEOLOGY OF THE LUCK LAKE/LAKE BEND
IRRIGATION PROJECT

Report 0126-002 January 21, 1990

E.A. Christiansen Consulting Ltd.

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CONSULTING GEOLOGIST

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January 21, 1990

Normac AEC Ltd.
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Attention: Dr. D.R. Cameron

Dear Dr. Cameron:

Enclosed are one copy of the text for Report 0126-002 on the "Geology of the Luck Lake/Lake Bend irrigation project" and sixteen copies of the illustrations.

Sincerely yours,

E.A. Christiansen P. Geol., P. Eng.

INTRODUCTION

The purpose of this investigation is to provide a subsurface geological framework for the study of suitability of soils for irrigation being conducted by Normac AES Ltd. in the Luck Lake/Lake Bend area. E.A. Christiansen Consulting Ltd. was commissioned to draw eight cross sections showing the stratigraphy of the bedrock and drift deposits (Drawings 0126-002-01 to 09) using existing information and to propose locations and depths of testholes to calibrate the geological information. It was agreed with Normac AES Ltd. that such a test drilling program and installation of deeper piezometers should await the procurement and assessment of results from Normac piezometer installation program.

Geological logs and groundwater analyses (Appendix A) used in this study were obtained from the Saskatchewan Research Council and Saskatchewan Water Corporation data banks and provided by Beckie Hydrogeologists Ltd. (1987), Hardy BBT Limited (1989), Normac AES Ltd. (1990), P. Machibroda Engineering Ltd. (1986), and TJ/Pedocan Land Consultants (1989a,b). Geological and pedological maps and reports (Ayres *et al.* 1985; Ellis *et al.* 1968; Christiansen and Meneley, 1971; E.A. Christiansen, 1986, 1989a,b; Sawatsky, 1967; Van Everdingen, 1972; Whitaker, S.H., 1970) were also used in this study.

GEOLOGY

Stratigraphy

Bedrock down to the top of the Judith River Formation (base of exploration) and drift were both investigated in this study. The nomenclature of the bedrock sediments was taken from McLean (1971) and Caldwell (1968). The Judith River Formation is not described in this report because it was not penetrated by wells in the cross sections (Drawings 0126-002-02 to 09).

The Bearpaw Formation is composed of up to 1350 feet (Drawing 0126-002-06, Testhole 98) of interbedded members of sands and clays. In ascending order, the members are "unnamed", Outlook, Broderick, Matador, Sherrard, Demaine, Beechy, Ardkenneth, Snakebite, Cruikshank, and Aquadell. For the purpose of this report, the "unnamed member" is referred to as "silt and clay" and the Broderick, Matador, and Sherrard are grouped into one unit referred to as "silt and clay with sand beds". The sand members represent near shore marine sediments, whereas the silts and clays represent deeper marine deposits. The spatial relationship of these sand and clay members was the result of fluctuating sea levels resulting in transgressing and regressing shorelines.

Drift in the Luck Lake/Lake Bend area includes sands and gravels of the Empress Group, tills, and surficial outwash

sands and gravels and glaciolacustrine silts and clays. For the most part the sediments are referred to as "Drift, mainly till" because it is not possible with existing information to divide the drift into smaller units. Locally, however, the Empress Group was separated (Drawings 0126-002-05, testholes 75, 85, 87; 0126-002-08, testhole 183). In testholes 35 and 59 (Drawing 0126-002-07), bedrock sands as indicated by electric logs and high SAR values (Appendix A) were mapped as drift because according to Sawatsky's seismic lines (Drawing 0126-002-01), there is no structure present to account for these sediments being undisturbed bedrock. This stratigraphic dilemma can be resolved only by test drilling.

Structure

The structure, shown by the composite seismic lines of Sawatsky (1967), exhibit depressions and uplands (Drawing 0126-002-01). The depressions are thought to represent collapse structures resulting from dissolution of Devonian salt. The upland areas (Range 11 and Archer Ridge, Birsay, Elbow, Gilroy, Thunder Creek structures) probably represent "salt hills" where little salt was removed by dissolution. The Archer Ridge, Birsay, Gilroy, and Thunder Creek structures (Drawing 0126-002-01) may be related to cryptovolcanic activity which is thought to have formed the Elbow structure (DeMille, 1960).

Groundwater

From the inventory of wells obtained by Normac AES Ltd., TJ/Pedocan Land Consultants and Saskatchewan Research Council, electrical conductivity, chloride, and SAR values were selected (Appendix A) and plotted in the cross sections (Drawings 0126-002-02 to 09). In the Luck Lake/Lake Bend area, wells are in sands in the Outlook, Demaine, and Ardkeneth Members and sands and gravel in drift.

Water from three wells in the Outlook Member have an electrical conductivity of 2.8 ± 0.4 mS/cm and an SAR of 53.2 ± 6.7 . Water from one well in the Demaine Member has an electrical conductivity of 2.1 mS/cm and an SAR of 50.2. Water from 17 wells in the Ardkeneth Member has an electrical conductivity of 3.2 ± 0.6 mS/cm and an SAR of 59.3 ± 11.6 . Water from 60 wells in drift on the other hand have an electrical conductivity of 2.3 ± 1.8 mS/cm and an SAR of 2.5 ± 2.9 .

Water in bedrock aquifers (Outlook, Demaine, Ardkeneth Members) can be distinguished readily from drift water. Bedrock aquifers have an elevated SAR resulting from a higher sodium and lower calcium and magnesium content. The elevated SAR and the nature of the electric log suggests that the aquifer in wells 35 and 59 (Drawing 0126-002-07) are in the Ardkeneth Member. The structural setting, however, suggests the aquifer are in drift. It is concluded, therefore, that

these wells are in glacially thrust slabs of Ardkenneth Member in drift.

SOIL SALINITY

Except for the lowlands south of Beechy (Drawing 0126-002-01) where the Ardkenneth Member may contribute to soil salinity, it appears that bedrock aquifers are not contributing to soil salinity in the Luck Lake/Lake Bend area. If the Ardkenneth Member is in place in Testholes 35 and 59 (Drawing 0126-002-07), then it may be the cause of soil salinity in that area.

By elimination, it appears that soil salinity in the Luck Lake/Lake Bend area is the result of artesian conditions in the Empress Group and intertill sands and gravels. Empress Group sands and gravels in Log 183 (Drawing 0126-002-08) may be the cause of soil salinity in the lowlands surrounding the Archer Ridge upland. The occurrence of intertill sands and gravels have not been verified, but are considered to be the main cause of soil salinity in the Luck Lake/Lake Bend area.

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Appendix A. Index of cross section logs, wells, and water analyses, Luck Lake/Lake Bend Irrigation Project.

No.	Name	Location	Well Depth (feet)	Screen Length (feet)	Water Level (feet)	Cond. cl=mg/L (mS/cm)	SAR	Lab	Aquifer
1	SWC-John D. Kallio	SW02-03-25-11W3	198	10	88				Drift
2		SE06-02-25-11W3	260						Drift
3	SRC-Luck Lake SW4-1	SW04-01-25-11W3							
4		NW10-06-25-10W3	64		58				Drift
5		NW06-12-25-10W3	50		20				Drift
6		NW11-16-25-09W3	30		12				Drift
7		SW09-16-25-09W3	20		17				Drift
8	Harley Kangas	NW05-15-25-09W3	60		18	0.7	5	0.1	SSTL Drift
9	Leroy Alm	SE01-14-25-09W3	110		70	2.7	59	0.6	SSTL Drift
10	Leroy Alm	NE13-12-25-09W3	25		12	1.4	25	0.5	SSTL Drift
11		SE01-17-25-08W3	90		80				Drift
12	TW-Birsay Crown #2	04-15-25-08W3							
13	Glen Howell	SW03-15-25-08W3	28						Drift
14		SE01-23-25-08W3	145		127	1.2	90	0.7	SSTL Drift
15	Deleted								
16	Doug McIntosh	NE06-18-25-07W3	25		15	0.5	4	0.2	SSTL Drift
17	Site #1373	16-18-25-07W3							
18		SE16-18-25-07W3	95						Drift
19	Deleted								
20		08-28-25-07W3	60		0				Drift
21	Harvey Lesyk	SE04-26-25-07W3	56		16	2.8	51	8.2	SSTL Drift
21			56		16	3.1	96	5.3	SSTL Drift
22	Deleted								
23	K.E. Knight	13-24-25-07W3	30		15	4.0	170	4.5	SSTL Drift
24	Beard STH No. 7	NE16-24-25-07W3							
25	TJ/Pedocan GW 1366	04-30-25-06W3							
26	SWC-Elbow No. 88-02	NW08-27-25-06W3							
27	SWC-Walsh Bros.	SE02-17-24-11W3	170	10	80				Drift
28	SWC-Steve Joki	SE03-15-24-11W3	230	10					Drift
29	Deleted								
30	Larry Hendrickson	15-09-24-10W3	100+						Drift
31	FFIB-Keith Scott	NE12-10-24-10W3	230	12	198				Drift
32	Peyto Gerc Et Al Lucky	12-23-24-10W3							
33		14-24-24-10W3	80						Drift
34	SWC-Stan Milne	SE01-24-24-10W3	110	5	10				Drift
35	FFIB-Frank Gordon	NE05-20-24-09W3	187	10	55	3.8	54	28.0	SSTL Ardkeneth in drift?
36		SE08-21-24-09W3	24		10				Drift
37	Dredge, W.	NE08-22-24-09W3	165		65	5.1	169	4.8	SSTL Drift
38		NE08-22-24-09W3	53		30				Drift
39	SRC-Luck Lake	SW03-27-24-08W3							
40		SE02-26-24-08W3	493		200				
41	FFIB-Laverne Bagshaw	NE09-25-24-08W3	492	15	237	3.8	834	642	SSTL Ardkeneth
42	SWC Luck Lake 86-111	NW05-30-24-07W3	30	3	14				Drift

No.	Name	Location	Well Depth (feet)	Screen Length (feet)	Water Level (feet)	Cond. (mS/cm)	cl=mg/L	SAR	Lab	Aquifer
42	SWC Luck Lake 86-04	NW05-30-24-07W3	134	3	38					Drift
43		08-28-24-07W3	410		160					Ardkenneth
44	SWC Luck Lake 86-109	NE01-27-24-07W3	12	3	7					Drift
44	SWC Luck Lake 86-02	NE01-27-24-07W3	210	3	2					Disturbed shale
45	SWC Luck Lake 86-204	NW13-26-24-07W3								
46	SWC Luck Lake 86-205	SE01-34-24-07W3								
47	SWC Luck Lake 86-106	NW13-35-24-07W3	21	4	11					Drift
48	SWC Luck Lake 86-203	SE03-02-25-07W3								
49	SWC Luck Lake 86-108	SE01-02-25-07W3	13	4	7					Drift
50	RM of Coteau	02-01-25-07W3	12		3	0.8	10	0.2	SSTL	Drift
51	SWC Luck Lake 86-107	SW01-01-25-07W3	26	4	11					Drift
52	Reg Eremenko	NE15-31-24-06W3	24		12	4.4	768	5.0	SSTL	Drift
53	Beard STH No. 21	SW05-03-25-06W3								
54	SWC Elbow No. 88-04	NE14-35-24-05W3								
55	FFIB-Johan Jansen	SW07-08-23-11W3								
56	TW-Beechy Crown #1	01-29-23-11W3								
57	FFIB-Dennis Baxter	NW15-22-23-10W3	69	10	30					Drift
58	Art Monroe	SE01-30-23-09W3	25		15	0.7	3	3.7	SSTL	Drift
59	SWC-Duane Ayers	SE13-21-23-09W3	158	15	+3	4.1	37	46.1	SSTL	Ardkenneth in drift?
60	SWC Dueck, W.	SE10-26-23-09W3	595	25	226	2.8	<1	54.6	SSTL	Outlook
61	Darrel Kimble	08-24-23-09W3	656		240	2.5	357	59.1	SSTL	Outlook
62	Richard Quiring	SW03-17-23-08W3	23		9	1.1	12	1.1	SSTL	Drift
63	Lawrence Tharp	NE14-08-23-08W3	35		20	2.2	43	1.9	SSTL	Drift
64	Wilfred Kohlenberg	SW04-15-23-08W3	33		15	1.7	15	2.5	SSTL	Drift
65	WRB-Greenbrier	SW04-13-23-08W3	409	3	244					Ardkenneth
66	Allistar Bishop	SW11-07-23-07W3	22			0.7	6	0.7	SSTL	Drift
67	SWC-Riverhurst 8-87	SE01-11-23-07W3								
68	SRC-Riverhurst	SE01-06-23-06W3								
69	FFIB-Dennis Obrian	SE09-27-22-06W3	435	15	190	2.8	201	66.6	SSTL	Ardkenneth
70	FFIB-Lorrel Covey	SE05-04-22-11W3	603	15	125					Demaine
71	SWC-John Hauben	SE14-10-22-11W3	127	10	+4					Drift
72	FFIB-Melvin Wiens	NE06-22-22-11W3	316	5	+4					Drift
73	FFIB-Betty Storebo	SW16-27-22-11W3	208	10						Drift
74	JWD-Town of Beechy	SE06-19-22-10W3	243	15	105					Drift
75	SRC-Demaine	SE09-27-22-10W3								
76	RM Victory	SE -26-22-10W3				1.4	3	0.5	SSTL	Drift
77	Wayne Affleck	SE09-25-22-10W3	60		47	1.4	7	1.0	SSTL	Drift
78	Alfred Saxton	NE04-30-22-09W3	530		140	4.0	75	10.8	SSTL	Drift
79	Glen Erickson	NW11-30-22-09W3	40		20	1.8	20	1.4	SSTL	Drift
80	Gulf TW-Vindeg #6	06-28-22-09W3								
81	Canaan Municipal Well	13-21-22-09W3	40		10	0.8	2	0.5	SSTL	Drift
82	Carl Johnson	NE04-14-22-09W3	20		1	0.6	6	1.3	SSTL	Drift
83	FFIB-Harold Redden	NW15-11-22-09W3								
84	Robert Leitz	SE09-14-22-09W3	425		125	3.9	94	7.5	SSTL	Drift
85	SWC-Edwin Bjorgan	SE08-18-22-08W3	380	15	110	1.7	10	2.3	SSTL	Empress Group

No.	Name	Location	Well Depth (feet)	Screen Length (feet)	Water Level (feet)	Cond. (mS/cm)	cl=mg/L	SAR	Lab	Aquifer
86	Hamilton Cattle Co. Ltd	NW -02-22-08W3	118		15	4.5	136	9.6	SSTL	Drift
87	HBBT-Belhumeur Bay	SW06-12-22-08W3								
88	HBBT-Belhumeur Bay	NE15-01-22-08W3								
89	PM-Riverhurst	SE10-05-22-07W3	151	3						
90	SNC-Riverhurst 3-87	SW12-03-22-07W3								
91	FFIB-Boyd Jones	SE02-02-22-07W3	430	15	40	2.5	122	46.1	SRC	Ardkenneth
92	FFIB-Roger Hall	SE01-04-22-06W3	560	15	160					Ardkenneth
93	TW-STH No. 351	SW12-06-20-10W3								
94	Gulf TW-Rice #5	05-34-20-10W3								
95	John Guenther	SW09-04-21-10W3	16			2.3	72	2.9	SSTL	Drift
96	John Klassen	NE01-09-21-10W3	15		12	4.4	32	7.6	SSTL	Drift
97	Kathleen Peters	16-16-21-10W3	598		250	1.1	4	1.4	SSTL	Ardkenneth
98	SRC-Beechy	SE03-20-21-10W3								
99	Harry Woelk	12-19-21-10W3	600		200	1.8	137	71.9	SSTL	Ardkenneth
100	SIP-Beechy 84-102	NW05-31-21-10W3	440	3	15					Ardkenneth
101	Ken Stroeder	05-31-21-10W3	440	16	35	2.7	35	50.2	SSTL	Ardkenneth
102	FFIB-Edward Jones	NE04-06-22-10W3	158	12	+22					Drift
103	FFIB-George Schury	SE09-01-22-11W3	152		+4					Drift
104	Gerald Wiens	SW12-08-22-10W3	117		+16	3.6	77	5.7	SSTL	Drift
105	Doug Crowley	NW07-09-22-10W3	32		6	3.9	125	2.5	SSTL	Drift
106	FFIB-Lloyd Schury	SW04-14-22-10W3								
107	SWC-Herbert Swan	SE09-22-22-10W3								
108	FFIB-Dox Baxter	NE14-34-22-10W3	200	10	100					Drift
109	Sheldon Carson	NW14-35-22-10W3	96		91					Drift
110	Sheldon Carson	SE13-01-23-10W3	26		12	1.1	8	0.5	SSTL	Drift
111	Carl Brown	SE14-07-23-09W3	120		80	1.0	3	1.0	SSTL	Drift
112	Deleted									
113	Ken Pearson	SE02-27-23-10W3	82		62	1.0	4	0.6	SSTL	Drift
114	Deleted									
115	Imperial-Rossduff	04-02-24-10W3								
116	Irvin Pennington	SW01-03-24-10W3	45		8	0.7	3	0.7	SSTL	Drift
117	SWC-Murray Boon	SE01-26-24-10W3	30		28					Drift
118	FFIB-C.Trevor Henderson	NE13-36-24-10W3	58		32					Drift
119	Harry MacRobbie	SW01-32-24-10W3	30		20					Drift
120		NE13-12-25-11W3	440		220					Ardkenneth
121	FFIB-Jim Lawes	NW13-14-25-11W3	89	10	25					Drift
122		SW16-23-25-11W3	12		9					Drift
123	SWC-Ted Koski	NW08-06-26-10W3	155	5	98					Drift
124		NE16-12-26-11W3	66		60					Drift
125		SW13-19-26-10W3	105		82					Drift
126	FFIB-Gertrude Harder	SE08-20-20-09W3	600	60	380					Ardkenneth
127	Wes Lawson	SW16-21-21-09W3	400		120	3.4	188	5.9	SSTL	Ardkenneth
128	GSC-Beechy 61-1	SW04-27-21-09W3								Drift
129		NE03-04-22-09W3	30							Drift
130	Ralph Johnson	SE04-04-22-09W3	150							

No.	Name	Location	Well Depth (feet)	Screen Length (feet)	Water Level (feet)	Cond. (mS/cm)	cl=mg/L	SAR	Lab	Aquifer
131	SWC-Dudley Weston	13-06-22-09W3	198	10	40	3.6	76	6.2	SSTL	Drift
132	Barry Harris	05-20-22-09W3	400		90	0.6	4	0.3	SSTL	Drift
133	Frank Smith	SE06-16-23-09W3	84		83					Drift
134	Ray Dueck	NW16-17-23-09W3	43		26	2.2	15	1.9	SSTL	Drift
135	Albert Drescher	SE01-04-24-09W3	630		180	3.2	635	46.0	SSTL	Outlook
136	Doug Procknow	SW05-10-24-09W3	116		55	4.0	56	30.2	SSTL	Drift
137	N. & W. Lowe	SE05-09-24-09W3	600		50	3.2	685	56.5	SSTL	Ardkenneth
138	FFIB-Bruce McIntosh	NW13-08-24-09W3	669		300	3.6	780	55.3	SSTL	Ardkenneth
139	John Peters	SE01-18-24-09W3	98		45	5.0	56	5.9	SSTL	Drift
140	FFIB-Roy Warren	SE16-18-24-09W3	127	10	12	5.3	37	5.5	SSTL	Drift
141		09-27-24-09W3	22							Drift
142		NW04-35-24-09W3	53		5					Drift
143		SE08-34-24-09W3	60		6					Drift
144	Gary Wright	NE13-35-24-09W3	10		5	1.3	5	0.9	SSTL	Drift
145	Wilfred Lawes	SW12-02-25-09W3				1.2	4	0.8	SSTL	Drift
146	Roy Alto	NW13-13-25-09W3	87		67	2.9	25	0.9	SSTL	Drift
147		11-23-25-09W3	40		25					Drift
148	Ted Pouss	14-23-25-09W3	40		33	2.2	149	0.4	SSTL	Drift
149	Edward Ylioya	NW05-27-25-09W3	20		12	1.4	14	0.4	SSTL	Drift
150	FFIB-Harold Boon	NW16-28-25-09W3	117	13	70	1.0	6	0.4	SSTL	Drift
151		04-33-25-09W3	18		14					Drift
152	FFIB-Ray Pulkkinen	SW10-32-25-09W3	280	8.5	251	1.0	2	0.4	SSTL	Drift
153		SE08-21-26-09W3	90		52					Drift
154	FFIB-Reino Karppenin	NE15-28-26-09W3	420		10	265				Drift
155	FFIB-Ralph Guillet	SE09-34-26-09W3	445		20	280				Ardkenneth
156	HB Mobil Log Valley	16-04-20-08W3								
157	HCD-Elmer Janke	SW14-25-20-08W3	1015	5						Outlook
158	SWC-Kenneth Hall	04-16-21-08W3	499	10	266					Demaine
159	Lorne Sheppard	NE07-18-21-08W3	525		300	2.1	249	50.2	SSTL	Demaine
160	HB-Sunkist	12-18-21-08W3								
161	Penny Springett	SW12-20-21-08W3	200		49	6.5	265	5.0	SSTL	Drift
162	Lee Springett	SE01-30-21-08W3	5		5	4.6	112	2.6	SSTL	Drift
163	Leonard Johnson	SE08-32-21-08W3	310		Flowing					Drift?
164	FFIB-Vic Nairn	NE16-31-21-08W3	292		70	6.0	72	6.5	SSTL	Drift
165	Randolf Jordbro	NE09-26-22-09W3	30		20	0.8	4	0.6	SSTL	Drift
166	Herman Dyck	NE16-36-22-09W3	75		64	1.7	28	0.7	SSTL	Drift
167	Robert Dewey	SE16-06-23-08W3	765		300	3.0	54	5.2	SSTL	Outlook
168	Edward Lowe	SE16-15-23-09W3	100		14	0.7	15	0.8	SSTL	Drift
169	Deleted									
170	Maurice Bayless	NE13-06-24-08W3	60		16	7.6	271	8.7	SSTL	Drift
171	Donald Couch	NE13-32-23-08W3	508		221	3.3	606	73.8	SSTL	Ardkenneth
172	David Binnie	SW03-04-24-08W3	23		16	6.6	12	9.8	SSTL	Drift
173	FFIB-Edward Boon	NW05-11-24-08W3	385	15	150					Ardkenneth
174	SWC-Ward Bros	NE14-12-24-08W3	395	15	172					Ardkenneth
175	Gary Nicols	NE08-13-24-08W3	490		150	3.8	834	52.4	SSTL	Ardkenneth

No.	Name	Location	Well Depth (feet)	Screen Length (feet)	Water Level (feet)	Cond. (mS/cm)	cl=mg/L	SAR	Lab	Aquifer
176	SWC Luck Lake 86-03	NW04-24-24-08W3	127	3	127					Drift
177	RD Birsay (Miller, M.)	07-34-24-08W3	480	10	150	3.6	275	65.4	SSTL	Ardkenneth
178	RM of Coteau	SW04-03-25-08W3	20		10	0.7	6	0.5	SSTL	Drift
179	Bernard Labar	C 09-04-25-08W3	18			0.6	6	0.7	SSTL	Drift
180	Stan Finch	NW11-04-25-08W3	34		22	1.9	72	2.0	SSTL	Drift
181	TW-Birsay Crown #1	13-04-25-08W3								Drift
182	Jerry Hastie	NW05-09-25-08W3	60		35	1.8	41	2.5	SSTL	Drift
183	TW-STH Birsay	NW07-09-25-08W3								Drift
184		16-27-25-08W3				Flowing				Drift?
185	George Delparte	NW05-34-25-08W3	28		21	1.6	44	0.4	SSTL	Drift
186		NE16-33-25-08W3	120		109					Drift
187	RM of Coteau	NW13-34-25-08W3	85		28	0.6	2	0.2	SSTL	Drift
188		SE13-01-26-08W3	28		16					Drift
189	FFIB-August Simonson	NE14-07-26-07W3	195	10	45					Drift + Ardkenneth
190		NE01-13-26-08W3	73		38					Drift
191	Beard-STH No. 3	NE08-24-26-08W3								Drift
192		NE11-24-26-08W3	31		8					Ardkenneth
193	FFIB-Roy Lee	SE04-07-27-07W3	200	10	165					Drift
194	HB-Chaplin Lake #5	06-20-20-07W3								Ardkenneth
195	SRC-Vermilion Hills	SE08-32-20-07W3								Demaine
196	SNC-Riverhurst 1-87	SE03-17-21-07W3								Ardkenneth
197	FFIB-Don Thompson	NE16-17-21-07W3	565	15	280					Demaine
198	FFIB-Dean Stanley	SW14-27-21-07W3	430	40						Ardkenneth
199	SNC-Riverhurst 4-87	NW15-10-22-07W3								Drift
200	WRB-Riverhurst	NW16-14-22-07W3	344		4	3.7	122	55.0	SRC	Ardkenneth
201	SNC-Riverhurst 6-87	NE16-22-22-07W3								Drift
202	GSC Luck Lake RDH 5	NW05-27-22-07W3	392		54	2.3	356	31.4	SRC	Ardkenneth
203	GSC Luck Lake RDH 4	NW10-28-22-07W3	276		18	2.7	257	56.0	SRC	Ardkenneth
204	GSC Luck Lake RDH 7	SW04-33-22-07W3	177		0					Ardkenneth
205	GSC Luck Lake RDH 2	SW13-32-22-07W3	299		174					Ardkenneth
206	GSC Luck Lake RDH 1	SW04-05-23-07W3	346		234					Ardkenneth
207	Wendell Weinberger	SW13-12-23-08W3	30		25	3.1	157	0.8	SSTL	Drift
208	RD-Lucky Lake(Jones, J.E.)	NW05-30-23-07W3	412	12	217					Ardkenneth
209	Doug Jones	SW12-30-23-07W3	465		125	3.3	640	54.8	SSTL	Ardkenneth
210	FFIB-Gordon Ward	15-07-24-07W3	416	10	210	3.5	762	62.1	SSTL	Ardkenneth
211	Mervin Murdoch	NW14-08-24-07W3	410		140	3.6	780	64.9	SSTL	Ardkenneth
212	FFIB-William Aitkens	NE16-08-24-07W3								Disturbed shale
213	Robert Whiteside	SE09-15-24-07W3	21		9	0.7	9	0.2	SSTL	Drift
214	H. Murdoch	SW11-34-24-07W3				0.6	20	0.3	SSTL	Drift
215	FFIB-Ross Sinclair	SW02-04-25-07W3	450	10	180	4.3	993	81.4	SSTL	Ardkenneth
216	SWC Luck Lake 86-01	NE09-04-25-07W3	76	3	8					Drift
216	"	"	272	6	15					Disturbed shale
217	Deleted									
218	Deleted									
219		10-36-25-07W3	44		39					Drift

January 23, 1990

Normac AEC Ltd.
Box 880, Highway No. 1 East
Swift Current, Saskatchewan
S9H 3W8

Attention: Dr. D.R. Cameron

Dear Doug:

Enclosed are one copy of the text of Report 0126-002 on the "Geology of the Luck Lake/Lake Bend irrigation project" and 16 copies of Drawings 0126-002-01 to 09. I am also enclosing one colored copy of the revised version of Drawing 0126-002-03 to replace the one you have. If you have any queries or further requirements, please contact me.

I enjoyed working with you one this project and look forward to doing so again sometime.

Sincerely yours,

E.A. Christiansen

E. A. Christiansen Consulting Ltd.

CONSULTING GEOLOGIST

BOX 3087
SASKATOON, SASKATCHEWAN, CANADA
S7K 3S9

PHONE 374-6700

July 10, 1989

Normac AES Ltd.
Box 880, Highway No. 1 East
Swift Current, Saskatchewan
S9H 3W8

Attention: Dr. D.R. Cameron

Dear Dr. Cameron:

Enclosed is a copy of Project Proposal 0126-001 on the "Geology of the Lake Bend irrigation project". Before commencing this study, I will require your inventory of wells information and any other information you have pertinent to the above investigation.

I suggest that we spend a day in the field as soon as possible after you have completed the well inventory of which time we can finalize the location of the cross sections.

I shall look forward to the prospect of working with you again.

Sincerely yours,

E.A. Christiansen

TIMING

This work would not commence until the results of the well inventory have been provided by Normac AES Ltd.

Date

E.A. Christiansen

E. A. Christiansen Consulting Ltd.

CONSULTING GEOLOGIST

BOX 3087
SASKATOON, SASKATCHEWAN, CANADA
S7K 3S9

PHONE 374-6700

October 26, 1989

Normac AES Ltd.
Box 880, Highway No. 1 East
Swift Current, Saskatchewan
S9H 3W8

Attention: Dr. D.R. Cameron

Dear Doug:

Enclosed is a draft copy of Report 0126-002 on the "Geology of the Luck Lake/Lake Bend irrigation project". Please read and return both text and drawings along with your comments, corrections, and recommendations.

Attached are queries and requirements for Appendix A.

Sincerely yours,

Earl

E.A. Christiansen

Geology of the Luck Lake/Lake Bend irrigation project.

Item	Well	Query or Requirements
1.	52	SAR and chloride too high for surficial sand.
2.	76	1/4 LSD, depth, water level.
3.	97	SAR too low for Ardkenneth water.
4.	127	SAR too low for Ardkenneth water.
5.	136	SAR too high for drift water.
6.	145	Depth and water level.
7.	167	SAR too low for Outlook water.
8.	184	Depth
9.	211	NW8-24-7W3 (field notes), NW28-24-7W3 (analyses).
10.	214	Depth and water level
11.	59	NW21-23-9W3 (field notes), NW24-23-9W3 (analyses).

ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K. BAR ELEV	DEPTH	LOG
				(FT)	(FT)	TYPE
73907	8-23-23 -28W2	721	PHEASANT NOEL ET AL AVLESBURY	2041	2029	452 DIL
73908	12- 2-12 -29W2	721	SOCONY MOSSBANK STH 4	0	2316	30 E
73909	13- 4-12 -29W2	721	SOCONY MOSSBANK STH 7	0	2231	30 E
73910	16- 4-12 -29W2	721	SOCONY MOSSBANK STH 6	0	2290	30 E
73911	16- 9-12 -29W2	721	SOCONY MOSSBANK 5	0	2266	30 E
73912	5-14-12 -29W2	721	SOCONY MOSSBANK 5TH 3	0	2246	30 E
73913	10-10-17 -29W2	721	PAN AM UOHL AL CARON	2019	2007	617 INE
73914	3-15-24 -29W2	721	TIDEWATER CRAIK CROWN #1	2076	0	447 E
73915	16-11-14 -30W2	721	SHELL OLD WIVES	2205	0	492 E
73916	3-27-15 - 1W3	72J	PENNZOIL PURE PARKBEG	2375	2364	362 INE
73917	15-22-16 - 1W3	72J	SEABOARD OLD WIVES	2099	0	313 E
73918	4-12-17 - 1W3	72J	PENZOIL PURE MORTLACH	2000	1989	359 INE
73919	10- 3-18 - 1W3	72J	BOSSART MORTLACH	1956	1944	361 INE
73920	9-36-18 - 1W3	72J	BOSSART ROWLETTA	1910	1897	412 INE
73921	12- 6-19 - 1W3	72J	IMPERIAL LAKE VALLEY	1962	0	100 GRN
73922	3-18-20 - 1W3	72J	CDR ESKBANK	2013	2001	352 DIL
73923	1-20-23 - 1W3	72J	TW EYEBROW CROWN 1	1924	1915	337 E
73924	5-30-23 - 1W3	72J	TW EYEBROW CROWN 2	1917	1908	392 LAT
73925	7- 3-18 - 2W3	72J	PURE PARKBEG	2045	2035	360 INE
73926	4-14-18 - 2W3	72J	BOSSORT PARKBEG	1992	1980	370 INE
73927	12-21-18 - 2W3	72J	UNION PARKBEG	1982	1970	424 DIL
73928	1-24-18 - 2W3	72J	BOSSORT ROWLETTA	1973	1961	410 INE
73929	1-27-18 - 2W3	72J	BOSSORT PARKBEG	2002	1990	350 INE
73930	7- 3-21 - 2W3	72J	TW EYEBROW	2024	0	419 E
73931	4-15-21 - 2W3	72J	CDR EYEBROW	2062	2050	366 INE
73932	14-34-22 - 2W3	72J	DOMTAR SIFTO SALT TUGASKE	1895	1881	484 IND
73933	14-34-22 - 2W3	72J	DOMTAR SIFTO SALT TUGASKE	1895	1881	484 DIR
73934	12-35-22 - 2W3	72J	EL CENTRO	1885	0	422 E
73935	2-10-23 - 2W3	72J	PLACIO SIFTO TUGASKE	1873	1863	405 INE
73936	4-10-23 - 2W3	72J	SIFTO SALT TUGASKE	1883	1870	442 IND
73937	2- 2-13 - 3W3	72J	SIGNAL JOHNSTON LAKE	2331	2323	460 E
73938	2- 2-13 - 3W3	72J	SIGNAL JOHNSTON LAKE	2331	2323	200 GR
73939	13- 8-15 - 3W3	72J	TW PARKBEG CROWN 2	2304	2294	312 E
73940	11-14-17 - 3W3	72J	TW PARKBEG CROWN 3	2351	0	305 E
73941	4- 3-18 - 3W3	72J	NEW SPRIG PURE PARKBEG	2000	1990	390 INE
73942	16-18-18 - 3W3	72J	TW PARKBEG CROWN 4	2424	2414	461 E
73943	10-32-18 - 3W3	72J	TW PARKBEG CROWN 1	2217	2203	395 E
73944	1A-27-20 - 3W3	72J	HB DARMODY	1984	1972	622 DIL
73945	4-19-21 - 3W3	72J	HB CENTRAL BUTTE	1982	1971	372 INE
73946	13-21-16 - 4W3	72J	PARAMOUNT CHAPLIN LK	2239	2226	593 INE
73947	14-36-16 - 4W3	72J	UOHL MELBA	2300	2285	460 INE
73948	16- 7-17 - 4W3	72J	IMPERIAL SECRETAN	2242	0	96 GRN
73949	16- 7-17 - 4W3	72J	IMPERIAL SECRETAN	2242	0	622 E
73950	2-27-17 - 4W3	72J	IMPERIAL SECRETAN	2326	2312	624 E
73951	1-28-20 - 4W3	72J	HB MAWER	2090	2079	345 INE
73952	12- 2-22 - 4W3	72J	HB BRIDGEFORD	1996	1980	290 INE
73953	1-34-23 - 4W3	72J	HB ELBOW 1	1777	1765	317 E
73954	1-34-23 - 4W3	72J	HB ELBOW 1	1777	0	0 GR

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ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K.	BAR ELEV	DEPTH LOG	
				(FT)	(FT)		TYPE
73955	13- 8-19 - SW3	72J	CDR CENTRAL BUTTE	0	2127	30	E
73956	13- 9-19 - SW3	72J	CDR CENTRAL BUTTE	0	2148	30	E
73957	4-30-19 - SW3	72J	CDR CENTRAL BUTTE	0	2056	30	E
73958	13-32-19 - SW3	72J	CDR CENTRAL BUTTE	0	2056	30	E
73959	5- 6-20 - SW3	72J	CDR CENTRAL BUTTE	0	2072	30	E
73960	4-16-20 - SW3	72J	CDR CENTRAL BUTTE	0	2152	30	E
73961	13-20-20 - SW3	72J	CDR CENTRAL BUTTE	0	2145	30	E
73962	4- 4-21 - SW3	72J	CDR CENTRAL BUTTE	0	2144	30	E
73963	6-27-15 - 6W3	72J	BA OIL MOORE	2411	2399	590	GRN
73964	5-28-15 - 6W3	72J	TW KELSTERN CROWN 1	2415	2406	328	E
73965	12-22-16 - 6W3	72J	SOCONY MOBIL DROXFORD	2265	2252	332	INE
73966	9-20-17 - 6W3	72J	HB CHAPLIN LAKE 1	2215	0	421	E
73967	4-16-18 - 6W3	72J	HB TW CHAPLIN LAKE 2	2418	0	414	E
73968	4-33-18 - 6W3	72J	HB TW CHAPLIN LAKE 3	2451	2441	425	E
73969	13- 8-19 - 6W3	72J	CDR CENTRAL BUTTE	0	2370	30	E
73970	4-14-19 - 6W3	72J	CDR CENTRAL BUTTE	0	2270	30	E
73971	4-25-19 - 6W3	72J	CDR CENTRAL BUTTE	0	2115	30	E
73972	13-25-19 - 6W3	72J	CDR CENTRAL BUTTE	0	2145	30	E
73973	1-26-19 - 6W3	72J	CDR HB AQUADELL	2134	2122	320	INE
73974	4-28-19 - 6W3	72J	CDR CENTRAL BUTTE	0	2379	30	E
73975	13-32-19 - 6W3	72J	CDR CENTRAL BUTTE	0	2340	30	E
73976	16-35-19 - 6W3	72J	AQUITANE CHAPLIN LAKE	2054	2040	356	DIL
73977	16-11-20 - 6W3	72J	CDR CENTRAL BUTTE	0	2100	30	E
73978	13-12-20 - 6W3	72J	CDR NORTH AQUADELL	2112	2100	320	INE
73979	4-16-20 - 6W3	72J	CDR CENTRAL BUTTE	0	2239	30	E
73980	4-27-20 - 6W3	72J	CDR CENTRAL BUTTE	0	2066	30	E
73981	4-29-20 - 6W3	72J	CDR CENTRAL BUTTE	0	2183	30	E
73982	13-36-20 - 6W3	72J	CDR CENTRAL BUTTE	0	1995	30	E
73983	4- 4-21 - 6W3	72J	CDR CENTRAL BUTTE	0	2152	30	E
73984	16-13-21 - 6W3	72J	IMPERIAL LAWSON 1	0	2175	620	E
73985	16-13-21 - 6W3	72J	JC SPROULE LAWSON 1	2183	0	35	E
73986	16-13-21 - 6W3	72J	JC SPROULE LAWSON 1A	2214	0	35	E
73987	5-13-23 - 6W3	72J	TW ELBOW CROWN 2	1982	1972	310	E
73988	1-25-23 - 6W3	72J	TW ELBOW CROWN 1	1945	1937	305	E
73989	12-25-23 - 6W3	72J	IMPERIAL ELBOW 1	1948	0	618	E
73990	4-18-14 - 7W3	72J	IMPERIAL HODGEVILLE	2446	2436	374	GIE
73991	12-17-16 - 7W3	72J	SIGNAL MORSE CROWN	2512	2503	482	E
73992	1-27-16 - 7W3	72J	JEFF LAKE MOBIL MORSE	2333	2322	412	INE
73993	1- 6-18 - 7W3	72J	IMPERIAL MORSE 1	2332	0	620	E
73994	13-28-18 - 7W3	72J	CDR CENTRAL BUTTE	0	2367	30	E
73995	16- 5-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2348	30	E
73996	13- 8-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2360	30	E
73997	4-14-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2464	40	E
73998	13-20-19 - 7W3	72J	CDR CALDERBANK	2388	2376	321	INE
73999	4-22-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2382	30	E
74000	9-26-19 - 7W3	72J	HB TW CHAPLIN LAKE 4	2382	2373	414	E
74001	13-27-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2452	30	E
74002	4-28-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2372	40	E

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ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K.	BAR ELEV	DEPTH LOG	
				(FT)	(FT)	TYPE	
74003	13-28-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2464	30 E	
74004	4-29-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2339	30 E	
74005	4-31-19 - 7W3	72J	CDR CENTRAL BUTTE	0	2343	30 E	
74006	12-35-19 - 7W3	72J	TW HB CHAPLIN LAKE 7	2434	0	423 E	
74007	13- 3-20 - 7W3	72J	HB TW CHAPLIN LAKE 6	2450	0	423 E	
74008	1- 5-20 - 7W3	72J	CDR CENTRAL BUTTE	0	2495	30 E	
74009	4- 5-20 - 7W3	72J	CDR CENTRAL BUTTE	0	2472	30 E	
74010	6-20-20 - 7W3	72J	HB TW CHAPLIN LAKE 5	2426	2417	417 E	
74011	12-27-22 - 7W3	72J	GSC RIVERHURST 5B	0	1954	0 E	
74012	12-27-22 - 7W3	72J	GSC RIVERHURST 5C	0	1954	0 E	
74013	15-28-22 - 7W3	72J	GSC RIVERHURST 4C	0	0	0 E	
74014	15-28-22 - 7W3	72J	GSC RIVERHURST 4B	0	1853	0 E	
74015	13-32-22 - 7W3	72J	MTS RDH 5 LUCKY LAKE	0	1870	20 E	
74016	13-32-22 - 7W3	72J	MTS RDH 4 LUCKY LAKE	0	1870	20 E	
74017	13-32-22 - 7W3	72J	MTS RDH 6 LUCKY LAKE	0	1871	20 E	
74018	4- 5-23 - 7W3	72J	MTS RDH LUCKY LAKE 1	0	1930	0 E	
74019	4- 5-23 - 7W3	72J	MTS RDH LUCKY LAKE 3	0	1931	20 E	
74020	4- 5-23 - 7W3	72J	MTS RDH LUCKY LAKE 2	0	1931	20 E	
74021	4-28-14 - 8W3	72J	CAN GULF STELTER 4	2566	0	518 E	
74022	4-28-14 - 8W3	72J	CAN GULF STELTER 4	2566	0	50 GRN	
74023	8-35-14 - 8W3	72J	SOCONY MOBIL STELTER	2523	2511	451 INE	
74024	4-17-15 - 8W3	72J	SOCONY MOBIL FLOWING WELL	2627	2615	401 INE	
74025	16-25-16 - 8W3	72J	TW MORSE CROWN 1	2354	2343	385 E	
74026	15-22-17 - 8W3	72J	SOCONY MOBIL MORSE	2504	2494	400 INE	
74027	12- 3-18 - 8W3	72J	HONOLULU REED LAKE	2430	2418	585 INE	
74028	4-34-19 - 8W3	72J	SOCONY MOBIL GLEN KERR	2430	2417	528 INE	
74029	16- 4-20 - 8W3	72J	HB MOBIL LOG VALLEY	2430	2419	397 INE	
74030	12-18-21 - 8W3	72J	HB SUNKIST	2130	2119	363 INE	
74031	2- 5-12 - 9W3	72J	CAN GULF WILLIS	2486	0	602 E	
74032	15-19-12 - 9W3	72J	TW VANGUARD 1	0	2527	150 E	
74033	14-30-12 - 9W3	72J	TW VANGUARD CR 1	2676	0	407 E	
74034	15-31-12 - 9W3	72J	TW VANGUARD 4	0	2843	20 E	
74035	10-32-15 - 9W3	72J	SOCONY MOBIL NEIDPATH	2567	2555	417 INE	
74036	6- 4-18 - 9W3	72J	SOCONY MOBIL HERBERT	2378	2365	402 INE	
74037	4-30-18 - 9W3	72J	TW HERBERT CROWN 1	2477	2467	252 E	
74038	5-11-19 - 9W3	72J	HB TW CHAPLIN LAKE 8	2444	0	431 E	
74039	3-29-19 - 9W3	72J	HB MOBIL GOULD TOWN	2490	2479	395 INE	
74040	5-27-21 - 9W3	72J	GSC BEECHY 61-1	0	2135	50 E	
74041	6-28-22 - 9W3	72J	CAN TW VINDEG 6	2216	2203	598 E	
74042	4- 4-13 -10W3	72J	SPRING PURE BRADDOCK	2946	2934	398 INE	
74043	5- 7-14 -10W3	72J	TW BRADDOCK CROWN 1	2654	0	416 E	
74044	9-27-14 -10W3	72J	CAN GULF TW SABINE 9	2591	2579	597 E	
74045	1-19-15 -10W3	72J	SOCONY MOBIL RUSH LAKE	2560	2548	426 INE	
74046	4-11-17 -10W3	72J	SEABOARD TW HEBERT CROWN	2339	0	534 E	
74047	13- 5-18 -10W3	72J	TW RUSH LAKE CROWN 1	2370	0	400 E	
74048	11-29-19 -10W3	72J	TW RUSH LAKE CROWN 2	2402	2395	538 E	
74049	16-30-19 -10W3	72J	TW CRUIKSHANK STH 352	0	2393	30 E	
74050	8-31-19 -10W3	72J	TW CRUIKSHANK STH 353	0	2337	30 E	

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ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K. BAR ELEV	DEPTH	LOG
				(FT)	(FT)	TYPE
74051	16-35-19 -10W3	72J	SOCONY MOBIL ARDKENNETH	2364	2352	402 INE
74052	12- 6-20 -10W3	72J	TW CRUIKSHANK STH 351	0	2286	30 E
74053	5-34-20 -10W3	72J	CAN GULF TW RICE 5	2223	2210	616 E
✓ 74054	9-27-22 -10W3	72J	CAN GULF TW BURREL 9	2390	0	593 E
74055	4-33-13 -11W3	72J	SPRIG PURE BRADDOCK	2925	2815	421 INE
74056	16- 2-14 -11W3	72J	TW BRADDOCK CROWN 2	2724	0	342 E
74057	15-19-16 -11W3	72J	ENSIGN CHAPLIN LK	2401	2389	388 OIL
74058	10-36-16 -11W3	72J	SOCONY MOBIL RUSH LAKE	2554	2542	562 IGR
74059	10-17-17 -11W3	72J	SHELL TW RUSH LAKE	2554	2542	389 E
74060	5-28-17 -11W3	72J	TW RUSH LAKE CROWN 3	2566	2557	386 E
74061	14-19-18 -11W3	72J	PURE AMERADA RUSH LAKE	2404	2394	348 INE
74062	4-34-18 -11W3	72J	TW RUSH LAKE CROWN 5	2466	0	344 E
74063	2- 5-19 -11W3	72J	SHELL TW MAIN CENTRE	2401	0	357 E
74064	13- 8-19 -11W3	72J	HB BEAVER FLAT	2347	2335	372 INE
74065	11-11-19 -11W3	72J	HB MOBIL MAIN CENTRE	2370	2359	397 INE
74066	14-17-19 -11W3	72J	TW RUSH LAKE STH 211	0	2306	20 E
74067	6-20-19 -11W3	72J	SOCONY MOBIL BEAVER FLAT	1983	1970	459 INE
74068	3-36-19 -11W3	72J	TW RUSH LAKE CROWN 4	2363	0	376 E
74069	4- 6-21 -11W3	72J	CDR STEWART VALLEY	2366	0	20 E
✓ 74070	12-35-21 -11W3	72J	CAN GULF TW MEADEN	2339	2327	611 E
✓ 74071	1-29-23 -11W3	72J	TW BEECHY CROWN 1	2411	0	509 E
74072	1-29-23 -11W3	72J	TW BEECHY CROWN 1	2411	0	0 GRN
74073	16- 4-13 -12W3	72J	TW MAHON CROWN 1	2888	0	350 E
74074	2- 4-16 -12W3	72J	TW WALDECK CROWN	2584	0	302 E
74075	12- 6-16 -12W3	72J	SOCONY MOBIL SWIFT CURRENT	2681	2669	410 INE
74076	8-34-17 -12W3	72J	SHELL TW BEAVER FLAT	2655	0	356 E
74077	9- 5-18 -12W3	72J	SHELL TW BEAVER FLAT	2506	0	356 E
74078	11-11-18 -12W3	72J	PURE AMERADA LEINAN	2427	2417	397 INE
74079	2-16-19 -12W3	72J	SHELL TW BEAVERFLAT	2391	0	365 E
74080	1-20-19 -12W3	72J	TW STEWART VALLEY STH 359	0	2336	30 E
74081	4-32-19 -12W3	72J	TW STEWART VALLEY STH 355	0	2246	30 E
74082	4-13-20 -12W3	72J	CDR STEWART VALLEY	0	2354	20 E
74083	-20-20 -12W3	72J	CDR STEWART VALLEY	0	2383	20 E
74084	1-26-20 -12W3	72J	CDR STEWART VALLEY	0	2396	20 E
74085	13-34-20 -12W3	72J	CDR STEWART VALLEY	0	2402	20 E
74086	13-34-21 -12W3	72J	TW KYLE STH 19	0	2276	50 E
74087	11-20-13 -13W3	72J	IMPERIAL SWIFT CURRENT 1	0	2693	541 E
74088	1-23-13 -13W3	72J	TW WYMARK STH 378	0	2911	30 E
74089	13-24-13 -13W3	72J	TW WYMARK STH 379	0	2917	30 E
74090	13-25-13 -13W3	72J	TW WYMARK STH 380	0	2910	30 E
74091	3-30-13 -13W3	72J	SOCONY MOBIL S SWIFT CURRENT	0	2929	2917 INE
74092	16-31-13 -13W3	72J	TW DUNELM	2891	2882	418 E
74093	13-23-14 -13W3	72J	TW CRYSTAL NEUFELD 1	2818	0	346 E
74094	9-27-14 -13W3	72J	SOCONY MOBIL SWIFT CURRENT	2768	2758	419 INE
74095	13- 8-15 -13W3	72J	FED SWIFT CURRENT STH 4	0	2679	40 E
74096	10-11-15 -13W3	72J	SOCONY MOBIL SWIFT CURRENT	2722	2709	451 IGR
74097	13-16-15 -13W3	72J	FED SWIFT CURRENT STH 5	0	2662	30 E
74098	1-18-15 -13W3	72J	WILLISTON SWIFT CURRENT HARLOW	2671	2659	396 E

ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K. BAR ELEV DEPTH LOG (FT) (FT)	TYPE
75971	13-26-34 - 2W3	720	US BORAX ALLAN TW 27	0 1726	E
75972	4-27-34 - 2W3	720	US BORAX ALLAN TW 35	0 1762	E
75973	13-27-34 - 2W3	720	US BORAX ALLAN TW 36	0 1756	E
75974	13-28-34 - 2W3	720	US BORAX ALLAN TW 41	0 1744	E
75975	4-29-34 - 2W3	720	US BORAX ALLAN TW 45	0 1760	E
75976	16-31-34 - 2W3	720	US BORAX ALLAN TW 47	0 1715	E
75977	4-32-34 - 2W3	720	US BORAX ALLAN TW 46	0 1755	E
75978	12-32-34 - 2W3	720	US POTASH BRADWELL	1759 0	411 E
75979	4-35-34 - 2W3	720	US BORAX ALLAN TW 31	0 1761	E
75980	13-35-34 - 2W3	720	US BORAX ALLAN TW 32	0 1710	E
75981	13- 1-35 - 2W3	720	US BORAX ALLAN TW 28	0 1747	E
75982	4- 3-35 - 2W3	720	US BORAX ALLAN TW 37	0 1711	E
75983	4- 4-35 - 2W3	720	US BORAX ALLAN TW 42	0 1716	E
75984	13- 5-35 - 2W3	720	US BORAX ALLAN TW 48	0 1763	E
75985	4- 6-35 - 2W3	720	US BORAX ALLAN TW 54	0 1730	E
75986	13- 7-35 - 2W3	720	US BORAX ALLAN TW 56	0 1735	E
75987	4- 9-35 - 2W3	720	US BORAX ALLAN TW 43	0 1754	E
75988	13- 9-35 - 2W3	720	US BORAX ALLAN TW 58	0 1783	E
75989	4-10-35 - 2W3	720	US BORAX ALLAN TW 38	0 1744	E
75990	4-17-35 - 2W3	720	US BORAX ALLAN TW 57	0 1762	E
75991	5-34-35 - 2W3	720	PCA SASKATOON	1731 0	387 E
75992	13-11-34 - 3W3	720	US BORAX BRADWELL	1745 1733	283 E
75993	14-23-34 - 3W3	720	BISON BRADWELL	1761 1746	486 IND
75994	5-34-34 - 3W3	720	ANGLO AM GRIDOIL CLAVET	1752 1739	100 GRN
75995	16- 1-35 - 3W3	720	US BORAX ALLAN TW 55	0 1769	E
75996	1-34-35 - 3W3	720	PCA SASKATOON	1713 0	364 E
75997	13- 6-25 - 4W3	720	BEARD MVC TH 18	0 1906	20 E
75998	12-16-26 - 4W3	720	IMPERIAL TW STRONGFIELD	2000 1988	582 E
75999	12-16-26 - 4W3	720	IMPERIAL TW STRONGFIELD	2000 1988	50 GRN
76000	14- 8-32 - 4W3	720	PHEAS NOEL DUNDURN	1728 1716	503 DIL
76001	16-20-32 - 4W3	720	PHEAS NOEL DUNDURN	1807 1795	511 DIL
76002	1- 7-33 - 4W3	720	TW DUNDURN CROWN 5	1716 0	250 E
76003	16-34-24 - 5W3	720	BEARD MVC TH 13	0 1688	20 E
76004	16-10-25 - 5W3	720	BEARD MVC TH 12	0 1933	0 E
76005	12-16-25 - 5W3	720	BEARD MVC TH 11	0 1918	0 E
76006	16-18-25 - 5W3	720	MAYRATH ELBOW	1891 0	233 E
76007	2-19-25 - 5W3	720	BEARD MVC TH 16	0 1882	20 E
76008	13-22-25 - 5W3	720	BEARD MVC TH 15	0 1973	20 E
76009	13-34-25 - 5W3	720	BEARD MVC TH 14	0 1985	20 E
76010	12-10-29 - 5W3	720	PLACIO TW HAWARDEN CROWN 1	2014 2001	677 E
76011	4-22-31 - 5W3	720	TW DUNDURN CROWN 1	1741 0	294 E
76012	5-35-31 - 5W3	720	GREAT CAN DUNDURN	1726 1712	452 IND
76013	9- 4-32 - 5W3	720	GR CAN DUNDURN	1729 1715	454 INE
76014	10- 7-32 - 5W3	720	GOLD FIELD GR CAN DUNDURN	1716 1701	471 IND
76015	8-17-32 - 5W3	720	TW DUNDURN CROWN 2	1726 0	297 E
76016	13-18-32 - 5W3	720	IMPERIAL DUNDURN	1703 1689	503 IND
76017	12-20-32 - 5W3	720	GR CAN GOLD FIELD DUNDURN	1711 1696	451 IND
76018	16-34-23 - 6W3	720	TW ELBOW CROWN 3	1912 1903	791 E

ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K.	BAR ELEV	DEPTH LOG	
				(FT)	(FT)		TYPE
76019	5- 3-25 - 6W3	720	BEARD MVC TH 21		0 1894	30 E	
76020	4-14-25 - 6W3	720	BEARD MVC TH 20		0 1866	20 E	
76021	16-24-25 - 6W3	720	BEARD MVC TH 18		0 1905	20 E	
76022	16-27-25 - 6W3	720	BEARD MVC TH 9		0 1866	10 E	
76023	16-33-25 - 6W3	720	BEARD MVC TH 8		0 1841	198 E	
76024	1- 1-26 - 6W3	720	BEARD MVC TH 17		0 1982	50 E	
76025	14-21-31 - 6W3	720	IMPERIAL WINGELLO		1710 1697	545 IND	
76026	5- 1-32 - 6W3	720	TW DUNDURN 4		1707 0	250 E	
76027	2-25-32 - 6W3	720	TW DUNDURN CROWN 3		1626 0	243 E	
76028	16-24-25 - 7W3	720	BEARD MVC TH 7		0 1903	20 E	
76029	16-35-25 - 7W3	720	BEARD MVC TH 6		0 1897	40 E	
76030	16- 9-26 - 7W3	720	BEARD MVC TH 1		0 1952	20 E	
76031	-12-26 - 7W3	720	BEARD MVC TH 5		0 1876	10 E	
76032	16-17-26 - 7W3	720	BEARD MVC TH 2		0 1857	0 E	
76033	7-20-30 - 7W3	720	TW OUTLOOK CROWN 1		1776 0	413 E	
76034	5-20-32 - 7W3	720	HB DONAVON		1755 1743	520 DIL	
76035	2- 2-34 - 7W3	720	HB PIKE LAKE		1748 1736	522 DIL	
76036	14-10-35 - 7W3	720	PAN AM A-1 WEST SASKATOON		1725 0	465 INE	
76037	13- 1-25 - 8W3	720	TW BIRSBY CROWN 1		2160 2149	0 GRN	
76038	13- 4-25 - 8W3	720	TW BIRSBY CROWN 1		2166 0	571 E	
76039	11- 9-25 - 8W3	720	TW BIRSBY STH 1		2087 0	30 E	
76040	4-15-25 - 8W3	720	TW BIRSBY CROWN 2		2067 0	314 E	
76041	-24-26 - 8W3	720	BEARD MVC STH 3		0 2040	20 E	
76042	16-19-31 - 8W3	720	CAN FINA CONQUEST		1763 1750	603 DIL	
76043	16- 9-32 - 8W3	720	TW SWANSON CROWN		1753 0	546 LAT	
76044	16- 9-32 - 8W3	720	TW SWANSON CROWN 2		1753 1743	0 GR	
76045	16-34-32 - 8W3	720	JAMES DONAVON		1741 1728	10 GRN	
76046	16-34-32 - 8W3	720	JAMES DONAVON		1741 1728	514 IND	
76047	16-22-33 - 8W3	720	JAMES CHAMBERS		1747 1734	528 INE	
76048	16-28-34 - 8W3	720	CMS DELISLE		1736 1725	530 IND	
76049	16-28-34 - 8W3	720	CMS DELISLE		1736 1725	0 GRN	
76050	15-32-34 - 8W3	720	CMS DELISLE		1702 1691	534 IND	
76051	15-32-34 - 8W3	720	CMS DELISLE		1702 1691	0 GRN	
76052	13- 1-35 - 8W3	720	CMS VANSOY		1729 1718	611 IND	
76053	16- 6-35 - 8W3	720	CMS VANSOY		1667 1654	438 IND	
76054	16- 8-35 - 8W3	720	CMS VANSOY		1676 1666	0 GRN	
76055	16- 8-35 - 8W3	720	CMS VANSOY		1676 1664	537 IND	
76056	4-10-35 - 8W3	720	CMS VANSOY		1715 1703	435 INE	
76057	4-10-35 - 8W3	720	CMS VANSOY		1715 1703	70 GRN	
76058	4-10-35 - 8W3	720	CMS VANSOY		1715 1703	435 INE	
76059	13-11-35 - 8W3	720	CMS VANSOY		1713 1700	541 IND	
76060	13-11-35 - 8W3	720	CMS VANSOY		1713 1700	0 GRN	
76061	4-18-35 - 8W3	720	CMS VANSOY		0 1662	0 GRN	
76062	4-18-35 - 8W3	720	CMS VANSOY		0 1662	502 1GR	
76063	4- 8-32 - 9W3	720	TW SWANSON CROWN 1		1774 0	334 E	
76064	4- 8-32 - 9W3	720	TW SWANSON CROWN 1		1774 1763	1300 GRN	
76065	4-11-35 - 9W3	720	CMS EAGLE		1762 1750	100 GRN	

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ACQ.NO	LAND LOCATION	NTS	TESTHOLE NAME	K. BAR ELEV	DEPTH LOG	(FT)	(FT)	TYPE
76067	13-31-23 -10W3	720	PEYTO GERC LUCKY W	2299	2287	490	DIL	
76068	4- 2-24 -10W3	720	IMPERIAL ROSSDOFF	2129	0	655	E	
76069	12-23-24 -10W3	720	PEYTO GERC LUCKY	2100	2090	364	DIL	
76070	13-21-27 -10W3	720	IMPERIAL TW ANERLEY	2112	0	12	GR	
76071	13-21-27 -10W3	720	IMPERIAL TW ANERLEY	2112	0	564	E	
76072	9-32-29 -10W3	720	CAN GULF TW HUGHES	1888	0	608	E	
76073	9-32-29 -10W3	720	CAN GULF TW HUGHES	1888	0	200	GRN	
76074	9-32-29 -10W3	720	CAN GULF TW HUGHES	1888	0	2300	LAT	
76075	16-29-33 -10W3	720	TW BA LAURA CROWN	1822	0	521	E	
76076	1-32-27 -11W3	720	IMPERIAL DINSMORE	1969	1957	617	E	
76077	1-32-27 -11W3	720	IMPERIAL DINSMORE	1969	1957	100	GRN	
76078	13-18-29 -11W3	720	CAN GULF TW CRUSE 13	1904	1891	605	E	
76079	13-18-29 -11W3	720	CAN GULF TW CRUSE	1904	1891	2050	E	
76080	1-20-30 -11W3	720	CAN GULF TW WATT	1952	1939	0	GRN	
76081	1-20-30 -11W3	720	CAN GULF TW WATT	1952	0	590	E	
76082	11-11-31 -11W3	720	CAN GULF TW STONEYRIDGE	1873	1860	50	GRN	
76083	11-11-31 -11W3	720	CAN GULF TW STONEYRIDGE	1873	1860	617	E	
76084	5-24-24 -12W3	720	NORVANIAN KAM DINSMORE	2429	2419	425	INE	
76085	1-29-24 -12W3	720	NORVANIAN KEY FORBAN	2323	2313	549	LAT	
76086	13- 4-30 -12W3	720	GULF TW COOK	1944	1931	230	GRN	
76087	13- 4-30 -12W3	720	GULF TW COOK	1944	1931	597	E	
76088	10-32-30 -12W3	720	TW IMPERIAL BRISBIN CROWN 1	1971	1961	20	GR	
76089	10-32-30 -12W3	720	TW IMPERIAL BRISBIN CROWN 1	1971	1961	446	E	
76090	15-21-31 -12W3	720	GULF TW BRISBIN	1938	0	30	GRN	
76091	15-21-31 -12W3	720	GULF TW BRISBIN	1938	1925	612	E	
76092	16-11-35 -12W3	720	CAN GULF TW HANSEN	1844	1831	582	E	
76093	16-11-35 -12W3	720	CAN GULF TW HANSEN	1844	1831	200	GRN	
76094	13-15-24 -13W3	720	TW KYLE STH 34	0	2340	50	E	
76095	12-28-24 -13W3	720	TW WILDCAT STH 300	0	2145	50	E	
76096	13-31-24 -13W3	720	TW ELROSE STH 306	0	1992	30	E	
76097	4- 3-25 -13W3	720	TW KYLE STH 31	0	2233	50	E	
76098	4- 6-25 -13W3	720	TW ELROSE CROWN 1	1994	0	553	E	
76099	12- 9-25 -13W3	720	TW ELROSE STH 298	0	1947	30	E	
76100	4-22-25 -13W3	720	TW KYLE STH 30	0	1950	50	E	
76101	7-13-27 -13W3	720	FINA FORGAN	1856	1847	610	DIL	
76102	4-16-27 -13W3	720	TW IMPERIAL FORGAN 1	1927	1917	25	GRN	
76103	4-16-27 -13W3	720	TW IMPERIAL FORGAN 1	1927	0	507	E	
76104	13-28-27 -13W3	720	ARCO GLAMIS	1929	1916	555	DIG	
76105	16-22-29 -13W3	720	HB ROSETOWN	1935	1925	506	DIL	
76106	15-36-29 -13W3	720	ZD HB ROSETOWN	1951	1939	300	DIL	
76107	12-27-33 -13W3	720	GULF TW BENTS	1979	1968	0	GRN	
76108	12-27-33 -13W3	720	GULF TW BENTS	1979	0	615	E	
76109	4-19-23 -14W3	720	TW KYLE STH 38	0	2071	50	E	
76110	4-22-23 -14W3	720	TW KYLE STH 39	0	2322	50	E	
76111	13-31-23 -14W3	720	TW KYLE STH 35	0	2027	70	E	
76112	16-33-23 -14W3	720	TW KYLE STH 36	0	2174	40	E	
76113	13-17-24 -14W3	720	TW KYLE STH 32	0	2130	80	E	

E. Christiansen

	A	B	C	D	E	F	G	H	I
1	Lab #	Client ID		T.D.S.	pH	Cond (mS/cm)	Na+ ug/ml	Ca++ ug/ml	Mg++ ug/ml
2									
3	W9-00148	P Springett	NW20-21-8	4134	7.8	6.5	671	466	540
4	W9-00164	L Sheppard	SE18-21-8	1363	7.6	2.1	502	5	2
5	W9-00183	N Petrie	SE28-21-8	2144	7.8	3.4	726	37	15
6	W9-00165	L Springett	SE30-21-8	2931	7.6	4.6	315	509	369
7	W9-00193	V Nairn	NE31-21-8A	1594	7.9	2.5	112	291	139
8	W9-00154	V Nairn	NE31-21-8B	3853	7.9	6.0	773	429	386
9	W9-00285	E Shirtliff	NW31-21-9	1280	7.9	2	63	124	99
10	W9-00153	W Lawson	NE21-21-9	2163	8.0	3.4	452	153	178
11	W9-00190	J Mitchell	NE22-21-9	307	8.0	0.5	12	57	21
12	W9-00195	W Kimble	NW24-21-9	179	7.3	0.3	3	40	9
13	W9-00199	H Robberstad	SE36-21-9	2701	7.7	4.2	682	225	136
14	W9-00279	H Woelk	NW19-21-10	1146	7.9	1.8	470	3	<1
15	W9-00281	K Stroeder	SW31-21-10	1722	8	2.7	624	8	2
16	W9-00283	G Lawes	NW34-21-10	1453	8.2	2.3	544	5	<1
17	W9-00284	A Meaden	NE26-21-10	410	7.6	0.6	16	89	26
18	W9-00296	K Peters	NE16-21-10	685	7.7	1.1	66	106	43
19	W9-00297	K Peters	NE16-21-10	1261	8	2	487	3	<1
20	W9-00298	J Klassen	SE9-21-10	2835	7.6	4.4	680	298	183
21	W9-00299	J Guenther	NE4-21-10	1466	7.7	2.3	211	213	107
22	W9-00300	G Grice	SE1-21-10	557	7.4	0.9	85	78	20
23	W9-00308	N Ostrander	SW30-22-8	806	7.6	1.3	20	151	73
24	W9-00155	E Bjorgan	SE18-22-8	1069	7.7	1.7	142	131	99
25	W9-00173	C&K Connor	SW17-22-8	320	7.4	0.5	14	48	24
26	W9-00176	T Hamilton	SW2-22-8	2861	7.5	4.5	776	266	138
27	W9-00156	D Robinson	SW4-22-8	1178	7.5	1.8	85	258	88
28	W9-00150	R Loitz	NE14-22-9	2483	7.4	3.9	597	197	174
29	W9-00151	M Robinson	NE2-22-9	595	7.6	0.9	35	56	63
30	W9-00158	S Erickson	NE23-22-9	371	7.9	0.6	13	36	18
31	W9-00185	R Jordbio	NE26-22-9	480	9.0	0.8	25	81	28
32	W9-00175	H Dyck	NE36-22-9	1101	7.3	1.7	54	214	116
33	W9-00178	RM Canaan	NW21-22-9	486	7.5	0.8	24	88	38
34	W9-00157	G Erickson	NW30-22-9	1139	7.4	1.8	98	212	82
35	W9-00174	J Stiles	SW1-22-9	806	7.2	1.3	26	164	63
36	W9-00177	C Johnson	SW14-22-9	416	8.0	0.6	37	51	8
37	W9-00161	B Harris	SW20-22-9	410	7.9	0.6	13	82	32
38	W9-00187	A Saxton	SW30-22-9	2573	7.9	4.0	712	153	106
39	W9-00118	D Meston	NW6-22-9A	512	7.5	0.8	30	74	43
40	W9-00119	D Meston	NW6-22-9B	2310	7.5	3.6	499	230	155
41	W9-00278	F Smalcal	SW4-22-10	1632	7.8	2.6	648	7	<1
42	W9-00282	RM Victory22	SE1-22-10	307	7.9	0.5	11	61	22
43	W9-00301	G Wiens	NW8-22-10	2272	7.5	3.6	460	249	151
44	W9-00303	W Affleck	NE25-22-10	915	7.4	1.4	64	182	64
45	W9-00304	D Crowley	SE9-22-10	2477	7.3	3.9	264	513	207
46	W9-00306	P Connor	NE33-22-10	954	7.4	1.5	26	206	63
47	W9-00307	B Buness	NE36-22-10	608	7.7	1	16	131	33
48	W9-00309	D Baxter	NW34-22-10	570	7.6	0.9	23	109	38
49	W9-00310	RM Victory22	SE26-22-10	883	7.5	1.4	32	187	62
50	W9-00280	M Wiens	SW22-22-11	2336	7.9	3.6	600	74	196
51	W9-00132	D Jones	NW30-23-7	2118	7.9	3.3	700	7	3
52	W9-00135	W Jones	SW30-23-7	2227	7.8	3.5	738	8	4
53	W9-00130	A Bishop	NW7-23-7A	435	7.5	0.7	28	67	24
54	W9-00129	A Bishop	NW7-23-7B	493	7.6	0.8	34	76	33

E. Christiansen

	A	B	C	D	E	F	G	H	I
5 5	W9-00133	M Gossling	SW23-23-7A	691	7.4	1.1	28	99	52
5 6	W9-00134	M Gossling	SW23-23-7B	1408	8.0	2.2	33	303	129
5 7	W9-00214	R Quiring	SW17-23-8	723	7.9	1.1	60	145	43
5 8	W9-00217	Robt Dewey	NE6-23-8	1939	8	3	408	153	186
5 9	W9-00220	L Tharp	NW8-23-8	1402	7.2	2.2	149	271	123
6 0	W9-00221	W Kohlenberg	SW15-23-8	1101	7.6	1.7	154	155	85
6 1	W9-00231	B-L Tharp	NW8-23-8	1587	7.2	2.5	197	280	127
6 2	W9-00233	B-Robt Dewey	NE6-23-8	2221	8.1	3.5	385	285	221
6 3	W9-00305	D Couch	NW32-23-8	2138	8.3	3.3	756	7	<1
6 4	W9-00131	W Weinberger	NW12-23-8	1984	7.3	3.1	70	383	162
6 5	W9-00128	Jordbro Bros	NW4-23-8	2061	7.2	3.2	136	464	178
6 6	W9-00215	Ed Lowe	NE15-23-9	448	7	0.7	32	37	58
6 7	W9-00227	Frank Smith	SW16-23-9	1370	7.5	2.1	111	292	137
6 8	W9-00228	Wayne Dueck	NE26-23-9	1818	8.2	2.8	675	7	3
6 9	W9-00229	Art Munroe	SE30-23-9	422	7.6	0.7	104	30	17
7 0	W9-00270	N Stubson	NW17-23-9	1446	7.6	2.3	162	166	149
7 1	W9-00123	R Dueck	NE17-23-9	1389	7.3	2.2	142	209	119
7 2	W9-00124	W Dueck	NE17-23-9	1062	7.7	1.7	103	100	143
7 3	W9-00144	D Ayers	NW24-23-9	2630	8.2	4.1	921	19	7
7 4	W9-00140	C Brown	NW7-23-9	646	7.5	1.0	50	97	49
7 5	W9-00127	D Kimble	SE24-23-9	1613	8.0	2.5	591	5	2
7 6	W9-00235	A-John Flynn	SW5-23-10	595	7.6	0.9	19	132	43
7 7	W9-00236	B-John Flynn	SW5-23-10	877	8	1.4	23	250	51
7 8	W9-00271	S Carson	NW1-23-10 A	691	7.8	1.1	27	131	51
7 9	W9-00272	S Carson	NW1-23-10 E	499	7.8	0.8	14	106	34
8 0	W9-00273	B Brown	SE10-23-10	646	7.6	1	51	109	49
8 1	W9-00276	K Pearson	SE27-23-10	614	7.8	1	32	111	46
8 2	W9-00302	B Baxter	SW36-23-10	851	7.5	1.3	32	179	64
8 3	W9-00139	PFRA	NE31-24-6	2726	7.4	4.3	399	506	91
8 4	W9-00121	R Whiteside	NE15-24-7	467	7.4	0.7	11	98	26
8 5	W9-00143	G Ward	NE7-24-7	2253	8.2	3.5	774	7	3
8 6	W9-00116	M Murdoch	NW28-24-7	2272	8.2	3.6	792	7	2
8 7	W9-00136	J Nichols	NW30-24-7	442	7.5	0.7	12	64	30
8 8	W9-00115	H Murdoch	NW34-24-7	403	7.4	0.6	11	78	27
8 9	W9-00203	Leonard Ward	NW12-24-8	2291	7.8	3.6	1051	9	3
9 0	W9-00212	M Bayliss B	NW6-24-8 #	4870	7.6	7.6	1139	447	510
9 1	W9-00213	M Bayliss A	NW6-24-8 #	3098	7.6	4.8	430	434	447
9 2	W9-00218	D A Binnie	SW4-24-8	845	7.2	1.3	37	135	115
9 3	W9-00223	Ed Boon	SW11-24-8	1926	8.2	3	745	8	3
9 4	W9-00224	D A Binnie	SW4-24-8 Du	198	7.4	0.3	20	26	14
9 5	W9-00225	B-D A Binnie	SW4-24-8	4256	8.2	6.6	1144	389	394
9 6	W9-00142	L Bagshaw	NE25-24-8	2451	8.0	3.8	828	8	3
9 7	W9-00137	G Nichols	SE13-24-8	2419	8.4	3.8	828	8	7
9 8	W9-00122	M Millar	SE34-24-8	2304	8.2	3.6	846	9	2
9 9	W9-00216	Neila Lowe	SW9-24-9	2067	8.2	3.2	760	10	2
10 0	W9-00230	Harold Buhr	SW35-24-9	2714	7.8	4.2	1015	72	36
10 1	W9-00232	Doug Procknow	SW10-24-9	2528	8	4	942	41	20
10 2	W9-00237	Al Drescher	SE4-24-9	2035	8.6	3.2	695	10	4
10 3	W9-00292	G Boon	SE27-24-9	2598	7.7	4.1	877	93	43
10 4	W9-00125	C Stubson	NE15-24-9	2106	8.0	3.3	735	8	2
10 5	W9-00202	M Warren	NE18-24-9	3418	7.7	5.3	619	385	355
10 6	W9-00145	B McIntosh	NW8-24-9	2272	7.7	3.6	786	11	3
10 7	W9-00184	G Wright	NW35-24-9	806	7.8	1.3	51	124	73
10 8	W9-00179	J Peters	SE18-24-9	3174	7.8	5.0	610	450	215

	A	B	C	D	E	F	G	H	I
109	W9-00126	B Pridge	SE22-24-9	3245	7.5	5.1	530	451	286
110	W9-00196	K Buhr	SW20-24-9	2400	7.8	3.8	792	36	15
111	W9-00226	Irvin Penning	SE3-24-10	454	7.4	0.7	31	84	37
112	W9-00275	W Boon	EH14-24-10	1306	8.1	2	455	7	1
113	W9-00287	H MacRobbie	SE32-24-10	774	7.4	1.2	56	130	62
114	W9-00289	S Milne	SE24-24-10	2842	7.9	4.4	957	101	67
115	W9-00293	T Henderson	NW36-24-10	685	7.6	1.1	29	139	51
116	W9-00294	T Henderson	NW36-24-10	2317	7.8	3.6	356	394	166
117	W9-00120	K Knight	NW24-25-7	2534	7.6	4.0	412	301	200
118	W9-00114	RM Coteau	SE1-25-7	480	7.8	0.8	8	76	30
119	W9-00138	R Sinclair	SE4-25-7	2739	8.2	4.3	986	7	3
120	W9-00117	D McIntosh	SW18-25-7	320	7.5	0.5	6	58	24
121	W9-00141	H Lesyk	SW26-25-7	1990	7.9	3.1	392	192	138
122	W9-00219	Stan Finch	NW4-25-8	1786	7.5	2.8	142	270	189
123	W9-00234	A-Stan Finch	NW4-25-8	1242	8.4	1.9	139	206	109
124	W9-00197	B Labar	NE4-25-8	365	7.6	0.6	25	56	21
125	W9-00191	RM Coteau	NW34-25-8	416	8.1	0.6	6	48	33
126	W9-00159	R Alto	SE30-25-8	947	7.9	1.5	25	179	109
127	W9-00166	M Leppa	SE32-25-8	902	7.8	1.4	25	210	77
128	W9-00162	B Reid	SE35-25-8	896	7.6	1.4	102	97	90
129	W9-00200	G Howell	SW15-25-8	787	7.8	1.2	38	131	58
130	W9-00198	RM Coteau	SW3-25-8	467	7.9	0.7	23	77	38
131	W9-00172	M Pirness	SW31-25-8	480	7.6	0.8	11	100	43
132	W9-00146	G Delparte	SW34-25-8	1043	7.7	1.6	28	225	80
133	W9-00192	J Hastie	SW9-25-8	1120	7.5	1.8	151	140	79
134	W9-00222	Harley Kangas	SW15-25-9	442	7.4	0.7	7	100	37
135	W9-00201	JF Kempainen	NE19-25-9	435	8.0	0.7	8	65	44
136	W9-00189	A Kempainen	NE30-25-9	486	7.9	0.8	18	77	29
137	W9-00163	R Puikenen	NE32-25-9	634	7.6	1.0	20	92	51
138	W9-00168	L Alm	NW12-25-9	864	7.6	1.4	29	142	92
139	W9-00170	R Alto	NW13-25-9	1875	7.3	2.9	87	387	222
140	W9-00181	W Lawes	NW2-25-9	755	7.7	1.2	44	127	72
141	W9-00171	C Johnson	NW20-25-9	512	7.7	0.8	13	80	41
142	W9-00152	T Pouss	NW23-25-9	1382	7.8	2.2	35	257	133
143	W9-00147	E Labar	SE1-25-9	461	7.5	0.7	21	86	31
144	W9-00188	L Alm	SE14-25-9	1722	7.7	2.7	59	387	174
145	W9-00160	E Pajuaen	SE21-25-9	762	7.7	1.2	18	159	69
146	W9-00169	H Boon	SE28-25-9	627	7.8	1.0	18	78	61
147	W9-00149	RM Coteau	SE9-25-9	326	7.6	0.5	6	52	25
148	W9-00182	E Roanen	SW22-25-9	710	7.8	1.1	13	147	58
149	W9-00167	E Ylioya	SW27-25-9	909	7.9	1.4	28	159	111
150	W9-00180	T Kempainen	SW32-25-9	448	7.7	0.7	10	78	34
151	W9-00194	L Labar	SW34-25-9	794	7.9	1.2	20	144	76
152	W9-00186	D Cook	SW4-25-9	320	7.5	0.5	5	66	25
153	W9-00286	K Duck	SE33-25-10	2733	7.4	4.3	75	576	350
154	W9-00288	RM KgGrg 256	SW27-25-10	294	7.7	0.5	5	57	25
155	W9-00290	T Tuomi	NE24-25-10	614	7.9	1	9	104	64
156	W9-00291	T Tuomi	NE24-25-10	646	7.7	1	9	121	62
157	W9-00295	K Dyck	SE33-25-10	2246	7.4	3.5	6	467	212
158	W9-00274	E Jones	NW20-29-10	2074	7.6	3.2	525	148	98
159	W9-00277	E Jones	NW20-29-10	1382	7.5	2.2	278	129	96

	J	K	L	M	N
1	K+	Cl-	SO4=	HCO3	S.A.R.
2	ug/ml	ug/ml	ug/ml	ug/ml	
3	245	265	4026	425	5.0
4	32	249	<1	915	50.2
5	100	72	1176	579	25.4
6	11	112	2545	625	2.6
7	139	104	1096	271	1.4
8	267	72	3652	772	6.5
9	163	100	462	509	1
10	116	188	1182	753	5.9
11	30	3	65	232	0.3
12	26	2	12	159	0.1
13	152	112	1754	856	8.8
14	2	137	<1	1002	71.9
15	3	35	779	676	50.2
16	2	215	169	913	60.6
17	4	7	120	279	0.4
18	5	4	268	410	1.4
19	3	176	<1	1005	74
20	7	32	2545	353	7.6
21	8	72	1081	282	2.9
22	9	17	96	404	2.2
23	3	25	246	498	0.3
24	74	10	580	553	2.3
25	27	2	157	107	0.4
26	11	136	1936	824	9.6
27	128	41	873	329	1.2
28	106	94	1662	822	7.5
29	30	22	122	486	0.8
30	60	24	7	302	0.4
31	38	4	351	89	0.6
32	82	28	522	637	0.7
33	36	2	113	386	0.5
34	114	20	722	486	1.4
35	67	91	177	497	0.4
36	60	6	45	321	1.3
37	33	4	112	283	0.3
38	109	75	1631	874	10.8
39	32	12	196	285	0.7
40	105	76	1608	795	6.2
41	2	163	579	728	66.2
42	3	8	178	235	0.3
43	10	77	1464	780	5.7
44	10	7	484	487	1
45	13	125	2076	583	2.5
46	13	13	454	425	0.4
47	9	28	245	285	0.3
48	9	2	174	395	0.5
49	12	3	394	505	0.5
50	8	64	1482	853	8.3
51	62	640	<1	900	54.8
52	83	702	<1	885	54.4
53	32	6	165	226	0.7
54	35	9	147	262	0.8

	J	K	L	M	N
5 5	71	49	256	290	0.6
5 6	135	87	926	273	0.4
5 7	21	12	246	540	1.1
5 8	14	54	1555	450	5.2
5 9	23	43	1019	546	1.9
6 0	10	15	718	417	2.5
6 1	25	52	1220	495	2.5
6 2	16	42	1878	625	4.2
6 3	3	606	<1	941	73.8
6 4	200	157	745	744	0.8
6 5	198	89	1790	482	1.4
6 6	33	15	174	207	0.8
6 7	9	8	898	740	1.3
6 8	3	<1		533	981
6 9	3	3	126	306	3.7
7 0	12	9	838	681	2.2
7 1	100	15	951	554	1.9
7 2	48	8	625	515	1.5
7 3	99	37	1631	537	46.1
7 4	41	3	286	365	1.0
7 5	32	357	<1	991	59.1
7 6	10	3	297	333	0.4
7 7	12	4	606	358	0.3
7 8	8	8	348	320	0.5
7 9	7	4	206	300	0.3
8 0	4	9	284	370	1
8 1	6	4	224	411	0.6
8 2	12	10	430	430	0.5
8 3	192	672	1327	332	4.3
8 4	44	9	161	293	0.2
8 5	64	762	<1	744	62.1
8 6	15	780	<1	752	64.9
8 7	40	19	99	295	0.3
8 8	32	20	106	263	0.3
8 9	5	1066	<1	841	74.8
9 0	24	271	4118	910	8.7
9 1	10	37	3324	476	3.5
9 2	3	4	642	283	0.6
9 3	3	630	5	898	56.6
9 4	18	2	.22	180	0.8
9 5	16	12	4829	224	9.8
9 6	64	834	<1	841	64.2
9 7	76	834	<1	797	52.4
9 8	36	275	948	653	65.4
9 9	4	685	5	789	56.5
10 0	9	110	1834	711	24.3
10 1	6	56	1718	449	30.2
10 2	4	635	5	864	4.6
10 3	7	91	1696	564	18.9
10 4	37	630	<1	900	60.9
10 5	207	37	3219	629	5.5
10 6	22	780	<1	701	55.3
10 7	67	5	398	218	0.9
10 8	233	56	2788	631	5.9

	J	K	L	M	N
109	201	169	2916	449	4.8
110	118	54	1578	284	28.0
111	5	3	156	329	0.7
112	3	79	606	342	42.5
113	9	15	438	289	1
114	9	27	1972	744	18.2
115	9	10	234	475	0.5
116	16	65	1926	590	3.8
117	158	170	1610	647	4.5
118	30	10	182	301	0.2
119	31	993 <1		783	81.4
120	30	4	22	300	0.2
121	116	96	1305	511	5.3
122	21	168	804	380	1.6
123	8	72	854	235	2
124	30	6	76	243	0.7
125	27	2	51	404	0.2
126	69	10	480	575	0.4
127	84	19	510	415	0.4
128	51	4	634	254	1.8
129	60	90	184	317	0.7
130	34	6	104	299	0.5
131	36	3	100	404	0.2
132	93	44	510	292	0.4
133	73	41	570	422	2.5
134	4	5	95	367	0.1
135	32	3	68	306	0.2
136	34	14	171	278	0.4
137	40	2	253	426	0.4
138	72	25	388	386	0.5
139	192	25	1663	482	0.9
140	64	4	400	407	0.8
141	41	5	198	294	0.3
142	112	149	380	511	0.4
143	39	6	140	301	0.5
144	148	59	1282	412	0.6
145	71	20	398	368	0.3
146	40	6	193	475	0.4
147	21	2	52	267	0.2
148	67	19	153	581	0.2
149	78	14	528	400	0.4
150	34	9	105	392	0.2
151	70	63	177	527	0.3
152	31	2	51	275	0.1
153	10	153	2044	679	0.6
154	3	2	42	257	0.1
155	6	2	48	612	0.2
156	5	2	51	656	0.2
157	19	233	1002	928	0.1
158	13	11	1300	806	8.2
159	13	6	791	675	4.5

SASKATCHEWAN SOIL TESTING LABORATORY

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Date: 23-08-89
Normac#W9-00212/00237

WATER ANALYSIS

Normac

Lab #	Client Identification	T.D.S.	pH	(mS/cm)	CONCENTRATION OF IONS (ug/mL)							S.A.R.	
					Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ =	HCO ₃ -		
W9-00212	M Bayliss B NW6-24-8 #11	4870	7.6	7.6	1139	447	510	24	271	4118	910	8.7	
9-00213	M Bayliss A NW6-24-8 #21	3098	7.6	4.8	430	434	447	10	37	3324	476	3.5	
W9-00214	R Quiring SW17-23-8	723	7.9	1.1	60	145	43	21	12	246	540	1.1	
W9-00215	Ed Lowe NE15-23-9	448	7.0	0.7	32	37	58	33	15	174	207	0.8	
9-00216	Neila Lowe SW9-24-9	2067	8.2	3.2	760	10	2	4	685	5	789	56.5	
W9-00217	Robt Dewey NE6-23-8	1939	8.0	3.0	408	153	186	14	54	1555	450	5.2	
9-00218	D A Binnie SW4-24-8	845	7.2	1.3	37	135	115	3	4	642	283	0.6	
W9-00219	Stan Finch NW4-25-8	1786	7.5	2.8	142	270	189	21	168	804	380	1.6	
W9-00220	L Tharp NW8-23-8	1402	7.2	2.2	149	271	123	23	43	1019	546	1.9	
9-00221	W Kohlenberg SW15-23-8	1101	7.6	1.7	154	155	85	10	15	718	417	2.5	
W9-00222	Harley Kangas SW15-25-9	442	7.4	0.7	7	100	37	4	5	95	367	0.1	
9-00223	Ed Boen SW11-24-8	1926	8.2	3.0	745	8	3	3	630	5	898	56.6	
W9-00224	D A Binnie SW4-24-8 Dug	198	7.4	0.3	20	26	14	18	2	22	180	0.8	
W9-00225	B-D A Binnie SW4-24-8	4256	8.2	6.6	1144	389	394	16	12	4829	224	9.8	
9-00226	Irvin Penning SE3-24-10	454	7.4	0.7	31	84	37	5	3	156	329	0.7	
W9-00227	Frank Smith SW16-23-9	1370	7.5	2.1	111	292	137	9	8	898	740	1.3	
9-00228	Wayne Dueck NE26-23-9	1818	8.2	2.8	675	7	3	3	<1	533	981	54.6	
W9-00229	Art Munroe SE 30-23-9	422	7.6	0.7	104	30	17	3	3	126	306	3.7	
W9-00230	Harold Buhr SW35-24-9	2714	7.8	4.2	1015	72	36	9	110	1834	711	24.3	
9-00231	B-L Tharp NW8-23-8	1587	7.2	2.5	197	280	127	25	52	1220	495	2.5	
W9-00232	Doug Procknow SW10-24-9	2528	8.0	4.0	942	41	20	6	56	1718	449	30.2	
W9-00233	B-Robt Dewey NE6-23-8	2221	8.1	3.5	385	285	221	16	42	1878	625	4.2	
W9-00234	A-Stan Finch NW4-25-8	1242	8.4	1.9	139	206	109	8	72	854	235	2.0	
W9-00235	A-John Flynn SW5-23-10	595	7.6	0.9	19	132	43	10	3	297	333	0.4	
9-00236	B-John Flynn SW5-23-10	877	8.0	1.4	23	250	51	12	4	606	358	0.3	

Comment:

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 23-08-89
Normac#W9-00212/00237

Normac

Lab #	Client Identification	T.D.S.	pH	COND. (mS/cm)	CONCENTRATION OF IONS (ug/mL)						S.A.R.	
					Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼	HCO ₃ ⁻	
W9-00237	Al Drescher SE4-24-9	2035	8.6	3.2	695	10	4	4	635	5	864	46.0

Comment:

End

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

Normac

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Date: 21-08-89

NormacAES#W9-00114/00202

Lab #	Client Identification	T.D.S.	pH	COND. (mS/cm)	CONCENTRATION OF IONS (ug/mL)							S.A.R.	
					Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ =	HCO ₃ -		
W9-00114	R M Coteau SE1-25-7	480	7.8	0.8	8	76	30	30	10	182	301	0.2	1
W9-00115	H Murdoch NW34-24-7	403	7.4	0.6	11	78	27	32	20	106	263	0.3	1
W9-00116	M Murdoch NW23-24-7	2272	8.2	3.6	792	7	2	15	780	<1	752	64.9	1
W9-00117	D McIntosh SW-18-25-7	320	7.5	0.5	6	58	24	30	4	22	300	0.2	1
W9-00118	D Meston NW6-22-9A	512	7.5	0.8	30	74	43	32	12	196	285	0.7	1
W9-00119	D Meston NW6-22-9B	2310	7.5	3.6	499	230	155	105	76	1608	795	6.2	1
W9-00120	K Knight NW24-25-7	2534	7.6	4.0	412	301	200	158	170	1610	647	4.5	1
W9-00121	R Whiteside NE15-24-7	467	7.4	0.7	11	98	26	44	9	161	293	0.2	1
W9-00122	M Miller SE34-24-8	2304	8.2	3.6	846	9	2	36	275	948	653	65.4	1
W9-00123	R Dueck NE17-23-9	1389	7.3	2.2	142	209	119	100	15	951	554	1.9	1
W9-00124	R Dueck NE17-23-9	1062	7.7	1.7	103	100	143	48	8	625	515	1.5	1
W9-00125	C Stubson NE15-24-9	2106	8.0	3.3	735	8	2	37	630	<1	900	60.9	1
W9-00126	B Pridge SE22-24-9	3245	7.5	5.1	530	451	286	201	169	2916	449	4.8	1
W9-00127	D Kimble SE24-23-9	1613	8.0	2.5	591	5	2	32	357	<1	991	59.1	1
W9-00128	Jordbro Bros NW4-23-8	2061	7.2	3.2	136	464	178	198	89	1790	482	1.4	1
W9-00129	A Bishop NW7-23-7B	493	7.6	0.8	34	76	33	35	9	147	262	0.3	1
W9-00130	A Bishop NW7-23-7A	435	7.5	0.7	28	67	24	32	6	165	226	0.7	1
W9-00131	R Weinberger NW12-23-8	1984	7.3	3.1	70	383	162	200	157	745	744	0.8	1
W9-00132	D Jones NW30-23-7	2118	7.9	3.3	700	7	3	62	640	<1	900	54.8	1
W9-00133	M Gossling SW23-23-7A	691	7.4	1.1	28	99	52	71	49	256	290	0.6	1
W9-00134	M Gossling SW23-23-7B	1408	8.0	2.2	33	303	129	135	87	926	273	0.4	1
W9-00135	R Jones SW30-23-7	2227	7.8	3.5	738	8	4	83	702	<1	885	54.4	1
W9-00136	J Nichols NW30-24-7	442	7.5	0.7	12	64	30	40	19	99	295	0.3	1
W9-00137	G Nichols SE13-24-8	2419	8.4	3.8	828	8	7	76	834	<1	797	52.4	1
W9-00138	R Sinclair SE4-25-7	2739	8.2	4.3	986	7	3	31	993	<1	783	81.4	1

Comments:

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 21-08-89
 NormacAES#W9-00114/00202

Normac

I	I	I	I	I	I	CONCENTRATION OF IONS (ug/mL)								I	I
						T.D.S.	pH	COND.	I(mS/cm)	Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼
I W9-00139	PFRA	NE31-24-6	I	2726	7.4	4.3	399	506	91	192	672	1327	332	4.3	I
I W9-00140	C Brown	NW7-23-9	I	646	7.5	1.0	50	97	49	41	3	286	365	1.0	I
I W9-00141	H Lesyk	NW26-25-7	I	1990	7.9	3.1	392	192	138	116	96	1305	511	5.3	I
I W9-00142	L Bagshaw	NE25-24-8	I	2451	8.0	3.8	828	8	3	64	834	<1	841	64.2	I
I W9-00143	G Ward	NE7-24-7	I	2253	8.2	3.5	774	7	3	64	762	<1	744	62.1	I
I W9-00144	D Ayers	NW26-23-9	I	2630	8.2	4.1	921	19	7	99	37	1631	537	46.1	I
I W9-00145	B McIntosh	NW8-24-9	I	2272	7.7	3.6	786	11	3	22	780	<1	701	55.3	I
I W9-00146	G Delparte	NW34-25-8	I	1043	7.7	1.6	28	225	80	93	44	510	292	0.4	I
I W9-00147	E Laber	SE1-25-9	I	461	7.5	0.7	21	86	31	39	6	140	301	0.5	I
I W9-00148	P Springett	NW20-21-8	I	4134	7.8	6.5	671	466	540	245	265	4026	425	5.0	I
I W9-00149	R M Coteau	SE9-25-9	I	326	7.6	0.5	6	52	25	21	2	52	267	0.2	I
I W9-00150	R Litz	NE14-22-9	I	2483	7.4	3.9	597	197	174	106	94	1662	822	7.5	I
I W9-00151	M Robinson	NE2-22-9	I	595	7.6	0.9	35	56	63	30	22	122	486	0.8	I
I W9-00152	T Pouss	NW23-25-9	I	1382	7.8	2.2	35	257	133	112	149	380	511	0.4	I
I W9-00153	M Lawson	NE21-21-9	I	2163	8.0	3.4	452	153	178	116	188	1182	753	5.9	I
I W9-00154	V Nairn	NE31-21-8B	I	3853	7.9	6.0	773	429	386	267	72	3652	772	6.5	I
I W9-00155	E Bjorgen	SE18-22-8	I	1069	7.7	1.7	142	131	99	74	10	580	553	2.3	I
I W9-00156	D Robinson	NW4-22-8	I	1178	7.5	1.8	85	258	88	128	41	873	329	1.2	I
I W9-00157	G Erickson	NW30-22-9	I	1139	7.4	1.8	98	212	82	114	20	722	486	1.4	I
I W9-00158	S Erickson	NE23-22-9	I	371	7.9	0.6	13	36	18	60	24	7	302	0.4	I
I W9-00159	R Alto	SE30-25-8	I	947	7.9	1.5	25	179	109	69	10	480	575	0.4	I
I W9-00160	E Pajusen	SE21-25-9	I	762	7.7	1.2	18	159	69	71	20	398	368	0.3	I
I W9-00161	B Harris	NW20-22-9	I	410	7.9	0.6	13	82	32	33	4	112	283	0.3	I
I W9-00162	B Reid	SE35-25-8	I	876	7.6	1.4	102	97	90	51	4	634	254	1.8	I
I W9-00163	R Puikenen	NE32-25-9	I	634	7.6	1.0	20	92	51	40	2	253	426	0.4	I

Comment:

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

Normac

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Date: 21-08-89

NormacAES*W9-00114/00202

Lab #	Client Identification	T.D.S.	pH	COND. (mS/cm)	CONCENTRATION OF IONS (ug/mL)							S.A.R.	
					Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼	HCO ₃ ⁻		
W9-00164	L Sheppard SE18-21-8	1363	7.6	2.1	502	5	2	32	249	<1	915	50.2	1
I-9-00165	L Springett SE30-21-8	2931	7.6	4.6	315	509	369	11	112	2545	625	2.6	1
I-W9-00166	M Leppa SE32-25-8	902	7.8	1.4	25	210	77	84	19	510	415	0.4	1
I-W9-00167	E Ylioya SW27-25-9	909	7.9	1.4	28	159	111	78	14	528	400	0.4	1
I-9-00168	L Alm NW12-25-9	864	7.6	1.4	29	142	92	72	25	388	386	0.5	1
I-W9-00169	H Boon SE28-25-9	627	7.8	1.0	18	78	61	40	6	193	475	0.4	1
I-9-00170	R Alto NW13-25-9	1875	7.3	2.9	87	387	222	192	25	1663	482	0.9	1
I-W9-00171	C Johnson NW20-25-9	512	7.7	0.8	13	80	41	41	5	198	294	0.3	1
I-W9-00172	M Pirness SW31-25-8	480	7.6	0.8	11	100	43	36	3	100	404	0.2	1
I-9-00173	G&K Connor SW17-22-8	320	7.4	0.5	14	48	24	27	2	157	107	0.4	1
I-W9-00174	J Stiles SW1-22-9	806	7.2	1.3	26	164	63	67	91	177	497	0.4	1
I-9-00175	H Dyck NE36-22-9	1101	7.3	1.7	54	214	116	82	28	522	637	0.7	1
I-W9-00176	T Hamilton SW2-22-8	2861	7.5	4.5	776	266	138	11	136	1936	824	9.6	1
I-W9-00177	C Johnson SW14-22-9	416	8.0	0.6	37	51	8	60	6	45	321	1.3	1
I-W9-00178	RM Canaan NW21-22-9	486	7.5	0.8	24	88	38	36	2	113	386	0.5	1
I-W9-00179	J Peters SE18-24-9	3174	7.8	5.0	610	450	215	233	56	2788	631	5.9	1
I-9-00180	T Kempainen SW32-25-9	448	7.7	0.7	10	78	34	34	9	105	392	0.2	1
I-W9-00181	W Lawes NW2-25-9	755	7.7	1.2	44	127	72	64	4	400	407	0.8	1
I-W9-00182	E Roanen SW22-25-9	710	7.8	1.1	13	147	58	67	19	153	581	0.2	1
I-W9-00183	N Patrie SE28-21-8	2144	7.8	3.4	726	37	15	100	72	1176	579	25.4	1
I-W9-00184	G Wright NW35-24-9	806	7.8	1.3	51	124	73	67	5	398	218	0.9	1
I-W9-00185	R Jordbio NE26-22-9	480	9.0	0.8	25	81	28	38	4	351	89	0.6	1
I-W9-00186	D Cook SW4-25-9	320	7.5	0.5	5	66	25	31	2	51	275	0.1	1
I-W9-00187	A Saxton SW30-22-9	2573	7.9	4.0	712	153	106	109	75	1631	874	10.8	1
I-W9-00188	L Alm SE14-25-9	1722	7.7	2.7	59	387	174	148	59	1282	412	0.6	1

Comment:

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 21-08-89
 NormacAES*W9-00114/00202

Normac

I	I	I	I	I	I	CONCENTRATION OF IONS (ug/mL)								I	I	
						T.D.S.	pH	COND.	I (mS/cm)	Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼	HCO ₃ ⁻
I	W9-00189	A Kemppainen	NE30-25-9	I	486	7.9	0.8	18	77	29	34	14	171	278	0.4	I
I	W9-00190	J Mitchell	NE22-21-9	I	307	8.0	0.5	12	57	21	30	3	65	232	0.3	I
I	W9-00191	RM Coteau	NW34-25-8	I	416	8.1	0.6	6	48	33	27	2	51	404	0.2	I
I	W9-00192	J Hastie	SW9-25-8	I	1120	7.5	1.8	151	140	79	73	41	570	422	2.5	I
I	W9-00193	V Nairn	NE31-21-8A	I	1594	7.9	2.5	112	291	139	139	104	1096	271	1.4	I
I	W9-00194	L Laber	SW34-25-9	I	794	7.9	1.2	20	144	76	70	63	177	527	0.3	I
I	W9-00195	H Kimble	NW24-21-9	I	179	7.3	0.3	3	40	9	26	2	12	159	0.1	I
I	W9-00196	K Buhr	SW20-24-9	I	2400	7.8	3.8	792	36	15	118	54	1578	284	28.0	I
I	W9-00197	B Laber	NE4-25-8	I	365	7.6	0.6	25	56	21	30	6	76	243	0.7	I
I	W9-00198	RM Coteau	SW3-25-8	I	467	7.9	0.7	23	77	38	34	6	104	299	0.5	I
I	W9-00199	H Robberstad	SE36-21-9	I	2701	7.7	4.2	682	225	136	152	112	1754	856	8.8	I
I	W9-00200	G Howell	SW15-25-8	I	787	7.8	1.2	38	131	58	60	90	184	317	0.7	I
I	W9-00201	JF Kemppainen	NE19-25-91	I	435	8.0	0.7	8	65	44	32	3	68	306	0.2	I
I	W9-00202	M Warren	NE18-24-9	I	3418	7.7	5.3	619	385	355	207	37	3219	629	5.5	I

Comment:

End

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 31-08-89
Normac#W9-00270/00310

Dr. D.R. Cameron-Normac AES Ltd.

Lab #	Client Identification	T.D.S.	pH	(mS/cm)	CONCENTRATION OF IONS (ug/mL)							S.A.R.
					Na+	Ca++	Mg++	K+	Cl-	SO4=	HCO3-	
W9-00270	N Stubson NW17-23-9	1446	7.6	2.3	162	166	149	12	9	838	681	2.2
W9-0271	S Carson NW1-23-10 A	691	7.8	1.1	27	131	51	8	8	348	320	0.5
W9-00272	S Carson NW1-23-10 B	499	7.8	0.8	14	106	34	7	4	206	300	0.3
W9-0273	B Brown SE10-23-10 Well	646	7.6	1.0	51	109	49	4	9	284	370	1.0
W9-0274	E Jones NW20-29-10 B	2074	7.6	3.2	525	148	98	13	11	1300	806	8.2
W9-00275	W Boon EH14-24-10	1306	8.1	2.0	455	7	1	3	79	606	342	42.5
W9-0276	K Pearson SE27-23-10	614	7.8	1.0	32	111	46	6	4	224	411	0.6
W9-0277	E Jones NW20-29-10	1382	7.5	2.2	278	129	96	13	6	791	675	4.5
W9-00278	F Smalcal SW4-22-10	1632	7.8	2.6	648	7	<1	2	163	579	728	66.2
W9-0279	H Woelk NW19-21-10	1146	7.9	1.8	470	3	<1	2	137	<1	1002	71.9
W9-00280	M Wiens SW22-22-11	2336	7.9	3.6	600	74	196	8	64	1482	853	8.3
W9-0281	K Stroeder SW31-21-10	1722	8.0	2.7	624	8	2	3	35	779	676	50.2
W9-0282	RM Victory226 SE1-22-10	307	7.9	0.5	11	61	22	3	8	178	235	0.3
W9-00283	G Lawes NW34-21-10	1453	8.2	2.3	544	5	<1	2	215	169	913	60.6
W9-0284	A Meaden NE26-21-10	410	7.6	0.6	16	89	26	4	7	120	279	0.4
W9-00285	E Shirtliff NW31-21-9	1280	7.9	2.0	63	124	99	163	100	462	509	1.0
W9-0286	K Duck SE33-25-10 B	2733	7.4	4.3	75	576	350	10	153	2044	679	0.6
W9-0287	H MacRobbie SE32-24-10	774	7.4	1.2	56	130	62	9	15	438	289	1.0
W9-00288	RM KgGrg 256 SW27-25-10	294	7.7	0.5	5	57	25	3	2	42	257	0.1
W9-0289	S Milne SE24-24-10	2842	7.9	4.4	957	101	67	9	27	1972	744	18.2
W9-00290	T Tuomi NE24-25-10 B	614	7.9	1.0	9	104	64	6	2	48	612	0.2
W9-0291	T Tuomi NE24-25-10 A	646	7.7	1.0	9	121	62	5	2	51	656	0.2
W9-0292	G Boon SE27-24-9	2598	7.7	4.1	877	93	43	7	91	1696	564	18.9
W9-00293	T Henderson NW36-24-10B	685	7.6	1.1	29	139	51	9	10	234	475	0.5
W9-0294	T Henderson NW36-24-10A	2317	7.8	3.6	356	394	166	16	65	1926	590	3.8

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 31-08-89
 Normac NW-00270/00310

Dr.D.R. Cameron-Normac AES Ltd.

CONCENTRATION OF IONS (ug/mL)											S.A.R.		
	Lab #	Client Identification	T.D.S.	pH	COND. (mS/cm)	Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ =	HC03-	
	W9-00295	K Dyck SE33-25-10 A	2246	7.4	3.5	6	467	212	19	233	1002	928	0.1
	W 00296	K Peters NE16-21-10 A	685	7.7	1.1	66	106	43	5	4	268	410	1.4
	W9-00297	K Peters NE16-21-10 B	1261	8.0	2.0	487	3	<1	3	176	<1	1005	74.0
	W9-00298	J Klassen SE9-21-10	2835	7.6	4.4	680	298	183	7	32	2545	353	7.6
	W 00299	J Guenther NE4-21-10	1466	7.7	2.3	211	213	107	8	72	1081	282	2.9
	W9-00300	G Grice SE1-21-10	557	7.4	0.9	85	78	20	9	17	96	404	2.2
	W 00301	G Wiens NW8-22-10	2272	7.5	3.6	460	249	151	10	77	1464	780	5.7
	W9-00302	B Baxter SW36-23-10	851	7.5	1.3	32	179	64	12	10	430	430	0.5
	W9-00303	W Affleck NE25-22-10	915	7.4	1.4	64	182	64	10	7	484	487	1.0
	W 00304	D Crowley SE9-22-10	2477	7.3	3.9	264	513	207	13	125	2076	583	2.5
	W9-00305	D Couch NW32-23-8	2138	8.3	3.3	756	7	<1	3	606	<1	941	73.8
	W 00306	P Connor NE33-22-10	954	7.4	1.5	26	206	63	13	13	454	425	0.4
	W9-00307	B Buness NE 36-22-10	608	7.7	1.0	16	131	33	9	28	245	285	0.3
	W9-00308	N Ostrandner SW30-22-8	806	7.6	1.3	20	151	73	3	25	246	498	0.3
	W 00309	D Baxter NW34-22-10	570	7.6	0.9	23	109	38	9	2	174	395	0.5
	W9-00310	RM Victory 2269E26-22-10	883	7.5	1.4	32	187	62	12	3	394	505	0.5

Comment:

End

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

xxxNormac-Doug Cameronxxx

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Date: 21-08-89

Normac#W9-00203/00203

Lab #	Client Identification	T.D.S.	pH	COND.	CONCENTRATION OF IONS (ug/mL)						S.A.R.	
				(mS/cm)	Na+	Ca++	Mg++	K+	Cl-	SO4=	HCO3-	
W9-00203	NW12-24-8 Leonard Ward	2291	7.8	3.6	1051	9	3	5	1066	<1	841	74.8

Comment:

xxxEndxxx

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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e: 31-08-89
mac#W9-00270/00310

Dr. D.R. Cameron-Normac AES Ltd.

Lab #	Client Identification	CONCENTRATION OF IONS (meq/L)						CATIONS: (meq/L)	ANIONS: (meq/L)	SALTS: (meq/L)	S.A.R.: (meq/L)	
		Na+	Ca++	Mg++	K+	Cl-	SO4=					
W9-00270	N Stubson NW17-23-9	7.0	8.3	12.3	0.3	0.2	17.4	11.2	27.9	28.8	24.3	2.2
W9-0 71	S Carson NW1-23-10 A	1.2	6.5	4.2	0.2	0.2	7.2	5.2	12.1	12.7	10.9	0.5
W9-00272	S Carson NW1-23-10 B	0.6	5.3	2.8	0.2	0.1	4.3	4.9	8.8	9.3	7.6	0.3
W9-00273	B Brown SE10-23-10 Well	2.2	5.4	4.0	0.1	0.2	5.9	6.1	11.8	12.2	10.1	1.0
W9-0 74	E Jones NW20-29-10 B	22.8	7.4	8.1	0.3	0.3	27.1	13.2	38.6	40.6	35.9	8.2
W9-00275	W Boon EH14-24-10	19.6	0.3	0.1	<0.1	2.2	12.6	5.6	20.3	20.4	21.7	42.5
W9-0 76	K Pearson SE27-23-10	1.4	5.5	3.8	0.2	0.1	4.7	6.7	10.9	11.5	9.6	0.6
W9-0 77	E Jones NW20-29-10	12.1	6.4	7.9	0.3	0.2	16.5	11.1	26.7	27.7	23.1	4.5
W9-00278	F Smalcal SW4-22-10	28.2	0.3	<0.1	<0.1	4.6	12.1	11.9	28.6	28.6	27.7	66.2
W9-0 79	H Woelk NW19-21-10	20.4	0.1	<0.1	<0.1	3.9	<0.1	16.4	20.7	20.3	18.8	71.9
W9-00280	M Wiens SW22-22-11	26.1	3.7	16.1	0.2	1.8	30.9	14.0	46.1	46.6	40.9	8.3
W9-0 81	K Stroeder SW31-21-10	27.1	0.4	0.2	<0.1	1.0	16.2	11.1	27.8	28.3	29.3	50.2
W9-0 82	RM Victory226 SE1-22-10	0.5	3.0	1.8	<0.1	0.2	3.7	3.9	5.4	7.8	4.5	0.3
W9-00283	G Lawes NW34-21-10	23.7	0.3	<0.1	<0.1	6.1	3.5	15.0	24.0	24.6	24.4	60.6
W9-0 84	A Meaden NE26-21-10	0.7	4.4	2.1	0.1	0.2	2.5	4.6	7.3	7.3	6.2	0.4
W9-00285	E Shirtliff NW31-21-9	2.8	6.2	8.1	4.2	2.8	9.6	8.3	21.2	20.8	21.2	1.0
W9-0 86	K Duck SE33-25-10 B	3.2	28.7	28.8	0.3	4.3	42.6	11.1	61.0	58.0	48.5	0.6
W9-0 87	H MacRobbie SE32-24-10	2.4	6.5	5.1	0.2	0.4	9.1	4.7	14.2	14.3	12.3	1.0
W9-00288	RM KgGrg 256 SW27-25-10	0.2	2.8	2.0	<0.1	<0.1	0.9	4.2	5.1	5.1	4.3	0.1
W9-0 88	S Milne SE24-24-10	41.6	5.0	5.5	0.2	0.8	41.1	12.2	52.4	54.0	50.6	18.2
W9-00290	T Tuomi NE24-25-10 B	0.4	5.2	5.3	0.2	<0.1	1.0	10.0	11.0	11.1	9.6	0.2
W9-0 89	T Tuomi NE24-25-10 A	0.4	6.0	5.1	0.1	<0.1	1.1	10.8	11.6	11.9	10.1	0.2
W9-0 90	G Boon SE27-24-9	38.2	4.6	3.5	0.2	2.6	35.3	9.2	46.5	47.1	45.9	18.9
W9-00293	T Henderson NW36-24-10B	1.3	6.9	4.2	0.2	0.3	4.9	7.8	12.6	13.0	10.8	0.5
W9-0 94	T Henderson NW36-24-10A	15.5	19.7	13.7	0.4	1.8	40.1	9.7	49.2	51.6	40.5	3.8

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 31-08-89
Normac*W9-00270/00310

Dr. D.R. Cameron-Normac AES Ltd.

Lab #	Client Identification	CONCENTRATION OF IONS(meq/L)						CATIONS	ANIONS	SALTS	S.A.R.
		Na+	Ca++	Mg++	K+	Cl-	SO4=	HCO3- 1	(meq/L)	(meq/L)	
W9-00295	K Dyck SE33-25-10 A	0.3	23.3	17.4	0.5	6.6	20.9	15.2	41.5	42.6	39.2 <0.1
-00296	K Peters NE16-21-10 A	2.8	5.3	3.6	0.1	0.1	5.6	6.7	11.8	12.4	10.8 1.4
W9-00297	K Peters NE16-21-10 B	21.2	0.1	<0.1	<0.1	5.0	<0.1	16.5	21.4	21.4	20.9 74.0
W9-00298	J Klassen SE9-21-10	29.6	14.9	15.0	0.2	0.9	53.0	5.8	59.7	59.7	50.4 7.6
-00299	J Guenther NE4-21-10	9.2	10.6	8.8	0.2	2.0	22.5	4.6	28.9	29.2	24.6 2.9
W9-00300	G Grice SE1-21-10	3.7	3.9	1.7	0.2	0.5	2.0	6.6	9.5	9.1	8.6 2.2
-00301	G Wiens NW8-22-10	20.0	12.4	12.4	0.2	2.2	30.5	12.8	45.1	45.4	39.6 5.7
W9-00302	B Baxter SW36-23-10	1.4	8.9	5.3	0.3	0.3	9.0	7.0	15.9	16.3	13.6 0.5
W9-00303	W Affleck NE25-22-10	2.8	9.1	5.3	0.2	0.2	10.1	8.0	17.5	18.3	14.8 1.0
-00304	D Crowley SE9-22-10	11.5	25.6	17.0	0.3	3.5	43.2	9.6	54.5	56.3	43.5 2.5
W9-00305	D Couch NW32-23-8	32.9	0.3	<0.1	<0.1	17.1	<0.1	15.4	33.4	32.5	37.1 73.8
-00306	P Connor NE33-22-10	1.1	10.3	5.2	0.3	0.4	9.5	7.0	17.0	16.8	15.4 0.4
W9-00307	B Buness NE 36-22-10	0.7	6.5	2.7	0.2	0.8	5.1	4.7	10.2	10.6	9.5 0.3
W9-00308	N Ostrander SW30-22-8	0.9	7.6	6.0	<0.1	0.7	5.1	8.2	14.5	14.0	12.9 0.3
-00309	D Baxter NW34-22-10	1.0	5.4	3.1	0.2	<0.1	3.6	6.5	9.8	10.2	8.8 0.5
W9-00310	RM Victory 2269E26-22-10	1.4	9.3	5.1	0.3	<0.1	8.2	8.3	16.1	16.6	14.2 0.5

Comment:

End

Date: 21-08-89
Normac#W9-00203/00203

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

xxxNormac-Doug Cameronxxx

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Lab #	Client Identification	CONCENTRATION OF IONS(meq/L)						CATIONS	ANIONS	SALTS	S.A.R.	
		Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼					HCO ₃ ⁻
W9-00203	NW12-24-8 Leonard Ward	45.7	0.5	0.3	0.1	30.1	<0.1	13.8	46.6	43.9	40.0	74.8

Comment:

xxxEndxxx

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Normac

Date: 23-08-89
Normac*W9-00212/00237

Lab #	Client Identification	CONCENTRATION OF IONS (meq/L)							CATIONS: ANIONS: SALTS: S.A.R.			
		Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼	HCO ₃ ⁻	(meq/L)	(meq/L)	(meq/L)	
W9-00212	M Bayliss B NW6-24-8 #1	49.6	22.3	42.0	0.6	7.7	85.7	14.9	114.5	108.3	90.8	8.7
-00213	M Bayliss A NW6-24-8 #2	18.7	21.7	36.8	0.3	1.0	69.2	7.8	77.4	78.0	55.5	3.5
W9-00214	R Quiring SW17-23-8	2.6	7.2	3.5	0.5	0.3	5.1	8.8	13.9	14.3	11.4	1.1
W9-00215	Ed Lowe NE15-23-9	1.4	1.8	4.8	0.8	0.4	3.6	3.4	8.9	7.4	6.8	0.8
-00216	Neila Lowe SW9-24-9	33.1	0.5	0.2	0.1	19.3	0.1	12.9	33.8	32.4	35.8	56.5
W9-00217	Robt Dewey NE6-23-8	17.8	7.6	15.3	0.4	1.5	32.4	7.4	41.1	41.3	33.4	5.2
-00218	D A Binnie SW4-24-8	1.6	6.8	9.4	<0.1	0.1	13.4	4.6	17.9	18.1	13.5	0.6
W9-00219	Stan Finch NW4-25-8	6.2	13.5	15.5	0.5	4.7	16.7	6.2	35.7	27.7	30.5	1.6
W9-00220	L Tharp NW8-23-8	6.5	13.5	10.2	0.6	1.2	21.2	8.9	30.7	31.4	23.4	1.9
-00221	W Kohlenberg SW15-23-8	6.7	7.8	7.0	0.3	0.4	15.0	6.8	21.7	22.2	18.0	2.5
W9-00222	Harley Kangas SW15-25-9	0.3	5.0	3.0	<0.1	0.2	2.0	6.0	8.4	8.1	6.7	0.1
-00223	Ed Boon SW11-24-8	32.4	0.4	0.3	<0.1	17.8	0.1	14.7	33.1	32.6	33.1	56.6
W9-00224	D A Binnie SW4-24-8 Dug	0.9	1.3	1.1	0.5	<0.1	0.5	3.0	3.8	3.5	2.8	0.8
W9-00225	B-D A Binnie SW4-24-8	49.8	19.4	32.4	0.4	0.3	100.5	3.7	102.0	104.6	78.4	9.8
-00226	Irvin Penning SE3-24-10	1.4	4.2	3.1	0.1	<0.1	3.2	5.4	8.7	8.7	6.9	0.7
W9-00227	Frank Smith SW16-23-9	4.8	14.6	11.3	0.2	0.2	18.7	12.1	30.9	31.0	22.9	1.3
-00228	Wayne Dueck NE26-23-9	29.4	0.4	0.2	<0.1	<0.1	11.1	16.1	30.0	27.2	31.1	54.6
W9-00229	Art Munroe SE 30-23-9	4.5	1.5	1.4	<0.1	<0.1	2.6	5.0	7.5	7.7	6.4	3.7
W9-00230	Harold Buhr SW35-24-9	44.1	3.6	3.0	0.2	3.1	38.2	11.7	50.9	53.0	48.1	24.3
-00231	B-L Tharp NW8-23-8	8.6	14.0	10.4	0.6	1.5	25.4	8.1	33.6	35.0	26.8	2.5
W9-00232	Doug Procknow SW10-24-9	41.0	2.0	1.6	0.1	1.6	35.8	7.4	44.8	44.7	44.5	30.2
-00233	B-Robt Dewey NE6-23-8	16.8	14.2	18.2	0.4	1.2	39.1	10.2	49.5	50.5	38.7	4.2
W9-00234	A-Stan Finch NW4-25-8	6.1	10.3	9.0	0.2	2.0	17.8	3.9	25.5	23.7	20.6	2.0
W9-00235	A-John Flynn SW5-23-10	0.8	6.6	3.6	0.2	<0.1	6.2	5.5	11.2	11.7	9.2	0.4
-00236	B-John Flynn SW5-23-10	1.0	12.5	4.2	0.3	0.1	12.6	5.9	18.0	18.6	14.1	0.3

Comment:

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

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Date: 23-08-89
No--ac*W9-00212/00237

Lab #	Client Identification	CONCENTRATION OF IONS(meq/L)						CATIONS	ANIONS	SALTS	S.A.R.	
		Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼					HCO ₃ ⁻
W9-00237	Al Drescher SE4-24-9	30.2	0.5	0.3	0.1	17.9	0.1	14.2	31.2	32.2	35.2	46.0

Comment:

End

Date: 21-08-89
NormacAES#W9-00114/00202

SASKATCHEWAN SOIL TESTING LABORATORY
WATER ANALYSIS

Normac

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Lab #	Client Identification	CONCENTRATION OF IONS(meq/L)						CATIONS		ANIONS		SALTS	S.A.R.
		Na+	Ca++	Mg++	K+	Cl-	SO4=	HCO3-	(meq/L)	(meq/L)	(meq/L)	(meq/L)	
W9-00114	R M Cotesu SE1-25-7	0.3	3.8	2.5	0.8	0.3	3.8	4.9	7.4	9.0	7.3	0.2	
W9-00115	M Murdoch NW34-24-7	0.5	3.9	2.2	0.8	0.6	2.2	4.3	7.4	7.1	6.1	0.3	
W9-00116	M Murdoch NW28-24-7	34.4	0.4	0.2	0.4	22.0	<0.1	12.3	35.4	34.3	39.6	64.9	
W9-00117	D McIntosh SW-18-25-7	0.3	2.9	2.0	0.8	0.1	0.5	4.9	6.0	5.5	4.7	0.2	
W9-00118	D Meston NW6-22-9A	1.3	3.7	3.5	0.8	0.3	4.1	4.7	9.3	9.1	7.8	0.7	
W9-00119	D Meston NW6-22-9B	21.7	11.5	12.7	2.7	2.1	33.5	13.0	48.6	48.7	40.4	6.2	
W9-00120	K Knight NW24-25-7	17.9	15.0	16.5	4.0	4.8	33.5	10.6	53.4	48.9	44.6	4.5	
W9-00121	R Whiteside NE15-24-7	0.5	4.9	2.1	1.1	0.2	3.4	4.8	8.6	8.4	7.1	0.2	
W9-00122	M Millar SE34-24-8	36.8	0.4	0.2	0.9	7.8	19.7	10.7	38.3	38.2	40.2	65.4	
W9-00123	R Dueck NE17-23-9	6.2	10.5	9.8	2.6	0.4	19.8	9.1	29.0	29.3	23.2	1.9	
W9-00124	R Dueck NE17-23-9	4.5	5.0	11.7	1.2	0.2	13.0	8.4	22.5	21.7	17.3	1.5	
W9-00125	C Stubson NE15-24-9	32.0	0.4	0.2	0.9	17.8	<0.1	14.8	33.5	32.5	36.5	60.9	
W9-00126	B Pridge SE22-24-9	23.0	22.5	23.5	5.1	4.8	60.7	7.4	74.2	72.8	58.4	4.8	
W9-00127	D Kimble SE24-23-9	25.7	0.2	0.1	0.8	10.1	<0.1	16.2	26.9	26.3	27.3	59.1	
W9-00128	Jordbro Bros NW4-23-8	5.9	23.2	14.6	5.1	2.5	37.3	7.9	48.8	47.7	35.6	1.4	
W9-00129	A Bishop NW7-23-7B	1.5	3.8	2.7	0.9	0.2	3.1	4.3	8.9	7.6	7.5	0.8	
W9-00130	A Bishop NW7-23-7A	1.2	3.4	2.0	0.8	0.2	3.4	3.7	7.4	7.3	6.6	0.7	
W9-00131	W Weinberger NW12-23-8	3.0	19.1	13.3	5.1	4.4	15.5	12.2	40.6	32.1	34.2	0.8	
W9-00132	D Jones NW30-23-7	30.4	0.4	0.2	1.6	18.1	<0.1	14.8	32.7	32.8	36.7	54.8	
W9-00133	M Gossling SW23-23-7A	1.2	4.9	4.3	1.8	1.4	5.3	4.8	12.3	11.5	10.9	0.6	
W9-00134	M Gossling SW23-23-7B	1.4	15.1	10.6	3.5	2.4	19.3	4.5	30.6	26.2	23.6	0.4	
W9-00135	H Jones SW30-23-7	32.1	0.4	0.3	2.1	19.8	<0.1	14.5	34.9	34.3	38.8	54.4	
W9-00136	J Nichols NW30-24-7	0.5	3.2	2.5	1.0	0.5	2.1	4.8	7.2	7.4	6.7	0.3	
W9-00137	G Nichols SE13-24-8	36.0	0.4	0.6	1.9	23.5	<0.1	13.1	38.9	36.6	42.4	52.4	
W9-00138	R Sinclair SE4-25-7	42.9	0.3	0.2	0.8	28.0	<0.1	12.8	44.2	40.9	48.6	81.4	

Comment:

SASKATCHEWAN SOIL TESTING LABORATORY

WATER ANALYSIS

Normac

Page: 2 of 4

Date: 21-08-89
 NormacAES#W9-00114/00202

I	I	I	Lab #	Client Identification	CONCENTRATION OF IONS(meq/L)						CATIONS	ANIONS	SALTS	S.A.R.
					Na+	Ca++	Mg++	K+	Cl-	SO4=				
I	W9-00139	P FRA NE31-24-6	I	17.4	25.3	7.5	4.9	19.0	27.6	5.4	55.1	52.0	48.3	4.3
I	W9-00140	C Brown NW7-23-9	I	2.2	4.8	4.0	1.0	<0.1	6.0	6.0	12.1	12.0	10.1	1.0
I	W9-00141	H Lasyk SW26-25-7	I	17.1	9.6	11.4	3.0	2.7	27.2	8.4	41.0	38.3	34.3	5.3
I	W9-00142	L Bigshaw NE25-24-8	I	36.0	0.4	0.3	1.6	23.5	<0.1	13.8	38.3	37.3	43.0	64.2
I	W9-00143	G Hard NE7-24-7	I	33.7	0.4	0.2	1.6	21.5	<0.1	12.2	35.9	33.7	39.3	62.1
I	W9-00144	D Ayers NW24-23-9	I	40.0	1.0	0.6	2.5	1.0	34.0	8.8	44.1	43.8	46.5	46.1
I	W9-00145	B McIntosh NW-8-24-9	I	34.2	0.5	0.2	0.6	22.0	<0.1	11.5	35.5	33.5	39.6	55.3
I	W9-00146	G Dalparte SW34-25-8	I	1.2	11.2	6.6	2.4	1.2	10.6	4.8	21.5	16.7	17.0	0.4
I	W9-00147	E Laber SE1-25-9	I	0.9	4.3	2.6	1.0	0.2	2.9	4.9	8.8	8.0	7.0	0.5
I	W9-00148	F Springett NW20-21-8	I	29.2	23.3	44.4	6.3	7.5	83.8	7.0	103.2	98.3	76.0	5.0
I	W9-00149	R M Coteau SE9-25-9	I	0.3	2.6	2.1	0.5	<0.1	1.1	4.4	5.5	5.5	4.8	0.2
I	W9-00150	R Loitz NE14-22-9	I	26.0	9.8	14.3	2.7	2.7	34.6	13.5	52.8	50.7	43.7	7.5
I	W9-00151	M Robinson NE2-22-9	I	1.5	2.8	5.2	0.8	0.6	2.5	8.0	10.3	11.1	9.2	0.8
I	W9-00152	T Pouss NW23-25-9	I	1.5	12.8	10.9	2.9	4.2	7.9	8.4	28.2	20.5	23.1	0.4
I	W9-00153	H Lawson NE21-21-9	I	19.7	7.6	14.6	3.0	5.3	24.6	12.3	44.9	42.3	37.6	5.9
I	W9-00154	V Nairn NE31-21-8B	I	33.6	21.4	31.8	6.8	2.0	76.0	12.7	93.7	90.7	70.4	6.5
I	W9-00155	E Bjorgen SE18-22-8	I	6.2	6.5	8.1	1.9	0.3	12.1	9.1	22.7	21.4	17.5	2.3
I	W9-00156	D Robinson SW4-22-8	I	3.7	12.9	7.2	3.3	1.2	18.2	5.4	27.1	24.7	19.4	1.2
I	W9-00157	G Erickson NW30-22-9	I	4.3	10.6	6.8	2.9	0.6	15.0	8.0	24.6	23.6	18.7	1.4
I	W9-00158	S Erickson NE23-22-9	I	0.6	1.8	1.5	1.5	0.7	0.1	4.9	5.4	5.8	5.5	0.4
I	W9-00159	R Alto SE30-25-8	I	1.1	8.9	9.0	1.8	0.3	10.0	9.4	20.8	19.7	15.3	0.4
I	W9-00160	E Pajusen SE21-25-9	I	0.8	7.9	5.7	1.8	0.6	8.3	6.0	16.2	14.9	12.1	0.3
I	W9-00161	B Harris SW20-22-9	I	0.6	4.1	2.6	0.9	0.1	2.3	4.6	8.1	7.1	6.2	0.3
I	W9-00162	B Reid SE35-25-8	I	4.4	4.8	7.4	1.3	0.1	13.2	4.2	18.0	17.5	14.4	1.8
I	W9-00163	R Puikenen NE32-25-9	I	0.9	4.6	4.2	1.0	<0.1	5.3	7.0	10.7	12.3	9.9	0.4

Comment:

SASKATCHEWAN SOIL TESTING LABORATORY
WATER ANALYSIS

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Date: 21-08-89
NormacAES*W9-00114/00202

Normac

Lab #	Client Identification	CONCENTRATION OF IONS (meq/L)						CATIONS		ANIONS		SALTS		S.A.R.	
		Na+	Ca++	Mg++	K+	Cl-	SO4=	HCO3-	(meq/L)						
W9-00164	L Sheppard SE18-21-8	21.9	0.3	0.1	0.8	7.0	<0.1	15.0	23.0	22.0	22.7	50.2	1	1	1
W9-00165	L Springett SE30-21-8	13.7	25.4	30.4	0.3	3.1	53.0	10.2	69.8	66.4	52.3	2.6	1	1	1
W9-00166	M Leppa SE32-25-8	1.1	10.5	6.3	2.1	0.5	10.6	6.8	20.0	17.9	14.5	0.4	1	1	1
W9-00167	E Ylioya SW27-25-9	1.2	7.9	9.1	2.0	0.4	11.0	6.6	20.2	17.9	14.6	0.4	1	1	1
W9-00168	L Alm NW12-25-9	1.3	7.1	7.6	1.8	0.7	8.1	6.3	17.8	15.1	13.9	0.5	1	1	1
W9-00169	H Boon SE28-25-9	0.8	3.9	5.0	1.0	0.2	4.0	7.8	10.7	12.0	9.8	0.4	1	1	1
W9-00170	R Alto NW13-25-9	3.8	19.3	18.3	4.9	0.7	34.6	7.9	46.3	43.2	32.2	0.9	1	1	1
W9-00171	C Johnson NW20-25-9	0.6	4.0	3.4	1.0	0.1	4.1	4.8	9.0	9.1	7.8	0.3	1	1	1
W9-00172	M Pirness SW31-25-8	0.5	5.0	3.6	0.9	<0.1	2.1	6.6	9.9	8.8	7.3	0.2	1	1	1
W9-00173	B&K Connor SW17-22-8	0.6	2.4	1.9	0.7	<0.1	3.3	1.8	5.6	5.1	4.7	0.4	1	1	1
W9-00174	J Stiles SW1-22-9	1.1	8.2	5.2	1.7	2.6	3.7	8.1	16.2	14.4	12.9	0.4	1	1	1
W9-00175	H Dyck NE36-22-9	2.3	10.7	9.5	2.1	0.8	10.9	10.4	24.6	22.1	18.0	0.7	1	1	1
W9-00176	T Hamilton SW2-22-8	33.7	13.3	11.3	0.3	3.8	40.3	13.5	58.6	57.6	50.9	9.6	1	1	1
W9-00177	C Johnson SW14-22-9	1.6	2.5	0.7	1.5	0.2	0.9	5.3	6.3	6.4	6.3	1.3	1	1	1
W9-00178	RM Canaan NW21-22-9	1.1	4.4	3.1	0.9	<0.1	2.4	6.3	9.5	8.7	7.4	0.5	1	1	1
W9-00179	J Peters SE18-24-9	26.5	22.4	17.7	6.0	1.6	58.1	10.3	72.6	70.0	57.0	5.9	1	1	1
W9-00180	T Kempainen SW32-25-9	0.4	3.9	2.8	0.9	0.3	2.2	6.4	8.0	8.9	6.8	0.2	1	1	1
W9-00181	W Lawes NW2-25-9	1.9	6.3	5.9	1.6	0.1	8.3	6.7	15.8	15.1	12.0	0.8	1	1	1
W9-00182	E Roanen SW22-25-9	0.5	7.3	4.7	1.7	0.5	3.2	9.5	14.3	13.3	11.2	0.2	1	1	1
W9-00183	N Petrie SE28-21-8	31.6	1.9	1.2	2.5	2.0	24.5	9.5	37.2	36.0	37.2	25.4	1	1	1
W9-00184	G Wright NW35-24-9	2.2	6.2	6.0	1.7	0.1	8.3	3.6	16.2	12.0	12.9	0.9	1	1	1
W9-00185	R Jordbio NE26-22-9	1.1	4.0	2.3	1.0	0.1	7.3	1.5	8.4	8.9	7.3	0.6	1	1	1
W9-00186	D Cook SW4-25-9	0.2	3.3	2.0	0.8	<0.1	1.1	4.5	6.3	5.6	4.7	0.1	1	1	1
W9-00187	A Saxton SW30-22-9	31.0	7.6	8.7	2.8	2.1	34.0	14.3	50.1	50.4	45.4	10.8	1	1	1
W9-00188	L Alm SE14-25-9	2.6	19.3	14.3	3.8	1.7	26.7	6.8	40.0	35.1	29.3	0.6	1	1	1

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I	I	I	I	CONCENTRATION OF IONS(meq/L)						CATIONS		ANIONS		SALTS	S.A.R.	I
				Na ⁺	Ca ⁺⁺	Mg ⁺⁺	K ⁺	Cl ⁻	SO ₄ ⁼	HCO ₃ ⁻	(meq/L)	(meq/L)	(meq/L)	(meq/L)	I	
I	W9-00189	A Kemppaine	NE30-25-9	I	0.8	3.8	2.4	0.9	0.4	3.6	4.6	7.9	8.5	7.4	0.4	I
I	W9-00190	J Mitchell	NE22-21-9	I	0.5	2.9	1.8	0.8	<0.1	1.4	3.8	5.9	5.2	4.5	0.3	I
I	W9-00191	RM Coteau	NW34-25-8	I	0.2	2.4	2.7	0.7	<0.1	1.1	6.6	6.1	7.7	6.3	0.2	I
I	W9-00192	J Hastie	SW9-25-8	I	6.6	7.0	6.5	1.9	1.2	11.9	6.9	21.9	19.9	18.4	2.5	I
I	W9-00193	V Nairn	NE31-21-8A	I	4.9	14.5	11.4	3.5	2.9	22.8	4.4	34.4	30.2	27.0	1.4	I
I	W9-00194	L Leber	SW34-25-9	I	0.9	7.2	6.3	1.8	1.8	3.7	8.6	16.1	14.1	12.6	0.3	I
I	W9-00195	W Kimble	NW24-21-9	I	0.1	2.0	0.7	0.7	<0.1	0.2	2.6	3.5	2.9	2.5	0.1	I
I	W9-00196	K Buhr	SW20-24-9	I	34.4	1.8	1.3	3.0	1.5	32.9	4.7	40.5	39.0	42.1	28.0	I
I	W9-00197	B Leber	NE4-25-8	I	1.1	2.8	1.7	0.8	0.2	1.6	4.0	6.4	5.7	5.4	0.7	I
I	W9-00198	RM Coteau	SW3-25-8	I	1.0	3.8	3.1	0.9	0.2	2.2	4.9	8.8	7.2	7.1	0.5	I
I	W9-00199	H Robberstad	SE36-21-9	I	29.6	11.3	11.2	3.9	3.2	36.5	14.0	56.0	53.7	47.8	8.8	I
I	W9-00200	G Howell	SW15-25-8	I	1.7	6.5	4.8	1.5	2.5	3.8	5.2	14.5	11.6	12.5	0.7	I
I	W9-00201	JF Kemppainen	NE19-25-9	I	0.3	3.2	3.6	0.8	<0.1	1.4	5.0	8.0	6.5	6.6	0.2	I
I	W9-00202	M Warren	NE18-24-9	I	26.9	19.2	29.2	5.3	1.0	67.0	10.3	80.6	78.4	61.8	5.5	I

Comment:

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