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LIMITED REPORT

Geology and Groundwater Resources of the Prince Albert Area (73H), Saskatchewan

by

M.J. Millard

Resources Division

SRC Publication No. R-1210-8-E-90

August, 1990

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INTRODUCTION

Geologic mapping, test drilling, and observation well measurements have been done for the entire settled area of Saskatchewan during the past 25 years. This data provides a basis for the evaluation of the groundwater resources of Saskatchewan. The objective is to continuously improve the understanding of provincial groundwater resources in terms of occurrence, quality, and behaviour, in order to support the development, management, and protection of these water supplies.

With this need in mind, the Saskatchewan Research Council (SRC) has worked co-operatively with the Saskatchewan Institute of Pedology (SIP) and the Saskatchewan Water Corporation (SWC) to complete a new Geology and Groundwater Resource map series corresponding to the 1:250,000 NTS areas of Saskatchewan. The present report accompanies the preliminary maps and cross sections depicting the geology and groundwater resources in the Prince Albert area (73H). This work, which is an update of maps published during the late 1960's and 1970's, in particular Christiansen (1973), indicates the location, extent, and depth of aquifers throughout the area. It also demonstrates the close relationship of soil salinity to geology and groundwater conditions and assists in evaluating irrigation potential and contamination hazards.

Preliminary compilation is done at a scale of 1:100,000. Control is provided by stratigraphic cross sections that are spaced approximately 14 to 19 km apart; ideally, one cross section every one and one-half townships, resulting in about 15 sections per map area. The original cross sections

(horizontal scale = 1:50,000; vertical exaggeration = 20x), are constructed by fixing reduced copies of testhole logs to the topographic section. The testhole logs used are taken from records stored at SRC and include primarily testholes with electrical logs, such as oil and potash testholes, and testholes and water wells drilled by SRC or with the assistance of SWC, or formerly, the Family Farm Improvement Branch. Records consisting of a driller's log only are used in the few areas where other data are sparse or lacking.

In order to keep the work manageable, the area is divided into NE, SE, NW and SW quarters. The maps with each quarter are at the 1:100,000 scale. Separate sheets are produced for each stratigraphic level that contains aquifers or potential aquifers (i.e. sands and gravels). In some cases, where there are few, or only minor, occurrences of the deposits at different levels, aquifers at different levels may be shown on one sheet. Each area may have as many as 8 sheets per quarter, or 24 sheets for the total NTS area, including bedrock surface maps. Information on aquifer maps includes the surface elevation at the site, as well as depth to and thickness of the deposit, and the static water level when known.

When the maps are complete, the quarters are combined into one map and reduced to a scale of 1:200,000. The cross sections are reduced by 50% to a scale of 1:100,000. This provides a compilation of all the information at a more manageable size although the legibility of the final maps is reduced due to the small size of the type.

GEOLOGY

General

All sediments between the bedrock surface and the present surface are considered to be "drift". The drift in the Prince Albert area ranges in recorded thickness from 44 m to over 190 m. The drift generally thickens towards the north. The bedrock surface generally slopes to the east. The bedrock surface elevation, as recorded in testholes, ranges from 237 m southwest of Nipawin (SRC Nipawin No. 4, NW 12-2-50-15-W2) to 411 m southeast of Paddockwood (Log #SW 4; FFIB NW 16-35-5-24-W2).

The glacial ice eroded but also deposited material, mainly glacial till, which is an unsorted mixture of sand, silt, clay, pebbles, and boulders accumulated by the glacier. As the ice retreated from the area much meltwater was released which deposited stratified gravels, sands, silts, and clays. This process of erosion and deposition of till and stratified deposits occurred several times as the ice repeatedly advanced and retreated over the area. This sequence of events resulted in the drift stratigraphy that presently exists.

Where information makes it possible, the drift has been divided into three groups; Empress Group, Sutherland Group, and Saskatoon Group. The Empress Group consists of stratified gravels, sands, silts, and clays that occur between the bedrock surface and the till. The Sutherland Group, as well as the Saskatoon Group, consists of several till units and stratified units that are not formally separated and identified here. The definition of these groups and

the description of the typical drift units forming the stratigraphy are provided by Christiansen (1968) and Whitaker and Christiansen (1972).

At some localities the bedrock surface has been modified by the collapse of underlying sediments, similar to that described by Christiansen (1967). These structures are shown on the cross sections as schematic gravity faults.

Bedrock

Swan River Formation - Mannville Group

No differentiation between the basal Cretaceous sediments that comprise the Mannville Group in Saskatchewan and their lateral equivalents that comprise the Swan River Formation in Manitoba (McNeil and Caldwell, 1983), has been attempted during this study.

The Swan River Formation - Mannville Group, which disconformably overlies Paleozoic sediments, is composed of interbedded fine- to coarse-grained, quartzose sand, silt, and clay that may be locally cemented. In the Prince Albert area this unit varies in recorded thickness from 100 to 215 m and forms the bedrock surface over much of the northeastern part of area.

Ashville Formation - Lower Colorado Group

Like the Swan River Formation - Mannville Group discussed above, no attempt has been made to differentiate between these two laterally equivalent units. This unit, which varies from 0 to about 85 m in recorded thickness, is composed of lower and upper, dark grey, noncalcareous clay units separated

by an interbedded sand and silt unit. This middle unit, which is locally glauconitic and cemented with calcite, is believed to be a poorly-developed equivalent of the Viking Formation.

The Ashville - Lower Colorado Group forms the bedrock surface over most of the Prince Albert area.

Lea Park Formation and Upper Colorado Group

The Lea Park Formation and the Upper Colorado Group have been combined into a single unit for the purpose of this report. The Lea Park Formation and Upper Colorado Group is composed of gray marine silt and clay and bentonite beds. The upper part of this unit is noncalcareous, whereas the lower part is composed of calcareous, white speckled shales. The base is marked by the base of the Second White Speckled Shale.

The Lea Park Formation and Upper Colorado Group forms the bedrock surface in the southern and west-central part of the Prince Albert area. This unit attains a maximum recorded thickness of about 95 m near Weldon (log #SW 49; Gulf Kinistino STH #7, SE 1-2-47-23-W2).

Drift

Empress Group

Where it is differentiated, the Empress Group (Whitaker and Christiansen, 1972) lies between the bedrock surface and the lowest till. The Empress Group comprises stratified gravels, sands, silts, and clays. This group of sediments occurs near Nipawin and is inferred, from the Melfort area to the south and from the Shellbrooke area to the west (Millard, 1990; Simpson et al. 1990), to occur in an extension of the preglacial Hatfield Valley (Christiansen et al., 1977) in the southwest corner of the Prince Albert area. The maximum recorded thickness of the Empress Group of 30 m is found south of Nipawin (log #SE 112, FFIB, SW 5-29-49-14-W2).

Sutherland Group

Where it is differentiated, the Sutherland Group (Christiansen, 1968) lies beneath the Saskatoon Group and on top of bedrock or Empress Group deposits. In the Prince Albert area this unit ranges from 0 to about 80 m in recorded thickness and comprises tills and stratified drift. The tills of the Sutherland Group are commonly clayier and harder, less resistive electrically, and are more difficult to penetrate by drilling than tills of the Saskatoon Group. These two groups are also differentiated on the basis of carbonate content, the presence of shale fragments in the till, and a weathering zone separating the two groups. The weathering is signified by leaching, oxidation, staining, and

other alteration features. At some locations the top of the Sutherland Group is marked by stratified drift.

Saskatoon Group

The Saskatoon Group (Christiansen, 1968) comprises all sediments lying between the Sutherland Group and the present surface. In the Prince Albert area this unit ranges in recorded thickness from 25 m to about 165 m at Red Deer Hill south of Prince Albert (log #SW 58, SRC Red Deer Hill, SE 6-35-46-28-W2). Here slabs of Sutherland Group sediments and bedrock silts and clays have been thrust over till of the Floral Formation.

The Saskatoon Group is composed of tills and stratified drift. The tills of the Saskatoon Group are commonly more sandy, more resistive electrically, and have a higher carbonate content than the tills of the Sutherland Group. The Saskatoon Group comprises the Floral Formation, which itself consists of multiple tills and stratified units, the Battleford Formation and Surficial Stratified Drift (Christiansen, 1968).

Surficial Stratified Drift occurs as eolian, glaciolacustrine and glaciofluvial sediments and as alluvial sediments that were deposited by modern streams and rivers. Alluvial deposits are found primarily in the valleys of the Saskatchewan River and its major tributaries.

Deltaic sediments occur over large tracts of the southern part of the area where they attain a maximum recorded thickness of 65 m. Inwash was

deposited as the Fort a la Corne Delta of Glacial Lake Saskatchewan and later, as the Nipawin Delta of Glacial Lake Agassiz (Christiansen, 1982).

GROUNDWATER RESOURCES

General

Groundwater originates from precipitation that infiltrates to the water table, moves downward and laterally under the influence of gravity, and eventually discharges back to the ground surface at some point of lower elevation (Meneley, 1977).

An aquifer is a layer in which a well can be constructed yielding sufficient water for production. Aquifers are separated by aquitards, which are layers sufficiently permeable to transmit water but not sufficiently permeable to allow completion of a production well. The inter-relationships between aquifers, aquitards, and aquifer systems are discussed by Meneley (1983). In the Prince Albert area the Swan River Formation - Mannville Group and intertill sands and gravels form the major aquifers. Till units and bedrock clays form the aquitards in the area.

Groundwater moves through the intergranular openings and fractures in the sediments. The water moves under influence of gravity from regions of higher hydraulic head to regions of lower hydraulic head. The hydraulic head generally is expressed as the elevation above sea level of the water level in a well. If the layers are horizontal and of large areal extent, as in this area, the water tends to move vertically in aquitards while in aquifers it moves

horizontally. The distribution of the hydraulic head determines the direction of flow. The hydraulic head distribution in turn is controlled by factors such as topography, stratigraphical setting, and the type of material forming the aquitards and aquifers.

Surficial Aquifers

Many shallow seepage wells, generally less 15 m deep, have been constructed throughout the area, primarily in Surficial Stratified Drift, but also in stratified deposits of the Battleford Formation. These surficial aquifers (Sheet 1 and cross sections) are very extensive and occur throughout the entire area excepting the northwest part.

Intertill Aquifers

Intertill aquifers are defined stratigraphically rather than topographically. Thus, in some areas the depth of the same intertill aquifer can vary from relatively shallow to deep. Where intertill aquifers are reasonably well defined they are shown on the cross sections. Where these stratified deposits are interbedded with till or where insufficient data exist the aquifers are not shown.

Intertill aquifers are recharged by downward flow through the overlying sediments. Where possible, using limited water-level data and based on the slope of the topography, the direction of groundwater flow in these aquifers has been indicated schematically on the cross sections. In the absence of

sufficient, reliable water-level data the direction of groundwater flow in the shallow intertill aquifers can only be inferred from the topographical setting.

The stratified deposits that are classed as shallow intertill aquifers occur at three stratigraphic positions within the middle and upper part of the Floral Formation. Shallow intertill sands and gravels occur throughout the area where they provide water supplies at depths commonly less than 50 m (Sheet 2 and cross sections), although the deepest of these can occur at depths exceeding 100 m. In the Prince Albert area, the aquifers that are grouped in this category are more numerous, and often larger than are those that have been classified as deep intertill.

Intertill sands and gravels of the lowest part of the Saskatoon Group (Sheet 3 and cross sections) and of the Sutherland Group (Sheet 4 and cross sections) are classed as deep intertill aquifers. In the Prince Albert area, these aquifers are less numerous, and commonly less extensive than those aquifers associated with the middle and upper part of the Floral Formation. Where insufficient data exist to properly define the aquifers they are not differentiated.

Empress Group Aquifers

Silts, sands and gravels of the Empress Group (Sheet 4 and cross-sections) occur near Nipawin and are believed to occur in the southwest corner of the area (cross section S.W. D-D'). The Empress Group sediments do not constitute major aquifers in the Prince Albert area because of their very limited areal extent.

Swan River-Mannville Aquifer

The Swan River Formation-Manville Group forms the only bedrock aquifer in the Prince Albert area to be discussed in this report. This occurs throughout the Prince Albert area, but is important only in the extreme eastern part of the map area where it occurs at relatively shallow depths. Here sparse potentiometric data indicates that the piezometric surface is about 350 m above sea level.

Flowing Wells

Flowing wells, where the water level is above the ground surface, generally indicate an upward groundwater flow. In the Prince Albert area, flowing wells have been completed primarily into aquifers that occupy various stratigraphic positions within the Saskatoon Group, and also into the Swan River-Manville Aquifer. Most of the flowing wells that are completed into Saskatoon Group aquifers occur in a belt that extends from Emma Lake to Snowdon. These aquifers are recharged in the upland areas to the north and upwards flow is produced where the aquifers pinch-out. Appendix II lists the flowing wells for the Prince Albert area as compiled by Stewart (1983). Also included is the completion depth of the well and the classification and stratigraphic position of the aquifer (if known).

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APPENDIX I

Aquifers in the Prince Albert Area (73H)

Surficial Aquifers - occur throughout the area, particularly in the south, as stratified drift within and above the Battleford Formation.

Shallow Intertill Aquifers - occur throughout the area as sand and gravel layers in the middle and upper part of the Floral Formation. Depths are commonly less than 50 m. These aquifers are quite numerous and extensive.

Deep Intertill Aquifers - occur throughout the area as sand and gravel layers in the lower part of the Saskatoon Group and within the Sutherland Group. These are less numerous and less extensive than those associated with the middle and upper part of the Floral Formation.

Empress Group Aquifers - occur as silt, sand, and gravel in isoloated locations in the area as buried valley sediments. Due to its relatively limited areal extent, this is not important aquifer in the Prince Albert area.

Swan River-Mannville Aquifer - occurs throughout the area. This is an important aquifer in the extreme eastern part of the Prince Albert area.

Aquitards - occur throughout the area as relatively impermeable till layers of the Saskatoon and Sutherland Groups and silt and clay layers of the Lea Park Formation - Upper Colorado Group and the Ashville Formation - Lower Colorado Group.

APPENDIX II

Flowing Wells in the Prince Albert Area (73H)

LOCATION	AQUIFER CLASS./STRAT. POSITION	COMPLETION DEPTH
SE16-51-14-2	Bedrock/Swan River	?
SW16-51-14-2	Bedrock/Swan River	46 m
SW16-51-14-2	Bedrock/Swan River	36 m
SW16-51-14-2	Bedrock/Swan River	60 m
NW33-52-14-2	Bedrock/Swan River	47 m
SW33-46-16-2	Shallow / Upper Floral ?	11 m
SW30-49-17-2	Bedrock/Swan River	?
NE30-49-17-2	Bedrock/Swan River	?
NE35-46-18-2	Surficial	<9 m
NE36-46-18-2	Surficial	<11 m
NW18-52-18-2	Deep / Basal Saskatoon Group	94 m
SW 7-53-18-2	Deep / Basal Saskatoon Group	79 m
SE21-52-19-2	Deep / Basal Saskatoon Group	63 m
NW28-52-19-2	Deep / Basal Saskatoon Group	61 m
SE24-52-19-2	Deep / Basal Saskatoon Group	72 m
NW12-52-21-2	?	<15 m
NW12-52-21-2	Shallow / Middle Floral	59 m
NW31-51-22 2	Shallow / Upper Floral	15 m
NE 1-52-22-2	Shallow / ?	?
NW 1-52-22-2	Shallow / Upper Floral	34 m
NW15-52-24-2	Shallow / Lower Floral	35 m
SW21-52-24-2	Shallow / Lower Floral	42 m
SW29-52-24-2	Shallow / Lower Floral	19 m
SW33-53-24-2	Shallow / Lower Floral	34 m
SW 6-53-24-2	Shallow / Lower Floral	39 m
SW 8-53-24-2	Shallow / Lower Floral	34 m
SE13-52-25-2	Shallow / Lower Floral	27 m
SE24-52-25-2	Shallow / Middle Floral ?	17 m
SE25-52-25-2	Shallow / Middle Floral ?	21 m
SE26-52-25-2	Shallow / Middle Floral ?	18 m
NE 1-53-25-2	Shallow / Lower Floral	38 m
SE19-53-25-2	Surficial? / Battleford ?	13 m
SW15-49-26-2	Surficial	12 m
NW20-52-26-2	Shallow / Lower Floral	48 m
SW30-50-26-2	Deep / Basal Saskatoon Group ?	57 m
NW 9-51-27-2	Deep / Sutherland Group ?	87 m
27-53-27-2	Shallow / Lower Floral	45 m

APPENDIX III

Index of Cross Section Logs

The following types of logs and records have been used for the compilation of this work.

1. The SRC file contains logs that include E-logs, driller's logs, geologist's descriptions of the cutting samples, and often analytical results. These logs are listes as SRC, DTRR, SFP, SDH, KIAAS, Hayter, EPD, SPC, and DIA.
2. The Oil - Potash logs consist of geophysical logs only. These logs are listed as OIL.
3. The SWC file contains logs consisting of E-logs, driller's logs, and information pertaining to well completion. Collection of this type of data was iniated under the Family Farm Improvement Branch (FFIB) Testhole Assistance Program, which was the forerunner of a similar progran now administered by the SWC. These logs are listed as FFIB.
4. Records including only driller's logs and infromation pertaining to well completion are listed as DOE.

Log No. (NW) Location	Log Type/Name	Land
1	DTRR Emma Lake	8-28-53-27-W2
2	DOE	NW 33-53-26-W2
3	DOE	SE-2-54-26-W2
4	FFIB	13-10-54-25-W2
5	OIL Hudsons Bay Torch Lake 10	6-32-53-24-W2
6	OIL Hudsons Bay Torch Lake 3	16-27-53-23-W2
7	DOE	SW-29-52-27-W2
8	DOE	SW-29-52-26-W2
9	SRC Northside	NE-16-21-52-26-W2
10	DOE	SW-7-53-26-W2
11	DOE	NW-34-53-27-W2
12	DOE	NE-28-54-27-W2
13	OIL Union Oil Angling Lake	9-24-55-27-W2
14	SRC Bitter Creek	SE-7-35-57-27-W2
15	DOE	13-24-52-25-W2
16	DOE	13-14-53-25-W2
17	OIL Union Rebitt Lake	1-33-54-25-W2
18	OIL Union Torch Lake	9-14-55-25-W2
19	DOE	SW-26-52-23-W2
20	OIL Hudson Bay Torch Lake 2	1-10-53-23-W2
21	DOE	SE-2-55-23-W2
22	DOE	NE-23-55-23-W2
23	DOE	NE-34-55-23-W2
24	DOE	NW-4-56-23-W2
25	KIASS Hanin Creek 006	NE-8-31-56-23-W2
26	DOE	NE-31-56-23-W2
27	OIL CDN Fina Whiteswan	11-7-58-21-W2
28	DOE	SW-26-52-22-W2
29	OIL Hudsons Bay Torch Lake 5	12-2-53-22-W2
30	OIL Hudsons Bay Torch Lake 7	8-26-53-21-W2

Log No. (NE)	Log Type/Name	Land Location
1	OIL Hudsons Bay Torch Lake 7	8-26-53-21-W2
2	DOE	SE-20-53-19-W2
3	FFIB	SW-30-53-18-W2
4	FFIB	13-26-53-18-W2
5	DOE	SW-30-53-17-W2
6	OIL Fairway Kelsey 1	7-21-53-17-W2
7	FFIB	1-13-53-17-W2
8	FFIB	13-4-53-16-W2
9	FFIB	9-5-53-15-W2
10	FFIB	SW-22-53-15-W2
11	DOE	SE-30-53-14-W2
12	FFIB	SE-26-52-20-W2
13	SRC Torch River	7-22-55-18-W2
14	FFIB	2-3-53-18-W2
15	DOE	NE-10-53-18-W2
16	FFIB	NW-20-52-16-W2
17	SRC Garrick	NE-1-36-52-17-W2
18	DOE	SE-17-53-16-W2
19	Hayter Garrick	1-32-53-16-W2
20	FFIB	3-30-52-14-W2
21	FFIB	SW-33-53-15-W2
22	FFIB	SW-3-54-15-W2
23	FFIB	NW-13-10-54-15-W2

Log No. (SE)	Log Type/Name	Land Location
1	DOE	SW-1-52-21-W2
2	FFIB	9-5-52-20-W2
3	FFIB	1-16-52-20-W2
4	FFIB	NE-14-52-20-W2
5	SRC Smeaton	NW-13-18-52-19-W2
6	FFIB	15-8-52-19-W2
7	FFIB	SE-11-52-19-W2
8	FFIB	NW-12-13-52-19-W2
9	FFIB	SE-12-13-52-19-W2
10	FFIB	14-7-52-18-W2
11	FFIB	16-7-52-18-W2
12	FFIB	NE-14-52-18-W2
13	DOE	NW-17-52-17-W2
14	DOE	NW-16-52-17-W2
15	FFIB	13-13-52-17-W2
16	DOE	SW-17-52-16-W2
17	FFIB	NE-10-52-16-W2
18	FFIB	9-12-52-16-W2
19	DOE	NW-9-52-15-W2
20	FFIB	1-14-52-15-W2
21	DOE	SW-18-52-14-W2
22	SRC Fort a la Corne	1-1-50-20-W2
23	OIL Choiceland 1 Choice	13-3-50-18-W2
24	SRC Gronlid Ferry	7-6-50-17-W2
25	SRC Nipawin 1	1-1-50-17-W2
26	SRC Nipawin 17	NW-5-6-50-16-W2
27	SRC Nipawin 12	SE-4-11-50-16-W2
28	SRC Nipawin 7	NW-5-7-50-15-W2
29	SRC Nipawin 3	NW-5-8-50-15-W2
30	SRC Nipawin 14	SW-3-14-50-15-W2
31	SRC Nipawin 15	NE-13-12-50-15-W2
32	SRC Nipawin 16	NE-15-12-50-15-W2
33	SRC Nipawin 196	NE-11-18-50-14-W2
34	SRC Nipawin 135	NW-10-18-50-14-W2
35	SRC Nipawin 198	NW-9-18-50-14-W2
36	FFIB	SW-5-2-48-21-W2
37	FFIB	4-5-48-19-W2
38	OIL Hudsons Bay Brockington 2	16-4-48-19-W2
39	OIL California Standard Ch 43	4-28-48-18-W2
40	OIL California Standard Ch 19	1-27-48-18-W2
41	DOE	SW-25-48-18-W2
42	OIL California Standard Ch 20	13-19-48-17-W2

Log No. (SE)	Log Type/Name	Land Location
43	OIL California Standard Ch 22	4-16-48-17-W2
44	FFIB	14-9-48-17-W2
45	OIL California Standard Ch 60	10-15-48-17-W2
46	OIL California Standard Ch 51	16-15-48-17-W2
47	OIL California Standard Ch 66	4-23-48-17-W2
48	OIL California Standard Ch 52	8-23-48-17-W2
49	FFIB	NE-24-48-17-W2
50	OIL California Standard Ch 25	4-30-48-16-W2
51	OIL California Standard Ch 27	16-20-48-16-W2
52	FFIB	9-20-48-15-W2
53	FFIB	NW-21-48-15-W2
54	Hayter Armley	13-19-48-14-W2
55	DOE	SE-19-48-14-W2
56	DOE	NE-33-46-21-W2
57	DOE	SW-36-46-20-W2
58	DOE	SW-35-46-19-W2
59	OIL Gulf Oil Melfort STH 6	13-29-46-18-W2
60	DOE	SW-34-46-18-W2
61	OIL California Standard Ch 40	13-35-46-18-W2
62	DOE	NE-35-46-18-W2
63	OIL California Standard Ch 48	4-5-47-17-W2
64	OIL California Standard Ch 3	13-9-47-17-W2
65	FFIB	9-13-47-17-W2
66	OIL California Standard Ch 31	16-8-47-16-W2
67	DOE	NW-16-47-15-W2
68	DOE	SE-18-47-19-W2
69	FFIB	SE-30-47-19-W2
70	OIL Midwest #1 Prince Albert	1-32-47-19-W2
71	OIL Hudsons Bay Brockington #1	8-33-47-19-W2
72	DOE	NE-7-49-19-W2
73	DOE	NE-23-51-20-W2
74	FFIB	16-36-51-20-W2
75	OIL California Standard Ch 34	16-8-47-18-W2
76	FFIB	2-16-47-18-W2
77	FFIB	16-15-47-18-W2
78	OIL California Standard Ch 41	13-21-47-18-W2
79	OIL California Standard Ch 35	9-32-47-18-W2
80	FFIB	16-32-47-18-W2
81	OIL California Standard Ch 44	4-35-48-18-W2
82	OIL Imperial Corne	8-9-50-18-W2
83	OIL Interprovincial Ipsco 3	8-23-50-18-W2
84	FFIB	NE-17-51-18-W2

Log No. (SE)	Log Type/Name	Land Location
85	FFIB	8-20-51-18-W2
86	FFIB	5-21-51-18-W2
87	FFIB	9-23-51-18-W2
88	FFIB	1-2-52-18-W2
89	FFIB	16-12-52-18-W2
90	OIL California Standard Ch 10	4-7-47-16-W2
91	OIL California Standard Ch 9	13-7-47-16-W2
92	OIL California Standard Ch 13	16-24-47-17-W2
93	OIL California Standard Ch 8	4-30-47-16-W2
94	OIL California Standard Ch 7	4-6-48-16-W2
95	OIL California Standard Ch 23	4-18-48-16-W2
96	OIL California Standard Ch 61	1-24-48-17-W2
97	OIL California Standard Ch 38	13-33-48-16-W2
98	SRC Nipawin 2	NW-13-26-49-16-W2
99	SRC Nipawin 10	SW-4-2-50-16-W2
100	SRC Nipawin 11	NW-5-2-50-16-W2
101	SRC Nipawin 13	NE-11-11-50-16-W2
102	DOE	13-9-51-16-W2
103	FFIB	8-24-51-17-W2
104	FFIB	13-31-51-16-W2
105	FFIB	1-6-52-16-W2
106	FFIB	13-5-52-16-W2
107	DOE	4-33-46-16-W2
108	DOE	4-21-47-15-W2
109	SRC Armley	NW-13-8-48-14-W2
110	DOE	NW-31-48-14-W2
111	SRC Nipawin No. 25	SE-1-7-49-14-W2
112	FFIB	5-29-49-14-W2
113	SRC Codette 2	NE-14-6-50-14-W2
114	SRC Codette 1	NW-14-6-50-14-W2
115	SRC Nipawin No. 23	SE-16-7-50-14-W2
116	SRC Nipawin No. 22	NE-16-7-50-14-W2
117	SRC Nipawin	15-20-50-14-W2
118	SRC Nipawin	1-30-50-14-W2
119	SHD Nipawin	5-16-51-14-W2
120	FFIB	5-19-51-14-W2

Log No. (SW)	Log Type/Name	Land Location
1	DOE	SW-21-52-25-W2
2	FFIB	15-13-52-25-W2
3	FFIB	NE-33-51-24-W2
4	FFIB	16-35-51-24-W2
5	DOE	NE-33-51-23-W2
6	OIL Hudsons Bay Weir Dale 1	1-36-51-23-W2
7	FFIB	12-25-51-22-W2
8	DOE	NE-33-51-21-W2
9	DOE	SE-36-50-28-W2
10	DOE	SW-34-50-27-W2
11	DOE	SE-31-50-26-W2
12	DTRR Prince Albert Nursery	SW-8-32-50-26-W2
13	DOE	SW-28-50-26-W2
14	DOE	NE-16-50-26-W2
15	EPD White Star	4-10-50-26-W2
16	SRC White Star	NW-13-2-50-26-W2
17	DOE	SW-17-50-25-W2
18	DOE	NW-14-50-25-W2
19	FFIB	NW-9-24-50-25-W2
20	DOE	SE-21-50-24-W2
21	FFIB	NE-9-13-50-24-W2
22	DOE	SE-13-50-23-W2
23	DOE	SW-9-50-21-W2
24	SRC Buckland	SW5-14-49-28-W2
25	DTRR Nisbet Rec. Area	7-17-49-27-W2
26	DTRR Shell River Campsite	9-9-49-27-W2
27	EPD Prince Albert	13-3-49-27-W2
28	SRC Pince Albert	NE-1-2-49-27-W2
29	SRC Prince Albert	SE-15-9-48-26-W2
30	SHD P.A. Maint Cpd.	SE-11-10-48-26-W2
31	FFIB	9-1-48-26-W2
32	DOE	SE-8-48-25-W2
33	SRC Prince Albert	NE-16-9-48-25-W2
34	DOE	NW-6-48-24-W2
35	DIA John Smith IR 09	NW-7-36-47-24-W2
36	DOE	SW-17-48-23-W2
37	DOE	NE-15-48-23-W2
38	DOE	NE-18-48-22-W2
39	FFIB	13-11-48-22-W2
40	DOE	NW-6-48-21-W2
41	DOE	SW-23-46-28-W2
42	DOE	SE-19-46-27-W2

Log No. (SW)	Log Type/Name	Land Location
43	DOE	SE-21-46-27-W2
44	SRC Red Deer Hill	SW-4-24-46-27-W2
45	DOE	SE-20-46-26-W2
46	EDP Fenton	SW-4-22-46-26-W2
47	DOE	SW-33-46A-25-W2
48	OIl Gulf Oil STH 6	13-33-46-23-W2
49	OIL Gulf Oil STH 7	1-2-47-23-W2
50	OIL Gulf Oil STH 1	13-5-47-22-W2
51	OIL Gulf Oil STH 14	4-10-47-22-W2
52	FFIB	9-5-47-21-W2
53	FFIB	NE-32-46-21-W2
54	DOE	SE-14-46-27-W2
55	DOE	SE-26-46-27-W2
56	SRC Red Deer Hill	SE-6-35-46-27-W2
57	DOE	SE-12-47-27-W2
58	SRC Clouston	SE-9-13-47-27-W2
59	FFIB	4-20-47-26-W2
60	SRC Holmes	4-29-47-26-W2
61	EPD Prince Albert	1-30-47-26-W2
62	SRC Prince Albert 1	SW-4-5-48-26-W2
63	SRC Prince Albert	NE-15-15-48-26-W2
64	SRC Prince Albert	NE-15-23-48-26-W2
65	EPD Little Red River Park	SW-7-15-49-26-W2
66	EPD Wahpaton 1	NW-3-33-49-27-W2
67	EPD Wahpaton 3	SE-11-33-49-27-W2
68	EPD Wahpaton 4	SW-10-33-49-27-W2
69	DOE	SE-14-50-27-W2
70	DOE	NW-8-51-26-W2
71	FFIB	4-19-51-26-W2
72	DOE	SE-32-51-26-W2
73	FFIB	1-4-52-26-W2
74	DIA John Smith IR 02	NW-3-1-47-25-W2
75	DIA John Smith IR 11	SE-8-18-47-24-W2
76	DIA John Smith IR 01	NE-8-19-47-24-W2
77	DIA John Smith IR 03	SW-4-29-47-24-W2
78	EPD Prince Albert	16-13-48-25-W2
79	OIL SPC 1 Prince Albert	4-19-48-24-W2
80	OIL SPC Prince Albert WP Obs.	1-25-48-25-W2
81	SFP Prince Albert 2	SE-7-29-49-25-W2
82	SFP Well 2 Obs.	SE-8-29-49-25-W2
83	DOE	NE-11-50-25-W2
84	FFIB	1-36-50-25-W2

Log No. (SW)	Log Type/Name	Land Location
85	FFIB	13-7-51-24-W2
86	OIL CND Fina Begin	7-26-51-25-W2
87	DOE	SW-1-52-25-W2
88	OIL Gulf Oil STH 8	4-11-47-23-W2
89	OIL Gulf Oil STH 12	16-15-47-23-W2
90	OIL Gulf Oil STH 13	1-26-47-23-W2
91	DOE	SE-27-48-23-W2
92	DOE	NW-11-49-23-W2
93	SRC Cole Rapids	NW-13-19-49-22-W2
94	OIL Midwest Prince Albert	11-35-49-23-W2
95	EPD Samburg	NW-13-33-49-23-W2
96	OIL British American Halas	4-4-50-23-W2
97	OIL Brady Heath Park 1	13-8-51-23-W2
98	DOE	NW-22-51-23-W2
99	DOE	NW-2-52-23-W2
100	OIL Hudsons Bay Torch Lake 1	13-14-52-23-W2
101	DOE	NW-33-46-22-W2
102	FFIB	1-16-47-22-W2
103	OIL British American Sorby 13	13-16-47-22-W2
104	FFIB	2-25-47-22-W2
105	FFIB	14-35-47-22-W2
106	DOE	NW-18-48-21-W2
107	FFIB	12-21-48-21-W2
108	DOE	SE-33-48-21-W2
109	DOE	SW-10-49-21-W2
110	OIL Hudsons Bay Sayese 1	10-10-49-21-W2
111	DOE	NE-7-51-21-W2
112	DOE	NE-24-51-22-W2