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REPORT

Geology and Hydrostratigraphy of the Wynyard Area (72P), Saskatchewan

by

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Environment Branch

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TABLE OF CONTENTS

page

LIST OF TABLES

page

LIST OF MAPS

LIST OF CROSS SECTIONS

INTRODUCTION

Quaternary geology mapping, test drilling, monitor well installation and water level measurements have been conducted, in the settled area of Saskatchewan by a number of agencies including: Saskatchewan Research Council (SRC), Sask Water Corporation (SWC), Prairie Farm Rehabilitation Administration (PFRA) and others, during the past 50 years. Data collected during these investigations provides a basis for the evaluation of palatable groundwater resources in Saskatchewan. The objective of this investigation is to continuously improve the understanding of provincial groundwater resources, in terms of occurrence, quantity, 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 SaskWater to complete a new Geology and Hydrostratigraphic/Groundwater Resource map series corresponding to the 1:250,000 scale, National Topographic Series (NTS) areas of Saskatchewan. This work is an update and refinement of maps published by SRC during the late 1960's and 1970's.

The present report accompanies the preliminary maps and cross sections depicting the geology and hydrostratigraphy in the Wynyard Area (72P). The updated maps post empirical aquifer information for wells completed at specific locations throughout the area.

METHODOLOGY

Stratigraphic cross sections were prepared along 12 profiles which display the stratigraphic continuity between testholes and wells in the Wynyard Area. These cross sections were constructed utilizing lithologic testhole data obtained from the Sask Water data base, and additional testhole records stored at SRC. A database of a hydrostratigraphic and/or lithostratigraphic picks for each well used in the study was prepared. These picks consisted of recognized lithological units and/or stratigraphic picks based on testhole cutting descriptions, electric logs (eg. sand units, bedrock formations, group breaks, surficial sand etc.) and picks made from previous studies (e.g. Henry et al., 1990, Mclean ,1971, Maathuis & Schreiner, 1982).

Map coordinates (UTM- NAD83) were generated for each well/testhole by determining the location of the centroid of the most accurate, dominion land location description reported (i.e. well locations reported to a legal sub-division (lsd) location were assigned the UTM point coordinate located at the centre of that lsd etc.). Cross section were created by selecting wells from a map display of well locations, using an AutoCAD autolisp routine called "AutoWell". This program hung lithologic strip logs at the location and elevation of each well along the cross section. Stratigraphic correlations and picks were then refined and edited by interpreting and extrapolating stratigraphic data from one well to the next. These roughly parallel cross sections were spaced approximately 14 to 19 km apart: 6 in a north-south orientation, and 6 traversing the study area in an east-west direction.

The testholes used in this study included those testholes with electrical logs (oil and potash exploration testholes), testholes and observation wells drilled by SRC (comprised of electrical logs, driller's logs, and geologist's descriptions), and farm or municipal water-well testholes (comprised of electrical logs and driller's logs), which were drilled with the assistance of Sask Water. In all 1,078 individual testhole/waterwell records were utilized in the compilation of the is report. Map 1 shows the location of the 12 cross sections and testhole/waterwell locations in the Wynyard Area.

A map showing the bedrock surface geology and topography was prepared (Map 2). Maps indicating the geographic extent of the aquifers were completed for each stratigraphic level at which aquifers or potential aquifers (i.e. sands and gravels) occur (Maps 3-7). In some cases, aquifers from different stratigraphic positions may be shown on one sheet. The aquifer maps include specific information pertaining to wells/testholes including depth to, thickness of the deposit, and the static water level when reported. Initial preparation of these maps was completed with the use of the Geographic Information System (GIS) software ArcView (ver 3.1). The GIS enabled the spatial display and query of the database of stratigraphic and aquifer information, which had been prepared from the water well and testhole information.

Upon completion of the aquifer map compilations, the line work was digitized and saved as *.dwg, AutoCad 14 drawing files. These layers were then combined with a digital base map of the Wynyard Area (1:250,000 scale) licenced by SaskWater from SaskGeomatics, for this report . Hard copy aquifer maps were plotted at a scale of 1:200,000. The accompanying cross sections are plotted at the same horizontal scale of 1:200,000 with a vertical exaggeration of 50x.

GEOLOGY

General

Topographic surface elevations in the Wynyard Area range from 500 metres above sea level (masl) in the vicinity of Last Mountain Lake to elevations in excess of 730 masl in Touchwood Uplands located in the southeast portion of the area. All sediments between the bedrock surface and the present surface are considered to be “drift”.

The bedrock surface topography in the Wynyard area was modified by several significant events: preglacial erosion, glacial and fluvio-glacial erosion, and subsurface collapse. In preglacial time, fluvial drainage systems flowed from the Rocky Mountains region eastward across Saskatchewan, and were responsible for the deposition of significant accumulations of sediments within valleys eroded into the bedrock surface (eg. Hatfield Valley). Later, erosion by continental glaciers and subsequent meltwater modified the surface topography in the Wynyard area significantly. The bedrock surface was further modified by subsurface collapse events as a result of the removal of salt by groundwater from the stratigraphically lower, Prairie Evaporite Formation (McLean, 1971). Evidence of salt collapse is indicated along many of the cross sections in the Wynyard map area, particularly sections C-C’ and D-D, where it is obvious that faulting and subsequent displacement of the Judith River and Bearpaw Formations is a result of subsidence related to the removal of the underlaying salt beds.

The drift in the Wynyard Area ranges in thickness from a maximum of 200 metres in the south western portion of the Wynyard Area, to a minimum of a few metres in the Quill Lakes area where Tertiary aged bedrock is covered with thin layer of drift. At other locations isolated outcrops of bedrock (Cretaceous Bearpaw Formation) are exposed along glacial meltwater spillway channels which have eroded through the drift sequence (i.e. Last Mountain Lake Spillway).

Glacial ice eroded, but also deposited material, mainly till, an unsorted mixture of sand, silt, clay, pebbles, and boulders. As the ice retreated from the area, large volumes of meltwater were released. Flowing meltwater eroded existing materials and deposited stratified gravels, sands along meltwater channels and spillways. Accumulations of meltwater formed glacial lakes which resulted in the deposition of glaciolacustrine sand, silt, and clay. 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.

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 first or lowest till (Whitaker, Christiansen, 1972) . Where information makes it possible the Sutherland Group may be divided into the: Warman, Dundurn, and Mennon formations; and the Saskatoon Group into Floral and Battleford formations (see Table 1). The definition of these groups and the description of the typical drift units forming the stratigraphy are provided by Christiansen (1968, 1992) and Whitaker and Christiansen (1972). The subdivision of the drift into its various formations is presently not possible throughout all of the Wynyard Area, due to the lack of quality data and testhole logs.

Period	**Stratigraphy**			**Lithology**	**Hydrostratigraphic Units Rosetown Area**	
Quaternary	Surficial Stratified Deposits			silt and sand / sand and silt	aquitard / aquifer	Surficial Sand Aquifers
Quaternary	Saskatoon Group	Battleford Formation		till	aquitard	Saskatoon Group Aquifers
Quaternary	Saskatoon Group	Floral Formation	Upper Floral Till	till	aquitard	Saskatoon Group Aquifers
Quaternary	Saskatoon Group	Floral Formation	Riddell Member	sand and gravel	aquifer	Saskatoon Group Aquifers
Quaternary	Saskatoon Group	Floral Formation	Lower Floral Till	till	aquitard	Saskatoon Group Aquifers
Quaternary	Saskatoon Group	Floral Formation	Lower Floral Till	sand and gravel	aquifer	Saskatoon Group Aquifers
Quaternary	Sutherland Group	Warman Formation		till	aquitard	Sutherland Group Aquifers
Quaternary	Sutherland Group	Warman Formation		sand and gravel	aquifer	Sutherland Group Aquifers
Quaternary	Sutherland Group	Dundurn Formation		till	aquitard	Sutherland Group Aquifers
Quaternary	Sutherland Group	Dundurn Formation		sand and gravel	aquifer	Sutherland Group Aquifers
Quaternary	Sutherland Group	Mennon Formation		till	aquitard	Sutherland Group Aquifers
Quaternary / Tertiary	Empress Group			sand and gravel	aquifer	Empress Group Aquifers (e.g. Hatfield Valley)
Tertiary	"Wynyard Formation" (informal)			sand and gravel	aquifer	Tertiary Aquifer "Wynyard Aquifer"
Cretaceous	Pierre Shale	Bearpaw Formation		clay	aquitard	
Cretaceous	Pierre Shale	Bearpaw Formation	Ardkenneth Mb.	silt and sand	aquifer	Bearpaw Sand Aquifer
Cretaceous	Pierre Shale	Bearpaw Formation		clay	aquitard	
Cretaceous	Pierre Shale	Judith River Formation		sand and silt	aquifer	Judith River Aquifer
Cretaceous	Pierre Shale	Lea Park Formation & Upper Colorado Gp.		clay	aquitard	
Cretaceous	Lower Colorado Group			clay	aquitard	

Modified after Christiansen, 1992

Table 1. Schematic hydrostratigraphic setting of the study area.

Bedrock

Lea Park Formation and Upper Colorado Group

The Lea Park Formation cannot be differentiated from Upper Colorado Group on the basis of electric logs which are the dominant type of information available from the testhole which penetrate to this depth (Christiansen,1979). In this study, these two units will be referred to as one. The unit is composed of noncalcareous, gray, marine silt and clay, and is found throughout the entire Wynyard map area. The bottom of the Upper Colorado Group is marked by the base of the Second White Speckled Shale. This unit serves as a marker bed to separate the Upper and Lower Colorado Group sediments. The Lower Colorado Group sediments are composed of calcareous, gray, marine silt and clay, and is found throughout the entire Wynyard map area.

Judith River Formation

The Judith River Formation is an eastward thinning sedimentary wedge, composed predominantly of clays, silts and sands deposited in a non-marine environment. The Judith River is overlain by the Bearpaw Formation and underlain by the Lea Park, both westward thinning wedges composed predominantly of clays and silts deposited in a marine environment. (McLean, 1971).

The Judith River formation is only present in the western portion of the study area. Eastward, the formation either pinches out, or was eroded during the deposition of the Hatfield Valley, a preglacial channel which had eroded down through the entire thickness of the Bearpaw Formation and Judith River Formation. The position of the Judith River Formation is not precisely known due to the fact that insufficient data are available (Maathuis and Schreiner, 1982). Thickness of the formation ranges from 0 m (absent) to 60 m in the southwest part of the Wynyard area (Section F-F’).

Bearpaw Formation

The Bearpaw Formation overlies the Judith River Formation in the western portion of the Wynyard area. In the Wynyard area the Bearpaw Formation is composed of soft, gray, noncalcareous, marine, silt, and clay. Minor sand layers are present in the extreme southwest portion of the study area (Ardkeneth Member).

Pierre Shale

The Pierre Sale is the stratigraphic equivalent of the Bearpaw, Judith River, and Lea Park formations in eastern Saskatchewan. The Pierre Shale is comprised of noncalcareous silts and clays, lithologically indistinguishable from those of the Bearpaw and Lea Park formations. Thus, Pierre Shale is present, where the Judith River Formation, which serves as the boundary between Lea Park and Bearpaw formations is absent. The Pierre Shale occurs throughout the eastern portion of the Wynyard area, beyond the depositional 'pinch-out' of the Judith River and beneath the Tertiary "Wynyard Formation" in the northeast part of the area.

Tertiary Undifferentiated

The Wynyard Formation overlies olive, oxidized silt and clay of the Pierre Formation. The term "Wynyard Formation" was used informally by Christiansen (1970) to name a sequence of sediments of Tertiary age, lying between the Pierre Formation and glacial deposits. It is often difficult to distinguish "Wynyard Formation" from Empress Group deposits. The "Wynyard Formation" sediments in ascending order are reported to include: a chert and quartzite gravel, a unit of olive coloured "salt and pepper" friable sand, a unit of light brownish-grey clay and grey to white calcareous silt and clay at the formation base (Henry et. al., 1990). These deposits occur as erosional remnants of Tertiary bedrock and are located in the northeast portion of the Study area (Quill Lakes area).

Drift

Empress Group

Where it is differentiated, the Empress Group (Whitaker and Christiansen, 1972) lies between the bedrock surface and the lower most till. The Empress Group is comprised of stratified gravel, sand, silt, and clay sediments. The basal sand of this group is composed predominantly of quartz and dark minerals; and the basal gravel is composed predominately of well rounded chert and quartzite pebbles. These units are commonly noncalcareous. Upper sand and gravel units of the Empress Group indicate, at least in part a glacial derivation, as indicated by the presence of clasts derived from igneous, metamorphic and carbonate rocks. The upper units are usually calcareous. The Empress Group, therefore, includes both preglacial and glacial deposits. Empress Group sediments in excess of 100m are recorded within the Hatfield Valley (see sec I-I').

Sutherland Group

The Sutherland Group (Christiansen, 1968, 1992) lies above bedrock or the Empress Group and beneath the Saskatoon Group (Table 1). In the Wynyard Area, this unit ranges from 0 to about 150 metres in recorded thickness (Touchwood Hills areas, Section L-L') and is comprised of till and stratified drift. The tills of the Sutherland Group are commonly clayier and harder, have a lower electrical resistivity, and are more difficult to penetrate by drilling than tills of the Saskatoon Group. These two groups can often be differentiated on the basis of carbonate content, the presence of shale fragments in the till, and a weathering zone separating the two groups.

Saskatoon Group

The Saskatoon Group (Christiansen, 1968, 1992) comprises all sediments lying between the Sutherland Group and the present surface. Where it is differentiated in the Wynyard Area this unit attains a maximum thickness of about 100 metres (see Sections: C-C', L-L' and K-K').

The Saskatoon Group is composed of multiple till units and stratified drift (Table 1). The tills of the Saskatoon Group are commonly more sandy, more electrically resistive, and have a higher carbonate content that the tills of the Sutherland Group. The Saskatoon Group is comprised of the

Floral Formation, which consists of multiple tills and stratified units, the Battleford Formation and surficial stratified deposits (Christiansen, 1968, 1992).

Surficial stratified deposits occurs as eolian, glaciolacustrine and glaciofluvial sediments and as alluvial sediments that were deposited by post glacial and/or modern, streams and rivers. In the Wynyard area, large laterally continuous regions of surficial sand deposition are restricted to the areas where spillways discharged into Glacial Last Mountain Lake. Indications of sporadic surficial stratified deposits are encountered in testholes located throughout the Wynyard study areas. The lateral extent of these sediments is highly variable.

HYDROSTRATIGRAPHY

General

In this report a hydrostratigraphic unit consists of a lithologic unit that has considerable lateral extent and comprises a geological framework for a reasonably distinct hydrologic system. This investigation outlines the stratigraphic relationship between these various units in order to assist in the search for groundwater in the Wynyard area .

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 (Menely,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.

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. In turn, the hydraulic head distribution is controlled by factors such as topography, stratigraphic setting, and the type of material forming the aquitards and aquifers (Meneley, 1977).

In the Wynyard Area, the Empress Group Aquifers form the most extensive aquifer unit. Less extensive, but significant, aquifers include: Saskatoon Group intertill/interglacial sands and gravels, and surficial sands. Aquifers in the Sutherland Group and Bearpaw Formation sand members constitute minor aquifers in this area. Till units and bedrock clays form the aquitards in the area.

Bedrock Aquifers

General

Bedrock aquifers are those water yielding units which occur stratigraphically below the Empress Group. The base of groundwater exploration defines the depth beyond which it is generally considered to be uneconomic to explore for groundwater because of the cost of drilling to the required depth and /or because the water at that depth is considered to be too highly mineralized for the intended use (Christiansen, 1970). In the Wynyard area the base of groundwater exploration is defined the base of the Judith River Formation (where it is present) or the top of the Pierre Shale where the Judith River Formation is not present.

Judith River Aquifer

The Judith River Aquifer, occurs in the western portion of the Wynyard Area (Map 3). The recorded depth to the top of this aquifer is variable ranging from 200 metres in the southwest to 50 metres in the northwest (see section G-G'). Where salt collapse is suspected the depth to the top of the Judith River is reported as 370 m below surface. In general the formation thins in an easterly direction (McLean, 1971). The top of the Judith River Aquifer lies between about 100 and 200 m below the ground surface.

Several cross sections indicate that the Judith River Formation Aquifer is hydraulically connected to Empress Group sediments where preglacial erosion has cut through the Bearpaw Formation.

Of the 877 water well records used in the study (i.e. excluding oil wells), 39 indicated the presence of the Judith River Aquifer, and only 13 of these reported a depth to water value. Depth to water ranged from 63 to 12 metres below surface. The Judith River aquifer is a major regional aquifer in the southwest and west central portions of the Wynyard area, however it is usually highly mineralized and utilized only when stratigraphically higher aquifers are not present.

Bearpaw Sand Aquifer

Wells have been completed in a Bearpaw sand aquifer, the Ardkenneth Member, located in the extreme southwest portion of the Wynyard study area (see Map 3, and cross sections E-E', and G-G'). This sandy member of the Bearpaw Formation forms the bedrock surface in this area. It is composed of noncalcareous, fine, light coloured sand and silty sand. Reported water levels range from 61-30 m below surface.

Tertiary Sands and Gravels

Significant sand and gravel deposits of Tertiary age are located, as indicated by records from 58 testholes, in the northeast portion of the Wynyard Area. This material has been informally named the "Wynyard Formation" (Christiansen, 1970). A number of wells (36) indicate water levels in this aquifer range from flowing conditions to 30 metres below surface. Thickness of the unit varies from 0 to approximately 75 metres. Most testholes indicate the formation is deposited over Pierre Shale. This Tertiary aged aquifer is hydraulically connected to the Empress Group sediments, and the two are often indistinguishable without detailed lithological descriptions of the sediments (Maathuis and Schreiner, 1982).

Drift Aquifers

Empress Group

Silts, sands, and gravels that occupy the stratigraphic position of the Empress Group are indicated on Map 4. The Empress Group aquifers are located throughout the central portion of the Wynyard area. The "Hatfield Valley" and its tributaries comprise a significant component of the Empress Group Aquifers in the Wynyard area and, are evident on the bedrock surface topography map (see Map 2). The "Hatfield Valley" aquifer is part of a major preglacial fluvial system which traverses the Saskatchewan from northwest to southeast The valley is flanked by, and hydraulically connected to, Empress Group sediments which occupy an "upland position" on the flanks of the "Hatfield Valley". A more detailed discussion of the interconnection of Empress Group aquifers and groundwater flow within them can be found in Maathuis and Schreiner, 1982.

Empress group sediments are indicated in 225 of the water well and testholes records used in this investigation. Depth to and thickness of these aquifers are highly variable. Depth to the top of Empress Group sediments ranged from 20 to 200 metres below ground surface while thickness of Empress Group sediments range from 1 to 137 metres. Static water level varies greatly from reported flowing conditions at 17 locations, to 152 m below ground surface. Several single point locations of Empress Group sediments are also indicated on the map.

Sutherland Group

Sutherland Group aquifers are stratigraphically located within tills of the Sutherland Group and above Empress Group sediments (Map 5). These aquifers are fewer in number and areal extent than are Saskatoon Group aquifers. This is somewhat due to a lack of information, as wells completed into shallow aquifers often did not have testholes drilled to investigate deeper formations. Of the 877 waterwell/testhole records used in this investigation 125 intersected Sutherland Group aquifers. Of these water levels were reported for 54 wells ranging from flowing to 68 m below surface. Most of these Sutherland Group aquifers are located in the northwest to southeast trend which coincides with the location of the stratigraphically lower Hatfield Valley, Empress Group aquifer. Data from a number of isolated wells completed in the Sutherland Group are also indicated on the map. The continuity and interconnection of these aquifers is limited by incomplete stratigraphic information.

Interglacial Aquifers

Interglacial aquifers occur between the lowest till of the Saskatoon Group and the uppermost till of the Sutherland Group. These aquifers are commonly at depths less than 50 m below ground surface. Interglacial aquifers are extensive in the Wynyard Area (Map 6). Of the waterwell/testhole records used in this investigation, 299 intersected interglacial aquifers. Of these water levels were reported for194 wells ranging from flowing to 111 m below surface. Aquifers located in this stratigraphic position are a very important component of groundwater supply in the Wynyard area. It should be noted that, as with all drift aquifers, the lateral continuity of aquifers in this position is very tenuous, and while some degree of lateral continuity is assumed within each aquifer, additional testhole drilling may prove otherwise.

Saskatoon Group

Saskatoon Group aquifers include the stratified deposits which occur between tills of the Saskatoon Group itself (i.e. Battleford till and Floral till). Of the 877 waterwell/testhole records used in this investigation, only 83 intersected Saskatoon Group aquifers. Water levels, ranging from flowing to 30 m below surface were reported for 45 of these wells. These aquifers are commonly intersected at depths less than 50 m below ground surface.

Saskatoon Group aquifers are located throughout the Wynyard Area (Map 7). Laterally the lithologic and hydraulic continuity of these aquifers is often interrupted.

Surficial Stratified Deposits

Many shallow seepage wells, generally less 15 m deep, have been constructed throughout the area primarily in surficial stratified deposits Many large diameter, bored wells (not included in this compilation) have been completed in surficial stratified deposits. The extent, as indicated from the testhole and water well records used in this report, of the Surficial Sand aquifer is indicated on Map 8. The largest of these is located north of Last Mountain Lake where fluvial deposits related to the most recent deglaciation are abundant. Water in surficial aquifers originates as precipitation which has infiltrated down from the ground surface to the watertable. Recharge occurs seasonally mainly during the spring snow melt period and during intensive or long duration rainstorms.

Flowing Wells

Flowing wells (i.e. where the static water level is above the ground surface) generally indicate an upward groundwater flow. In the Wynyard Area, flowing wells have been completed into Saskatoon Group, interglacial, Sutherland Group, Empress Group, and bedrock aquifers. Table 2 is a list of 33 reported flowing wells in the Wynyard Area, as reported from the SWC completion records used in this report. In the Wynyard area, the Allan Hills in the west and the Touchwood Hills in the east are the major areas of groundwater recharge and the intervening Last Mountain Lake and Quill Lake lowlands are the major area of groundwater discharge. Most of the flowing wells, regardless of their stratigraphic position, are restricted to this broad discharge area.(Christiansen and Greer, 1963).

Table 2. Flowing Wells in the Wynyard Map Area 72P

SRC NO	QLSD	LSD	QSEC	SEC	TWNN	RNGN	MER	AQUIFER
2930	SE	8		8	33	28	2	Saskatoon
3027	CE	8		33	33	28	2	Saskatoon
6688		0	NW	15	33	19	2	Empress
7136		0	NE	24	33	22	2	Empress
7519		0	SE	26	33	28	2	Empress
7816		0	SE	30	33	21	2	Empress
7841		0	NW	2	32	19	2	InterGlacial
8093		0	NE	16	28	22	2	Empress
8578		0	NW	24	31	27	2	Empress
8582		0	SE	18	30	22	2	Empress
8584		0	SW	1	33	19	2	Empress
8674		0	SW	15	28	22	2	Empress
8686		0	SE	21	30	23	2	Sutherland
8869		0	NW	14	33	23	2	Empress
8870		0	NW	20	33	21	2	Empress
9277		0	SW	1	32	20	2	Empress
10592		0	SE	33	24	25	2	Judith River
10729		0	SE	27	29	23	2	InterGlacial
11423		0	NE	3	32	25	2	InterGlacial
11430		0	NE	2	33	19	2	Empress
13326		0	SW	4	32	19	2	InterGlacial
13705	NE	16		4	32	20	2	Empress
17216		0	SW	11	32	25	2	InterGlacial
17289		0	SW	17	32	19	2	InterGlacial
17294		0	SW	14	31	19	2	Empress
17302		0	NE	2	30	23	2	InterGlacial
17313		0	SW	33	30	28	2	Saskatoon
17336		0	SW	20	34	26	2	Sutherland
17350		0	SW	4	33	19	2	Empress
17352	C	16		22	33	21	2	Empress
17355		0	SW	35	32	17	2	Tertiary
17438	SE	1		25	33	22	2	Empress
18829		0	SW	29	32	15	2	Tertiary

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APPENDIX I

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.

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 initiated under the Family Farm Improvement Branch (FFIB) Testhole Assistance Program, which was the forerunner of a similar program now administered by the SWC. These logs are list as SWC.

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
1	A	17338	SWC	NE	14		24	34	29	2	BOEHM EGON
2	A	1277	SRC	NW	5		17	34	28	2	ZELMA TH & WELL
3	A	8866	SWC			SW	25	34	28	2	TEMPLEMAN RON
4	A	3011	SRC	SE	16		29	34	27	2	NORANDA MINES TH-16
5	A,G	3016	SRC	SE	1		33	34	27	2	NORANDA MINES TH-8
6	A	2998	SRC	NW	13		26	34	27	2	NORANDA MINES TH-17
7	A	18624	SWC	SW	2		32	34	26	2	MARELLI ROD
8	A	9284	SWC			NE	22	34	26	2	WIGNES BOB
9	A	17337	SWC	NW	5		23	34	26	2	PALFY WILLIAM L
10	A	76449	OIL		5		18	34	25	2	DUVAL VISCOUNT 2
11	A,H	2196	SRC	SW	4		26	34	25	2	PLUNKETT 81-2
12	A	19465	SWC		4		20	34	24	2	WOLVERINE PASTURE
13	A	19466	SWC	SE	1		28	34	24	2	WOLVERINE COMMUNITY PASTURE
14	A	1251	SRC	SW	4		3	35	23	2	BURR
15	A	13330	SWC	SE	9		1	35	23	2	SENKO WILLIAM H.
16	A,I	8433	SWC			SE	32	34	22	2	SENKO JOHN
17	A	7824	SWC			SE	3	35	22	2	WOROBEC GARRY
18	A	8692	SWC			SW	1	35	22	2	KACHUR RUSSELL
19	A	7896	SWC			NE	36	34	22	2	NAKONECHNY HARVEY
20	A	76275	OIL		4		32	34	21	2	ALWINSAL LOYOLA
21	A	8443	SWC			NW	33	34	21	2	BERNAUER RON
22	A	1222	SRC	SW	4		2	35	21	2	SINNETT
23	A	10264	SWC			NE	35	34	21	2	MCINTOSH STANLEY
24	A,J	6390	SWC			NW	34	34	20	2	STEIN DON
25	A	12290	SWC			NW	6	35	19	2	VOLDEN DEAN
26	A	76209	OIL		13		6	35	19	2	KERR MCGEE LEROY
27	A	9286	SWC			SW	9	35	19	2	GORDON BRUCE
28	A,K	8046	SWC			SE	25	34	19	2	HYDE ROBERT J
29	A	19469	SWC	SW	6		30	34	18	2	TRAVIS GERALD
30	A	12285	SWC			NW	35	34	18	2	EHLERT DARYL
31	A	1181	SRC	NE	11		32	34	16	2	QUILL LAKE
32	B	7523	SWC			SW	36	32	29	2	VOLK ANDREW
33	B	76478	OIL		4		14	35	27	2	DUVAL RUTAN 1
34	B,G	7432	SWC			SE	28	32	27	2	RUSSEL RAYMOND
35	B	17436	SWC	SW	12		25	32	27	2	SODERBERG HENRY
36	B	17329	SWC		14		21	32	26	2	MORELLI VERNE
37	B	1265	SRC	NE	16		2	32	26	2	XENA
38	B,H	2891	SRC	SW	4		15	32	25	2	WATROUS NO.89-103
39	B	76386	OIL		1		6	32	24	2	CAMPANA STH 6
40	B	76384	OIL		4		34	31	24	2	CAMPANA STH 5
41	B	1246	SRC	NE	16		34	31	23	2	DRAKE

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
42	B	1234	SRC	SE	2		6	32	22	2	DRAKE
43	B,I	1232	SRC	SW	4		3	32	22	2	DRAKE
44	B	1218	SRC	NW	13		32	31	21	2	DRAKE
45	B,J	1205	SRC	SW	3		4	32	20	2	JANSEN
46	B	9275	SWC			NE	2	32	20	2	SCHINKEL ERNEST
47	B	9277	SWC			SW	1	32	20	2	SCHINKEL GEORGE
48	B	13326	SWC			SW	4	32	19	2	EVENSON ROGER
49	B	1198	SRC	NE	13		2	32	19	2	DAFOE
50	B,K	1193	SRC	SW	15		30	32	18	2	DAFOE
51	B	12283	SWC			NE	22	32	18	2	REYHDAL J E
52	B	12284	SWC			SW	24	32	18	2	OLAFSON NANNA
53	B	1186	SRC	NE	16		7	32	17	2	KANDAHAR
54	B	1187	SRC	SW	8		17	32	17	2	KANDAHAR
55	B	1188	SRC	NE	5		21	32	17	2	KANDAHAR
56	B	9273	SWC			NW	16	32	17	2	VOPNI LAURENCE
57	B	18234	SWC	SW	3		27	32	17	2	BJORNSON T
58	B	1190	SRC	SW	2		25	32	17	2	KANDAHAR
59	B	17362	SWC	NW	13		20	32	16	2	PETERSON GORD
60	B	17361	SWC		14		20	32	16	2	ANDERSON BLAIR
61	B	9290	SWC			NE	20	32	16	2	PETERSON PETE
62	B	10249	SWC			SW	28	32	16	2	JOHANNSON BJORN G
63	B,L	10907	SWC			SE	28	32	16	2	
64	B	6540	SWC			NW	26	32	16	2	CRAWFORD G. B
65	B	17284	SWC			SE	25	32	16	2	GOODMAN GUNNI
66	B	76148	OIL		13		29	32	15	2	US POTASH WYNYARD 1
67	B	1171	SRC	SW	13		25	32	15	2	MOZART
68	C	9466	SWC			NW	19	29	28	2	R M OF MCCRANEY
69	C	10904	SWC			SW	29	29	28	2	
70	C	9465	SWC			NE	20	29	28	2	R M OF MCCRANEY
71	C,G	9182	SWC			NE	24	29	28	2	CRAWFORD JAMES
72	C	8576	SWC			SW	30	29	27	2	ADAMS DOUG
73	C	1267	SRC	NE	16		19	29	27	2	KENASTON
74	C	7290	SWC			SE	27	29	27	2	KARMARK JOHN
75	C	7511	SWC			SE	25	29	27	2	GROSS ALFRED
76	C	7158	SWC			NE	19	29	26	2	MOORE RALPH
77	C	1263	SRC	NW			23	29	26	2	AMAZON
78	C	1258	SRC	SW	4		30	29	25	2	AMAZON
79	C,H	1257	SRC	NW	16		21	29	25	2	SIMPSON
80	C	1254	SRC	NW	14		20	29	24	2	SIMPSON
81	C	76363	OIL		4		28	29	24	2	SOHIO PETRO VENN 2
82	C	1255	SRC	NW	16		23	29	24	2	SIMPSON
83	C	1243	SRC	NE	16		19	29	23	2	NOKOMIS

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
84	C	1244	SRC	NE	16		22	29	23	2	NOKOMIS
85	C	6942	SWC			NW	23	29	23	2	TURNER R J
86	C	9096	SWC			NW	20	29	22	2	SIMPSON DENNIS SYLVIA
87	C,I	1230	SRC	SE	3		29	29	22	2	NOKOMIS
88	C	1229	SRC	SE	2		27	29	22	2	NOKOMIS
89	C	1228	SRC	NE	16		24	29	22	2	NOKOMIS
90	C	76211	OIL		13		21	29	20	2	KING NOKOMIS
91	C,J	18622	SWC			SW	24	29	20	2	SHIELS WARREN
92	C	76191	OIL		12		29	29	19	2	SOCONY SOHIO KUTAWAGON 1
93	C,K	1191	SRC	NW	4		30	29	18	2	RAYMORE
94	C	10252	SWC			NW	10	29	18	2	THIRD GORDON
95	C	13698	SWC			SW	16	29	17	2	ASAPACE MATILDA
96	C	76165	OIL		4		27	29	17	2	ATLANTIC RICHFIELD RAYMORE
97	C,L	13699	SWC	SE	16		22	29	17	2	SENFT DERWIN
98	C	12216	SWC			SW	16	29	16	2	DAYSTAR BAND COMMUNITY WELL
99	C	8295	SWC			NE	23	29	16	2	NELSON BARRY
100	C	10254	SWC			SW	30	29	15	2	MORAZ GORDON
101	C	17288	SWC		9		20	29	15	2	MOROZ LEONARD
102	C	13002	SWC			SE	21	29	15	2	HALL ARNOLD
103	D,G	76492	OIL		16		36	27	29	2	TW BLADWORTH CROWN 1
104	D	9090	SWC			SW	6	28	27	2	KENNY ROY
105	D	6199	SWC			NE	30	27	27	2	SMITH KEN
106	D	8854	SWC			NE	28	27	27	2	LEPOUDRE OCTAVE
107	D	12310	SWC			NW	25	27	27	2	BURGESS WM
108	D	76453	OIL		8		28	27	26	2	PORCUPINE PRIME IMPERIAL
109	D	12308	SWC			SW	6	28	25	2	REDSTONE DON
110	D,H	7499	SWC			SE	9	28	25	2	BAHT EARL
111	D	8673	SWC			SE	2	28	25	2	GULLACHER MARVIN
112	D	9097	SWC			NW	1	28	25	2	HILL DAVE
113	D	8583	SWC			SW	3	28	24	2	STRATTON CALVIN
114	D	1236	SRC	SW	4		14	28	23	2	HATFIELD
115	D	8763	SWC			NW	36	27	23	2	PRATCHLER JOE
116	D	9272	SWC			SE	32	27	22	2	LANDSTROM WAYNE
117	D,I	8857	SWC			NE	36	27	22	2	ROMICH JACOB
118	D	1215	SRC	SE	1		28	27	21	2	GOVAN
119	D	13008	SWC			SW	28	27	20	2	LEWIS WARREN
120	D	7821	SWC			SW	2	28	20	2	JAMES IVAN
121	D,J	1202	SRC	SE	1		1	28	20	2	SEMANS
122	D	7884	SWC			SE	16	28	19	2	LINFORD COURT
123	D	8858	SWC			NW	10	28	19	2	BRAUN BLAINE
124	D	13005	SWC			NE	12	28	19	2	GOTTO BERNARD

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
125	D	76171	OIL		13		6	28	18	2	ARCO RAYMORE
126	D,K	6423	SWC			SE	4	28	18	2	DUNVILLE EARL C
127	D	18225	SWC	NE	5		12	28	18	2	WALTER J
128	D	17278	SWC		3		3	28	17	2	STOCKDALE BROS
129	D	76164	OIL		6		13	28	17	2	KING PHEAS PUNNICHY
130	D	19462	SWC		12		26	27	16	2	SIGH LARRY
131	D,L	12736	SWC			NE	26	27	16	2	BASHUTSKI MERVIN
132	D	14006	SWC	NE	8		6	28	15	2	KEEP RANDY
133	D	17276	SWC	SE	8		5	28	15	2	YEWSUK FRED
134	E,G	10589	SWC			NE	22	26	29	2	ALLAN GARRY
135	E	13015	SWC			NW	23	26	29	2	COOL MARY
136	E	19459	SWC	NW	13		19	26	28	2	MCNABB CARMAN
137	E	76480	OIL		12		20	26	28	2	UNITED COMSTOCK DAVIDSON
138	E	9088	SWC			NE	22	26	28	2	SCHMIEDGE GARY
139	E	14005	SWC	SE	8		19	26	27	2	ANDREAS RAYMOND F.
140	E	13717	SWC	SW	10		16	26	27	2	COOL DON
141	E	13012	SWC			NW	18	26	26	2	CRUISE GEORGE
142	E	13714	SWC		13		17	26	26	2	COOL LOUIE
143	E	8852	SWC			SE	10	26	26	2	NELSON JOHN
144	E,H	7745	SWC			SE	17	26	25	2	R M OF BIG ARM
145	E	7726	SWC			SW	16	26	25	2	R M OF BIG ARM
146	E	7557	SWC			SW	17	26	23	2	MORTENSON WARD
147	E	10268	SWC			NE	16	26	23	2	MORTENSON HOWARD
148	E	17236	SWC	NW	13		24	26	23	2	ROLAND RICK
149	E	7427	SWC			NE	19	26	22	2	PASKER LENNOX
150	E	76286	OIL		10		20	26	22	2	SOCONY SOHIO CYMRIC
151	E,I	7022	SWC			SW	14	26	22	2	KELLN FRED
152	E,I	9084	SWC			SE	14	26	22	2	KELLN ELROY
153	E	17232	SWC			SE	8	26	21	2	WICHMAN JOHN
154	E	6413	SWC			SW	10	26	21	2	DICKIE RONALD
155	E	13707	SWC	NW	13		2	26	21	2	HAGAN KEN J.
156	E	17322	SWC		4		6	26	20	2	SORENSON DALE & KEVIN
157	E	17233	SWC	NW	15		31	25	20	2	SEDGWICK RICK
158	E	2188	SRC	NW	13		33	25	20	2	LAST MOUNTAIN 81
159	E	17231	SWC	NW	14		34	25	20	2	TAYLOR JIM
160	E,I	17226	SWC		16		34	25	20	2	SORENSEN IRVIN
161	E	1196	SRC	SW	4		3	26	19	2	SERATH
162	E	6465	SWC			SE	11	26	19	2	STETTNER ALBERT
163	E,K	7209	SWC			NW	6	26	18	2	WASYLYNIUK RALPH
164	E	8590	SWC			NW	36	25	18	2	BIRD MARTIN
165	E	17511	SWC			SW	14	26	17	2	DEPT OF INDIAN AFFAIRS
166	E	76162	OIL		7		14	26	17	2	IMPERIAL TW GORDON

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
167	E,L	76153	OIL		3		28	26	16	2	PYRAMID GORDON 1
168	E	8181	SWC			SW	26	26	15	2	MACZA GEORGE MIKE
169	F,G	76491	OIL		3		15	24	29	2	TW CRAIK CROWN 1
170	F,G	14004	SWC		15		11	24	29	2	HJELSING GARNET
171	F	8592	SWC			SE	28	24	28	2	ACKLAND JOHN
172	F	10269	SWC			SW	36	24	28	2	STRANGE BARRY
173	F	8871	SWC			SW	28	24	27	2	DIXON WAYNE
174	F	1262	SRC	SW	3		28	24	26	2	PENZANCE
175	F	76407	OIL		3		30	24	25	2	TW IMPERIAL PENZANCE CROWN 1
176	F,H	10592	SWC			SE	33	24	25	2	OLSON HOWARD
177	F	10591	SWC			SE	18	24	24	2	HECK GEORGE
178	F	1253	SRC	NW	15		36	24	24	2	LAST MOUNTAIN LAKE
179	F	14001	SWC			SE	21	24	23	2	DAWD LLOYD
180	F	12738	SWC			NW	19	24	22	2	BARR MURRAY
181	F,I	1223	SRC	NW	4		33	24	22	2	STRASBOURG
182	F	11224	SWC			SE	36	24	22	2	HOGBIN REG
183	F	8051	SWC			NE	28	24	21	2	HANSEN DONALD
184	F	6379	SWC			SW	26	24	21	2	WAGNER DONALD
185	F	6275	SWC			SW	25	24	21	2	HUBICK TED
186	F,J	13007	SWC			NE	30	24	20	2	WILKER GARY
187	F	17230	SWC	NE	4		14	24	20	2	HALL TODD
188	F	17225	SWC		2		14	24	20	2	FOSTER GARTH
189	F	1201	SRC	NE	9		12	24	20	2	EARL GREY
190	F	11219	SWC			SE	21	24	19	2	KIFFERLING FELIX
191	F	7908	SWC			SW	26	24	19	2	GELLNER KEN
192	F,K	2183	SRC	NW	4		31	24	18	2	GREGHERD
193	F,K	11737	SWC			NE	30	24	18	2	WEBER MILTON R
194	F,K	17429	SWC	SW	12		22	24	18	2	VOELPEL CARL
195	F	12280	SWC			SE	24	24	18	2	KONECSNI BARRY
196	F	13697	SWC	SE	8		10	24	17	2	ERMEL WALTER
197	F,L	76151	OIL		4		28	24	16	2	TW CUPAR
198	F,L	76150	OIL		2		12	24	16	2	KING DYSART
199	G	1278	SRC	NE	8		35	23	29	2	CRAIK
200	G	13014	SWC			NE	22	25	29	2	CAMMEN ED
201	G	7105	SWC			SW	27	25	29	2	GREGOR DOUGLAS
202	G	76482	OIL		13		4	27	28	2	TW DAVIDSON CROWN 1
203	G	76483	OIL		1		17	27	28	2	TW ALLENBEE NASH 1
204	G	9091	SWC			SE	20	27	28	2	SAMPSON GUY
205	G	10270	SWC			SE	19	27	28	2	DOUGAN WILMOT
206	G	18618	SWC	SW	5		19	27	28	2	PALMER DAVID
207	G	1272	SRC	NW	5		19	27	28	2	DAVIDSON

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
208	G	11413	SWC			NW	19	27	28	2	PALMER R ELWOOD
209	G	8171	SWC			SW	1	29	28	2	MORRISON ART
210	G	7180	SWC			NW	13	29	28	2	CRAWFORD GEORGE
211	G	6559	SWC			NW	25	29	28	2	DIDUR MATT
212	G	8814	SWC			NW	36	29	28	2	WEISNER DALE
213	G	9105	SWC			NE	2	30	28	2	ULMER ALFRED
214	G	17315	SWC		4		11	30	28	2	RINK RAYMOND
215	G	17325	SWC		8		10	30	28	2	RINK KEN
216	G	76484	OIL		6		24	30	28	2	HB WATROUS
217	G	1275	SRC	NW	12		35	30	28	2	BULTEL LAKE
218	G	17763	SWC	SE	3		1	31	28	2	ULMER BILL
219	G	8769	SWC			NE	1	31	28	2	THONER ELMER
220	G	9281	SWC			SW	16	31	27	2	DEMPSEY JIM
221	G	76461	OIL		11		15	31	27	2	SOHIO CAN DEV WATROUS 1
222	G	8578	SWC			NW	24	31	27	2	KEFFER STAN
223	G	7431	SWC			SE	2	32	27	2	ROWAN STUART
224	G	1268	SRC	NW	13		12	32	27	2	YOUNG
225	G	6550	SWC			SW	23	32	27	2	WAILING LORNE
226	G	10261	SWC			NE	31	32	27	2	DINO OTTO
227	G	1271	SRC	SW	9		6	33	27	2	YOUNG TH & WELL
228	G	6125	SWC			SW	7	33	27	2	SCHATZ JOHN
229	G	3023	SRC	WC	2		26	33	28	2	NORANDA MINES TH-51
230	G	7519	SWC			SE	26	33	28	2	BRECKNER LAWRENCE
231	G	76468	OIL		4		10	34	27	2	NORANDA NEELY
232	G	2989	SRC	NE	1		16	34	27	2	NORANDA MINES TH-46
233	G	2990	SRC	SE	12		21	34	27	2	NORANDA MINES TH-2
234	G	2991	SRC	NW	14		21	34	27	2	NORANDA MINES TH-1
235	G	8758	SWC			NE	1	35	27	2	RIENDEAU LOUIS
236	H	7145	SWC			SE	5	24	25	2	SCHROPP ALFRED R
237	H	17237	SWC	SE	3		20	25	25	2	ELL MARC
238	H	7727	SWC			SW	5	26	25	2	R M OF BIG ARM
239	H	7140	SWC			SW	21	26	25	2	POWERS DON
240	H	7558	SWC			NE	21	26	25	2	COOL GERRARD
241	H	76411	OIL		14		10	27	25	2	TW STALWART CROWN 1
242	H	7819	SWC			NE	16	27	25	2	KLENK LAWRENCE
243	H	7794	SWC			SW	26	27	25	2	CODE MERVIN
244	H	13010	SWC			SW	16	28	25	2	HART LARRY
245	H	7170	SWC			SW	6	29	25	2	QUENNELL HAROLD
246	H	11417	SWC			SE	15	29	25	2	GARNER ROBBIE J
247	H	10271	SWC			NW	14	29	25	2	GARNER BOB
248	H	6161	SWC			SW	4	30	25	2	POTTS GEOF
249	H	17676	SWC	SW	13		15	30	25	2	SINNAMON GERRY

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
250	H	76422	OIL		12		22	30	25	2	SWP AMAZON
251	H	9104	SWC			NW	27	30	25	2	MCARTHUR DONALD
252	H	2193	SRC	NE	9		6	31	24	2	VENN 81
253	H	76374	OIL		4		20	31	24	2	CAMPANA WATROUS
254	H	2888	SRC	SW	5		19	31	24	2	POOL WATROUS
255	H	13713	SWC	NW	13		19	31	24	2	EMIGH MRS. HAROLD
256	H	76430	OIL		4		36	31	25	2	CAMPANA STH 26
257	H	17434	SWC			NW	35	31	25	2	GORDON MURRAY
258	H	7287	SWC			NW	3	32	25	2	HUTCHINSON NORMAN
259	H	6116	SWC			NW	23	32	25	2	JONES J.G.
260	H	8768	SWC			SE	36	32	25	2	HABERMEHL CLIFF
261	H	2195	SRC	SW	13		3	33	25	2	PLUNKETT 81-1
262	H	17346	SWC	SW	16		10	33	25	2	OLAH JIM
263	H	7169	SWC			NW	23	33	25	2	ANDERSON M
264	H	76448	OIL		1		15	34	25	2	SOHIO PLUNKETT 1
265	H	8868	SWC			SE	1	35	25	2	HALE JAMES
266	I	17229	SWC			SE	36	23	22	2	HORN HART
267	I	8668	SWC			NW	33	24	22	2	ANDERSON MARK
268	I	11411	SWC			SW	23	25	22	2	KELLN RON
269	I	11420	SWC			NW	34	26	22	2	KNAUS WILF
270	I	7818	SWC			SE	14	27	22	2	SCOTT HUGH
271	I	13712	SWC	NE	12		24	27	22	2	FLETCHER GERALD
272	I	76288	OIL		14		11	28	22	2	SOCONY SOHIO MATFIELD
273	I	7833	SWC			NE	14	28	22	2	SATHER DOUG
274	I	8676	SWC			SW	25	28	22	2	LARSON ESTHER
275	I	1226	SRC	SE	1		2	29	22	2	HATFIELD
276	I	8762	SWC			SE	10	29	22	2	DEKONING THEO J
277	I	11422	SWC			SE	5	30	22	2	KANE GREG
278	I	10256	SWC			SW	28	30	22	2	SMITH NOEL
279	I	17299	SWC		9		16	31	22	2	MORNINGSTAR LARRY
280	I	6378	SWC			NW	22	31	22	2	KABERNICK EDWARD
281	I	6553	SWC			NW	9	32	22	2	BARTEL LORNE
282	I	76299	OIL		4		29	32	22	2	CAN WHITE ROSE DRAKE
283	I	17344	SWC	SW	13		32	32	22	2	FRIESEN WILLIAM
284	I	1235	SRC	SW	5		29	33	22	2	LANIGAN
285	I	11226	SWC			SW	17	34	22	2	BARTEL HERB
286	I	76303	OIL		4		14	35	22	2	US BORAX BURR 1
287	J	10593	SWC			NW	34	23	20	2	WOLFE DOUG
288	J	7242	SWC			NW	16	25	20	2	LOFGREN EDWARD
289	J	12286	SWC			SW	19	26	19	2	BERKAN LARRY
290	J	11419	SWC			NW	36	26	20	2	MCLAUGHLIN MERVYN
291	J	11225	SWC			NE	6	27	19	2	REDSHAW ALLAN

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
292	J	12288	SWC			NW	30	27	19	2	MACOMBER WES
293	J	8760	SWC			NE	12	28	20	2	THOMPSON DOYLE
294	J	12217	SWC			NW	2	29	20	2	PICKRELL C
295	J	76213	OIL		9		2	30	20	2	CHARTER BUENO NOKOMIS
296	J	76218	OIL		6		13	30	20	2	SOCONY SOHIO COPELAND 1
297	J	76198	OIL		13		30	30	19	2	CONT MIN HB TOUCHWOOD
298	J	76222	OIL		12		22	31	20	2	US BORAX JANSEN
299	J	13705	SWC	NE	16		4	32	20	2	KRAL JOHN
300	J	1206	SRC		11		36	32	20	2	JANSEN 4
301	J	1208	SRC	NW	13		36	32	20	2	JANSEN 1
302	J	8693	SWC			NW	11	33	20	2	ELKE FARMS LTD
303	J	13016	SWC			SE	24	33	20	2	ARNST MERVIN
304	J	12294	SWC			SE	26	33	20	2	BACH ALFRED
305	J	76232	OIL		9		26	33	20	2	KERR MCGEE JANSEN
306	J	10251	SWC			SW	36	33	20	2	SCHROEDER ELDON
307	J	76234	OIL		1		2	34	20	2	KERR MCGEE JANSEN
308	J	12295	SWC			NE	2	34	20	2	BACH EWALT
309	J	9645	SWC			NE	11	34	20	2	BLOCK WALTER A
310	J	76240	OIL		4		14	34	20	2	KERR MCGEE JANSEN LAKE
311	J	7263	SWC			NW	15	34	20	2	THOMPSON JOHN
312	J	76244	OIL		1		28	34	20	2	KERR MCGEE JANSEN LAKE
313	J	6711	SWC			NW	10	35	20	2	TROOP FARMS LTD
314	K	9152	SWC			SE	8	24	18	2	THURMEIR ROBERT
315	K	8033	SWC			SW	22	24	18	2	KNAPP JAKE
316	K	8215	SWC			SE	7	25	18	2	WEBER ARNOLD
317	K	13004	SWC			SE	7	25	18	2	WEBER ARNOLD
318	K	17084	SWC	SW	2		28	25	18	2	HILLIER GARVIN E
319	K	7147	SWC			SW	31	26	18	2	WASYLYNIUK MIKE
320	K	9100	SWC			SE	20	27	18	2	FISCHER GEORGE
321	K	17277	SWC		10		20	28	18	2	STEVENSON DON
322	K	7897	SWC			NE	6	29	18	2	MERKEL GEORGE
323	K	7898	SWC			SW	19	29	18	2	POTTS DONALD
324	K	8679	SWC			NE	1	30	19	2	POTTS WARREN
325	K	76194	OIL		16		12	30	19	2	ST MARY TOUCHWOOD
326	K	7878	SWC			NW	30	30	18	2	WORTH NORM
327	K	11744	SWC			SE	8	31	18	2	BOLT DALE
328	K	17286	SWC		4		16	31	18	2	THORNTON BOB
329	K	11740	SWC			NW	22	31	18	2	HOLWECK FRANK
330	K	76180	OIL		9		28	31	18	2	US BORAX DAFOE 2
331	K	6534	SWC			SW	34	31	18	2	WALLACE TED
332	K	76182	OIL		8		17	32	18	2	US POTASH DAFOE 1
333	K	7865	SWC			NE	17	32	18	2	HANKEWICH TERRY

HOLE NO	SEC	SRC NO	TYPE	QTR LSD	LSD	QTR SED	SEC	TWP	RBG	MER	NAME
334	K	10266	SWC			SW	6	33	18	2	ZERBIN GARTH
335	K	1194	SRC	NW	13		18	33	18	2	QUILL LAKE
336	K	10902	SWC			NE	1	34	19	2	
337	L	76152	OIL		1		14	25	16	2	TW BRYCE LAKE CR 1
338	L	6763	SWC			SW	3	26	16	2	MIHALICZ SID
339	L	17275	SWC	NE	9		6	27	15	2	BRETI PETER
340	L	1172	SRC	SE	2		16	28	16	2	PUNNICHY
341	L	8861	SWC			NW	20	28	16	2	MIDDELKOOP JOHN
342	L	76154	OIL		7		29	28	16	2	KING PHEAS PUNNICHY
343	L	8580	SWC			SE	4	29	16	2	BEYER LAURENCE
344	L	7836	SWC			SE	34	29	16	2	KOSTIUK CLIFF
345	L	76155	OIL		15		14	30	16	2	TW KRASNE CROWN 1
346	L	76158	OIL		1		27	31	16	2	DOMINION POTASH KANDAHAR
347	L	7572	SWC			SW	2	32	16	2	PANCHUK OREST
348	L	7890	SWC			SW	10	32	16	2	BASHUTSKY HARRY
349	L	12276	SWC			SE	15	32	16	2	WEBB GARRY
350	L	10250	SWC			SE	33	32	16	2	BJARNASON ARLAN
351	L	1175	SRC	NE	1		4	33	16	2	WYNYARD
352	L	17359	SWC			SW	10	33	16	2	SIGFUSSON HAROLD
353	L	1176	SRC	SE	1		28	33	16	2	WYNYARD
354	L	12278	SWC			SW	3	34	16	2	DODD, PAUL
355	L	76160	OIL		9		4	34	16	2	US POTASH WYNYARD 2
356	L	1177	SRC	SE	4		9	34	16	2	QUILL LAKES
357	L	1179	SRC	SE	6		17	34	16	2	QUILL LAKE
358	L	6543	SWC			NE	29	34	16	2	WEIGEL WALTER
359	L	1182	SRC	SW	12		4	35	16	2	QUILL LAKE