TECHNICAL REPORT CONCERNING SUBSURFACE MINERAL PERMIT KP 289, FINDLATER AREA, SASKATCHEWAN

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FINAL REPORT

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Summary

The ISX Resources, Inc. (hereinafter referred to as "ISX") Findlater Potash Project is located in south-central Saskatchewan approximately 80 kilometers (km) northwest of Regina and immediately adjacent to the north from the Mosaic Belle Plaine potash solution mine. The project currently holds some 97,240 acres (157 sections, more or less, not including road allowances) of Crown mineral lands held by Subsurface Mineral Permit KP 289 that is considered prospective for potash mineralization within the Patience Lake, Belle Plaine, and Esterhazy members of the Middle Devonian Prairie Evaporite Formation. This report concerns the prospects for encountering a potash mineral resource within the bounds of Saskatchewan Subsurface Mineral Permit KP 289 granted November 22, 2005, to Invictus Minerals Corporation, a private corporation not associated with ISX. The Findlater Project is presently optioned by ISX from Invictus. Invictus is presently the operator of the property.

The potash deposit consists of essentially flat-lying sedimentary deposits of interbedded halite, sylvite, carnallite, clay, and minor anhydrite and dolomite beds that can be mapped from central Alberta through to Manitoba, North Dakota, and Montana. The potash deposits underlying and surrounding the area of Permit KP 289 were penetrated by 25 surface drill holes, of which, 14 penetrate to the Prairie Evaporite and, for which, data is available from public record sources. The permit lands have been surveyed by a number of vintage reflection seismic programs. Evaluation of borehole geophysical drill hole logs, assays of cores cut through the Prairie Evaporite, and geological well site reports show that the potash mineralization occurs within the three members. In general, the potash-bearing beds consist of a mineralogically simple mixture of sylvite and halite named sylvinite, and minor clay, dolomite, anhydrite and carnallite.

Four intervals containing sylvinite with potential economic interest have been identified as follows:

- Patience Lake Member: From the top of the 2-metre (m) barren halite unit to the top of the uppermost sylvinite bed;
- Belle Plaine Member: From the base of the lowermost sylvinite bed in the member to the top of the uppermost sylvinite bed in the member;
- Esterhazy Member: There are two sets of potash mineralization present in the Esterhazy Member in the area of Permit KP 289. The upper set is generally not worth considering for resources because it is not of sufficient quality; however, the lower set (about 6 m or 20 ft thick) is the Esterhazy Member as used at Mosaic during early mine development (R. H. Brown pers. comm. 2006); and
- White Bear Marker Beds: Too thin to be considered as a potential resource.

The upper two intervals are considered suitable beds for recovery of sylvite (potash) by solution mining methods and Indicated and Inferred Mineral Resource has been estimated for these two mineralized intervals.

The potash-bearing beds are regular and flat-lying (apart from regional dip and local anticlinal and synclinal "noses") except where the mineralization has been modified either by intraformational erosional "channels" wherein the sylvinite has been removed and replaced by a mixture of halite and insolubles ("washouts") or post-depositional replacement of the sylvite mineral by halite ("leach anomalies or salt horses"). The areal outline and estimated mass of the sylvinite beds were based on examination of drill hole data and review of interpreted vintage seismic maps on file with the Government of Saskatchewan.

The lands presently held by permit were held during the early to mid-1960s under potash exploration permits by Imperial Oil, Ltd., and Lumsden Potash Development Co., Ltd. Both companies undertook both surface drilling and Imperial undertook a reflection seismic survey; after this exploration work both companies proceeded to the point of undertaking solution mining tests; however, no further development work was undertaken and the permits were dropped at some point in the late 1960s. Substantially, all of this data, in the form of interpreted seismic structure and isochron maps, is available for examination at the Geodata Branch, Saskatchewan Industry and Mines, and was used by the authors in the preparation of this report.

Previous exploration confirms the presence of potash mineralization in two portions (hereinafter referred to as "pilot test sites" or "sites") of the Permit Area. Identification and estimation of potash resource for each site was determined from evaluation of chemical assays conducted on sections of drill core cut through the upper portion of the Prairie Evaporite Formation. The areas around these two pilot test sites are penetrated by seven holes with gamma logs and five of those holes were cored and assayed. The cores from the two type wells from each site were inspected by the authors. The first site consists of drill holes and a pilot test plant undertaken by Imperial Oil at Findlater (in the northwestern portion of the permit) and the second site consists of drill holes and a pilot plant undertaken by Lumsden Potash Development Co., Ltd., at Bethune in the east-central portion of the permit. In general, sylvite-bearing sections of the core were slabbed then individual intervals were selected for assay with the results available in tabular format in the government files.

The weighted average potash, insolubles and carnallite content, and thickness for each of the two potash-bearing members, as calculated from chemical assays of cores at the Imperial Oil Findlater (DH 21, DH 18 and DH 20) and Lumsden Potash Bethune (DH 11 and DH 13) potash pilot test sites, are listed in Table 1.

Table 1. Grade and Thickness Parameters

Parameter	Patience Lake	Belle Plaine	Patience Lake to Belle Plaine
Lumsden Potash Bethune (Holes D11 & D13)			
Thickness (m)	11.05	5.96	24.25
Grade (% K_2O)	22.16	21.43	17.30
% Carnallite ($MgCl_2$)	0.36	0.25	0.36
% Insolubles	10.20	3.83	7.37
Imperial Findlater (Holes D18, D20 & D21)			
Thickness (m)	11.91	7.46	26.88
Grade (% K_2O)	20.48	19.33	16.28
% Carnallite ($MgCl_2$)	0.34	0.31	0.26
% Insolubles	11.17	3.53	6.75

Thickness values are arithmetic average; K_2O grade, carnallite, and insolubles are length-weighted averages.

Carnallite is considered an impurity that can be detrimental to solution mining. Carnallite is a hydrated magnesium chloride ($KCl.MgCl_3.6H_2O$). The determinations of carnallite listed above are for the percent of magnesium chloride from assay. An industry threshold for magnesium chloride in plant feed is 1%. Review of the available logs and assay data indicate that magnesium chloride occurrences are within this threshold limit within the Patience Lake and Belle Plaine beds except in limited thin intervals. The average $MgCl_2$ content in the beds is well below 1% (2.9% as the mineral carnallite).

The mineral resource estimation is based upon the assumption that recovery of the potash will be by solution mining using techniques pioneered in Saskatchewan at the operating Mosaic Belle Plaine potash solution mine and plant and applied to deep potash deposits in Michigan (the Mosaic Potash

Hersey solution mine and plant). Solution mining involves dissolution of a selected bed with removal of all the soluble minerals between the bottom and top of the cavern. Thus, the mineral resource may include zones that are either barren or that are poorly mineralized. Solution mining involves firstly, undercutting the mineralized zone by solution mining below the seam of interest in the halite and then upward and through the mineralized beds while utilizing a ceiling cap of oil or gas. The oil/gas cap inhibits vertical cavern growth until a large area is undermined. Mining then progresses vertically by raising the cap and dissolving mineralized portions of the roof. The proposed method of solution mining consists of two phases. The first phase, termed “primary mining,” removes the entire mineralized bed, the intent being to create a large cavern. During primary mining, the injected liquor is water or liquor undersaturated in both halite and sylvite. Once a cavern of sufficient size is created, then the “secondary mining” commences, whereby brine undersaturated with respect to potash is injected into the cavern and is enriched through the selective dissolution of potash within the beds, thus increasing the potash content of the brine (R. H. Brown pers. comm). In some circumstances, all mining is completed using only the primary mining technique. Secondary mining can be designed to recover potash in the walls of the cavern or secondary mining can be used in conjunction with controlled deformation of the cavern roof to recover low grade potash from the roof. The selection of the roof and floor horizon must consider the potash grade and the potential to maintain a high product liquor concentration to minimize processing costs.

Indicated and Inferred Mineral Resource have been estimated based on the distance from cored and assayed drill holes using best available practice similar to that adopted by Mosaic at the Belle Plaine operations. The distance from an existing cored and assayed drill hole for inclusion of resource in the inferred and indicated categories is as follows:

- Indicated Mineral Resource 1-mile (1.60-km) radius
- Inferred Mineral Resource from 1- to 5-mile (8.05-km) radius

The Indicated and Inferred Mineral Resource has been estimated based on the radius from the cored drill holes the thickness and grade of the selected solution mine interval and the loss factors for unaccounted geologic anomalies assumed to be 25%, areal extraction ratio of 40%, and a loss factor to account for the liquor remaining in the cavern, plant, and transport of 10%.

The Indicated and Inferred Mineral Resource for the Patience Lake and Belle Plaine potential solution mining intervals are estimated to be:

- Indicated Mineral Resource: 36.8 million tonnes of K_2O
- Inferred Mineral Resource: 360.4.0 million tonnes of K_2O

If solution mining recovered the potash between the beds, the additional resource would be

- Additional Indicated Mineral Resource: 4million tons of K_2O
- Additional Inferred Mineral Resource: 31.1 million tons of K_2O

No Measured Mineral Resource has been estimated because engineering studies have not been completed to establish specific mining horizons, resource recovery, process selection, and preliminary operating and capital costs.

The Mineral Resource for the Permit Area except where geophysical anomalies have been identified is estimated at 5 to 6 million tonnes of K_2O product per section. This is equivalent to 2.04 tonnes of K_2O per square meter or 2,040,000 tonnes per square kilometre.

It is the opinion of the authors that the resource within a 1-mile (1.6-km) radius of the cored drill holes in each cluster can be classified as “Indicated” Mineral Resource and the resource within a 5-mile (8.05-km) radius of the cored drill holes less the “Indicated” resource can be classified as “Inferred” Mineral Resource. This classification is based on the availability of the core from these drill holes for inspection, the demonstrated mining method, and the precedence established by Mosaic in reporting proven and probable reserves and resources to the United States Securities and Exchange Commission. The KP 289 Permit area is immediately to the north of the permit boundary of Mosaic Potash Lease KL 106. Solution mining of potash has taken place on the Mosaic leases since the early 1960s, and the potash beds in the areas of the two pilot test on Permit KP 289 are considered by the authors to be similar to those beneath the Mosaic lease.

It is the opinion of the authors that the mineral resource in the form of potash mineralization is sufficient to justify the expenditure of funds to undertake further work designed to confirm the quality of potash mineral resource within the Permit Area and, furthermore, to determine the quality, quantity, and extent of the potash resource in the areas surrounding the Findlater and Bethune pilot test areas.

Specific recommendations for a phased development include:

Phase 1

1. That the core from the five cored holes within the Permit Area be re-logged to confirm lithology, mineralogy and other geological and mining factors and a number of ‘check” assays be taken to confirm the historical assay record. The re-logging of the core should be accomplished under the direction of the authors or by a registered Professional Geologist or Professional Engineer with experience in potash geology and/or mining engineering, especially as applied to solution mining. Estimated cost $75,000.

2. Complete geomechanical testing of select intervals of the available core to establish site specific mechanical and thermo mechanical properties for future recommended scoping studies. Estimated cost $100,000.

3. That the company purchase, examine, and, if required, reprocess existing “2D” reflection seismic trade data from the area surrounding the Findlater Pilot Test area. Estimated cost for up to 25 miles of trade data $75,000;

4. That after review of the trade seismic data, the company shoot up to 20 miles of new “2D” reflection seismic survey in the vicinity of the Findlater Pilot Test area. Estimated cost $300,000; and

5. Undertake a Scoping (Order of Magnitude) Study to accurately estimate the permitting, mining, processing, transport, and marketing costs for project development. Estimated cost $300,000.

Phase 2

Conditional upon favorable outcomes from Phase 1, continue studies to confirm and expand the resource base and complete a Preliminary Feasibility study that includes:

1. Select the location and drill at a minimum one surface drill hole and that should promising results be obtained the drill hole be cased as a potential solution-mining pilot test hole;

2. Expand the 2D recon seismic evaluation to the Bethune pilot test area and to the south of the permit area;

3. Complete geotechnical and solubility testing of core;

4. Complete permitting, process design, and marketing studies; and

5. Complete a Prefeasibility Study to support definition of Mineral Reserves.

Phase 3

Conditional upon a favorable outcome from Phase 2, proceed to a Definitive Feasibility Study. This may require the drilling of additional holes and pilot testing to demonstrate the mining and processing methods.

Phase 1 is estimated to cost approximately $850,000 and could be completed in one calendar year. Phase 2 is estimated to cost between $2.5 million to $4.5 million depending on the number of holes drilled. Phase 3 costs cannot be estimated at this time.

In preparing this report, all analytical and interpretive work was done using historical data with no independent confirmation of assay results undertaken. Core from the five drill holes on the Permit Area are available for inspection and re-assay; core from two drill holes have been inspected by the two authors. The present report was initially prepared as an internal company report for Invictus by S. P. (Steve) Halabura, P.Geo., and revised by Dr. Michael Hardy, P.E., who also undertook a site visit and inspection of the core. The two authors were assisted by Mr. Ronald H. Brown, a geologist with extensive experience in the field of potash solution mining. Mr. Brown also inspected the core during a visit to the core laboratory on September 6, 2006.

Introduction and Terms of Reference

This report was prepared at the request of ISX Resources, Inc. (ISX), in support of an exploration program being organized and financed by ISX.

The information upon which this report is based was obtained from public record sources, specifically, well files consisting of drilling reports, geological reports, and potash assay analyses, and assessment files pertaining to previous exploration projects within the Permit Area. Specific citations are listed in Schedule 1—Information Sources. The core from all five drill holes cored within the lease area is available for inspection. Two of those cores have been inspected by the authors to verify the written descriptions of the core.

The principal author of this report is Dr. Michael Hardy, P.E. Dr. Hardy is the president of Agapito Associates, Inc. (AAI), a consulting company headquartered in Grand Junction, Colorado, and with offices in Golden, Colorado, and Chicago, Illinois. Dr Hardy has over 20 years of experience with the design of solution mining wellfields and with feasibility studies for commercial scale potash projects. His solution mining experience includes salt (halite), nahcolite, trona, and potash. Dr. Hardy has provided guidance for several pilot test operations in trona, nahcolite, and potash. Specific potash experience included both underground mining and solution mining. Dr. Hardy and AAI have provided resource confirmation support to Mississippi Potash and to their successor, Intrepid Potash of New Mexico, solution mining consultation to the solution mining operations near Moab, Utah, and for pilot testing and mine planning for Rio Tinto's PRC potash project in Argentina. Dr. Hardy's expertise is in cavern design, well design, pilot test development, rock mechanics, instrumentation, and reserve calculation. Dr. Hardy holds a Bachelor on Engineering in Civil Engineering from the University of Adelaide in Australia and a Ph.D. in Geo-engineering from the University of Minnesota. Dr. Hardy has practiced in the area of underground mining since 1974 and was a founding partner of AAI in 1978. AAI has over twenty employees and provides consulting services worldwide. Dr. Hardy is a registered Professional Engineer in the State of Colorado, is a member of the Solution Mining Research Institute, was Chairman of the Underground Technical Research Council of the American Society of Civil Engineers and Society of Mining Engineers (SME), and has served on several committees for the National Academy of Science. Dr Hardy has been a member of SME for over 36 years and is a Founding Registered Member of SME. The SME Registered Member has been added to the list of Recognized Overseas Professional Organization (ROPO) by the Australian Stock Exchange.

The co-author for this report is Mr. Stephen P. Halabura P.Geo., owner, president, and principal consulting geologist of North Rim Exploration, Ltd. (NREL). NREL is a geological consulting company based in Saskatoon, Saskatchewan, and is issued Certificate of Authorization No. C905 with the Association of Professional Engineers and Geoscientists of Saskatchewan. The firm was founded in 1984 by Mr. Steve Halabura, P.Geo., as a private consulting firm holding "Permission to Consult" in the field of the geology of the petroleum, potash, and industrial minerals resources. Mr. Halabura is registered with the Association of Professional Engineers and Geoscientists of Saskatchewan (Member No. 9981), the Association of Professional Engineers and Geoscientists of Manitoba (Member No. 23414G), the Association of Professional Engineers and Geoscientists of New Brunswick (Member No. 3702), the Association of Professional Geoscientists of Ontario (Member No. 1242), and the Association of Professional Engineers, Geologists and Geophysicists of Alberta (Member M85169).

Mr. Halabura has been a consulting geologist since 1984, and during this period, he has undertaken over 60 projects in the field of potash, halite, and brines for a wide number of mining, petroleum, and private corporations. Mr. Halabura's specialty is assessment of geological factors that impact upon safe and stable mining conditions for operating mines and exploration/pre-production properties.

In the Saskatoon area, Mr. Halabura has undertaken specific studies as to geological conditions for the Potash Corporation of Saskatchewan potash mines (Lanigan, Allan, Patience Lake, and Cory), the

Mosaic Colonsay Potash Mine, and the Agrium Vanscoy Potash Mine, including subsurface and mine studies and information obtained from surface drilling.

Mr. Halabura was responsible for identifying the Permit Area and has an interest in Invictus Minerals Corporation so is not independent as required by NC 43-101. Furthermore, Mr Halabura had a royalty position with Invictus that has been bought out by ISX via a royalty purchase agreement dated May 16, 2006, between Stephen P. Halabura P.Geo. and ISX.

In preparing this report, the authors had numerous discussions with Mr. Ronald H. Brown, a geologist residing in Regina, Saskatchewan. Mr. Brown has extensive experience in the field of potash geology and the solution mining of potash and is presently engaged as a consultant in several international potash exploration and development projects.

Reliance on Other Experts

In the preparation of this report, the authors have relied on historical reports, opinions, and statements not prepared under their supervision; therefore, the authors hereby do not take responsibility specifically for the accuracy of the historical data. These items will be hereinafter identified in this report as being either “third-party reports” or “historical information.” Analytical procedures, personnel, and facilities used by the previous evaluators were not necessarily independent, and it is not known if the authors of those reports were “Qualified Persons” as defined by NI 43-101.

As with other Saskatchewan potash deposits, the mineral resource may be affected by subsurface phenomena that have deleterious effects upon the mineral resource, these including, but not limited to, “leach,” “washout,” and salt collapse anomalies. Such anomalies are identified in certain drill holes (see following sections) and interpreted seismic sections. While the present study presents estimates as to the extent of such anomalous ground, further work, such as a “3D” seismic survey, may indicate that the anomalies are more extensive than presented herein.

Although potassium chloride, magnesium chloride, sodium chloride, and other element and mineral constituents as measured from assays of cores cut through the sylvinite beds of the Prairie Evaporite Formation within the Permit Area are noted where relevant, the economic potential is not discussed and is beyond the intended scope of this report. Previous drilling results undertaken by Imperial and Lumsden Potash have reported the presence of potassium chloride (potash) in various geological reports appended to drilling reports of specific drill holes.

Neither Invictus nor ISX have completed any form of financial modeling other than a review of the historical information as described herein. None of this information is proprietary, but was obtained exclusively from the Geodata Branch, Saskatchewan Industry and Resources, which is considered a public record source. Two of the five cores from drill holes located within the Permit Area have been inspected and the core from these drill holes is available for examination at the core and sample repository located in the Saskatchewan Industry and Resources Subsurface Geological Laboratory in Regina. No attempt has been made to re-assay the available core. None of the historical information can be directly verified by the authors at this time, other than to note occurrences of data quality variation that may affect the calculation of mineral resource, potash grade and tonnage, such examples being provided in this report. Examples of variable data quality include instances of incomplete assays and missing assay intervals that may affect the estimation of mineral resource potash grade and tonnage.

Sources of information on prior exploration work in the general Findlater–Lumsden–Belle Plaine area are available as technical reports filed with Saskatchewan Industry and Resources in fulfillment of annual assessment requirements that become non-confidential after 3 years. Drilling records must also be filed with Saskatchewan Industry and Resources. Despite the existing historical record, the files may not necessarily provide a complete record of exploration work or drilling results, and it is not possible to know if the material on file represents the complete record of all information collected by the previous exploration companies.

The Phanerozoic stratigraphy in the Findlater Area, and the processes of evaporite precipitation, diagenesis, dissolution, and preservation, are topics of both historical and on-going research by numerous industry, academic, and government bodies. The detailed stratigraphic correlations that are presented herein are based upon these reports; however, they have been modified as to the co-author’s personal experience with the potash deposits of Saskatchewan.

Property descriptions and land status were obtained from the list of lands as set forth in the documents provided by Saskatchewan Industry and Resources in support of the granting of the permit. No attempt to independently verify the land tenure information was made by the present authors.

A site visit, as required by NI 43-101, was completed by the principal author on September 6, 2006. In addition, the co-authors have jointly inspected two of the cores from holes drilled within the Permit Area.

This report was prepared for the purposes of providing initial technical information to support exploration plans being made by ISX. The report presents data and interpretations concerning the geology of the potash deposit at KP 289 located north of the Mosaic Belle Plaine Mine and estimates of Indicated and Inferred Mineral Resource recoverable using established solution mining techniques.

Most information comprising the bulk of the investigation was available through public record sources and derived from the expertise and past experiences of the co-authors. This information was gained during participation in potash mining operations elsewhere in Saskatchewan and solution mining operations and test mines in potash, nahcolite, and trona. No engineering designs have been produced. Where assumptions and estimates are made, they are identified and are based on experience from solution mining in potash or other similar minerals. Final grade and tonnage values are presented based on preliminary cut-off grades and minimum mining heights typical for solution mining and similar to that practiced by Mosaic to the immediate south of the Permit Area. No process designs have been evaluated and no minimum brine concentrations for the mill feed established. No calculation of estimated revenue and expense streams have been made, nor has any reference been given to either "ore" or potash "reserve" which, because of the quality of the available data as yet, does not exist. The reader is reminded that mineral resources that are not mineral reserves do not have demonstrated economic viability.

Furthermore, the reader is reminded that the term "ore" should not be used, disclosed, or implied unless proven reserves have been estimated on the property. To be called ore, the economic factor must be taken into account and it must be possible to extract metals or minerals profitably from the ore. Since no proven reserves have been identified during the course of work undertaken to prepare this report, the term "ore" has not be used; however, where the term "ore" is used in this report, it is in the context of a direct quote taken from third-party reports or papers and as such is not compliant with recommendations set forth in NI 43-101.

The primary use of the technical information contained within the study will be to provide basic information for additional geological, geophysical, engineering, and economic studies.

Property Description and Location

The following section provides a description and location information for the ISX Resources, Inc., Findlater Potash Project for the subsurface mineral Permit KP 289. The location map, Figure 1, shows the Permit Area perimeter and the Permit Area and surface features, including topography, culture, water courses, townships, roads and railway right-of-ways. Table 2 lists the drill hole information for drill holes in the Permit Area and in the immediate vicinity. Figure 2 is a base map that presents land grid, permit lands, and locations of drill holes using the reference system described herein.

Subsurface Mineral Permit KP 289 consists of some 97,240 acres of Crown mineral lands and is situated approximately 80 km northwest of the city of Regina, Saskatchewan. The permit spans a region encompassing Townships 19 to 21, Ranges 23 and 25 West of the Second Meridian.

The boundary of Permit KP 289 encompasses some 240 sections of land for which more or less some 157 sections are granted by permit for exploration purposes, the balance being freehold, or under private landholder's mineral ownership and thus not included in the rights granted under the permit. To the best of the author's knowledge all surface land ownership is private, (i.e., the title is owned by individuals or corporations as opposed to the Crown) and, thus, surface access to such lands is by negotiation usually resulting in payment of an access fee. A portion of the lands in the extreme southwest corner of the Permit may be Provincial Park lands. A map showing lands granted by Permit KP 289 is presented in Figures 1 and 2 and a listing of individual land locations is presented in Appendix 1. The Permit is bound to the south and southeast by Subsurface Mineral Lease KL 106 owned by The Mosaic Company and is open to the west, north, and east. Figure 2 shows the freehold lands that are not part of the permit and which do not contribute to the mineral resource estimates presented herein.

The property status for Permit KP 289 land holdings is shown in the table presented in this report as Appendix 1. The subsurface mineral permit was issued November 22, 2005, and is subject to rentals and exploration assessment rates prescribed herein. All lands are protected by permit regulations until at least 2010, with the possibility to extend permit term to 2013.

ISX obtained the right to explore and acquire Permit KP 289 from Invictus by means of an option agreement dated May 16, 2006. Pursuant to the provisions of *The Subsurface Mineral Regulations, 1960*, made under the authority of *The Crown Minerals Act*, Permit KP 289 was initially granted to Invictus as to a 100% undivided interest. ISX Resources, Inc., is the operator of the Permit and as such will be responsible for exploration operations undertaken on the Permit.

In agricultural areas, surface access must be negotiated with individual landholders, and with the approval of the Rural Municipalities. Rural Municipalities commonly impose heavy vehicle restrictions (road bans) during spring thaw (two to three weeks) which may restrict exploration activities during the spring. The authors are aware that certain permit lands in the southwest of the Permit Area are subject to specific environmental liabilities and restrictions above or beyond those responsibilities assumed under permitting of exploration programs. These will be described in another section under "Environmental Restrictions."

In Saskatchewan, title to lands is generally of four distinct types: Crown Mineral Title Lands, Freehold Mineral Title Lands, Indian Mineral Title Lands, and "Split Rights" Lands.

Saskatchewan Crown Mineral Lands are mineral titles that are owned by the Saskatchewan Provincial Government. They were acquired either from the Government of Canada in 1933 when ownership of crown mineral titles was transferred to the Provinces or were mineral titles that were acquired by the Provincial Government over the years from Freehold owners, usually due to non-payment

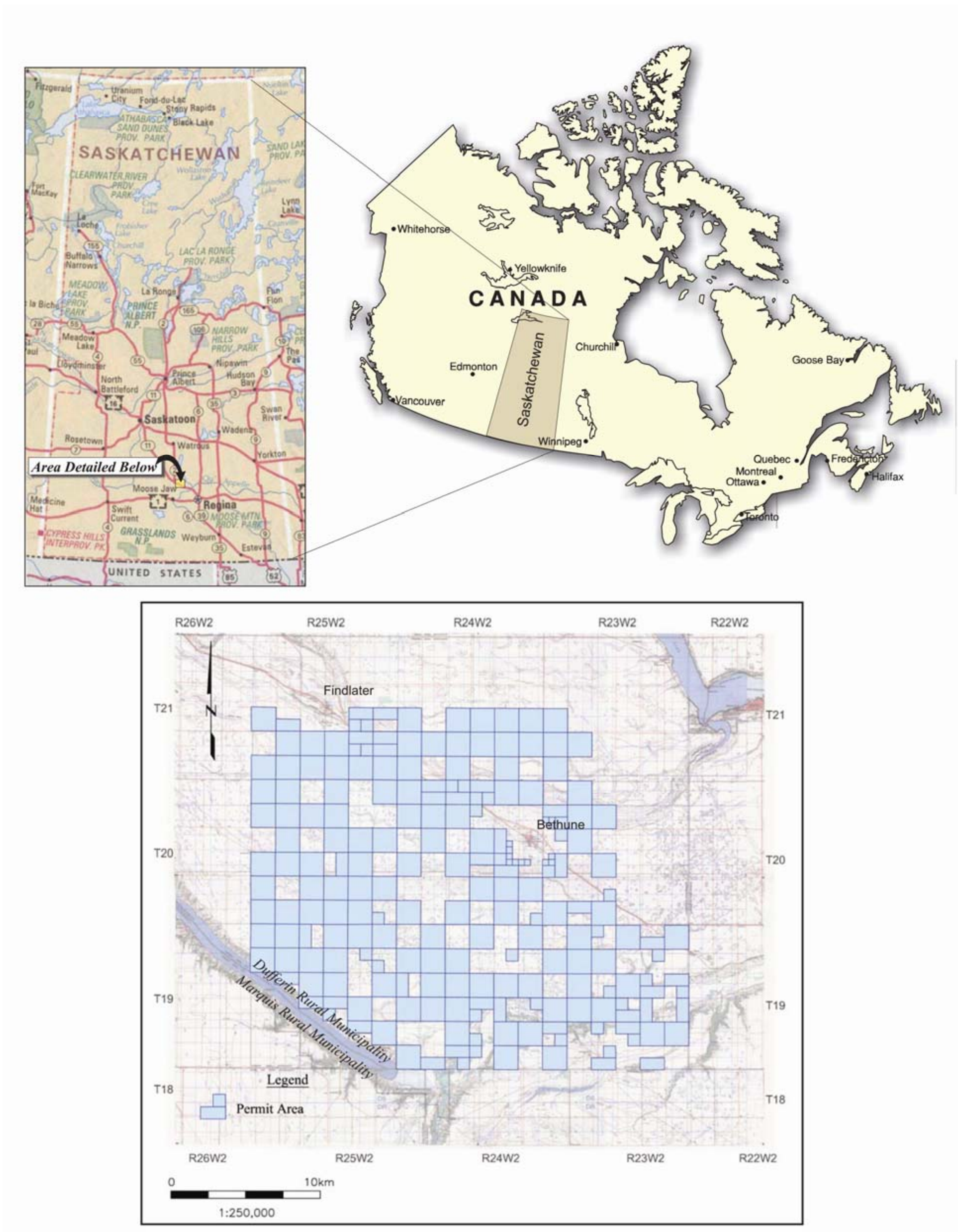

Figure 1: Location Map of Subsurface Mineral Permit KP 289

Table 2. Summary of Drill Hole Information from the Permit Area and Immediate Vicinity

DH #	Well Name	LSD	SEC	TWP	RGE	MER	Total Depth (m)	Well Type	Utility
01	IMC Belle Plaine DD 2A8	5	5	18	23	2	N/A	Potash Solutioning	No data; Licensed to Prairie Evaporite
02	IMC Belle Plaine DD 3D1	8	6	18	23	2	N/A	Potash Solutioning	No data; Licensed to Prairie Evaporite
03	Sohio CDN Dev Stony Beach	4	16	18	23	2	1832.20	Undefined Converted	TD in Interlake; Gamma log through Prairie Evaporite
04	Stoney Beach No 5	5	16	18	23	2	N/A	Potash Test Well	No data; No licensed depth
05	Sohio Delhi Waldorf No 1	4	2	18	24	2	1793.70	Undefined Converted	TD in Interlake; Log and core through Patience Lake
06	Stony Beach No 3	12	16	18	24	2	N/A	Potash Test Well	No data; No licensed depth
07	Aquit Moose Jaw	16	22	18	24	2	1770.90	Oil	TD in Interlake; Log through Prairie Evaporite
08	IMP Lumsden	11	11	20	22	2	1524.60	Potash Test Well	**TD in Prairie Evaporite; Log and assay**
09	Socony Sohio Disley No 1	15	12	20	23	2	987.60	Undefined Converted	**TD in Birdbear, NDE**
10	**Lumsden Potash 5 Bethune**	**1**	**17**	**20**	**23**	**2**	**767.20**	**Oil**	**TD in Jurassic, NDE**
11	**Lumsden Potash 1 Bethune**	**2**	**17**	**20**	**23**	**2**	**1541.10**	**Potash Pilot Test**	**TD in Prairie Evaporite; Log and assay**
12	**Lumsden Potash 2 Bethune**	**2**	**17**	**20**	**23**	**2**	**699.20**	**Oil**	**TD in Jurassic, NDE**
13	**Lumsden Potash 3 Bethune**	**2**	**17**	**20**	**23**	**2**	**1534.10**	**Pilot Test**	**TD in Prairie Evaporite; Log and assay**
14	**Lumsden Potash 4 Bethune**	**2**	**17**	**20**	**23**	**2**	**1514.90**	**Potash**	**TD in Prairie Evaporite; Log only?**
15	**Socony Sohio East Bethune**	**11**	**29**	**20**	**23**	**2**	**1428**	**Oil**	**TD in Prairie Evaporite; Log only**
16	**Sohio Standard Findlater No 2**	**9**	**20**	**20**	**25**	**2**	**1478.30**	**Oil**	**TD in Prairie Evaporite; Log only**
17	**Socony Sohio Dilke No 1**	**13**	**5**	**21**	**23**	**2**	**923.50**	**1954**	**TD in Birdbear, NDE**
18	**Imperial Findlater 9-3**	**9**	**3**	**21**	**25**	**2**	**1515.80**	**Potash**	**TD in Prairie Evaporite; Log and assay**
19	**Sohio No 4 Stratigraphic Test Well**	**2**	**4**	**21**	**25**	**2**	**1222.20**	**Strat**	**TD in Souris River, NDE**
20	**Imperial Findlater 16-4**	**16**	**4**	**21**	**25**	**2**	**1538.60**	**Potash**	**TD in Prairie Evaporite; Log and assay**
21	**IMP Findlater Potash 16-10**	**16**	**10**	**21**	**25**	**2**	**1510.60**	**Pilot Test**	**TD in Prairie Evaporite; Log and assay**
22	**IMP Findlater Potash 16A-10**	**16**	**10**	**21**	**25**	**2**	**1509.70**	**Pilot Test**	**TD in Prairie Evaporite; Log only**
23	**IMP Findlater Disposal**	**16**	**10**	**21**	**25**	**2**	**1022.00**	**Disposal**	**TD in Birdbear, NDE**
24	**IMP Findlater Source**	**16**	**10**	**21**	**25**	**2**	**679.70**	**Water Supply**	**TD in Mannville, NDE**
25	Imperial Dilke Potash	16	3	22	24	2	1441.70	Potash Test Well	**TD in Prairie Evaporite; Log only**

Wells in permit area
Wells outside permit area
Prairie Evaporite or Patience Lake; Gamma log
Prairie Evaporite; Log and assay

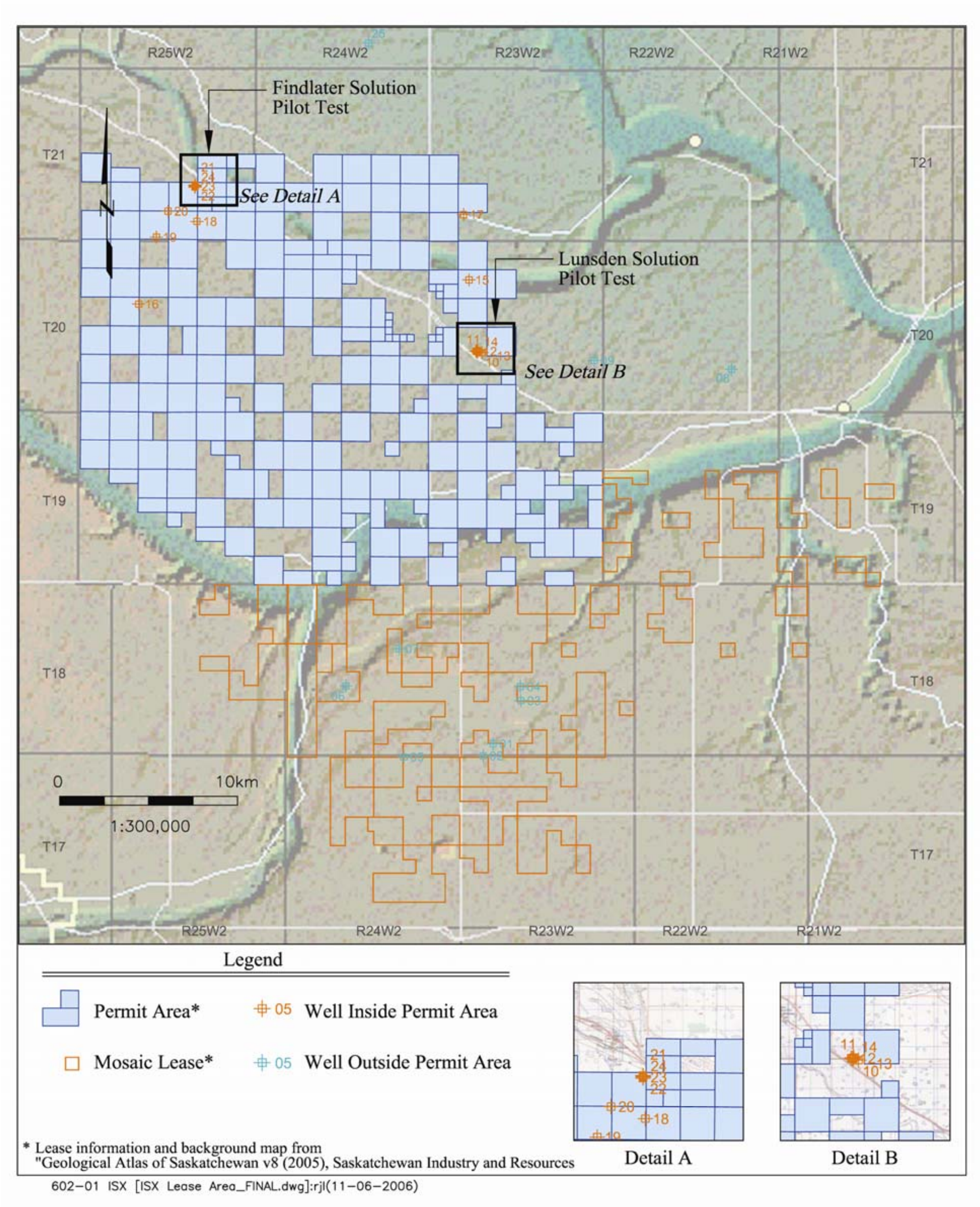

Figure 2: Base Map Showing Location of ISX Permit Areas, Locations of Drill Holes, and Mosaic Lease Areas

of mineral taxes or other forms of taxes by virtue of the "Mineral Taxation Act" that became law on January 1, 1945.

Indian Mineral Lands describe lands that were granted to the First Nations of the Province by virtue of the Treaties signed during the 19th Century. When the First Nations were given their original Reserves, their title gave them ownership of both the surface and minerals.

Freehold Mineral Lands are mineral titles owned by private individuals or companies. During the influx of European and American immigration to Western Canada, the land title sold to settlers included both the surface and subsurface minerals. Most freehold titles have passed through many different owners over the years and the minerals have been separated from the surface title, and in many cases "split" among descendants of the original grantee.

"Split Rights" Mineral Lands are mineral titles where the ownership is split between the Saskatchewan Government and private owners. This situation arose due to a number of circumstances during the initial petroleum "boom" of the late 1940s.

A cursory examination of land title information as presented by a commercial database system (Geovista) shows that all of the land title within the Permit Area is either in the form of Crown Mineral Lands or Freehold Mineral Lands. In the case of subsurface minerals, the right to explore for, and take, is granted only for "subsurface minerals," which is defined as "all natural mineral salts of boron, calcium, lithium, magnesium, potassium, sodium, bromine, chlorine, fluorine, iodine, nitrogen, phosphorus and sulphur, and their compounds, occurring more than 200 ft (61 m) below the surface of the land, or any other mineral substance that may be declared a "subsurface mineral" within the meaning of these regulations by the Lieutenant Governor in Council" (S(4(b)).

The permit described herein as Subsurface Mineral Permit KP 289, or the "Findlater Permit," is a granting, by the Province of Saskatchewan, to ISX through its option agreement with Invictus of the right to exclusively prospect for subsurface minerals with the Permit boundary. Exploration is only permitted upon lands for which the Crown owns title. The lands comprising the permit are mostly contiguous, broken only by the presence of scattered freehold mineral lands. These lands are largely confined to the edges of the general Permit Area resulting in an alternation of Crown minerals held by the permit and freehold minerals not held by the permit. The right to explore does not include road allowances, which are excluded from the permit grant.

Upon ISX successfully meeting the stated requirements of the permit in terms of work commitments and payments such as rentals as set forth in its agreement with Invictus, then ISX will have earned an interest in the Permit lands up to 100% of the lands and, upon undertaking further work, may be allowed to convert portions of the permit to "lease." Converting the "Permit" into "lease" will be required prior to ISX undertaking any commercial mining operations upon the lease lands and withdraw the subsurface mineral for sale, subject to meeting further conditions including the payment of a royalty to the province.

The terms of the Subsurface Minerals Permit are described in the Subsurface Minerals Regulation of 1960. In general, the following conditions are relevant to an appreciation of the present exploration undertaking:

1. Application for permit, the area not to exceed 100,000 acres and such lands to be one solid block of contiguous lands as approved by the Minister (S(2))

2. The Application shall be accompanied by:
    a. A plan and legal description of the area applied for
    b. A fee of $100

   c. Rental for the first year of the term of the permit, the rental being $0.50 per acre for the first 5 years with $10,000 for the first extension period, $20,000 for the second extension, and $40,000 for the third extension period
   d. A deposit of $2,000, which is refundable within 30 days after the expiration date of the permit or sooner if terminated earlier than the full term
   e. Details of the work to be carried out
   f. Names and addresses of the directors and officers if the applicant is a corporation
   g. A statement of financial position of the applicant

3. The permittee shall have the exclusive right to prospect for subsurface minerals in the Permit Area (S7(1))

4. The term of the permit shall be 5 years from the date of issue and such term may be extended upon application by the permittee for not more than three extension periods of one year each (S8)

5. The permittee shall be required to expend for work upon the permit lands the amounts of $40,000 during each of the second and third years of the term of the permit and $80,000 during each of the fourth and fifth years of the term of the permit (S11) with proof offered to the Minister in the form of a detailed statement, such statement which may require certification by a chartered accountant or certified public accountant satisfactory to the minister

6. In the event the permittee is deficient in the amount spent during any one period, the deficiency may be satisfied by a cash payment equivalent to the deficiency

7. Consolidation of smaller permits is allowed, provided that the size of the consolidated permits not exceed $100,000 acres

8. The permittee has the right to surrender at any time all lands in the Permit Area or any portion thereof (S15(1)), but the surrender shall not entitle the permittee to a refund of any rental for the current year

9. The permittee may, with the approval of the Minister, add or substitute Crown subsurface mineral lands for lands in the permit

In filing for the permit, it was the opinion of Invictus that the application encompassed lands that were considered to be highly prospective for the presence of mineable deposits of potash, (i.e., the mineral potassium chloride or “sylvite”) occurring on the rock form known as “sylvinite.” This opinion was based upon examination of borehole data obtained from previous potash and oil exploration drilling. The permit is immediately adjacent to the northern boundary of the Mosaic Potash Corporation Belle Plaine potash production lease (KL 106), which is the site of the Mosaic Belle Plaine potash solution mine. The location of the Mosaic lease areas are shown on the map presented as Figure 2 of this report.

Examination of the permit map (Figure 2) shows the existence of areas within the general permit area that are not included in the permit areas; the majority of these areas are “freehold” (i.e., owned by individuals as opposed to the Crown). ISX or Invictus may choose to negotiate rights to the potash minerals separately and individually with each landowner. There is no guarantee that ISX or any other potash company will be able to successfully enter into potash lease agreements with such landowners or that a competitor will not be successful in obtaining such leases. No title review of these lands was undertaken during the course of the present work so the authors are unable to comment as to the ownership status of these lands.

The authors are unaware of any royalties, back-in rights, payments, or other agreements and encumbrances to which the property is subject, other than the work commitments, fees, and rentals as described in the preceding paragraphs and those described in the option agreement dated May 12, 2006, between Invictus and ISX. The royalty purchase agreement dated May 16, 2006, between Stephen P. Halabura P.Geo. and ISX voided the 2% GORR granted by Invictus to Stephen P. Halabura, P. Geo.

The authors are unaware at this point of any environmental liabilities to which the property is subject, other than the normal licensing and permitting requirements that must be made prior to undertaking certain operations and those environmental restrictions as set forth in Provincial Acts and regulations. A cursory examination of maps reveals that Buffalo Pound Lake and Buffalo Pound Provincial Park are located in the southwest portion of the permit and that the southeast portion of the permit lands is crossed by the Qu'Appelle Valley. It is reasonable to infer that portions of these lands will be restricted from the viewpoint of exploration. In terms of exploration operations, the Operator will be required to abide by the regulations set forth by the Province of Saskatchewan governing field operations, for instance, any surface geophysical work must be undertaken subject to the terms and conditions of the regulations and acts governing the conduct of geophysical surveys and oil well drilling.

In Saskatchewan, the surface rights are subject to separate ownership and title from the subsurface (i.e., mineral rights); therefore, the securing of mineral rights does not secure the surface rights. In undertaking any form of surface exploration operation, the taking of surface leases and the granting of easements for geophysical operations must be negotiated with the surface owner. In such instances, ISX and/or Invictus will have to make payments for obtaining the right of entry and may be subject to additional environmental conditions imposed by the landowner. In the case of commencing mining operations, ISX and/or Invictus may decide to purchase the land upon which it will build surface mining facilities. There is no guarantee that it will, in all cases, be able to obtain such rights.

Accessibility, Climate, Local Resources, Infrastructure, and Physiography

A site visit, as required by NI 43-101, was done by the principal author and Independent Qualified Person on September 6, 2006. The site visit consisted of driving over the numerous roads that cross the permit lands and a visit to the sites of the abandoned pilot tests; the site visit did not provide additional insights of a geological nature of the resource because the deposit is entirely within the subsurface, (i.e., buried at depth), and in this regards is similar to an oil or natural gas deposit. This is not to say that there may not be specific environmental situations that may affect surface exploration, such as the location of drilling sites or seismic lines; however, typically such situations are identified once exploration operations begins and then dealt with on a case-by-case basis.

Permit KP 289 is located immediately to the south of Highway 11 and between the towns of Findlater (in the northwest corner) and Bethune (in the northeast corner). Buffalo Pound Lake and Provincial Park is located in the southwest portion of the permit. No other towns or villages are located within the bounds of the Permit. Overall, the Permit lands consist of flat to gently rolling cleared farmland with local mixed poplar/aspen bluffs. Some of the lands are unbroken grassland and are used as pasture. Buffalo Pound Lake is situated in the southwest portion of the Permit and is a combination of Provincial Park and riparian area, with numerous cabins and cottages along its shorelines. The cleared lands are utilized primarily for farming purposes, although there is scattered pasture and grazing lands.

The entire permit is accessible by a network of 'grid" section gravel and paved roads, including a major paved highway (Highway #11 connecting the major urban centres of Regina and Saskatoon) bounding the northern portion of the Permit. Both paved and gravel road access is available through the Permit Area, in part due to the inhabitation of the land by a combination of mixed farms. Rail access in the form of trackage is fair, with the CP main line running south of the Permit parallel to the Trans-Canada Highway. A disused rail line exists between Findlater and Bethune, but it is partially dismantled and appears to have been abandoned.

The climate is typical of the prairies which consists of a winter period (November–March) of snow and mean temperatures well below freezing and a summer period (June to early September) warm (15°C to 35°C) with moderate precipitation. The spring (April–May) and autumn (late September to October) is cool with precipitation in the form of rain and occasional snow. Exploration operations, such as seismic acquisition and exploratory drilling, is limited by weather conditions during the spring and fall periods when soft ground conditions due to thawing and/or precipitation create difficulties in moving about heavy machinery. Access during the winter and summer months are largely restricted only by local conditions, periodic rains or snowfalls, or environmentally sensitive ground conditions.

The region is well served by natural gas delivery pipelines and an electrical distribution network. The large urban population centres of Regina to the southeast and Moose Jaw to the southwest and local rural communities such as Findlater, Bethune, and Lumsden may provide a pool of skilled professional, technical, and trades persons; furthermore, an operating potash solution mine immediately to the south of the permit means that the labour force will have experience in potash mine construction and operation.

The surface lands of the Permit Area are primarily farmland and grazing pasture lands, so it is reasonable to assume that it will be possible to negotiate favourable land acquisition and usage agreements with private landowners. Such land will be required for the siting of the physical potash plant which will include processing plant, cavern drilling and well pads, evaporation ponds, and the tailings management system. It is estimated that the surface area of a potash solution mine and plant, including cavern well pads, evaporation ponds and tailings management area, may be some 3 sections or some 2,000 acres.

History

Previous exploration of the lands encompassed by Permit KP 289 consisted of exploratory drilling and surface reflection seismic surveys. The drill hole locations (showing well reference numbers) and the location of solution mine pilot tests are shown in Figure 2 and the information available from each well is summarized in Table 2 (in the previous section) and detailed in Appendix 2. The drill holes highlighted in yellow in Table 2, except DH 8, which is outside the Permit Area, were used in the study. Within the Permit Area, seven holes penetrate the Prairie Evaporite with geophysical logs and five of those drill holes have core from the Patience Lake Member and the Belle Plaine Member. Four of the holes within the Permit Area were used as part of solution mine pilot tests.

Prior to the Permit Area being explored for potash resources, the oil company Standard Oil of Ohio ("Sohio") undertook exploration for oil and natural gas in the mid-1950s. Data from this exploration program is included where relevant.

The Imperial Findlater Exploration Project

The northwestern portion of Permit KP 289 was explored by Imperial Oil Limited during the early 1960s. One permit (Permit 1) was granted to Imperial Oil Limited by the Saskatchewan government with exploration drilling focused within the northwestern corner of the present permit lands. A search of historical assessment files held by Saskatchewan Industry and Resources was made in order to find any potash mineral resource information that may have been filed by Imperial. The search found historical data in the form of information (including chemical assay data from drill core analysis), seismic maps and a seismic report, and correspondence pertaining to the exploration program.

Work on the project commenced in 1960. A letter dated June 24, 1964, for the Saskatchewan Department of Mineral Resources describes operations "during the 3rd year on the above permits." In the letter, it is stated that pilot operations continued with fluids being "circulated through a cavity system at variable rates and temperatures and with variable concentrations" (letter from D. D. Lougheed to Department of Mineral Resources dated June 24, 1964). The letter also states that the "pilot operations are carried out for the purpose of finding a novel method of commercial production of potash. A considerable chemical research and engineering effort is associated with the pilot operation." Nothing in the record suggests reasons for the abandonment; however, discussions with geologists and engineers active in the potash business at the time suggest that the KCl content in solution was low because of problems with the solution technology (i.e., the employment of a horizontal fracturing technique to connect two pilot holes). The program was completed in 1966 and the wells abandoned in 1968.

The Lumsden Potash Bethune Exploration Project

The eastern portion of the property was explored by Lumsden Potash Development Company, Ltd., during 1967. Evaluation of the Potash Permit Number 1, granted to C. M. Taylor, was undertaken by means of drilling three drill holes, two into the Prairie Evaporite Formation and one into the overlying Mannville Formation as a water source well.

A search of historical assessment files held by Saskatchewan Industry and Resources was made in order to find any potash mineral resource information that may have been filed by Lumsden Potash. The company filed a report dated June 25, 1968, concerning exploration results with the Saskatchewan Department of Mineral Resources. The author of the report was Edgar A. Manker.

The report describes the results of the pilot test, which included the installation of a pilot plant and primary cavern formation by means of fluid circulation between two caverns, the Lumsden Bethune #1 and #3 wells. The mining procedure is described as "proprietary" in that an attempt was made to create communication between the two wells "by aqueous fluid injection and a hydraulic fracture technique" the results of which were claimed as being "proprietary." The report states that the results of the tests are "proprietary," but "they did obtain an anticipated result and provided no difficulties or unexpected events" (Manker, "Exploration Work on C. M. Taylor Potash Permit #1" dated June 25, 1968, p. 3). The report also states that "While the details of the design and operation of the pilot plant are proprietary information we were generally pleased with the results of test operations and found that the tests confirmed our design concepts and lived up to our expectations in essentially every way" (Manker, "Exploration Work on C. M. Taylor Potash Permit #1" dated June 25, 1968, p. 2). The reader is cautioned that the authors were unable to verify any of these statements independently.

The pilot plant test was abandoned and nothing in the record suggests the reasons for the abandonment; however, discussions with geologists and engineers active in the potash business at the time suggest that problems developed with the solution technology.

In reviewing the available information concerning the Imperial and Lumsden programs, it is the conclusion of the authors that the available limited record demonstrates that potash mineralization is present at the sites in amounts and grades that would support further resource characterization efforts and pilot testing. Should those efforts prove encouraging further engineering, process, marketing, and environmental studies should be undertaken to establish economic viability.

In reviewing the historical information generated by previous explorers, the authors were unable to find any statements as to mineral resource or reserve estimates, nor were the authors able to determine whether any production was obtained from the pilot tests.

Geological Setting

Regional Geology

The regional subsurface stratigraphic column of central Saskatchewan is presented in Figure 3. The geological column may be subdivided into three broad intervals with approximate depths taken from examination of wells within the Permit Area:

1. An uppermost sequence extending from surface to an approximate depth of some 175 to 200 m of glacial tills, gravels, and clays and containing fresh water aquifers

2. A medial sequence extending from the base of the glacial sediments to an approximate depth of of some 800 m consisting of Jurassic to Cretaceous shales, siltstones, and sandstones with limited aquifers of brackish water

3. A lowermost sequence extending from the Palaeozoic/Mesozoic Unconformity to below 1,900 m consisting of Cambrian to Upper Devonian carbonates, evaporates, and basal shales and sandstones.

The above strata comprise the Phanerozoic sequence, which is itself underlain by gneisses and granites of the Precambrian.

Bedded and laterally extensive evaporite beds containing deposits of halite, sylvite, and carnallite are found within the medial sequence, specifically within Middle Devonian strata commonly called the "Elk Point Group" and ranging from some 2,500 m in the south of the Province to surface outcrop in northwestern Manitoba. This geological sequence is bound at its base by an unconformity spanning the upper Silurian to lower Middle Devonian (Givetian) and at its top by locally disconformable carbonate deposits of the Middle Devonian Dawson Bay formation. The evaporite beds are specifically correlated to the "Prairie Evaporite Formation," which is in depositional contact with the earlier to possibly locally contemporaneous Middle Devonian Winnipegosis Formation. The basal contact of the Prairie Evaporite and Winnipegosis is marked by the sharp transition from halite of the Prairie Evaporite to mixed limestone, dolomite, and anhydrite of the Winnipegosis. The uppermost contact between the Prairie Evaporite and the Dawson Bay consists of shale to locally silty regolith deposit named the "Second Red Beds." Regionally, the Winnipegosis forms a broad flat basin to platform deposit with local development of limestone/dolomite "reefs."

The Elk Point Group was deposited within what is termed the Middle Devonian "Elk Point Seaway," a broad intracratonic basin extending from North Dakota and northeastern Montana at its southern extent north through southwestern Manitoba, southern and central Saskatchewan, and eastern to northern Alberta. Northward from this point, the seaway was divided into a series of smaller basins by tectonic features.

Overlying the Elk Point is a sequence of rocks commonly referred to as the "Manitoba Group" and consisting of the Dawson Bay Formation and overlying Souris River Formations. Present within this sequence are two halite beds: (1) the "Hubbard Salt," which is the uppermost bed of the Dawson Bay, and (2) the "Davidson Evaporite" composed of two halite beds separated by an anhydrite bed. These are important from a mining viewpoint as they form a flood protection zone separating the Prairie mining horizon from the water and brine aquifers present within the Mesozoic sands. The absence due to dissolution and removal of the Hubbard and Davidson halites is an indicator of potential mining difficulties for conventional underground mines in that at some point brine and water capable of dissolving halite made contact with the halite beds and, thus, may also have penetrated to the mining

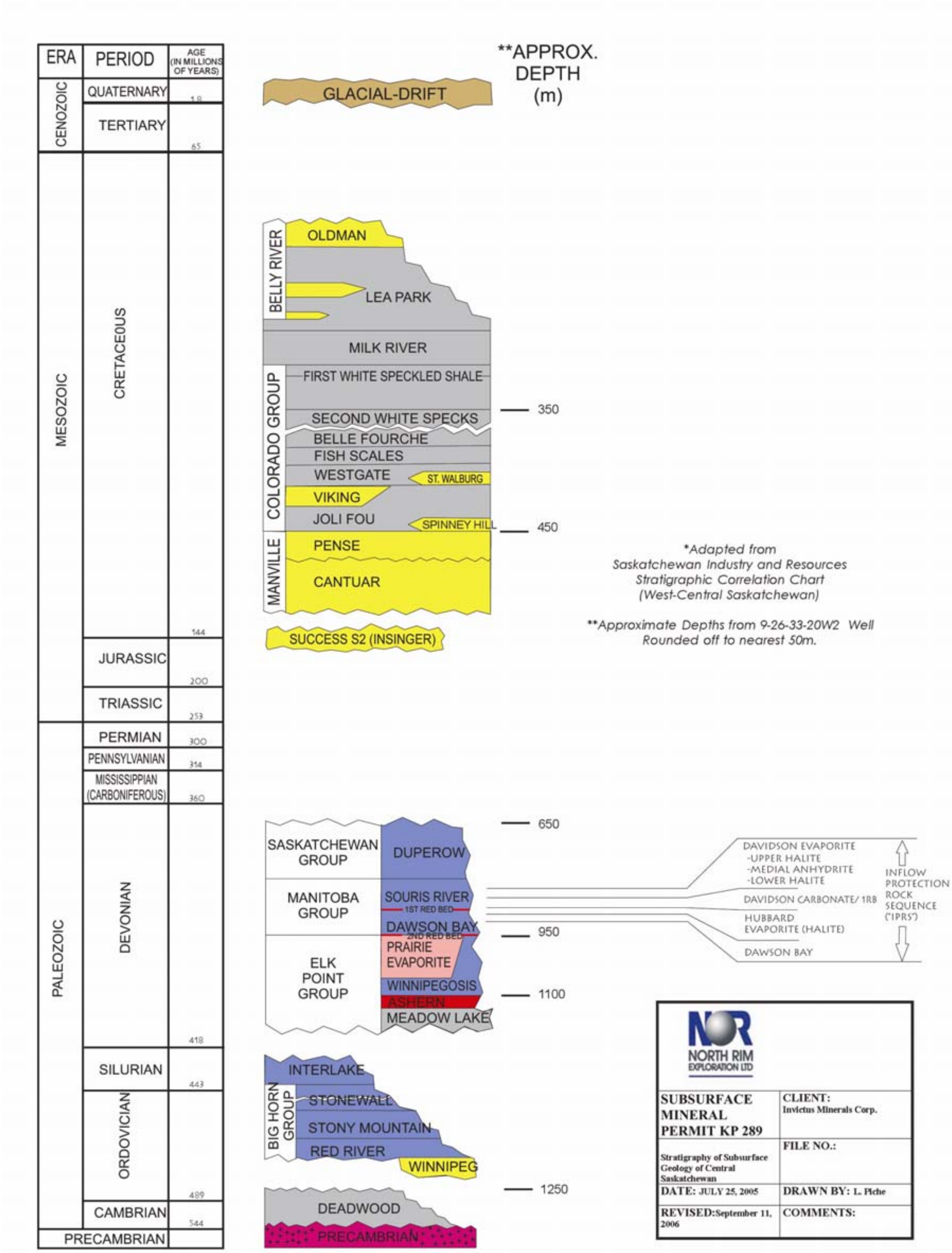

Figure 3: Stratigraphy of the Phanerozoic Sequence, Central Saskatchewan (Note: Included in the Findlater area are the Upper Devonian Birdbear and Torquay Formations and the Mississippian Bakken and Lodgepole Formations)

level; the authors do not consider these relevant for solution mining other than to determine possible dissolution zones of the underlying Prairie Evaporite strata. Dissolution of any salt in the geological column points to the risk of mine flooding for conventional underground mining so such areas are typically avoided by Saskatchewan potash mine operators.

Permit KP 289 is situated well to the south of what is commonly termed the "Commercial Potash Mining Belt." Within this "belt," the potash-bearing beds of the uppermost Prairie Evaporite range between 950 m to 1,075 m, which is considered to be the maximum depth of burial for the safe implementation of conventional underground mining operations.[1] The top of the Prairie Evaporite in the Findlater Permit is at a depth of 1,450 m (4,750 ft), which is well below the maximum depth for safe underground mining; therefore, solution mining techniques must be employed.

Figure 4 from Fuzesy 1982, presents the regional stratigraphy of the Upper Prairie Evaporite in Saskatchewan, and is based for the most part on the stratigraphic nomenclature is presented in Holter (1969)[2] and specifically highlights the correlation of the gamma ray and neutron log with the mineralogy and lithology of the Patience Lake Member and the Belle Plaine Member. The Prairie Evaporite Formation is divided into a lowermost "Lower Salt" and an overlying unnamed unit containing three potash-bearing units and one "marker beds," in ascending order the Esterhazy Member, White Bear Marker Beds, Belle Plaine Member, and Patience Lake Member. Figure 4 shows the uppermost Members and also the presence of carnallite in the Belle Plaine Member. Carnallite has not been found in significant concentrations in the core hole assay results from the Permit Area; however, indications of carnallite were noted in visual examination of the Bethune #1 core (see following section on "Carnallite Distribution").

Figure 5 shows a regional cross section from Saskatoon to some 100 miles southeast of the permit area. This cross section illustrates the regional consistency of the Prairie Evaporite.

Local Geology of Potash-Bearing Members

In the Permit Area, the Esterhazy, Belle Plaine and Patience Lake Members are present. Also present are the "White Bear Marker Beds," which is a distinctive unit of thin interbedded clay, halite, and sylvinite beds present between the Belle Plaine and Esterhazy Members. Figure 6 presents the detailed stratigraphy of the Prairie Evaporite as present in Section A-A' through the permit area. The following is a summary of the key stratigraphic boundaries determined for the Permit Area:

- **Patience Lake Member:** The uppermost member of the Prairie Evaporite member with potash potential. The top 7 to 14 m (25 to 45 ft) of the Patience Lake Member is halite with clay bands. The sylvite-rich beds within this unit are mined using conventional underground mining techniques in the Saskatoon and Lanigan areas of Saskatchewan and by solution mining techniques at the Mosaic Belle Plaine potash mine.

- **Belle Plaine Member:** The Belle Plaine Member underlies the Patience Lake and is separated from it by barren halite beds. The Belle Plaine is mined using solution mining techniques at the Mosaic Belle Plaine potash mine.

[1] Ibid, p. ii.
[2] Holter, M.E., *The Middle Devonian Prairie Evaporite of Saskatchewan*, Saskatchewan Department of Mineral Resources, Report No. 123, Figure 4 "Middle Devonian Evaporite Cycles and Prairie Evaporite Formation Nomenclature," 1969.

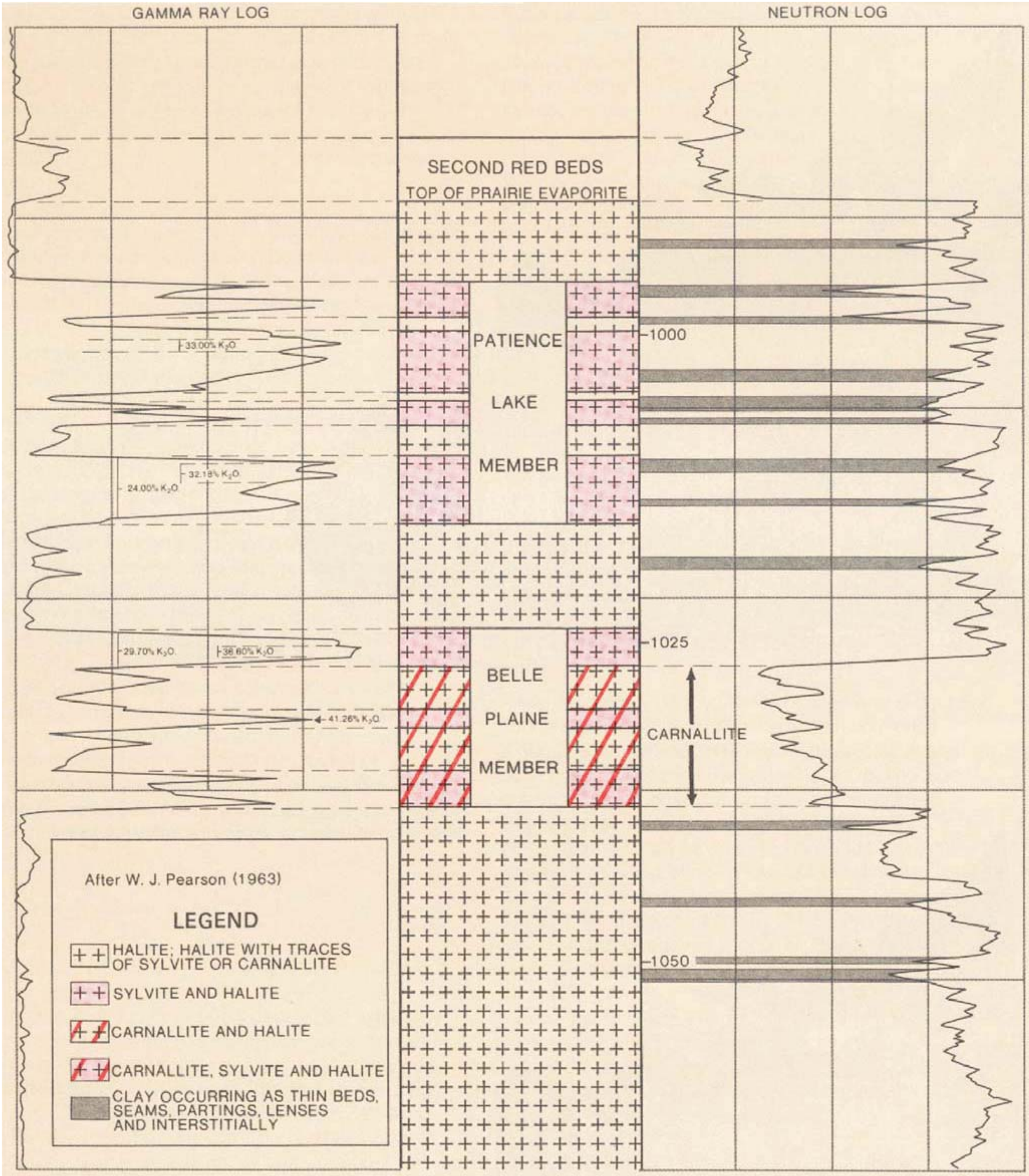

Figure 4: Stratigraphy of the Upper Prairie Evaporite Formation and Correlation of Gamma and Neutron Logs with Mineralogy (from Fuzesy 1982)

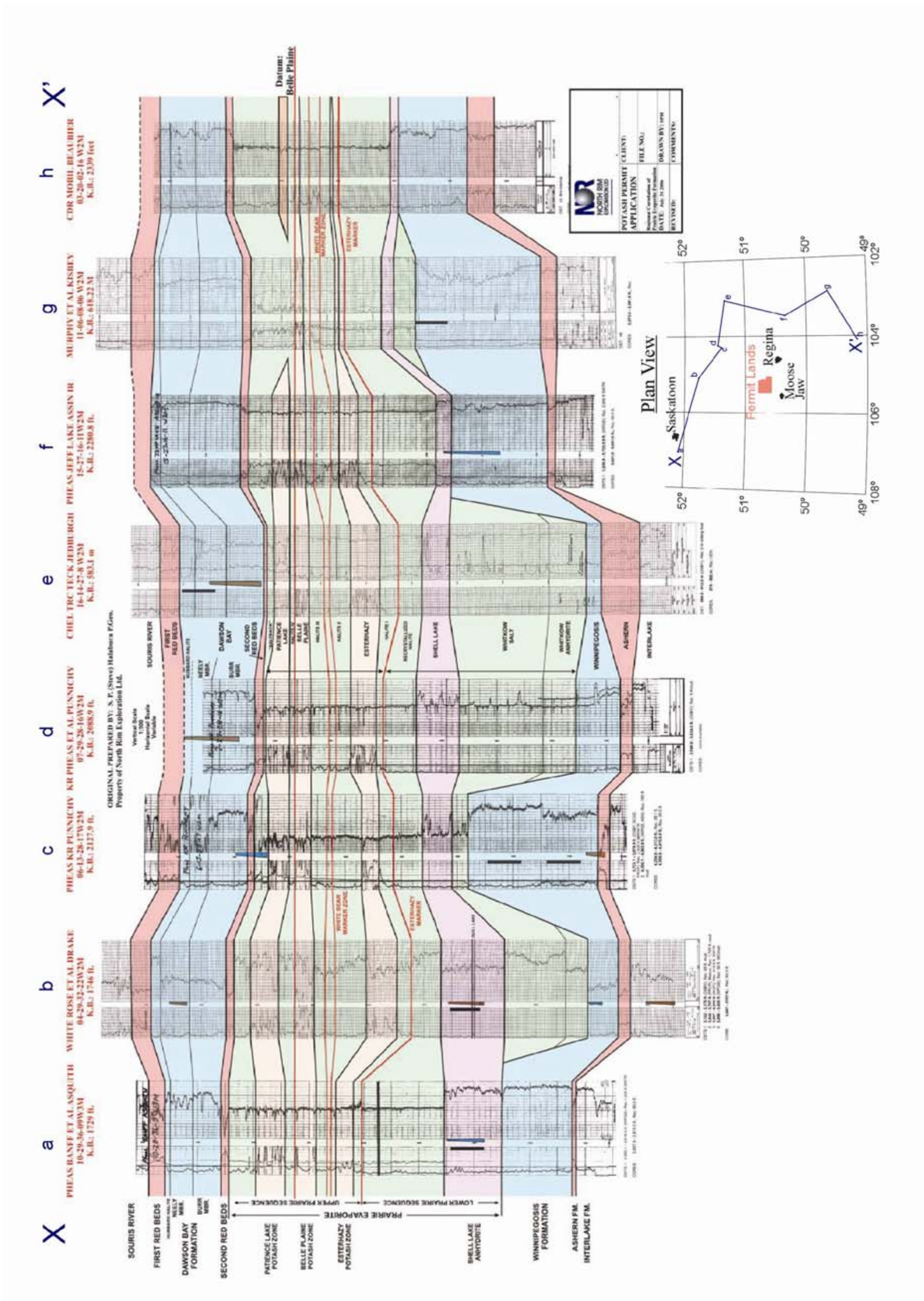

Figure 5: Regional Stratigraphic Correlations of the Elk Point Group, Saskatchewan

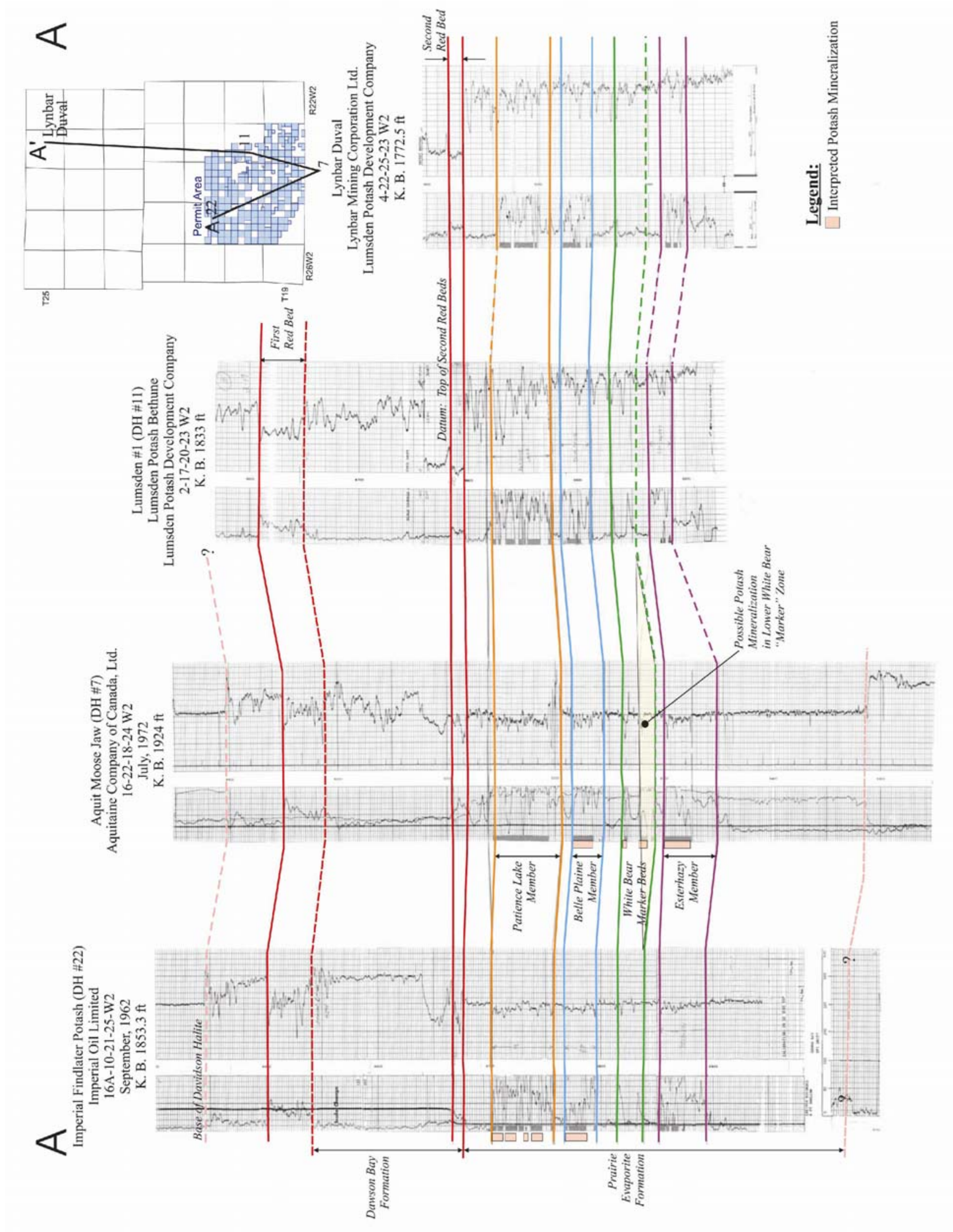

Figure 6: Cross Section A - A' Showing Correlation of Prairie Evaporite Formation, Prairie Members, and Sylvinite-bearing Intervals for Permit Area

Esterhazy Member: The Esterhazy Member is separated from the Belle Plaine Member by the White Bear Marker Beds, a sequence of clay seams, low-grade sylvinite beds, and halite. The Esterhazy Member is mined using conventional underground techniques at the Esterhazy and Rocanville potash mines and by solution mining techniques at the Mosaic Belle Plaine potash mine. The Esterhazy potash beds are thin and of low grade in the areas where cored within the Permit Area so may not be as desirable as the upper two members for solution mining. The potash beds are underlain by halite and could be partially recovered during sump development during cavern development.

The cross section presented as Figure 6 shows the correlation of the Prairie Evaporite incorporating the Imperial Findlater pilot test site (DH 22), the Lumsden pilot test site (DH 11, a representative well drilled within the bounds of the Mosaic Belle Plaine Potash Lease KL-106 (DH 7), and a logged drill hole located north of the Permit Area. The section establishes general continuity of the potash members and individual sylvinite-bearing intervals that were identified in drill holes.

The authors have personally examined the drill core from the type well Imperial Findlater 16A-10-21-25 W2M (DH 22) stored at the Saskatchewan Industry and Resources Subsurface Geological Laboratory. From that review and the geological reports present in the well file, the following summary has been made.

The typical sylvinite interval within the Prairie Evaporite Formation consists of a mass of interlocked subhedral to euhedral sylvite crystals that range from pink to translucent and which may be rimmed by greenish-grey clay or bright red iron insolubles, with minor intercrystalline halite randomly disseminated throughout the interval. Local large (greater than 2.0–2.5 cm) cubic translucent to cloudy halite crystals may be present within the sylvite groundmass and overall, the sylvinite ranges from a dusky brownish red color (lower grade, 23%–27% K_2O grade with an increase in amount of insolubles) to a bright, almost translucent pinkish-orange color (high grade, 30%+ K_2O grade). The intervening barren beds typically consist of brownish red, vitreous to translucent halite with minor sylvite and increased insolubles content. This applies particularly to the Patience Lake Member, less so for the Belle Plaine Member, and not at all for the Esterhazy member (Ron Brown pers. comm.)

A variety of maps were prepared in order to illustrate the distribution of sylvinite present within the three members and also to comment upon mining conditions. The assay values and stratigraphic picks are presented in the table presented in Appendix 3. Appendix 4 shows the assay value histograms for the six cored holes, five of which are within the Permit Area.

Disturbances Affecting Geology of Potash-Bearing Members

The potash-bearing beds may be affected by three general types of anomalies. In general, a disturbance that affects the normal character of the sylvinite-bearing beds is considered an "anomaly" and, thus, represents an area which is not suitable for mining. Figure 7 illustrates the types of disturbances that created anomalous altered zones within the main sylvinite-bearing beds as is typical for Saskatchewan potash mining properties. These anomalies range from localized features less than a square kilometer in extent to disturbances that are regional (i.e., several square kilometers in extent).

A "'washout' anomaly" is an anomaly wherein the typical sylvinite bed has been replaced or altered to a halite mass that consists of medium to large (0.5 to 1 cm) euhedral to subhedral halite within a groundmass of smaller intermixed halite and clay insolubles. Clay intraclasts up to 1 cm in long axis may be present and, typically, there is a concentration of clay at the top and base of the altered zone. This type of disturbance is interpreted by authors in the field to be intra-formational (i.e., that they were formed

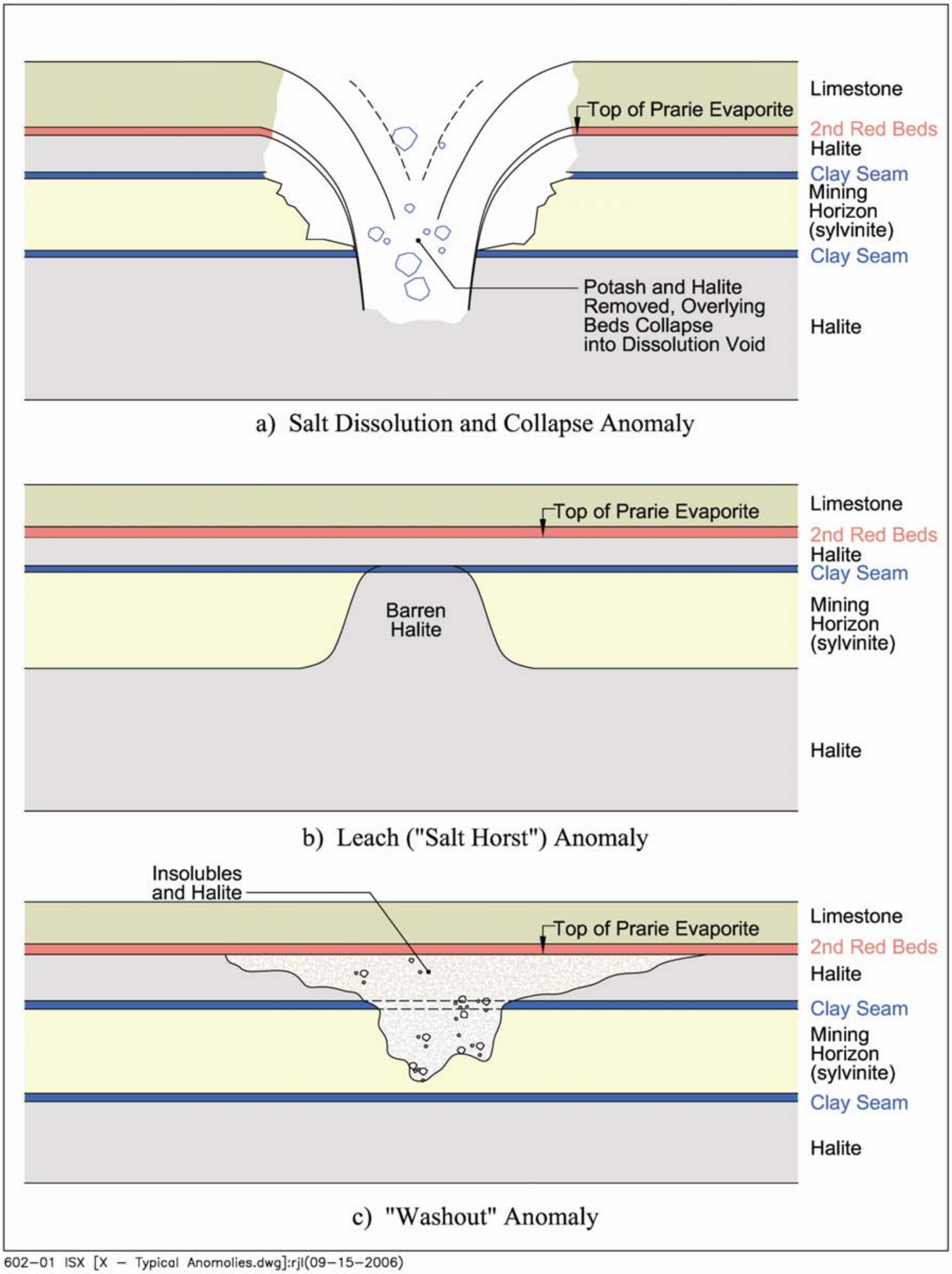

Figure 7: Disturbances Affecting Geology of Potash-bearing Members

penecontemporaneous, or shortly after deposition of, the primary sylvinite and are thus local in nature). An example is provided by Mackintosh (1983) who describes these disturbances as "salt-filled V- or U-shaped structures which transect the normal bedded sequence and obliterate the stratigraphy."[3]

A "leach anomaly" is an anomaly wherein the typical sylvinite bed has been altered in such manner that the sylvite mineral has been removed and replaced by euhedral to subhedral halite. Such anomalies are also colloquially termed "salt horses" or "salt horsts" by mine operators. If the altered zone crosses any stratigraphic boundaries, these boundaries are commonly unaltered. Authors in the field interpret this type of disturbance as being post-depositional (i.e., that they were formed after deposition of the primary sylvinite). These anomalies are commonly associated with underlying Winnipegosis reefs and that the reefs may have some formative influence upon the anomaly, for instance as described by Mackintosh and McVittie 1983[4] who describe such a disturbance at the Agrium Vanscoy mine as being characterized by "partial or complete absence of sylvite in what is otherwise a normal, continuous stratigraphic sequence. Thinning is proportional to sylvite deficiency." Mackintosh describes these anomalies as being local in extent in that "they range in diameter from a few meters to as much as 400m, but a few are linear, being up to 20m wide and greater than 1600m long."

The third type of disturbance is a "dissolution and collapse anomaly" which is formed whereby the Prairie Evaporite sequence has been removed by dissolution and replaced by material caved from above. This type of disturbance may be local (i.e., less than a square miles) or it may be regional (i.e., extending over a number of square miles) and may affect the entire Prairie sequence. An example of an unusual and severe form of this type of anomaly as encountered at the PCS Lanigan Division is presented by Danyluk et al 1999.[5] The anomaly was encountered while a mining machine was cutting through a leach anomaly and encountered caved blocks of the overlying Dawson Bay Formation limestone.

These types of disturbances are commonly encountered in Saskatchewan underground potash mines. The impact of such anomalies upon mining operations is that the grade of the potash ore being sent to the mill drops as mining cuts through anomalous ground, or that a portion of the potash ore reserve is left in the ground as mining operations abandon the anomalous ground as a safety pillar surrounding it. Generally, a combination of surface reflection seismic (2D and 3D), careful examination of surface drill holes, underground ("in-seam") geophysics, and geological observations of mining rooms is sufficient to identify potentially anomalous ground.

An important aspect of estimating the potash potential of the permit is to identify portions of the ground that may contain disturbances that affected the Prairie Evaporite. While drill holes may offer a vertical profile through an anomaly, if such a hole fortuitously penetrated a disturbance, drill holes do not provide any information as to the lateral extent of the anomaly. Reflection seismic surveys offer the possibility to map the lateral extent of anomalies related to large-scale alteration of the Prairie Evaporite Formation; for instance, the dissolution of the main mass of Prairie Evaporite with subsequent collapse of the overlying beds into the dissolution cavern; however, they may not necessarily define the lateral extent of more subtle anomalies such as washout or leach anomalies.

All geophysical information related to the Permit Area and on file with the Saskatchewan Industry and Resources Geodata Branch was examined and, where relevant, were copied; however, the authors did not review all available maps or attempt to prepare a compilation map other than plot the bounds of each historical survey. With respect to the Imperial Findlater pilot test site, there is one seismic program that is relevant to the present study, this being a reflection seismic survey conducted by Imperial Oil in

[3] Mackintosh, A. Dave and G.A. McVittie, "Geological Anomalies Observed at the Cominco, Ltd., Saskatchewan Potash Mine," *Potash 83 Potash Technology—Mining, Processing, Maintenance, Transportation, Occupational Health and Safety, Environment*, Pergamon Press, Toronto, 1983, pp. 59–64.
[4] Ibid, p. 61.
[5] Danyluk, T.K., G.D. Phillips, A.F. Prugger, and M.S. Pesowski, "Geophysical Analysis of an Unusual Collapse Structure at PCS Potash, Lanigan Division" *Mining: Catalyst for Social and Economic Growth*, 101st Annual General Meeting of CIM, May 2–5, 1999.

January 1964. This program (and accompanying maps) was described in a letter by D. H. Parry to the Department of Mineral Resources dated February 24, 1964. The letter states that the area of the pilot test is "relatively featureless" with "only minor fluctuations from regional." The program identifies a structural low which may be a potential Prairie dissolution and collapse structure in Section 33, Township 20, Range 25 W2M, and a similar structural low in Section 36, Township 20, Range 25 W2M. A "3D" seismic survey is required to confirm the location and size of the anomalies noted in the letter.

Application of the above guidelines identifies two potential geological anomalies that may affect the potash mineralization within the Prairie Evaporite Formation. The first is identified from a summary map prepared in the 1950s by Henry Sawatsky of the Saskatchewan Department of Mineral Resources. That map was published in Holter (1969). Examination of this map shows a potential Prairie Evaporite dissolution and collapse anomaly in the southwestern portion of the permit lands. This anomaly is expressed as a structural "low" as identified and mapped on a reflector within the Upper Devonian and is named "Anomaly A" on the map presented as Figure 8. A second, smaller geological anomaly that may affect potash mineralization within the Prairie Evaporite Formation may be located in a restricted area immediately south of the Imperial Findlater exploration project. This anomaly is shown on the Imperial seismic maps and is named "Anomaly B" on the map presented as Figure 8. The reader must be cautioned, however, that the wide geophysical line spacing (3.2 km or more) is not sufficient to identify the types of anomalies that would eliminate a block of potential potash mineralization as potentially mineable.

It is the opinion of the authors that the seismic data available for KP 289 is sufficient to identify significant regional features such as basement-related evaporite dissolution, but is insufficient for feasibility assessment or for any form of mine planning. For exploration purposes, it is proposed that a grid of "2D" seismic lines, distributed at 1-mile (1.6-km) spacing, be either purchased or acquired over the central and southern portions of the permit so as to identify any large-scale geological anomalies. For definitive feasibility assessment, it is recommended that a "3D" seismic program be acquired over the areas considered suitable for commercial development.

In determining an estimate of mineral resource tonnage, it is reasonable to deduct the ground that is identified as being "anomalous" in addition to unidentified lands that are potentially affected by anomalies. In the case of any Mineral Resource estimates to be calculated in later sections, it is reasonable to first deduct the area encompassed by the interpreted Anomalies A, B, and the small anomalies shown in Figure 8 and then deduct an additional 25% to account for potential anomalies not identified by the available seismic coverage.

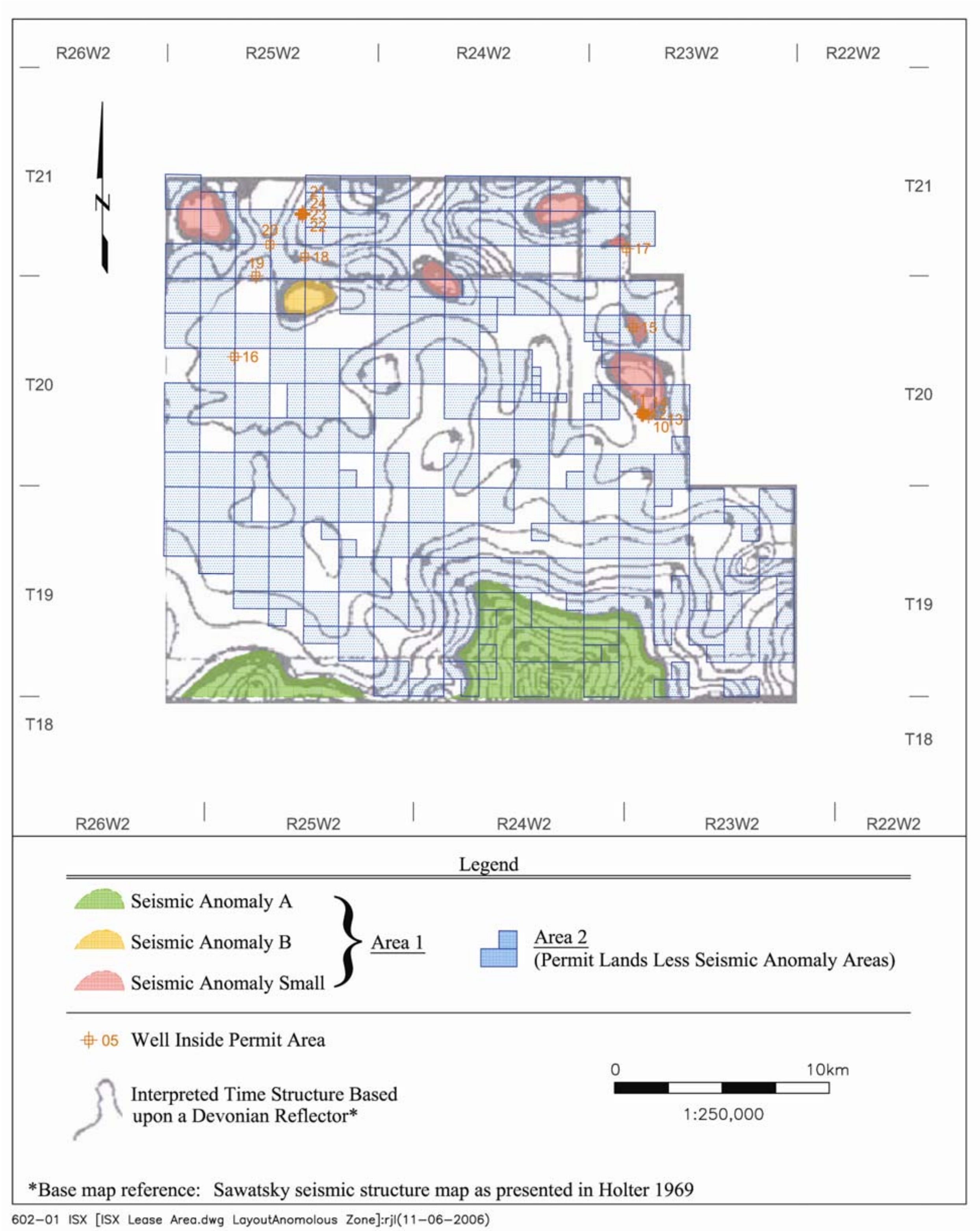

Figure 8: Location of Potential Seismic Anomalies

Deposit Type

The term "potash" is a colloquial term that is a contraction of "muriate of potash" which is expressed by the chemical formula "K_2O" or "potassium oxide." The terms "muriate of potash" and the contraction "K_2O" are commonly used in the Saskatchewan potash industry to refer to the sales product (i.e., potassium oxide resulting from the mining and milling of sylvite-bearing rock or "sylvinite"). "Sylvite" refers to the potassium mineral "sylvite" or potassium chloride ("KCl"). The product mined and sold is KCl. A ton of KCl contains an equivalent of 0.63 tons of K_2O.

In this report, the term "sylvinite" is used to describe the mixture of sylvite (KCl) and halite (NaCl) that is the source of the "potash" sylvinite may also contain clay and anhydrite and dolomite crystals that are collectively identified in the assay reports as "water insolubles." Other impurities include carnallite ($KCl.MgCl_3.6H_2O$) and kieserite ($MgSO_4.H_2O$). The presence of magnesium is unfavourable and concentrations over 0.25% magnesium can impact plant performance and require special non-standard processing. In the historical record assays for Mg and/or carnallite are listed; however the "carnallite" assay value is a calculated value based on the equivalent magnesium chloride ($MgCl_2$) content. The equivalent $MgCl_2$ content is 3.91 times the magnesium (Mg) content. The equivalent mineral carnallite content is 11.42 times the magnesium content or 2.92 times the $MgCl_2$ content. Throughout this report carnallite content is reported as equivalent magnesium chloride ($MgCl_2$).

The geology of the potash-bearing beds of the Middle Devonian Prairie Evaporite Formation has been well documented.[6] The following commentary is derived in large part from Holter and from the second author's personal experience. Overall, the potash-bearing beds may be described as being a bedded sedimentary rock, deposited across the Middle Devonian Elk Point Seaway. These beds are remarkably consistent over all of Saskatchewan and portions of Manitoba, North Dakota, and northeast Montana with individual clay seams and sylvinite-bearing intervals correlatable over great distances.[7]

The widespread consistency of the potash-bearing sub-members and the even, bedded nature of the sylvinite intervals result in highly mechanized conventional underground mining operations. In areas suitable for solution mining, this property suggests that a borehole drilled to establish a mining cavern can be moved laterally, should the grade or thickness encountered within the borehole be deemed insufficient for mining purposes.

Mineralization

The potash mineralization identified from drill hole data consists of three principal members:

Patience Lake Member: The top of the Patience Lake Member is placed at the top of the uppermost sylvinite bed of the Patience Lake Member (1,434 m in type well) and the lower boundary is placed at the base of the lowermost sylvinite bed that immediately underlies the barren halite separating the Patience Lake Member from the underlying Belle Plaine Member (1,443 m in type well). For purposes of calculating mineral resource grade and tonnage, the top of the interval is taken as the top of the uppermost sylvinite bed, while the base is placed at the bottom of the lowermost sylvinite bed with no consideration made for removal of any clay seams in the "roof" or "floor."

Belle Plaine Member: The top of the Belle Plaine Member is placed at the top of the uppermost sylvinite bed (1,453 m in the type well), and the lower boundary is placed at the base of the lowermost sylvinite bed that underlies the sylvinite to halite transitional zone that marks the base of the Belle Plaine Member (1,458 m in type well). For purposes of calculating mineral resource grade and tonnage, the top

[6] For a comprehensive discussion of Prairie Evaporite economic geology, please refer to Holter 1969.[2]
[7] For example, see Phillips 1982, "Nomenclature for Use in Saskatchewan Potash," 7th Annual CIM District Four Meeting, wherein clay seam and ore bed stratigraphy is established throughout the Saskatchewan Commercial Potash Belt.

of the interval is taken as the top of the uppermost sylvinite bed, while the base is placed at the bottom of the lowermost sylvinite bed with no consideration made for removal of any clay seams in the “roof” or “floor.”

Esterhazy Member: The top of the Esterhazy Member is placed at the top of a locally variable, but regionally persistent clay zone that in most cases immediately overlies the first sylvinite bed of the Member (1,479 m in type well), and the lower boundary is placed at the base of a consistent clay marker bed that immediately underlies the sylvinite to halite transitional zone that marks the base of the member. For purposes of calculating mineral resource grade and tonnage, the top of the interval is taken as the top of the uppermost sylvinite bed, while the base is placed at the bottom of the lowermost sylvinite bed with no consideration made for removal of any clay seams in the “roof” or “floor.” The Aquitaine Moose Jaw 16-22-18-24 W2M is anomalous in that the normally barren interval from the lower clay seam of the White Bear Marker beds to the top of the Esterhazy Member is potash bearing. For this drill hole, it would be reasonable to include this zone in as part of the Esterhazy member for purposes of mineral resource calculation.

Figure 9 presents the thickness of potash for all three members. The total thickness of the three members ranges from a thickness of some 36 m at the Lumsden Potash Bethune pilot test site and some 41 m at the Imperial Findlater pilot test site. The total thickness of the three members in the Aquitaine Moose Jaw 16-22-18-24 W2M (DH 07) is some 45 m. It is interpreted that the sylvinite body is open to all sides.

It is the opinion of the authors that an estimation of mineral resource thickness and mineral resource grade requires a borehole geophysical log (ideally a gamma ray–neutron log) and a chemical assay of drill core and that the mineralization exceeds a cut-off grade value. Examination of the dataset shows that of the 25 drill holes included in the study, 14 penetrate to the Prairie Evaporite and have some geological data available for examination. Of the 14, only 6 have a suitable borehole geophysical log and chemical assay. Within the Permit Area, there are seven holes that penetrate to the Esterhazy and all these holes have gamma-ray logs and five of those holes were cored with assay data over the Prairie Evaporites. These cores are available for inspection at the Exploration and Geological Services Division of the Saskatchewan Industry and Resources Subsurface Geological Laboratory (the core and sample repository) in Regina. In preparing this report, the authors have determined grade and thickness for each of the drill holes within the Permit Area. The authors also examined the borehole geophysical logs for the Aquitaine Moose Jaw 16-22-18-24 W2M (DH 07) oil exploration test well drilled immediately to the south of KP 289 and within the area of the Mosaic Belle Plaine potash mining lease. The geophysical log for DH 7 is shown in Figure 6.

For purposes of the evaluation presented herein, the thickness of barren halite and poorly mineralized sylvinite beds that separate the two upper members are not included as mineral resource as it is assumed that in mining, these intervening units could be left in place or induced to collapse to the floor of the cavern. In the latter case, some of the low grade potash in the interbed zones may be dissolved and ultimately produced.

In determining mineralized and non-mineralized intervals for purposes of mineral resource estimation, an examination of core assays and comparison of assay intervals and distribution of mineralized and non-mineralized intervals to the borehole gamma ray–neutron geophysical logs was undertaken. This is required to determine the correlation between the assay interval measurements and the measurements of bed elevations as determined from borehole geophysical logs. The thickness from the gamma logs was determined from the highest gamma count greater than 250 units to the lowest location where the count exceeded 250 units. Judgment is required to deciding where to locate the cut-offs because in each potash zone there is often an isolated thin interval of potash above or below the

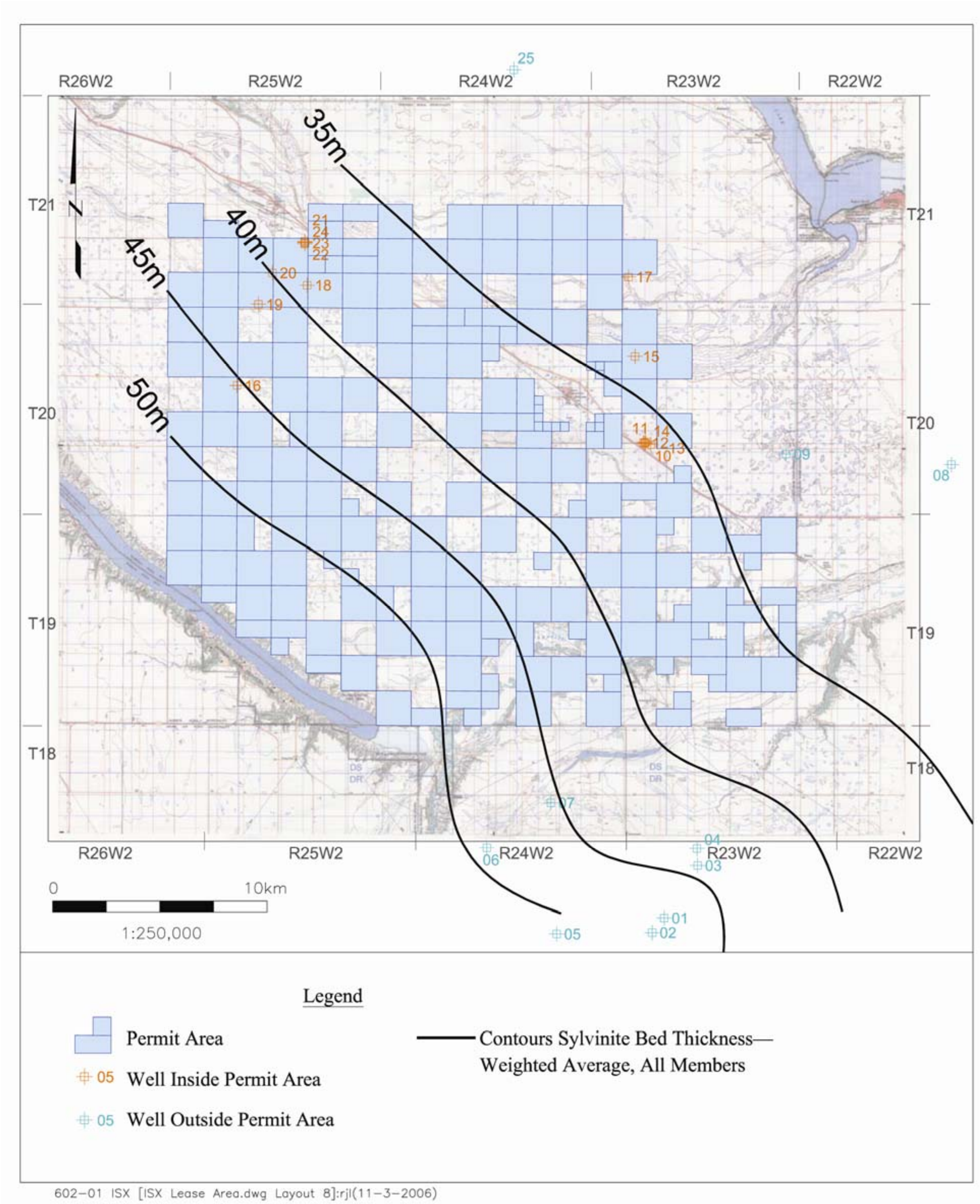

Figure 9: Map of Sylvinite Bed Thickness (Three members)

main high-grade bed and this thin potash bed may be included if the thickness of the intra-burden material, the material between the high-grade beds, is also thin. If the combination of the high-grade thin bed and the intra-burden could aggregate to a grade higher than 15%, then it should be included with the potash zone. For the assayed data, the top and bottom was selected with an assay cut-off of 15%. DH 18 is unique in that assayed core is not continuous. Three relatively short intervals corresponding to the high-grade potash zones were selected for assay. Inspection of the geologic description and the gamma log indicates that there are potash occurrences in the cores that were not assayed.

Table 3 presents the aggregated average thickness, and the weighted average of potash grade (expressed as potassium oxide or "% K_2O") carnallite (as $MgCl_2$ equivalent) and insolubles for each of the two potash-bearing members (Patience Lake and Belle Plaine) using the available assay data for all five holes. Also presented in Table 4 are the total thickness and the weighted average potash grade, carnallite (as $MgCl_2$ equivalent), and insolubles from the Patience Lake to the Belle Plaine mineralized interval.

Table 3. Grade and Thickness Parameters for All Five Holes

Parameter	Patience Lake	Belle Plaine	Patience Lake to Belle Plaine
Thickness (m)	11.56	6.86	25.83
Grade (% K_2O)	21.13	20.06	18.86
% Carnallite ($MgCl_2$)	0.35	0.28	0.30
% Insolubles	10.80	3.64	8.15

Thickness values are arithmetic average; K_2O grade, carnallite and insolubles are length-weighted averages.

The average thickness and the weighted average grade of potash, insolubles, and carnallite content for each of the two potash-bearing members, as calculated from chemical assays of cores at the Imperial Oil Findlater (DH 18, DH 20, DH 21) and Lumsden Potash Bethune (DH 11, DH 13) potash pilot plant sites are listed in Table 4.

Table 4. Thickness and Weighted Average Grade for Lumsden Potash Bethune and Imperial Findlater Holes

Parameter	Patience Lake	Belle Plaine	Patience Lake to Belle Plaine
Lumsden Potash Bethune Holes (DH 11 & DH 13)			
Thickness (m)	11.05	5.96	24.25
Grade (% K_2O)	22.16	21.43	17.30
% Carnallite ($MgCl_2$)	0.36	0.25	0.36
% Insolubles	10.20	3.83	7.37
Imperial Findlater Holes (DH 18, DH 20 & DH 21)			
Thickness (m)	11.91	7.46	26.88
Grade (% K_2O)	20.48	19.33	16.28
% Carnallite ($MgCl_2$)	0.34	0.31	0.26
% Insolubles	11.17	3.53	6.75

Thickness values are arithmetic average; K_2O grade, carnallite and insolubles are length-weighted averages.

The key parameters for solution mining evaluation are the following:

- Thickness of Mineralization—As the solution mining method would allow for the selective removal of each of the mineralized members.
- Grade of the Potash Bed—This can control the concentration of the product liquor, the rate of solution mining, and the effectiveness of secondary mining.
- Depth of Burial—As temperature increases with depth, thus, making the solution process more efficient.
- Carnallite Content—As increased amounts of carnallite decrease the efficiency of cavern dissolution and potash recovery
- Presence of depositional anomalies that reduce the thickness or grade of the potash zones.
- Presence of faults or similar geologic features that displace the potash beds.
- The Dip of the Potash Beds—Excessive dip can limit the size of the caverns and the resource recovery.
- The presence of clay layers in the immediate roof as they can lead to premature roof fallout and limit the size of the cavern.

For purposes of calculating the potential mining interval, the Patience Lake and Belle Plaine were considered to have solution mining potential. The Esterhazy Member and the White Bear Marker Beds are not considered to have solution mining potential because of its minimal thickness and lower grade; however, they are included for purposes of disclosure. The member thickness estimate shown in Figure 9 includes the Esterhazy Member, but not the White Bear Marker Bed.

In estimating the mineral resource potential of the Permit, the dip of the beds was examined. Typically the dip of the beds is evaluated by the elevation of a regionally persistent stratigraphic horizon such as the upper clay seam of the White Bear Marker Beds (R. H. Brown pers. comm.). For this study, the upper surface of the Patience Lake Member was used to evaluate structure of the deposit. Figures 10 and 11 show the depth from surface and elevation above sea level of the top of the Patience Lake Member and illustrates the regional structure of the Prairie Evaporite within the Permit Area. The upper surface of the uppermost sylvinite bed of the Patience Lake Member gently dips to the south from an elevation of some 870 m below sea level at the Imperial Findlater site (depth from surface of 1,434 m) to a depth of some 950 m below sea level at the southern boundary of the permit immediately north of the Aquitaine Moose Jaw test hole (depth from surface of 1,566 m). This is a drop in elevation of approximately 80 m over two townships, or a dip of less than 0.5%. Local variations in dip could be larger than this value, but nonetheless, this is a very favorable dip for solution mining with a gas or oil blanket as practiced at Mosaic's Belle Plaine facility.

The measured borehole bottom hole temperature, as presented on the borehole geophysical logs for the pilot sites, presents some 40°C (104°F) at the Bethune Site, 44.4°C (112°F) at the Findlater Site, to some 46.7°C (116°F) at the Aquitaine Moose Jaw test hole (total depth and BHT in the Interlake). The authors did not make any correction to the bottom hole temperature to determine the temperature at the Prairie level.

No map is available of the concentration of water insolubles present within the potash-bearing members of the Prairie Evaporite; however, a review of water insolubles as determined from chemical

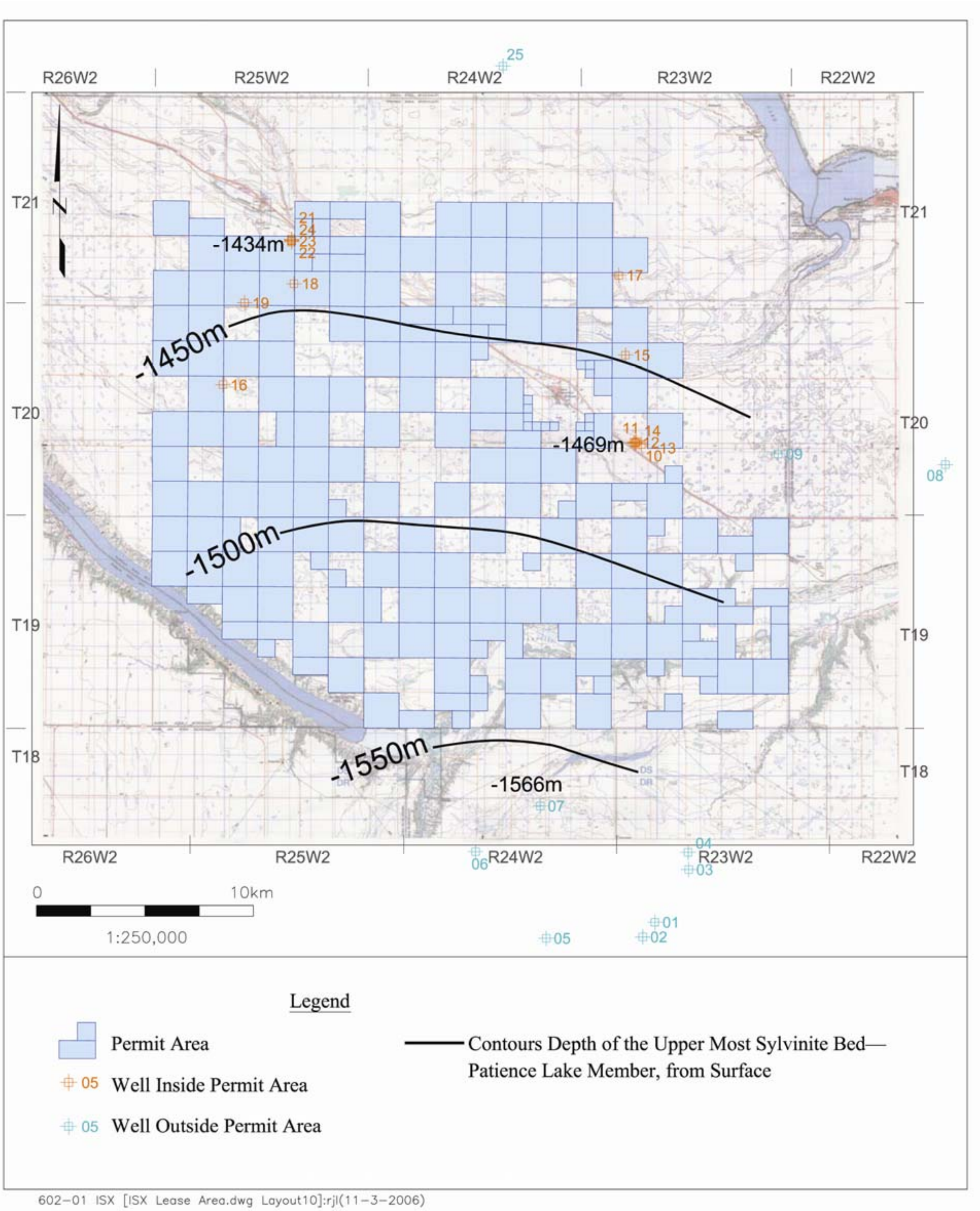

Figure 10: Map of Depth from Surface of Top of Uppermost Sylvinite Bed in the Patience Lake Member

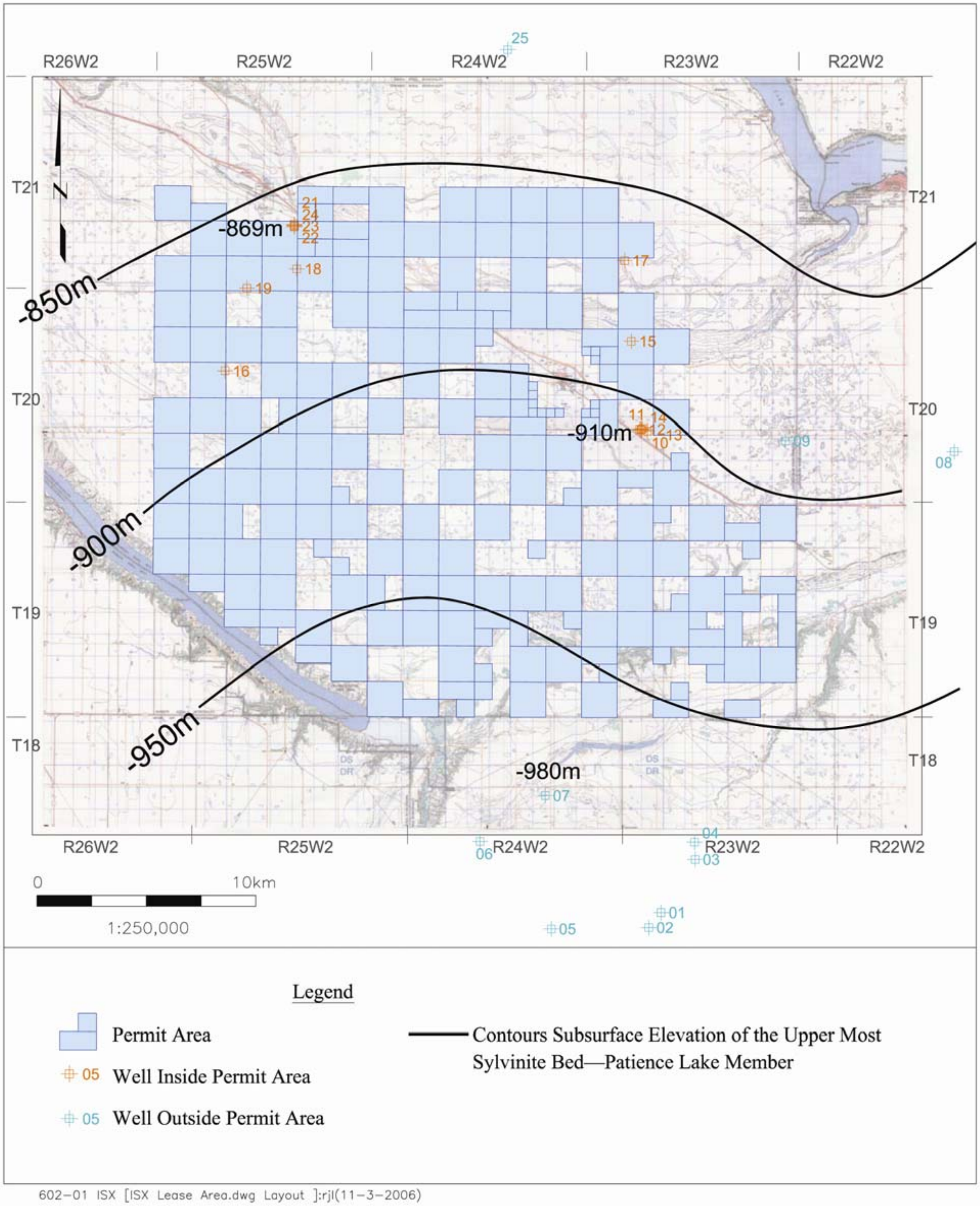

Figure 11: Subsurface Elevation (in meters sub-sea) **of the Uppermost Clay Seam of the White Bear Marker Beds**

assays of available drill cores shows average concentrations that range from a low value of some 2.2% in the Esterhazy Member to 10.2% in the Patience Lake Member. This is consistent to what was determined by Holter (1969) who quoted a range of "less than 4 percent to over 10 percent and increase away from the northern edge toward the southeast…Locally, high amounts are found near the local carnallitic area southwest of the Quill Lakes. Insolubles are more abundant in the Patience Lake Member than in the lower members."[2]

Carnallite Distribution

Examination of assays for the drill holes within the permit areas show that in most cases the concentration of carnallite ($KClMgCl_3.6H_2O$) expressed as $MgCl_2$ is less than 1%. The assay results for $MgCl_2$ are shown graphically in Appendix 4. No regional carnallite deposits have been found where carnallite substantially replaces all sylvinite beds in either one or all members. Carnallite can occur in thin veins or seams that appear sporadically within the assays of the members and are responsible for the magnesium occurrences in the chemical assays. Assay results show thin occurrences of carnallite ($MgCl_2$) in the Patience Lake and Belle Plaine Members that are greater than 1% in DH 11 at the site of the Bethune pilot test area and in DH18 from the Findlater pilot test area. All other assays for $MgCl_2$ from the core within the permit area are lower than 1%. In DH 11 the total length of assayed core with the $MgCl_2$ content over 1% is 0.2 ft in the patience Lake member and 2 ft in the Belle Plaine Member. There are three intervals totaling 2.3 ft between the Patience Lake and Belle Plaine potential mining horizons where the $MgCl_2$ assay are greater than 1%. In the immediate floor of the Belle Plaine potential mining horizon, there are three intervals of total length of 1 ft with $MgCl_2$ greater than 1%. In DH 18, one interval of 2 ft exceeded 1% $MgCl_2$ in the Patience Lake member and one interval of 5 ft exceeded 1% in the Belle Plaine member. None of these assays were greater than 2% $MgCl_2$. The average $MgCl_2$ content in the two potential solution mining horizons for these two holes was less then 0.5%. One occurrence of carnallite is recorded in the geologic log for DH 22 at 4,920–4,928 ft as "a few carnallite crystals"; no assay is available for this interval, which is 30 ft below the Belle Plaine potential mining horizon.

The available data does not support a concern for magnesium impacting mining or processing. During solution mining, the plant feed liquid will be supplied from multiple wells with each well at a different stage of development; this results in mixing of the feed liquid from individual wells. The plant feed liquor will be dependent on the average grade of potassium, halite and carnallite. From the available assay data, we can reasonably assume that the plant feed magnesium content will be less than 1/30th of the KCl content. This is lower than the magnesium in the plant feed to the conventionally mined potash operations in Saskatchewan. However, additional core assaying is recommended to confirm the magnesium assay and to assay the core that has not been previously assayed, particularly the core in the floor of the beds and the core from between the Belle Plaine at Patience Lake members.

Exploration

The Permit Area is exploratory in that there has been no production of potash from the permit lands. The closest production of potash occurs within the bounds of production lease KL 106, which is The Mosaic Company Belle Plaine potash solution mine. The mine is located in Township 17 Ranges 23 and 24 W2M.

Furthermore, Invictus or ISX have not undertaken any exploration on their own behalf to date, other than reviews of regional maps of the potash-bearing members prior to the application for the permit. Given that potash is a subsurface deposit, nowhere on the permit does it occur as outcrop, the only data available for evaluation at this point is existing drill hole results consisting of borehole geophysical logs, geological reports, chemical assays of drill core, and interpreted seismic maps. The following is an account of how the drill hole data was managed and used to determine potash grade estimates for the Permit Area lands.

Table 2 (see previous section) presents the location of drill holes used to provide subsurface information for this study. The drill holes are divided into two groups: (1) those drilled for the purpose of potash exploration with core and assay data and (2) those drilled for the purpose of oil and natural gas exploration with Gamma logs to identify the presence of potash. Furthermore, those potash exploration wells drilled within the bounds of the current Permit are in bold and are significant for the purpose of identifying the presence of potash mineralization. The drill holes are identified by means of their location in terms of legal subdivision, section, township, range, and meridian (for instance the Well "1-2-3-4 W2M" refers to a well located within legal subdivision 1 of Section 2, Township 3, Range 4, west of the Second Meridian); however, for ease of review by readers not familiar with this system, each drill hole has been assigned a reference number. Figure 2 shows the location of the wells within the permit area. The detailed information for each drill hole is listed in Appendix 2. After determining the distribution of drill holes within the area of the permit, the drill holes were assigned reference numbers as denoted in Figure 2. These numbers represent the following sorting based on location: first by Range, then by Township, then by Section, and finally by LSD.

Available data was gathered for all wells on the list. Several visits to the Geodata Branch of Saskatchewan Industry and Resources were made in order to examine both files pertaining to each individual well and any available subsurface mineral assessment files. In particular, gamma ray–neutron logs in an expanded scale (or detailed scale), potash core analysis, and all drilling reports and geological reports were searched for and if found, copied for reference purposes.

Each well record consists of the following data item, where it was available in the original files:

1. Spreadsheet showing stratigraphic tops and chemical analysis for core intervals as undertaken by the operator.

2. Variable area plot showing depth of assay interval and respective chemical composition for the interval expressed as percentages of K_2O, carnallite, and insolubles.

3. Gamma ray–neutron log scanned from original well borehole with stratigraphic tops marked on log.

4. Table showing drill hole technical information in metric and Imperial units.

5. Copy of potash assay results as found in individual drill hole file.

6. Geological report for drill hole.

The core analysis data found in the files were manually entered into Excel spreadsheets and the geophysical borehole ("log") data was scanned for figure generation and reproduction.

All well reports were read and initial picks were made for the defined tops (the Patience Lake and Belle Plaine members). The drill holes drilled by Imperial and Lumsden Potash are very useful for determining the nature of the potash beds present within the permit lands because of a number of factors:

1. Location within the permit.

2. Clear and concise geological well reports.

3. Comprehensive potash analysis of all sylvinite-bearing intervals within the Patience Lake, Belle Plaine, and Esterhazy members.

4. Borehole geophysical (i.e., gamma ray–neutron and sonic) logs generally of good quality.

5. Reasonable correspondence between separate data sets (i.e., the depths presented in the chemical analyses, geological reports, and logs matched each other within reasonable bounds).

After an initial review of the data, a cross section was generated (A-A′) (Figure 7) to determine the correlation of basic units in the area, especially the determination of formation and member boundaries, the position of individual halite, sylvite and carnallite beds, and individual clay seams. The stratigraphic nomenclature employed was that of Holter[2] with stratification of individual potash-bearing members based upon the position of clay seams and boundaries between barren halite and sylvinite rock. Drill Hole 16A-10-21-25W2 (Reference DH 21) was examined in detail and is presented herein as the "Type" or "Reference" well.

The following terminology is adopted in describing the potash geology of Permit KP 289:

1. Member: This will refer to "distinctive potash-rich sequences"[8] for both the Patience Lake, Belle Plaine, and Esterhazy geological sequences.

2. Interval: This term will refer to the sylvinite-bearing portion of the member, which may be defined as the interval from the top of the uppermost sylvinite bed to the base of the lowermost sylvinite bed for each member.

3. Potential solution mine interval: This term is used to identify the portion of the interval that is suitable for solution mining. The criteria for inclusion in the interval is that the upper and lowest assay values should be greater than 15% K_2O and that the average K_2O grade for the potential solution mine interval be greater than 20%.

After establishing the stratigraphy of the Prairie Evaporite sequence, the potential solution mining intervals were selected for the potash beds penetrated by drill holes that were cored and assayed in the following manner:

1. The mineralized intervals (also referred to as "sylvinite-bearing intervals") were determined for the drill hole by identifying all intervals which had greater than a "cut-off" grade. The cut-off grade, proposed by Holter (1969), is 12% K_2O; however, to be conservative a cut-off grade of 15% K_2O has been applied. Examination of the members shows that the occurrence of thin "barren" or poorly mineralized sylvinite beds within the larger mineralized interval is common and is to be expected; then
2. Calculate the length weighted average grade of the interval between the roof and floor cutoffs and determine if the average K_2O grade exceeds the average grade cutoff of 20%. In some

[8] Ibid, p. 22.

cases, a lens (or stringer) of high-grade potash is separated from the higher grade thicker interval by barren or low-grade potash and a decision has to be made to include that stringer or to exclude it. Review of nearby holes might reveal a trend in the thickness and grade of the stringer and this might influence the decision to include or exclude the stringer. Including the stringer might reduce the average grade below the target of 20% and, in some instances, this may be acceptable if the stringer increases the overall potash recovery and other holes support the inclusion of the stringer.

As discussed in previous sections, examination of data show the presence of three distinct potash-bearing members (i.e., the Patience Lake, the Belle Plaine, and the Esterhazy members), each of which contain one or more separate and distinct sylvinite-bearing intervals, and the "White Bear Marker Beds" which are sylvinite-bearing, but which are not considered to have economic potential. The mineralized intervals in the Esterhazy Member did not have sufficient grade and thickness to qualify as a potential solution mining interval.

In summary, it is the opinion of the authors that the exploration conducted by Imperial and Lumsden is of sufficient quantity and quality to allow the estimation of a mineral resource for the pilot test site areas.

A search was undertaken to find any geophysical information that may have been filed by previous exploration companies with the Government of Saskatchewan. Relevant information was found and copied.

Exploration work undertaken by the present Issuer is limited to geological evaluations of existing historical data generated by previous Issuers. The following section will describe in detail these evaluations.

Drilling

Examination of drilling reports for the Permit Area and its immediate environs shows that the following drilling activity took place:

1. **Sohio Standard Oil**: Oil and natural gas exploratory wells drilled in the 1950s.
2. **Imperial Oil, Ltd**.: Potash pilot test in Twp. 21 Rge. 25 W2M.
3. **Lumsden Potash Development Company, Ltd**.: Potash pilot plant test in Township 20 Range 23 W2M.

The following description of drilling will focus upon the Imperial and Lumsden drilling programs as these wells are directly relevant to the analyses presented herein. The Sohio oil and natural gas exploration wells that did not penetrate to the Prairie Evaporite are not used in the following sections.

Generally, it is the opinion of the authors that the drilling procedures employed by Imperial and Lumsden in their drilling programs were consistent with the practices employed by the other potash exploration and mining companies. The Lumsden and Imperial projects used “invert” mud which is an oil-base emulsion mud that should not dissolve evaporite minerals. Common procedures are to cut vertical cores through the potential potash-bearing beds with coring typically beginning at a point in the overlying Dawson Bay Formation and continuing as a series of continuous cores downward through the potash-bearing members to a point beneath the lowest potential potash-bearing bed. Given that the rate of dip of the potash-bearing beds is minimal, it is commonly assumed that the sample/core length as measured in core is the true thickness of the mineralized bed. Generally, the mineralization is flat-lying (i.e., horizontal and laterally continuous in the form of a sedimentary bed).

It is possible to calibrate the gamma log so that deflection of the reading (in API units) from a “base line” is converted by means of a cross-plot into an estimate of %K_2O. This would be helpful in interpreting the grade for the two holes that penetrate the Prairie Evaporates in the Permit Area, DH 14 and DH 22, and that do not have assayed core. It is necessary to know parameters such as hole diameter, nature of fluid in the hole, type of logging tool, and logging company. In the past, logging companies, such as Schlumberger or Lane Wells, provided such calibration charts so that the potash content could be read directly off the gamma log. With proper calibration, the weighted average potash content expressed as “% K_2O” is determined by measuring the area enclosed by the top and base of the potash bed, the base line, and the gamma curve. This technique can be used to determine the potash grade in drill holes which have not cored the Prairie Evaporite and for which no assay results are available. No attempt has been made at this point in the study to estimate a potash grade for those drill holes that do not have a potash assay; however, this task should be undertaken in the near future with the results incorporated into further definition of the Mineral Resource or in engineering studies. Caution must be exercised when using this technique, as Imperial Oil did encounter difficulties in calibrating their drill core grade measurements from assays to the gamma log (letter by D. D. Lougheed to Department of Mineral resources dated June 10, 1964).

Sampling Method and Approach

Two of the cores of the Prairie Evaporite were examined by the authors: (1) one was from the Findlater pilot test area, DH 21, and (2) the other from the Lumsden Pilot test area, DH 13. The core diameters were 8.89 and 13.97 cm (3.5 and 5.5 inches), respectively. The historical drilling data shows that core diameters were typical large diameter "oil well" cores of between 8.89 and 13.97 cm (3.5 and 5.5 inches) in diameter. All coring was done with "invermul" oil emulsion mud (the same fluid in the hole when borehole geophysical logs were taken except for Lumsden Potash Bethune #4 (DH-14 2-17-20-23 W2M) which would not dissolve any of the evaporite minerals. It is considered preferable to any system which requires the formation of a water-bearing emulsion, such as gel-chem or Invermul. Examination of the outer surfaces of cores from DH 21 and DH 13 showed very little evidence of dissolution of core that can be attributed the drilling process. There were small intervals in drill core from DH 13 where the surface of the core was etched and portions of the core were disaggregated; this may have been caused by dissolution of highly soluble mineral such as carnallite. In other locations, there was some evidence of minor dissolution, but this could have been caused during sample cutting in the preparation of samples for assay. In general, the condition of the core was excellent indicating good drilling practice and good care during storage of the core.

It is the opinion of the authors that apart from missing assay intervals, the samples are generally representative of the mineralized interval and that sampling methodology did not introduce any sample bias.

The method of presenting the results may vary from assay to assay in that some assays in their original form may present the potash grade only in terms of "% K_2O" without listing the potash content in terms of sylvite (KCl). In such cases, the KCl content was calculated by dividing the "% K_2O" by the conversion factor of 0.6318.

Sample Preparation, Analysis, and Security

Examination of the historical files offers no information as to sample preparation methods and quality control measures employed prior to dispatch of samples to an analytical or testing laboratory, the method or process of sample splitting and reduction, and the security measures taken to ensure the validity and integrity of samples taken, including

(a) If any aspect of the sample preparation was conducted by an employee, officer, director, or associate of the issuer;

(b) Details regarding sample preparation, assaying and analytical procedures used, including the sub-sample size, the name and location of the analytical or testing laboratories, and whether the laboratories are certified by any standards association and the particulars of any certification; or

(c) A summary of the nature and extent of all quality control measures employed and check assay and other check analytical and testing procedures utilized, including the results and corrective actions taken.

Because of the lack of information concerning the adequacy of sampling, sample preparation, security and analytical procedures, it is not possible for the authors to offer an opinion as to these aspects other than to state that examination of cores and analytical results suggests that the sampling preparation, analytical procedures, and results achieved by Imperial and Lumsden Potash is consistent, in the author's experience, with those from other exploration permits evaluated at or about the same time as Imperial and Lumsden Potash.

Since the authors were unable to determine the slabbing procedures, there is the possibility that if the cores were slabbed using a water-based fluid (i.e., brine), then the assay samples may have been affected by the preferential leaching of carnallite and sylvite to halite, thus, resulting in a decreased sylvite and carnallite content.

Data Verification

The data presented herein as being representative of the deposit contained within Permit KP 289 is historical data and as such, no comment can be made by the authors as to the employment of quality control measures and data verification procedures applied by the initial assayer.

Examination of the drill core from two type wells, DH 22 and DH 13, was made by the authors; from that examination the authors are able to state the following:

(a) That the drill cores examined show evidence of analysis as described in the (Imperial/Lumsden) reports;

(b) That the drill cores have been preserved in cardboard boxes in the core and sample repository of the Saskatchewan Subsurface Geological Laboratory. Figure 12 shows the interior of the storage warehouse and Figure 13 shows photos of typical core from DH 22 and DH 13 taken on September 6, 2006; and

Figure 12: Photograph of the Interior of the Storage Warehouse (taken on September 6, 2006)

(c) That measurement of assay intervals and stratigraphic markers present in cores generally correlates well with depths reported in core assays and depths determined from examination of borehole gamma ray-neutron logs.

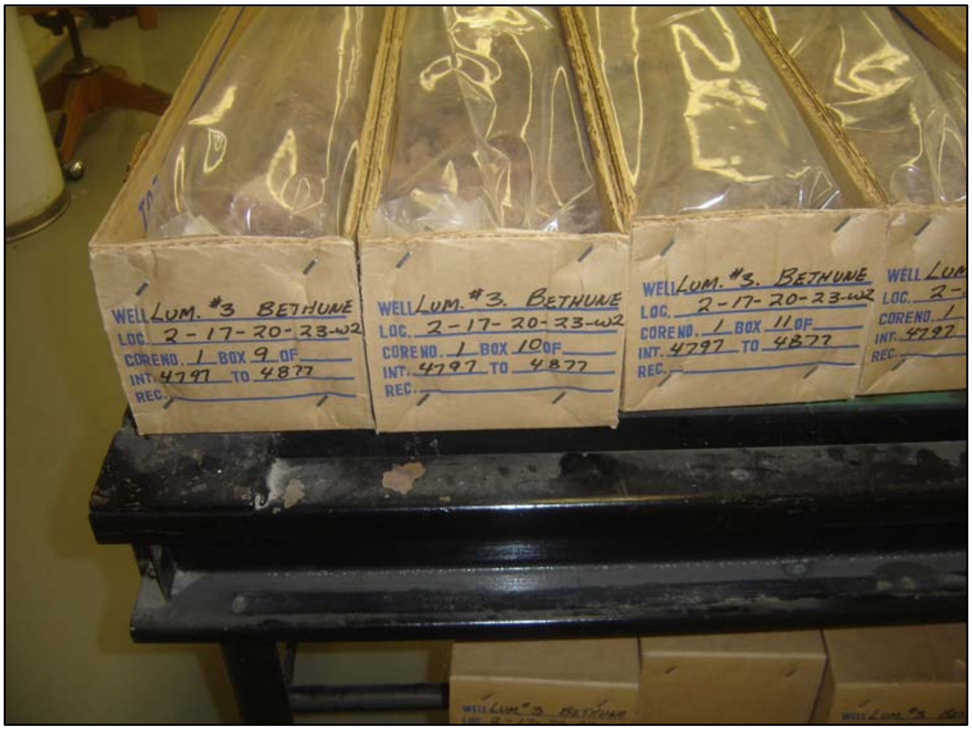

Figure 13a: Photograph of Typical Core taken on September 6, 2006 (Lumsden Bethune)

Figure 13b: Photograph of Typical Core taken on September 6, 2006 (Imperial Findlater)

The exploration results and potash mineral resources referred to in this report must be considered historical in nature. While the authors have reviewed the original data and are confident that the interpretations provided herein are reasonable, the authors have not independently verified the information by means of redoing assay results, etc.; nevertheless, it is the opinion of the authors that the statements made herein concerning mineral resource provide an indication of the property and are relevant to ongoing exploration.

The data (most importantly the seismic and assay data) was obtained from historical sources in the form of paper files retained by Saskatchewan Industry and Resources. All material relevant to the data was examined so it is not possible to undertake any further description or verification of data sampling techniques than what exists in the record.

During the preparation of the report the authors were able to verify a significant portion of the historical data set, including reviewing the files, examining core, and confirming the presence of potash over the intervals reported in historical data, the comparison of assay values to geological reports and bore hole geophysical (gamma) logs. What the authors were unable to do is verification of the accuracy of historical chemical assay measurements by means or check assays or the accuracy of 2D seismic maps as presented in the exploration files. It is not the opinion of the authors that this is unnecessary; rather, it is the opinion of the authors that an independent check on assay grades be undertaken as part of Phase 1 of the proposed work program, as well as the proposed 2D reconnaissance seismic program. It is the opinion of the authors that it is not reasonable to undertake an extensive re-assay of existing core, as this would require destruction of the existing historical core sample. Furthermore, given the cost of a new drill hole (estimated to be in the amount of $1,000,000), it is not possible to do such drilling at this point, but it is recommended that such a drill hole be drilled as part of the proposed exploration program. Part of the drilling will be an independent assay of core samples taken through the potash-bearing beds so as to obtain an independent measurement of chemical assay values.

The authors are familiar with potash exploration procedures and also the history of one of the exploration companies (Imperial Oil). Since Imperial Oil is a major energy company with considerable operating experience both in the exploration for and production of oil, natural gas, and potash, it would be expected that the data generated by Imperial Oil would be of high quality, with considerable internal checking of data sets. The authors are not as familiar with the work undertaken by Lumsden Potash; however, examination of the historical dataset suggests that the data was collected and interpreted according to industry standards prevailing at the time.

The authors are able to verify that potash is present and that historical exploration by Imperial Oil and Lumsden Potash was undertaken in a manner that was consistent with industry practice at that time. While we cannot confirm the accuracy of the historical assay lab procedures or the accuracy of the assays, the authors do propose that such verification be undertaken during the proposed exploration program, including check assays to be run on existing core and as further proposed in the report the chemical assay of cores taken in a new exploration drill hole that will provide independent confirmation, under strict assay controls, of grades.

Instances of Estimation of Assay Values

In reviewing the historical assay information, the authors identified minor instances of data quality variation that may affect the calculation of mineral resource potash grade and tonnage, such as instances of incomplete assays and missing assay intervals. Given the reconnaissance level of investigation, the authors did not estimate assay values in instances where assay data was not recorded or was missing.

In determining the mineral resource grade and tonnage with greater accuracy or in the preparation of a “Scoping” or Prefeasibility Report, it is recommended that potash content of any missing intervals by means of the planimetric method, whereby the area under the gamma ray curve is measured and then the potash grade expressed as %K_2O, is determined by means of cross-plots (R. H. Brown pers. comm.).

Adjacent Properties

The Mosaic Company operates the Mosaic Belle Plaine potash solution mine. The plant site of the Belle Plaine Mine is approximately some 16 miles (26 km) south of the estimated centre point of KP 289. This mine has been in operation since the early 1960s, and it is estimated that the mine has produced in excess of 60×10^6 tonnes KCl (Ron Brown pers. comm.)

Mineral Processing and Metallurgical Testing

The authors were unable to find any record of previous mineral processing and/or metallurgical testing analyses having been carried out, and are, thus, unable to include any results of testing and details of sample selection representation and testing and analytical procedures in this report. Therefore, no confirmation of process method or feasibility can be confirmed but the Belle Plaine Mine is processing potash of similar mineralogy.

Mineral Resource and Mineral Reserve Estimates

Assumptions and Methodology

In determining the potential extent, quality, and volume of potash mineral resource, the authors were guided by the following principles of exploration techniques and sampling methods commonly employed by other Saskatchewan potash mine operators:

1. The primary tool employed to determine thickness and concentration of potash mineralization is drill core (8.89 to 13.97 cm DIA) obtained from drill holes drilled by conventional oil well drilling equipment with drill hole spacing clustered near the Findlater and Bethune pilot plant test sites, the remainder of the permit being untested by drilling;

2. The extent of potash mineralization and continuity between drill holes (i.e., areal extent of potash beds) is presently determined by subsurface mapping and maps compiled from dated and limited "2D" seismic lines, the limiting factor being either property boundaries or structural disturbances related to dissolution of the Prairie Evaporite and subsequent collapse of overlying beds;

3. While in the past, information obtained from drill holes and limited "2D" seismic line coverage was deemed sufficient to proceed with mine development, current practice would require that at least the initial development area be evaluated as to mining suitability and development workings location through "3D" seismic investigation;

4. That for estimation of mineral resource at higher levels of confidence, such as the "Indicated" or "Measured" level, the areal extent surrounding a drill hole for which it is reasonable to infer geological conditions (i.e. "area of influence") is generally 1 to 2 miles (1.6 km to 3.2 km).

Given the above guidelines, it is possible to divide Permit KP 289 into two areas for the purpose of estimating the presence of a mineral resource as follows:

1. "Area 1," those lands that are judged to be anomalous and potentially affected by the processes of subsurface dissolution and removal of the Prairie Evaporite as determined from review of historical "2D" seismic data; and

2. "Area 2," those lands that are judged to have present the Prairie Evaporite in its entirety with no dissolution or alteration by subsurface dissolution and removal as determined from review of historical "2D" seismic data.

Figure 8 shows the division of the permit into Areas 1 and 2. The Area 1 is the anomalous areas shown in green (Anomaly A), blue (Anomaly B) and red (smaller anomalies) that are in the permitted areas. The well locations within the Permit Area are also shown in Figure 8.

For purpose of this report, a rough estimate was made of "Area 1" and "Area 2" lands, the primary guide being the subsurface salt dissolution map prepared by Henry Sawatsky and shown in Figure 8. The total size of the permit is some 97,240 acres of which some 10,000 acres may be affected by some form of salt dissolution and collapse. Therefore, a rough estimate of Area 1 is 10,000 acres and 87,244 acres is considered Area 2. Area 2 does not include any freehold area. Again, the reader is cautioned that this is a cursory estimate based upon regional maps. Detailed seismic evaluation will be required to confirm the location of salt dissolution and collapse, especially as these features tend to be quite confined and clearly demarcated.

For purposes of estimation of mineral resource, it is recommended that the "economic cut-off" for the roof and floor picks be assumed to be where the local potassium oxide content greater than 15% K_2O and where the average grade in the potash mining zone is greater than 20%. Selected potash mining zones should also have insolubles less than 15% and $MgCl_2$ content less than 0.5% average in the potash mine zone. The proposed mining interval will contain interbeds that are less than 15% K_2O, but given the mining method of using successive cavern dissolution "cuts," it is not possible to selectively mine only beds that are of economic quality. The potash mine zone in the Patience Lake Member is the thickest and highest grade member followed by the potash mine zone in the Belle Plaine Member. The potential mining zone in the Esterhazy Member is generally thin, of low potash grade, and separated from the bottom of the Belle Plaine Member by some 17 to 21 m of halite and clays. At this point, the authors are of the opinion that solution mining would not be economical in the Esterhazy; however, further work is required to confirm this opinion.

The base map used to determine areas was georeferenced ArcExplorer (GIS) files from the Geological Atlas of Saskatchewan (Version 8, 2005) produced by the Saskatchewan Geological Survey. Topographic base maps for the area were also examined in order to determine the accuracy of road locations, towns, and villages. The well base is not tied directly to survey coordinates, so the well locations are similarly not tied to specific survey coordinates. This approximation will introduce an error into the area calculations; however, it is the opinion of the authors that the error is insignificant for the purposes of this report.

In calculating the mineral resource tonnages, the following procedures were completed:

1. The total interval volume (mineral interval) for each area was calculated by multiplying the net area by the thickness of the potential solution mine interval for each of the members;

2. The volume thus calculated was then multiplied by a sylvinite tonnage factor of 1,980 kilograms per cubic meter to determine "gross sylvinite tonnage";

3. A deduction of the area was made to account for the presence of mining anomalies not detected by existing drill holes and seismic lines, this amount being consistent with the deductions employed by other mine operators which for this report is 25%; and

4. A deduction of "extraction ratio" was made to account for the mineral resource that is left in the ground to provide support and reduce surface subsidence, this being in the form of pillars left around exploration drill holes and potash production caverns, the typical being an extraction ratio of 40% for solution mining operations (i.e., 40% of the sylvinite is removed and 60% is left in place to support the mine).

5. Furthermore, an additional deduction of 10% was applied for plant and cavern losses. Plant losses can include losses to purge and dust. The cavern losses are the potash remaining in the brine in the cavern.

After the above deductions an estimate of potash tonnage per section was made. Using a simple calculation of area (640 acres or 1 square mile = 2.59 square kilometers) times average thickness (25.8 m) for the Patience Lake and Belle Plaine members times sylvinite density (1.98 tons per cubic meter) times the K_2O grade (18.86%) less the 25% allowance for unidentified anomalies gives an estimated tonnage contained within the bounds of one section as being some 18.73 million tonnes of sylvinite. Using a weighted average grade for the two members of 17.1% K_2O, a potential yield of potash expressed in terms of K_2O is some 6.74 million tonnes per section, i.e. per 640 acre tract.

This report classifies the potash mineralization in terms of Inferred Mineral Resource and Indicated Mineral Resource as defined by NI 43-101. This reflects the level of confidence in the identified sylvinite body and the location of the Permit adjacent to the operating Belle Plaine potash solution mine. In the vicinity of the cored drill holes, the evidence is sufficient to classify areas as

Inferred and Indicated Mineral Resource. No Measured Mineral Resource is identified because no engineering studies have been completed. At the Belle Plaine lease area to the south of the Permit Area, the mine operator Mosaic classifies the “non-reserve” mineralization for the entire lease area as “Potentially Recoverable Tonnes” even though some locations are up to 14 miles (22.53 km) from cored drill holes. (The Mosaic Company Form 10-K Submitted to the US SEC, for year ended May 31, 2005).

The classification of resources as Inferred and Indicated Mineral Resource is as follows;

- Indicated Mineral Resource: Within 1 mile (1.60 km) of a cored and assayed drill hole
- Inferred Mineral Resource: Within 1 mile (1.60 km) minimum and 5 miles (8.05 km) maximum radius of cored and assayed drill hole

The rationale for this is based on “best practice” from the adjoining Mosaic Belle Plaine solution mining operations. In determining which portions of Permit KP 289 should be classed as “Inferred Mineral Resource” or “Indicated Mineral Resource,” it is suggested that the methods used by The Mosaic Company to define Proven Reserves and Probable Reserves in their Form 10 K submission to the United States Securities and Exchange Commission (US SEC) be considered for guidance. The Mosaic Form 10 K described their method of defining these two categories of reserve and is meaningful for application to the Permit KP 289 because the Belle Plaine solution mining operations are similar to the conceptual mine plan anticipated for the commercial extraction of potash from the Permit Area, the same beds are to be mined as at the Mosaic Mine, and the Mosaic solution mining operations are within 9 km of the permit’s southern boundary. In defining “Reserves,” Mosaic Form 10 K states that *“Our estimates of our potash reserves and non reserve potash mineralization are based on exploration drill hole data, seismic data and actual mining results over more than 35 years (more than 15 years in the case of Hersey). Proven reserves are estimated by identifying material in place that is delineated on at least two sides and material in-place within a half mile (0.804 km) radius or distance from an existing sampled mine entry or exploration core hole. Probable reserves are estimated by identifying material in place within a one mile radius or distance from an existing sampled mine entry or exploration core hole. Historical extraction ratios from the many years of mining results are then applied to both types of material to estimate the proven and probable reserves.”* It is our opinion that the methodology applied to the calculation of “Proven” and “Probable Reserve” calculations are similar to those used to estimate the categories of “Measured” and “Indicated” Mineral Resource consistent with the nomenclature of NI 43-101. What is of value from the Mosaic 10 K submission to the US SEC is the definition of the radius from a cored drillhole that has been used to define Proven or Probable reserves. The authors suggest that this precedent can be used to establish the distance from a drill hole for inclusion of resource in the category of Measured and Indicated Resource.

The “Indicated” class of Mineral Resource requires a higher level of confidence than the broader description of “Inferred Mineral Resource.” In the case of a bedded sedimentary deposit that is not revealed in outcrop but only testable through drilling, the key determinant that may increase the confidence of a mineral resource estimate from “Inferred” to “Indicated” is the proximity to a cored and assayed drill hole. It is the opinion of the authors that only those portions of Permit KP 289 that have been herein defined as “Area 2” and that are beyond 1 mile (1.60 km) of a cored drill hole may have the potential to be classed as “Inferred.” The radius of 5 miles (8.05 km) from a cored drill hole was selected to limit the extent of the inferred Resource even though Mosaic reports their “non-reserve” potentially recoverable tons extends to the extent of boundaries of the mineral rights owned or leased. Mosaic states that such boundaries are up to 14 miles (22.53 km) from the closest sampled mine entry or exploration core hole.

Regions Affected by Anomalous Drill Holes

There was no allowance made for drill holes that are anomalous (i.e., shown to consist of carnallitite) (i.e., a rock consisting of the primary minerals carnallite and halite and the secondary mineral sylvite and insolubles), as opposed to sylvinite, or subject to dissolution of the potash beds.

Possible Solution Mining Scenarios for Prairie Evaporite Formation

In estimating the Mineral Resource for the potash-bearing members, no mining case was considered other than the removal, by dissolution, of the "potential solution mine interval" of each of the Patience Lake and Belle Plaine members. An attempt has been made to determine the specific solution mining intervals (i.e., the "top" and "base" of possible mining cuts). Further, geological characterization and engineering design is required to confirm these parameters, and until such work is undertaken, it will not be possible to determine measured resource and reserves.

At this point, for the estimation of Mineral Resource for the potash-bearing members, it is assumed that a solution mining method that would be able to substantially remove the entire mineral resource interval and any clay seams as required by rock mechanical considerations is reasonable and within the scope of current technology. Application of a specific solution mining method would depend upon the size and the stability of the cavern thus formed. Such a determination is beyond the scope of the present study. However, based on similarities in stratigraphy and mineralogy with the Mosaic Belle Plaine operations to the south of K 289, it is not unreasonable to assume that similar size caverns are possible.

Generally there are two types of solution mining. In "live," or primary mining, water is circulated so as to dissolve all the evaporite including halite and sylvite, while secondary of "selective" mining, halite rich brine is injected and is retained within the cavern and allowed to selectively dissolve the sylvite, leaving the halite behind within the cavern. Because solution mining starts at the base of selected potash intervals, it is more correct to describe a potential mining interval as extending "from the base of the mineralized zone to the top." In estimating the Indicated or Inferred resource, we have calculated the resources based on either solution mining only the two individual "potential solution mine intervals associated with the Patience Lake Member and the Belle Plaine Member or mining from the bottom of the Belle Plaine potential solution mine interval to the top of the potential solution mine interval for the Patience Lake Member.

Mineral Resource

In summary, it is the opinion of the authors, after taking into account all of the factors presented herein, that the Patience Lake and Belle Plaine members of the Prairie Evaporite Formation are potential solution mining intervals subject to further geological, geophysical, rock mechanical, and engineering studies and, thus, constitute a "Mineral Resource" as defined herein.

In preparing any estimates presented in this report the authors were guided by the following definition:

> "***As defined by National Instrument 43-101, a "Mineral Resource" is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge."***

The term "Mineral Resource" covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which mineral reserves may subsequently be defined by the consideration and application of technical, economic, legal, environmental, socio-economic and governmental factors. The phrase 'reasonable prospects for economic extraction' implies a judgment by the authors in respect of the technical and economic factors likely to influence the prospect of economic extraction. ***A Mineral Resource is an inventory of mineralization that under realistically assumed and justifiable technical and***

economic conditions might become economically extractable; however, it must be remembered that resources do not have demonstrated economic viability.

It is the opinion of the authors that previous drilling undertaken by previous exploration companies such as Imperial Oil, Lumsden Potash, and Sohio Petroleum is sufficient to confirm that Subsurface Mineral Permit KP 289 has substantial sylvinite beds within the Patience Lake, Belle Plaine, and Esterhazy members except in the southermost portion of the Permit, where the Prairie Evaporite may have been affected by salt dissolution and collapse. The commercial extraction of potash by solution mining by Mosaic to the South of the Permit Area, the demonstrated lateral continuity of the potash members within the Prairie Evaporites, and the availability of core from the previous exploration activities within the Permit Area support the assumption that there exists a reasonable prospect for economic extraction of the potash and, hence, that the Permit Area contains a Mineral/Potash Resource. The authors cannot, however, claim any part of the Mineral/Potash Resource as a Mineral Reserve because no Preliminary Feasibility Study has been completed.

The mineral resource is present over the entire Permit Area as supported by "the remarkable consistency of grade and thickness over many tens of kilometers" (as stated in the Best Practices Estimation of Mineral Resources and Mineral Reserves Page 36 in the Guidelines specific to Paticular Commodities, Potash and adopted by the CIM Council November 2003) and as demonstrated by the in permit core holes and regional drill holes. The estimated recoverable Mineral Resource for mining from the bottom of the Belle Plaine mine interval to the top of the Patience Lake mine interval has been estimated at 6.74 million tonnes of K_2O equivalent per section or 2.5 million tonnes per square kilometer. This number, which is based on the average from the cored holes, will vary locally and from one corner of the permit to the other. Furthermore, it is the authors' opinion that some 87,644 acres after freehold area deduction and deduction for "known" seismic anomalies (i.e., "Area 2,") is prospective for potash mineralization of this quality.

Inferred Mineral Resource

In preparing this report the authors were guided by the following definition:

"An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes."

It is the opinion of the authors that the "Inferred" class of Mineral Resource will be limited to the resource in the Patience Lake and Belle Plaine members within 5 miles (8.05 km) of a cored and assayed drill holes excluding any indicated resource (see below) and any exclusions for known seismic anomalies that may be due to dissolution or collapse features. Table 5 lists the area of the "known" seismic anomalies in the Inferred and Indicated Mineral Resource areas. The Inferred Resource was calculated assuming uniform distribution of grade and thickness from the central core hole. Figure 14 shows the area of influence for each cored hole for the Inferred Resource estimation. Reductions to the "in-place" tonnage have been applied for unidentified anomalous areas (25%), mining areal recovery (extraction ratio of 40%), and additional losses due to residual cavern liquor, plant, and transport losses of 10%. Table 6 list the sources of data and the Inferred Resource based on the five core holes within the Permit Area.

It cannot be assumed that all or any part of the Inferred Mineral Resource as presented herein, will be upgraded to an Indicated or Measured Mineral Resource as a result of additional exploration. Since confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters, or to enable an evaluation of economic viability worthy of public disclosure, any

Table 5. Total Areas and Anomalous Areas within 1.6 km (Indicated) **and 8.05 km** (Inferred)*

Well	Total Areas (m^2)		Anomalous Areas (m^2)		Railway Exclusion Areas (m^2)		Resource Areas (m^2)	
	Indicated	Inferred	Indicated	Inferred	Indicated	Inferred	Indicated	Inferred
11	982,841	50,737,418	305,132	2,023,681	—	52,245	677,709	48,713,737
13	1,393,421	28,312,899	356,279	983	—	—	1,037,142	28,311,916
18	5,477,947	54,794,764	229,980	2,042,704	—	36,179	5,247,967	52,752,060
20	6,019,315	30,851,304	—	2,924,689	—	—	6,019,315	27,926,615
21	4,494,751	12,820,526	—	—	62,929	—	4,494,751	12,820,526
Total	***18,368,275***	***177,516,911***	***891,391***	***6,992,057***	***62,929***	***88,424***	***17,476,884***	***170,524,854***

*Inferred Area excludes the indicated area

form of mineral resource estimation, including Inferred Mineral Resource, must be excluded from estimates forming the basis of feasibility or other economic studies. In general, Inferred Resources are considered too speculative geologically to be included in any economic considerations such as preliminary feasibility or feasibility studies.

Indicated Mineral Resource

In preparing this report the authors were guided by the following definition:

"***An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed."***

It is the opinion of the authors that the "Indicated" class of Mineral Resource requires a higher level of confidence than the broader description of "Inferred Mineral Resource." In the case of a bedded sedimentary deposit that is not revealed in outcrop but only testable through drilling, one key determinant that elevates a portion of the deposit to the "Indicated" category is proximity to a cored and assayed drill hole. In determining whether any portion of the KP 289 Permit can be classed as "Indicated Mineral Resource," the Mosaic Form 10 K submission to the US SEC was applied. From the discussion in the Section "Assumptions and Methodology" presented above, the Indicated Mineral Resource will be considered the potash tonnage defined by the resource within 1-mile (1.60 km) radius of a cored and assayed drill hole below permitted areas with exclusions for known seismic anomalies. Losses of resource due to unidentified anomalies, extraction ratio, and cavern and plant losses, similar to that applied to the Inferred Mineral Resource, were applied in the estimate of the Indicated Mineral Resource.

Table 7 lists the Indicated Mineral Resource based on a 1-mile (1.60 km) search radius. This estimate assumes a uniform grade and thickness in the assigned areas. Figure 15 shows the permitted areas assigned to each cored drill hole for the Indicated Resource estimate.

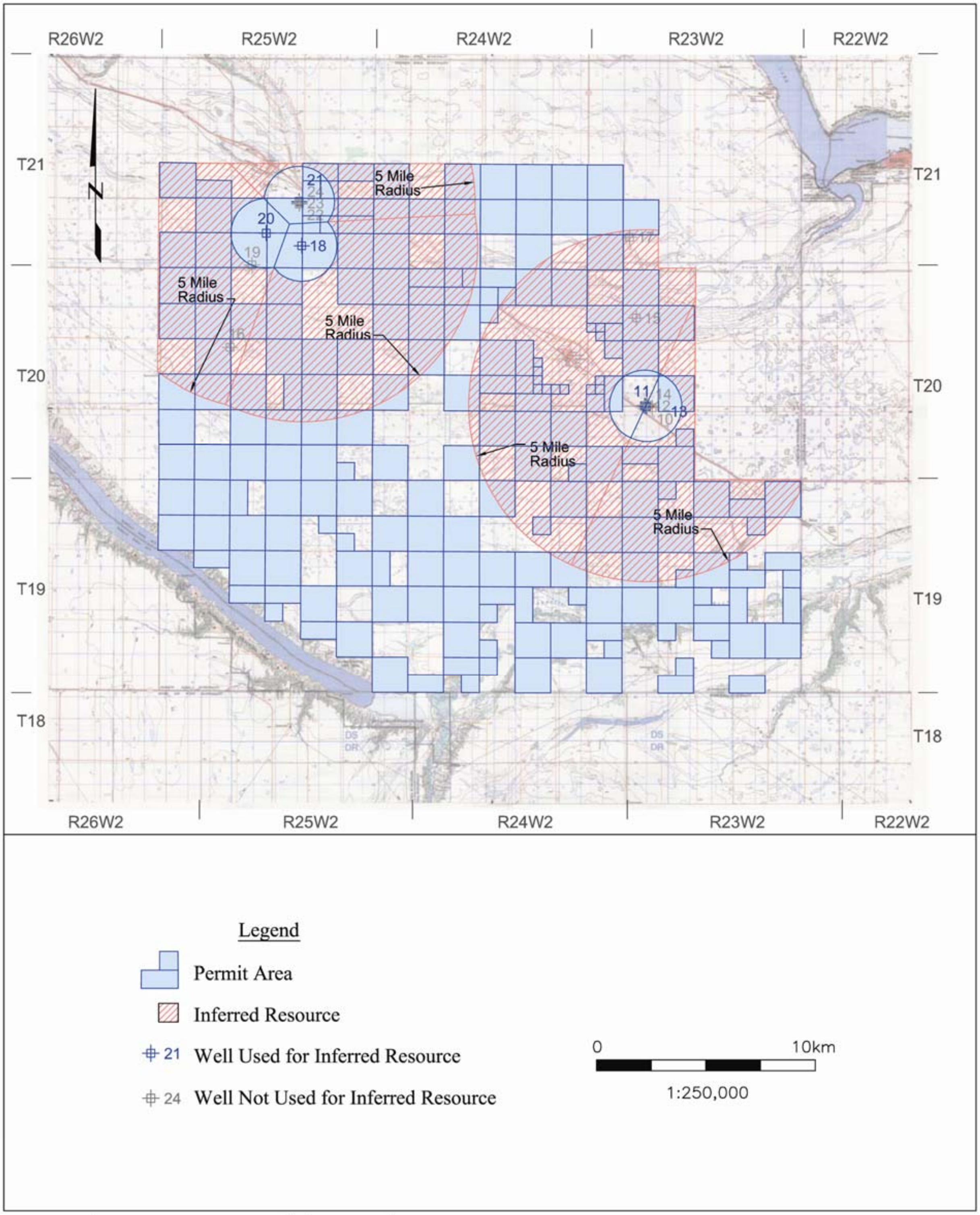

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Figure 14: Area of Influence for Each Cored Hole for the Inferred Estimation

Table 6. Inferred Mineral Resource[1] (with Anomalies Excluded)

Hole	From (m)	To (m)	Total Thickness over Potash Zone (m)	Average Grade over Potash Zone (% K_2O)	Average Carnallite over Potash Zone (% $MgCl_2$)	Average Insolubles over Potash Zone (%)	Area (m^2)	Volume (m^3)	K_2O Tonnage (MMT)	K_2O Resource[2] (MMT)	K_2O Resource With Freehold Exclusion (MMT)
						Patience Lake					
11	1468.8	1482.1	13.3	22.6	0.4	9.8	91,562,065	1,214,003,107	542.52	146.48	90.36
13	1477.1	1485.9	8.8	21.6	0.3	10.8	47,224,594	417,427,631	178.17	48.10	28.78
18	1454.7	1467.5	12.8	19.1	0.4	10.6	69,633,291	889,295,115	336.64	90.89	74.34
20	1469.5	1484.3	14.8	21.9	0.3	10.3	38,244,069	565,354,423	244.59	66.04	51.82
21	1434.6	1442.8	8.2	20.1	0.2	13.7	18,877,627	154,204,539	61.50	16.60	11.34
Total			***12.2***				***265,541,646***		***1,363.41***	***368.12***	***256.63***
Average				***21.3***	***0.4***	***10.4***					
						Belle Plaine					
11	1489.9	1496.3	6.4	18.7	0.3	5.3	91,562,065	588,861,277	218.17	58.91	36.34
13	1492.6	1498.1	5.5	24.6	0.1	2.2	47,224,594	259,093,013	126.25	34.09	20.39
18	1473.4	1481.3	7.9	17.4	0.5	2.9	69,633,291	551,829,905	190.35	51.40	42.03
20	1491.0	1500.1	9.1	19.6	0.2	3.8	38,244,069	348,538,088	135.18	36.50	28.64
21	1452.9	1458.2	5.3	21.7	0.1	4.1	18,877,627	100,980,957	43.39	11.72	8.00
Total			***7.0***				***265,541,646***		***713.35***	***192.60***	***135.40***
Average				***19.5***	***0.3***	***3.8***					
						Total Mineral Resource (Patience Lake & Belle Plaine)					
Total			9.6						2,076.76	560.72	392.04
Average				20.6	0.4	8.0					
						Patience Lake to Belle Plaine Potash Zone					
11	1468.8	1496.3	27.5	17.3	0.4	7.2	91,562,065	2,514,521,379	862.70	232.93	143.69
13	1477.1	1498.1	21.0	17.3	0.3	7.6	47,224,594	993,189,881	339.47	91.66	54.84
18	1454.7	1481.3	26.6	14.4	0.3	5.9	69,633,291	1,852,875,026	527.00	142.29	116.37
20	1469.5	1499.9	30.4	16.7	0.2	6.4	38,244,069	1,162,182,185	384.90	103.92	81.54
21	1434.6	1458.2	23.6	17.9	0.2	8.1	18,877,627	446,215,000	157.90	42.63	29.11
Total			***26.2***				***265,541,646***		***2,271.96***	***613.43***	***425.55***
Average				***16.5***	***0.3***	***6.8***					

[1]Search radius of 5 mile (8.047 km) assumed
[2]Resource accounts for geologic anomalies (25%); extraction ratio (40%); cavern liquor, plant and transport losses (10%); and known anomalies

Table 7. Indicated Mineral Resource[1] (with Anomalies Excluded)

Hole	From (m)	To (m)	Total Thickness over Potash Zone (m)	Average Grade over Potash Zone (% K_2O)	Average Carnallite over Potash Zone (% $MgCl_2$)	Average Insolubles over Potash Zone (%)	Area (m^2)	Volume (m^3)	K_2O Tonnage (MMT)	K_2O Resource[2] (MMT)	K_2O Resource With Freehold Exclusion (MMT)
						Patience Lake					
11	1468.8	1482.1	13.3	22.6	0.4	9.8	3,393,082	44,988,196	20.10	5.43	3.26
13	1477.1	1485.9	8.8	21.6	0.3	10.8	3,364,679	29,741,071	12.69	3.43	0.86
18	1454.7	1467.5	12.8	19.1	0.4	10.6	5,191,466	66,300,835	25.10	6.78	6.39
20	1469.5	1484.3	14.8	21.9	0.3	10.3	6,068,776	89,713,502	38.81	10.48	10.40
21	1434.6	1442.8	8.2	20.1	0.2	13.7	6,558,164	53,571,281	21.37	5.77	3.99
Total			***11.6***				***24,576,167***		***118.07***	***31.88***	***24.91***
Average				***21.0***	***0.3***	***11.0***					
						Belle Plaine					
11	1489.9	1496.3	6.4	18.7	0.3	5.3	3,393,082	21,821,860	8.08	2.18	1.31
13	1492.6	1498.1	5.5	24.6	0.1	2.2	3,364,679	18,459,975	9.00	2.43	0.61
18	1473.4	1481.3	7.9	17.4	0.5	2.9	5,191,466	41,141,330	14.19	3.83	3.61
20	1491.0	1500.1	9.1	19.6	0.2	3.8	6,068,776	55,307,911	21.45	5.79	5.75
21	1452.9	1458.2	5.3	21.7	0.1	4.1	6,558,164	35,081,193	15.07	4.07	2.82
Total			***7.0***				***24,576,167***		***67.80***	***18.31***	***14.10***
Average				***19.9***	***0.3***	***3.6***					
						Total Indicated Mineral Resource (Patience Lake & Belle Plaine)					
Total			9.3						185.87	50.19	39.01
Average				20.6	0.3	8.2					
						Patience Lake to Belle Plaine Potash Zone					
11	1468.8	1496.3	27.5	17.3	0.4	7.2	3,393,082	93,182,447	31.97	8.63	5.19
13	1477.1	1498.1	21.0	17.3	0.3	7.6	3,364,679	70,763,237	24.19	6.53	1.64
18	1454.7	1481.3	26.6	14.4	0.3	5.9	5,191,466	138,139,926	39.29	10.61	10.00
20	1469.5	1499.9	30.4	16.7	0.2	6.4	6,068,776	184,421,364	61.08	16.49	16.36
21	1434.6	1458.2	23.6	17.9	0.2	8.1	6,558,164	155,016,896	54.85	14.81	10.25
Total			***26.1***				***24,576,167***		***211.38***	***57.07***	***43.45***
Average				***16.6***	***0.3***	***7.0***					

[1]Search radius of 1 mile (1.609 km) assumed
[2]Resource accounts for geologic anomalies (25%); extraction ratio (40%); cavern liquor, plant and transport losses (10%); and known anomalies

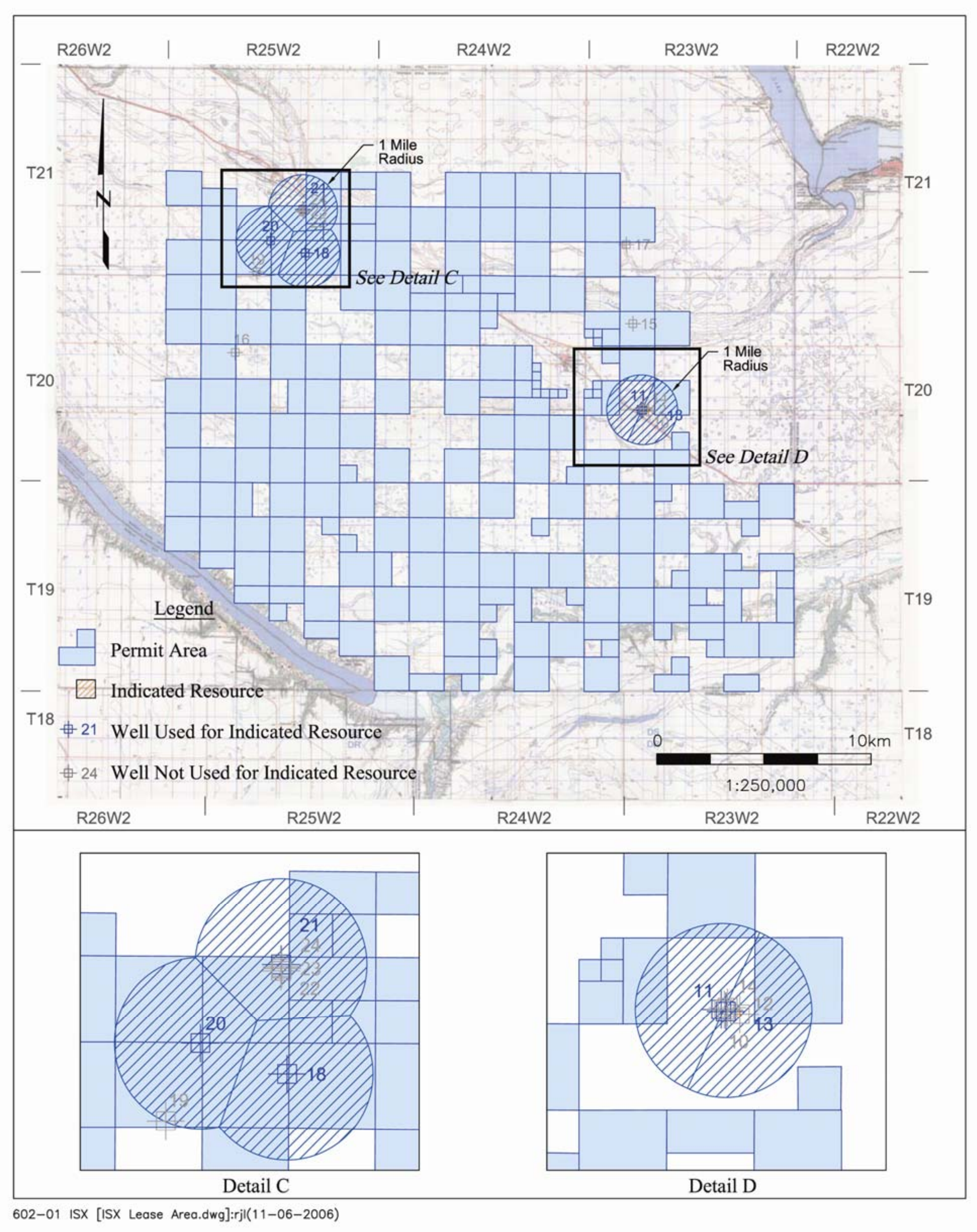


Figure 15: Area of Influence for Each Cored Drill Hole for the Indicated Resource Area

Measured Mineral Resource

In preparing this report the authors were guided by the following definition:

"A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity."

Further to the above instruction, the following guideline was considered in forming an opinion:

"Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit."

It is the opinion of the authors that the lack of close-spaced drill holes with cored intervals and assay, independent verification of the assay results, the lack of close-spaced 2D seismic or "3D" seismic and the absence of preliminary "Order of Magnitude" or "Scoping" studies that address solution mining method, cavern design, mining optimization and include geostatistical modeling of sylvinite distribution preclude the classification of any portion of the permit in the category of "measured mineral resource," as it is possible that seismic and geostatistical modeling may materially affect the estimation of tonnage and grade as presented herein.

Mineral Reserves

In preparing this report the authors were guided by the following definition of "Mineral Reserve":

"***A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined."***

Since no prefeasibility study has yet been completed to justify economic viability, none of the resource can be considered as a reserve at this time.

Additional Criteria for Industrial Minerals

Potash is a fertilizer, but is commonly considered an "industrial mineral" in the sense that it is a mineral resource that is of massive tonnage whose economic development is more a function of market and mining profitability than the identification, control, and development of high-grade sylvinite rock.

In forming our opinion of the potash potential of Permit KP 289, the authors recognize that there is a viable market for potassium oxide and secondly, that a market for new potash product can be reasonably developed. This opinion is formed from a general review of the potash industry as presented in current news reports, corporate presentations and filings, and discussions with other technical and managerial persons active within the potash industry.

Other Relevant Data and Information

No other data and information is considered necessary at this time.

Interpretation and Conclusions

Potash mineralization, in the form of sylvite-bearing sylvinite rock, is present underlying substantially all of the Permit Area; areas where seismic anomalies are identified from historical 2D seismic velocity surveys have been excluded because they may indicate potential mining-level geological anomalies and areas of Prairie Evaporite salt dissolution and/or collapse. The potash-bearing sylvinite rock is mineralogically simple and consists of a mechanical mixture of sylvite (KCl), halite (NaCl), with minor amounts of carnallite ($MgCl_2 \times 6H_2O$) and insolubles such as clay, dolomite, and anhydrite.

Fourteen of the twenty-five drill holes identified in the immediate proximity of the Permit Area penetrate the potash-bearing beds. Of these, six have sufficient assayed core to allow the calculation of potash mineralization thickness and grade. Five of these drill holes are located within the Permit Area. Of the remainder holes, the potash-bearing beds can be identified from borehole geophysical logs or lack any sort of data.

The beds considered to have economic potential for the solution mining of potash are, in descending order, the Patience Lake Member and the Belle Plaine Member. The Esterhazy Member has potential for solution mining pending further resource definition and conceptual mine planning.

The following is the average thickness and weighted average potash grade as expressed as "percent potassium oxide" or "%K_2O" and is based upon averages for all five drill hole at the Findlater and Bethune pilot test sites.

- Patience Lake: 11.56 m averaging 21.13% K_2O, 10.80% insolubles, and less than 1% carnallite;

- Belle Plaine: 6.86 m averaging 20.60% K_2O, 3.64% insolubles, and less than 1% carnallite;

- Patience Lake to Belle Plaine: 25.8 m averaging 18.86% K_2O, 8.15% insolubles, and less than 1% carnallite.

Indicated and Inferred Resource have been estimated based on the distance from cored and assayed drill holes using best available practice similar to that adopted by The Mosaic Company at the Belle Plaine operations. The distance from an existing cored and assayed drill hole for inclusion of resource in the inferred and indicated categories is as follows:

- Indicated one (1) mile (1.60 km) radius
- Inferred five (5) mile (8.05 km) radius

The Indicated and Inferred Resource has been estimated based on the radius from the cored drill holes the thickness and grade of the selected solution mine interval and the loss factors for unaccounted geologic anomalies assumed to be 25%, areal extraction ratio of 40%, and a loss factor to account for the liquor remaining in the cavern, plant, and transport of 10%.

The Indicated and Inferred Resource for the Patience Lake and Belle Plaine potential solution mining intervals are estimated to be:

- Indicated Mineral Resource: 36.8 million tonnes of K_2O
- Inferred Mineral Resource: 360.4 million tonnes of K_2O

If solution mining recovered the potash between the beds the additional resource would be

- Additional Indicated Mineral Resource: 4 million tons of K_2O
- Additional Inferred Mineral Resource: 31.2 million tons of K_2O

No Measured Resource has been estimated because engineering studies have not been completed to establish specific mining horizons, resource recovery, process selection, and preliminary operating and capital costs.

The Mineral Resource for the Permit Area except where geophysical anomalies have been identified is estimated at 5 to 6 million tonnes of K_2O product per section (640 acres). This is equivalent to 2.04 tonnes of K_2O per square meter or 2,040,000 tonnes per square kilometre.

Surface drilling and, hence, potash grade and mineralized interval thickness data, is biased in that only portions of the Permit (i.e., the northwestern corner) (the Imperial Oil potash solution mining test site) and the east-central portion (the Lumsden Potash solution mining test site) is sufficiently tested by surface drill holes to allow detailed estimation of potash grade and mineral resource tonnage and distribution. The remainder of the Permit is untested by drilling, but has been explored in the past by means of reflection seismic surveys. Copies of interpreted structure maps based upon these surveys were reviewed by the authors and it is the opinion of the authors that a substantial portion of the permit lands should be underlain by potash mineralization. However, the available information is insufficient to properly determine the full extent of potential anomalous ground; therefore, further work, including drilling and seismic, may increase the amount of ground that must be avoided due to presently identified anomalies. If this is the outcome of further exploration work, then the outcome may be a decrease in mineral resource potash grade and tonnage.

Published data concerning the Mosaic Company potash solution mine at Belle Plaine Saskatchewan suggests that portions of Permit KP 289 may be comparable in terms or potash mineralization. The analysis presented herein suggests that gross tonnage of potential potash is not an issue; therefore, it is recommended that in terms of further mineral resource work the objective for the owners at this point in its project is to confirm the potash grade composition and continuity and to undertake the work required to confirm and expand the indicated mineral resource tonnage. Further exploration is recommended below.

Overall, Permit 289, in the opinion of the authors, contains sufficient Indicated and Inferred Resources to justify the further expenditure of funds to confirm and expand the resource and to develop measured resources and reserves in compliance with NI 43-101. Engineering, geotechnical, and economic studies are required to develop Measured Mineral Resources and to estimate Reserves.

It is also the opinion of the authors that it is reasonable to conclude that potash mineralization identified in the drill cores of the Findlater and Lumsden pilot sites may extend to the remainder of the Permit into what is herein defined as “Area 2” and that further drilling to confirm the presence of potash mineralization is warranted. It is estimated at this point that some 10,000 acres with in the permit area may be affected by salt dissolution and collapse leaving some 87,200 acres as being prospective; however, it should also be noted that an additional area should be deducted for anomalies not identified by seismic evaluation.

It is the opinion of the authors that the Indicated Mineral Resource provides sufficient resource base to support further studies to evaluate the feasibility of development of a commercial plant capable of producing 2 million tons per year (MTPY) of Potash (K_2O equivalent). The Indicated and Inferred Resource within the Permit Area is sufficient to support a commercial 2 MTPY Potash plant for the foreseeable future.

Additional work is required to further investigate three areas of risk:

- ***Continuity Risk:*** This risk is uncertainty concerning the continuity of potash mineralization over Area 2. It can be mitigated by means of reinterpretation of existing “2D” seismic trade lines and the acquisition of new 2D reconnaissance seismic lines so as to confirm the general continuity of potash mineralization. This would provide confidence in the interpretation of the historical interpreted seismic maps and provide better confidence in estimating a mineral resource.

- ***Quality Risk:*** This risk is uncertainty concerning the quality of potash mineralization in the southernmost portion of the Permit Area. This risk can be mitigated with the drilling of at least one, but possibly two, surface drill hole(s). Drilling should not be done until the proposed seismic evaluation is completed, with siting of the drill hole depending upon the results of the seismic interpretation.

- ***Processing Risk:*** This is the uncertainty concerning the energy required to economically recover potash from a solution mining operation. This risk can be mitigated by the preparation of a conceptual mining study aimed at identifying a basic mining process and flow process and which incorporates various scenarios as to energy input and management. This preliminary level of engineering evaluation would provide the economics to support decision for the undertaking of a full Feasibility Study that would include a solution mining pilot test and process design.

Recommendations

Specific recommendations for a phased development include:

Phase 1

1. That the core from the five cored holes within the Permit Area be re-logged to confirm lithology, mineralogy and other geological and mining factors and a number of ‘check” assays be taken to confirm the historical assay record. The re-logging of the core should be accomplished under the direction of the authors or by a registered Professional Geologist or Professional Engineer with experience in potash geology and/or mining engineering, especially as applied to solution mining. Estimated cost $75,000.

2. Complete geomechanical testing of select intervals of the available core to establish site specific mechanical and thermo mechanical properties for future recommended scoping studies. Estimated cost $100,000.

3. That the company purchase, examine, and if required, reprocess up to 25 miles of existing “2D” reflection seismic trade data for the permit areas surrounding the Findlater Pilot Test Area. to confirm the following factors:

   a. Continuity of the upper beds of the Prairie Evaporite Members;
   b. Structural elevation of the uppermost Prairie Evaporite Members;
   c. The presence and distribution of salt dissolution and collapse structures at the Prairie Evaporite level.

   Estimated cost $75,000.

4. That after review of the trade seismic data the company undertakes a “2D” reflection seismic survey in the vicinity of the Findlater Pilot Test area. Estimated cost for up to 20 miles of 2D seismic survey $300,000.

5. That a Scoping (Order of Magnitude) study be completed to estimate in greater detail the permitting, mining, processing, transport, marketing costs and economic basis for project development. Estimated cost $300,000.

Phase 2

Conditional upon favorable outcomes form Phase 1, continue studies to confirm and expand the resource base and complete a Preliminary Feasibility study that includes;

1. Select the location and drill at a minimum one surface drill hole and should promising results be obtained the drill hole be cased as a potential future solution-mining pilot test hole. The drill hole should be selected to:

   a. Confirm the seismic survey interpretation;
   b. Confirm the existing corehole assay information;
   c. Provide samples for mechanical and thermo mechanical testing; and
   d. To extend the area of indicated resource within the Permit Area.

2. Expand the 2D recon seismic evaluation to the Bethune pilot test area and to the south of the permit area.

3. Complete geotechnical and solubility testing of core.

4. Complete permitting, process design and marketing studies.

5. Complete a Prefeasibility Study to support definition of Measured Mineral Resources and Reserves.

It is estimated that an exploratory drill hole that includes at least six continuous cores spanning the mid-Dawson Bay to the base of the Esterhazy Member will cost some $750,000 to $1,000,000 per drill hole, depending upon the time of drilling and rig availability. For planning purposes, the amount of $1,000,000 per drill hole will be used so if two drill holes are planned this will require an estimated $2,000,000.

Phase 3

1. Conditional upon a favorable outcome from Phase 2 proceed to a Definitive Feasibility Study. This may require the drilling of additional holes and pilot testing to demonstrate the mining and processing methods.

Estimate Project Cost

- Phase 1 is estimated to cost up to $850,000, and could be completed in one calendar year.
- Phase 2 is estimated to cost between 2.5 million to 4.5 million dollars depending on the number of holes drilled.
- Phase 3 costs cannot be estimated at this time.

Conclusion

Dated, signed, and sealed by the undersigned this 8th day of February 2007.

Respectfully submitted,

(signed) Michael Hardy P.E.

COLORADO REGISTERED
MICHAEL PETER HARDY
13857
PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

Dr. Michael Hardy, P.E. (Colorado)
Registration with APEGS pending

(signed) S. P. (Steve) Halabura P.Geo.

PROFESSIONAL GEOSCIENTIST
S.P. HALABURA
MEMBER 9981
2007 FEB 08
YR. MN. DAY
SASKATCHEWAN

PROFESSIONAL SEAL

S. P. (Steve) Halabura, P.Geo.

Association of Professional Engineers & Geoscientists
of Saskatchewan
CERTIFICATE OF AUTHORIZATION
NORTH RIM EXPLORATION LTD.
Number C905
Permission to Consult held by:

Discipline	Sk. Reg. No.	Signature
GEOLOGY	9981	

References

Fuzesy, A., *Potash in Saskatchewan*, Saskatchewan Industry and Resources Report 181, 1982.

Phillips, "Nomenclature for Use in Saskatchewan Potash," *7th Annual CIM District Four Meeting*, 1982.

Statement of Certification by Principal Author

I, Dr. Michael P. Hardy, P.E., P.Eng., do hereby certify that:

1. I am a Principal and President of Agapito Associates, Incorporated, Suite 340, 715 Horizon Drive, Grand Junction, Colorado, 81506, USA.

2. I graduated with a degree in Civil Engineering from University of Adelaide, Australia, in 1969.

3. I completed my Doctor of Philosophy in GeoEngineering at the University of Minnesota in 1973.

4. I am and have been since 1976 a Registered Professional Engineer in the State of Colorado (Number 13857)

5. I have practiced my profession since 1974.

6. I am an Engineering Consultant and have been practicing in this capacity since January 1974.

7. I am a member of the American Society of Mining Engineers (Member Number 1328850) and the American Society of Civil Engineers (Member Number 237352).

8. I applied for registration with APEGS on November 11, 2006.

9. As a consulting engineer, I have been involved with potash exploration, solution mining pilot testing, solution mining engineering studies including feasibility studies, and resource and reserve estimation since 2001. My tasks as undertaken in the above studies may best be described as the investigation of the feasibility of commercial recovery of potash from bedded potash and/or halite deposits in North America and South America; those studies specifically evaluated the technical feasibility of mining deep potash deposits using solution mining techniques. Specific activities have included development of pilot testing programs to verify the feasibility of solution mining, assessment of the geologic parameters impacting solution mining feasibility including evaluation of drillhole data, and other indicators of geologic continuity and anomalies such as 3D seismic data to support estimation of reserves from the measured and indicated resource.

10. As a consulting engineer, I have provided services over the past 18 years to several solution mining projects in industrial minerals such as salt (halite), trona, and nahcolite. These services have ranged from scoping to feasibility studies, geologic characterization, pilot test design and interpretation, resource and reserve estimation, cavern layouts, well completion design, and subsidence estimation and monitoring.

11. As a result of my experience and qualifications, I am a *Qualified Person* as defined in National Instrument 43-101.

12. I have no involvement with the KP 289 property, ISX, or Invictus Minerals prior to August 15, 2006.

13. I am independent of the issuer according to application of the tests presented in Section 1.4 of National Instrument 43-101.

14. I undertook a site visit to the property on September 6, 2006.

15. Opinions and geological interpretations expressed herein are based on the information provided and the general experience and expertise possessed by the consultant. These opinions are offered up as further information for the consideration of the general public and are subject to change as new data is acquired and digested.

16. I am not aware of any material fact or material change with respect to the subject matter of this technical report, which is not reflected in this report, the omission to disclose that would make this report misleading in any way.

17. I have read National Instrument 43-101 and Form 43-101 F1. This report has been prepared in compliance with these documents to the best of the author's understanding.

18. I consent to the filing of the 43-101 Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the pubic company files on their websites accessible by the public, of the Report.

Dated this 8th day of February 2007.

COLORADO REGISTERED
MICHAEL PETER HARDY
13857
PROFESSIONAL ENGINEER

(signed) Michael P. Hardy, P.E.

PROFESSIONAL SEAL

Statement of Certification by Author

I, Stephen P. Halabura P.Geo. do hereby certify that:

1. I am a consulting geologist and principal of *North Rim Exploration, Ltd.,* with an office located in Suite 210 – 3502 Taylor Street East, Saskatoon, Saskatchewan, Canada S7H 5H9.

2. I am a member in good standing of the Association of Professional Engineers and Geoscientists of Saskatchewan registered as “Professional Geoscientist” (Number 9981). North Rim Exploration, Ltd., is the holder in good standing of Certificate of Authorization C905 issued by the Association of Professional Engineers and Geoscientists of Saskatchewan.

3. I am also a member in good standing of the Association of Professional Engineers and Geoscientists of Manitoba registered as “Professional Geoscientist” (Number 23414G), the Association of Professional Engineers and Geoscientists of New Brunswick registered as “Professional Geoscientist” (Number L3702), the Association of Professional Geoscientists of Ontario registered as “Professional Geoscientist” (Number 1242G), AND THE Association of Professional Engineers, Geologists and Geophysicists of Alberta (Number M85169).

4. I have practiced my profession since 1980.

5. I am a geological consultant and have been practicing in this capacity since July 1984.

6. I am a graduate of the Faculty of Arts and Science at the University of Saskatchewan and earned a Bachelor of Science (Honours) Degree in Geology in 1980 and a Master of Science degree in geology in 1983.

7. I am a member of the Canadian Society of Petroleum Geologists and the American Association of Petroleum Geologists.

8. As a consulting geologist, I have been involved with potash exploration and development geology in Saskatchewan since 1989. My tasks as undertaken in the above studies may best be described as the investigation of geological issues pertaining to bedded potash and/or halite deposits, specifically the regional and local geological setting, detailed examination of the local stratigraphy as determined from drill holes and other geophysical tools such as surface are ”2D” and “3D” seismic surveys, the in-depth examination and interpretation of surface drill holes so as to form an opinion as to mining potential of selected ground, geological supervision of exploratory and service drill holes, subsurface disposal of brines and insoluble mining waste, and review of potash ore grades.

9. As a result of my experience and qualifications, I am a *Qualified Person* as defined in National Instrument 43-101.

10. My previous involvement with the property was preparing a report entitled “Exploration Assessment of Subsurface Mineral Permit KP 289, Findlater Area, Saskatchewan” dated July 31, 2006. I have not had prior involvement with the property that is the subject of this Technical Report.

11. I am not independent of the issuer applying all of the tests in Section 1.4 of National Instrument 43-101.

12. I did not undertake a site visit of the permit lands.

13. Opinions and geological interpretations expressed herein are based on the information provided and the general experience and expertise possessed by the consultant. These opinions are

offered up as further information for the consideration of the general public and are subject to change as new data is acquired and digested.

14. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

15. I have read National Instrument 43-101 and Form 43-101 F1, and the written disclosure being filed and that it fairly and accurately represents the information in the technical report that supports the disclosure.

16. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Report.

Dated this 8th day of February 2007.

PROFESSIONAL GEOSCIENTIST SASKATCHEWAN
S.P. HALABURA
MEMBER 9981
2007 FEB 08
YR. MN. DAY

(signed) S. P. (Steve) Halabura, P.Geo.

PROFESSIONAL SEAL

APPENDIX 1:

LETTER OF PERMIT GRANT AND LIST OF LANDS AS PROVIDED BY SASKATCHEWAN INDUSTRY AND RESOURCES

Industry and
Resources

PERMIT TO PROSPECT

FOR SUBSURFACE MINERALS

KP 289

Pursuant to the provisions of *The Subsurface Mineral Regulations, 1960*, made under the authority of *The Crown Minerals Act*, Invictus Minerals Corporation, with an office in Emerald Park, Saskatchewan, is hereby granted the exclusive right to explore and prospect for subsurface minerals within the meaning of the said Regulations, in the lands described in the attached Schedule for a term of five years commencing November 22, 2005, subject to the fulfillment, observance and performance on the part of the said company of the provisions of *The Subsurface Mineral Regulations, 1960*, as the same are now in force or as they may from time to time hereafter be amended, revised or substituted.

IN WITNESS WHEREOF the Director, Mines Branch, Saskatchewan Industry and Resources has executed this permit on behalf of the Minister and affixed the departmental seal.

Dated at Regina, Saskatchewan, this 22 day of November, 2005.

P.L. Schwann

Pamela L. Schwann
Director, Mines Branch
Saskatchewan Industry and Resources

FIGURE 2
p1 of 6

Schedule of Crown Subsurface Mineral Lands

KP 289

Portion	Sec	Twp	Rge	M	Area (acres)	Description
South Half	2	19	23	2	326.00	
South Half	4	19	23	2	326.00	
Northeast Quarter	4	19	23	2	161.00	
All	6	19	23	2	646.00	
Southeast Quarter	7	19	23	2	160.00	
North Half	7	19	23	2	320.00	
Northwest Quarter	9	19	23	2	161.00	
Southeast Quarter	10	19	23	2	161.00	
North Half	10	19	23	2	322.00	
All	11	19	23	2	644.00	
All	12	19	23	2	644.00	
East Half	13	19	23	2	322.00	
West Half	14	19	23	2	320.00	
South Half	15	19	23	2	322.00	
Northwest Quarter	15	19	23	2	161.00	
All	16	19	23	2	644.00	
All	17	19	23	2	644.00	
All	18	19	23	2	640.00	
All	20	19	23	2	644.00	
Southeast Quarter	21	19	23	2	160.00	
All	22	19	23	2	640.00	
South Half	23	19	23	2	320.00	
Northwest Quarter	23	19	23	2	160.00	
Southeast Quarter	24	19	23	2	160.00	
North Half	24	19	23	2	320.00	
Northeast Quarter	26	19	23	2	160.00	
All	28	19	23	2	640.00	
All	29	19	23	2	642.00	
All	30	19	23	2	642.00	
All	32	19	23	2	640.00	
Northwest Quarter	33	19	23	2	160.00	
All	34	19	23	2	640.00	
South Half	35	19	23	2	319.68	Entire half section excluding 0.32 acres for railway Right of Way identified on Plan DN5664.
All	36	19	23	2	628.02	Entire section excluding 11.98 acres for railway Right of Way identified on Plan DN5664.
All	4	20	23	2	636.92	Entire section excluding 3.08 acres for railway Right of Way identified on Plan DN5664.
North Half	5	20	23	2	320.00	
All	6	20	23	2	640.00	
Southeast Quarter	9	20	23	2	160.00	
All	16	20	23	2	640.00	
East Half	18	20	23	2	312.59	Entire half section excluding 7.41 acres for railway Right of Way identified on Plan DN5664.
Southwest Quarter	18	20	23	2	160.00	
Lsds 11, 12 & 14	18	20	23	2	114.50	Entire lsds 11, 12 and 14 excluding 5.50 acres for railway Right of Way identified on Plan DN5664.
Northeast Quarter	19	20	23	2	160.00	
All	20	20	23	2	640.00	
All	28	20	23	2	640.00	
All	29	20	23	2	640.00	

FIGURE 2

2 of 6

Schedule of Crown Subsurface Mineral Lands

KP 289

Portion	Sec	Twp	Rge	M	Area (acres)	Description
Southeast Quarter	30	20	23	2	160.00	
Lsds 3, 5 & 6	30	20	23	2	120.00	
North Half	30	20	23	2	320.00	
All	32	20	23	2	640.00	
All	6	21	23	2	640.00	
All	7	21	23	2	640.00	
All	8	21	23	2	640.00	
All	18	21	23	2	640.00	
All	2	19	24	2	642.00	
Northwest Quarter	3	19	24	2	161.00	
Southeast Quarter	4	19	24	2	168.00	
North Half	4	19	24	2	313.00	
South Half	5	19	24	2	318.04	Entire half section excluding 13.96 acres for Buffalo Pound Lake Storage Project identified on Plan C.U.3035.
All	6	19	24	2	600.01	Entire section excluding 49.99 acres for Buffalo Pound Lake Storage Project identified on Plan C.U.3035.
All	9	19	24	2	632.00	
Southwest Quarter	10	19	24	2	161.00	
All	11	19	24	2	647.00	
All	12	19	24	2	640.00	
Northeast Quarter	13	19	24	2	160.00	
West Half	14	19	24	2	321.00	
Southwest Quarter	15	19	24	2	161.00	
North Half	15	19	24	2	322.00	
All	16	19	24	2	640.00	
All	17	19	24	2	640.00	
All	18	19	24	2	640.00	
West Half	19	19	24	2	320.00	
All	20	19	24	2	640.00	
All	21	19	24	2	640.00	
All	22	19	24	2	651.00	
All	23	19	24	2	640.00	
All	24	19	24	2	640.00	
Northeast Quarter	26	19	24	2	160.00	
All	28	19	24	2	640.00	
All	29	19	24	2	640.00	
All	30	19	24	2	640.00	
All	32	19	24	2	640.00	
All	34	19	24	2	640.00	
All	36	19	24	2	640.00	
Southeast Quarter	1	20	24	2	160.00	
All	2	20	24	2	640.00	
All	4	20	24	2	640.00	
All	6	20	24	2	640.00	
All	10	20	24	2	640.00	
All	11	20	24	2	640.00	
All	12	20	24	2	640.00	
Lsds 11 & 12	13	20	24	2	80.00	
South Half	14	20	24	2	320.00	
Northwest Quarter	14	20	24	2	160.00	
Lsds 9, 10 & 15	14	20	24	2	120.00	
North Half	15	20	24	2	320.00	

Page 2 of 5

FIGURE 3

3 OF 6

Schedule of Crown Subsurface Mineral Lands

KP 289

Portion	Sec	Twp	Rge	M	Area (acres)	Description
All	16	20	24	2	640.00	
All	18	20	24	2	640.00	
All	20	20	24	2	640.00	
All	22	20	24	2	640.00	
Lsds 2 & 7	23	20	24	2	80.00	
West Half	23	20	24	2	320.00	
Northwest Quarter	27	20	24	2	160.00	
All	28	20	24	2	640.00	
All	29	20	24	2	640.00	
All	30	20	24	2	640.00	
All	31	20	24	2	640.00	
South Half	32	20	24	2	320.00	
North Half	32	20	24	2	309.89	Entire half section excluding 10.11 acres for railway Right of Way identified on Plan BW81.
South Half	33	20	24	2	311.29	Entire half section excluding 8.71 acres for railway Right of Way identified on Plan BW81.
Northwest Quarter	33	20	24	2	155.73	Entire quarter section excluding 4.27 acres for railway Right of Way identified on Plan BW81.
Northeast Quarter	33	20	24	2	160.00	
Southeast Quarter	34	20	24	2	160.00	
Southwest Quarter	34	20	24	2	154.74	Entire quarter section excluding 5.26 acres for railway Right of Way identified on Plan BW81.
North Half	34	20	24	2	320.00	
All	35	20	24	2	640.00	
All	36	20	24	2	640.00	
All	2	21	24	2	640.00	
All	4	21	24	2	640.00	
All	6	21	24	2	625.86	Entire section excluding 14.14 acres for railway Right of Way identified on Plan BW81.
All	7	21	24	2	640.00	
All	8	21	24	2	640.00	
All	9	21	24	2	640.00	
All	10	21	24	2	640.00	
All	11	21	24	2	640.00	
All	12	21	24	2	640.00	
All	13	21	24	2	640.00	
All	14	21	24	2	640.00	
All	15	21	24	2	640.00	
All	16	21	24	2	640.00	
All	18	21	24	2	640.00	
North Half	11	19	25	2	320.00	
All	12	19	25	2	640.00	
All	14	19	25	2	640.00	
Southwest Quarter	15	19	25	2	160.00	
North Half	15	19	25	2	320.00	
North Half	16	19	25	2	320.00	
North Half	20	19	25	2	320.00	
All	21	19	25	2	640.00	
All	22	19	25	2	640.00	
All	24	19	25	2	640.00	

FIGURE 2
4 of 6

Schedule of Crown Subsurface Mineral Lands

KP 289

Portion	Sec	Twp	Rge	M	Area (acres)	Description
Southwest Quarter	25	19	25	2	160.00	
Northeast Quarter	26	19	25	2	160.00	
All	27	19	25	2	640.00	
All	28	19	25	2	640.00	
All	29	19	25	2	640.00	
All	30	19	25	2	640.00	
All	31	19	25	2	640.00	
All	32	19	25	2	640.00	
West Half	33	19	25	2	320.00	
All	34	19	25	2	640.00	
All	35	19	25	2	640.00	
All	36	19	25	2	640.00	
Southwest Quarter	1	20	25	2	160.00	
All	2	20	25	2	640.00	
All	3	20	25	2	640.00	
All	4	20	25	2	640.00	
All	5	20	25	2	640.00	
All	6	20	25	2	640.00	
All	7	20	25	2	640.00	
All	9	20	25	2	640.00	
All	10	20	25	2	640.00	
All	11	20	25	2	640.00	
All	12	20	25	2	640.00	
All	14	20	25	2	640.00	
East Half	15	20	25	2	320.00	
All	16	20	25	2	640.00	
All	17	20	25	2	640.00	
All	18	20	25	2	640.00	
All	20	20	25	2	640.00	
All	22	20	25	2	636.00	
All	23	20	25	2	640.00	
All	24	20	25	2	640.00	
All	27	20	25	2	640.00	
All	28	20	25	2	640.00	
All	29	20	25	2	640.00	
All	30	20	25	2	640.00	
All	31	20	25	2	640.00	
All	32	20	25	2	640.00	
All	34	20	25	2	640.00	
All	36	20	25	2	640.00	
All	1	21	25	2	634.81	Entire section excluding 5.19 acres for railway Right of Way identified on Plan BW81.
All	2	21	25	2	640.00	
All	3	21	25	2	640.00	
All	4	21	25	2	640.00	
All	5	21	25	2	640.00	
All	6	21	25	2	640.00	
All	8	21	25	2	638.00	
All	9	21	25	2	640.00	
All	10	21	25	2	640.00	
Southeast Quarter	11	21	25	2	157.67	Entire quarter section excluding 2.33 acres for railway Right of Way identified on Plan BW81.
Southwest Quarter	11	21	25	2	160.00	

FIGURE 2
5 of 6

Schedule of Crown Subsurface Mineral Lands

KP 289

Portion	Sec	Twp	Rge	M	Area (acres)	Description
North Half	11	21	25	2	310.78	Entire half section excluding 9.22 acres for railway Right of Way identified on Plan BW81.
South Half	12	21	25	2	311.06	Entire half section excluding 8.94 acres for railway Right of Way identified on Plan BW81.
North Half	12	21	25	2	320.00	
North Half	13	21	25	2	319.00	
Southeast Quarter	14	21	25	2	160.00	
Southwest Quarter	14	21	25	2	156.00	Entire quarter section excluding 4.00 acres for railway Right of Way identified on Plan BW81.
North Half	14	21	25	2	320.00	
South Half	17	21	25	2	318.00	
All	18	21	25	2	640.00	

Aggregating 97,239.59 acres, more or less.

All in the Province of Saskatchewan.

Dated November 22, 2005.

FIGURE 2
6 of 6

APPENDIX 2:

DRILL HOLE INFORMATION

DH #	Well Name	LSD	SEC	TWP	RGE	MER	Depth to PEV (ft)	Depth to PEV (m)	Elev. (m)	KB (m)	Total Depth (m)	Elev. (ft)	KB (ft)	Total Depth (ft)	TD Fm
01	IMC Belle Plaine DD 2A8	5	5	18	23	2	N/A	N/A	575.60	578.90	N/A	1888.45	1899.28	N/A	N/A
02	IMC Belle Plaine DD 3D1	8	6	18	23	2	N/A	N/A	575.60	578.90	N/A	1888.45	1899.28	N/A	N/A
03	Sohio CDN Dev Stony Beach	4	16	18	23	2	5146.98	1568.80	580.90	584.60	1832.20	1905.84	1917.98	6011.15	L. Interlake (1823)
04	Stoney Beach No 5	5	16	18	23	2	N/A	N/A	576.40	580.30	N/A	1891.08	1903.87	N/A	N/A
05	Sohio Delhi Waldorf No 1	4	2	18	24	2	5240.16	1597.20	583.70	585.80	1793.70	1915.03	1921.92	5884.84	U. Interlake (1766)
06	Stony Beach No 3	12	16	18	24	2	N/A	N/A	577.90	582.50	N/A	1896.00	1911.09	N/A	N/A
07	Aquit Moose Jaw	16	22	18	24	2	5118.11	1560.00	583.10	586.40	1770.90	1913.06	1923.88	5810.04	Interlake (1736.8)
08	IMP Lumsden	11	11	20	22	2	4791.01	1460.00	551.40	555.30	1524.60	1809.06	1821.85	5001.97	Prairie Evaporite (1460)
09	Socony Sohio Disley No 1	15	12	20	23	2	NDE	NDE	553.80	555.30	987.60	1816.93	1821.85	3240.16	Birdbear (963.5)
10	**Lumsden Potash 5 Bethune**	**1**	**17**	**20**	**23**	**2**	**NDE**	**NDE**	**552.00**	**556.00**	**767.20**	**1811.02**	**1824.15**	**2517.06**	**U. Gravelbourg (744)**
11	**Lumsden Potash 1 Bethune**	**2**	**17**	**20**	**23**	**2**	**4796.92**	**1462.10**	**554.40**	**558.70**	**1541.10**	**1818.90**	**1833.01**	**5056.10**	**Prairie Evaporite (1462.1)**
12	**Lumsden Potash 2 Bethune**	**2**	**17**	**20**	**23**	**2**	**NDE**	**NDE**	**554.70**	**558.70**	**699.20**	**1819.88**	**1833.01**	**2293.96**	**Jurassic (686.4)**
13	**Lumsden Potash 3 Bethune**	**2**	**17**	**20**	**23**	**2**	**4801.84**	**1463.60**	**554.10**	**558.10**	**1534.10**	**1817.91**	**1831.04**	**5033.14**	**Prairie Evaporite (1463.6)**
14	**Lumsden Potash 4 Bethune**	**2**	**17**	**20**	**23**	**2**	**4790.03**	**1460.00**	**552.60**	**556.60**	**1514.90**	**1812.99**	**1826.12**	**4970.14**	**Prairie Evaporite (1460)**
15	**Socony Sohio East Bethune**	**11**	**29**	**20**	**23**	**2**	**4666.01**	**1422.20**	**533.4**	**536.8**	**1428**	**1750**	**1761.15**	**4685.04**	**Prairie Evaporite (1422.2)**
16	**Sohio Standard Findlater No 2**	**9**	**20**	**20**	**25**	**2**	**4849.08**	**1478.00**	**575.80**	**578.50**	**1478.30**	**1889.11**	**1897.97**	**4850.07**	**Prairie Evaporite (1478)**
17	**Socony Sohio Dilke No 1**	**13**	**5**	**21**	**23**	**2**	**NDE**	**NDE**	**550.80**	**553.20**	**923.50**	**1807.09**	**1814.96**	**3023.86**	**Birdbear (918.1)**
18	**Imperial Findlater 9-3**	**9**	**3**	**21**	**25**	**2**	**4751.97**	**1448.40**	**560.20**	**564.20**	**1515.80**	**1837.93**	**1851.05**	**4973.10**	**Pr Ev (1448.4)**
19	**Sohio No 4 Stratigraphic Test Wel**	**2**	**4**	**21**	**25**	**2**	**NDE**	**NDE**	**566.90**	**568.80**	**1222.20**	**1859.91**	**1866.14**	**4009.84**	**Souris River (1183.2)**
20	**Imperial Findlater 16-4**	**16**	**4**	**21**	**25**	**2**	**4787.07**	**1459.10**	**565.40**	**569.40**	**1538.60**	**1854.99**	**1868.11**	**5047.90**	**Prairie Evaporite (1459.1)**
21	**IMP Findlater Potash 16-10**	**16**	**10**	**21**	**25**	**2**	**4675.85**	**1425.20**	**558.70**	**563.60**	**1510.60**	**1833.01**	**1849.08**	**4956.04**	**Prairie Evaporite (1425.2)**
22	**IMP Findlater Potash 16A-10**	**16**	**10**	**21**	**25**	**2**	**4671.92**	**1424.00**	**560.50**	**565.10**	**1509.70**	**1838.91**	**1854.00**	**4953.08**	**Prairie Evaporite (1424)**
23	**IMP Findlater Disposal**	**16**	**10**	**21**	**25**	**2**	**NDE**	**NDE**	**560.50**	**564.80**	**1022.00**	**1838.91**	**1853.02**	**3353.02**	**Birdbear (974.1)**
24	**IMP Findlater Source**	**16**	**10**	**21**	**25**	**2**	**NDE**	**NDE**	**559.90**	**563.90**	**679.70**	**1836.94**	**1850.07**	**2229.99**	**Mannville (637.3)**
25	Imperial Dilke Potash	16	3	22	24	2	4505.91	1373.40	543.50	547.40	1441.70	1783.14	1795.93	4729.99	Prairie Evaporite (1373.4)

Wells in permit area
Wells outside permit area
Prairie Evaporite or Patience Lake; Gamma log
Prairie Evaporite; Log and assay

DH #	Spud Date	Well Type	# Cores	Core Intervals (m)	# DST	DST (m)	# Logs	Log Type, Distance (m)
01	7/1/2002	Potash Solutioning	0	N/A	0	N/A	0	N/A
02	12/1/2002	Potash Solutioning	0	N/A	0	N/A	0	N/A
03	04/28/1952	Undefined Converted	5	789.70-792.80, 874.20-886.40, 1210.10-1225.30, 1527.70-1542.90, 1744.40-1759.60	15	993.00-1024.10, 1139.60-1174.70, 1183.80-1210.10, 1211.60-1225.30, 1274.10-1278.00, 1295.40-1304.50, 1400.90-1407.90, 1523.10-1542.90, 1524.00-1542.90, 1524.00-1542.90, 1713.30-1720.30, 1745.60-1759.60, 1820.00-1832.20, 1523.40-1536.20, 1524.00-1531.60	4	Electric (162.20-888.20), Gamma Ray (3.00-1831.20), Laterlog (853.40-1830.90), Micrologi-Caliper (701.00-1831.20)
04	05/27/1961	Potash Test Well	0	N/A	0	N/A	0	N/A
05	12/10/1951	Undefined Converted	4	1160.70-1161.30, 1529.20-1531.30, 1596.20-1601.10, 1786.40-1793.70	4	548.60-559.00, 734.00-743.70, 1240.50-1265.20, 1784.60-1793.70	1	Electric Log (163.70-1792.20)
06	03/26/1961	Potash Test Well	0	N/A	0	N/A	0	N/A
07	11/7/1972	Oil	1	1677.90-1689.80	3	1679.40-1709.90, 1679.40-1709.90, 1173.50-1194.80	5	Continuous Velocity (192.30-1770.00), Directional (192.30-1770.90), Gamma Ray (1553.90-1667.00), BHC Acoustilog (192.30-1770.00), Laterlog (192.30-1766.60)
08	12/18/1963	Potash Test Well	2	625.40-686.10, 1460.00-1524.00	2	656.50-686.10, 679.70-710.20	3	Continuous Velocity (167.60-1508.80), BHC Acoustilog (157.00-1523.70), Induction (157.00-1522.50)
09	11/21/1953	Undefined Converted	0	N/A	3	833.90-843.10, 960.70-966.80, 978.40-987.60	5	Continuous Velocity (121.90-984.50), Electric Log (113.70-987.60), Gamma Ray (1.50-987.20), Laterlog (655.30-986.60), Microlog (426.10-986.90)
10	**2/9/1967**	**Oil**	**1**	**744.30-766.90**	**4**	**242.30-267.00, 662.90-688.80, 619.40-649.80, 670.00-693.40**	**3**	**Induction Electric (168.90-767.20), Sonic-Caliper (168.90-767.20), Gamma Ray-Neutron (168.90-767.20)**
11	**3/12/1966**	**Potash Pilot Test**	**1**	**1461.50-1525.80**	**0**	**N/A**	**9**	**Induction Electric (178.00-1528.90), Sonic-Caliper (1034.80-1530.70), Gamma Ray (1450.80-1529.20), Gamma Ray-Neutron (178.00-1531.30), Cement Bond (6.10-1494.70), Neutron (1446.60-1477.10), Caliper (176.80-1034.80), Cement Bond (868.70-1495.30), Collar Locator (1446.60-1477.10)**
12	**03/27/1967**	**Oil**	**2**	**630.90-638.30, 673.60-691.00**	**1**	**667.80-698.00**	**2**	**BHC Acoustilog (624.80-698.60), Gamma Ray (3.70-624.80)**
13	**10/4/1967**	**Pilot Test**	**1**	**1462.10-1533.80**	**0**	**N/A**	**15**	**Sonic Caliper (1447.80-1533.80), Gamma Ray (1444.80-1532.20), Gamma Ray-Neutron (154.80-1533.80), Temp (36.60-1506.30), Cement Bond (9.10-591.30), Depth Determination (1461.80-1507.20), Directional Survey (37.50-1534.10), Caliper (154.80-694.90), Microseismogram (0.30-1508.80), Sonic-Caliper (694.90-1079.00), Microseismogram (853.40-944.90), Cement Bond (853.40-947.30), Caliper (1079.00-1447.80), Microseismogram (1341.10-1493.50), Cement Bond (1330.10-1490.20)**
14	**8/8/1967**	**Potash**	**1**	**1461.50-1484.10**	**0**	**N/A**	**12**	**Electric Log (5.20-26.50), Sonic Caliper (664.50-985.10), Gamma Ray (1444.80-1504.50), Gamma Ray-Neutron (6.10-1505.70), Cement Bond (49.10-470.90), Completion Record (1431.30-1475.20), Flowmeter Survey (605.30-651.70), Caliper (162.20-664.50), Caliper (985.10-1368.60), Cement Bond (1051.60-1511.50), Flowmeter Survey (1319.80-1514.90), Sonic-Caliper (1368.60-1503.60)**
15	**06/27/1954**	**Oil**	**0**	**N/A**	**5**	**628.80-661.40, 930.60-935.70, 1015.60-1027.20, 1378.30-1391.40, 1390.50-1408.80**	**4**	**Electric Log (156.40-1427.10), Gamma Ray (6.10-1427.70), Laterlog (801.60-1427.10), Microlog (518.20-1427.10)**
16	**2/8/1951**	**Oil**	**20**	**487.10-488.90, 582.20-582.80, 597.40-600.50, 646.20-650.70, 677.30-679.70, 749.80-751.60, 801.60-805.90, 888.80-891.80, 977.80-980.80, 1025.00-1027.50, 1039.70-1042.70, 1069.50-1071.10, 1093.60-1094.50, 1102.80-1105.80, 1134.20-1136.60, 1216.80-1219.20, 1324.70-1326.20, 1348.70-1353.30, 1407.60-1409.40,**	**4**	**1022.90-1028.70, 1172.30-1184.80, 1212.50-1219.20, 1440.50-1448.40**	**3**	**Electric Log (100.00-1407.00), Microlog (609.60-1406.30), Gamma Ray (0.30-1407.00)**
17	**1/1/2019**	**1954**	**1**	**919.30-923.2**	**2**	**797.10-918.7, 918.70-923.2**	**5**	**Continuous Velocity (131.10-918370), Electric Log (127.40-923.50), Gamma Ray (15.20-922.60), Laterlog (669.00-922.30), Microlog (502.90-922.90)**
18	**9/2/1964**	**Potash**	**1**	**1446.30-1514.9**	**0**	**N/A**	**2**	**BHC Acoustilog (182.90-1514.90), Induction Log (182.90-1513.30)**
19	**11/18/1949**	**Strat**	**11**	**637.3-640.7, 725.7-726.6, 766.00-770.5, 824.20-827.20, 874.20-879.00, 943.40-949.50, 969.00-970.50, 1029.30-1032.40, 1057.40-1058.90, 1123.50-1125.00, 1217.70-1222.20**	**0**	**N/A**	**4**	**Continuous Velocity (182.90-1221.90), Electric Log (44.20-1222.20), Porosity-Lithology Log (734.60-1221.00), Microlog (905.30-1221.30)**
20	**2/3/1964**	**Potash**	**2**	**434.30-506.00, 1453.00-1538.60**	**1**	**484.60-506.00**	**4**	**Induction Log (188.40-1535.60), BHC Acoustilog (188.40-1535.30), Neutron (1429.50-1537.70), Directional Survey (188.40-1534.70)**
21	**12/3/1962**	**Pilot Test**	**11**	**620.60-641.60, 678.20-687.30, 762.00-774.20, 846.70-862.00, 979.90-995.20, 1006.40-1014.40, 1051.60-1059.80, 1117.70-1132.90, 1231.40-1249.70, 1264.90-1418.80, 1423.70-1510.60**	**16**	**119.80-176.80, 666.00-687.30, 757.40-774.20, 762.90-774.20, 972.30-995.20, 1011.60-1014.70, 1051.60-1071.40, 1085.10-1095.80, 111.00-1132.90, 1109.50-1132.90, 1125.90-1132.90, 1144.50-1167.40, 1221.60-1249.70, 1112.50-1127.80, 1382.30-1418.80, 1382.30-1418.80**	**6**	**Induction (191.40-1508.20), BHC Acoustilog (182.90-1507.80), Temp (51.80-1495.00), Temp (1249.70-1509.40), Neutron (1417.30-1507.50), Gamma Ray (1417.30-1503.90)**
22	**08/30/1962**	**Pilot Test**	**1**	**1423.70-1509.70**	**0**	**N/A**	**3**	**BHC Acoustilog (185.00-1509.10), Directional Survey (31.40-1509.70), Temp (61.00-1496.60)**
23	**09/18/1962**	**Disposal**	**0**	**N/A**	**0**	**N/A**	**1**	**Electric (184.70-999.10)**
24	**08/22/1962**	**Water Supply**	**0**	**N/A**	**0**	**N/A**	**1**	**Electric (181.10-669.30)**
25	04/25/1962	Potash Test Well	1	1374.00-1441.70	0	N/A	6	Gamma Ray (1371.60-1437.40), Gamma Ray-Neutron (1219.20-1441.10), BHC Acoustilog (184.10-1191.20), BHC Acoustilog (1158.20-1438.00), Induction Laterlog (184.10-1191.80), Neutron Log (1371.60-1441.10)

Wells in permit area
Wells outside permit area
Prairie Evaporite or Patience Lake; Gamma log
Prairie Evaporite; Log and assay

DH #	Present	UTILITY	Available, does not cover Prairie Evaporites	Required
01	No Additional Data	No data; Licensed to Prairie Evaporite	N/A	None
02	No Additional Data	No data; Licensed to Prairie Evaporite	N/A	None
03	No Additional Data	TD in Interlake, gamma log through Prairie Evaporite	5 Core Analyses, 15 DSTs, Electric Log (162.20-888.20), Laterlog (2800-6000)	Gamma Ray (3.00-1831.20), Microlog-Caliper (701.00-1831.20)
04	No Additional Data	No data; No licensed depth	N/A	None
05	No Additional Data	TD in Interlake, log and core through Patience Lake	3 Core Analyses, 3 DSTs, Electric Log (163.70-1792.20)	Core Analysis (1596.20-1601.10),
06	No Additional Data	No data; No licensed depth	N/A	None
07	Borehole Compensated Sonic Log (192.30-1770.00)	TD in Interlake; Log through Prairie Evaporite	Core Analysis (1677.90-1689.80), 3 DSTs, Gamma Ray (1553.90-1667.00), Laterlog (192.30-1766.60)	Continuous Velocity (192.30-1770.00), Directional (19230-1770.90)
08	Sonic Log with Gamma Ray and Caliper (BHC Acoustilog) (157.00-1523.70)	**TD in Prairie, log and assay**	Core Analysis (1677.90-1689.80), 3 DSTs, Gamma Ray (1553.90-1667.00), Laterlog (192.30-1766.60), Induction (157.00-1522.50)	Part of Core Analysis (1460.00-1524.00), Continuous Velocity (167.60-1508.80)
09	No Additional Data	**TD in Birdbear, NDE**	Continuous Velocity, Electric Log, Gamma Ray, Laterlog, Microlog	None
10	No Additional Data	**TD in Jurassic, NDE**	Core Analysis, Induction Electric, Sonic-Caliper, Gamma Ray-Neutron	None
11	**Core Analysis (1462.10-1533.80), Gamma Ray-Neutron Log (178.00-1531.30)**	**TD in Prairie, log and assay**	**Caliper (176.80-1034.80), Cement Bond (6.10-1494.70, 868.70-1495.30)**	**Induction Electric (178.00-1528.90), Sonic-Caliper (1034.80-1530.70), Gamma Ray (1450.80-1529.20), Neutron (1446.60-1477.10), Collar Locator (1446.60-1477.10)**
12	No Additional Data	**TD in Jurassic, NDE**	Core Analysis, BHC Acoustilog, Gamma Ray, Gamma Ray-Neutron Log, Sonic Log	None
13	Core Analysis (1462.10-1533.80)	**TD in Prairie, log and assay**	Cement Bond (9.10-591.30), Caliper (154.80-694.90), Sonic-Caliper (694.90-1079.00), Microseismogram (853.40-944.90), Cement Bond (853.40-947.30). Caliper (1079.00-1447.80), Gamma Ray (1444.80-1532.80), Sonic Caliper (1447.80-1533.80), Gamma Ray-Neutron (154.80-1533.80), Cement Bond (1330.10-1490.20)	Temp (36.60-1506.30), Depth Determination (1461.80-1507.20), Directional Survey (37.50-1534.10), Microseismogram (0.30-1508.80), Microsesimogram (1341.10-1493.50)
14	No Additional Data	**TD in Prairie, log only?**	Electric Log (5.20-26.50), Sonic Caliper (664.50-985.10). Cement Bond (49.10-470.90), Flowmeter Survey (605.30-651.70), Caliper (162.20-664.50, 985.10-1368.60), Cement Bond (1051.60-1511.50), Gamma Ray-Neutron (1444.80-1504.50, 6.10-1505.70), Sonic-Caliper (1368.60-1503.60), Gamma Ray	Core Analysis (1461.50-1484.10), Completion Record (1431.30-1475.20), Flowmeter Survey (1319.80-1514.90),
15	No Additional Data	**TD in Prairie, log only**	5 DSTs, Gamma Ray (6.10-1427.70), Electric Log (156.40-1427.10), Laterlog (801.60-1427.10), Microlog (518.20-1427.10)	None
16	No Additional Data	**TD in Prairie, log only**	20 Core Analyses, 4 DSTs, Electric Log (100.00-1407.00), Microlog (609.60-1406.30), Gamma Ray (0.30-1407.00)	None
17	No Additional Data	**TD in Birdbear, NDE**	Core Analysis, Continuous Velocity, Electric Log, Gamma Ray, Laterlog, Microlog	None
18	Core Analysis (1446.30-1514.90), Sonic Log with Gamma Ray and Caliper (182.90-1514.90)	**TD in Prairie, log and assay**	Induction Log (182.90-1513.30)	None
19	No Additional Data	**TD in Souris River, NDE**	Core Analysis, Continuous Velocity, Electric Log, Porosity-Lithology Log, Microlog	None
20	Gamma Ray-Neutron Log (1448-1527)	**TD in Prairie, log and assay**	Core Analysis (434.30-506.00), DST (484.60-506.00), Neutron (1429.50-1537.70), Induction Log (188.40-1535.60), BHC Acoustilog (188.40-1535.30),	Part of Core Analysis (1453.00-1538.60), Directional Survey (188.40-1534.70)
21	Gamma Ray (1417.30-1503.90), Temperature (1249.70-1509.40)	**TD in Prairie, log and assay**	10 Core Analyses, 16 DSTs, Induction (191.40-1508.20), BHC Acoustilog (182.90-1507.80), Neutron (1417.30-1507.50)	Part of Core Analysis (1423.70-1510.60), Temperature (51.80-1495.00)
22	Sonic Log with Gamma Ray and Caliper (BHC Acoustilog) (185.00-1509.10), Gamma Ray (1420.70-1503.00)	**TD in Prairie, log only**	Temperature (61.00-1496.60)	Core Analysis (1423.70-1509.70), Directional Survey (31.40-1509.70)
23	Electric Log (184.70-999.10) - Only shown from 184.70-259.10 on page, rest of log missing	**TD in Birdbear, NDE**	Electric Log (259.10-999.10)	None
24	No Additional Data	**TD in Mannville, NDE**	Electric Log (181.10-669.30)	None
25	No Additional Data	**TD in Prairie, log only**	BHC Acoustilog (184.10-1191.20), Induction Laterlog (194.10-1191.80), Neutron Log (1371.60-1441.10), BHC Acoustilog (1158.20-1438.00), Gamma Ray-Neutron (1219.20-1441.10), Gamma Ray (1371.60-1437.40)	Core Analysis (1374.00-1441.70),

Wells in permit area
Wells outside permit area
Prairie Evaporite or Patience Lake; Gamma log
Prairie Evaporite; Log and assay

APPENDIX 3:

ASSAY DATA FOR HOLES CORED WITHIN PERMIT AREA OF PERMIT KP 289

Nrel #: DH 08
WELL: IMP Lumsden
UWI: 11-11-20-22-W2

Sample	From	To	Interval	K	K20	Mg	Carnallite ($MgCl_2$ Equivalent)	Ca	Na	Cl	S04	Water Insol
	4816.30	4819.00	2.70	22.60	27.22	0.06	0.23	0.54	16.30	46.00	1.31	13.70
	4819.00	4820.80	1.80	12.40	14.94	0.12	0.47	0.49	22.30	45.90	1.18	17.60
	4820.80	4824.35	3.55	15.50	18.67	0.14	0.55	0.48	18.90	43.80	1.15	20.00
	4824.35	4827.90	3.55	26.90	32.40	0.05	0.20	0.42	15.30	48.20	1.01	8.20
	4827.90	4833.50	5.60	17.90	21.56	0.09	0.35	0.39	19.90	47.20	0.95	13.20
Sample Missing	**4833.50**	**4854.60**	**21.10**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4854.60	4860.30	5.70	10.50	12.65	0.04	0.16	0.18	30.50	56.70	0.44	1.40
	4860.30	4862.90	2.60	19.60	23.61	0.12	0.47	0.45	16.30	43.40	1.07	19.30
Sample Missing	**4862.90**	**4872.80**	**9.90**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4872.80	4877.20	4.40	29.80	35.90	0.04	0.16	0.11	16.10	52.00	0.25	1.70
	4877.20	4881.00	3.80	15.70	18.91	0.05	0.20	0.16	26.00	54.50	0.38	2.80
	4881.00	4890.70	9.70	19.00	22.89	0.06	0.23	0.26	22.50	52.20	0.61	5.50
	4890.70	4896.00	5.30	6.00	7.23	0.12	0.47	0.11	33.00	56.80	0.25	2.90
	4896.00	4899.70	3.70	12.50	15.06	0.07	0.27	0.22	28.50	55.50	0.52	2.20
Sample Missing	**4899.70**	**4917.80**	**18.10**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4917.80	4920.30	2.50	25.90	31.20	0.06	0.23	0.13	18.60	52.40	0.31	2.30
Sample Missing	**4920.30**	**4933.70**	**13.40**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4933.70	4937.50	3.80	7.20	8.67	0.12	0.47	0.10	32.60	57.50	0.23	2.00
Sample Missing	**4937.50**	**4953.40**	**15.90**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4953.40	4960.00	6.60	36.50	43.97	0.06	0.23	0.09	10.80	50.30	0.21	2.00
	4960.00	4961.80	1.80	23.20	27.95	0.08	0.31	0.07	19.80	51.70	0.18	4.90
	4961.80	4967.80	6.00	33.50	40.35	0.08	0.31	0.12	11.90	49.40	0.28	5.30
	4967.80	4973.50	5.70	15.00	18.07	0.02	0.08	0.26	26.20	54.10	0.61	4.90

Nrel #: DH 11
WELL: Lumsden Potash 1 Bethune
UWI: 2-17-20-23-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Insols
1A	4817.0	4818.0	1.0	4.77	3.01	0.31	1.60
1	4818.0	4819.0	1.0	25.17	15.90	0.31	3.12
2	4819.0	4820.0	1.0	66.36	41.92	0.20	2.20
3	4820.0	4821.0	1.0	73.90	46.68	0.31	1.16
4	4821.0	4822.0	1.0	43.86	27.71	0.31	8.40
5	4822.0	4823.0	1.0	6.48	4.09	0.31	17.54
6	4823.0	4824.0	1.0	8.96	5.66	0.39	32.36
7	4824.0	4825.0	1.0	38.90	24.57	0.20	3.32
8	4825.0	4826.0	1.0	12.59	7.95	0.47	4.40
9	4826.0	4827.0	1.0	22.50	14.21	0.08	13.16
10	4827.0	4827.3	0.3	4.20	2.65	0.90	38.40
11	4827.3	4827.8	0.5	36.23	22.89	0.35	8.18
12	4827.8	4827.9	0.1	7.25	4.58	0.39	37.26
13	4827.9	4828.1	0.2	38.71	24.45	1.53	11.54
14	4828.1	4829.0	0.9	10.97	6.93	0.74	28.64
15	4829.0	4830.0	1.0	3.43	2.17	0.63	29.22
16	4830.0	4830.5	0.5	6.67	4.21	0.20	20.52
17	4830.5	4831.5	1.0	36.23	22.89	0.63	14.32
18	4831.5	4831.9	0.4	40.43	25.54	0.47	11.46
19	4831.9	4832.1	0.2	15.83	10.00	0.94	35.50
20	4832.1	4833.0	0.9	45.39	28.67	0.39	3.80
21	4833.0	4834.0	1.0	61.69	38.97	0.39	1.74
22	4834.0	4835.2	1.2	52.84	33.38	0.00	3.12
24	4835.2	4835.3	0.1	12.87	8.13	0.55	25.76
26	4835.3	4836.5	1.2	52.60	33.23	0.39	9.68
27	4836.5	4837.6	1.1	46.20	29.18	0.16	2.14
28	4837.6	4837.9	0.3	17.16	10.84	0.71	39.90
29	4837.9	4838.8	0.9	46.34	29.27	0.24	9.88
31	4838.8	4840.0	1.2	16.21	10.24	0.39	27.96
32	4840.0	4841.0	1.0	16.50	10.42	0.27	24.10
33	4841.0	4842.0	1.0	4.10	2.59	0.67	7.50
34	4842.0	4842.4	0.4	28.70	18.13	0.27	6.92
35	4842.4	4843.0	0.6	8.30	5.24	0.71	19.12
36	4843.0	4844.0	1.0	41.00	25.90	0.24	2.00
37	4844.0	4845.0	1.0	57.02	36.02	0.39	5.72
38	4845.0	4845.6	0.6	64.08	40.48	0.27	3.02
39	4845.6	4845.8	0.2	4.00	2.53	0.78	21.58
40	4845.8	4846.0	0.2	5.05	3.19	0.47	18.92
41	4846.0	4847.0	1.0	22.12	13.97	0.35	1.74
42	4847.0	4848.0	1.0	34.33	21.69	0.24	0.80
43	4848.0	4849.0	1.0	50.92	32.17	0.27	0.20
44	4849.0	4850.0	1.0	15.07	9.52	0.47	2.76
45	4850.0	4851.0	1.0	12.87	8.13	0.63	11.40
46	4851.0	4852.1	1.1	52.63	33.25	0.55	3.90
47	4852.1	4853.0	0.9	35.85	22.65	0.63	15.84
48	4853.0	4854.0	1.0	43.29	27.35	0.63	5.58
49	4854.0	4855.0	1.0	58.93	37.23	0.43	2.56
50	4855.0	4856.0	1.0	48.72	30.78	0.47	5.32

Nrel #: **DH 11**
WELL: **Lumsden Potash 1 Bethune**
UWI: **2-17-20-23-W2**

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Insols
51	4856.0	4857.0	1.0	47.01	29.70	0.24	1.24
52	4857.0	4858.0	1.0	29.37	18.55	0.55	12.52
53	4858.0	4859.0	1.0	50.34	31.80	0.39	6.24
54	4859.0	4859.6	0.6	57.20	36.13	0.16	1.94
55	4859.6	4859.8	0.2	13.92	8.79	0.74	28.94
56	4859.8	4860.5	0.7	48.05	30.35	0.47	8.74
57	4860.5	4861.5	1.0	45.96	29.03	0.31	3.20
58	4861.5	4862.5	1.0	37.95	23.97	0.16	2.32
59	4862.5	4863.5	1.0	6.39	4.04	0.35	3.66
60	4863.5	4864.5	1.0	7.63	4.82	0.27	4.22
61	4864.5	4865.5	1.0	18.50	11.69	0.47	1.98
62	4865.5	4866.5	1.0	16.24	10.26	0.24	0.23
63	4866.5	4867.0	0.5	24.54	15.50	0.47	0.15
64	4867.0	4868.0	1.0	4.58	2.89	0.55	20.70
65	4868.0	4869.0	1.0	5.73	3.62	0.98	0.84
66	4869.0	4870.0	1.0	21.20	13.39	0.47	2.50
67	4870.0	4870.5	0.5	58.64	37.04	0.35	0.72
68	4870.5	4871.0	0.5	21.96	13.87	1.96	22.80
69	4871.0	4871.5	0.5	58.45	36.92	0.55	4.90
70	4871.5	4872.3	0.8	8.60	5.43	1.18	43.40
71	4872.3	4873.0	0.7	4.11	2.60	0.67	2.40
72	4873.0	4874.0	1.0	3.72	2.35	1.33	2.86
73	4874.0	4875.0	1.0	2.67	1.69	0.90	0.46
74	4875.0	4876.0	1.0	3.44	2.17	0.31	0.48
75	4876.0	4876.5	0.5	1.53	0.97	0.24	0.44
76	4876.0	4877.0	1.0	5.54	3.50	0.71	0.76
Sample Missing	**4877.0**	**4882.0**	**5.0**	**N/A**	N/A	**N/A**	**N/A**
77	4882.0	4883.0	1.0	12.80	8.09	1.96	11.40
78	4883.0	4884.0	1.0	24.45	15.45	0.67	2.90
79	4884.0	4885.0	1.0	26.64	16.83	0.16	0.14
80	4885.0	4886.0	1.0	11.08	7.00	0.67	0.36
81	4886.0	4887.0	1.0	12.42	7.85	0.63	2.70
82	4887.0	4888.0	1.0	16.90	10.68	1.41	7.66
83	4888.0	4889.0	1.0	31.90	20.15	0.35	1.94
84	4889.0	4890.0	1.0	51.95	32.82	0.94	1.40
85	4890.0	4890.9	0.9	48.51	30.64	0.70	2.14
86	4890.9	4891.1	0.2	45.84	28.96	0.47	3.98
87	4891.1	4892.0	0.9	24.45	15.45	0.24	3.92
88	4892.0	4893.0	1.0	37.34	23.59	0.16	1.84
89	4893.0	4894.0	1.0	23.49	14.84	0.63	1.84
90	4894.0	4895.0	1.0	21.30	13.46	0.35	5.96
91	4895.0	4896.0	1.0	44.60	28.17	0.35	4.68
92	4896.0	4897.0	1.0	45.84	28.96	0.27	4.98
93	4897.0	4898.0	1.0	45.46	28.72	0.31	4.52
94	4898.0	4899.0	1.0	28.46	17.98	0.24	1.20
95	4899.0	4899.7	0.7	29.70	18.76	0.20	1.02
95A	4899.7	4899.8	0.1	5.25	3.32	0.55	16.04
96	4899.8	4901.0	1.2	6.11	3.86	0.39	6.10
97	4901.0	4902.0	1.0	6.02	3.80	0.27	42.10
98	4902.0	4903.0	1.0	5.54	3.50	0.16	1.24
99	4903.0	4904.0	1.0	2.85	1.80	0.20	1.44
100	4904.0	4905.0	1.0	21.77	13.75	0.27	2.12

Nrel #: **DH 11**
WELL: **Lumsden Potash 1 Bethune**
UWI: **2-17-20-23-W2**

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Insols
101	4905.0	4906.0	1.0	16.62	10.50	0.35	4.18
102	4906.0	4907.0	1.0	25.40	16.05	0.23	2.54
103	4907.0	4908.0	1.0	47.37	29.92	0.23	1.34
104	4908.0	4908.9	0.9	58.26	36.80	0.16	1.60
105	4908.9	4909.1	0.2	65.90	41.63	1.13	50.80
106	4909.1	4910.0	0.9	0.57	0.36	0.35	2.32
107	4910.0	4911.0	1.0	0.48	0.30	0.31	1.32
108	4911.0	4912.0	1.0	5.35	3.38	0.27	0.80
109	4912.0	4912.9	0.9	2.29	1.45	0.31	1.42
110	4912.9	4913.2	0.3	1.53	0.97	0.98	13.30
111	4913.2	4913.7	0.5	0.57	0.36	1.25	0.36
112	4913.7	4914.0	0.3	5.54	3.50	1.06	34.02
Sample Missing	**4914.0**	**4927.0**	**13.0**	**N/A**	N/A	**N/A**	**N/A**
113	4927.0	4928.0	1.0	8.69	5.49	0.47	4.48
114	4928.0	4929.0	1.0	46.03	29.08	0.08	1.68
115	4929.0	4929.6	0.6	69.79	44.09	0.27	2.16
116	4929.6	4929.7	0.1	9.17	5.79	0.70	17.66
117	4929.7	4931.0	1.3	3.72	2.35	0.39	3.56
118	4931.0	4931.2	0.2	3.44	2.17	0.47	5.24
119	4931.2	4932.0	0.8	9.36	5.91	0.35	1.44
120	4932.0	4933.0	1.0	2.29	1.45	0.31	0.64
121	4933.0	4934.0	1.0	5.06	3.20	0.39	0.12
122	4934.0	4935.0	1.0	2.48	1.57	1.80	0.68
Sample Missing	**4935.0**	**4941.0**	**6.0**	**N/A**	N/A	**N/A**	**N/A**
123	4941.0	4942.0	1.0	1.72	1.09	0.94	5.14
124	4942.0	4943.0	1.0	23.11	14.60	1.60	1.72
125	4943.0	4944.0	1.0	24.83	15.69	1.33	2.80
126	4944.0	4945.0	1.0	15.66	9.89	0.39	1.30
127	4945.0	4946.0	1.0	7.16	4.52	0.27	1.50
128	4946.0	4947.0	1.0	4.78	3.02	0.31	2.48
129	4947.0	4948.0	1.0	5.54	3.50	0.23	6.88
130	4948.0	4949.0	1.0	4.58	2.89	0.23	1.24
131	4949.0	4950.0	1.0	2.67	1.69	0.47	1.78
--	4950.0	4954.0	4.0	3.92	2.48	0.00	0.78
Sample Missing	**4954.0**	**4962.0**	**8.0**	**N/A**	N/A	**N/A**	**N/A**
132	4962.0	4963.0	1.0	3.92	2.48	0.00	0.78
133	4963.0	4964.0	1.0	13.37	8.45	0.39	1.64
134	4964.0	4965.0	1.0	13.06	8.25	0.02	0.50
135	4965.0	4966.0	1.0	13.64	8.62	0.43	0.20
136	4966.0	4967.0	1.0	13.35	8.43	0.20	0.60
137	4967.0	4968.0	1.0	22.50	14.21	0.14	0.20
138	4968.0	4969.0	1.0	37.37	23.61	0.20	1.00
139	4969.0	4970.0	1.0	17.74	11.21	0.90	0.60
140	4970.0	4971.0	1.0	15.92	10.06	0.21	0.01
141	4971.0	4972.0	1.0	12.78	8.07	0.12	0.50
142	4972.0	4972.5	0.5	19.64	12.41	0.20	1.10
143	4972.5	4973.0	0.5	14.87	9.39	0.27	2.00
144	4973.0	4974.0	1.0	10.20	6.44	0.35	9.40
145	4974.0	4975.0	1.0	8.77	5.54	0.43	18.10
146	4975.0	4975.6	0.6	21.11	13.34	0.35	6.10
147	4975.6	4976.0	0.4	60.26	38.07	0.31	0.80
148	4976.0	4977.0	1.0	35.04	22.13	0.24	1.60
149	4977.0	4978.0	1.0	11.44	7.23	0.20	2.60
150	4978.0	4979.0	1.0	6.48	4.09	0.30	7.00

Nrel #: DH 11
WELL: Lumsden Potash 1 Bethune
UWI: 2-17-20-23-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Insols
151	4979.0	4980.0	1.0	13.92	8.79	0.27	3.40
152	4980.0	4981.0	1.0	30.99	19.58	0.12	1.00
153	4981.0	4982.0	1.0	25.74	16.26	0.39	0.40
154	4982.0	4983.0	1.0	26.51	16.75	0.20	0.40
155	4983.0	4984.0	1.0	23.84	15.06	0.39	1.40
156	4984.0	4985.0	1.0	17.93	11.33	0.27	2.20
157	4985.0	4986.0	1.0	12.11	7.65	0.20	0.40
158	4986.0	4987.0	1.0	18.40	11.62	0.12	3.00
159	4987.0	4988.0	1.0	6.29	3.97	0.20	3.60
Sample Missing	**4988.0**	**5001.0**	**13.0**	**N/A**	**N/A**	**N/A**	**N/A**
160	5001.0	5002.0	1.0	12.59	7.95	0.16	1.00
161	5002.0	5003.0	1.0	12.01	7.59	0.28	2.00
162	5003.0	5004.0	1.0	12.20	7.71	0.12	1.00
163	5004.0	5005.0	1.0	4.77	3.01	0.08	0.40
164	5005.0	5006.0	1.0	7.06	4.46	0.16	0.20
165	5006.0	5007.0	1.0	7.63	4.82	0.08	0.60
166	5007.0	5008.0	1.0	1.14	0.72	0.16	1.40
167	5008.0	5009.0	1.0	16.78	10.60	0.12	0.20
168	5009.0	5010.0	1.0	1.78	1.12	2.00	0.60

Nrel #: DH 13
WELL: Lumsden Potash 3 Bethune
UWI: 2-17-20-23-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Carnallite	NaCl	Water Insol
1	4797.0	4798.0	1.0	2.24	1.42	0.94	0.94	5.57	91.25
2	4798.0	4799.0	1.0	0.67	0.42	0.48	0.48	5.39	93.46
3	4799.0	4800.0	1.0	0.32	0.20	0.47	0.47	10.47	88.74
4	4800.0	4801.0	1.0	0.38	0.24	0.50	0.50	30.77	68.35
5	4801.0	4802.0	1.0	1.15	0.73	0.48	0.48	54.37	44.00
6	4802.0	4803.0	1.0	0.34	0.21	0.00	0.00	28.78	70.88
7	4803.0	4804.0	1.0	2.23	1.41	0.44	0.44	94.29	3.04
8	4804.0	4805.0	1.0	5.73	3.62	0.16	0.16	93.06	1.05
9	4805.0	4806.0	1.0	1.89	1.19	0.11	0.11	95.00	3.01
10	4806.0	4807.0	1.0	4.73	2.99	0.24	0.24	93.51	1.52
11	4807.0	4808.0	1.0	0.00	0.00	0.35	0.35	92.74	6.91
12	4808.0	4809.0	1.0	12.52	7.91	0.17	0.17	85.96	1.33
13	4809.0	4810.0	1.0	1.10	0.69	0.38	0.38	82.28	16.24
14	4810.0	4811.0	1.0	18.76	11.85	0.00	0.00	79.83	1.41
15	4811.0	4812.0	1.0	1.69	1.07	0.39	0.39	92.44	5.48
16	4812.0	4813.0	1.0	0.00	0.00	0.46	0.46	64.74	34.80
17	4813.0	4814.0	1.0	0.28	0.18	0.31	0.31	90.96	8.45
18	4814.0	4815.0	1.0	0.20	0.13	0.30	0.30	95.02	4.38
19	4815.0	4816.0	1.0	0.15	0.09	0.23	0.23	85.61	14.01
20	4816.0	4817.0	1.0	0.36	0.23	0.36	0.36	67.39	31.59
21	4817.0	4818.0	1.0	0.68	0.43	0.10	0.10	81.52	17.70
22	4818.0	4819.0	1.0	0.24	0.15	0.29	0.29	91.26	8.21
23	4819.0	4820.0	1.0	0.61	0.39	0.33	0.33	94.16	4.85
24	4820.0	4821.0	1.0	0.42	0.27	0.18	0.18	97.71	1.69
25	4821.0	4822.0	1.0	2.10	1.33	0.27	0.27	95.73	1.90
26	4822.0	4823.0	1.0	0.86	0.54	0.28	0.28	73.39	25.47
27	4823.0	4824.0	1.0	18.59	11.74	0.15	0.15	77.35	3.91
28	4824.0	4825.0	1.0	22.30	14.09	0.20	0.20	76.38	1.12
29	4825.0	4826.0	1.0	3.47	2.19	0.14	0.14	95.74	0.65
30	4826.0	4827.0	1.0	6.85	4.33	0.19	0.19	91.68	1.28
31	4827.0	4828.0	1.0	6.45	4.07	0.27	0.27	90.03	3.25
32	4828.0	4829.0	1.0	3.52	2.22	0.41	0.41	94.25	1.12
33	4829.0	4830.0	1.0	5.39	3.40	0.37	0.37	92.35	1.89
34	4830.0	4831.0	1.0	45.15	28.52	0.41	0.41	51.59	3.05
35	4831.0	4832.0	1.0	64.54	40.77	0.18	0.18	32.09	3.19
36	4832.0	4833.0	1.0	52.50	33.16	0.23	0.23	43.22	4.25
37	4833.0	4834.0	1.0	46.41	29.32	0.49	0.49	37.55	15.55
38	4834.0	4835.0	1.0	9.51	6.01	0.16	0.16	61.58	28.75
39	4835.0	4836.0	1.0	3.34	2.11	0.64	0.64	78.99	17.03
40	4836.0	4837.0	1.0	6.21	3.92	1.12	1.12	32.17	60.50
41	4837.0	4838.0	1.0	3.80	2.40	0.72	0.72	56.78	38.70
42	4838.0	4839.0	1.0	4.51	2.85	0.58	0.58	73.63	21.28
43	4839.0	4840.0	1.0	10.49	6.63	0.57	0.57	64.71	26.23
44	4840.0	4841.0	1.0	6.83	4.31	0.36	0.36	76.76	16.05
45	4841.0	4842.0	1.0	8.79	5.55	0.76	0.76	51.02	39.43
46	4842.0	4843.0	1.0	8.88	5.61	0.78	0.78	51.40	38.94
47	4843.0	4844.0	1.0	11.58	7.32	0.55	0.55	45.42	42.45
48	4844.0	4845.0	1.0	8.17	5.16	0.92	0.92	43.86	37.05
49	4845.0	4846.0	1.0	4.72	2.98	0.88	0.88	71.84	22.56
50	4846.0	4847.0	1.0	16.93	10.69	0.58	0.58	66.08	16.41

Nrel #: DH 13
WELL: Lumsden Potash 3 Bethune
UWI: 2-17-20-23-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Carnallite	NaCl	Water Insol
51	4847.0	4848.0	1.0	40.77	25.75	0.40	0.40	47.09	11.74
52	4848.0	4849.0	1.0	40.23	25.41	0.31	0.31	51.79	7.67
53	4849.0	4850.0	1.0	50.06	31.62	0.45	0.45	42.12	7.37
54	4850.0	4851.0	1.0	40.99	25.89	0.45	0.45	21.52	28.04
55	4851.0	4852.0	1.0	31.99	20.21	0.80	0.80	42.89	24.32
56	4852.0	4853.0	1.0	29.67	18.74	0.22	0.22	62.26	7.85
57	4853.0	4854.0	1.0	5.54	3.50	0.35	0.35	87.29	6.82
58	4854.0	4855.0	1.0	14.48	9.15	0.45	0.45	67.78	17.29
59	4855.0	4856.0	1.0	23.05	14.56	0.43	0.43	65.80	10.72
60	4856.0	4857.0	1.0	53.07	33.52	0.17	0.17	38.18	8.58
61	4857.0	4858.0	1.0	35.44	22.39	0.58	0.58	49.84	14.14
62	4858.0	4859.0	1.0	16.55	10.45	0.28	0.28	71.38	11.75
63	4859.0	4860.0	1.0	14.88	9.40	0.00	0.00	83.90	1.22
64	4860.0	4861.0	1.0	40.15	25.36	0.00	0.00	59.16	0.69
65	4861.0	4862.0	1.0	41.95	26.50	0.00	0.00	57.21	0.84
66	4862.0	4863.0	1.0	4.36	2.75	0.27	0.27	85.99	9.38
67	4863.0	4864.0	1.0	21.15	13.36	0.52	0.52	54.25	24.08
68	4864.0	4865.0	1.0	61.60	38.91	0.00	0.00	36.88	1.52
69	4865.0	4866.0	1.0	31.27	19.75	0.58	0.58	45.60	22.55
70	4866.0	4867.0	1.0	41.80	26.41	0.24	0.24	53.14	4.82
71	4867.0	4868.0	1.0	31.14	19.67	0.49	0.49	45.60	22.77
72	4868.0	4869.0	1.0	42.72	26.99	0.18	0.18	51.74	5.36
73	4869.0	4870.0	1.0	31.73	20.04	0.39	0.39	53.76	14.12
74	4870.0	4871.0	1.0	36.19	22.86	0.31	0.31	45.64	17.86
75	4871.0	4872.0	1.0	51.20	32.34	0.00	0.00	56.60	2.90
76	4872.0	4873.0	1.0	54.91	34.69	0.34	0.34	39.88	4.87
77	4873.0	4874.0	1.0	50.03	31.60	0.17	0.17	44.95	4.85
78	4874.0	4875.0	1.0	35.76	22.59	0.10	0.10	61.77	2.37
79	4875.0	4876.0	1.0	7.47	4.72	0.13	0.13	47.86	44.54
80	4876.0	4877.0	1.0	3.24	2.05	0.39	0.39	86.98	10.39
Core #2									
81	4877.0	4878.0	1.0	10.01	6.32	0.12	0.12	89.05	0.82
82	4878.0	4879.0	1.0	17.06	10.78	0.08	0.08	82.17	0.69
83	4879.0	4880.0	1.0	16.84	10.64	0.13	0.13	82.35	0.68
84	4880.0	4881.0	1.0	9.15	5.78	0.00	0.00	90.67	0.18
85	4881.0	4882.0	1.0	17.50	11.05	0.38	0.38	81.59	0.53
86	4882.0	4883.0	1.0	6.27	3.96	0.21	0.21	88.99	4.53
87	4883.0	4884.0	1.0	26.47	16.72	0.28	0.28	66.37	6.88
88	4884.0	4885.0	1.0	26.18	16.54	0.43	0.43	51.07	22.32
89	4885.0	4886.0	1.0	11.22	7.09	0.68	0.68	62.61	25.49
90	4886.0	4887.0	1.0	15.64	9.88	0.64	0.64	63.77	19.95
91	4887.0	4888.0	1.0	5.45	3.44	0.61	0.61	89.74	4.20
92	4888.0	4889.0	1.0	2.70	1.71	0.21	0.21	95.87	1.22
93	4889.0	4890.0	1.0	3.62	2.29	0.20	0.20	95.31	0.87
94	4890.0	4891.0	1.0	2.02	1.28	0.18	0.18	97.21	0.59
95	4891.0	4892.0	1.0	2.02	1.28	0.14	0.14	97.11	0.73
96	4892.0	4893.0	1.0	2.54	1.60	0.30	0.30	96.48	0.68
97	4893.0	4894.0	1.0	1.97	1.24	0.25	0.25	97.02	0.76
98	4894.0	4895.0	1.0	2.09	1.32	0.17	0.17	97.54	0.20
99	4895.0	4896.0	1.0	1.67	1.05	0.26	0.26	91.74	6.33
100	4896.0	4897.0	1.0	3.56	2.25	0.21	0.21	79.34	16.89

Nrel #: DH 13
WELL: Lumsden Potash 3 Bethune
UWI: 2-17-20-23-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Carnallite	NaCl	Water Insol
101	4897.0	4898.0	1.0	26.88	16.98	0.15	0.15	70.63	2.34
102	4898.0	4899.0	1.0	28.80	18.19	0.00	0.00	70.86	0.54
103	4899.0	4900.0	1.0	62.30	39.35	0.00	0.00	37.22	0.48
104	4900.0	4901.0	1.0	26.60	16.80	0.00	0.00	71.19	2.21
105	4901.0	4902.0	1.0	37.09	23.43	0.00	0.00	61.34	1.57
106	4902.0	4903.0	1.0	45.51	28.75	0.15	0.15	52.22	2.12
107	4903.0	4904.0	1.0	37.73	23.83	0.24	0.24	59.20	2.83
108	4904.0	4905.0	1.0	46.96	29.66	0.14	0.14	50.09	2.86
109	4905.0	4906.0	1.0	42.10	26.59	0.09	0.09	55.94	1.87
110	4906.0	4907.0	1.0	41.46	26.19	0.14	0.14	58.03	0.37
111	4907.0	4908.0	1.0	30.65	19.36	0.17	0.17	66.27	2.91
112	4908.0	4909.0	1.0	45.06	28.46	0.16	0.16	51.75	3.03
113	4909.0	4910.0	1.0	36.93	23.33	0.13	0.13	62.47	0.77
114	4910.0	4911.0	1.0	22.63	14.30	0.14	0.14	76.56	0.77
115	4911.0	4912.0	1.0	38.32	24.21	0.28	0.28	60.39	1.01
116	4912.0	4913.0	1.0	39.78	25.13	0.24	0.24	51.32	8.66
117	4913.0	4914.0	1.0	58.18	36.75	0.13	0.13	38.09	3.60
118	4914.0	4915.0	1.0	34.28	21.65	0.15	0.15	64.53	1.04
119	4915.0	4916.0	1.0	25.39	16.04	0.34	0.34	70.29	3.98
120	4916.0	4917.0	1.0	13.68	8.64	0.19	0.19	82.62	3.51
121	4917.0	4918.0	1.0	10.67	6.74	0.14	0.14	85.24	3.95
122	4918.0	4919.0	1.0	6.28	3.97	0.09	0.09	91.46	2.17
123	4919.0	4920.0	1.0	8.41	5.31	0.14	0.14	91.13	0.32
124	4920.0	4921.0	1.0	6.45	4.07	0.11	0.11	92.67	0.77
125	4921.0	4922.0	1.0	7.29	4.61	0.11	0.11	91.90	0.70
126	4922.0	4923.0	1.0	13.18	8.33	0.11	0.11	85.28	1.43
127	4923.0	4924.0	1.0	15.11	9.54	0.21	0.21	83.30	1.38
128	4924.0	4925.0	1.0	30.37	19.18	0.16	0.16	69.03	0.42
129	4925.0	4926.0	1.0	42.85	27.07	0.20	0.20	48.28	8.67
130	4926.0	4927.0	1.0	1.74	1.10	0.32	0.32	91.52	6.42
131	4927.0	4928.0	1.0	1.43	0.90	0.12	0.12	97.38	1.07
132	4928.0	4929.0	1.0	0.20	0.13	0.11	0.11	99.50	0.19
133	4929.0	4930.0	1.0	1.38	0.87	0.19	0.19	98.14	0.69
134	4930.0	4931.0	1.0	2.69	1.70	0.32	0.32	84.87	12.12
135	4931.0	4932.0	1.0	41.69	26.34	0.19	0.19	49.84	8.25
136	4932.0	4933.0	1.0	3.52	2.22	0.38	0.38	95.66	0.44
137	4933.0	4934.0	1.0	2.39	1.51	0.28	0.28	97.92	0.41
138	4934.0	4935.0	1.0	1.79	1.13	0.26	0.26	97.06	0.89
139	4935.0	4936.0	1.0	2.05	1.29	0.22	0.22	97.44	0.29
140	4936.0	4937.0	1.0	3.04	1.92	0.14	0.14	96.14	0.58
141	4937.0	4938.0	1.0	1.92	1.21	0.25	0.25	97.35	0.48
142	4938.0	4939.0	1.0	3.25	2.05	0.18	0.18	96.13	0.44
143	4939.0	4940.0	1.0	2.83	1.79	0.04	0.04	96.87	0.26
144	4940.0	4941.0	1.0	3.89	2.46	0.20	0.20	95.53	0.38
145	4941.0	4942.0	1.0	2.63	1.66	0.20	0.20	95.31	0.86
146	4942.0	4943.0	1.0	2.40	1.52	0.30	0.30	97.03	0.27
147	4943.0	4944.0	1.0	3.60	2.27	0.24	0.24	95.73	0.43
148	4944.0	4945.0	1.0	1.87	1.18	0.44	0.44	85.24	12.47
149	4945.0	4946.0	1.0	4.84	3.06	0.24	0.24	92.23	2.69
150	4946.0	4947.0	1.0	8.61	5.44	0.17	0.17	89.20	2.02

Nrel #: DH 13
WELL: Lumsden Potash 3 Bethune
UWI: 2-17-20-23-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	Carnallite	NaCl	Water Insol
151	4947.0	4948.0	1.0	45.94	29.02	0.00	0.00	53.07	0.99
152	4948.0	4949.0	1.0	53.85	34.02	0.12	0.12	43.04	2.99
153	4949.0	4950.0	1.0	3.43	2.17	0.64	0.64	64.15	31.78
154	4950.0	4951.0	1.0	1.76	1.11	0.32	0.32	94.21	3.71
155	4951.0	4952.0	1.0	1.46	0.92	0.15	0.15	97.90	0.49
156	4952.0	4953.0	1.0	0.93	0.59	0.16	0.16	98.57	0.34
157	4953.0	4954.0	1.0	1.86	1.17	0.17	0.17	97.67	0.30
158	4954.0	4955.0	1.0	0.97	0.61	0.12	0.12	98.69	0.22
159	4955.0	4956.0	1.0	1.12	0.71	0.13	0.13	98.64	0.11
Core #3									
160	4955.0	4956.0	1.0	3.00	1.90	0.29	0.29	96.40	0.31
161	4956.0	4957.0	1.0	1.26	0.80	0.23	0.23	98.34	0.17
162	4957.0	4958.0	1.0	2.11	1.33	0.33	0.33	96.75	0.81
163	4958.0	4959.0	1.0	2.65	1.67	0.13	0.13	96.59	0.63
164	4959.0	4960.0	1.0	2.01	1.27	0.35	0.35	96.92	0.72
165	4960.0	4961.0	1.0	1.79	1.13	0.48	0.48	78.85	18.88
166	4961.0	4962.0	1.0	1.59	1.00	0.61	0.61	91.19	6.61
167	4962.0	4963.0	1.0	1.39	0.88	0.23	0.23	94.81	3.57
168	4963.0	4964.0	1.0	12.60	7.96	1.10	1.10	82.27	4.03
169	4964.0	4965.0	1.0	21.10	13.33	0.18	0.18	76.09	2.63
170	4965.0	4966.0	1.0	31.30	19.77	0.14	0.14	66.28	2.28
171	4966.0	4967.0	1.0	33.20	20.97	0.22	0.22	63.40	3.18
172	4967.0	4968.0	1.0	7.53	4.76	0.16	0.16	89.70	2.61
173	4968.0	4969.0	1.0	3.13	1.98	0.16	0.16	90.52	6.19
174	4969.0	4970.0	1.0	1.63	1.03	0.15	0.15	96.20	2.02
175	4970.0	4971.0	1.0	2.58	1.63	0.12	0.12	96.45	0.85
176	4971.0	4972.0	1.0	3.44	2.17	0.16	0.16	95.65	0.75
177	4972.0	4973.0	1.0	1.18	0.75	0.26	0.26	96.59	1.97
178	4973.0	4974.0	1.0	2.36	1.49	0.13	0.13	96.76	0.75
179	4974.0	4975.0	1.0	1.42	0.90	0.16	0.16	96.67	1.75
180	4975.0	4976.0	1.0	1.98	1.25	0.11	0.11	97.09	0.82
181	**4975.0**	**4976.0**	**1.0**	**3.26**	**2.06**	**0.88**	**0.88**	**94.70**	**0.44**
182	4976.0	4977.0	1.0	1.80	1.14	1.06	1.06	95.95	0.26
183	4977.0	4978.0	1.0	2.17	1.37	1.87	1.87	92.51	2.36
184	4978.0	4979.0	1.0	1.36	0.86	1.31	1.31	95.57	1.00
185	4979.0	4980.0	1.0	2.24	1.42	0.63	0.63	95.81	0.72
186	4980.0	4981.0	1.0	0.93	0.59	0.09	0.09	97.17	0.82
187	4981.0	4982.0	1.0	1.01	0.64	2.38	2.38	94.80	1.18
188	4982.0	4983.0	1.0	2.39	1.51	0.61	0.61	96.05	0.34
189	4983.0	4984.0	1.0	2.27	1.43	0.68	0.68	96.04	0.44
190	4984.0	4985.0	1.0	0.00	0.00	0.99	0.99	97.32	0.92
191	4985.0	4986.0	1.0	1.61	1.02	0.13	0.13	97.75	0.20
192	4986.0	4987.0	1.0	2.83	1.79	0.13	0.13	94.62	1.78
193	4987.0	4988.0	1.0	3.12	1.97	0.18	0.18	91.98	4.14
194	4988.0	4989.0	1.0	2.21	1.40	0.39	0.39	96.52	0.70
195	4989.0	4990.0	1.0	13.56	8.57	0.55	0.55	85.46	0.25
196	4990.0	4991.0	1.0	9.32	5.89	0.24	0.24	88.25	1.88
197	4991.0	4992.0	1.0	8.50	5.37	0.17	0.17	89.62	1.31
198	4992.0	4993.0	1.0	9.96	6.29	0.35	0.35	88.99	0.48
199	4993.0	4994.0	1.0	13.52	8.54	0.15	0.15	84.66	1.58
200	4994.0	4995.0	1.0	14.17	8.95	0.13	0.13	83.72	1.84
201	4995.0	4996.0	1.0	10.45	6.60	0.13	0.13	86.06	3.22
202	4996.0	4997.0	1.0	11.63	7.35	0.93	0.93	80.46	6.71
203	4997.0	4998.0	1.0	10.86	6.86	0.39	0.39	84.40	4.20
204	4998.0	4999.0	1.0	7.25	4.58	0.30	0.30	84.22	8.07
205	4999.0	5000.0	1.0	6.91	4.37	0.61	0.61	83.39	8.87

Nrel #: DH 18
WELL: Imperial Findlater 9-3
UWI: 9-3-21-25-W2

Sample	From	To	Interval	KCl	K20	Carnallite ($MgCl_2$ Equivalent)	CaSO4	NaCl	Water Insol
1	4772.70	4778.30	5.60	32.70	20.66	0.40	1.10	50.40	14.50
2	4778.30	4780.30	2.00	9.30	5.87	1.10	2.30	56.30	31.00
3	4780.30	4785.10	4.80	39.20	24.76	0.40	1.20	47.70	10.50
4	4785.10	4787.40	2.30	40.10	25.33	0.30	0.80	51.50	7.40
5	4787.40	4790.00	2.60	44.10	27.86	0.40	1.00	47.60	6.80
6	4790.00	4793.70	3.70	9.90	6.25	0.40	1.80	70.90	16.70
7	4793.70	4797.20	3.50	34.60	21.86	0.60	1.00	54.70	9.70
8	4797.20	4803.00	5.80	10.90	6.89	0.30	1.00	81.70	6.60
9	4803.00	4808.00	5.00	45.20	28.55	0.30	0.90	46.70	6.70
10	4808.00	4811.30	3.30	41.80	26.41	0.20	1.00	51.20	6.50
11	4811.30	4814.60	3.30	26.20	16.55	0.40	0.90	65.00	7.60
	Missing interval		19.40						
12	4834.00	4839.20	5.20	37.00	23.37	0.10	0.20	62.00	1.30
13	4839.20	4844.20	5.00	36.80	23.25	1.60	0.30	58.30	2.10
14	4844.20	4848.00	3.80	22.70	14.34	0.20	0.70	72.00	3.40
15	4848.00	4860.00	12.00	21.20	13.39	0.30	0.70	73.10	3.70
	Missing interval		59.60						
16	4919.60	4924.50	4.90	44.30	27.98	0.30	0.20	51.80	3.40
17	4924.50	4933.20	8.70	21.80	13.77	0.30	0.70	72.20	4.60
18	4933.20	4934.70	1.50	22.20	14.02	0.20	0.50	72.10	4.00
19	4934.70	4938.40	3.70	14.90	9.41	0.20	0.60	78.50	6.40
20	4938.40	4940.00	1.60	8.60	5.43	0.20	0.10	89.00	1.90
Sample Missing			**79.00**	N/A	0.00	N/A	N/A	N/A	N/A

Nrel #: **DH 20**
WELL: **Imperial Findlater 16-4**
UWI: **16-4-21-25-W2**

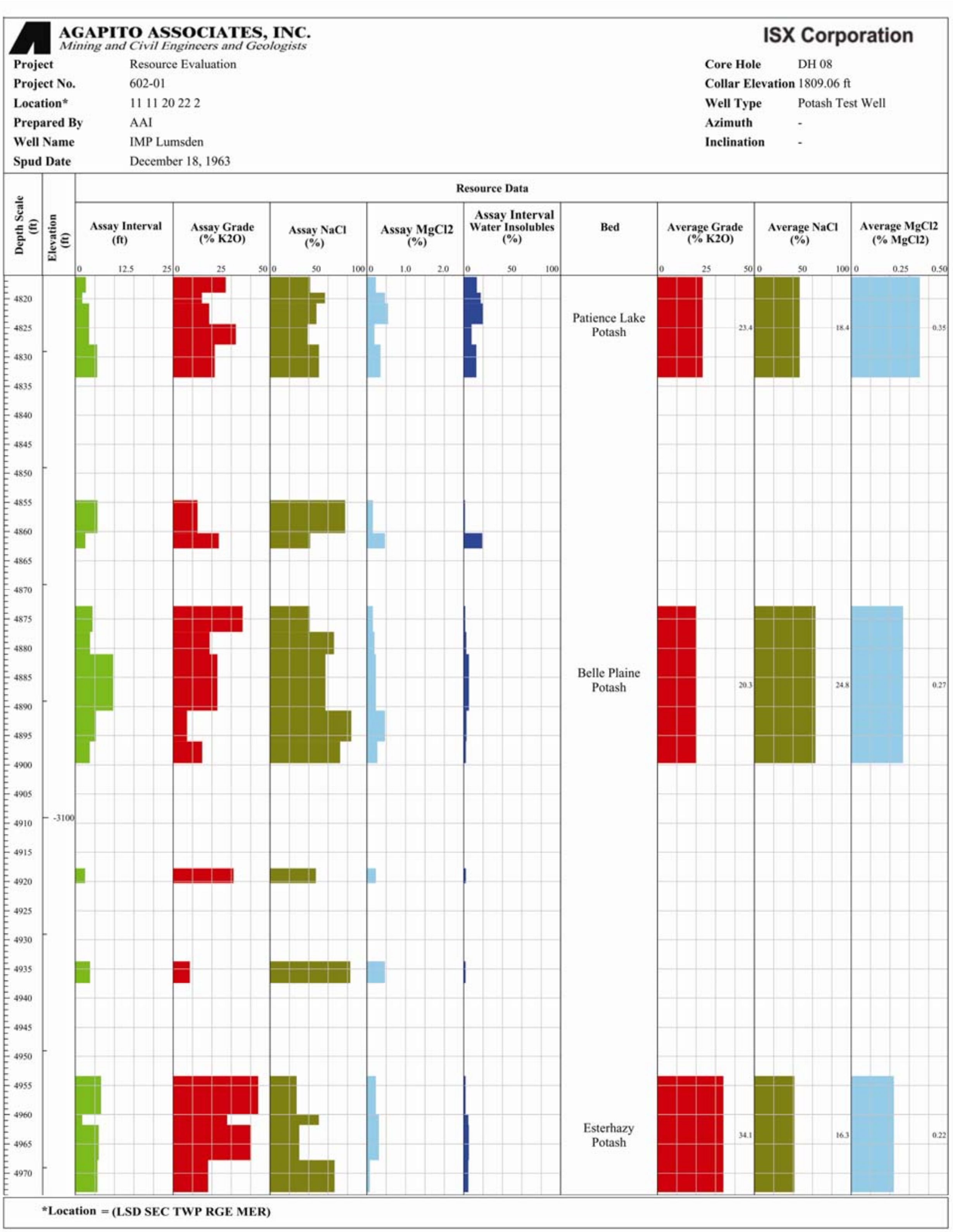
Sample	From	To	Interval	KCl	K20	e (MgCl$_2$ Ec	CaSO4	NaCl	Insol.
1	4816.00	4821.30	5.30	4.10	2.59	0.30	1.00	93.20	1.60
2	4821.30	4826.40	5.10	45.00	28.43	0.40	0.20	49.60	5.60
3	4826.40	4828.20	1.80	6.30	3.98	0.80	2.00	49.30	41.20
4	4828.20	4830.20	2.00	50.00	31.59	0.40	1.40	35.00	13.40
5	4830.20	4834.30	4.10	9.90	6.25	0.70	2.00	55.20	32.40
6	4834.30	4844.00	9.70	49.60	31.33	0.20	1.10	42.30	6.50
7	4844.00	4845.00	1.00	17.90	11.31	0.40	2.80	56.00	23.70
8	4845.00	4846.00	1.00	55.60	35.12	0.10	0.80	42.30	1.50
9	4846.00	4849.60	3.60	6.20	3.92	0.50	1.00	82.40	9.80
10	4849.60	4851.80	2.20	47.00	29.69	0.20	2.10	45.50	6.00
11	4851.80	4852.90	1.10	12.60	7.96	0.30	2.50	67.70	16.70
12	4852.90	4857.60	4.70	9.20	5.81	0.20	1.20	87.00	2.70
13	4857.60	4859.30	1.70	45.40	28.68	0.30	1.00	50.50	3.60
14	4859.30	4860.00	0.70	23.00	14.53	0.40	3.40	59.50	14.40
15	4860.00	4864.80	4.80	48.50	30.64	0.20	0.80	45.80	3.90
16	4864.80	4864.90	0.10	15.40	9.73	0.60	3.20	47.40	33.00
17	4864.90	4868.00	3.10	46.60	29.44	0.40	0.90	44.40	7.00
18	4868.00	4868.20	0.20	42.80	27.04	0.20	0.70	50.00	6.20
19	4868.20	4869.80	1.60	48.80	30.83	0.20	0.60	44.40	5.70
20	4869.80	4873.50	3.70	11.20	7.08	0.20	0.90	85.60	3.00
Sample Missing	**4873.50**	**4891.00**	**17.50**						
21	4891.00	4891.60	0.60	6.10	3.85	0.90	1.60	44.00	48.20
22	4891.60	4898.80	7.20	45.00	28.43	0.20	0.60	52.50	1.90
23	4898.80	4902.20	3.40	33.20	20.97	0.10	1.00	63.80	1.40
24	4902.20	4909.50	7.30	30.00	18.95	0.30	1.10	62.20	5.70
25	4909.50	4911.00	1.50	56.20	35.50	0.20	0.60	40.70	2.20
26	4911.00	4913.00	2.00	12.20	7.71	0.40	1.20	79.50	7.60
27	4913.00	4916.20	3.20	8.10	5.12	0.20	0.30	89.80	1.60
28	4916.20	4919.00	2.80	15.40	9.73	0.20	0.60	81.30	3.40
29	4919.00	4921.00	2.00	41.80	26.41	0.20	0.40	55.40	1.40
30	4921.00	4921.50	0.50	19.90	12.57	0.80	2.50	44.60	32.30

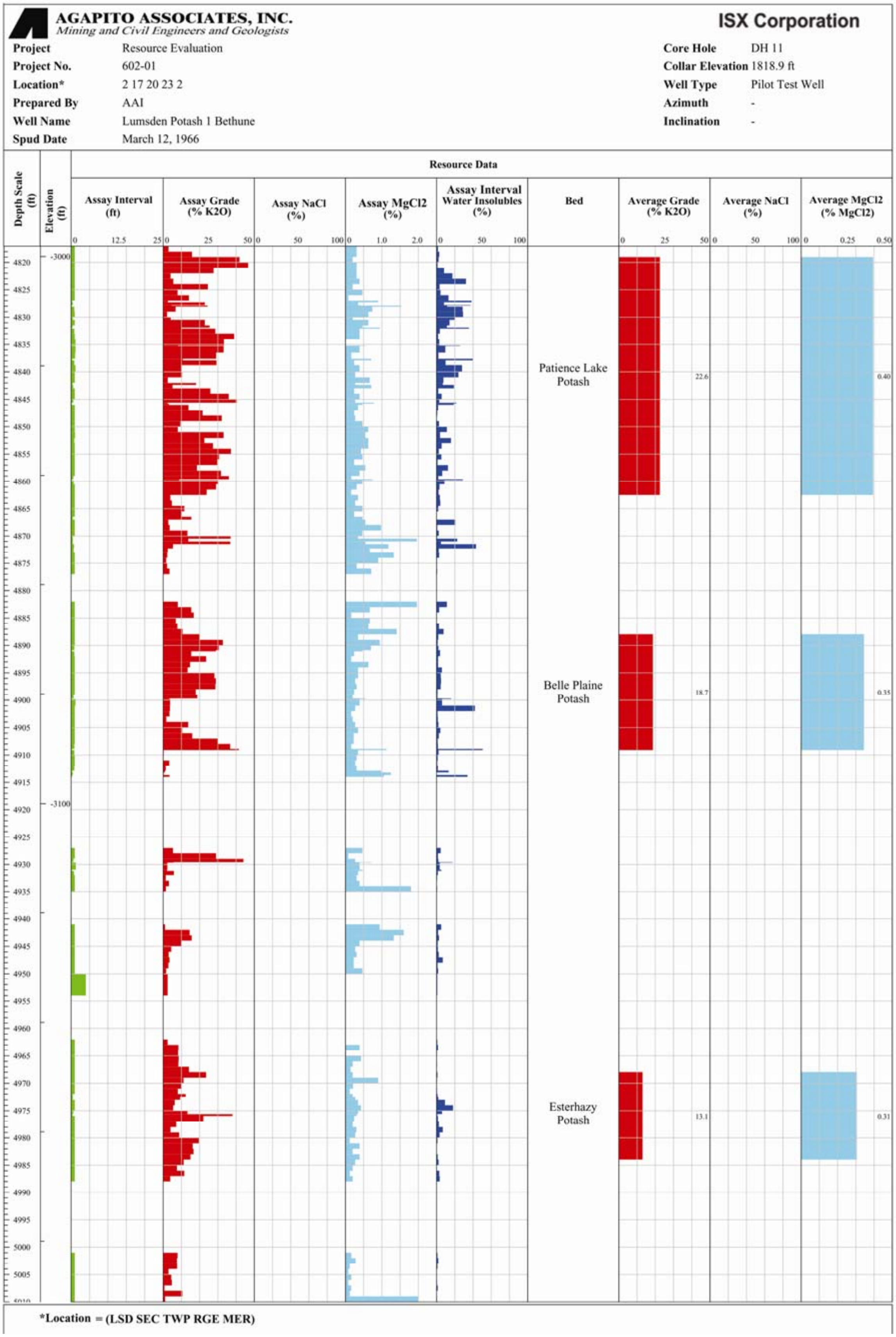
Nrel #: DH 21
WELL: IMP Findlater Potash 16-10
UWI: 16-10-21-25-W2

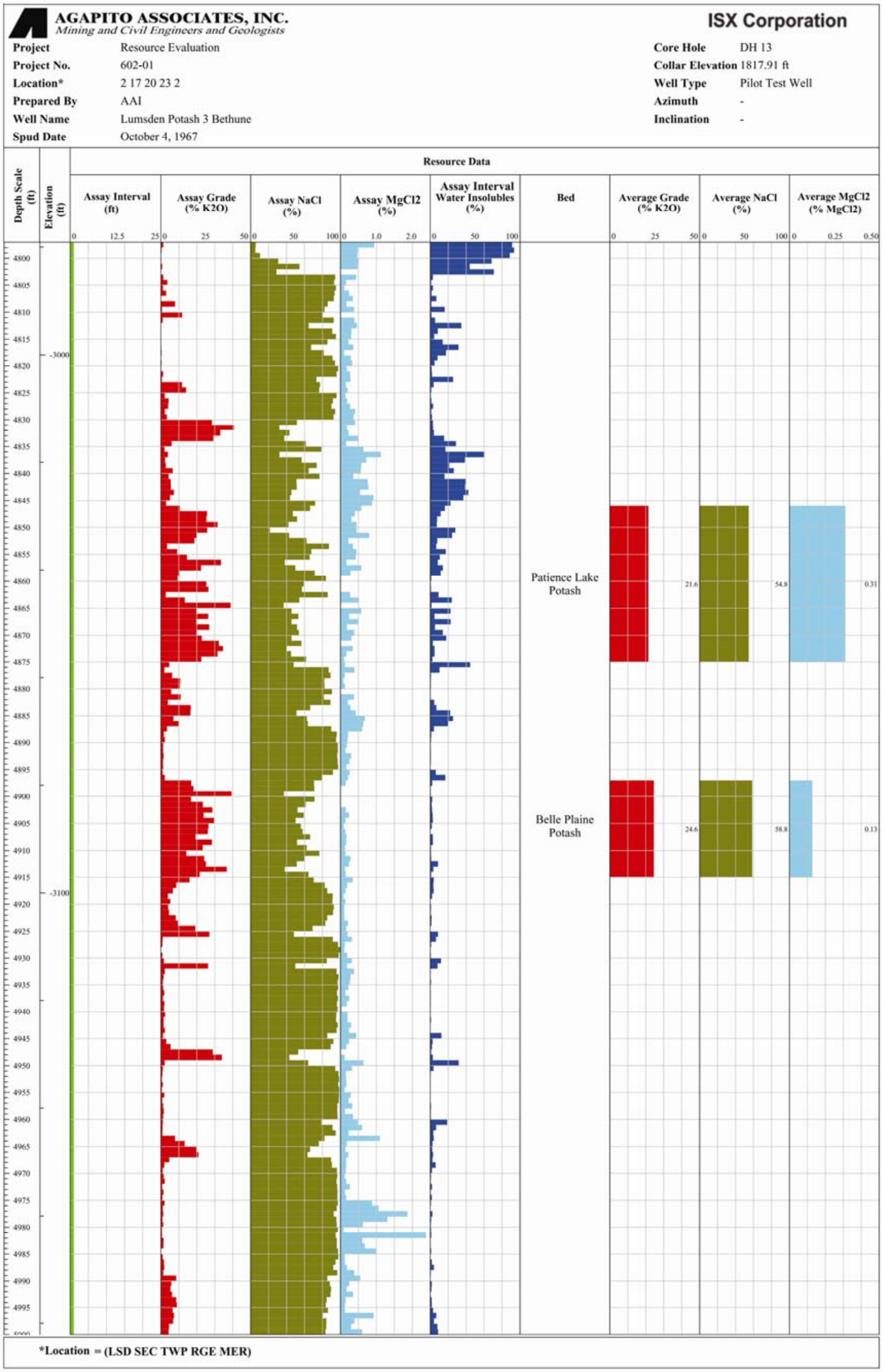
Sample	From	To	Interval	K	K20	Mg	Carnallite (MgCl$_2$ Equivalent)	Ca	Na	Cl	S04	Water Insol	Acid Insol
	4706.70	4708.83	2.13	27.89	33.60	0.05	0.20	0.30	13.54	46.52	0.70	11.62	3.70
	4708.83	4712.80	3.97	7.57	9.12	0.08	0.31	0.91	23.20	43.10	1.85	23.20	9.28
	4712.80	4716.20	3.40	20.01	24.10	0.07	0.27	0.58	17.51	45.90	1.37	14.76	6.73
	4716.20	4718.00	1.80	14.05	16.92	0.06	0.23	0.39	22.42	47.97	1.23	14.24	6.61
	4718.00	4720.25	2.25	27.05	32.58	0.05	0.20	0.19	16.14	50.65	0.40	5.36	2.49
	4720.25	4721.00	0.75	8.24	9.93	0.12	0.47	0.30	13.08	27.80	0.64	50.79	22.74
	4721.00	4723.00	2.00	11.19	13.48	0.09	0.35	0.59	17.19	37.06	1.40	32.95	15.51
	4723.00	4724.75	1.75	22.28	26.84	0.04	0.16	0.19	21.28	53.18	0.48	3.18	1.56
	4724.75	4727.10	2.35	6.84	8.24	0.05	0.20	0.26	29.76	52.67	0.63	10.56	5.90
	4727.10	4729.80	2.70	29.42	35.44	0.05	0.20	0.16	15.26	51.04	0.42	3.80	2.12
	4729.80	4730.70	0.90	8.41	10.13	0.07	0.27	0.86	24.62	46.67	2.12	17.53	9.75
	4730.70	4733.50	2.80	12.09	14.56	0.04	0.16	0.13	29.27	52.53	0.36	0.45	0.25
	4733.50	4734.80	1.30	1.96	2.36	0.03	0.12	0.15	36.65	59.44	0.27	1.33	0.85
Clay Break	**4734.80**	**4735.00**	**0.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	4735.00	4736.20	1.20	20.88	25.15	0.03	0.12	0.42	21.53	53.33	1.03	2.99	1.34
	4736.20	4736.85	0.65	14.75	17.77	0.28	1.10	0.48	19.75	45.22	1.89	17.62	9.48
	4736.85	4740.50	3.65	28.46	34.28	0.04	0.16	0.27	18.46	50.84	0.65	6.26	3.21
	4740.50	4747.00	6.50	19.16	23.08	0.06	0.23	0.29	21.42	50.96	0.76	8.32	4.51
	4747.00	4750.50	3.50	8.95	10.78	0.02	0.08	0.23	31.54	58.02	0.52	0.44	0.22
	4750.50	4754.00	3.50	3.95	4.76	0.04	0.16	0.24	34.06	57.87	0.62	2.61	1.50
	4754.00	4756.25	2.25	16.14	19.44	0.05	0.20	0.40	22.50	50.35	0.96	9.90	5.78
	4756.25	4757.50	1.25	0.80	0.96	0.21	0.82	0.95	20.52	33.86	1.92	41.18	21.76
	4757.50	4766.70	9.20	4.15	5.00	0.04	0.16	0.24	34.58	58.59	0.50	1.60	0.89
	4766.70	4767.30	0.60	18.81	22.66	0.02	0.08	0.02	24.61	55.40	0.06	1.62	0.80
	4767.30	4767.80	0.50	4.26	5.13	0.11	0.43	0.44	18.56	35.05	0.80	41.54	21.57
	4767.80	4770.20	2.40	24.04	28.96	0.03	0.12	0.10	20.25	54.12	0.27	1.23	0.66
	4770.20	4771.00	0.80	6.74	8.12	0.02	0.08	0.06	32.76	58.79	0.12	0.55	0.32
	4771.00	4773.15	2.15	14.61	17.60	0.04	0.16	0.28	26.12	53.96	0.69	5.01	2.13
	4773.15	4775.00	1.85	24.54	29.56	0.03	0.12	0.17	19.90	54.12	0.49	0.77	0.32
Clay Break	**4775.00**	**4775.10**	**0.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	4775.10	4776.33	1.23	20.11	24.22	0.04	0.16	0.22	20.72	52.07	0.54	5.93	2.72
	4776.33	4782.00	5.67	14.58	17.56	0.04	0.16	0.33	26.35	54.24	0.74	4.28	2.14
	4782.00	4784.25	2.25	24.65	29.69	0.03	0.12	0.18	19.36	53.81	0.39	1.70	0.80
	4784.25	4788.90	4.65	7.56	9.11	0.03	0.12	0.15	32.82	58.14	0.28	1.92	0.88
	4788.90	4794.00	5.10	9.41	11.34	0.04	0.16	0.18	31.46	57.41	0.39	1.96	0.97
	4794.00	4797.85	3.85	2.18	2.63	0.05	0.20	0.42	35.03	57.13	0.96	3.46	2.73
	4797.85	4798.40	0.55	0.67	0.81	0.03	0.12	1.59	26.95	44.16	3.75	22.84	14.37
	4798.40	4799.25	0.85	0.72	0.87	0.04	0.16	0.89	32.95	54.26	1.97	8.44	4.30
	4799.25	4800.20	0.95	0.42	0.51	0.04	0.16	0.34	37.11	60.15	0.79	0.91	0.44
Sample Missing	**4800.20**	**4810.70**	**10.50**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
	4810.70	4812.50	1.80	0.96	1.16	0.04	0.16	0.10	37.10	60.69	0.14	0.27	0.16
	4812.50	4813.80	1.30	0.52	0.63	0.07	0.27	0.16	34.70	55.53	0.16	9.10	4.60
	4813.80	4817.00	3.20	13.39	16.13	0.04	0.16	0.14	28.08	55.58	0.26	3.32	1.61
Core Lost	**4817.00**	**4821.00**	**4.00**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
	4821.00	4823.50	2.50	0.62	0.75	0.03	0.12	0.27	38.29	60.41	0.57	0.43	0.27
Sample Missing	**4823.50**	**4837.90**	**14.40**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
	4837.90	4850.10	12.20	1.09	1.31	0.06	0.23	0.32	37.09	58.79	0.59	1.49	0.69
	4850.10	4852.25	2.15	3.26	3.93	0.04	0.16	0.09	35.76	59.76	0.23	0.80	0.34
	4852.25	4853.90	1.65	34.38	41.41	0.02	0.08	0.06	12.60	51.33	0.09	1.41	0.62
	4853.90	4856.10	2.20	16.78	20.21	0.02	0.08	0.04	25.91	55.83	0.04	1.92	0.77
	4856.10	4859.60	3.50	24.38	29.37	0.02	0.08	0.02	20.12	54.51	0.03	0.90	0.37
	4859.60	4865.40	5.80	13.16	15.85	0.02	0.08	0.10	27.63	54.85	0.17	4.90	2.02
	4865.40	4867.20	1.80	24.18	29.13	0.02	0.08	0.16	20.80	54.23	0.35	0.92	0.47
	4867.20	4871.80	4.60	10.25	12.35	0.15	0.59	0.13	28.76	54.60	0.69	5.82	2.80
	4871.80	4875.20	3.40	7.50	9.03	0.04	0.16	0.12	32.38	57.48	0.30	2.70	0.98
	4875.20	4887.00	11.80	5.79	6.97	0.02	0.08	0.03	34.97	59.15	0.01	0.51	0.23
	4887.00	4898.20	11.20	2.88	3.47	0.02	0.08	0.20	35.97	60.12	0.46	0.35	0.13

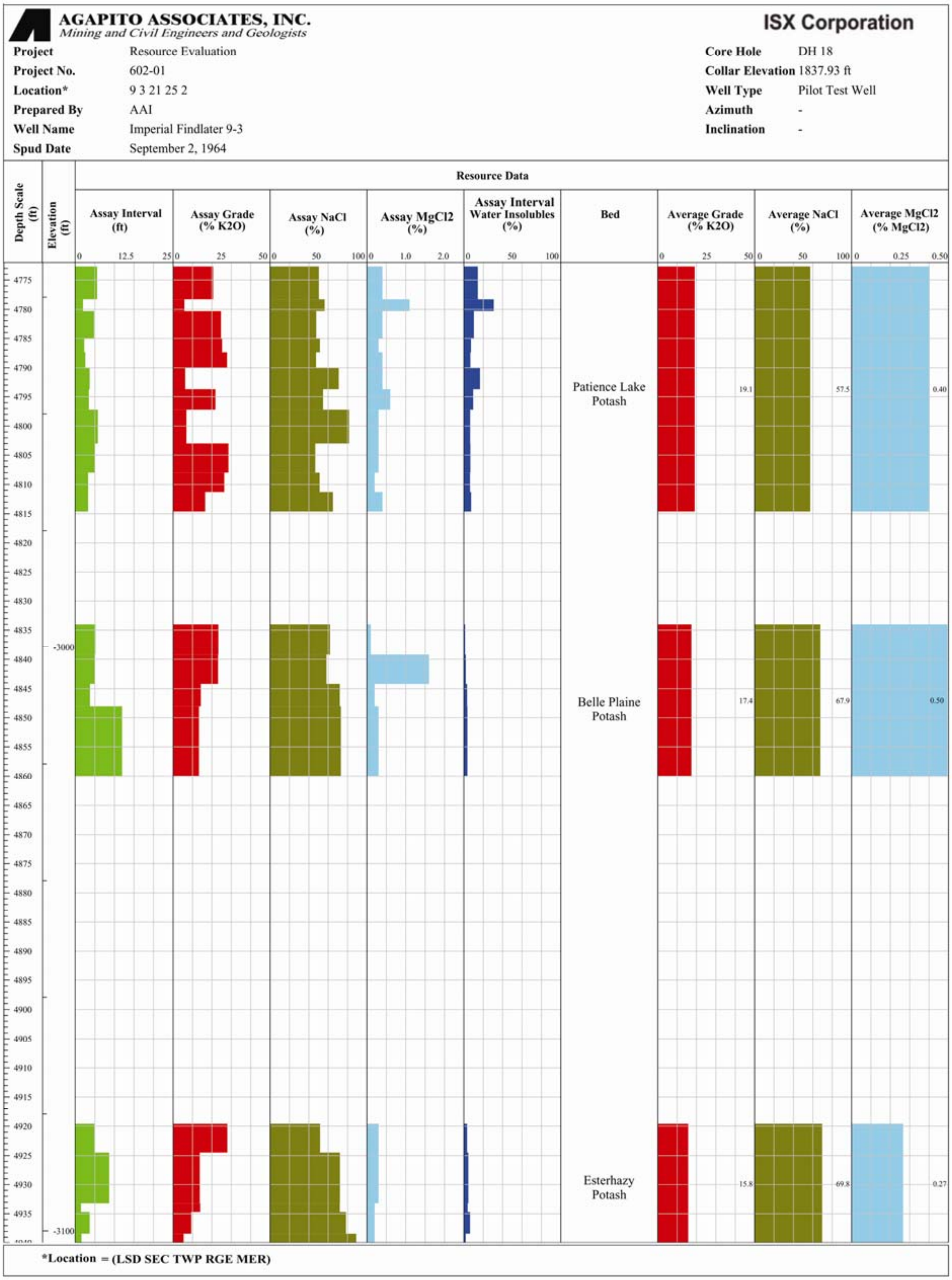
APPENDIX 4:

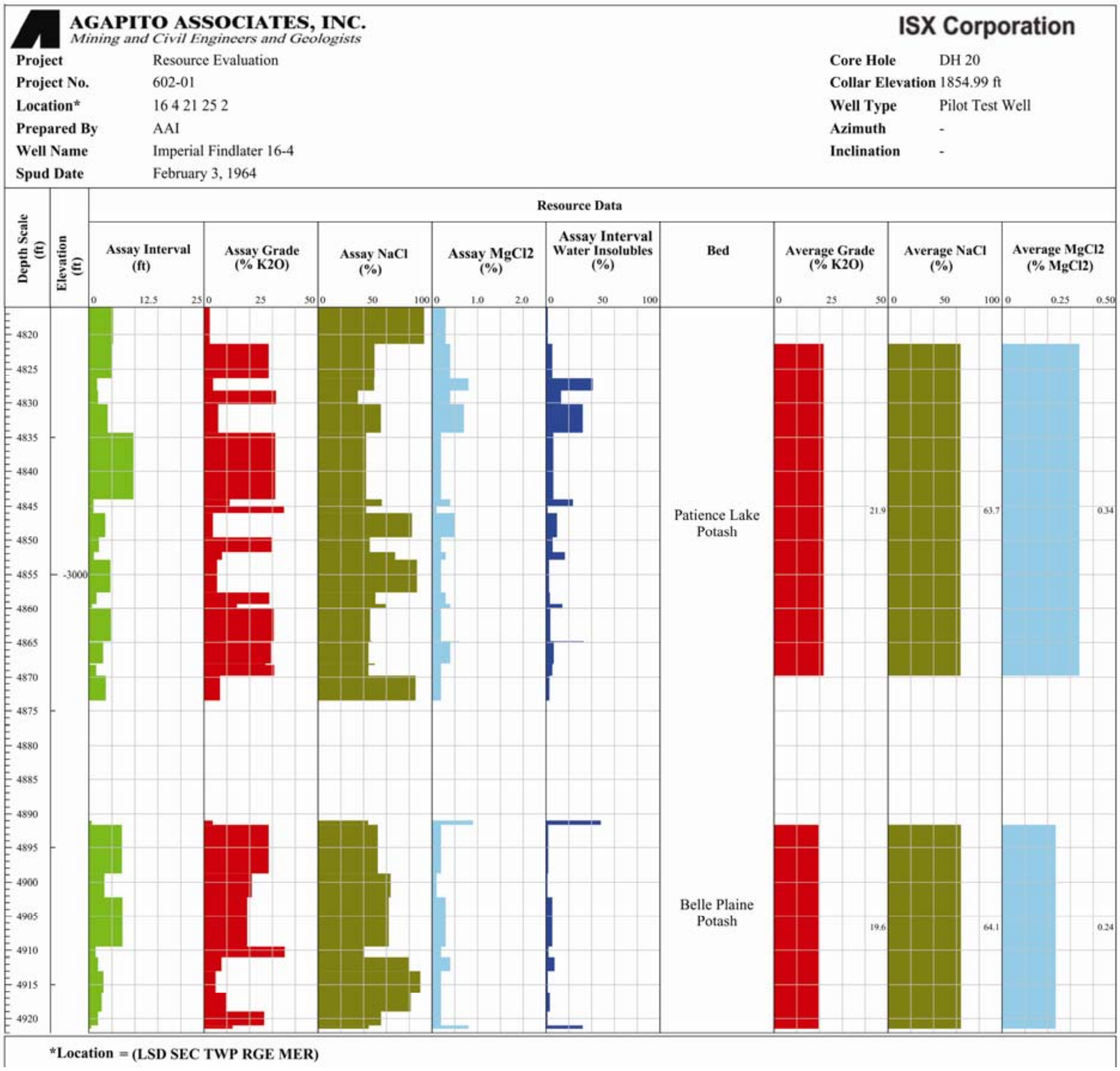
LOGPLOTS WITH POTASH, HALITE, MAGNESIUM CHLORIDE, AND WATER INSOLUBLES GRADE


AGAPITO ASSOCIATES, INC.
Mining and Civil Engineers and Geologists
ISX Corporation
Project Resource Evaluation
Project No. 602-01
Location* 11 11 20 22 2
Prepared By AAI
Well Name IMP Lumsden
Spud Date December 18, 1963
Core Hole DH 08
Collar Elevation 1809.06 ft
Well Type Potash Test Well
Azimuth -
Inclination -
Resource Data
Depth Scale (ft)
Elevation (ft)
Assay Interval (ft)
Assay Grade (% K2O)
Assay NaCl (%)
Assay MgCl2 (%)
Assay Interval Water Insolubles (%)
Bed
Average Grade (% K2O)
Average NaCl (%)
Average MgCl2 (% MgCl2)
Patience Lake Potash
Belle Plaine Potash
Esterhazy Potash
-3100
23.4
18.4
0.35
20.3
24.8
0.27
34.1
16.3
0.22
*Location = (LSD SEC TWP RGE MER)


AGAPITO ASSOCIATES, INC.
Mining and Civil Engineers and Geologists
ISX Corporation
Project Resource Evaluation
Project No. 602-01
Location* 2 17 20 23 2
Prepared By AAI
Well Name Lumsden Potash 1 Bethune
Spud Date March 12, 1966
Core Hole DH 11
Collar Elevation 1818.9 ft
Well Type Pilot Test Well
Azimuth -
Inclination -
Resource Data
Depth Scale (ft)
Elevation (ft)
Assay Interval (ft)
Assay Grade (% K2O)
Assay NaCl (%)
Assay MgCl2 (%)
Assay Interval Water Insolubles (%)
Bed
Average Grade (% K2O)
Average NaCl (%)
Average MgCl2 (% MgCl2)
Patience Lake Potash
Belle Plaine Potash
Esterhazy Potash
22.6
0.40
18.7
0.35
13.1
0.31
-3000
-3100
*Location = (LSD SEC TWP RGE MER)


AGAPITO ASSOCIATES, INC.
Mining and Civil Engineers and Geologists
ISX Corporation
Project Resource Evaluation
Project No. 602-01
Location* 2 17 20 23 2
Prepared By AAI
Well Name Lumsden Potash 3 Bethune
Spud Date October 4, 1967
Core Hole DH 13
Collar Elevation 1817.91 ft
Well Type Pilot Test Well
Azimuth -
Inclination -
Resource Data
Depth Scale (ft)
Elevation (ft)
Assay Interval (ft)
Assay Grade (% K2O)
Assay NaCl (%)
Assay MgCl2 (%)
Assay Interval Water Insolubles (%)
Bed
Average Grade (% K2O)
Average NaCl (%)
Average MgCl2 (% MgCl2)
-3000
-3100
Patience Lake Potash
21.6
54.8
0.31
Belle Plaine Potash
24.6
58.8
0.13
*Location = (LSD SEC TWP RGE MER)


AGAPITO ASSOCIATES, INC.
Mining and Civil Engineers and Geologists
ISX Corporation
Project Resource Evaluation
Project No. 602-01
Location* 9 3 21 25 2
Prepared By AAI
Well Name Imperial Findlater 9-3
Spud Date September 2, 1964
Core Hole DH 18
Collar Elevation 1837.93 ft
Well Type Pilot Test Well
Azimuth -
Inclination -
Resource Data
Depth Scale (ft)
Elevation (ft)
Assay Interval (ft)
Assay Grade (% K2O)
Assay NaCl (%)
Assay MgCl2 (%)
Assay Interval Water Insolubles (%)
Bed
Average Grade (% K2O)
Average NaCl (%)
Average MgCl2 (% MgCl2)
Patience Lake Potash
Belle Plaine Potash
Esterhazy Potash
19.1
57.5
0.40
17.4
67.9
0.50
15.8
69.8
0.27
-3000
-3100
*Location = (LSD SEC TWP RGE MER)


AGAPITO ASSOCIATES, INC.
Mining and Civil Engineers and Geologists
ISX Corporation
Project Resource Evaluation
Project No. 602-01
Location* 16 4 21 25 2
Prepared By AAI
Well Name Imperial Findlater 16-4
Spud Date February 3, 1964
Core Hole DH 20
Collar Elevation 1854.99 ft
Well Type Pilot Test Well
Azimuth -
Inclination -
Resource Data
Depth Scale (ft)
Elevation (ft)
Assay Interval (ft)
Assay Grade (% K2O)
Assay NaCl (%)
Assay MgCl2 (%)
Assay Interval Water Insolubles (%)
Bed
Average Grade (% K2O)
Average NaCl (%)
Average MgCl2 (% MgCl2)
Patience Lake Potash
Belle Plaine Potash
21.9
63.7
0.34
19.6
64.1
0.24
-3000
*Location = (LSD SEC TWP RGE MER)