NI 43-101 TECHNICAL REPORT SUMMARIZING THE FEASIBILITY STUDY FOR A POTASH SOLUTION MINE ON THE MILESTONE PROJECT (SUBSURFACE MINERAL LEASE KLSA 008) SASKATCHEWAN

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IMPORTANT NOTICE

This report was prepared as a National Instrument 43-101 Technical Report by Agapito Associates, Inc. (AAI) and AMEC Americas Limited (AMEC). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in AAI's and AMEC's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended to be used by Western Potash Corp. (WPX), subject to the terms and conditions of its contracts with AAI and AMEC. Those contracts permit WPX to file this Technical Report with Canadian Securities Regulatory Authorities pursuant to provincial securities legislation. Except for the purposes legislated under provincial securities law, any use of this report by any third party is at that party's sole risk.

CAUTIONS REGARDING FORWARD-LOOKING STATEMENTS

The following NI 43-101 Technical Report includes certain statements and information that contain forward-looking information within the meaning of applicable Canadian securities laws. All statements, other than statements of historical facts, including the requirements and potential output of the Milestone Project, the likelihood of commercial mining, the likelihood of securing a strategic partner and the ability to fund future mine development are forward-looking statements and include forward-looking information. Such forward-looking statements and forward-looking information specifically include, but are not limited to, statements concerning: Company plans at the Milestone Project; Company ability to fund the Milestone Project; the timing of granting of key permits; approval of the Environmental Impact Statement (EIS); the estimated potash production and the timing thereto; economic analyses; capital and operating costs; mine development programs; future potash prices; cash flow estimates; and economic indicators derived from the foregoing.

Generally, forward-looking information can be identified by the use of forward-looking terminology such as "intends" or "anticipates", or variations of such words and phrases or statements that certain actions, events or results "may", "could", "should", "would" or "occur". Forward-looking statements are based on the opinions and estimates set out in this Technical Report as of the date such statements are made and they are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of WPX to be materially different from those expressed or implied by such forward-looking statements or forward-looking information, including: the receipt of all necessary approvals; the ability to conclude a transaction; uncertainty of future production; capital expenditures and other costs; financing and additional capital requirements; the receipt in a timely fashion of any further permitting for the Milestone Project; legislative, political, social or economic developments in the jurisdictions in which WPX carries on business; operating or technical difficulties in connection with mining or development activities; and the risks normally involved in the exploration, development and mining business.

Although the authors have attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking statements or forward-looking information, there may be other factors that cause results not to be as anticipated,

estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements and forward-looking information. WPX and the authors of this Technical Report do not undertake to update any forward-looking statements or forward-looking information that are incorporated by reference herein, except in accordance with applicable securities laws.

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1.0 SUMMARY

The Western Potash Corp. (hereinafter referred to as "WPX") Milestone Project is located in southern Saskatchewan approximately 35 kilometers (km) southeast of Regina. The project currently holds some 87,530 acres (including road allowances) of Crown mineral lands in Townships 13 through 15 and Ranges 17 through 19 West of the Second Meridian by means of Subsurface Mineral Lease KLSA 008, which was granted to WPX by the Government of Saskatchewan on May 18, 2010. This Lease incorporates the lands formerly held by WPX under Permits KP 408 and KP 409. The land included within the physical boundaries of the Lease area also includes 69,970 acres of Freehold land. WPX has agreements in place for the mineral rights covering 23,234 acres of this Freehold land as of March 1, 2012. Additional agreements for Freehold mineral rights have been completed and recorded between March 1 and November 30, 2012; however, they do not convey 100% of the mineral rights for any of the quarter sections concerned, so the lands are not included in the lands with mineral rights controlled by WPX.

This report discusses mineral reserves that have been upgraded from Measured and Indicated Mineral Resources and summarizes a Feasibility Study (FS) for developing a solution mine on the potash mineral reserves within the bounds of Saskatchewan Subsurface Mineral Lease KLSA 008 that was prepared by AMEC Americas Limited (AMEC) and Agapito Associates, Inc (AAI) with input from Whiting Equipment Canada Inc., Golder Associates Inc., Impact Oilfield Management, NG Consulting, RESPEC, the CRU Strategies Group, KGS Group, Canada North Environmental Services Inc. and Associated Engineering.

1.1 Mineral Resources and Mineral Reserves

Measured, Indicated, and Inferred Mineral Resources have been classified based on the volume of potash in cylinders centered on the cored and assayed drill holes on the Lease. The radius of influence (ROI) for each level of resource reflects the level of confidence in the continuity of the mineralization, with the ROI decreasing as the required level of confidence (Inferred < Indicated < Measured) increases. Measured, Indicated and Inferred Resources have been reported in previous National Instrument (NI) 43-101 Technical Reports for the Milestone Project (Hardy et al. 2011; Hambley et al. 2011; Hardy et al. 2010). Differences between the resource tonnages reported in the present TR and those reported in the December 2011 TR (Hardy et al. 2011) arise from two sources:

1. Additional signed Lease Agreements concerning lands with Freehold mineral rights; and
2. Conversion of Measured and Indicated Mineral Resources surrounding wells M 003 through M 009 to Proven and Probable Mineral Reserves, because mineralization classified as Mineral Resources must be exclusive of mineralization classified as Mineral Reserves (Canadian Institute of Mining and Metallurgy [CIM] 2010)

The ROIs, which are unchanged from previous Technical Reports, are: 0.8 km (0.5 mile) for Measured; 1.6 km (1 mile) outside wells and 2.5 km (1.55 mile) between closely spaced wells with seismic coverage for Indicated; and 8 km (5 mile) for Inferred. Loss factors of 5%, 9%, and 25% are applied to the in-place tonnages for the Measured, Indicated and Inferred Mineral Resources, respectively, to account for unknown geologic anomalies. A factor of 34.6% was

applied to each mineral resource category to account for the areal extraction ratio in calculating the recoverable resource.

Measured and Indicated Resources surrounding wells M 001, M 002 and M 002A are estimated to be as follows (using a cutoff grade of 15.0% potassium oxide [K_2O] or 23.8% potassium chloride [KCl]) :

- Measured Mineral Resource: 226 Mt in-place sylvinite grading 21.11% KCl, or 13.33% K_2O (15.7 Mt of recoverable[1] KCl, or 9.9 Mt recoverable K_2O)
- Indicated Mineral Resource: 530 Mt in-place sylvinite grading 21.66% KCl, or 13.68% K_2O (36.8 Mt of recoverable KCl, or 23.2 Mt recoverable K_2O)

Inferred Resources are estimated to be (using a cutoff grade of 15.0% K_2O or 23.8% KCl):

- Inferred Mineral Resource: 10,513 Mt in-place sylvinite grading 25.96% KCl, or 16.40% K_2O (708 Mt of recoverable KCl, or 447 Mt recoverable K_2O).

Measured and Indicated Resources surrounding wells M 003 through M 009 have been upgraded to Proven and Probable Reserves, respectively. Mineral Reserves for the potential solution mining intervals (Patience Lake, Belle Plaine, and Esterhazy Members including interbeds) are estimated to be as follows (using a cutoff grade of 15.0% K_2O or 23.8% KCl):

- Proven Reserve: 35.8 Mt of KCl, or 36.0 Mt potash product containing 62% K_2O (K62)
- Probable Reserve: 101 Mt of KCl, or 103 Mt K62)

The Proven and Probable Mineral Reserves are based on the mine plan and geologic model that accounts for local variability of grade and thickness of individual caverns. The Proven and Probable Mineral Reserves include downward adjustments of 5% and 9%, respectively, to account for unknown anomalies. The Proven and Probable Mineral Reserves accounted for extraction ratio, KCl recovery from the caverns (87.3%), and plant recovery (93.5% including losses between the plant and the port). More detail on the Proven and Probable Reserves is presented in Section 15.0 of this Technical Report.

1.2 Summary of Exploration, Drilling and other Studies

This Technical Report also summarizes current information obtained from exploration drilling conducted between January 2009 and March 2011. During the 2009–2011 exploration program, 11 cored exploration wells were completed on the KLSA 008 Lease area. One hole (M 010) was geophysically logged and sampled for geomechanical and solubility testing, but was neither assayed nor used in the mineral resource and mineral reserve estimates[2]. All 11 wells penetrated the Prairie Evaporite Formation that is host to the potash deposits in

[1] Recoverable tonnages include reductions for unknown anomalies, extraction ratio, and buffers around towns.
[2] Estimates of potassium grade from downhole gamma logs are not acceptable substitutes for assays for use in mineral reserve estimates or in Measured and Indicated mineral resource estimates.

Saskatchewan. In addition, 474.5 line-km of two-dimensional (2D) and 98 square kilometers (km^2) of three-dimensional (3D) seismic surveys were run, processed, and interpreted for WPX by Boyd PetroSearch of Calgary, Alberta.

Laboratory geotechnical (creep and strength) tests were performed by RESPEC of Rapid City, South Dakota. The laboratory study comprised four types of mechanical properties tests on core recovered from the Milestone project in Saskatchewan, Canada:

- Brazilian (BRZ) indirect tensile strength tests;
- constant strain rate (CSR) compressive strength tests;
- constant mean stress dilation in compression (CMC), and
- triaxial compression creep tests.

Steady-state axial strain rates were estimated for all the creep tests, which were run from 30 to 60 days. The strain-rate data from the creep tests were fitted to the Munson-Dawson multi-mechanism creep model (Munson and Dawson 1979) developed for the US Department of Defense Waste Isolation Pilot Plant (WIPP). The results of the creep tests are used in modeling studies examining the dimensions and closure potential of the caverns.

Laboratory dissolution testing of core samples was performed in 2011 and January 2012 by NG Consulting of Sondershausen, Germany. The results of the testing indicated that:

- Dissolution rates ranged between those for pure sylvinite and pure halite and correlated well with theoretical data.
- Dissolution rates of the WPX samples fell in a range similar to that for common sylvinite from other deposits.
- No significant difference was observed between dissolution rates for the Patience Lake, Belle Plaine, and Esterhazy Members.
- Roughly 20% higher dissolution rates were observed for 75°C compared to 60°C.
- The presence of insoluble material, e.g. anhydrite, reduced the dissolution rate by up to 30%.
- The dissolution testing provided a preliminary relationship between dissolution rate and KCl content of the sylvinite at 60°C and 75°C.

A second set of dissolution tests was performed to investigate a possible relationship between brine KCl grade and the grade of sylvite in the rock.

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 intra-formational erosion “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 weighted-average potash, carnallite and insolubles content, and thickness for the mineable zone defined for each of the three potash-bearing members, as estimated from chemical assays of cores from the ten wells drilled by WPX in 2009, 2010, and 2011 and assayed by Saskatchewan Research Corporation (SRC), are presented in Section 10.0.

Solution mining involves dissolution of a selected bed with removal of all the soluble minerals or, alternatively, by removal of only the potash component between the bottom and top of the cavern. The mined interval may include zones that are barren or that are poorly mineralized with potash. Solution mining begins by undercutting the mineralized zone by dissolving all caverns below the seam of interest in the underlying halite. This is followed by dissolving the potash bearing salts upward and through the mineralized beds. An oil or gas cap inhibits vertical cavern growth until a large area is undermined. Mining then progresses incrementally, raising the cap and dissolving the mineralized salts in the roof.

The criteria for economically recoverable potash include minimum thickness of the bed or beds, the potash grade, and acceptable limits on the undesirable impurities. The impurity of concern is the magnesium content; high magnesium reduces the saturation content of the brine and reduces the plant recovery of the potash during processing. The cutoff grade for in-situ magnesium is 6% carnallite or 0.5% magnesium. The thickness cutoff is based on the economics of recovering the cost of the cavern development with the revenue from the produced potash and is generally in the range of 1 to 2 meters (m). Other parameters such as bed dip and number of beds recovered also influence the thickness cutoff. For this property, the thickness minimum is well exceeded for all holes drilled to date. For primary mining where warm water is injected to dissolve both the potash and salt (NaCl), a low potash (KCl) grade cutoff is possible. Whereas for secondary or selective mining where an NaCl saturated brine is injected and only the potash is dissolved, a K_2O grade cutoff of 20% may be necessary (KCl cutoff of 31.6%). Also of concern is the KCl content of the brine feed to the plant. For efficient operation of the plant, a high brine concentration is required. For the above reasons, the following grade cutoff has been adopted: 10% K_2O for the top or bottom of a mineable bed with the bed average interval grade greater than 15% K_2O.

The mean carnallite grades in the Esterhazy Member in the vicinity of wells M 001, M 002A, M 003, and M 010 exceed the nominal 6% cutoff discussed above. However, brines with elevated magnesium concentrations from caverns in carnallitic portions of the Esterhazy Member can be blended with brines from other caverns with lower magnesium (carnallite) concentrations so that the magnesium grade of the feed to the plant is kept within acceptable limits. Consequently, resource estimation blocks in the vicinity of these 4 holes were included in the mineral resource estimate for the Esterhazy Member. The carnallite grades are significantly less than the threshold limit of 6% carnallite within the Patience Lake and Belle Plaine Members and elsewhere within the Esterhazy Member. The carnallite grades in the Esterhazy in the initial mining areas are low and less than the threshold limit for the plant.

Temperature measurements from the drilling confirm the presence of the relatively high formation temperature. Temperature measurements from all the wells show bottom-hole temperatures during well logging ranging from 58 degrees Celsius (°C) to 65.5°C. The in-situ temperature exceeds the logged bottom-hole temperature because the bottom-hole temperature is

the temperature of the drilling mud, which is not in equilibrium with the formation. Temperature is an important component of the economics of future solution mining on the property, offering advantages in solution mass-balance and savings in capital, energy, and processing costs. The solubility of potash increases with temperature such that the higher the formation temperature, the higher the yield of potassium chloride in the brine solution to be processed for potash recovery. The formation temperature is estimated to be 65°C.

1.3 Summary of Feasibility Study

The FS built on the Prefeasibility Study (PFS) completed in September 2011. The FS is based on the required level of engineering effort to define mining and processing facilities, infrastructure, utilities, and major services. Major technical project risks have been mitigated to a level satisfactory for project feasibility, including the port, rail, and water. The FS included input from other expert consultants including AAI for geology and solution mining expertise, Whiting Equipment Canada Inc. for evaporation and crystallization expertise, Impact Oilfield Management for production and brine injection drilling expertise, Golder Associates Inc. for environmental expertise, Associated Engineering for expertise in roads, and KGS Group for water treatment expertise. In addition, the FS drew on information from ongoing discussions with port and rail providers, and the Crown utilities.

The Milestone plant facilities include a cavern well field, a wet processing plant, a dry processing plant, product storage, loadout, and all other necessary site infrastructure. Ultimate plant production assumed by the FS for the Milestone Project is 2.8 million tonnes per year (Mtpy) of muriate of potash (MOP) at a grade of 62% K_2O (or 98.1% KCl), including production from both primary and secondary solution mining.

Capital and operating cost estimates were generated with a target accuracy of +15% to –10%, typical for a Class 3 study. The estimates are based on AMEC's recent and extensive engineering, procurement and construction management (EPCM) experience with potash projects in Saskatchewan. Costs are given in Canadian dollars (Cdn$) and prices are given in United States (US) dollars ($), but parity between the two currencies is assumed. The initial CAPEX estimate for the plant is Cdn$2.909 billion, including allowances for the raw water supply pipelines, with an additional deferred CAPEX of Cdn$387 million. The total CAPEX estimate for the 2.8-Mtpy plant was Cdn$3.295 billion. Assuming a nominal discount rate of 10%, the economic analysis yielded an after-tax project Net Present Value (NPV) of Cdn$2.4 billion, with an Internal Rate of Return (IRR) of 18.6% and a payback period of 5.6 years, based on a potash price of $450/t for standard product and $470/t for granular product. A corresponding set of project metrics was also developed for the cash flow in real dollars.

The plant unit operating costs were estimated to be Cdn$62.28/t of product at full production capacity. These operating costs include estimates for labour, maintenance, power, natural gas, water, consumables, diesel, and uncapitalized wellfield operations. Operating costs excluded taxes, royalties, or the costs associated with transportation to port and ship loading. Sustaining capital for the plant remains flat at 0.5% of replacement cost for the first 10 years of operation and then ramps up from 0.5 to 2.0% of replacement cost between Years 15 and 24 of the model. Sustaining capital expenses are expected to level out after Year 24. In addition, there

is an allowance for future wellfield development within the sustaining capital. For wellfield operations, the sustaining capital is the cost associated with continuous expansion as caverns are converted from primary to secondary operation and eventually phased out. The cost per year of adding 12 new caverns with associated support facilities will be $79.8 million, equivalent to $28.49/t of product.

The project schedule developed in the FS calls for site early works to begin in April 2013. With a 42-month construction period, commercial production is anticipated in October 2016. In addition, full production from primary mining is expected in 2018, followed by full primary and secondary production in 2022.

The Milestone FS resulted in significant advancement of the level of definition of the project. Despite a modest increase in the capital cost estimate from the PFS, the Milestone Project remains financially robust and the project execution is clearly understood.

1.4 Further Work

It is the opinion of the authors that the results of the FS for a potash solution mine for the Milestone Project are sufficiently positive to justify the development of a mine and plant to exploit the potash Mineral Resource within the KLSA 008 Lease area. Thus, the FS provides sufficient detail to allow the WPX Board to decide whether to contract with an engineering, procurement and construction management (EPCM) firm and proceed with detailed engineering, long-lead item procurement, and infrastructure (water, power, etc.) upgrades necessary for production.

Should the WPX Board decide to proceed with development of the Milestone Project, WPX should contract with an EPCM firm and proceed with detailed engineering, long-lead item procurement, and infrastructure (water, power, etc.) upgrades necessary for production. General recommendations for the Milestone Project include:

Phase 1

1. Conclude the environmental approval through the Government of Saskatchewan Ministry of Environment (SMOE) Environmental Impact Analysis process. Estimated cost: $0.25 million.
2. Complete a value engineering exercise for the Milestone Project. Estimated cost: $0.5 million.
3. Complete the necessary detailed engineering and procurement activities so as to allow for a construction start in 2013. Estimated cost: $2 million.
4. Finalize contract for engineering and supply of evaporation and crystallization equipment. Estimated cost: $225 million.
5. Purchase all other long-lead equipment. Estimated cost: $50 million, payment terms on equipment to be determined.

Phase 2

1. Detailed engineering and procurement of plant facilities and equipment. Estimated cost: $170 million.

2. Construction of Milestone Project infrastructure, plant and well field. Estimated cost: $2.47 billion.

2.0 INTRODUCTION AND TERMS OF REFERENCE

This report was prepared for WPX by Drs. Michael P. Hardy, P.E., P.Eng., Douglas F. Hambley, P.E., P.Eng., P.G. and Bo Yu, P.E. of AAI, and Messrs. Paul O'Hara, P.Eng., Stuart Middleton, P.Eng., C.Eng. and Ryan Leland, P.Eng. of AMEC as a summary of the FS of a solution mine on the Milestone Project. This Technical Report will be filed in support of WPX's news release on December 6, 2012, concerning the FS and the mineral reserves.

The information upon which this report is based was obtained from the FS as well as exploration, drilling and design studies. The exploration, drilling and design studies included:

- Reprocessing of historical 2D seismic survey data for this project
- Performing and processing data from 2D and 3D seismic surveys run specifically for this project
- Sampling and assaying of ten of the eleven drill holes advanced specifically for this project
- Solubility testing on cores from the eleventh, unassayed drill hole (M 010)
- Geomechanical strength and creep property tests on cores from drill hole M 010

The cores from wells M 001, M 002, M 002A, and M 003 through M 009 are available for inspection at the Subsurface Geological Laboratory of the Saskatchewan Ministry of Energy and Resources (Saskatchewan Energy and Resources) in Regina. The cores from wells M 001, M 002, M 002A, and M 003 through M 005 were inspected by Dr. Douglas F. Hambley on December 15 and 16, 2009. The cores from the well M 006 were inspected by Dr. Hambley on December 14, 2009, and the cores from well M 009 were inspected by Drs. Douglas F. Hambley and Michael P. Hardy on February 1, 2011.

Relevant qualifications of the authors are presented in the Certificates of Qualified Persons provided in Section 28.0 of this Technical Report.

Site visits, as required by NI 43-101, were completed by Dr. Hambley on December 14, 2009, and by Drs. Hambley and Hardy on January 31, 2011. The December 2009 site visit included inspections of the sites of each of the six wells that had been drilled as of that date and at the sites of the two wells that remained to be drilled. Dr. Hambley also inspected core from well M 006 as it was extracted from the well, washed off with varsol, and placed in core boxes. In addition, Dr. Hambley inspected the cores from six WPX drill holes at the Saskatchewan Energy and Resources in Regina on December 15 and 16, 2009, as discussed above. The January 2011 site visit included an inspection of the Western Riceton 7-34-13-17 (M 009) drill site and inspection of the core from the M 009 drill hole at the offices of North Rim Exploration Ltd., where they were temporarily stored.

Site visits have been conducted by Mr. Leland of AMEC several times for the purpose of planning site infrastructure, most recently on October 28, 2011, to observe geotechnical testing

and to examine rail options. Mr. Middleton of AMEC visited the site on July 8, 2011 for a general inspection.

3.0 RELIANCE ON OTHER EXPERTS

Information on the status of Crown potash Lease KLSA 008 provided in Sections 4.0 and 14.0 of this Technical Report was obtained from the Mineral Disposition Maps and Database web page maintained online by the Saskatchewan Department of Energy and Resources (Saskatchewan Energy and Resources 2011).

A legal opinion dated December 9, 2011, on the status of WPX land holdings and access agreements within and adjacent to the KLSA 008 Lease area was provided by MacPherson, Leslie and Tyerman LLP of Regina, Saskatchewan. The authors of Sections 4.0 and 14.0 of this Technical Report have relied on this opinion as evidence that WPX is the holder of Subsurface Mineral Lease KLSA 008, the title holder of the surface lands indicated, and the holder of mineral leases for certain Freehold Mineral Rights. Lands for which Lease Agreements were signed after November 2011 have been reviewed by QP Dr. Douglas Hambley of AAI.

Information on potash markets provided in Section 19.0 of this Technical Report was based on a report by the CRU Strategies Group (CRU), based in London, United Kingdom, and one of the leading potash economic consulting groups. The CRU report provided the results of a study commissioned by WPX of the market for potash and some price benchmarking for the Milestone Project during 2012.

Information on environmental studies, permitting and social and community impact provided in Section 20.0 of this Technical Report was provided by Mr. Gregory Vogelsang, Manager of Environment and Regulatory Affairs for WPX. The information was based on the results of studies performed for WPX by Golder Associates Ltd. and Canada North Environmental Services.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Subsurface Mineral Lease KLSA 008

Subsurface Mineral Lease KLSA 008 is located 35 km (39 km by highway) southeast of Regina in Saskatchewan, Canada as shown in Figure 1. Lease KLSA 008 is located northeast of Highway 39 and southwest of Highway 33 between the hamlets of Kronau to the north and Milestone to the south, and between the town of Rouleau to the west and the Rural Municipality of Lajord and the village of Sedley on the east. The hamlets of Gray and Riceton are located on Freehold land within the KLSA 008 Lease area. Lease KLSA 008 is also located 50 km east-southeast of the Belle Plaine solution mine owned by Mosaic Canada ULC, a subsidiary of The Mosaic Company.

Lease KLSA 008 was granted to WPX by the Saskatchewan Ministry of Energy and Resources on May 18, 2010. The lease has a term of 21 years from the date of issue and is renewable for additional terms of 21 years provided that the Lessee has fully complied with the terms of the Lease. The dimensions of Lease KLSA 008 are approximately 48 km in an east-west direction and 29 km in a north-south direction as shown in Figure 2. Lease KLSA 008 consists of portions of Townships 13 and 14 and Ranges 18 and 19 West and of portions of Townships 13, 14, and 15 and Range 17 West of the Second Meridian. Townships 13, 14, and 15 are each divided into 36 legally surveyed sections averaging 640 acres. A copy of Lease KLSA 008 is provided in Appendix A.

The KLSA 008 Lease boundary encompasses some 157,500 acres of which 87,530 acres are Crown mineral lands covered by the permit as shown in Table 1. These Crown Mineral Rights represent the mineral rights for all, or part of, 137 sections, or approximately 57% of the total area in the 246 sections within the physical boundaries of the KLSA 008 Lease area. The remaining acreage is owned by individuals or corporations, i.e., “Freehold” lands.

To keep Lease KLSA 008 in good standing, WPX must make all payments or returns required by the Saskatchewan government regulations. Payments include all rentals, royalties, fee rates, taxes, and assessments that may be charged or payable in respect of the minerals included in the Lease or the operations of WPX.

There are no active or inactive mines located on Lease KLSA 008. The site visits to the KLSA 008 Lease area did not identify any superficial environmental liabilities. AAI reviewed the online environmental databases operated by the Saskatchewan Ministry of Environment (SMoE) and found no environmental liabilities to which the property is subject. See Section 5.0 of this Technical Report for the current uses of the Lease and surrounding properties.

4.2 Mineral Leases for Freehold Mineral Rights

WPX has negotiated and signed potash mineral leases with the owners of Freehold Mineral Rights within and adjacent to the KLSA 008 Lease area. As of March 31, 2012, WPX has negotiated leases covering 23,234 acres within the boundaries of the KLSA 008 Lease.

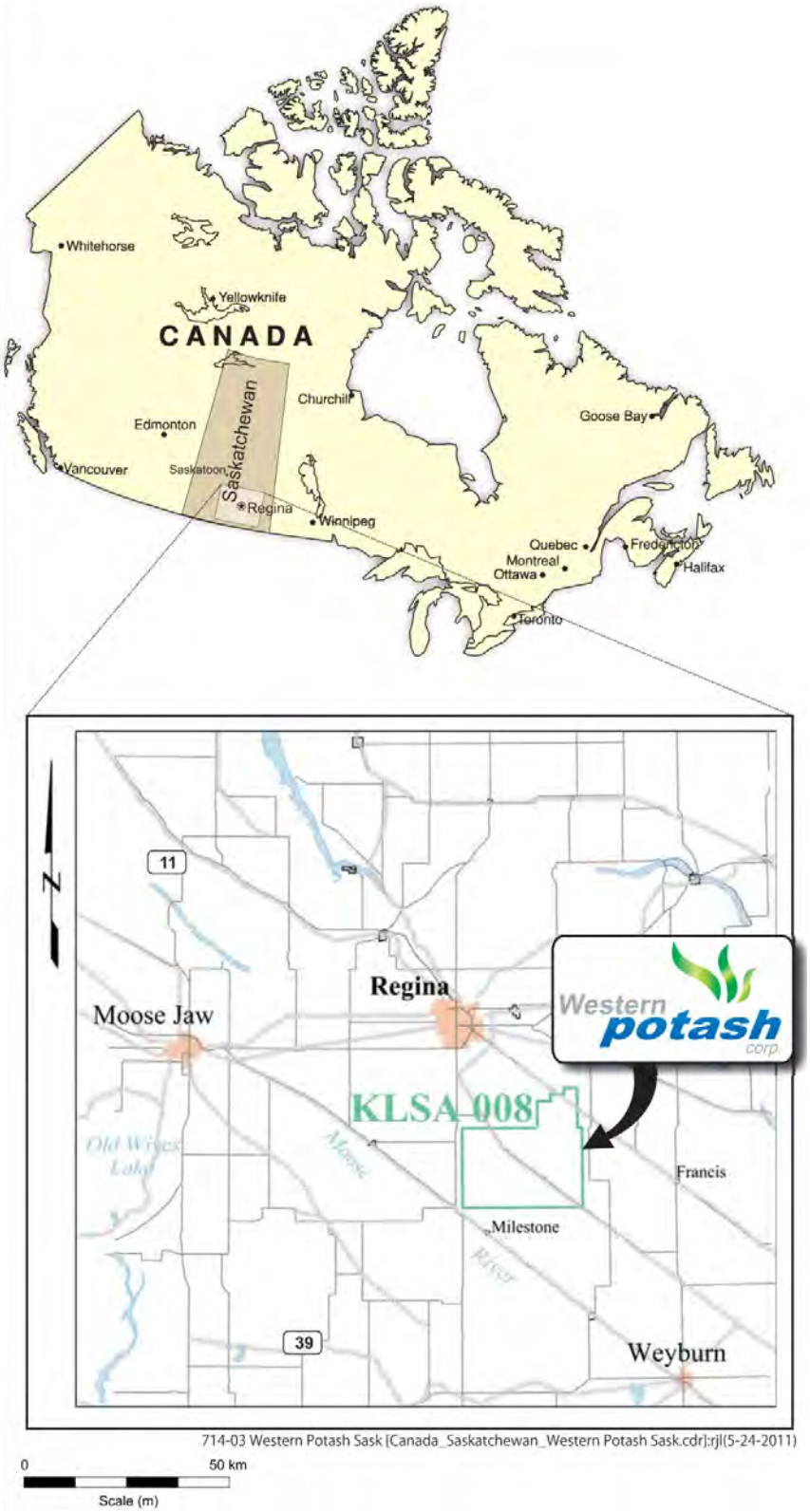


Figure 1. Location Map of Subsurface Mineral Lease KLSA 008

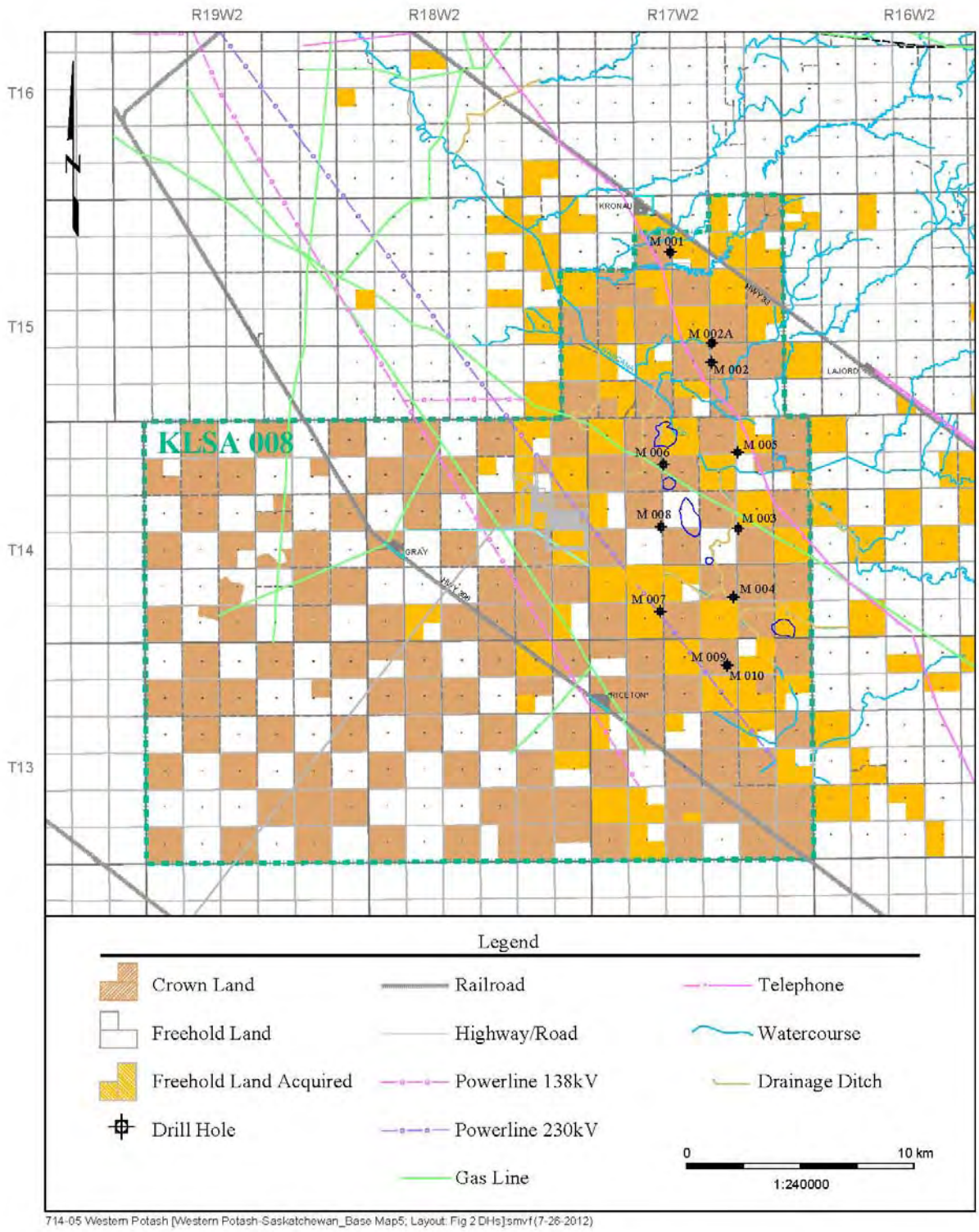


Figure 2. Base Map Showing Lease KLSA 008 and Locations of Freehold Areas with Lease Agreements, WPX Drill Holes, and Surface Features and Infrastructure

Table 1. Sections and Acreages Included in Lease KLSA 008 and Owned by the Crown

Township/Range	Sections of Mineral Rights Owned by Crown*	Area of Mineral Rights Owned by Crown (acres)
13/17	22-3/4	14,613.36
13/18	20-1/2	13,136.83
13/19	19	12,113.48
14/17	20-1/2	13,055.10
14/18	20	12,802.76
14/19	18-1/4	11,710.82
15/17	15-3/4	10,098.04
Total	136-3/4	87,530.39

* Full sections range from 636 acres to 646 acres; total acreage shown above is based on section acreages shown on the Schedules of Crown Subsurface Mineral Lands attached to the KLSA 008 Lease provided in Appendix A.

WPX has also negotiated agreements concerning approximately 23,965 acres of Freehold Mineral Rights outside, but adjacent to, the boundaries of KLSA 008 as of March 31, 2012. Full quarter-sections for which agreements have been reached are shown on Figure 2 and identified in Table 2. WPX is continuing to negotiate agreements with the owners of Freehold Mineral Rights owners for lease of the rights to additional acreage within, or adjacent to, the KLSA 008 Lease boundaries. The legal validity of WPX's mineral leases held as of November 2011 was confirmed by an opinion by MacPherson, Leslie and Tyerman LLP, a copy of which (including attachments) is provided in Appendix B of this Technical Report. For leases signed since November 2011, QP Dr. Douglas F. Hambley reviewed copies of the lease agreements provided by WPX and validated against the information on the website of Saskatchewan's Information Services Corporation the locations and acreages of the mineral rights conveyed to WPX. A list of these leases is provided in Appendix B.

Areas of Freehold Mineral Rights under lease by WPX that are outside KLSA 008 but within the ROI for Inferred Mineral Resources have been included in the Inferred Mineral Resource estimate in Section 14.0 of this Technical Report. However, the 40-year mine plan for the FS was restricted to lands with Crown and leased Freehold Mineral Rights that are contained with the limits of the Measured and Indicated Resources surrounding wells M 003 through M 009, which had been converted to Proven and Probable Reserves, respectively, per the discussion presented in Section 15.0 of this report. The lands contained within the ROI for Probable Reserves surrounding wells M003 through M 009 whose mineral rights are controlled by WPX as of November 30, 2012 comprise 13,264 of the 15,941 acres therein.

4.3 Surface Lands

In Saskatchewan, the surface rights are subject to separate ownership and title from the subsurface mineral rights; therefore, the securing of mineral rights does not automatically secure the surface rights. In undertaking any form of surface exploration operation, access to the property for the purpose of geophysical operations must be negotiated with the surface owner. In

Table 2. Sections and Approximate Acreages of Freehold Mineral Rights for which WPX has Agreements as of March 31, 2012

Township/Range	Full Sections of Freehold Mineral Rights for Which WPX has Agreements*	Area of Freehold Mineral Rights for Which WPX has Agreements (acres)
13/15	8	5,112.03
13/16	7-11/16	4,937.13
13/17	7-9/16	4,835.58
13/18	1-1/2	944.01
13/19	0	0.00
14/15	2-1/4	1,436.01
14/16	8	5,125.48
14/17	11-1/4	7,184.23
14/18	5-3/4	3.674.69
14/19	0.00	0.00
15/16	3-1/8	2,009.72
15/17	12-9/16	8,030.79
15/18	4-1/4	2,729.28
16/18	2-11/16	1,738.87
Total	74-5/8	47,757.82

* Full sections range from 640 acres to 644 acres; total acreage shown above is based on 640 acres per section where actual survey acreage is not available.

such instances, WPX pays the landowner to obtain the right of entry and may be subject to additional environmental conditions imposed by the landowner. In the case of commencing mining operations, WPX may decide to purchase the land upon which to build surface mining facilities. There is no guarantee that it will, in all cases, be able to obtain access to the necessary land.

WPX has purchased four contiguous sections (Sections 13, the eastern half of 14, 23, 24, and the southern half of 26) of land in Township 14, Range 18 West for the purpose of siting a processing plant and other surface facilities. WPX's title to these parcels (in the name of 101178726 Saskatchewan Ltd., which is a wholly owned subsidiary of WPX) was confirmed by the legal opinion by MacPherson, Leslie and Tyerman LLP, which was referred to in Subsection 4.2 above and is provided in Appendix B. These lands are sufficient for siting the processing plant, crystallization ponds, loadout facilities and tailings management area, which are discussed in more detail in Sections 17.0 and 18.0 of this report.

4.4 Environmental Liabilities, Permits, and Risks for the Property

WPX's Milestone Project is an advanced property as defined in the NI 43-101 regulations. Consequently, environmental issues and the status of permitting are discussed in Section 20.0 of this Technical Report.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Topography, Elevation, and Vegetation

Overall, the KLSA 008 Lease lands consist of flat, cleared farmland with occasional rows of trees planted to serve as windbreaks. The site has been farmed since the early 1900s and is primarily cropland used to grow wheat, canola, canary seed and flax, although there are scattered pastures and grazing lands. The ground surface at the M 001 well is located at an elevation of 583 m above Mean Sea Level (MSL).

5.2 Accessibility

The KLSA 008 Lease area is accessible by a network of "grid" section gravel and paved roads, including three major paved highways (Highway 6, which runs approximately north-south between Regina and the United States of America (USA) border; Highway 33, which runs southeast from Regina through Kronau, Lajord, and Sedley; and Highway 39, which runs northwest from Estevan to Moose Jaw and is located southwest of the Lease area). Gravel road access is available within the KLSA 008 Lease area, in part due to the occupancy of the land by a combination of mixed farms. Rail access is good, with a Canadian Pacific Railway (CP) line between Moose Jaw and Estevan that runs through Milestone south of the Permit Areas; the Stewart Southern Railway (SSR) Tyvan short line from Regina to Stoughton that runs through Kronau, Lajord, and Sedley east of the Permit Areas; and a Canadian National (CN) spur from Regina south to Estlin northwest of the Permit Areas.

5.3 Local Resources

The large urban population center of Regina to the northwest and local rural communities such as Kronau, Lajord, Sedley, Riceton, and Milestone may provide a pool of skilled professional, technical, and trades persons; furthermore, the presence of the Belle Plaine potash solution mine to the northwest of the KLSA 008 Lease area means that the regional labor force may have experience in potash mine construction and operation.

At present, it is felt that manpower for development and operation of the Milestone Project could be found in the surrounding local areas. That could change very quickly, however, and may necessitate additional expenditure to attract the workforce required.

5.4 Climate

The climate is typical of the Canadian prairies and consists of a winter period (November–March) of snow with a mean temperature of –11°C and a warm (15°C to 35°C) summer period (June to early September) with moderate precipitation. The spring (April–May) and autumn (late-September to October) are cool with precipitation in the form of rain and occasional snow. Exploration operations and construction of the processing plant and other surface facilities are limited by weather conditions during the spring and fall periods when soft ground conditions due to thawing and/or precipitation create difficulties in moving heavy

machinery. During the winter and summer months, access is largely restricted only by local conditions, periodic rains or snowfalls, or environmentally sensitive ground conditions.

5.5 Infrastructure

The surface lands of the KLSA 008 Lease area are primarily farmland, so it is reasonable to assume that it will be possible to continue to negotiate favorable land acquisition and usage agreements with private landowners for cavern drilling and well pads. As discussed in Section 4.3 of this Technical Report, WPX has purchased 4 sections of land totaling 2,560 acres for the mine plant including the processing plant potash storage and loadout areas, evaporation ponds, and tailings management area. Road and rail access is good as discussed in Section 5.2. The region is well served by natural gas delivery pipelines and an electrical distribution network.

Water supply in the settlements of Gray, Lajord, Milestone, Riceton, and Sedley is from municipal wells that generally meet Saskatchewan water quality standards. Water supply on the farms is generally from shallow domestic wells screened in sand lenses in the glacial till. Note that, although apparently not used for water supply, Wascana (Pile of Bones) Creek flows through the KLSA 008 Lease area. It should be noted that significant quantities of water are required for solution mining (an estimated 1,763 cubic meters per hour [m^3/h] for 2.0 Mtpy from primary mining and 431 m^3/h for sump development totaling 2,194 m^3/h) according to the FS (AMEC 2012) as reported in Section 18.0 of this Technical Report. WPX has finalized a long-term agreement with the City of Regina for the supply of 60,000 m^3/day for the initial mine development phase and 40,000 m^3/day thereafter. Additional information on the status of water requirements is presented in Section 18.0 of this Technical Report.

An existing 230-kilovolt (kV) (double circuit) overhead power line and supporting tower structures cross the Milestone property and the well field 40-year plan. The power line runs from the southeast to the northwest and has a 45 m right-of-way. Additional information on power line requirements are provided in Section 18.0 of this report.

Two existing major gas pipeline right-of-ways traverse the Milestone property. These two pipeline right-of-ways run through the well field 100-year plan from the northwest to the southeast. Pipeline information is as follows:

- Alliance Pipeline Ltd: 914 millimeters (mm), 12 megapascals (MPa) maximum operating pressure steel pipeline on an 18-m-wide right-of-way
- Cochin Pipeline Ltd: 323.8 mm, 9.93 MPa maximum operating pressure steel pipeline on an 18.3-m-wide right-of-way

The Gray Community Water Pipeline right-of-way crosses through the southern end of the Milestone property diagonally from the southeast corner of Section 13 to the middle north edge of Section 14. The Gray Community Water Pipeline will be relocated from its diagonal crossing to run along the perimeter of the Milestone property so as not to interfere with any present and future plant facilities. More information on project infrastructure is presented in Section 18.0 of this Technical Report.

6.0 HISTORY

The presence of evaporites in the sedimentary sequence in Saskatchewan was first noted in 1928 when a well drilled for oil near Unity bottomed in a half a meter of salt (Fuzesy 1982). Subsequently, in 1942, sylvite and carnallite were identified in the Norcanols Radville No. 1 well drilled by Imperial about 100 km south of Regina (about 85 km south of the KLSA 008 Lease area).

The lands presently held under Lease KLSA 008 were drilled for petroleum in the 1950s by British American Oil Co. (BA), Richfield Oil Co., Standard Oil Co. of New York/Standard Oil Co. of Ohio (Socony Sohio), Amerada Oil Co., and in the late-1990s, by Northrock Resources Ltd. Of the six wells drilled by these various companies, only one, Northrock Corinne 4-25-13-19, was of sufficient depth to penetrate the Prairie Evaporite Formation. The gamma logs for the Northrock Corinne 4-25-13-19 indicated only 27 m of Prairie Evaporite Formation and the lithologic logs based on chip samples, indicated no trace of sylvite. The apparent lack of evaporites and the small thickness of the Prairie Evaporite Formation have been taken as evidence that this well is west of the "salt edge"—the colloquial term used to describe the limit of potash mineralization.

Holter (1969) and Fuzesy (1982) have reviewed and summarized the seismic and drill-hole information available as of their respective publication dates regarding the thickness and extent of the Patience Lake, Belle Plaine, and Esterhazy Members of the Prairie Evaporite Formation. Detailed regional maps showing the interpreted locations of the edge of the salt beds, individual member thicknesses (isopachs), and locations of carnallite within the individual members are presented in both these references. More recently, the isopach maps have been updated by the Saskatchewan Geological Survey.

Between 1986 and 2000, 2D seismic surveys were run in the vicinity of the KLSA 008 Lease area by Exxon, Husky Oil, and Penn West Petroleum Co. Data from these seismic surveys were obtained in 2008 and reinterpreted for WPX by Boyd PetroSearch (Boyd PetroSearch 2010a). Seismic lines covering the northern portion of KLSA 008 were purchased by Boyd PetroSearch in spring 2009 to provide additional information. Boyd PetroSearch performed 2D and 3D seismic surveys on the southern portion of the KLSA 008 Lease area in the fall of 2009 and early 2010. The results of the 2008 through 2010 seismic exploration are discussed in Section 10.0 of this Technical Report.

Between April 2009 and January 2010, WPX advanced nine cored wells (M 001, M 002, M 002A, M 003, M004, M005, M006, M007 and M008) in Permit KP 409 (currently the east half of Lease KLSA 008) that intersected potash in the Prairie Evaporite Formation. A further two wells (M 009 and M 010) were advanced and cored in January and February 2011. The core from M 009 was assayed, whereas the core from M 010 was used for solubility and geomechanical testing to support design studies in the PFS and FS. These eleven wells are discussed in more detail in Section 10.0 of this Technical Report; the solubility test results are discussed in Section 13.0 of this Technical Report, and the geotechnical testing is discussed in Section 9.0 of this Technical Report. The Mineral Resources and Mineral Reserves discussed in

Sections 14.0 and 15.0, respectively, of this Technical Report are based on the ten cored and assayed wells completed by WPX.

A Scoping Study and a PFS for the Milestone Project were completed in 2010 and 2011, respectively. These studies indicated that the project appeared economically viable and merited further study.

Geotechnical studies including creep testing were performed in 2011 and early 2012 by RESPEC of Rapid City, South Dakota. The results of these studies are presented in Section 16.1 of this report. Sylvinite dissolution studies were performed in 2011 and early 2012 by NG Consulting of Sondershausen, Germany. The results of these studies are presented in Section 16.2 of this report.

Information on historical and recent drill holes located on Lease KLSA was obtained from Saskatchewan Energy and Resources. Unless otherwise noted, cores from the Prairie Evaporite Formation for historical wells were not available. The historical information reviewed by the authors did not contain any statements regarding Mineral Resource or Reserve estimates for Lease KLSA 008.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 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 KLSA 008 Lease area:

1. An uppermost sequence extending from surface to an approximate depth of some 175 to 200 m and consisting of glacial tills, gravels, and clays and containing freshwater aquifers.
2. A medial sequence extending from the base of the glacial sediments to an approximate depth of some 980 m and consisting of Triassic to Cretaceous shales, siltstones, and sandstones with limited aquifers of brackish water.
3. A lowermost sequence extending from the Triassic/Mississippian Unconformity to below 2,100 m depth and consisting of Cambrian to Mississippian carbonates, evaporites, and basal shales and sandstones. The Deadwood Formation sandstone that lies immediately above the Precambrian basement will be used for disposal of salt brines from pre-production cavern sump development and excess brines from the processing plant.

The above strata are underlain by gneisses and granites of the Precambrian basement.

Laterally extensive, evaporite beds containing deposits of halite, sylvite, and carnallite are found within the Middle Devonian Elk Point Group, whose top ranges from a depth of 2,500 m in southern Saskatchewan to surface outcrop in northwestern Manitoba. The Elk Point Group lies unconformably on the Silurian-age Interlake Formation and is overlain unconformably by carbonate deposits of the Middle Devonian-age Dawson Bay Formation. The evaporite beds are contained within the Prairie Evaporite Formation, which overlies the Winnipegosis Formation within the Elk Point Group. The basal contact between the Prairie Evaporite and the Winnipegosis Formation is marked by a sharp transition from halite of the Prairie Evaporite Formation to mixed limestone, dolomite, and anhydrite of the Winnipegosis Formation. The uppermost contact between the Prairie Evaporite and the Dawson Bay Formations consists of shale and poorly consolidated silty detrital deposits named the “Second Red Beds.” Regionally, the underlying Winnipegosis forms a broad flat basin to platform deposit with local development of limestone/dolomite “reefs.”

The Elk Point Group was deposited within a broad mid-continental basin extending from North Dakota and northeastern Montana at its southern extent in a northwest direction through southwestern Manitoba, southern and central Saskatchewan, to eastern and northern Alberta. The evaporite strata in the basin are restricted to the southern one-third of the Elk Point Basin in south-central Saskatchewan, southwestern Manitoba, northeastern Montana, and northwestern North Dakota (Holter 1969).

Period	Group	Member	Strata
Quaternary		Glacial Till	
Cretaceous	Colorado	1st White Speckled Shale	
		2nd White Speckled Shale	
		Lower Colorado Group	Shales
		Viking	
	Mannville	Mannville	Sandstones
Jurassic	Vanguard	Vanguard	
		Upper Shaunavon	Shales
		Lower Shaunavon	
		Upper Gravelbourg	
		Lower Gravelbourg	Sandstones
		Upper Watrous	Evaporites
Triassic		Lower Watrous	Shales
Mississippian	Madison	Souris Valley	
Devonian	Three Forks	Bakken	
		Big Valley	
		Torquay	
	Saskatchewan	Duperow	Carbonates
	Manitoba	Souris River	
		Davidson Evaporite	Evaporites
		Souris River	Carbonates
		Dawson Bay	
		1st Red Bed	
	Elk Point	2nd Red Bed	
		Prarie Evaporite	Evaporites
		Winnipegosis	Carbonates
		Ashern	Carbonates
		Meadow Lake	Mudstones/ Carbonates
Silurian		Interlake	Carbonates
		Stonewall	Carbonates
Ordovician		Stony Mountain	Carbonates
		Herald	Carbonates
		Yeoman	Carbonates
		Winnipeg	Sandstone
Cambrian		Deadwood	Sandstone
Precambrian		Basement Complex	Granites/ Gneisses

Figure 3. Stratigraphic Column for Central Saskatchewan

The Manitoba Group that overlies the Elk Point Basin consists of the Dawson Bay Formation and overlying Souris River Formation. Present within this sequence are two halite beds:

1. The Hubbard Salt, which is the uppermost bed of the Dawson Bay Formation; and
2. The Davidson Evaporite, which overlies the First Red Beds within the Souris River Formation.

These halite beds are important from an underground mining viewpoint as they form a flood protection zone that separates the Prairie Evaporite Formation mining horizon from the overlying water and brine aquifers present within the Cretaceous sands, especially the Mannville Group (formerly known as the "Blairmore Formation"). However, the presence or absence of these beds is less critical for solution mining than for underground mining.

Lease KLSA 008 is situated to the south of what is commonly termed the "Commercial Potash Mining Belt." Where potash is mined by conventional underground means within this "belt," the potash-bearing beds of the uppermost Prairie Evaporite Formation range between 950 m and 1,100 m in depth. The depth to the top of the Prairie Evaporite Formation on the KLSA 008 Lease area ranges from 1,650 m near the northwest corner of the Lease area to 1,750 m along the southern boundary of the Lease area. Because salt and potash have been conventionally mined successfully only to depths of 1,200 m to 1,400 m because of geomechanical limitations, solution mining techniques must be considered the preferred means of recovery of the resource on the KLSA 008 Lease area.

The Prairie Evaporite Formation is divided into a basal "Lower Salt" and an overlying unnamed unit containing three potash-bearing units and one unit containing thin "marker beds." In ascending order, the potash beds in the upper unit are the Esterhazy Member, White Bear Marker Beds, Belle Plaine Member, and Patience Lake Member. Mineralogically, these members consist of sylvite and halite with minor amounts of carnallite. As will be shown in Section 11.0, the carnallite grades in the Patience Lake and Belle Plaine Members are sufficiently low such that carnallite will not interfere with mining operations for sylvite. Conversely, the carnallite grades in the Esterhazy Member exceed 6% in four of the ten wells drilled by WPX for which assays are available. Carnallitic ores can be handled by the evaporator/crystallizer processing circuits used at solution mines, but the result is KCl losses to the magnesium purge and thus reduced KCl recovery. However, if the brines from the Esterhazy Member in the vicinity of these wells can be blended with brines from the Patience Lake or Belle Plaine Member, the resulting carnallite grade may be acceptable. The White Bear Marker Beds are typically of insufficient thickness and grade to be economically mineable.

Figure 4 shows a regional cross section from Saskatoon to some 160 km southeast of the KLSA 008 Lease area. This cross section was published in the Potash One NI 43-101 Resource Report (Hardy and Halabura 2008) and illustrates the regional consistency of the Prairie Evaporite Formation.

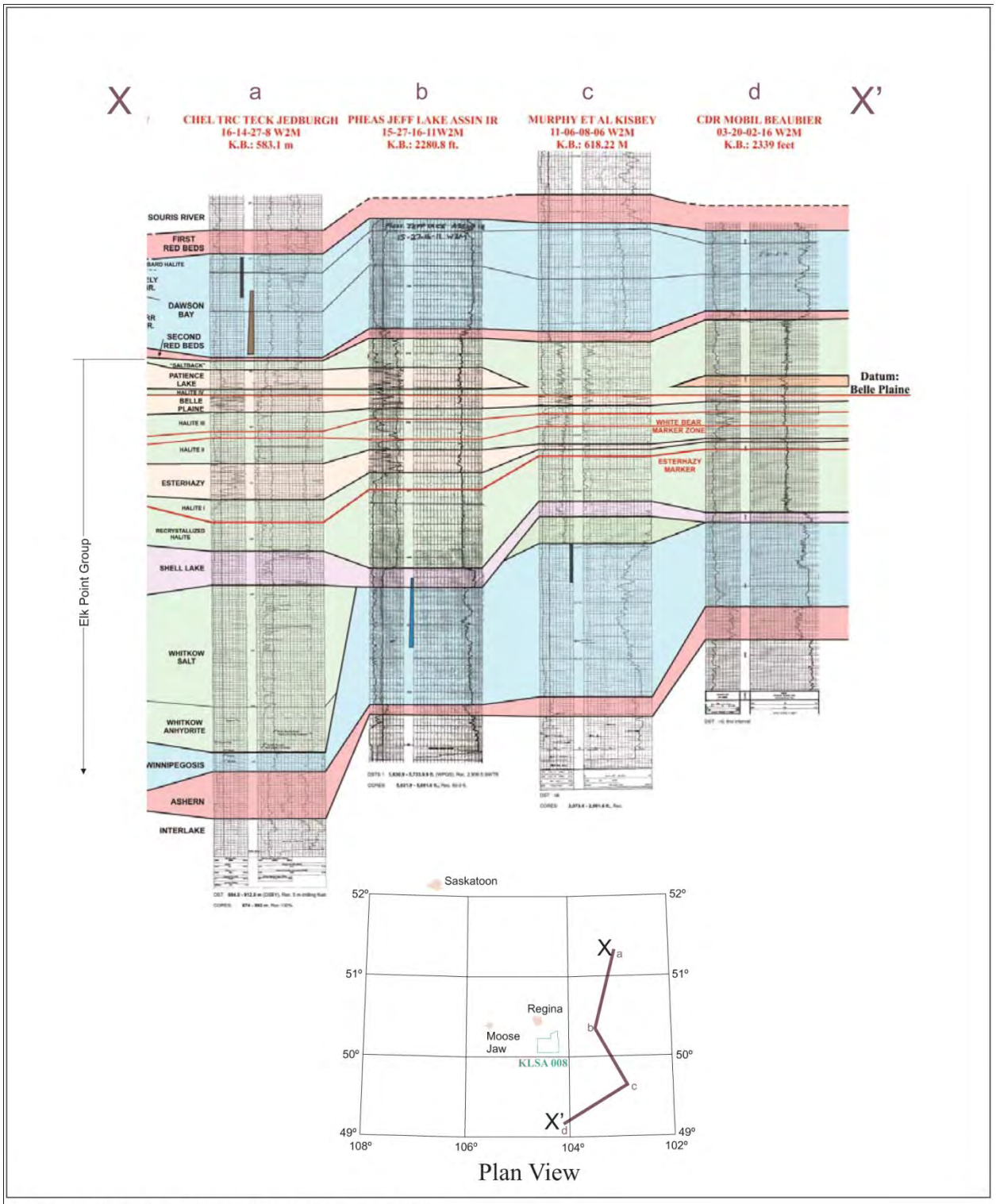


Figure 4. Regional Stratigraphic Correlations of the Elk Point Group, Saskatchewan (after Hardy and Halabura 2008)

7.2 Local Geology of Potash-Bearing Members

In the KLSA 008 Lease area, the Esterhazy, Belle Plaine and Patience Lake Members are present. Also present is the "White Bear Marker Beds," which is a distinctive unit of thin interbedded clay, halite, and sylvinite beds between the Belle Plaine and Esterhazy Members but is of insufficient thickness and grade to be attractive for mining. Following is a summary of the key stratigraphic boundaries determined for the Permit Areas:

- **Patience Lake Member:** The uppermost member of the Prairie Evaporite Formation with potash production potential. Between the top of the Prairie Evaporite and the top of the Patience Lake Member lies a 7 to 14 m thickness of halite with clay bands called the salt-back. The sylvite-rich beds within the Patience Lake Member are mined using conventional underground mining techniques along a trend from Vanscoy to Lanigan in the Saskatoon area and by solution mining techniques at the Belle Plaine mine near Moose Jaw.
- **Belle Plaine Member:** The Belle Plaine Member underlies the Patience Lake Member and is separated from it by barren halite beds. The Belle Plaine is mined using solution mining techniques at the Belle Plaine potash mine.
- **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 in southeastern Saskatchewan and by solution mining techniques at the Belle Plaine potash mine.

The potash beds are underlain by halite.

The typical sylvinite interval within the Prairie Evaporite Formation consists of a mass of interlocked sylvite crystals that range from pink to translucent, and which may be rimmed by greenish-grey clay or bright red iron insolubles, with minor halite randomly disseminated throughout the interval. Local large (greater than 2.0–2.5 centimeters [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% potassium oxide (K_2O) grade with an increase in the 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.

7.3 Mineralization

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

1. **Patience Lake Member:** The top of the Patience Lake Member is placed at the top of the uppermost sylvinite bed of the Prairie Evaporite Formation, and the lower boundary is placed at the base of the lowermost sylvinite bed. A barren halite bed separates the Patience Lake Member from the underlying Belle Plaine Member.

2. **Belle Plaine Member:** The top of the Belle Plaine Member is placed at the top of the uppermost sylvinite bed below the barren zone underlying the Patience Lake Member, and the lower boundary is placed at the base of the lowermost sylvinite bed above the barren zone that underlies the Belle Plaine Member.
3. **Esterhazy Member:** The top of the Esterhazy Member is placed at the top of the first sylvinite bed of the member, and the lower boundary is placed at the base of the sylvinite bed at the contact with the barren halite that underlies the member.

Sylvite mineralization also occurs in the White Bear Marker Beds, which are found between the Belle Plaine and Esterhazy Members. However, based on the geophysical logs and assays for the nine wells drilled for WPX, these beds are of insufficient thickness (typically 1 m to 3 m) and grade to be economically mineable on KLSA 008.

The thicknesses of the Patience Lake, Belle Plaine, and Esterhazy Members of the Prairie Evaporite Formation on the KLSA 008 Lease area as determined from current drilling by WPX are shown on Figures 5a, 5b, and 5c, respectively. The total thickness of the Patience Lake, Belle Plaine, and Esterhazy Members (excluding interbeds) ranges from some 15.8 m at the M 007 well site to some 25.1 m at the M 003 well site.

Carnallite is present to a limited degree in all potash members of the Prairie Evaporite Formation; no significant concentrations of carnallite have been detected in the Patience Lake or Belle Plaine Members in KLSA 008. However, drilling by WPX has confirmed that portions of the Esterhazy Member on the KLSA 008 Lease area contain excess carnallite, as shown on Figure 6. This differs from the expectation of Holter (1969) and Fuzesy (1982), who have shown elevated carnallite concentrations in the Esterhazy Member within the entire KLSA 008 Lease area. Carnallite is also present as a separate unit 6 to 10 m below the Esterhazy Member in wells M 004 and M 005.

7.4 Disturbances Affecting Geology of Potash-Bearing Members

Potash-bearing beds may be affected by three general types of anomalies and the presence of high concentrations of carnallite. In general, any disturbance that affects the normal character of the sylvinite-bearing beds is considered an “anomaly” and, thus, represents an area which is unsuitable for mining. Figure 7 illustrates the types of disturbances that typically create anomalous altered zones within the main sylvinite-bearing beds at 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) halite crystals within a groundmass of smaller intermixed halite and clay insolubles. Clay intrusions up to 1 cm long may be present and, typically, there is a concentration of clay at the top and base of the altered zone. Mackintosh and McVittie (1983) describe these disturbances as “salt-filled V- or U-shaped structures, which transect the normal bedded sequence and obliterate the stratigraphy.” Washouts may extend laterally for considerable distances, but generally appear over short intervals.

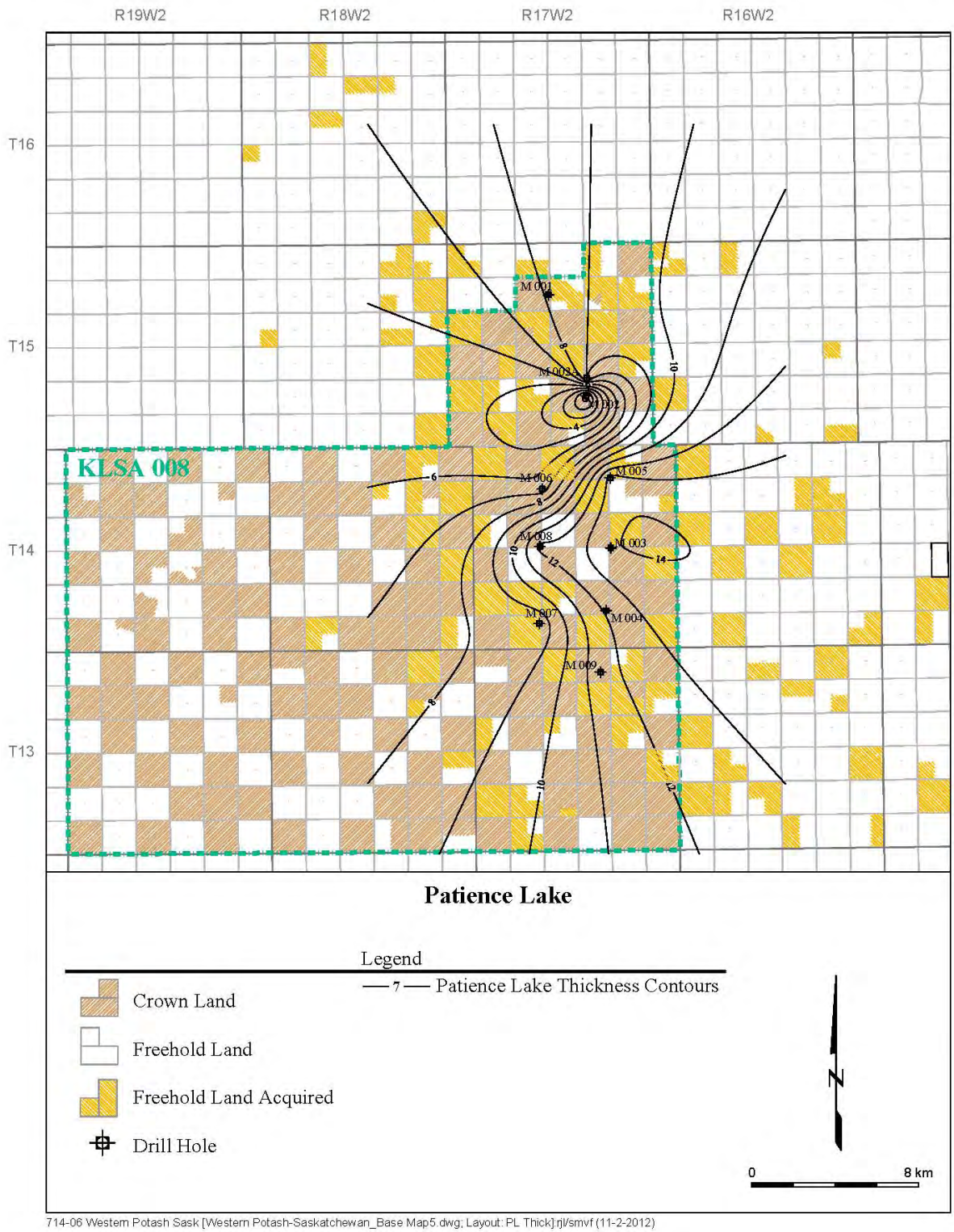


Figure 5a. Sylvinite Bed Thicknesses (meters) **in the Prairie Evaporite Formation, Patience Lake Member**

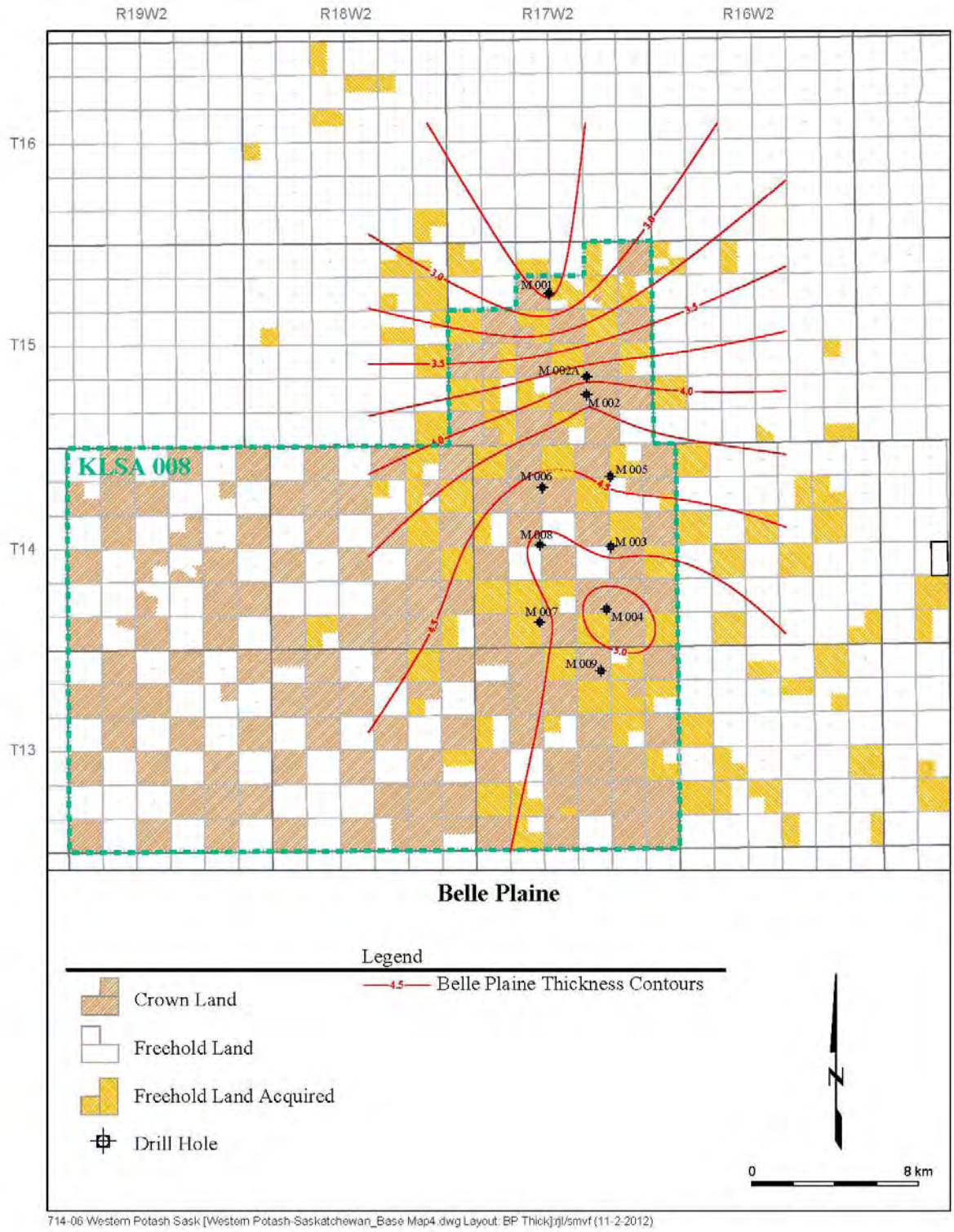


Figure 5b. Sylvinite Bed Thicknesses (meters) **in the Prairie Evaporite Formation, Belle Plaine Member**

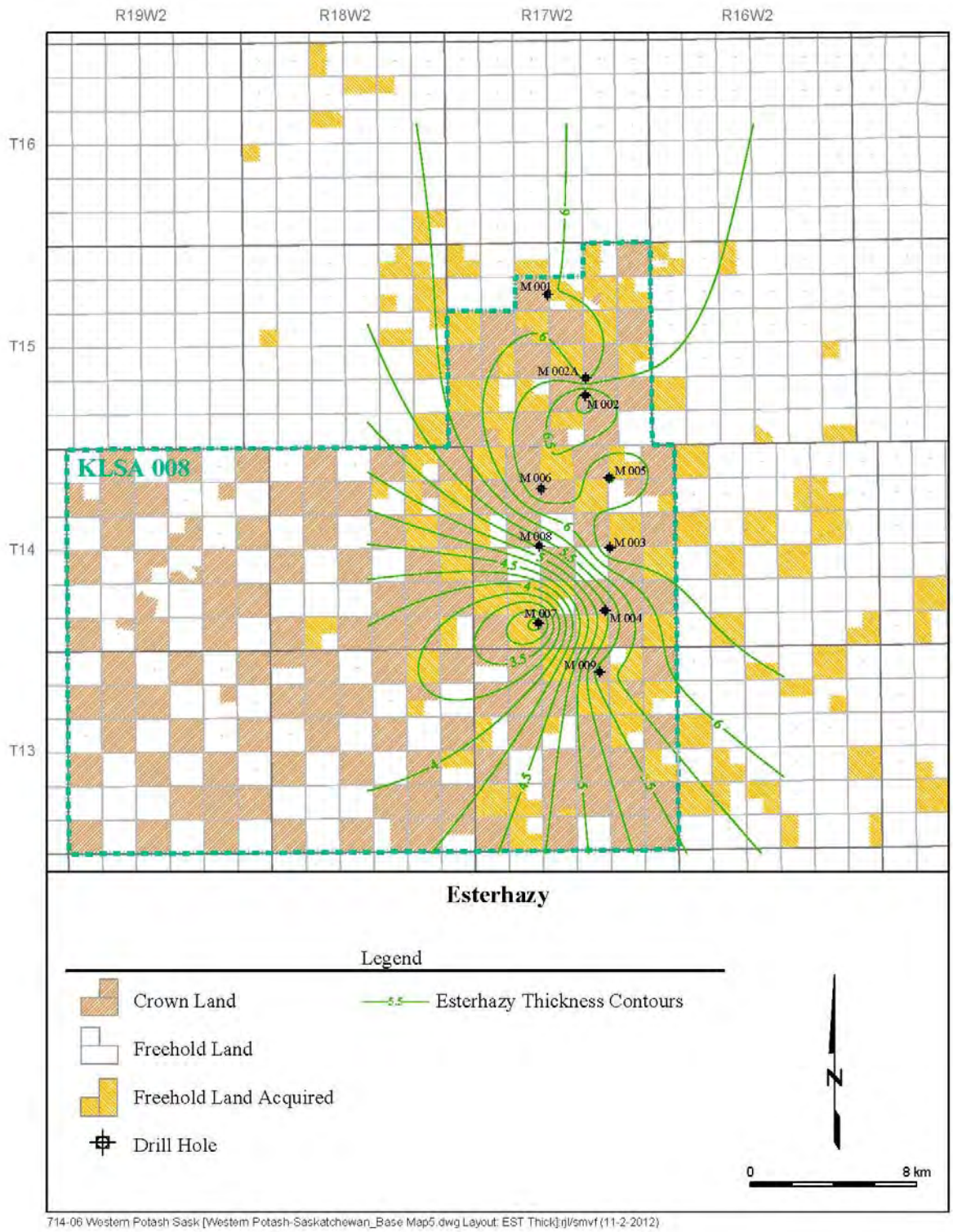


Figure 5c. Sylvinite Bed Thicknesses (meters) **in the Prairie Evaporite Formation, Esterhazy Member**

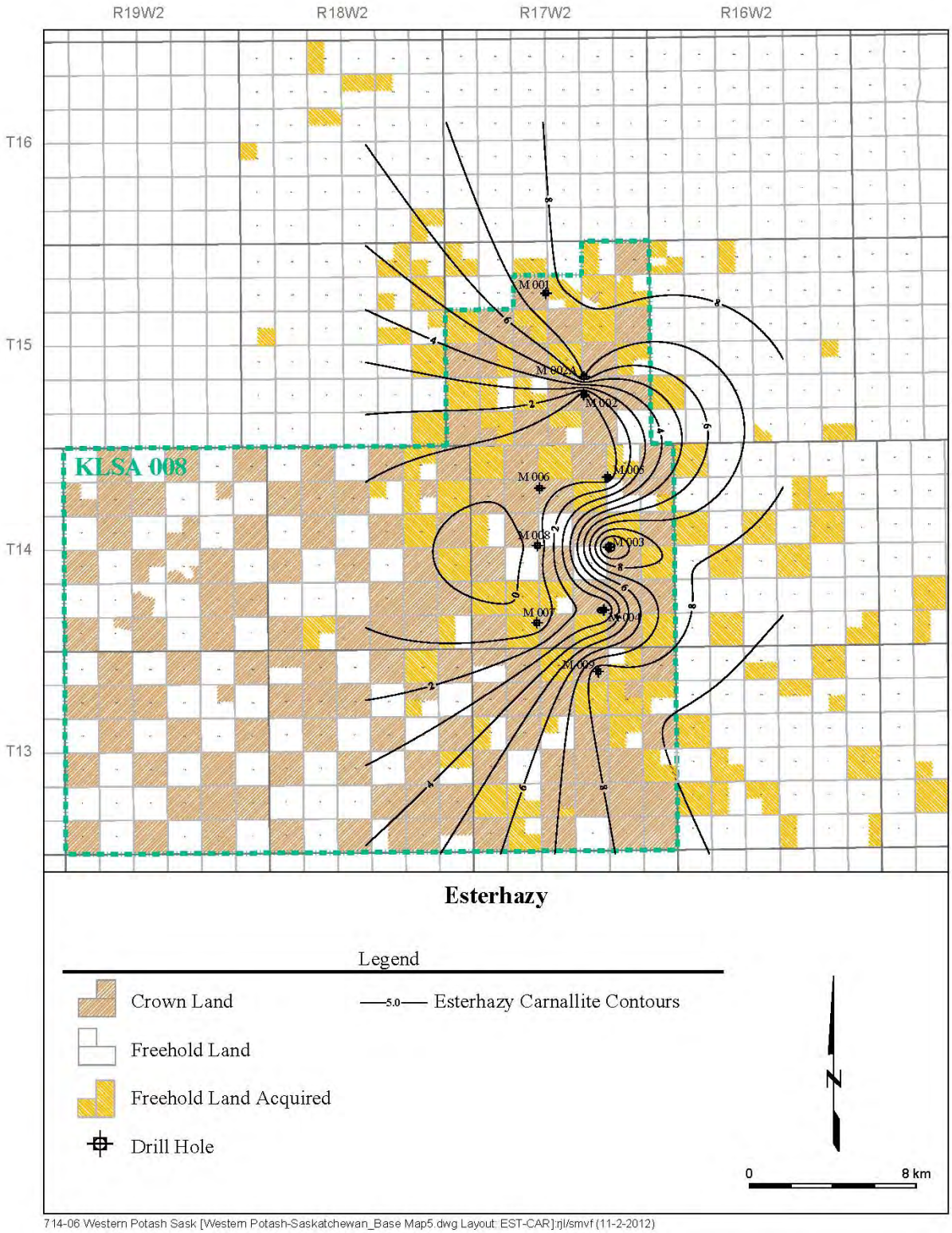
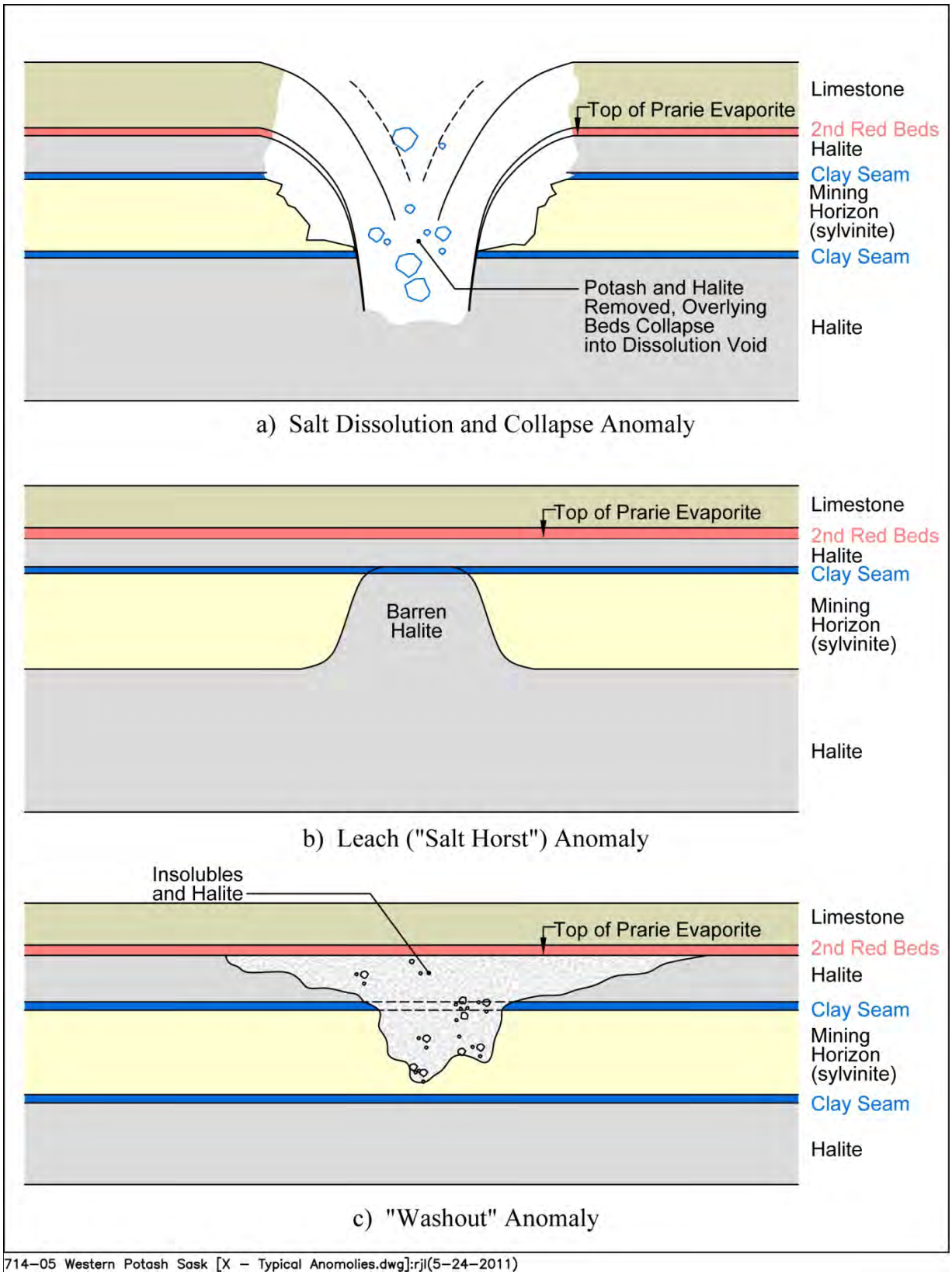


Figure 6. Carnallite Grade (%) of the Esterhazy Member on Lease KLSA 008



714–05 Western Potash Sask [X – Typical Anomolies.dwg]:rjl(5–24–2011)

Figure 7. Disturbances Affecting Geology of Potash-Bearing Members

A "leach anomaly" is an anomaly wherein the typical sylvinite bed has been altered in such a manner that the sylvite mineral has been removed and replaced by 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. This type of disturbance is generally considered post-depositional (i.e., formed after deposition of the primary sylvinite). These anomalies are commonly associated with underlying Winnipegosis reefs, which may have some formative influence upon the anomaly. For instance, a disturbance at the Agrium Vanscoy Mine has been described by Mackintosh and McVittie (1983) as characterized by "partial or complete absence of sylvite in what is otherwise a normal, continuous stratigraphic sequence. Thinning is proportional to sylvite deficiency." Mackintosh and McVittie describe 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."

Dissolution and collapse anomalies, or simply "collapse" anomalies, are those formed by the removal, in situ, of a portion or the entire mass of evaporite salts. In the case of these anomalies, the overlying beds typically slump down into the void thus formed, creating a rubble pile or "breccia chimney" where normally the evaporite beds would be expected. In contrast to the leach or washout anomaly, the collapse anomaly can be identified by means of seismic reflection surveys and can thus be avoided during mine design. Collapse anomalies are dangerous to conventional underground potash mining operations as they typically breach all overlying aquitards and aquicludes, thus forming conduits for overlying brines and freshwaters to flow downward into mine workings. An example encountered at the PCS Lanigan Division of an unusual and severe form of this type of anomaly has been presented by Danyluk et al. (1999).

The above anomalies impact mining operations by reducing the grade of potash ore being sent to the mill, prompting changes in the mine plan and reduction of the potash reserve as ground around them is left as safety pillars or is otherwise abandoned. An important aspect, therefore, of estimating the potash resource of a lease is identification of potential anomalous zones. Surface seismic reflection surveys (2D and 3D) can be used to identify and, in the case of 3D seismic, delineate large-scale collapse zones. Careful examination of core from surface drill holes can identify anomalies if they are intersected, but provide no information on their shape or extent.

In addition to the anomalies discussed above that are caused by solutioning of various types, potash zones can also be affected by mounds jutting up from the underlying Winnipegosis Formation. The primary effects of the mounds appear to be local thinning of the potash members over the mounds and local steepening of the dip of the Prairie Evaporite bedding over the edges of the mounds. Based on the lack of discussion of these mounds in the potash mining literature, the effects do not appear to be as critical for underground mining as those of anomalies caused by collapse, dissolution or leaching. However, the presence of inclined beds can interfere with solution mining.

The presence of high concentrations of carnallite can impact the effective recovery of potash in the milling process. In some locations, high-grade carnallite is mined as a source of KCl but no such operations exist in Canada. Carnallite is considered an impurity and the carnallite grade in conventional mill feed in Saskatchewan is generally limited to 6% by weight.

Fuzesy (1982) and others have shown areas of high carnallite grade on regional maps based on interpretations of downhole gamma and neutron geophysical logs and assay records maintained for historical drill holes by Saskatchewan Energy and Resources. Carnallite dissolves more readily than sylvite and its presence reduces the concentrations of potassium in solution, which is detrimental for solution mining.

8.0 DEPOSIT TYPE

Potash at the Milestone Project area occurs conformably within Middle Devonian-age sedimentary rocks, and is found in total thicknesses ranging from approximately 30 to 40 m at a depth of approximately 1,350 to 1,450 m. Evaporites are generally formed by seawater flowing into landlocked basins, followed by the evaporation of the seawater and precipitation of the dissolved salts. Progressive solar distillation of these salt-rich brines results in sequentially precipitated beds of limestone ($CaCO_3$), dolomite ($CaCO_3 \cdot MgCO_3$), anhydrite ($CaSO_4$), halite (NaCl), carnallite ($KCl \cdot MgCl_2 \cdot 6H_2O$), sylvite (KCl), kieserite ($MgSO_4.H_2O$), and other calcium and magnesium salts.

The term potash is the common name for various compounds that contain the element potassium and is derived from the fact that the historic source of the element was the ashes of plant matter burned in a pot. Hence, in a strict sense, the word potash refers to potassium oxide or K_2O. Because commercial potash minerals include both chlorides and sulfates containing varying quantities of potassium, potassium-bearing minerals are compared on the basis of their K_2O contents. The term muriate of potash (MOP), which is the term used for commercial grade fertilizer containing potassium chloride, is the archaic name for that compound. The product mined and sold is KCl. A tonne of KCl contains an equivalent of 0.6317 t of K_2O.

The term sylvinite is used to describe the in-situ rock comprising a mixture of sylvite and halite that is the source of the potash. The Prairie Evaporites may also contain carnallite and insolubles such as clay, anhydrite and dolomite crystals. Other minerals that may be present in sylvinite but not found in the Prairie Evaporites include kieserite, kainite, and polyhalite. The presence of carnallite impedes sylvite production from solution mining due to its more rapid solubility. In addition, elevated carnallite grades can affect plant performance and generally require special non-standard processing.

The geology of the potash-bearing beds of the Middle Devonian Prairie Evaporite Formation has been well documented. Overall, the potash-bearing beds may be described as being a bedded sedimentary rock, deposited across the Middle Devonian Elk Point Seaway. These beds, which are bedded sedimentary rocks, are remarkably consistent over all of Saskatchewan and portions of Manitoba, North Dakota, and northeast Montana with individual clay seams and sylvinite-bearing intervals that can be correlated over great distances. A standardized stratigraphic nomenclature has been established by Phillips (1982).

The widespread consistency of the potash-bearing sub-members and the flat-lying, bedded nature of the sylvinite intervals result in highly mechanized conventional underground mining operations. In areas suitable for solution mining, this consistency suggests that a cavern can be moved laterally by abandoning a well and drilling another, should the grade or thickness encountered within a well intended to develop a cavern be deemed insufficient for mining purposes.

Halabura and Hardy (2007) describe the key parameters to consider when evaluating the potential for a solution mine, these being:

- **Thickness of Mineralization:** The solution-mining method allows 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:** Underground temperature increases with depth, and sylvite solubility increases with increasing temperature making the solution process more efficient at greater depths.
- **Carnallite Content:** Increased amounts of carnallite decrease the efficiency of cavern dissolution and potash recovery because carnallite dissolves more readily than sylvite.
- **Depositional Anomalies:** The presence of depositional anomalies can reduce the thickness or grade of the potash zones.
- **Faults:** The presence of faults or similar geologic features can displace the potash beds.
- **Potash Bed Dip:** Excessive dip can limit the size of the caverns and the resource recovery.
- **Presence of Clay Layers:** Clay layers in the immediate roof can lead to premature roof fallout and limit the size of the cavern.

For purposes of estimating the mineral resource on the KLSA 008 property, the Patience Lake, Belle Plaine, and Esterhazy Members are considered to have solution mining potential. Solution mining of the high-carnallite portions of the Esterhazy Member in the vicinity of wells M 001, M 002A, M 003, and M 009 has been considered possible if the resulting brine can be blended with brines from other potash members in other caverns. Consequently, the high-carnallite areas of the Esterhazy Member were included in the resource estimates. The White Bear Marker Beds are not considered to have solution mining potential because of their minimal thickness and low grade.

Temperature measurements from the drilling confirm the presence of the relatively high formation temperature. Temperature measurements from all the wells show bottom-hole temperatures during well logging ranging from 58°C to 65.5°C. The true in-situ temperature is higher than the logged bottom-hole temperature because the bottom-hole temperature is the temperature of the drilling mud and is not in equilibrium with the formation. Elevated temperature is an important component of the economics of future solution mining on the property, offering advantages in solution mass-balance and savings in capital, energy, and processing costs. The solubility of potash increases with temperature such that the higher the formation temperature, the higher the yield of potassium chloride in the brine solution to be processed for potash recovery. The formation temperature is estimated to be 65°C.

9.0 EXPLORATION

The KLSA 008 Lease area is exploratory in that there has been no production as yet of potash from the Milestone Project lands. The closest production of potash occurs within the bounds of production lease KL 106, which is the Belle Plaine potash solution mine owned and operated by Mosaic. The mine is located in Township 17, Ranges 23 and 24 West of the Second Meridian, approximately 50 km (30 miles) to the northwest. Historical exploration is discussed in Section 6.0.

9.1 2008 Reinterpretation of Historical Seismic Data Sets

In 2008, WPX contracted with Boyd PetroSearch of Calgary, Alberta, to obtain and reinterpret existing 2D seismic data over its KP 407, KP 408, and KP 409 Permits. (Permits KP 408 and KP 409 are now Lease KLSA 008.) As discussed in Section 6.0 of this Technical Report, the data consisted of 138 km of 2D seismic lines located in Townships 13 to 15 and Ranges 17 through 20 of the Second Meridian, and collected between 1989 and 2000 by Exxon Mobil Corporation, Husky Energy Inc., and Penn West Energy Trust. The surveys used dynamite sources and source intervals of 75 to 120 m and receiver intervals of 25 to 30 m, resulting in a vertical sensitivity of 12 to 15 m. Several features were identified from the interpreted survey data ranging from minor seismic character changes to total salt loss at the Prairie Evaporite level. Five Prairie Evaporite collapse anomalies were identified and mapped along the northern boundary of what was then KP 408 and in Township 14, Range 17 within then Permit KP 409. The on-line positions and dimensions of collapses intersected by the 2D seismic lines were defined with accuracy. Off-line collapses were also identified, but were speculative in nature because their true position or size could not be determined from the 2D data. The collapse zones in Township 14, Range 17 were subsequently further delineated using 3D seismic surveys in 2010 as discussed in Section 10.3.

Several large Winnipegosis mounds were identified throughout the data set. The presence of these mounds does not directly influence mining; however, mounds have historically had an effect on mine room elevations and ore grade due to a high probability of potash leaching and elevation changes over the edges of the mounds at the mining level. The leaching is thought to be associated with vertical migration of fluid through fractures in steeply dipping beds over the mounds.

The seismic survey suggested a total loss of the Prairie Evaporite sequence on then Permit KP 407 and the western half of then Permit KP 408, which is west of the salt-edge location postulated by Holter (1969) and Fuzesy (1982). As a consequence of this information, WPX let permit KP 407 lapse and focused its efforts on then Permit KP 409 and the eastern half of then Permit KP 408, both of which are now part of KLSA 008. The identification of lithologic layers by seismic survey data depends on the existence of contrasts in seismic velocity. Because such contrasts are relatively small between sylvite and the adjacent halite, seismic survey data does not provide any indication of the presence or absence of potash within a salt sequence and cannot delineate potash ore-grade anomalies or the presence of washout or leach anomalies.

As discussed below in Subsections 9.2 and 9.3, subsequent seismic surveys in 2009 and 2010 clarified the location of the salt edge.

9.2 Boyd PetroSearch 2009 2D Seismic Surveys

In the spring of 2009, Boyd PetroSearch purchased existing 2D seismic data and reprocessed and interpreted that data. The purchased data included 15 east-west seismic lines totalling approximately 145.5 km in length in Township 15, Range 17 West of the Second Meridian. Two of the lines were located on order to intersect the M001 and M 002 wells. The results of the surveys (Boyd PetroSearch 2010a) identified three major and one minor collapse zones and significant areas underlain by Winnipegosis mounds.

In the fall of 2009, Boyd PetroSearch ran an additional 179 line-km of 2D seismic surveys in Townships 13 and 14, and Ranges 17 through 19 West of the Second Meridian. The surveys consisted of 5 east-west lines totalling approximately 100 km and 4 north-south lines totalling approximately 69 km. The results of these surveys indicated that the Upper Salt of the Prairie Evaporite Formation is missing over much of Township 13, Range 19 and is thin in Township 14, Range 19 and the remainder of Township 13, Range 19. The results also showed collapse zones and a number of Winnipegosis mounds. The collapse zones and Winnipegosis mounds identified by the 2D surveys are shown in Figure 8a.

9.3 Boyd PetroSearch 2010 2D and 3D Seismic Surveys

Between January and April 2010, Boyd PetroSearch completed a 3D seismic reflection survey over 98 km^2 of the lease area in Township 14 Range 17 of the Second Meridian and a 9.7-km 2D survey line east of the 3D survey area and parallel to the east boundary of the township. The results of these surveys identified three classes of collapses that may impact solution mining. These are designated as Class 1, 2, or 3 in decreasing severity. Figure 8a shows the location of the Class 1 collapse areas identified in the 3D seismic area, and Figure 8b, taken directly from the Boyd PetroSearch (2010b) report, identifies the lesser collapse features superimposed over the structure map of the Second Red Bed. Figure 8a also shows the Winnipegosis mounds (Boyd PetroSearch 2010b), affirming the results from the 2D surveys run previously. As stated previously in Section 7.4, the presence of Winnipegosis Mounds does not directly affect mining. However, potash beds with steeper than normal dips may be encountered vertically over the edges of mounds. Class 1 collapse features will affect mining and, therefore, the areas of collapse zones within the lands with Crown and leased mineral rights were removed from the areas used to estimate the mineral resources, as described further in Section 14.0 Figure 8a incorporates the collapse zones and Winnipegosis mounds identified by the 2D and 3D seismic surveys.

The initial interpretation of the 3D seismic results identified an anomalous zone of Prairie Evaporite Formation located along the northern margin of the 3D seismic area north-northeast of well M 006. Further interpretation of the seismic results suggested that this area might be a zone where carnallite is present in the Belle Plaine Member. Further work is required to confirm the nature of this anomaly (Boyd PetroSearch 2010b). However, this area will not be mined as part of the 40-year mine plan so further definition of the anomaly is not a high priority at the moment.

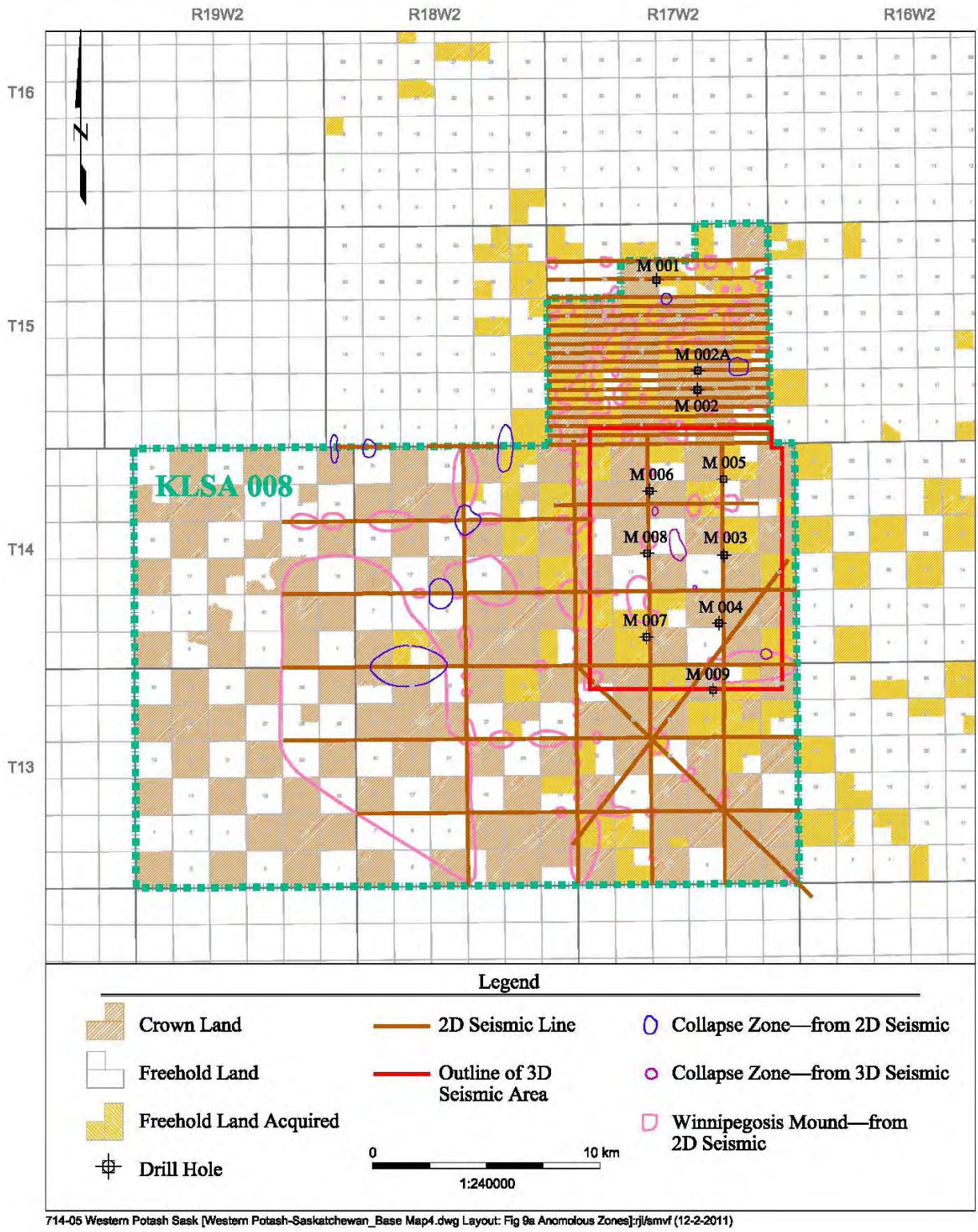


Figure 8a. Collapse Zones and Winnipegosis Mounds from 2D and 3D Seismic Surveys

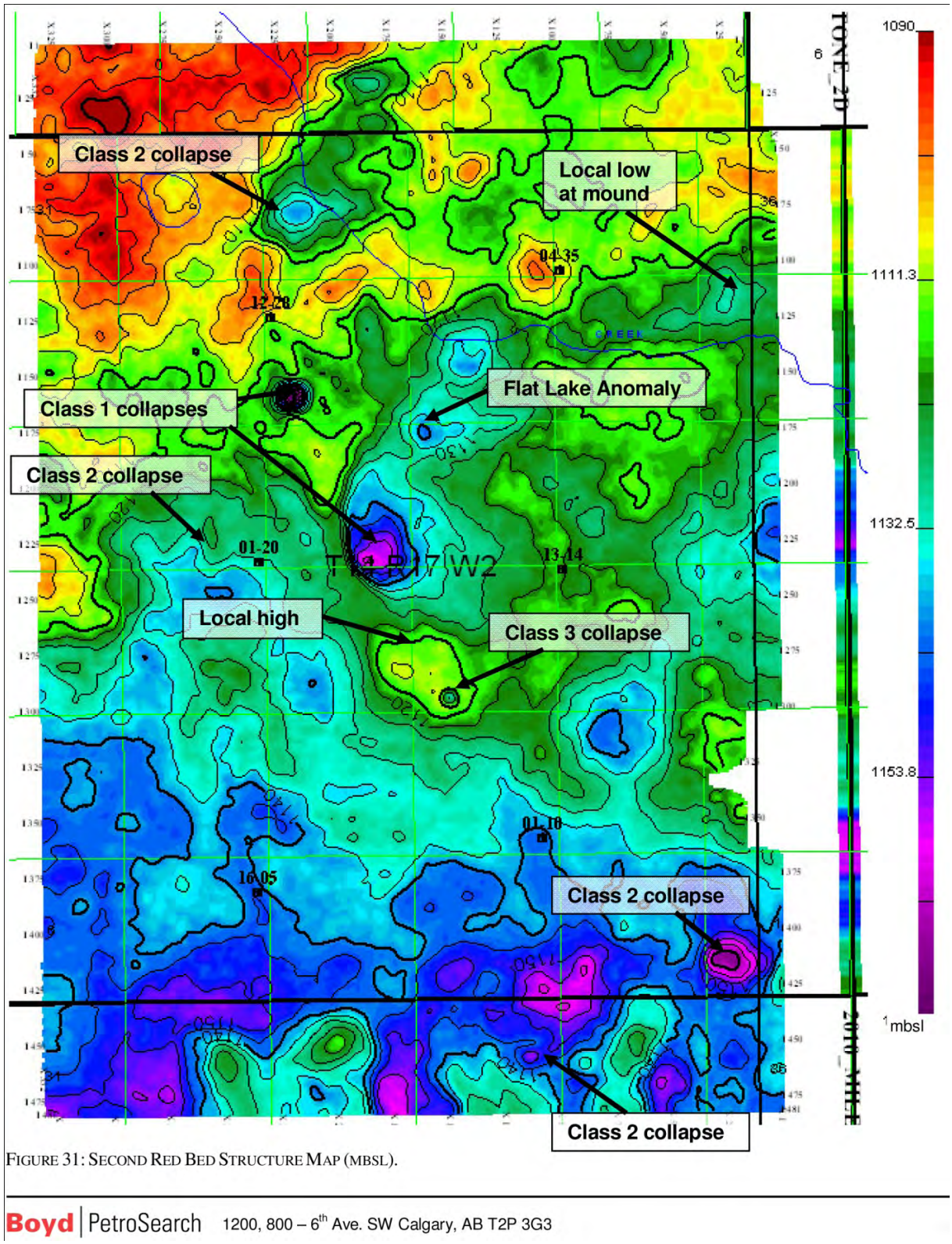


Figure 8b. Identification of Collapse Zones (from Boyd PetroSearch 2010b)

Because of the preliminary nature of this information, this anomalous zone was not excluded in the estimation of the mineral resources or mineral reserves.

10.0 DRILLING

A four-hole exploration drilling program completed from May 2009 to July 2009 was followed by a five-hole program completed between July 2009 and January 2010 as part of the resource definition program. Red Dog Drilling Inc. of Estevan, Saskatchewan, was contracted to complete the drilling of seven of the potash wells utilizing oil-field drilling equipment capable of drilling to depths beyond that of the Prairie Evaporite Formation. A photo of the rig is presented in Figure 9. Precision Drilling Corp. of Calgary, Alberta, was contracted to complete the last two wells drilled on the property. In January and February 2011, two additional wells were advanced in Section 34 of Township 13 North, Range 17 West of the Second Meridian. Cores were collected from both these holes: core samples from M 009 were sent to SRC for assay; those from M 010 were sent to RESPEC in South Dakota for geotechnical testing and to NG Consulting in Germany for dissolution testing. The RESPEC geotechnical testing is discussed in Section 16.1 of this Technical Report; the dissolution testing is discussed in Section 16.2 of this Technical Report.

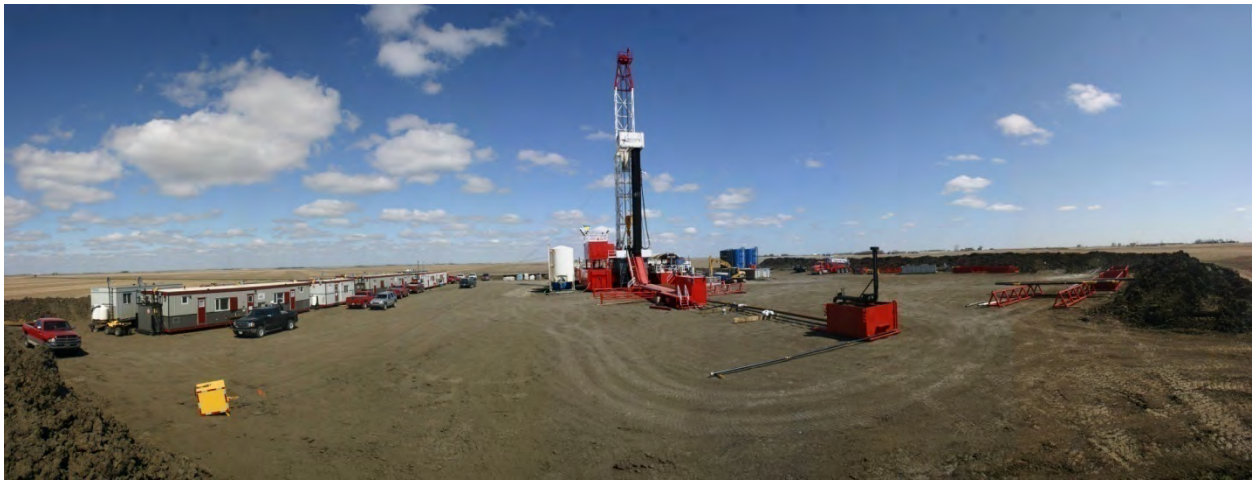


Figure 9. Red Dog Drilling Rig No. 3 at the M001 Drill Site on the KLSA 008 Lease

The drilling and coring information for the eleven wells is summarized in Table 3. Assay data for the ten wells that were assayed are summarized in Table 4; the grades of carnallite listed in Table 4 are the percentages of carnallite mineral ($KCl.MgCl_2.6H_2O$) calculated from magnesium oxide (MgO) assays. Histograms of the K_2O grades for the ten drill holes are presented in Figure 10. The aforementioned wells are shown on Figure 2 in Section 4.0. Complete assay data are presented in Appendix C of Hambley, Hardy, and Pekeski (2011). Log plots of the assay data are presented in Appendix D of Hambley, Hardy and Pekeski (2011). Historical drilling is described in Section 6.0 of this Technical Report.

The drill holes were designed to evaluate and define the grade, thickness, and extent of the potash beds located on the KLSA 008 Lease, and to define the most suitable area within the Lease for the development of a solution potash mine.

Table 3. Drilling and Coring Data for WPX Wells

Well_ID	Spud Date	Hole Finish Date	Ground Elevation (m MSL)	Total Depth (m)	Core From (m)	Core To (m)	No. of Core Runs	Drill Fluid
Milestone 001	5/14/2009	5/27/2009	583.02	1,776	1,640	1,730	5	Invert HT-30
Milestone 002	5/29/2009	6/14/2009	578.59	1,786	1,660	1,743	5	Invert HT-30
Milestone 002A	6/20/2009	7/5/2009	578.59	1,791	1,657	1,746	5	Invert HT-30
Milestone 003	7/7/2009	7/18/2009	577.93	1,844	1,705	1,795	5	Invert HT-30
Milestone 004	9/19/2009	10/4/2009	576.40	1,847	1,713	1,830	6	Invert HT-30
Milestone 005	10/14/2009	10/29/2009	576.51	1,826	1,673	1,782	6	Invert HT-30
Milestone 006	12/2/2009	12/17/2009	575.58	1,826	1,674	1,784	6	Invert HT-30
Milestone 007	12/30/2009	1/15/2010	578.15	1,843	1,719	1,811	6	Invert HT-30
Milestone 008	1/17/2010	1/31/2010	576.40	1,847	1,713	1,821	6	Invert HT-30
Milestone 009	1/20/2011	2/2/2011	577.30	1,880	1,721	1,828	6	Mineral Oil
Milestone 010	2/3/2011	2/16/2011	577.30	1,887	1,736	1,792	6	Mineral Oil

The drill holes were advanced through the surface overburden to an approximate depth of 180 m below the Kelly bar using a 349-mm (13¾-inch) drill bit and casing. From that depth onward, the hole was advanced using a 244.5-mm (9⅝-inch) drill bit and short round thread casing. All holes, except M 009 and M 010, were drilled with invert (HT-30) muds from the base of the surface casing. Drill holes M 009 and M 010 were drilled with mineral-oil-based muds from the same collar. Well M 010 was directionally drilled and then reoriented to vertical at a distance of 50 m from well M 009. To ensure that the vertical location of a hole was known, drill holes were surveyed at 30 m below surface and at 50 m intervals thereafter.

At the expected depth of the top of the First Red Beds at the base of the Souris River Formation, the driller was instructed to drill ahead slowly. For the M 001, M 002 and M 002A wells, the driller was instructed to drill ahead slowly for about 50 m until the Second Red Beds (base of the Dawson Bay Formation) was reached and, at that point, to stop rotary drilling and commence continuous coring. For the remaining wells, the driller was instructed to drill ahead slowly for about 35 m, and commence coring above the Second Red Beds (base of the Dawson Bay Formation). After the first core run of 18 m was complete, a drill-stem test (DST) was performed to check for water inflow. After the DST, the driller was instructed to continue coring.

Continuous 101-mm (4-inch) diameter cores were collected through the Prairie Evaporite Formation and potash mineralization to a point beneath the lowest potash bed. As the beds within the Prairie Evaporite are relatively flat-lying and laterally continuous, the core length as measured in the drill core was taken as the true thickness of the mineralized bed. Coring to below the lowest potash bed was successful in all drill holes, and recovery through the Prairie Evaporite Formation was excellent. Upon completion of wireline logging, the drill holes were plugged and abandoned in accordance with regulatory procedures. Based on its examinations of the cores on December 14, 15 and 16, 2009, and February 1, 2011, AAI found that core recovery was excellent. AAI concluded that drilling procedures were appropriate.

Table 4. Grade and Thickness Parameters for the WPX Wells

Parameter	Patience Lake	First Halite Interbed	Belle Plaine	Esterhazy	Patience Lake and Belle Plaine*	Patience Lake and Belle Plaine**
M 001						
Depth from (m)	1,663.00	1,671.10	1,675.20	1,697.00	1,663.00	
Depth to (m)	1,671.10	1,675.20	1,677.90	1,703.00	1,677.90	
Thickness (m)	8.10	4.10	2.70	6.00	14.90	10.80
% K_2O	18.06	4.45	18.50	19.23	14.40	18.17
% Carnallite	0.58	0.61	0.77	*7.78*	0.62	0.62
% Insolubles	10.99	7.73	8.10	3.56	9.57	10.27
M 002						
Depth from (m)	1,680.70	1,681.00	1,697.50	1,719.90	1,680.70	
Depth to (m)	1,681.00	1,697.50	1,701.70	1,726.80	1,701.70	
Thickness (m)	0.30	16.50	4.20	6.90	21.00	4.50
% K_2O	17.50	0.32	15.59	21.17	3.62	15.71
% Carnallite	0.41	0.24	0.53	0.43	0.30	0.52
% Insolubles	7.80	6.89	5.23	5.60	6.57	5.40
M 002A						
Depth from (m)	1,674.00	1,683.00	1,687.35	1,711.00	1,674.00	
Depth to (m)	1,683.00	1,687.35	1,691.25	1,716.90	1,691.25	
Thickness (m)	9.00	4.35	3.90	5.90	17.25	12.90
% K_2O	17.43	3.50	12.82	25.29	12.88	16.04
% Carnallite	0.63	0.60	0.65	*7.01*	0.63	0.64
% Insolubles	10.58	5.81	4.71	5.29	8.05	8.80
M 003						
Depth from (m)	1,715.55	1,729.45	1,731.65	1,756.15	1,715.55	
Depth to (m)	1,729.45	1,731.65	1,736.30	1,762.65	1,736.30	
Thickness (m)	13.90	2.20	4.65	6.50	20.75	18.55
% K_2O	18.36	3.23	18.64	16.25	16.82	18.43
% Carnallite	0.65	0.51	0.59	*10.61*	0.62	0.64
% Insolubles	11.34	6.19	3.65	3.72	9.07	9.41
M 004						
Depth from (m)	1,735.70	1,747.80	1,751.55	1,774.55	1,735.70	
Depth to (m)	1,747.80	1,751.55	1,756.75	1,779.75	1,756.75	
Thickness (m)	12.10	3.75	5.20	5.20	21.05	17.30
% K_2O	17.65	5.34	18.72	15.90	15.72	17.97
% Carnallite	0.59	0.79	0.60	1.77	0.63	0.59
% Insolubles	10.81	12.50	3.97	4.70	9.43	8.76
M 005						
Depth from (m)	1,703.10	1,716.40	1,719.45	1,742.30	1,703.10	
Depth to (m)	1,716.40	1,719.45	1,723.90	1,748.25	1,723.90	
Thickness (m)	13.30	3.05	4.45	5.95	20.80	17.75
% K_2O	17.48	2.59	21.25	21.97	16.10	18.43
% Carnallite	0.67	0.49	0.41	0.41	0.59	0.61
% Insolubles	11.23	7.92	4.40	3.37	9.29	9.52

Table 4. Grade and Thickness Parameters for the WPX Wells *(concluded)*

Parameter	Patience Lake	First Halite Interbed	Belle Plaine	Esterhazy	Patience Lake and Belle Plaine*	Patience Lake and Belle Plaine**
M 006						
Depth from (m)	1,708.25	1,714.75	1,717.00	1,739.35	1,708.25	
Depth To (m)	1,714.75	1,717.00	1,721.60	1,745.85	1,721.60	
Thickness (m)	6.50	2.25	4.60	6.50	13.35	11.10
% K_2O	20.20	2.78	17.23	23.17	16.24	18.97
% Carnallite	0.63	0.50	0.53	0.53	0.57	0.59
% Insolubles	10.64	3.40	3.83	4.09	7.07	7.82
M 007						
Depth from (m)	1,748.55	1,756.85	1,759.15	1,781.95	1,748.55	
Depth To (m)	1,756.85	1,759.15	1,763.80	1,784.80	1,763.80	
Thickness (m)	8.30	2.30	4.65	2.85	15.25	12.95
% K_2O	19.11	2.92	19.51	28.44	16.79	19.25
% Carnallite	0.71	0.73	0.58	0.28	0.67	0.67
% Insolubles	10.28	8.16	3.62	1.71	7.93	7.89
M 008						
Depth from (m)	1,730.90	1,743.10	1,744.95	1,767.30	1,730.90	
Depth To (m)	1,743.10	1,744.95	1,749.75	1,772.60	1,749.75	
Thickness (m)	12.20	1.85	4.80	5.30	18.85	17.00
% K_2O	16.89	2.31	18.86	24.95	15.96	17.45
% Carnallite	0.67	0.61	0.49	0.35	0.62	0.62
% Insolubles	10.24	8.11	4.60	3.44	8.59	8.64
WPX Western Riceton 7-34-13-17 (M 009)						
Depth from (m)	1,747.20	1,758.76	1,761.11	1,785.90	1,747.20	
Depth To (m)	1,758.76	1,761.11	1,766.00	1,791.56	1,766.00	
Thickness (m)	11.56	2.35	4.89	5.66	18.80	16.45
% K_2O	17.84	2.37	22.80	16.94	17.20	19.31
% Carnallite	0.61	0.61	0.56	*8.75*	0.60	0.60
% Insolubles	11.79	5.13	2.94	2.72	8.66	9.16

K_2O, carnallite, and insolubles grades are thickness-weighted averages of assay values.
*Top of Patience Lake Member to bottom of Belle Plaine Member
** Patience Lake and Belle Plaine Members without the halite interbed
Italicized values indicate carnallite in excess of 6%.

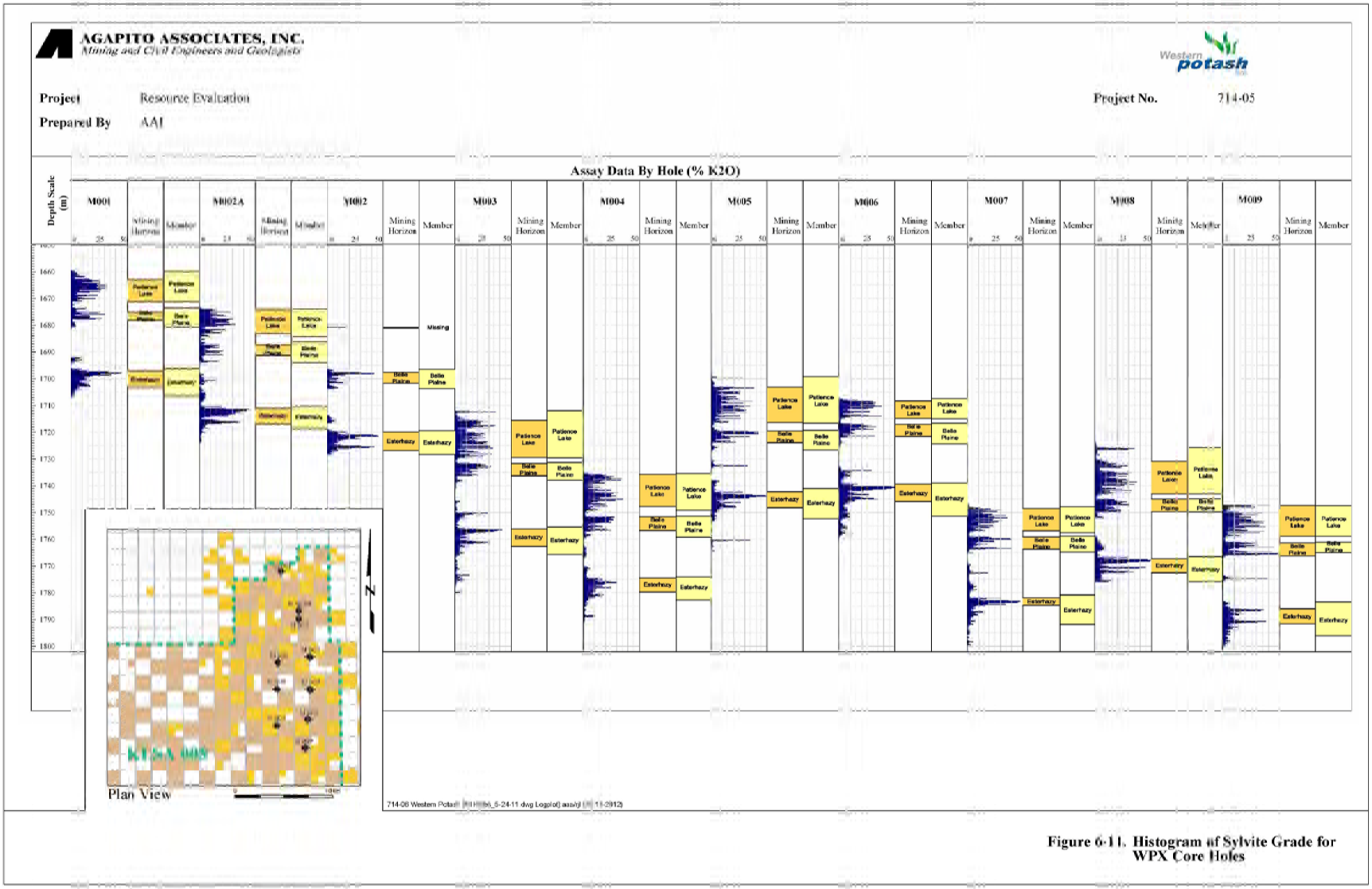


Figure 10. Histograms of Sylvite Grade for WPX Core Holes

As shown in Table 4 and Figure 10, the thickness of sylvite in the Patience Lake Member in well M 002 was less than a meter. Immediately below the sylvite was a 12.5-m-thick layer of halite, anhydrite and insoluble clays, which indicated that the sylvite had been removed by post-depositional solutioning. This represents a "washout" anomaly as discussed in Section 7.4. Interestingly, unlike the Esterhazy Member encountered in wells M 001 and M 002A to the north, the Esterhazy in this well is not carnallitic, which supports the concept of renewed dissolution and recrystallization in the vicinity of this well. With the exception of M 003 and M 009, the Esterhazy Member in the wells to the south and southwest of M 002 was also generally not carnallitic. However, in M 004, carnallite was noted in the basal portion of the Esterhazy Member and masses of carnallite were noted below the Esterhazy in M 004 and M 005.

Upon retrieving the core, each drill hole was logged from hole bottom (or total depth) to surface with geophysical wireline tools. These geophysical analyses were completed to provide WPX with detailed downhole information that can be used to cross-reference lithology, mineralogy, and geochemical assay data. Weatherford International Ltd. of Calgary, Alberta, was contracted to complete the logging. Gamma ray, neutron, sonic, bulk density, photoelectric (PEX), temperature, and calliper data were logged. The gamma-ray log provides a record of radioactivity and is displayed in American Petroleum Institute (API) units. These units are proportional to the potassium concentration of the rock and can provide a rough estimate of the potash grade. As discussed in Section12.0 of this Technical Report, the gamma logs and visual examination of cores were used as a qualitative check of the assay grades. The density, neutron, and PEX logs provide a means of assessing mineralogy.

Coring was performed by Blackie's Coring Services Ltd (Blackie's) of Estevan, Saskatchewan. Core was retrieved from the core barrel once each 18-m core interval was completed. A routine set of procedures were strictly followed to ensure the stratigraphic sequence of the core was maintained and to prevent any loss of material. Blackie's core hands retrieved the core under the supervision of the drill supervisor, wellsite geologist, and logistics manager. The following core handling and sampling procedures were followed by WPX during its 2009–2010 and 2011 drilling programs:

1. Prior to coring and pulling the core, a safety meeting was held with all core hands, drill crew, and geologists. This meeting was a forum to review the retrieval process and to identify safety issues and concerns. The core hands made up the core barrel and monitored core drilling. Once coring was complete and the core barrel hoisted to surface, the core hands flushed the core barrel with a varsol cleaner on the drill floor after the core arrived at surface.
2. Core boxes were sequentially numbered and labeled with the drill-hole name, location, depth interval, and core number.
3. The core was retrieved from the barrel in lengths similar to that of the core boxes. The core barrel was raised and core was released from the barrel. If no natural breaks occurred, the core was struck with a hammer to retrieve suitably-sized pieces for handling. The core hands carefully removed the core from the barrel and marked the bottom of each piece with a chalk mark. The rig hands carried the core down steps to

the catwalk and placed the pieces tightly together in two parallel rows taking care to keep the core properly oriented. Two well-site geologists observed this process, one from the dog house who ensured that the core was held in proper position by the rig hand, and another geologist at the catwalk to ensure that the core was laid out in the proper position and attitude.

4. The core hands and geologist measured the core for total recovery and recorded this measurement.
5. The geologist spray-cleaned and wiped the core with a varsol cleaner. He then marked the core along its axis with a double-marker, measured and marked 1-m intervals on cross-lines, made preliminary written descriptions or a “quick” log prior to boxing, and took photos.
6. The core hands then placed the core in labeled boxes marked with hole number, run number, and meterage, breaking the longer lengths of core so that the boxes became tightly filled.
7. The boxes were carefully loaded into a vehicle for transport to the logging facility.
8. The core was hand-transported to the secure logging facility. No unauthorized personnel were allowed access to this facility.
9. Core was unloaded with each core run laid out on the logging table if logged immediately, or stored on the shelves at the site.
10. Core containing significant salt/potash was sealed in poly sleeves if stored for more than 24 hours prior to logging.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Drill Site Sample Selection, Preparation and Security Procedures

The geochemical sampling interval of interest extended from several meters above the Patience Lake Member to approximately 15 m below the base of the Esterhazy Member into the Basal Salt. The upper sampling boundary was selected to ensure capture of the uppermost mineralization of the Patience Lake Member, and the lower boundary was chosen to provide geochemical information through to the "sump" for future cavern design purposes. The drill core was measured, marked with meterage, and sample intervals logged and photographed prior to sampling. Detailed geological logging involved recording the geologic formation, member, and lithology. Maximum and minimum long-axis crystal measurements were also recorded for sylvite and halite crystals present. Through mineralized beds, the sylvite grade of each sample was visually estimated and recorded as low, medium, or high. The presence and minimum/maximum diameter of carnallite was also noted. Detailed geologic descriptions of each sample interval were also recorded. Downhole well logs were in hand before this process was completed.

Not all of the rock that was cored was sampled for assaying; the Dawson Bay, Second Red Beds, upper salt-back above the Patience Lake Member, and portions of the salt between the Belle Plaine and Esterhazy Members were not sampled for assay. It is the opinion of the authors that apart from missing assay intervals between the base of the Belle Plaine and top of the Esterhazy Members, the core samples are generally representative of the mineralized interval. (Gamma ray logs would indicate if any mineralized zones occurred within the unassayed intervals and none of any significance were apparent.) Sample intervals were generally restricted to less than 0.3 m, with individual sample lengths varying so as to correspond to units of similar lithology or mineralization as discussed in bullet 1 below. Apart from the use of unequal sample lengths, the sampling methodology did not appear to introduce any sample bias. Core assay data, including sample numbers, depths, and lengths are presented in Appendix D.

The following sample preparation, analysis, and security procedures were followed by WPX in its 2009–2010 and 2011 drilling programs:

1. Core selected for sampling was handled in two ways. For the M 001, M 002 and M 002A wells, the core was divided into consistent 30-cm-long samples and split using the core table saw. For wells M 003 through M 008, the determination of sample intervals was based on changes in lithology, grade, crystal size, halite, or insolubles content. Samples through the mineralized zones were not to exceed 30 cm in length. Barren halite and insoluble zones could be sampled at intervals greater than 30 cm, but were not to exceed approximately 65 cm in length.
2. Core was cut along its long axis at an angle to the parallel lines marked on the core on the catwalk. Cutting was completed in-house at the WPX core facility with a dry table saw. Saw blades were replaced when any breach of core integrity was noted (e.g., fracturing of crystals). After the core was cut, the two complimentary core halves were placed back in the box in stratigraphic sequence with both cut surfaces facing up. The cut surfaces were wiped down with a damp cloth to remove any rock powder generated by the cutting

process and to enhance the appearance of the rock during visual logging. The upper core half was divided into sample intervals by drawing a straight line across the diameter of the core in permanent marker. This ensured the core was placed back properly in the core boxes. Core recovery was excellent, and cutting of the drill core for slabbing and sampling purposes did not result in any notable material loss.

3. After the sample intervals were established, marked out, tagged and photographed, the length of each sample interval was recorded in a geological logging spreadsheet and a "depth from" and "depth to" was established for each sample number. The geologic formation and member names, lithology, crystal sizes, and geological descriptions were recorded for each sample.
4. One-half of the split core was placed as a sample in a plastic sample bag. Each bag had a unique sample number written on the outside of the bag, and on a numbered sample tag deposited inside with the sample. The other half of the split core was sealed in a poly sleeve and returned to the core box from which it came with care taken to return it to its original position.
5. Sample bags were then sealed with plastic sample ties. A uniquely numbered security seal was then attached to the sample bag.
6. Samples were placed in numbered and labeled plastic buckets, three to four samples per bucket.
7. Prior to transporting drill core to the laboratory, the geologist completed all required drill logs, sample ledger, all required shipping documentation, and the chain of custody documentation for transporting drill core to the laboratory. The geologist initialed each sample and security number combination on the chain of custody sample ledger sheet. One copy of the chain of custody was sent with the samples; one copy was kept on file. The prepared samples were then forwarded to the Geoanalytical Laboratories at the SRC in Saskatoon, Saskatchewan.

11.2 Sample Preparation and Assay Procedures at the Laboratory

Samples were delivered to the SRC Geoanalytical Laboratories in Saskatoon, Saskatchewan, for analysis. Upon receipt of these samples at the laboratory, each sample was checked for bag integrity and evidence of tampering. If the sample bag was intact and the security seal present, the laboratory representative initialed the bag next to the sample. Any evidence of tampering was noted in the comment field of the chain of custody form. Chain of custody information accompanying the sample shipment included the client name and address, the e-mail list for distribution of assay results, type of geochemical analyses required, as well as a sample list detailing the sample numbers in each pail.

SRC received the core samples at the laboratory and prepared a Shipment Receipt Report that was e-mailed to the WPX contact list. Following sample organization and successful cross-referencing with the client sample list, a Sample Receipt Report was e-mailed. The following sample preparation procedures were then performed by SRC employees:

1. Prepare an in-house sample list and group number for the shipment.

2. Label sample vials with the appropriate sample numbers.
3. Individually crush all samples in the group to 6-mm screen size.
4. Evenly distribute each sample in the splitter to avoid sample bias. Clean the crusher and splitter equipment between each sample using compressed air.
5. Split the crushed sample and insert one portion into the appropriate sample vial.
6. Reseal all material that does not get analyzed ("reject") in original labelled plastic bag and store in plastic pails with appropriate group number marked on the outside of the pail. Return the reject material to the client when all samples have been analyzed and passed through quality assurance/quality control (QA/QC).
7. Send vials of material for grinding: material is placed in a pot, ground for 1 minute, then returned to the vial. Vials are visually inspected to ensure fineness of material. Grinding pots are cleaned with compressed air between each sample and cleaned with silica sand and rinsed with water between each group.
8. Place the pulverized samples in a tray; submit sample paperwork to the Main Office. Worksheets are created detailing the samples to be analyzed, the type of analyses requested as well as the standards, blanks, and split replicates to be completed.
9. Submit samples and paperwork to the Geochemical Laboratory.

Samples were analyzed using SRC's Basic Potash Package, which uses Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES) together with determinations of % Insolubles, and % Moisture. In ICP-OES analysis, a sample solution is introduced into the core of inductively coupled argon plasma (ICP), which generates an elevated temperature at which all elements become thermally excited and emit light at their characteristic wavelengths. This light is collected by the spectrometer and resolved into a spectrum of its constituent wavelengths. Within the spectrometer, the light is then collected by wavelength (typically 160 to 900 nm) and amplified to yield an intensity spectrum that is converted to elemental concentrations by comparison with spectra for known calibration standards. Sample preparation and analysis procedures are as follows:

1. For the soluble digestion and ICP-OES analysis, a 0.12-gram aliquot of pulp is placed in a test tube with 15 milliliters of 30ºC deionized (DI) water. The sample is shaken. The soluble solution is then analysed by ICP-OES. The method is suitable for the soluble analysis of potash samples for the determination of commercial potash (KCl). The analysis is not suitable for the determination of insoluble salt minerals (e.g., anhydrite, kieserite) that may be present.
2. For the Insoluble (weight %) determination, a 2-gram aliquot of pulp is placed in a test tube with 30ºC DI water. The sample is shaken, centrifuged, and the excess water is decanted. A second wash of the sample material is performed. The remaining sample material (insolubles) is dried and weighed.
3. For Moisture (weight %) determination, a 2-gram aliquot of sample is placed into a pre-weighed crucible and heated at 105ºC overnight. The sample is then reweighed and the moisture is calculated as weight%.

With each set of 40 samples analyzed by ICP-OES, analysis of two potash standards, one quartz blank, and one sample pulp replicate was completed. After processing the entire group of samples, a split-sample replicate is also analyzed. After receiving all results from the Geoanalytical Laboratories, the QA/QC department completes checks to ensure accuracy. Upon completion of the assaying and QA/QC procedures, the geochemical results were e-mailed to the WPX contact list in a password-protected zip file. The aforementioned standards, blank and duplicates were laboratory internal checks. As discussed below in Subsection 11.3, additional blanks and duplicates were inserted by the samplers at the project site.

The sample preparation and analytical procedures were of the highest quality and suitable to support mineral resource estimation. SRC adheres to strict internal QA/QC procedures during sample preparation and analysis. SRC operates in accordance with ISO/IEC 17025:2005 (CAN-P-4E), "General Requirements for the Competence of Testing and Calibration Laboratories" and is also compliant with CAN-P-1579, "Guidelines for Mineral Analysis Testing Laboratories." SRC's lab management system and selected methods including analysis for water–soluble evaporites by ICP-OES are accredited by the Standards Council of Canada under Scope of Accreditation No. 537. SRC considers customer confidentiality and security of utmost importance and takes appropriate steps to protect the integrity of sample processing at all stages, from sample storage and handling to transmission of results. All electronic information is password protected and backed up on a daily basis. Electronic results were transmitted to WPX with additional security features. WPX provided AAI with the original laboratory assay spreadsheets as received from SRC. Access to SRC Geoanalytical Laboratories' premises is restricted by an electronic security system. The facilities at the main laboratory are regularly patrolled by security guards 24 hours a day.

11.3 Sample QA/QC Procedures

As part of the sampling procedure at the drill site, one duplicate sample and one blank sample were collected for approximately every 20 samples. The use of duplicate and blank samples in this manner is a good QA/QC procedure. AAI's review of the laboratory assay results showed that the assays of the duplicate samples were generally consistent with the assays of the original samples, and the assays of the blank samples were "non-detect" as they should be. In addition, the laboratory ran a new standard sample (or surrogate) approximately every 20 samples. Even though the assays of the standards (or surrogates) were reported along with the regular samples, the standards could be readily identified due to the K_2O grades of approximately 20% and 60%, low and high, respectively, compared to the samples from the potash zones of the cores.

12.0 DATA VERIFICATION

Dr. Doug Hambley visited the KLSA 008 Lease site on December 14, 2009 and on January 31, 2011, and Dr. Michael Hardy visited the site on January 31, 2011. During the December 2009 site visit, Dr. Hambley visited the drill sites of the six cored holes that had been drilled to that date as well as the facility at the seventh hole being drilled (M 006) and the proposed site of the eighth hole (M 007). On the January 2011 site visit, Drs. Hambley and Hardy visited the site of the tenth and eleventh holes (M 009 and M 010) drilled by WPX. On both visits, the authors were able to verify property access and confirm that the drill holes were drilled in accessible locations. As the potash horizons occur several hundred meters below the surface and can only be sampled by drilling, no samples were collected.

Dr. Douglas F. Hambley examined the cores from the M 001, M 002, M 002A, M003, M 004, and M 005 wells at the Subsurface Geological Laboratory of Saskatchewan Energy and Resources in Regina on December 15, 2009. During that examination, Dr. Hambley compared the thicknesses and depths of the Patience Lake, Belle Plaine, and Esterhazy Members of the Prairie Evaporite Formation that were indicated in the core itself, the core logs, the geophysical logs, and the assay results. From that examination, the authors are able to state the following:

1. The drill cores examined show evidence of analysis, having been split for assay purposes.
2. The drill cores are preserved in plastic sleeves within cardboard boxes that are stored at the core and sample repository of the Subsurface Geological Laboratory of Saskatchewan Energy and Resources in Regina. Figure 11 shows a photo of typical core from the M 001 drill hole taken in December 2009.
3. Based on simple qualitative taste and scratch tests, the materials identified in the core logs appeared to be accurate.
4. The depths of the tops and bottoms of the Patience Lake, Belle Plaine, and Esterhazy Members of the Prairie Evaporite Formation and the high-grade zones within these members, as identified visually in the drill cores, correlated well with the respective depths indicated by the gamma and neutron geophysical logs and with the respective depths indicated by the sample assay results. The assay grades also correlated well with the relative magnitudes of the gamma logs.
5. The carnallitic zones in the Esterhazy Member that were indicated by the sample assays and geophysical logs for the M 001, M 002Aand M 003 wells, were observed at the same depths in the drill cores. Zones of massive, coarse-grained carnallite were noted below the Esterhazy Member in the cores of the M 004 and M 005 wells; however, the Esterhazy Member itself in these cores was not carnallitic.

Drs. Hambley and Hardy examined the cores from well M 009 at the North Rim Field Office in Saskatoon on February 1, 2011. During that review, they visually examined the cores and Dr. Hambley identified the tops and/or bottoms of the Patience Lake, Belle Plaine, and Esterhazy Members. The locations picked were later confirmed by geophysical logs and core assays, which were not available at the time of the visit.

Figure 11. Photograph of Core from the M 001 Drill Hole Taken on December 15, 2009, and Showing the Contact between the Second Red Beds and the Prairie Evaporite Formation

13.0 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 in conjunction with the historical exploration efforts in the 1950s and 1960s. Operation of evaporator/crystallizer units is hard to replicate at a pilot level because of scale-effects inherent in the technology. However, the technology is proven at the nearby Belle Plaine solution mine operated by Mosaic. Dissolution testing was conducted by NG Consulting of Sondershausen, Germany for WPX in 2011 to 2012.

13.1 Testing and Procedures

Dissolution testing on core samples from the Milestone Property was conducted by NG Consulting at their facilities in Sondershausen Germany. For solution mining of potash, dissolution testing of core samples to provide estimates of in-situ dissolution rates in the caverns as well as brine concentrations data is considered to be appropriate testing.

Samples for the dissolution tests were provided by WPX. The samples consisted of core (1st set) and half-core (2nd set) for well Western Riceton 1A7-34-13-17 W2. Samples from all three ore zones (Esterhazy, Belle Plaine and Patience Lake), the Upper Interbed, the Lower Interbed and the Basal Salt were tested.

The dissolution tests were performed according to a dissolution test procedure developed by NGC. The objective of the testing was to evaluate the dissolution parameters at 60°C and at 75°C. In the test, a sample of core (or half-core) between 5 and 10 cm long is placed in a leach cell. Solvent is circulated through the cell at a constant rate of 10 liters per hour (L/h). During the dissolution process, the out-flowing brine shows an increasing density. The leaching process is terminated when the out-flowing brine increases less than 0.001 g/cm^3 during the last 30 minutes.

13.2 Relevant Results

The following conclusions were made by NG Consulting based on the results of the testing:

- The dissolution tests quantified the decrease in dissolution rate with increasing brine concentration;
- Dissolution rates varied as expected between those for pure sylvinite and pure halite and correlated well with theoretical data from NG Consulting;
- Dissolution rates of the WPX samples fell in a range similar to that for common sylvinite from other deposits;
- 5 to 10% higher dissolution rates can be expected for 75°C compared to 60°C;
- No significant differences were observed for the Patience Lake, Belle Plaine and Esterhazy Members; and

- The dissolution testing provided a preliminary relationship between dissolution rate and KCl content of the sylvinite at 60°C and 75°C.

Based on the dissolution testing, the following brine concentrations were used for the FS:

Table 5. Expected Concentrations of Compounds in the Production Brine

Composition in Brine from Well Field	Minimum (g/L)	Nominal (g/L)	Maximum (g/L)
KCl	150	155	160
NaCl		250	255
$MgCl_2$		1.5	3.0
Ca Cl_2		0.25	0.50
$CaSO_4$		1.7	3.0

13.3 Mass Balance Assumptions

The estimate of the brine concentration determined by the dissolution testing was then used by Whiting as the feed to the evaporation circuit. Whiting then performed a heat and mass balance for the evaporation and crystallization circuits based on this feed composition. AMEC used the output from the Whiting heat and mass balance as the input for the dry processing part of the plant. AMEC used METSIM software and their potash experience to model the mass balance for the balance of the plant.

13.4 Sample Representativeness

The samples selected for dissolution testing were selected by WPX geologists. Samples from all three ore zones (Esterhazy, Belle Plaine and Patience Lake), the Upper Interbed, the Lower Interbed and the Basal Salt were selected.

13.5 Significant Risk Factors

The potentially deleterious elements present in the Milestone Project are insoluble material and carnallite. In a solution mine, the insoluble material sinks to the bottom of the cavern and is left behind in the cavern. Elevated carnallite grades have been encountered in the Esterhazy Member in some of the drill holes. Elevated carnallite causes elevated levels of magnesium in the brine. Elevated magnesium causes lower KCl concentration in the brine and reduces plant efficiency and recovery. The carnallite grades in the Esterhazy Member in the initial mining areas are less than the threshold and will not impact brine KCl concentration or plant performance. When brines with elevated magnesium concentrations from caverns in carnallitic portions of the Esterhazy Member are encountered, they can be blended with brines from other caverns with lower magnesium (carnallite) concentrations so that the magnesium grade of the feed to the plant is kept within acceptable limits.

14.0 MINERAL RESOURCE ESTIMATES

The FS has demonstrated that the project is economically viable. (See Section 22.0 of this Technical Report.) Consequently, the Indicated and Measured Mineral Resources surrounding wells M 003 through M 009 have been upgraded to Probable and Proven Mineral Reserves, respectively, and will be discussed in Section 15.0 of this report. Therefore, the Measured and Indicated Mineral Resources listed in this section are those surrounding wells M 001, M 002, and M 002A in the northern part of Lease KLSA 008. The Inferred Mineral Resources defined herein were previously reported in an NI 43-101 report published in December 2011 (Hardy et al. 2011).

The Mineral Resources defined herein were estimated by David Conover of AAI under the supervision of Dr. Douglas F. Hambley QP, coauthor of this Technical Report.

14.1 Assumptions and Methodology

To estimate the potential extent, grade, and tonnage of the potash Mineral Resource, the authors employed the following commonly accepted practices:

1. The primary tool employed to determine thickness and concentration of potash mineralization on the Milestone Project is drill core. In this case, the cores were obtained from the M 001, M 002, M 002A, and M 003 through M 008 wells drilled in 2009 and 2010, and the M 009 well drilled in January and February 2011. The grade and thickness data used in the resource estimates were effective as of February 2011 and were presented in Table 7 in Section 9.0 of this report.
2. Phillips et al. (2003) state that "(t)he potash deposits that are located in Saskatchewan, Canada, are characterized by their remarkable consistency of grade and thickness over many tens of kilometers. It is therefore possible to characterize a deposit with a relatively few drill holes, supplemented by sufficient seismic coverage to establish continuity between holes." Thus, the extent of potash mineralization is typically limited by either property boundaries or structural disturbances related to dissolution of the Prairie Evaporite Formation and subsequent collapse of overlying beds.
3. For classification of a potash Mineral Resource at the minimal or "Inferred" level of confidence, the ROI of a drill hole, in the case of solution mining, has been taken at 8 km (5 miles). For classification of a potash Mineral Resource at the "Indicated" level of confidence, the ROI of a drill hole, has been taken at 1.6 km (1 mile) on the outside (extrapolated) and 2.5 km (1.55 mile) between drill holes (interpolated). For classification of a potash Mineral Resource at the "Measured" level of confidence, the ROI of a drill hole has been taken at 0.8 km (0.5 mile). These distances are based on the continuity of the deposit and are consistent with the distances used for these classes of resource in recent NI 43-101 reports for other solution mining projects in Saskatchewan (for example, Hardy and Halabura 2008 and Hardy et al. 2009).
4. The Mineral Resource is estimated for the areas within the ROI from each cored and assayed exploration well excluding known anomalous areas identified by seismic data and excluding Freehold lands for which access agreements have not been signed or for

which agreements have not been secured with owners of all partial interests. Figure 12 shows ROIs for Inferred and Indicated Mineral Resources and the anomalous (collapse) zones that were identified by seismic data. The ROI for Measured Mineral Resources was not shown for reasons of clarity. The effective date for the lease agreements, and thus the resource estimates, was March 31, 2012.

As discussed in Section 4.0 of this Technical Report, the boundary of WPX's KLSA 008 Lease encompasses some 157,500 acres, of which 87,530 acres are Crown mineral lands or Split mineral lands covered by the Lease. The remaining acreage is owned by individuals or corporations as "Freehold" lands. As of March 31, 2011, WPX has negotiated potash mineral leases with Freehold Mineral Rights owners covering approximately 47,757 acres comprising entire quarter-sections within or adjacent to the boundaries of the Lease. Within the Inferred ROIs for the ten drill holes, WPX controls 76,453 acres, or 51.7% of the available mineral titles (Crown and Freehold). These lands were included in the resource calculation. The remaining 71,516 acres or 48.3% of available mineral titles within the ROI were not included in the calculation. The remaining acreage within the permit boundaries consists entirely of lands with Freehold Mineral Rights, for which WPX is negotiating with the owners as identified by land title records. The remaining acreage within the ROI but outside the permit boundaries includes Crown Mineral Rights held by other companies and Freehold Mineral Rights. Note that the Inferred Mineral Resource includes leased Freehold lands outside the KLSA 008 Lease area.

The resource was estimated using a block model generated using Carlson Software. The area within the ROIs from the cored holes was subdivided into blocks with horizontal dimensions of 20 m by 20 m. For each block, estimates of the potash thickness, K_2O grade, carnallite grade, and insolubles percentage were made using the inverse distance-squared (ID^2) method and the thicknesses, K_2O grades, carnallite grades, and insolubles percentages for the wells. (The grade and thickness estimates for a block whose centroid coincides with the well will be identical to that of the well; otherwise they are different and block values are estimated as indicated.) Each potash member and the upper interbed layer were modelled as separate layers.

For a given block, the ID^2 method assigns weights to samples in inverse proportion to the square of the distance between the estimation point and sample. When calculating a block value, the weights assigned to the data points are fractions, and the sum of all the weights is equal to 1.0. When a particular observation is coincident with a block centroid, the distance between that observation and the block centroid is zero, and that observation is given a weight of 1.0, while all other observations are given weights of zero. A search radius of 8 km was used together with the ten cored holes. Blocks were not included in the estimated tonnage if the K_2O grade was less than 15% or the thickness was less than 1.1 m.

A Mineral Resource by definition must have "reasonable prospects for economic extraction" (CIM 2010). The FS for KLSA 008 prepared by AMEC (2012) indicates that the extraction of potash on the KLSA 008 Lease is economically viable (see Sections 21.0 and 22.0 of this Technical Report).

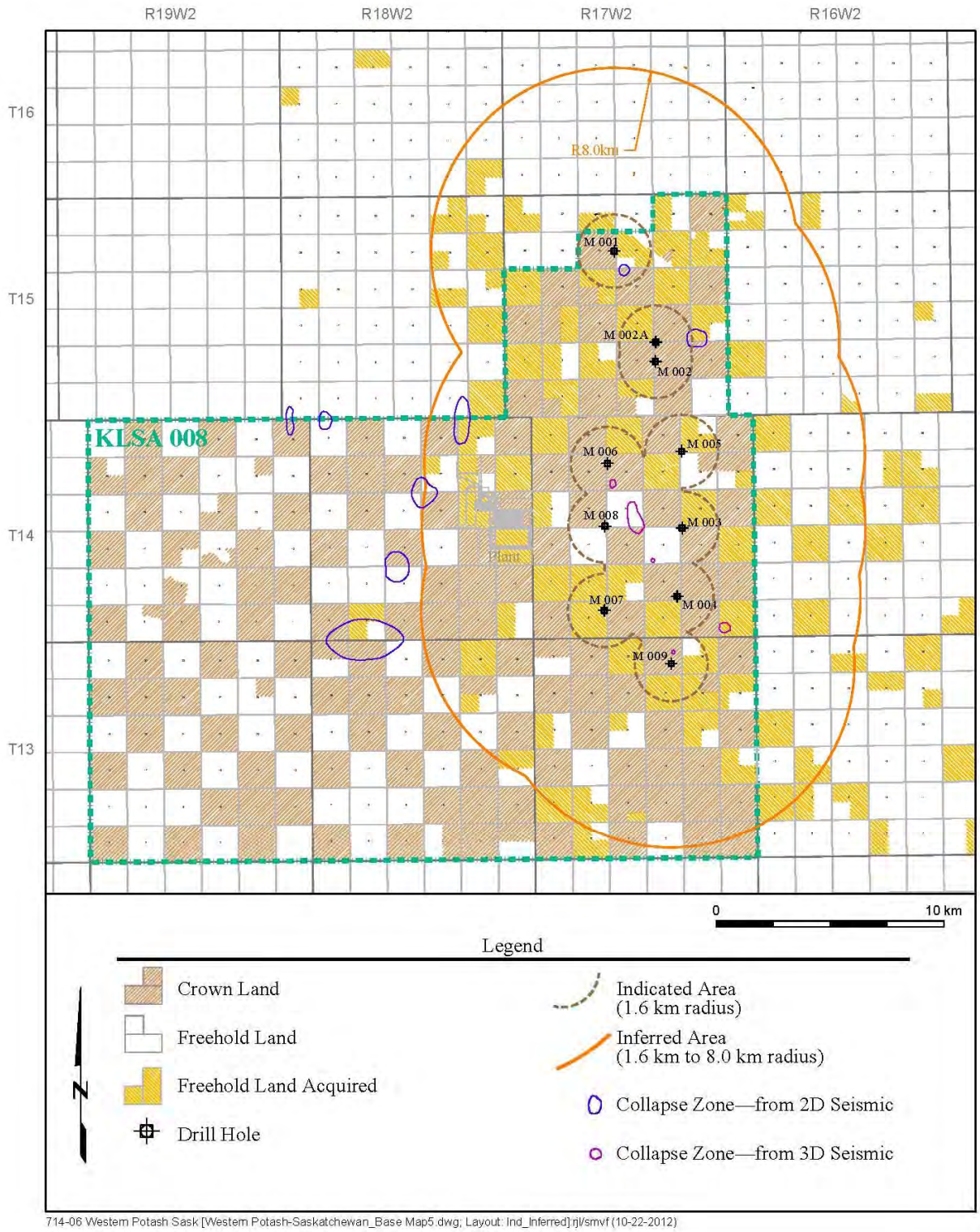


Figure 12. Areas of Influence for the Indicated and Inferred Mineral Resources

The cutoff grade for solution mining is process-, cost-, and market-driven. For non-selective mining where water is injected and saturated KCl/NaCl brine is produced, no KCl grade cutoff is defined. For low-grade sylvite material, the KCl concentration of the product liquor will be low, making processing difficult or possibly uneconomical. KCl brine concentrations as low as 1% are processed in the Middle East and southern US using extensive evaporative ponds; however, for climatic reasons, such ponds are ineffective in Saskatchewan. For selective mining where NaCl-saturated brine is injected, a sylvinite grade cutoff of 15% K_2O is used; for non-selective mining where water is used for the injection brine, a lower cutoff grade may be considered. A combination of selective and non-selective mining will be used at KLSA 008; therefore, to be conservative, the cutoff of 15% was applied to all mining. A cutoff grade of 10% K_2O is used to identify the tops and bottoms of a proposed mining interval from assay data, interbeds less than approximately 1 m thick whose assays are less than 10% K_2O are included if they are bordered by beds with K_2O assays significantly greater than the cutoff. However, the average grade of the entire bed must exceed 15% K_2O for the bed to be considered mineable.

Selected potash mining zones also should have insolubles grades less than 15% (Hardy and Halabura 2008) because the fine-grained impurities interfere with processing. Feed to a processing plant using flotation should have average carnallite ($KCl.MgCl_2.6H_2O$) grades less than 6% (Maki and Petracek 2000). For plants with evaporator/crystallizer units, higher carnallite grades can be handled but KCl recovery is reduced; KCl recovery is maximized with carnallite grades less than approximately 2%. However, feeds from different caverns can be blended, so the 6% cutoff is retained as an indicator of less preferred mining zones.

The Patience Lake Member is generally the thickest potash zone followed by the potash zone in the Esterhazy Member and then that in the Belle Plaine Member. The highest K_2O grades are found in the Esterhazy Member; however, the mean carnallite grades in the Esterhazy Member in the vicinity of wells M 001, M 002A, M 003, and M 009 exceed a 6% cutoff. The mine plan includes provision for production from 37 to 44 caverns during primary mining and 107 caverns on average during secondary mining, and this allows for blending of feed from mining in all three potash beds and from widespread areas within the property. Consequently, resource estimation blocks in the vicinity of these 4 holes were included in the resource estimate for the Esterhazy Member even though the carnallite grade exceeded 6%. The carnallite grades are significantly less than the threshold limit of 6% carnallite within the Patience Lake and Belle Plaine Members and elsewhere within the Esterhazy Member.

The base map used to determine areas was developed from georeferenced ArcExplorer (GIS) files (Version 8, 2005) from the Geological Atlas of Saskatchewan produced by the Ministry of Energy and Resources—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 KCl recoverable Measured, Indicated and Inferred Mineral Resource tonnages, were estimated as follows:

1. The gross in-place sylvinite tonnage (mineral interval) for each resource block was calculated by multiplying the net area of the block by the thickness of the assumed solution mine interval for each of the members and an assumed tonnage factor of 2.08 tonnes per cubic meter (t/m^3). For each member, the tonnages for the individual blocks were then summed to give the "in-place" tonnage that is reported in the resource tables.
2. Tonnage reductions of 5%, 9%, and 25% were applied to the Measured, Indicated, and Inferred Mineral Resources, respectively, to account for the possible presence of mining anomalies not detected by existing drill holes and seismic lines. These values were based on the results of 2D and 3D seismic surveys covering an area of influence around the 9 drill holes used in the resource estimation and are consistent with the reductions employed by mine operators.
3. An "areal extraction ratio" factor was applied to account for the Mineral Resource that is left in the ground in the form of pillars left around exploration drill holes and potash production caverns to provide support and reduce surface subsidence. The extraction ratio for solution mining is based on the cavern and pillar shapes and is site-specific depending on the depth of burial, temperature, and the potash and halite material properties. For this resource estimate, an areal extraction ratio of 34.6% (i.e., 34.6% of the sylvinite is removed and 65.4% is left in-place for support) has been assumed; this is the same areal extraction ratio published by Hardy, Halabura, and Shewfelt (2009) for Potash One's Legacy Project, which has similar characteristics to the Milestone Project. This determines the "Recoverable Resource in Caverns" tonnage that is reported in Tables 8 and 9. The extraction ratios used in the reserve calculation in Section 15.0 are based on the cavern dimensions and cavern spacing in the mine plan.
4. Additional reductions can be applied for plant and cavern losses to determine the quantity of potash that can be produced and marketed. The plant and cavern losses are included in this Technical Report to illustrate what potential mine losses might resemble; however, they have not been included in the Measured, Indicated, and Inferred Mineral Resources reported in this Technical Report. Plant losses can include losses to purge and dust. Cavern losses include the dissolved KCl that remains in the caverns at abandonment and any losses due to the dip of the beds. The majority of the cavern loss is associated with the concentrated brine remaining in the cavern at closure. Cavern and plant losses are project- and cavern-specific and will not be known exactly until after the mine and plant is in operation. The estimated plant and cavern losses (26%) used herein are the same as those used by Potash One for the Legacy Project and published in Hardy et al. (2010). In the previous NI 43-101 Technical Report prepared for WPX, Hambley, Hardy, and Pekeski (2011) also did not deduct the cavern and plant losses in the reported Mineral Resource.
5. No reduction was made to account for unknown regions within the Patience Lake, Belle Plaine, and Esterhazy Members that may contain carnallitite, a rock consisting of the primary minerals carnallite and halite with secondary sylvite and insolubles.
6. The Inferred Mineral Resource does not include the area under the Plant Site plus a 1.6 km buffer around it.

For conventional underground potash mining projects, the ROI for Inferred Resources has been as small as 3.2 km (2 miles) because of the potential disruptions caused by undetected anomalous zones. In solution mining, less impact on operations occurs when unfavorable conditions are encountered during cavern development because abandoning a set of drill holes and moving to a new drilling pad is relatively straightforward. Another argument for a larger ROI for solution mining is the fact that solution mining can recover potash from multiple beds of varying thickness and grade, whereas underground potash mines in Saskatchewan mine one bed only. Thus, there is more flexibility in solution mining, and the lateral and vertical continuity are less critical than with underground mining.

14.2 Possible Solution Mining Scenarios for Prairie Evaporite Formation

It is assumed that the entire minable thickness including interbedded clay seams and halite of each of the Patience Lake, Belle Plaine, and Esterhazy Members will be removed by solution mining. More detail on mining techniques is provided in Section 16.0 of this Technical Report.

In estimating the Measured, Indicated and Inferred Mineral Resources, AAI determined the resources based on two cases:

1. Solution mining the Esterhazy Member and then only the two individual potential solution mine intervals associated with the Patience Lake Member and Belle Plaine Member excluding the interbed between the two members.
2. Solution mining the Esterhazy Member and then 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 by including the interbed. It should be noted that because the interbed between the Patience Lake and Belle Plaine Members is relatively thin, this option was the one considered in the FS.

14.3 Estimated Mineral Resources

The economic studies (Preliminary Assessment, PFS and FS) performed on behalf of WPX have demonstrated that the Patience Lake, Belle Plaine, and Esterhazy Members of the Prairie Evaporite Formation on the KLSA 008 Lease are amenable to solution mining and constitute a “Mineral Resource.” The assumptions and deductions used in estimating Inferred, Indicated and Measured Resources were discussed in Section 14.1. The full quarter sections of Freehold Mineral Rights available to WPX as of March 31, 2012 that fall within the ROIs for the three resource classifications were included in the land areas used to estimate the Mineral Resource. The Inferred Mineral Resource is presented in Table 5 and does not include the area under the Plant Site together with the 1.6-km buffer around it. Note that the Inferred Mineral Resource is effective as of November 2011 and is unchanged from the Inferred Mineral Resource previously reported in December 2011 (Hardy et al. 2011) as there have been no land additions within the Inferred ROI since then.

The Indicated and Measured Resources surrounding the M 001, M 002 and M 002A wells are presented in Tables 6, 7 and 8, respectively. In Tables 6 through 8, the last two columns include an allowance for losses for the plant and brine in the caverns.

14.4 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 assessing the potash potential of Lease KLSA 008, the authors are relying on an expert report (CRU 2012) that provides a reasonable basis for assuming that there is a viable market for KCl and, secondly, that a market for new potash product can be reasonably developed. Market potential is discussed in more detail in Section 19.0 of this Technical Report.

Table 6. Inferred Mineral Resource within Crown and Leased Freehold Areas

Bed	Area (m^2)	Thickness (m)	Average K_2O Grade (%)	Average KCl Grade (%)	Carnallite (%)	Insolubles (%)	In-place Tonnage (Mt)[1]	In-Place K_2O Tonnage (Mt)	In-Place KCl Tonnage (Mt)	K_2O Recoverable Resource in Caverns (Mt)[2]	KCl Recoverable Resource in Caverns (Mt)[2]	K_2O Resource including Cavern and Plant Losses (Mt)[3]	KCl Resource including Cavern and Plant Losses (Mt)[3]
Patience Lake	217,718,800	9.41	18.12	28.68	0.62	10.72	4,261.37	772.16	1,220.01	200.38	316.59	148.28	234.28
Halite Interbed	217,718,800	3.96	2.95	4.67	0.59	6.89	1,793.31	52.90	83.59	13.73	21.69	10.16	16.05
Belle Plaine	215,997,600	4.39	19.03	30.13	0.58	4.41	1,972.32	375.33	593.02	97.40	153.89	72.07	113.88
Average Including Interbed			**14.95**	**23.67**	**0.60**	**8.31**							
Total Including Interbed		**17.76**					**8,026.99**	**1,200.39**	**1,896.66**	**311.50**	**492.17**	**230.51**	**364.21**
Average Excluding Interbed			**18.41**	**29.14**	**0.61**	**8.72**							
Total Excluding Interbed		**13.80**					**6,233.67**	**1,147.49**	**1,813.04**	**297.77**	**470.48**	**220.35**	**348.16**
Esterhazy	217,718,800	5.49	21.19	33.54	4.45	3.53	2,486.17						
Overall Average Incl. Interbed			**16.43**	**26.01**	**1.51**	**7.18**							
Grand Total Incl. Interbed		**23.25**					**10,513.16**	**1,727.21**	**2,729.00**	**448.21**	**708.18**	**331.67**	**524.05**
Overall Average Excl. Interbed			**19.20**	**30.39**	**1.70**	**7.24**							
Grand Total Excl. Interbed		**19.29**					**8,719.86**	**1,674.31**	**2,645.41**	**434.48**	**686.48**	**321.52**	**508.00**

[1] 8.0 km radius used; Mt = million tonnes.

[2] Resource accounts for geologic anomalies (25%); extraction ratio (34.6%); and 0.8-km buffer around towns.

[3] Resource accounts for geologic anomalies (25%); extraction ratio (34.6%); 0.8-km buffer around towns; and cavern liquor, plant and transport losses (26%).

Table 7. Indicated Mineral Resource Surrounding Wells M 001, M 002 and M 002A

Bed	Area (m^2)	Thickness (m)	Average K_2O Grade (%)	Average KCl Grade (%)	Insolubles (%)	Carnallite (%)	In-place Tonnage (Mt)	In-Place K_2O Tonnage (Mt)	In-Place KCl Tonnage (Mt)	K_2O Recoverable Resource in Caverns (Mt)[2]	KCl Recoverable Resource in Caverns (Mt)[2]	K_2O Resource including Cavern and Plant Losses (Mt)[3]	KCl Resource including Cavern and Plant Losses (Mt)[3]
Patience Lake	11,379,600	6.32	17.73	28.01	9.94	0.55	149.59	26.52	41.91	8.35	13.19	6.18	9.76
Halite Interbed	11,379,600	7.65	2.85	4.50	6.81	0.49	181.07	5.16	8.15	1.62	2.57	1.20	1.90
Belle Plaine	7,233,600	3.43	16.91	26.72	6.51	0.66	51.61	8.73	13.79	2.75	4.34	2.03	3.21
Average Including Interbed			**10.57**	**16.70**	**7.99**	**0.54**							
Total Including Interbed		**17.40**					**382.27**	**40.41**	**63.85**	**12.72**	**20.10**	**9.42**	**14.88**
Average Excluding Interbed			**17.52**	**27.68**	**9.06**	**0.58**							
Total Excluding Interbed		**9.75**					**201.20**	**35.25**	**55.69**	**11.10**	**17.54**	**8.21**	**12.98**
Esterhazy	11,379,600	6.24	21.82	34.48	4.68	5.00	147.70	32.23	50.92	10.15	16.74	7.51	12.39
Overall Average Incl. Interbed			**13.71**	**21.66**	**7.07**	**1.78**							
Grand Total Incl. Interbed		**23.64**					**529.97**	**72.64**	**114.77**	**22.87**	**36.84**	**16.92**	**27.26**
Overall Average Excl. Interbed			**19.34**	**30.56**	**7.21**	**2.45**							
Grand Total Excl. Interbed		**15.99**					**348.90**	**67.48**	**106.61**	**21.25**	**34.27**	**15.72**	**25.36**

[1] 1.6 km outside radius and 2.5 km inner (between drill holes) used; Mt = million tonnes.

[2] Resource accounts for geologic anomalies (9%); extraction ratio (34.6%); and 0.8-km buffer around towns.

[3] Resource accounts for geologic anomalies (9%); extraction ratio (34.6%); 0.8-km buffer around towns; and cavern liquor, plant and transport losses (26%).

Table 8. Measured Mineral Resource Surrounding Wells M 001, M 002 and M 002A

Bed	Area (m^2)	Thickness (m)	Average K_2O Grade (%)	Average KCl Grade (%)	Insolubles (%)	Carnallite (%)	In-place Tonnage (Mt)	In-Place K_2O Tonnage (Mt)	In-Place KCl Tonnage (Mt)	K_2O Recoverable Resource in Caverns (Mt)[2]	KCl Recoverable Resource in Caverns (Mt)[2]	K_2O Resource including Cavern and Plant Losses (Mt)[3]	KCl Resource including Cavern and Plant Losses (Mt)[3]
Patience Lake	4,315,200	6.57	17.71	27.98	10.07	0.56	58.97	10.44	16.50	3.43	5.42	2.54	4.01
Halite Interbed	4,919,200	8.11	2.80	4.42	6.82	0.49	82.98	2.32	3.67	0.76	1.21	0.57	0.89
Belle Plaine	2,940,400	3.33	17.11	27.03	6.81	0.67	20.37	3.48	5.51	1.15	1.81	0.85	1.34
Average Including Interbed			**10.01**	**15.82**	**8.00**	**0.54**							
Total Including Interbed		**18.01**					**162.32**	**16.25**	**25.68**	**5.34**	**8.44**	**3.95**	**6.25**
Average Excluding Interbed			**17.56**	**27.74**	**9.23**	**0.59**							
Total Excluding Interbed		**9.90**					**79.34**	**13.93**	**22.01**	**4.58**	**7.23**	**3.39**	**5.35**
Esterhazy	4,919,200	6.26	21.85	34.52	4.77	5.10	64.05	14.00	22.11	4.60	7.27	3.40	5.38
Overall Average Incl. Interbed			**13.36**	**21.11**	**7.09**	**1.83**							
Grand Total Incl. Interbed		**24.27**					**226.37**	**30.25**	**47.79**	**9.94**	**15.71**	**7.36**	**11.62**
Overall Average Excl. Interbed			**19.47**	**30.77**	**7.24**	**2.60**							
Grand Total Excl. Interbed		**16.16**					**143.39**	**27.92**	**44.12**	**9.18**	**14.50**	**6.79**	**10.73**

[1] 800-m radius used; Mt = million tonnes.

[2] Resource accounts for geologic anomalies (5%); extraction ratio (34.6%); and 0.8-km buffer around towns.

[3] Resource accounts for geologic anomalies (5%); extraction ratio (34.6%); 0.8-km buffer around towns; and cavern liquor, plant and transport losses (26%).

15.0 MINERAL RESERVE ESTIMATES

The CIM Definitions Standards (CIM 2010) define a mineral reserve as follows:

> *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.*

The CIM Definitions Standards (CIM 2010) further state that:

> *Mineral Reserves are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Qualified Person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant processing, metallurgical, economic, marketing, legal, environment, socio-economic and government factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility.*

As a result of the favorable economic results presented in the PFS (AMEC, 2011), the Measured and Indicated Resources surrounding wells M003 through M009 were upgraded during the FS to Proven and Probable Mineral Reserves, respectively. Table 9 summarizes the Proven and Probable Mineral Reserves; the cavern layout used to estimate the Proven and Probable Mineral Reserves is shown in Figure 13. The reserves represent the recoverable tonnages of KCl contained in the caverns within the ROI for the Indicated resource surrounding wells M003 through M009.

The reserve estimate has to be based on the mine plan developed during a PFS or FS design phase. The estimate is based on the geologic model and assigned thicknesses and grade for the individual caverns shown in Figure 13. The cavern dimensions and mine plan are discussed in the following Section 16.0.

The reserve tonnages were obtained by applying factors to reduce the in-place KCl within the perimeter of the caverns for unknown geologic anomalies (5% reduction for proven and 9% reduction for probable reserves), and cavern and plant KCl losses. The cavern loss of 12.7% accounts for brine remaining in the cavern at completion of mining. The plant loss is 6.5% (plant KCl recovery = 93.5%), which accounts for KCl losses in the plant and in transport from the plant to the port.

Some caverns of the caverns that define the reserves straddle the boundary defined by the Indicated Mineral Resource ROI (Probable Mineral Reserve ROI). Such caverns were included in the Probable Mineral Reserve if the centroid of the cavern fell within the ROI and were excluded from the Probable Mineral Reserve if the centroid fell outside the ROI.

Table 9. Proven and Probable Reserves Surrounding Wells M003 through M009

	Thickness (m)	KCl Grade (%)	$MgCl_2$ Grade (%)	Insolubles Grade (%)	In-Place Tonnage (Mt)[1]	In-Place KCl Tonnage (Mt)	KCl Reserves[2] (Mt)	MOP[3] Reserves (Mt)
Patience Lake								
Proven	10.91	28.55	0.22	10.89	79.26	22.63	17.55	17.89
Probable	10.67	28.50	0.22	10.80	232.04	66.13	49.12	50.07
Halite Interbed H1								
Proven	2.67	4.92	0.22	7.77	21.14	1.04	0.81	0.82
Probable	2.85	4.80	0.21	7.65	64.58	3.10	2.30	2.35
Belle Plaine								
Proven	4.73	30.79	0.19	3.82	34.78	10.71	8.30	8.47
Probable	4.66	30.08	0.19	3.91	102.36	30.79	22.87	23.31
Esterhazy								
Proven	5.15	32.86	1.06	3.33	36.03	11.84	9.18	9.36
Probable	5.21	33.02	1.06	3.42	110.69	36.55	27.15	27.67
Total Proven Reserves including Interbed	23.46	26.99	0.39	7.48	171.21	46.22	35.84	36.54
Total Probable Reserves including Interbed	23.39	26.80	0.40	7.41	509.67	136.57	101.44	103.41
Proven and Probable Reserves including Interbed	23.41	26.85	0.39	7.43	680.88	182.79	137.28	139.94
Total Proven Reserves excluding Interbed	20.79	30.10	0.41	7.44	150.07	45.18	35.03	35.72
Total Probable Reserves excluding Interbed	20.54	29.99	0.42	7.38	445.09	133.47	99.14	101.05
Proven and Probable Reserves excluding Interbed	20.60	30.02	0.42	7.39	595.16	178.65	134.17	136.77

[1] Mt = million tonnes; based on cavern tonnages and therefore accounts for extraction ratio.

[2] Reserves account for unknown anomalies (5% for proven and 9% for probable) and cavern (87.4%) and plant (93.5%) recoveries.

[3] MOP = muriate of potash (K62 or 98%KCl)

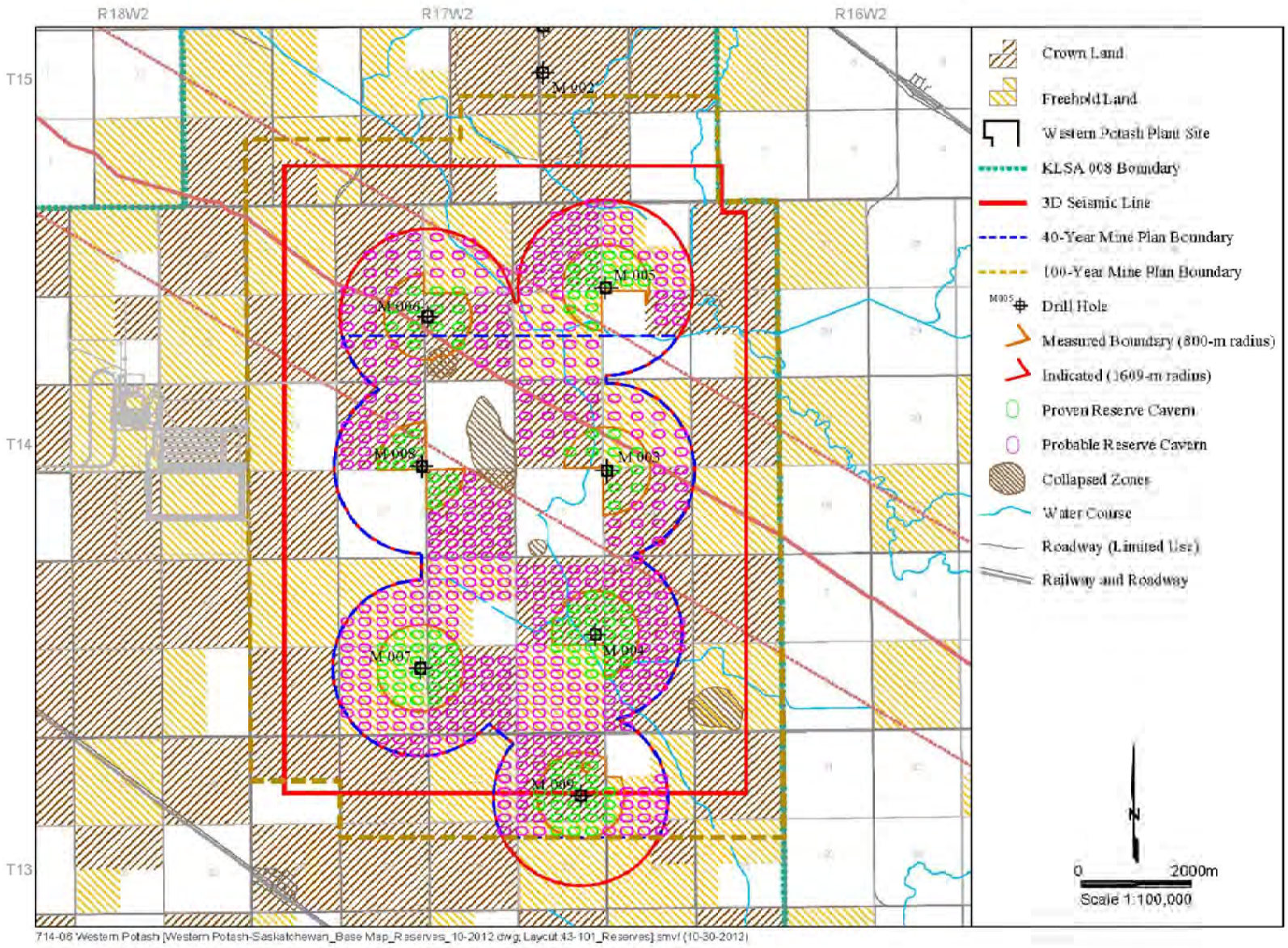


Figure 13. Proven and Probable Reserves

The reserve tonnages could be affected if any of the following changes:

- Extraction ratio that is based on the shape and dimensions of the cavern and the size of the pillars between caverns
- Location and sizes of anomalies both structural and areas of high carnallite grades
- Plant recovery
- MOP product grade; this is not expected to change from the design basis of 98.1% KCl. However, it is mentioned because the minimum acceptable MOP product grade is 95% KCl and crystallizer manufacturers claim they can provide a 99.1% KCl MOP product.
- An increase in acreage of freehold areas with mineral rights assigned to Western Potash via lease agreements.

The extraction ratio has been reduced within a 3.2-km wide zone around the right-of-way (ROW) of the high-pressure gas pipelines that traverse the property by increasing the pillar size, thereby reducing the extraction ratio under the pipelines. The aim is to reduce subsidence to protect the pipelines. However, if, with experience, it is found that subsidence is not significant during the initial 40 years of mining, the extraction ratio under the pipelines could be increased, thereby increasing the reserves. The shape and dimensions of the cavern are controlled by the operators and were selected based on evaluation of cavern stability utilizing site-specific creep data in 3-dimensional models and empirical evidence from the ongoing Mosaic Corporation operations at Belle Plaine.

Plant recovery depends on the operation of the plant and impurities in the brine feed. The primary impurity of concern is the magnesium content of the brine feed—as the magnesium grade goes up, the KCl recovery goes down. The estimate of the plant losses are provided by the plant designers and discussed in the following Section 16.0.

An increase in the acreage of leased Freehold lands is possible. There are approximately four sections of land within the Probable Reserve area where the mineral rights are not controlled by WPX. These four Sections have not been included in the land used to estimate the reserves. Acquisition of the mineral rights for one quarter section of such land would add approximately 1.8 Mt of KCl to the reserves.

It should also be noted that additional reserves will be defined during the process of drilling production wells. It is planned that two wells from each well pad will be cored and sampled, with the samples sent to a lab for assay. The results of the assays near the perimeter of the current Probable Reserve area will be used to expand the reserve base. Production wells with assayed core in the interior of the Probable Reserve will be used to increase the Proven Reserve.

16.0 MINING METHODS

The Milestone Project will extract potash from the Patience Lake, Belle Plaine, and Esterhazy Members of the Prairie Evaporite Formation by means of solution mining. Selection of site-specific cavern dimensions is based on depth, in-situ temperature, and rock mechanics considerations. Laboratory creep studies to aid in defining cavern dimensions were performed at RESPEC in Rapid City, South Dakota as discussed below in Subsection 16.1. Modeling of cavern creep using the results of these studies indicated that caverns similar in size to those used at Mosaic's Belle Plaine operation are practicable. Cavern dimensions and spacings are discussed in Subsections 16.3 and 16.4 below. Previously, for the PFS, cavern and pillar dimensions smaller than those employed at Mosaic's Belle Plaine operations had been selected to allow for the increased depth and in-situ temperature.

16.1 Geotechnical Testing

WPX engaged RESPEC to conduct a laboratory study of the mechanical properties of various stratigraphic units of salt and potash. These mechanical properties were sought to support the development of the Milestone Project. The laboratory study comprised four types of mechanical properties tests on core recovered from the Milestone Project in Saskatchewan, Canada. The mechanical testing consisted of (1) 50 BRZ indirect tensile strength tests, (2) 29 CSR compressive strength tests, (3) 17 tests of CMC, and (4) 24 triaxial compression creep tests. The constant strain rate compressive tests were used to obtain values for Young's modulus and Poisson's ratio. The results of the CMC tests were compared to a dilation criterion (Van Sambeek et al., 1993) typically used for salt and potash and found to be consistent.

Creep tests were performed on 24 specimens—13 tests on samples from various halite zones and 11 tests on potash. Three different differential stresses were applied at a confining pressure equivalent to the cavern brine pressure and 65°C. To address the effect of temperature, 2 samples of Patience Lake potash ore were tested at 75°C. The loading conditions were held constant for the minimum 30- to 60-day duration of the tests. The steady-state strain rate data from the creep tests were fitted to the Munson-Dawson multi-mechanism creep model (Munson and Dawson 1979) developed for the US Department of Defense Waste Isolation Pilot Plant (WIPP). The results of the creep tests are used in modeling studies examining the dimensions and closure potential of the caverns.

16.2 Laboratory Sylvinite Dissolution Testing

Laboratory dissolution testing of core samples was performed in 2011 by NG Consulting of Sondershausen, Germany. The samples were collected from the Patience Lake Member, the interbed between the Patience Lake and Belle Plaine Members, the floor below the Belle Plaine Member, the interbed above the Esterhazy Member, the Esterhazy Member, and the basal salt below the Esterhazy Member. The results of the testing indicated that:

- Dissolution rates varied as expected between those for pure sylvinite and pure halite and correlated well with theoretical data.

- Dissolution rates of the WPX samples fell in a range similar to that for common sylvinite from other deposits.
- No significant difference in dissolution rates were observed for the Patience Lake, Belle Plaine, and Esterhazy Members.
- Roughly 20% higher dissolution rates were observed for 75°C compared to 60°C.
- The presence of insoluble material, e.g. anhydrite, reduced the dissolution rate up to 30%.
- The dissolution testing provided a preliminary relationship between dissolution rate and KCl content of the sylvinite at 60°C and 75°C.

A second set of dissolution tests was performed in late 2011 and January 2012. The purpose of this testing was to provide information regarding the relationship between the brine KCl grade and the grade of sylvite in the rock. The testing was necessary to investigate an apparent direct correlation between brine grade and grade in the rock that has been observed in both full-scale pilot tests and commercial caverns. Additional discussion regarding this testing is presented in Section 13.0 of this report.

16.3 Mining Sequence

The solution mining method selected for resource recovery at WPX is similar to practices at Mosaic's Belle Plaine operations, which are founded on methods patented in the early 1960s. The method as adopted by WPX uses two wells that penetrate the potash bed vertically 80 m apart and procedures for development of the caverns similar to those described in Colomé and Ruse (1994). Each well has intermediate casing set to the base of the Esterhazy Member and is drilled out to the bottom of the sump some 10 m or so deeper. Sumps are first developed surrounding each of these two wells below the target potash horizon in the underlying halite. The sumps are expanded horizontally until they coalesce. Mining of the potash then proceeds in vertical slices with the vertical growth controlled by an oil blanket. The oil blanket is raised at each mining step.

The steps in developing and in mining are as follows:

- Step 1—Sump development
- Step 2—Connection
- Step 3—Roof development
- Step 4—Mining the Esterhazy
- Step 5—Dropping the Esterhazy-Belle Plaine interbed
- Step 6—Primary mining in the Belle Plaine and Patience Lake members
- Step 7—Secondary mining in the Belle Plaine and Patience Lake members

During the first two stages, a large, thin cavern is developed surrounding the two wells in halite underlying the target potash horizon. During Stage 1, a sump is created at each well below the potash horizon. During Stage 2, the top of the sump is expanded by injection of water and oil. The oil, being less dense than water, floats to the top, and inhibits vertical growth of the

sumps, which causes the top of the sumps to grow laterally. During sump and roof development, water is injected in the annulus of each well, and saturated salt brine is recovered in the tubing located near the bottom of the sump. When the two caverns intersect, the roof is further expanded by injecting in one well and recovering brine from the other. Stage 3 begins when the roof has been expanded to its target dimension, the oil cap is raised by perforating the casing, and a layer of potash and halite is mined. The process is repeated until the roof of the Esterhazy Member is encountered.

The thick interburden between the Esterhazy Member and the bottom of the Belle Plaine Member is characterized as halite interbedded with a thin marker bed (the White Bear Marker Bed) that contains low-grade potash. Where the White Bear Marker Bed is thick and of high grade, it may be mined, but in general, it is too thin and of too low potash grade to be economical.

The mine plan does not include mining of the low-grade interbed material between the roof of the Esterhazy Member and the floor of the Belle Plaine Member. To skip this interburden, a practice of hydraulically separating the salt from the base of the Belle Plaine Member has been used at Mosaic. Once this separation has been initiated, solution mining above the Belle Plaine Member can proceed by perforating the casing and continuing the solution mining process as before.

The interburden between the Esterhazy and the Belle Plaine Members is expected to fall, thereby eliminating the possibility of re-accessing the Esterhazy Member. Hence, secondary mining of the Esterhazy Member is not possible unless completed before advancing to the Belle Plaine Member. For this reason, only primary mining of the Esterhazy Member is planned, with the full lateral extent and height of the cavern mined by primary mining.

The footprint of the cavern as shown in Figure 14 is generally semi-circular at the ends, concentric with the wells, with straight sides between the wells. The ultimate radius of the cavern from the wells is assumed to be 70 m, and the two wells are located 80 m apart. These dimensions are similar to those used at Mosaic's Belle Plaine Mine.

The primary mining production target of 2.0 Mtpy of K62 product, which is defined as potash with 62% K_2O content, can be met with 37 caverns in production. To ensure that 37 caverns are in production at a given time and to allow for operating flexibility, a total of 44 initial caverns will be developed. The primary mining phase per cavern (after cavern development) is estimated to be completed after 3 years and 3 months. After 3.22 years, 37 caverns will transition to secondary mining and will be replaced. If that replacement is planned over the 3.22 years, the replacement rate would be approximately 12 caverns, or 24 wells per year.

Stage 6 secondary mining follows primary mining and differs in that the injection liquor is saturated in NaCl and has a relatively high concentration of KCl. Because of these concentrations, the dissolution rate is reduced, and production may either be continuous or intermittent. Secondary mining can begin after a significant roof area is developed in the

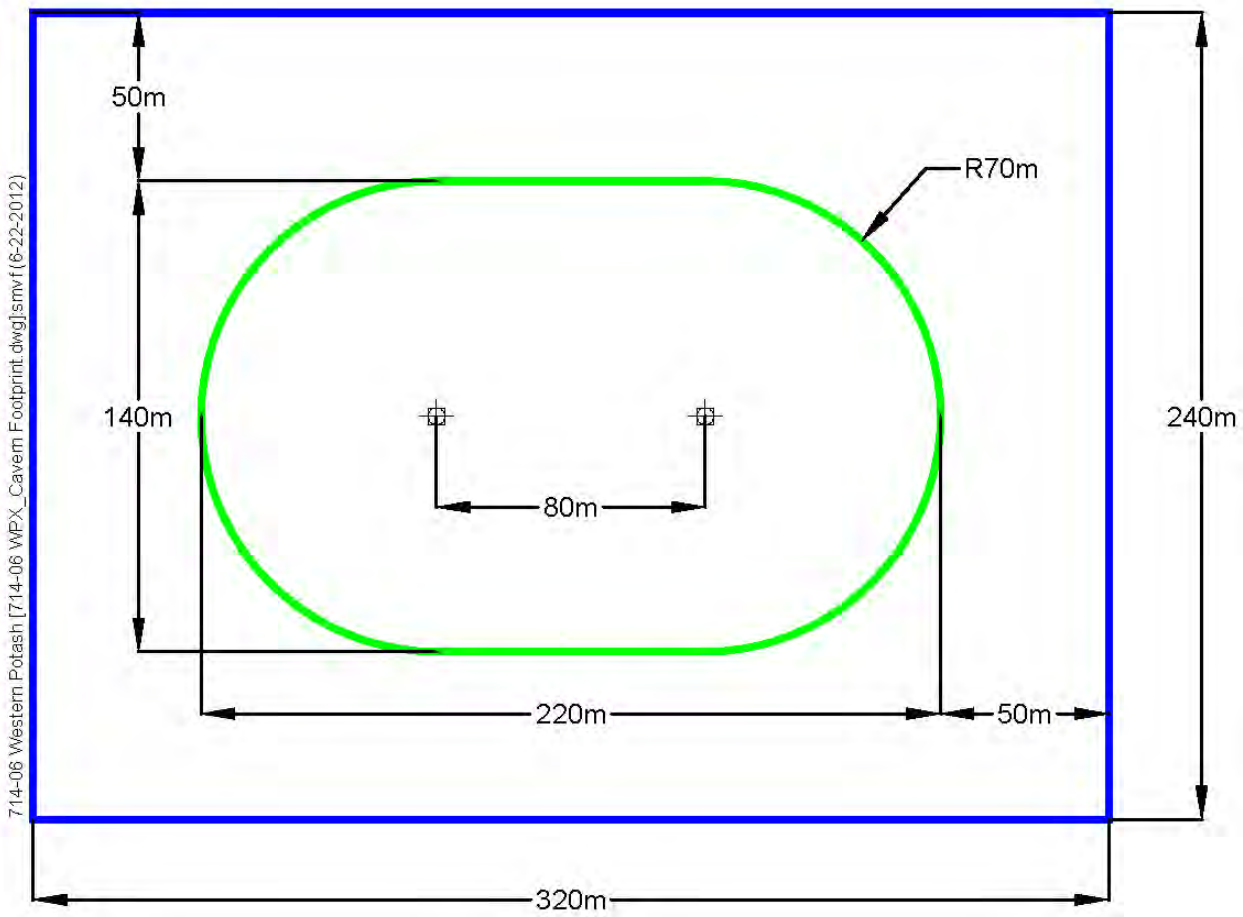


Figure 14. Cavern Footprint

Patience Lake Member. Secondary mining is planned to contribute 29% of production (0.8 Mtpy of K62 product) once sufficient caverns are available for full production.

16.4 Well and Pad Layout

The pad layout is based on the assumption that 14 caverns or 28 wells will be developed from a single pad, as illustrated in Figure 15. Figure 16 shows the locations of the pads and the caverns assigned to each pad. Directional drilling is used to accurately locate the pairs of wells 80 m apart for each cavern.

The cavern layout is based on there being a pillar of unmined material between caverns to maintain isolation of the caverns and to support the overlying strata. The cavern dimensions and pillar sizing were selected to control cavern closure during mining. The minimum pillar dimension has been set at 100 m. The cavern radius is 70 m, and the spacing between the wells is 80 m. These dimensions result in a cavern spacing of 320 m by 240 m. This cavern spacing results in an areal extraction ratio of 34.6% in those areas where an extensive regular pattern of caverns can be developed.

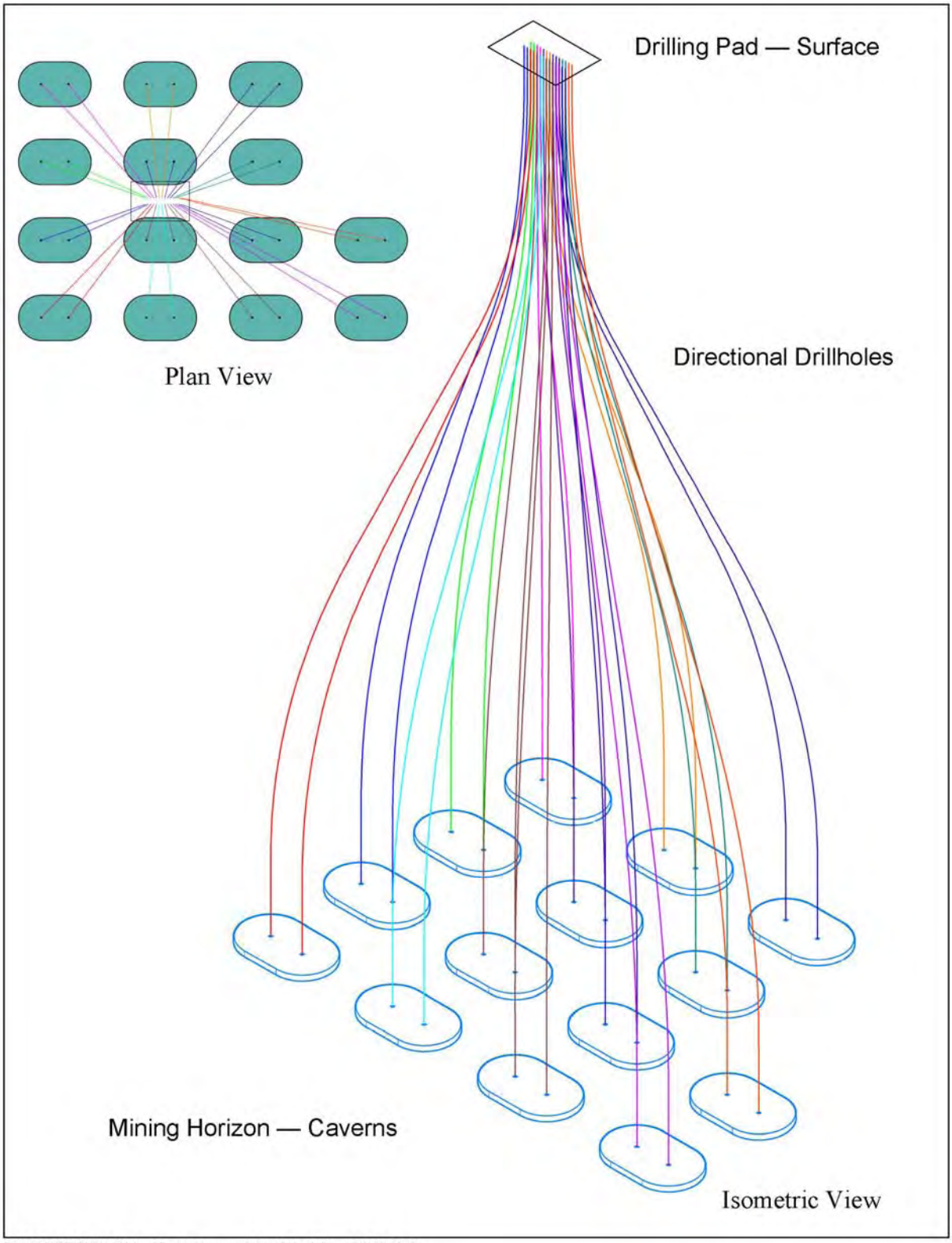


Figure 15. Typical Well Pad and Cavern Layout

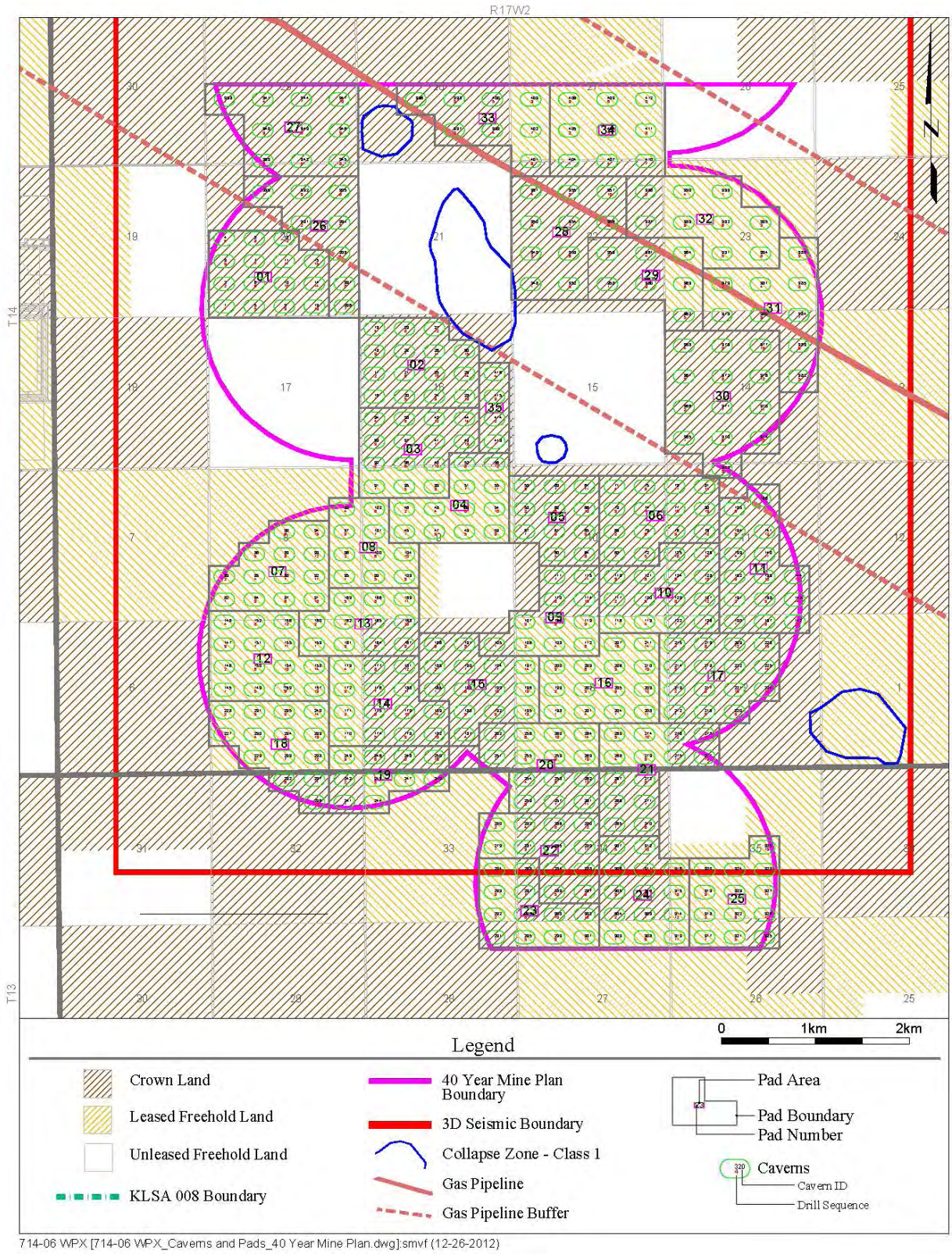


Figure 16. Well Field Layout with 40-Year Mine Plan Boundary Excluding Freehold Lands

A preliminary layout of caverns and pads has been developed to support more than 40 years of production within the area of Proven and Probable Reserves surrounding wells M 003 through M 009. The Class I collapse areas and the zones of steeply dipping strata that border the collapses are excluded from the mine plan; hence, the exclusion zones are larger than the corresponding collapse zones as identified in the 3D seismic report (Boyd PetroSearch 2010b). The mine plan also excluded lands with Freehold Mineral Rights for which lease agreements have not been signed. The areal extraction ratio below the pipelines and the buffer zone around them was reduced to 20% to maintain surface strains within pipeline industry standards (0.0023 strains to prevent buckling failure).

17.0 RECOVERY METHODS

The processing plant has been designed to produce 2.8 Mt of potash (MOP) annually. The plant will produce two products, namely granular (coarse-grained potash with a mean particle size of approximately 2.85 mm, which is suitable for direct application and for bulk blending with other fertilizer nutrients) and standard (fine-grained potash with a mean particle size of approximately 1 mm, which is suitable for direct application and for use in various nitrogen-phosphorus-potassium [NPK] formulations), and has been designed with a product split of 80:20 (granular:standard), resulting in annual production of 2.24 Mt of granular and 0.56 Mt of standard. The plant is scheduled to operate 8,200 hours per year. The Plant Area is shown in Figure 17.

The brine from primary mining will be processed in two trains of evaporators followed by two trains of crystallizers. Each evaporator/crystallizer train is designed to produce 1.0 Mtpy. The brine from secondary mining will be processed in a crystallization pond with the solids harvested by dredging to produce 0.8 Mtpy. The solids from the crystallizer trains and the crystallization pond will be debrined, dried and screened to produce standard product. The oversize and undersize fractions, and a portion of the standard fraction, which will vary depending on market conditions, will be fed to the Compaction Plant. In the Compaction Plant, six compaction circuits will produce granular material.

The standard and granular products will be sent to the product storage building. Material will be reclaimed from the product storage building and fed to the loadout building for final treatment prior to being loaded in railcars. The overall process stages are shown in Figure 18. The stages of the process are described in more detail below.

17.1 Well Field and Solution Mining

Raw water is combined with process condensate and makeup water from the third-stage hotwell, heated to 85°C in the primary cavern brine heater and injected into the primary caverns at 1,827 m^3/h. The primary brine is returned from the caverns at a rate of 1,706 m^3/h and pumped to a coalescing oil water separator to remove the oil used for the mining blanket. The primary brine is then pumped to the brine tank in the processing plant.

Secondary brine from the crystallization pond is pumped to the fourth-stage barometric condensers in the crystallizer trains. During winter, the secondary brine, before entering the condensers, is fed through a secondary brine heater, which uses warm water from the fifth-effect well to preheat the secondary brine. From the fourth-stage barometric condensers, the secondary brine is pumped through the third, second and first condensers consecutively to heat the secondary brine. The secondary brine is then pumped to the secondary brine tank where it is mixed with the crystallization pond centrate (supernatant solution).

From the secondary brine tank, the brine is pumped through the secondary cavern brine heater to raise the temperature to 85°C. The brine is then injected into the secondary caverns at 2,637 m^3/h until the caverns are full. The brine sits in the caverns until it becomes saturated in KCl. Then, the secondary brine is pumped out to the crystallization pond at 2,559 m^3/h.

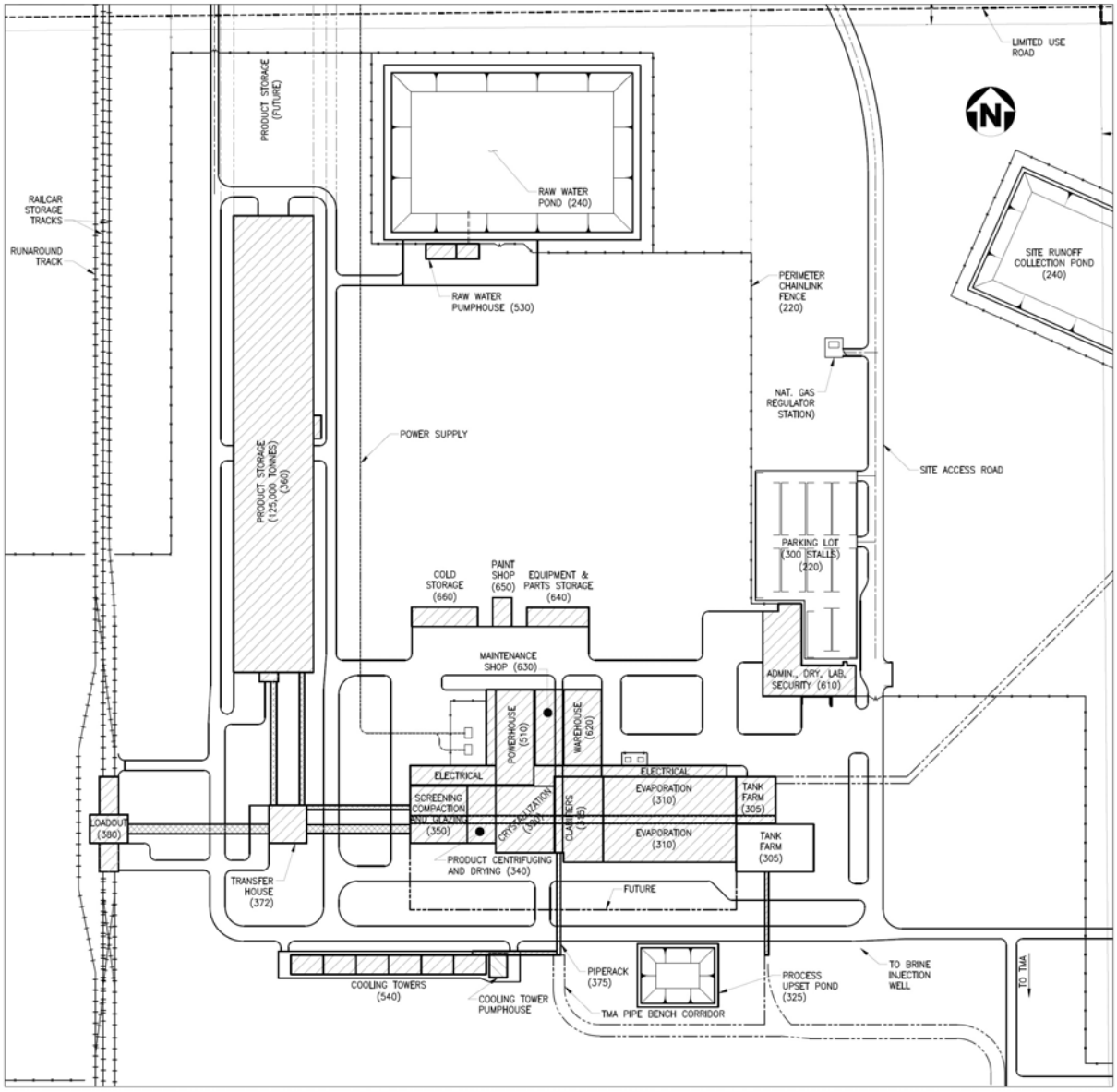


Figure 17. Plant Site Layout

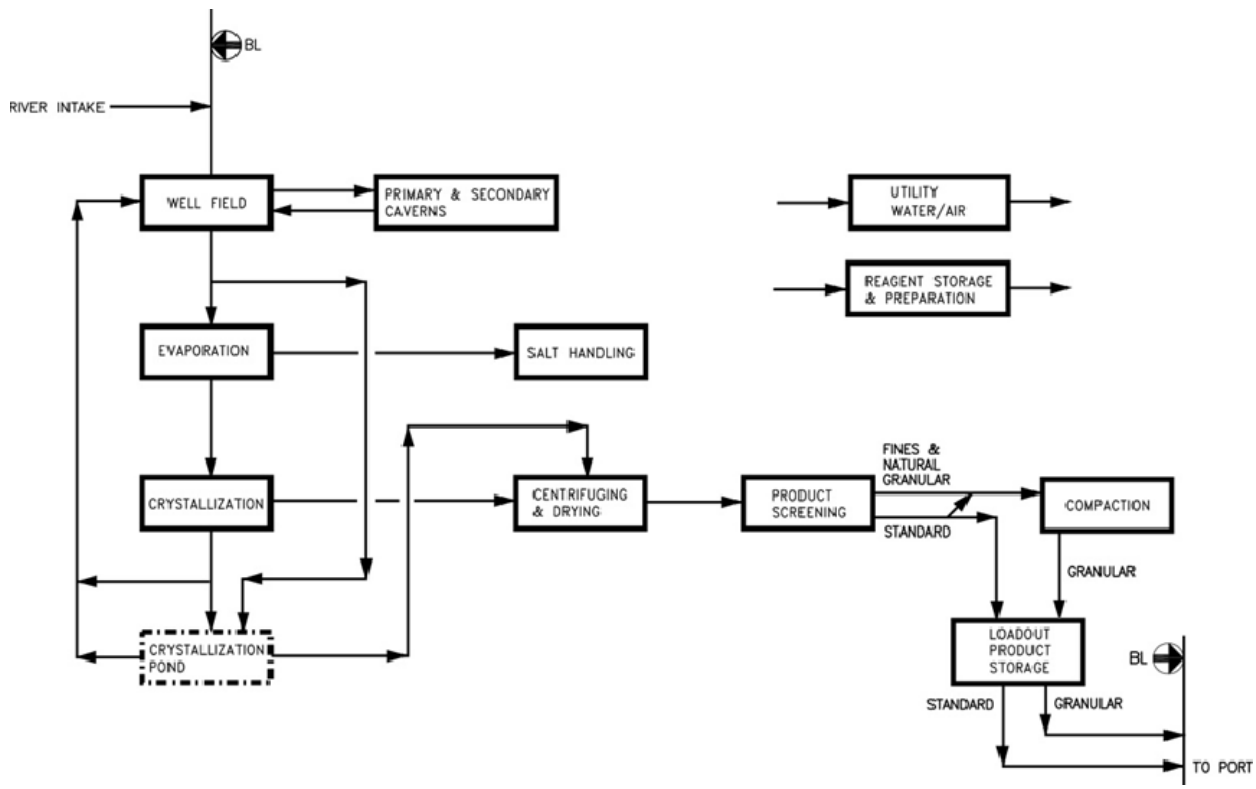


Figure 18. Generalized Flowsheet of the Processing Plant

17.2 Evaporation

The brine from the mining caverns is combined NaCl/KCl brine. To prevent co-precipitation of NaCl and KCl, the NaCl is removed by evaporative crystallization prior to KCl crystallization. Brine from the brine tank is fed to two parallel Multi-Effect Evaporators (MEEs), each of which consist of five evaporators in series.

The primary brine is pumped to the brine tank, where it is combined with a portion of the mother liquor from the fourth stage crystallizer and centrate from the product centrifuges. The brine tank provides surge capacity allowing for fluctuations in the well field which should be minimal since multiple caverns operate at any given time. The brine tank provides storage equivalent to one hour of operating time. The brine is pumped from the brine tank to the surface condensers on the first and second stage crystallizers to recover heat before being fed to the evaporator circuit. The brine receiving process is designed to minimize cooling in order to conserve energy and prevent premature crystallization.

The brine is split before being introduced to the evaporator. A portion of the feed is used for the elutriating leg feed and the rest of the brine is fed to the fifth-effect where heat is added by condensing vapour from the fourth effect through the fifth-effect heat exchangers. This heat increases the temperature of the recirculating slurry and is released in the vapour head in the form of evaporating water. The loss of water through evaporation concentrates the solutes in the

mother liquor, resulting in the precipitation of NaCl crystal. The mother liquor is transferred to the fourth effect. Slurry is discharged from the fifth-effect elutriating leg to the NaCl centrifuge feed pumpbox.

This process is repeated in the fourth through first effects. As the mother liquor flows through each effect, becoming progressively more concentrated as water is evaporated, live steam is introduced on the shell side of the first effect heat exchangers to cause evaporation in the first effect vapour head. Vapour from the first effect is used as heating steam on the second effect heaters and so on for the third, fourth, and fifth effects.

The first-effect mother liquor and slurry is pumped to the slurry flash tank which cools the slurry sufficiently to be able to discharge mother liquor at a temperature which does not flash at atmospheric pressure. The slurry from the slurry flash tank is pumped to the hydrocyclones. The overflow from the hydrocyclones is fed to the clarifier.

Slurry from the evaporator elutriating legs is removed at approximately 40% crystal by weight and discharges to the NaCl centrifuge feed pumpbox. The slurry is then pumped to the NaCl centrifuge holding tank.

The NaCl crystals are debrined in the NaCl centrifuges. The cake from the centrifuges is reslurried with reclaim brine before being pumped to the Tailings Management Area (TMA). The centrate is combined with the hydrocyclone overflow and fed to the clarifier. The clarifier removes any fine insolubles or salt before the brine is fed to the crystallization circuit. The clarifier underflow is recycled to the evaporators. A bleed stream from the clarifier underflow is pumped to the TMA.

Condensate from the first effect heat exchangers is pumped to the condensate return tank for reuse in the boilers. Condensate from the second through fifth-effect heat exchangers is combined together and pumped to the injection water tank for use in primary mining.

17.3 Crystallization

The crystallization circuit consists of two identical trains, each consisting of four draft tube baffle (DTB) stages in series. The clarifier overflow is nearly saturated with KCl. It is pumped to the first stage KCl crystallizer where it is flashed below atmospheric pressure resulting in cooling and the evaporation of water vapour. The slurry density is controlled by withdrawing clarified mother liquor from the purge baffle. The slurry and mother liquor is pumped to the second stage KCl crystallizer along with a portion of the recycled KCl solution. Dilution water is also added to the second stage to prevent the precipitation of NaCl and to dissolve fines in the crystallizer recirculation loop, thereby improving the size of the KCl crystal.

The mother liquor and slurry cascade from the first stage KCl crystallizer to the second stage KCl crystallizer to the third stage KCl crystallizer to the fourth stage KCl crystallizer. In the fourth stage, very little dilution water is available for fines destruction since this puts additional evaporative load on the evaporator plant. Thus, there is no fines recirculation flow in the fourth stage.

The slurry from the fourth stage crystallizer is pumped to the product centrifuges for debrining. A portion of the fourth stage vacuum potash crystallizer mother liquor is purged from the system to prevent the buildup of $MgCl_2$ in the circuit. The remainder of the mother liquor goes to the brine tank where it is combined with primary brine coming from the primary caverns.

17.4 Crystallization Pond

During secondary mining, brine from the secondary caverns is pumped into the crystallization pond. Since the ambient temperature is less than the brine temperature, the brine cools. The brine is directed through a series of channels with a total length of 6,500 m. This results in KCl crystallizing and settling to the bottom of the pond.

The KCl is harvested from the pond as slurry using a pair of cutter dredges. Pumps on the two cutter dredges pump the slurry to a pair of thickening tanks located at the northwest corner of the crystallization pond. These tanks provide surge capacity and thicken the slurry to approximately 40% solids. The slurry is then pumped to the crystallization pond product centrifuges for debrining.

Secondary brine from the crystallization pond overflow is pumped to the fourth stage barometric condensers on both crystallizer trains and preheated before being returned to the secondary caverns.

17.5 Debrining

Slurry from the fourth stage of the crystallizers is pumped to four product centrifuges and slurry from the crystallization pond is pumped to two crystallization pond product centrifuges. The centrifuges debrine the slurry and produce a cake that is approximately 96% solids. The cake from two of the product centrifuges and one of the crystallization pond product centrifuges is fed to each of the product dryers.

The centrate from the KCl centrifuges is pumped to the brine tank. The centrate from the crystallization pond product centrifuges is sent to the secondary brine tank.

17.6 Drying

The product is fed into each dryer using a flinger screw conveyor. The product dryers are direct fired with natural gas. Product is discharged from the product dryers at 0.01% moisture and at approximately 160°C. The off-gasses from the product dryers are fed to product dryer cyclones. The cyclone underflows are combined with the respective dryer discharge. The product dryer cyclones overflows are fed to the product dryer scrubbers. The discharge from the scrubbers is pumped to the second stage KCl crystallizers. The off-gasses from the scrubbers will be discharged through a stack in compliance with the environmental requirements.

17.7 Screening

Dried product from the product dryers is fed to four multi-deck product screens. The product is separated into three size fractions, namely standard product, oversize and undersize. The standard product is fed to a product cooler before being conveyed to either loadout or product storage. The oversize and undersize fractions and a portion of the standard fraction (its tonnage varies depending on market conditions), are fed to the compaction plant.

17.8 Compaction

The six compaction circuits generate granular product through compaction, flake breaking, crushing and screening. There are two compaction trains with three compactor circuits in each train. Each compactor is operated with a double-roll flake breaker, two stages of multi-train deck screens (primary and secondary compaction screens), a cage mill, and a secondary roll crusher.

The primary compaction screens are fed by the product/oversize bucket elevators and produce two size fractions. The oversized material is crushed in the primary cage mill and circulated back to the product/oversize bucket elevators. The undersized material is sent to the secondary screens, which produce three size fractions. The oversize material from the secondary screens is crushed in the secondary roll crusher and circulated back to the product/oversize bucket elevators. The granular material is sent to the glazing circuits. The fines collection drag conveyor then feeds the compaction feed bucket elevator, which feeds the compactor feed drag conveyor. The compactor feed drag conveyor feeds the compactors, keeping each feed chute flooded, which results in a small amount of the feed being sent to the compactor feed surge bin. The compactor feed surge bin feeds the fines collection drag conveyor.

Each compactor has a force feeder to aid in distributing the feed across the compactor rolls. The compactor rolls create dense, competent, solid flake. The flake is reduced in size in a flake breaker before being sent to the product/oversize bucket elevators.

17.9 Glazing

In both glazing circuits, water is added to the product in a conditioning drum before entering a fluid bed dryer/cooler. In the fluid bed dryer/cooler, the product is heated to 160°C before being cooled to 90°C. The product is then sent to three multi-deck glazing screens which produce three size fractions. The oversize material is crushed in the glazing cage mill and recycled to the glazing screens. The undersize material is returned to the fines compaction drag conveyors. The on-spec granular product is conveyed to either loadout or product storage.

17.10 Loadout and Product Storage

Standard and granular products are conveyed through a series of inter-building conveyor galleries that connect through a central transfer tower. Anti-caking agent (a mixture of anti-cake and de-dusting oil) is added to the standard and granular material before being dispatched into the product storage material. Any material sent directly to loadout is treated with anti-caking agent in loadout only. Product is distributed throughout the building using two tripper conveyors, one in the south end of the building for standard product and one in the north for granular product. The product storage building has a capacity of 125,000 t (100,000 t of granular capacity and 25,000 t of standard capacity). Product is held in the storage building until it is ready for loading into railcars for shipping.

Potash is reclaimed from the piles in the building using a portal reclaimer and then conveyed to the product loadout building. Standard product is screened to remove any oversize material and granular product is screened to remove any oversize and undersize material. Anti-caking agent is applied to the standard and granular product before loading the product into railcars for shipping.

17.11 Reagent Storage and Preparation

Anticaking agent is applied to the product prior to shipping to prevent coalescence of the product during transport. The anticaking agent is made by mixing together anticaking oil and de-dusting oil. The anticaking and de-dusting oils will be brought to site by bulk tanker truck and stored in separate tanks. The two oils are mixed together in a batch process before being applied to the product.

Flocculant is added to the clarifiers to enhance the settling of the solids. Flocculant is brought to site in tote bags and mixed in a vendor supplied makedown system. The flocculant is mixed using water. The flocculant is diluted with reclaim brine before adding to the clarifier. Using reclaim brine for dilution results in lower water consumption.

Aqueous ammonia is added to neutralize the hydrochloric acid generated in the product dryers, which can be corrosive to components in this area. The aqueous ammonia is delivered by bulk tanker and stored in a vendor supplied bullet. The aqueous ammonia is added to the dryer off-gas streams just before the product dyer scrubbers.

Anti-foaming agent is added to the brine tank before the evaporation. The presence of organic material can cause foaming in the evaporators which can have a negative effect on the vacuum systems. The anti-foaming agent is added to minimize the amount of foaming. The anti-foaming agent is delivered to site in liquid chemical totes.

Inhibited hydrochloric acid at two per cent concentration is used to clean scale off of the heat transfer surfaces in the evaporators. The hydrochloric acid is brought to site in totes.

Sulphuric acid, anti-scale, and bleach are added to the basin of the cooling tower to control pH, scale, and algae growth. These reagents are delivered to site in liquid chemical totes.

Chemicals that are typically added to boiler water include corrosion inhibitors and chemicals required for internal boiler treatment. The equipment required for the addition of the boilers chemicals is a vendor-supplied package.

17.12 Brine Disposal

Brine disposal is required during development, operation, and decommissioning phases of the project. Deep bedrock aquifers of the Cambrian-age Deadwood Formation are the preferred option and have been used by the Saskatchewan potash industry for over 40 years. At the Milestone property, the Deadwood Formation is located at a depth of 2,200 m to 2,300 m.

During early cavern development, disposal of brine from cavern development is estimated at up to 1,148 m^3/h if all 37 sumps are developed during the year before commencement of production. At steady state, development of 12 replacement caverns per year to replace depleted caverns will require disposal of an average of 348 m^3/h of brine from cavern development.

17.13 Process Utilities

Three natural gas-fired boilers will supply steam to the processing plant. Condensate from the first effect evaporators, the primary cavern condensate heater, and the secondary cavern liquor heater is returned to the boiler. Each boiler is sized to supply 190,000 kg/hr of steam at a nominal pressure of 1,135 kPa.

One cooling tower will be used to provide cooling for the evaporation and crystallizer process water. The process water will be operated in a closed circuit with makeup water added as required.

18.0 PROJECT INFRASTRUCTURE

Project infrastructure comprises the process plant and stockpiles, road and rail accesses, tailings management areas, and various utilities. These various facilities are described below.

18.1 Plant Site

The plant site is situated within Township 14, Range 18 and the well field within Township 14, Range 17 west of the Second Meridian.

18.1.1 Site Roads

Plant site roads are classified as private roads and do not meet all the design requirements for public municipal or provincial roads. The design for site access and service roads is in accordance with the National Building Code of Canada (NBCC) for emergency vehicle access minimum requirements, and anticipated Underwriters access requirements for fire protection. Beyond meeting the NBCC requirements, the site plant roads will be in accordance with *The Mines Regulations, 2003* and any applicable municipal regulations. In the absence of any adequate reference criteria, standard engineering practices and guidelines for road design are applied.

Plant site road layout accommodates general site traffic for operating and maintaining the Milestone property. Road layout considers anticipated vehicle and equipment turning geometrics and clearances, while maintaining safe traffic flow and access. Plant site roads are divided into three types:

- Main Access Roads
  - Heavy traffic flow, anticipated multi-vehicular usage, continued cross directional traffic flow, wide load clearance for two-lane traffic, and heavy equipment usage
  - Asphalt surfaced
  - Emergency vehicle access requirement
  - 8-m driving surface width and 1-m shoulders (overall surface width of 10 m)
- Service Roads
  - Moderate traffic flow, occasional multi-vehicular usage, occasional cross directional traffic flow, occasional wide loads (limited access), and occasional heavy equipment usage
  - Asphalt or gravelled surfaced, determined on individual use basis
  - Emergency vehicle access requirement
  - 6-m driving surface width and 1-m shoulders (overall surface width of 8 m)
- Utility Roads
  - Low to near non-existent traffic flow or occasional seasonal access
  - Gravel surfaced

- No emergency vehicle access requirement or alternate route available
- 6-m driving surface width

18.1.2 Site Rail

A rail spur to the site is required as potash will be shipped to West Coast ports by rail. Trackage layout on site minimizes interference with any vehicular traffic flow or plant operational functions, and is located on the west side of the Milestone property. On-site rail is designed to store one uncoupled unit train of empty railcars and one uncoupled unit train of full railcars. Trackage layout on site provides for loading railcars from either storage track to either of the two loadout bays in the loadout facilities. There is sufficient track length provided on site to couple a full unit train on Milestone property before leaving site. Either CP or CN can enter rail on site at the common access point. An assumption of one rail carrier was made in the FS.

One unit train will consist of approximately 170 railcars and three locomotives with a maximum unit train length of 2,500 m (8,500 ft.). At peak operation, a turnaround time of less than 12 hours, from unit train arrival to departure, can be achieved.

There is approximately 11 km of on-site track. The on-site rail is designed based on 305 mm (12 in.) ballast, 52 kg (115 lb.) continuous welded rail, a maximum on-site track speed of 25 km/h, a number 8 standard turnout, a maximum curvature of 12° for the plant site (9° to access the site) and a maximum grade of 2% on the access track (0.2% on the storage track).

On-site trackage layout and geometric design is in accordance with *Canadian National Rail Engineering Specifications for Industrial Track*, *Canadian Pacific Rail Engineering Guidelines for Private Siding Design and Construction*, and Transport Canada guidelines.

Western Potash will be responsible for its own marketing and logistics. Western Potash will enter into a lease agreement for railcars, leasing 700 railcars for the 2.0 million t/y case. Additional railcars will be required once production reaches the full 2.8 million t/y capacity. Trackage and loadout facilities on site are sized for 100 t railcars, 14.3 m in length (similar to standard new Canpotex railcars).

18.1.3 Surface Drainage

Site surface drainage within the Milestone property consists of three primary aspects:

- Drainage diversion ditches
- Drainage collection ditches
- Runoff collection pond

Precipitation on the Milestone property, in the form of rainfall or snowmelt, will be dealt with in one of two manners:

- Collecting, containing, testing and releasing to the environment, or diverting to the reclaim brine pond

- Diverting away from the plant site before coming in contact with any plant facility

Site surface drainage diversion ditches are surface topography specific and are located in select areas around the Milestone property where surface drainage naturally flows towards new plant facilities. Diversion ditches intercept surface runoff and divert flow around the plant facility. This is done to minimize the surface drainage volume collected on site and to minimize treatment in the unlikely event of it becoming contaminated. Due to the general regional topography having minimal vertical relief, some surface areas on site will first back up and pond before reaching an upset elevation and flow around facilities.

Site surface drainage collection ditches are located around plant facilities that have the potential for contaminated or brine tainted surface runoff. All surface runoff collected in these areas is directed to the site surface runoff collection pond via surface drainage ditches, swales and culverts at road crossings. Culverts and ditch sizing will accommodate normal storm events but will back up without upsetting roads during 100-year storm events.

The site surface runoff collection pond is sized to accommodate the maximum precipitation of 28 mm within a 15-minute duration. The pond and surface drainage collection system accommodates a 100-year storm event, but requires flow to back up in the collection ditches and surface area immediately upstream of the runoff pond. The pond itself does not contain the entire 100-year storm event volume. The site runoff pond is 76 m wide by 146 m long and 4.0 m deep (3.0 m operating depth). The pond is a cut-and-fill earthworks constructed facility with pond containment obtained based on the preliminary soil interpretation that local soil conditions provide suitable required impermeability.

Collected surface runoff in the site runoff pond will be tested and, if determined suitable, discharged to the environment. If determined to be unsuitable for discharge to the environment, the collected surface runoff will be pumped from the site runoff pond to the reclaim brine pond.

18.1.4 Sewage

On-site sanitary sewage discharge is collected and transferred for treatment to the on-site waste stabilization ponds (sewage lagoons). The sewage lagoons are sized for 450 people, using the fixture unit method.

Sanitary sewage discharge from the administration building and the process plant is collected by gravity flow pipelines and is discharged into a below grade sewage lift station west of the administration building. Sanitary sewage discharge from the loadout building is collected by a gravity flow pipeline and is discharged into another below grade sewage lift station southeast of the loadout building. Sewage from both lift stations is pumped by buried force main to the sewage treatment facility, located on the eastern edge of the Milestone property northeast of crystallization pond.

Sewage treatment consists of two sewage lagoons. The primary cell size is 67 m wide by 174 m long and 2.5 m deep (1.5 m operating depth). The secondary cell size is 67 m wide by 67 m long and 3.1 m deep (2.1 m operating depth). The sewage lagoons are cut-and-fill

earthworks with containment obtained from the preliminary soil interpretation that local soil conditions provide the required impermeability. The final determination of facultative or aerated lagoons will be determined in the next project study phase.

18.2 Tailings Management Area

The TMA consists of a salt storage area and a reclaim brine pond. The TMA has a perimeter dyke to contain both the solid NaCl and the decanted brine and to divert fresh water around the perimeter. The slurry from the re-pulp tank is pumped to the salt storage area. The solids settle out and the salt storage area is graded to allow the brine to drain from the salt storage area and flow to the reclaim brine pond by gravity. The reclaim brine is added to the re-pulp tank to dilute the slurry to a suitable proportion of solids for pumping. Reclaim brine is also pumped to the reagent area for dilution in the flocculant mixing system. Excess reclaim brine is pumped to the brine injection tank for deep well disposal.

Because the caverns are developed by solution mining, insoluble components of the potash beds are not brought to surface. In addition, less salt per tonne of product is brought to surface as compared to a conventional mine. At a 2.8 million t/y production rate, 3.2 million t/y of salt is deposited into the TMA. The initial salt storage in the TMA is sized to store approximately 20 years of salt tails. As the initial salt storage area nears its storage capacity, the salt storage area is expanded. The expanded salt storage area will accommodate approximately 40 years of salt tails, based on salt pile slopes of 4:1 and a maximum pile height of 40 m. Additional storage capacity is gained by increasing the pile height to 80 m for the remaining 40 years of the project.

The closure plan is consistent with the closure plans for the existing operations in Saskatchewan. Upon closure, the buildings are removed to below the ground surface. Materials are recycled, reused, sold for scrap, or sent to a landfill as applicable. The salt pile is reclaimed by capturing site rainfall, pumping the collected rainfall over the salt pile, collecting the brine, and injecting this brine through the deep well. The closure plan is part of the environmental permitting process under the direction of Golder Associates, Inc.

18.3 Road Access to the Site

Associated Engineering prepared a road realignment report that details the four main options for access to site. The options are summarized below and shown on Figure 18.

- Roads 1/1A: this is primarily an east-west road from its intersection with Highway No. 6 to the plant site, with a short segment that runs north-south into the plant site. This option is 20.5 km in length and crosses Highway No. 306.

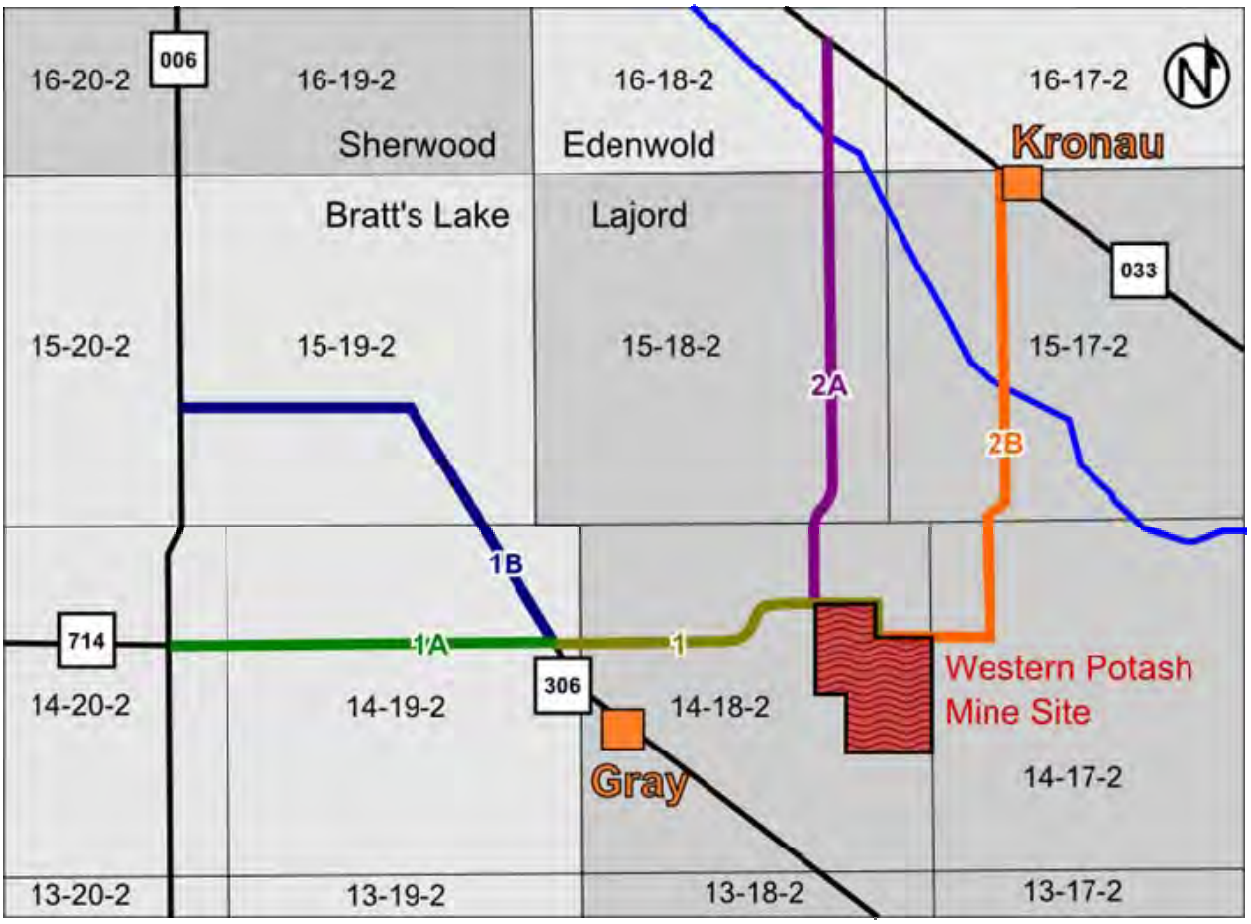


Figure 19. Site Access Road Options

- Roads 1/1B: This option runs east-west from the plant site to Highway No. 306 where it joins Highway No. 306 to intersect Highway No. 6, north of Option 1/1A. This option is 23.9 km in length and involves upgrading 14 km of Highway No. 306.
- Road 2A: This is generally a north-south road running from the intersection of Road 1 at the plant site to Highway No. 33. This option is 16.3 km in length and has one significant water crossing, one minor water crossing and two significant pipeline crossings.
- Road 2B: This option is primarily located on Grid 622 which runs north-south and has a brief east-west segment to avoid interference with the proposed mine site boundaries. This option is 16.4 km in length and has one significant water crossing and a pipeline crossing identified.

Although the above options are still under consideration, the report was used to make clear assumptions for the purposes of the FS.

18.4 Rail Access to the Site

A branch rail line will connect the on-site plant rail lines to the trackage of either CP or CN.

CN shipments from the plant would travel east from Regina to Melville, to access the mainline heading west, and from there head north to Edmonton before travelling south into Metro Vancouver. CN's single line routing potentially adds risk in that any disruptions on the main line would have an immediate and direct impact on Western Potash's shipments.

CP, the predominant carrier for Canpotex, has two mainline routing options into Port Metro Vancouver, and more efficient and shorter connections to the Burlington Northern Santa Fe (BNSF) in Coutts, AB, and the Union Pacific (UP) in Kingsgate, BC, allowing faster and cheaper shipping to US ports than CN.

Although CP only directly serves Pacific Coast Terminals within Port Metro Vancouver, it has efficient and competitive access to all bulk facilities via the CN-CP Co-production Agreement. This agreement is structured whereby CP serves as the delivering carrier for terminals on the South Shore for traffic originating from both railways and CN serves terminals on the North Shore.

As the Milestone site can be directly accessed by both the CP and CN, Western Potash is confident that its rail transportation costs will remain competitive for the life of the project.

At present, WPX does not plan to join Canpotex and will therefore be responsible for its own transportation. WPX will enter into a lease agreement for railcars, leasing 700 railcars for the 2.0-Mtpy start-up production rate. As production ramps up to the full 2.8 Mtpy capacity, additional railcars will be required.

18.5 Port

WPX is currently in negotiations with ports on the west coast to handle export requirements. An assumption was made regarding port for the FS, but there are still several options available.

18.6 Raw Water

Treated effluent discharge from Regina's wastewater treatment plant is used as the sole source of raw water for the Milestone operation. The raw water supply to site is through a buried 760-mm-diameter coated carbon steel pipeline approximately 47 km long, running from the Regina effluent treatment plant to the Milestone plant site. Further evaluation of water supply to site will occur under a separate project which will determine to a higher level of accuracy the pipeline routing, length, and pump and pipe sizing requirements.

Raw water supply to site enters the Milestone property from the northwest. The buried raw water supply pipeline runs directly to the raw water pumphouse, which in turn discharges

subaqueous, for freeze protection, into the raw water pond located north of the process plant facilities.

The raw water pond storage capacity is sized to accommodate both site raw water demands and firewater demands:

- Raw water maximum 48-hour surge capacity for process raw water demand of 1,500 m^3/h
- Firewater dedicated capacity of 908 m^3
- Minimum pond capacity is 72,908 m^3

The pond size is 190 m by 126 m at the top, with a depth of 5 m (summer operating depth of 4 m). Pond design incorporates a winter ice depth of 0.3 m, on average, with the operation of an aerator/bubbler system to maintain an open surface, primarily around the pond intake structure.

Initial indications are that site soil conditions are adequate to provide suitable impermeable soils for construction of the pond earth fill berms. Despite this, due to the significance of the operation and storage capacity of the pond, the pond is also being lined with a high-density polyethylene (HDPE) synthetic plastic liner.

The raw water pond has a large diameter intake structure that maintains a low flow rate into the wetwell below the pumphouse structure. Raw water is transferred from the raw water wetwell by vertical turbine pumps, pumping from the pumphouse wetwell to the process plant building via a buried raw water supply pipeline.

18.7 Potable Water

Potable water is supplied from Regina via the Regina South Pipeline Public Utility Board's (RSPPUB's) existing pipeline along Highway 6 to the junction of Highway 306. The RSPPUB believes that a pumphouse should be constructed near Gray. The RSPPUB would bring their two 50 mm lines into the pumphouse and discharge through a 75 mm line or a 100 mm line. Line sizing will be finalized in the next phase of the project. Potable water supply to site enters the Milestone property from the northwest. Potable water supply to site is through one buried 75 mm diameter coated carbon steel pipeline. The potable water supply pipeline runs to the process plant and into the potable water storage tank. From there, the potable water is distributed through the mill and to the administration building.

18.8 Electrical Substations and Power Distribution

The plant will be supplied with a 230 kV SaskPower service. The primary power distribution for the plant will be 25 kV and the primary utilization is 5 kV and 600 volts. The peak power demand is estimated to be approximately 50 megaVolt-amperes (MVA).

In case of a loss of normal power, continuous power supply for critical loads will be provided by 2 units, 2 megawatts (mW), 4.16 kV standby diesel generator. This system will be capable of restoring power within 10 seconds of losing the loads.

18.9 Natural Gas

The natural gas supply to site will require the installation of a new buried 250 mm diameter carbon steel yellow-jacketed, high-pressure pipeline. Natural gas supply to site will run approximately 2,500 m, from a tie-in point at the existing buried 250-mm-diameter natural gas pipeline west of the Milestone property. The supply pipeline will enter the Milestone property from the west, north of the rail yard, and run to the natural gas regulator station, located north of the administration building and parking lot.

From the natural gas regulator station, the supply is provided with two pressure systems. A higher-pressure system will supply the mill buildings boiler house facility. A low-pressure system reduced at the regulator station is distributed via buried carbon steel yellow-jacketed pipelines to the loadout building, maintenance shop, and administration building.

Natural gas consumption for the facility is estimated at 1,611 to 1,958 gigajoules per hour (GJ/h) for primary only and primary and secondary, respectively.

18.10 Communications

Cellular and land line telecommunication services will be provided to meet both voice and data communication requirements for the mine site. A temporary portable cellular tower will be provided when construction begins and during the construction period. Two types of landline services are available:

- Copper Line: A traditional multi-pair copper cable service that offers low start-up cost with the nearest demarcation point close by.
- Fibre Optic Line: Offers superior quality service over copper line due to its bandwidth. The nearest connection point for fibre optic service is near the Hamlet of Kronau. The service provider has estimated the cost of trenching and burying cable at $300,000.

19.0 MARKET STUDIES AND CONTRACTS

Western Potash commissioned CRU Strategies, the management consulting division of the CRU Group headquartered in London, England, in May 2012 to undertake a comprehensive study on the historical, current and forecasted demand and supply of potash and provide market price forecasts as part of the Feasibility Study. CRU Strategies is acknowledged as one of the leading market research firms within the global metals, mining, and fertilizer industries, providing independent product and market research and forecasting. Their report (CRU 2012) was released in August 2012 and is summarized in this section.

The Milestone Project is projecting a target annual production of 2.8 Mtpy of K62 potash, which is 98.1% pure KCl. Higher concentrations of nutrient in the final product typically attract higher prices. Production is assumed to begin in Q4 2016. Full production from primary mining is expected in 2018, followed by full primary and secondary production in 2022. The processing plant is designed to produce 80% granular and 20% standard product. Granular products typically attract higher market pricing.

Potassium chloride (KCl), otherwise known as muriate of potash (MOP), is the most common form of potassium fertilizer produced and used in the agricultural sector, accounting for about 90% of potash consumption. The other types of potash fertilizers include potassium sulphate (SOP) and potassium nitrate (KNO_3).

Simply, potassium—as one of the three primary nutrients (along with nitrogen and phosphorus)—is essential to proper plant growth. Specifically, the role that potassium plays in crop productions is extensive and complex. It:

- Increases root growth and improves drought resistance
- Aids in photosynthesis and plant food formation
- Reduces respiration
- Enhances the movement of water, nutrients and carbohydrates in plant tissue
- Increases protein content
- Helps retard crop diseases
- Enhances taste and nutritional qualities
- Is essential for early flower and fruit stimulation and formation.

If potassium is deficient or not supplied in adequate amounts, growth is stunted and yields are reduced. There are no substitutes for potassium as an essential plant nutrient.

19.1 Demand Forecast to 2020

In 2011, worldwide consumption of potash was 55.07 Mt and is forecast to fall slightly to 52.6 Mt in 2012. In the medium term (2012 to 2016), demand is forecast to rise by 2.1% annually with longer-term demand (2017 to 2020) reflecting 0.5% annual growth and reaching 70.52 million tonnes by 2020. The types and production levels of crops grown, crop prices and agricultural practices, and socioeconomic changes in key geographic markets influence the demand for potash fertilizer.

The amount of potassium consumed within the agricultural sector varies depending on the type of crop. Palm oil, sugar cane, fruits, and vegetables require higher application rates than other crops; however, cereal crops such as maize, rice, and wheat, as well as soy beans, account for a higher percentage of fertilizer usage because they are cultivated on such a large scale.

Market demand and other fundamental market changes drive shifts in the type of crops produced. For example, an increase in market prices for potassium-intensive crops such as soy beans or maize will have a direct impact on potash demand. Interest in biofuels (ethanol and biodiesel) as an alternative to fossil fuels has led to increased production of corn, sugar, and palm oil in the U.S., Malaysia, and Indonesia. Higher prices for agricultural products provide an incentive for farmers to maximize their yields and increase their ability to pay for fertilizers.

The other factor affecting demand is socioeconomic change within key potash markets, particularly Asia. Overall, Asia accounts for about 45% of potash demand, with India (12%) and China (21%) included among the four largest importers in the world. Rapid economic growth and the resulting increased urbanization have diminished the arable land available for agriculture. Along with higher per capita incomes has come a move from subsistence diets to more staple grains and protein-rich (meat) diets. Coupled with crop yields that consistently lag well below those of developed countries, this region will be compelled to dramatically increase its potash application rates to improve yields on a limited arable land base as it shifts to more potash-intensive agricultural products such as feed grains, fruits, and vegetables.

Given the rate of population growth in Asia, the implementation of better fertilization practices in Asia and South America and increased demand for, and production of, feed grains, oil palm, biofuel crops, fruits, and vegetables, CRU forecasts that the demand outlook for potash will increase to 70.5 Mt by 2020, a rise of 34% over forecast 2012 levels.

19.2 Supply Forecast to 2020

Potash production is concentrated in only a few distinct regions—North America, the three members of the Commonwealth of Independent States (CIS): Russia, Belarus, and Uzbekistan, Europe, South America, and the Middle East—and reached 55.1 Mt in 2011. Collectively, the six leading producing countries (Canada, Russia, Belarus, Germany, Jordan, and Israel) account for 97% of the global potash trade.

The potash industry in North America comprises 16 mines with a total capacity of 25 Mtpy. Ten are in Canada and six in the U.S. Other than one mine in New Brunswick, all potash production in Canada is in Saskatchewan where three companies control them—Potash Corp, Mosaic and Agrium. Canada is now the world's largest supplier, producing just over 18 Mt out of a global production of 55 Mt in 2011.

A gradual tightening of the supply/demand balance coupled with a spike in potash prices in 2008 encouraged interest in capacity expansion at existing mines and development of new mines. Subsequently, the potash market is now facing additional supply from brownfield and greenfield developments.

Most new capacity will result from expansions in Canada and the CIS. Production from existing mines will increase from 55.07 Mt in 2011 to 60.94 Mt in 2020. Production from greenfield projects will not have a significant impact on supply until 2015. Both Vale and BHP Billiton have shelved or postponed plans to develop greenfield projects (2.9 and 8.0 Mt, respectively) in Canada. The Milestone Project is well positioned, subject to project financing and construction, to supply potash to meet global demand.

19.3 Potash Price Forecast

The potash market is more oligopolistic (controlled by a small number of sellers) than free and hence the industry depends largely on published information for pricing information. The pricing of the export arm of the big three Canadian producers, Canpotex, used to be the benchmark price for potash (FOB Vancouver); however, this changed in the mid-1990s when Russia, Belarus, and Uzbekistan began to ship large quantities to deep-sea markets, competing with Canpotex and other exporters on a delivered basis. Since then, prices based with freight included (cost and freight, CFR) have become the industry benchmarks. Given that the ability to calculate an FOB price (delivered basis less ocean freight) is predicated on freight rates that vary widely depending on the destination, most price forecasts include a weighted average freight rate in calculating netbacks.

Prices for potash have risen to unprecedented levels in recent years, and the estimated average Canpotex netback rose from $US105/t in 2003 to $US498/t in 2008. Contract prices in the first half 2012 to China were purportedly at US$470/t.

The expansion of supply will result in a moderate surplus of capacity and have a slight dampening effect on price through 2017. The consolidated nature of the industry, however, is such that a few suppliers determine worldwide potash availability and suggests that the producer cartels will attempt to keep prices relatively stable through 2020. The current forecast is that nominal prices FOB Vancouver will fall below $US400/t by 2016, which in real terms is similar to the average prices at the bottom of the last cycle in 2010. Prices after 2017 are difficult to predict but CRU has calculated that CFR prices will reach $526/t in nominal terms by 2020, rising to $US584/t by 2025.

FOB Vancouver potash prices of $US450/t for standard grade, and $US470/t for granular grade (weighted as per product split) were used in the nominal economic analysis presented in Section 22. This is based on the 2012 weighted annual average standard grade potash price provided by CRU in their report. Based on the market forecasts presented in the CRU report, this assumption is reasonable.

19.4 Potential Markets

As part of the PFS completed during 2011 (AMEC 2011), a Market Tradeoff Study was completed by AMEC. The purpose of this study was to explore the potential markets for the KCl product from the Milestone Project. The intended market will affect the percentage of granular product produced and will impact the North American logistics. Three target markets were

considered: Asia, South America and North America. Regardless of the final market, rail service to the plant site will be required.

The Asian market is expected to increase consumption by 13.5 Mt by 2019, while increasing production by only 1.1 Mt in the same time period. Accordingly, imports are expected to increase by 12.4 Mt by 2019. To most efficiently reach the Asian markets, North American potash is shipped to the west coast by rail and then loaded onto freighters to be shipped to Asia. Since the Asian market typically demands standard product, a plant supplying product solely for this market would require minimal compaction capacity, and experience a reduction in the amount of capital required during construction. The Asian market is likely to be where the majority of the production from Milestone will be sold, based purely on market demand.

The South American market is expected to increase consumption by 5.9 Mt by 2019, while production is forecast to increase by 0.9 Mt during the same time period. Therefore, imports are expected to increase by 5 Mt by 2019. As with the Asian markets, potash destined for the South American market would be transported by rail to the West Coast and shipped by freighter. The South American market favors granular product, which from a plant design perspective would require a plant with compaction capabilities of between 80% and 100%.

North American demand is forecast to remain relatively constant through 2019. It would not be impossible for a new producer to enter this market; however, existing North American producers have well-established marketing networks, creating barriers to market entry for new producers.

19.5 By-Products Market

No by-products have been defined at the time of writing this report.

19.6 Marketing and Sales Contracts

No marketing or sales contracts are in place at the time of writing this report.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental Impact Assessment—Background

The Milestone Project is subject to two distinct environmental regulatory phases: 1) environmental assessment and 2) permitting. Submission of a 'Project Description' initiates the Environmental Impact Assessment (EIA) process. The Project Description is a conceptual description of the Milestone Project that allows the regulators to assess the project in general terms and make a determination of the level of environmental assessment required for the project. WPX submitted a Project Description to Saskatchewan Ministry of Environment (SMOE) in October 2011. The Project Description initiated the EIA process at the Federal and Provincial levels.

Based on a review of the Project Description, the Government of Saskatchewan determined that the Milestone Project is subject to an Environmental Assessment (EA) review under the Government of Saskatchewan Environmental Assessment and Review Process. The EA requirements and process for major industrial projects in Saskatchewan are well-understood by the project team and consultants. EA work is being completed by Golder Associates Ltd. and Canada North Environmental Services on behalf of WPX and includes an extensive program of site and regional baseline data collection in order to characterize the current site conditions and form the basis on which the environmental assessment in completed.

20.2 Public, First Nations, Metis and Regulatory Engagement

Engagement is an important aspect of the environmental assessment process as it provides an avenue to present information about the proposed Milestone Project to local residents, communities, First Nations and Metis Communities, and regulatory agencies. Similarly, it provides an opportunity for WPX to gather comments and concerns from various sources, and consider them during the design of the Milestone Project. Early in the Milestone Project, WPX determined that it was important to create and maintain relationships with local residents, communities, First Nations and Metis Communities who may be potentially affected by the Milestone Project. Consequently, the engagement approach was an integral component in the Milestone Project planning and environmental assessment process.

Various activities were carried out to establish and maintain engagement activities with members of the nearby communities. These activities included formal presentations, community information sessions, and informal meetings with nearby residents. Efforts were made to engage the communities and Rural Municipalities (RMs) located closest to the Milestone Project with the purpose of providing an understanding of the Milestone Project and the potential effects it could have on the region.

20.3 Environmental Assessment Process

In accordance with Section 2(d) of *The Saskatchewan Environmental Assessment Act* (SMOE 2012), WPX, as the proponent, submitted an Environmental Impact Statement to the SMOE on August 31, 2012.

In accordance with the *Canada-Saskatchewan Agreement on Environmental Assessment Cooperation* (2005), the Canadian Environmental Assessment Agency completed a survey of Federal departments with respect to determining potential EA interest in the Milestone Project. Based on responses to this survey, the Canadian Environmental Assessment Agency determined that in the absence of a Federal trigger, the *Canadian Environmental Assessment Act* (Department of Justice Canada 2012) does not apply for the Milestone Project. However, pursuant to Clause 38(1) of the Canada-Saskatchewan Agreement, some federal agencies, such as Transport Canada and Environment Canada may participate in the provincial Environmental Impact Assessment review.

Alternative means of carrying out certain aspects of the Milestone Project were considered early in the development planning, thereby providing a comparison of economic, environmental, and social benefits. Aspects of the Milestone Project for which alternatives were considered included:

- Milestone Project location
- Mining method
- Mine wellfield pipelines
- Mine well field waste storage
- Processing
- Tailings and brine management
- Tailings decommissioning
- Water supply
- Power options
- Transportation routes
- Railway route
- Workforce accommodation

The scope of the EA includes the activities and components associated with the construction, operation, and decommissioning phases of the Milestone Project. Construction activities comprise the establishment of surface plant, infrastructure and support facilities, which include:

- Production wells and piping
- The processing plant
- Utilities including water, gas, power, and communications, and
- access road and railway infrastructure.

Operational activities include:

- solution mining of the potash deposit and operation of the process plant,
- operation and maintenance of surface infrastructure and support facilities,
- brine and site water management, waste salt storage,
- temporary storage of industrial, domestic, hazardous, and contaminated waste, and
- transportation of the product by rail.

A conceptual Decommissioning and Reclamation Plan and supporting financial assurance mechanism will be submitted during licensing to the Ministry of Environment in compliance with the *The Mineral Industry Environmental Protection Regulations* (SOME 1996b).

A number of analyses were completed to evaluate the potential effects during the construction, operation, and decommissioning of the Milestone Project on valued components of the local environment. The overall environmental assessment approach progressed through the following steps:

- Identification of valued components (VCs), including valued ecosystem and socio-economic components, and associated assessment endpoints and measurement endpoints. A *valued component* is a component that is considered to be ecologically, culturally, socially, or economically important.
- Description of existing (baseline) conditions for environmental components so that changes resulting from the Milestone Project can be measured.
- Establishment of environmental assessment boundaries (i.e., spatial and temporal boundaries) and Identification of potential project-environment interactions, environmental effects pathways, and environmental design features and mitigation practices (i.e., pathways analysis)
- Residual effects analysis (i.e., assessment of project-specific effects and cumulative effects) and determination of significance
- Consideration of uncertainty and development of monitoring and follow-up programs to address the uncertainties and to verify the residual effect predictions

20.3.1 Identification and Evaluation of Valued Components

Through community engagement, a list of valued ecological and socio-economic components was developed for the Milestone Project. The valued components were selected to focus the environmental assessment because of their ecological, social, cultural, or economic value, and their potential vulnerability to effects from the Milestone Project. The overall determination of significance of effects from the Milestone Project on valued components was predicted by linking residual effects on measurement endpoints to the associated assessment endpoint.

20.3.2 Residual Effects Analysis and Determination of Significance

20.3.2.1—Atmospheric and Acoustic Environment

Construction, operation, and closure of the Milestone Project will result in emissions from combustion and dust sources including sulphur dioxide, nitrogen dioxide, particulate matter, and total suspended particulates. Sources of particulate emissions may include scrubbers, hydrocyclones, storage piles, dust collection vents, and rail loadout points. Environmental design features have been incorporated into the Milestone Project to control atmospheric discharges and limit potential impacts from air and dust emissions on the biophysical and socio-economic environments to meet regulatory standards.

The results of air quality modeling predict that ground-level concentrations of airborne emissions will not exceed the Saskatchewan Ambient Air Quality Standards (SMOE 1996a) or other applicable criteria. Therefore, the air emissions and dust deposition from the Milestone Project are considered to have a negligible residual effect on the environment.

Activities at the Milestone Project during construction, operations, and decommissioning are potential sources of noise. General sound sources associated with the construction of the Milestone Project include diesel-powered earth-moving equipment, hydraulic pile drivers and impact hammers, and pneumatic wrenches. Sound levels during construction will vary depending on the type (e.g., foundation pile installation, surface contouring, and vehicle traffic along the access road) and level of activity, and will be temporary relative to operations. The sources of noise likely to reach off-site receptors during operation of the mine and plant are road and rail traffic.

Expected noise levels at all the noise-sensitive receptors do not exceed the Alberta Energy Resources Conservation Board Directive 038 (ERCB 2007) Permissible Sound Level (PSL) criteria. These criteria were used as applicable or relevant and appropriate requirements (ARARs) since Saskatchewan does not have guidelines related to sound levels.

20.3.2.2—Hydrogeologic Environment

Environmental design features will be implemented to prevent lateral long-term seepage of brine from the tailings management area and may include the construction of bentonite-amended cutoff walls or recovery wells. The cutoff walls may be used to effectively isolate a brine plume from preferential groundwater flow zones. The recovery wells may be used to locally reverse hydraulic gradients beneath the tailings management area, such that hydraulic containment of a brine plume is maintained. These environmental design features provide two lines of defense against the release of brine from the tailings management area and can be used to contain brine along both deep and shallow seepage paths.

Overall, the Milestone Project is not expected to result in significant effects on the sustainability of groundwater for human use. Given the plan to install cutoff walls and/or recovery wells, and the ability to monitor potential plume development during operations and adapt mitigation strategies, long-term changes to groundwater quality are only expected to occur

within the footprint of the tailings management area, which will result in negligible effects to groundwater.

20.3.2.3—Surface Water Environment

The use of diverted treated effluent from the City of Regina is predicted to provide a net improvement to water quality downstream of the wastewater treatment plant (WWTP). The treated effluent is currently discharged to Wascana Creek, where it flows north and joins the Qu'Appelle River west of Lumsden, Saskatchewan. The Qu'Appelle River flows eastward through the Fort Qu'Appelle chain of lakes and eventually into Manitoba. The WWTP effluent currently contains residual concentrations of nutrients. The reduction in effluent volume will result in a gradual improvement in water quality in Wascana Creek and the Qu'Appelle River system.

Ground subsidence resulting from underground cavern development may occur over a period that may last several hundred years. Subsidence, should it occur, has the potential to alter the nature of existing surface flows. After implementing mitigation features, the magnitude of the effects of potential ground subsidence on the streamflow distribution is considered to be low. The maintenance of the Wascana Creek channel and flows through the local study area will reduce potential losses from the creek to subsided areas. Ground subsidence is anticipated to develop gradually over centuries and will be permanent once the area overlying the mine development is fully subsided. Overall, the Milestone Project is not predicted to have significant effects on the sustainability of the spatial and temporal distribution of water quantity for human use.

20.3.2.4—Terrestrial Environment

During construction, erosion control practices will be implemented to reduce potential erosion and sediment transport off-site. Soil salvage, stockpiling and transport can change physical, biological, and/or chemical properties of soil, and increase erosion potential. Salvaged topsoil will be kept on-site and may be seeded to provide a cover of temporary or permanent vegetation to protect against wind and water erosion and maintain soil quality. As a result of these environmental design features, localized residual effects to soils from salvage, stockpiling, and transport are not expected to result in changes to soil quality from baseline conditions and the soil capability to support agriculture and other plants can be maintained. The impacts are anticipated to be reversible upon decommissioning and reclamation.

Direct incremental residual effects to plant populations and communities are related to the loss or alteration of habitat in the core facilities area and mining area. Incremental residual effects from fragmentation of habitat from the core facilities and mining area will be local in extent and are predicted to change the area, composition, and spatial configuration of non-disturbed habitats in the existing landscape by less than or equal to 0.1%. The residual effects from fragmentation on plant populations and communities and wildlife habitat are predicted to be not detectable compared to baseline conditions. The effects from fragmentation will be reversible following decommissioning and reclamation activities.

Upon completion of the Milestone Project, site decommissioning and reclamation will take place, including the demolition, salvage, and/or disposal of site infrastructure and facilities. All on-site roads and stream crossing structures will be removed. The maximum amount of disturbed area from the Milestone Project footprint is predicted to be approximately 3,330 acres (1,347 hectares). Although there will be a localized loss and alteration of some soil types associated with the Milestone Project footprint, approximately 2,093 acres (825 hectares) are anticipated to be reclaimed following closure. Because these areas are expected to be reclaimed back to previous agriculture capabilities, there is likely to be no change or a small incremental change to the agriculture capability class when compared to baseline. Therefore, the incremental effects on plant populations and communities and wildlife habitat from the Milestone Project footprint are predicted to be similar to baseline conditions.

Incremental effects from residual ground disturbance on soils, plant populations and communities, and wildlife habitat are expected to be limited to the tailings management area and cooling pond and as such, it is expected that these changes will not result in adverse residual effects to plant populations or communities and wildlife habitat.

Overall, the Milestone Project is not predicted to have significant effects to the maintenance of soil capability to support agriculture and other plant communities, self-sustaining plant populations and communities, and self-sustaining wildlife populations.

20.3.2.5—Cultural Environment

The core facilities area is not considered to be heritage sensitive, although portions of the local study area were considered to be heritage sensitive. In addition, it was determined that the majority of the mining area has already been disturbed by cultivation and has low heritage potential. The Milestone Project will implement several environmental design features to limit the potential impact to heritage resources. Management options for any archaeological and/or heritage artifacts discovered during construction activities will be developed in consultation with the Government of Saskatchewan.

20.3.2.6—Socio-Economic Environment

Key issues related to the socio-economic environment include the following:

- Economic effects of the Milestone Project result from positive changes to employment, labor income, tax revenue, and gross domestic product at a regional and provincial level;
- Site clearing may result in changes to access and agricultural land use;
- Population change may result in changes in demand for housing, services, and infrastructure;
- The Milestone Project activities may result in increased traffic and affect the design capacity of roads; and
- The Milestone Project activities may result in changes to visual aesthetics, noise and air quality, which may affect the quality of life of local residents.

20.3.2.7—Economy

Direct, indirect, and induced economic and employment effects will occur at the regional and provincial level, as well as outside Saskatchewan. The benefits of employment during construction may be enhanced within the regional study area and at a provincial level if continued efforts are successful to encourage migration to Saskatchewan and to attract people to the trades. WPX is committed to preferential employment for residents of the local and regional areas and together with its contractors will establish a plan to provide maximum benefit to the region. The development of employment targets and strategies will enhance equitable opportunities for employment.

20.3.2.8—Housing, Services, and Physical Infrastructure

Depending on the level of regional activity, the effects from the resulting demand for housing may be significant. This can have positive effects on local business, but also negatively affect tourism, further decrease vacancy rates, and increase rental costs. WPX will continue to work with local municipalities to minimize the impacts on housing.

20.3.2.9—Education and Training

As a result of the Milestone Project's requirements for a suitably trained workforce, opportunities for training (e.g., engineering and trades) may be enhanced in the regional study area and the province. The increase in education and training opportunities is expected to have a slight, but discernible positive effect on regional socio-economic development during the construction and operation of the Milestone Project.

20.3.2.10—Traffic and Transportation Infrastructure

The effects on traffic due to construction will be mitigated by upgrades to the current road system. WPX is working with local municipalities and the provincial government on proposed road modifications/closures, new roads and rail lines, transportation routes, and travel times. Increases in traffic may cause an increase in the risk of collisions, particularly during the construction phase. Measures will be implemented to optimize the safety of local roads and highways during construction and operations.

20.3.2.11—Monitoring and Follow-up

Upon approval of the Milestone Project, activities will move to the licensing phase at which time monitoring and follow-up programs will be designed and implemented to reflect the nature of activities at the site.

20.3.2.12—Economic Assessment Summary

Based on the detailed Milestone Project information and assessment of impacts provided in this Environmental Impact Statement, WPX believes that the Milestone Project can be constructed, operated, and decommissioned in a manner that, taking into account environmental

design features and mitigation, is not likely to cause significant adverse effects to the biophysical or socio-economic environments.

20.4 Environmental Site Assessment

A comprehensive third-party Phase I Environmental Site Assessment (ESA) was completed for the plant site by Clifton Associates, Ltd., of Regina, Saskatchewan.. The ESA conforms to Canadian Standards Association (CSA) guidelines for the performance and completion of Environmental Site Assessments (CSA 2012). Based on the results of the ESA, WPX is unaware of any historical environmental contamination associated with the project site.

20.5 Permitting Requirements

Following EA review and approval, construction and operating approvals are required for certain parts of the operation. The majority of environmental project permitting requirements for potash mine developments in Saskatchewan falls mainly under the authority of the Saskatchewan *Environmental Management and Protection Act* (EMPA) (SMOE 2002) . Specifically, *The Mineral Industry Environmental Protection Regulations* (SMOE 1996) that implement the EMPA specify that permits are required for certain activities during the construction, operations and closure phases of a mining project.

An approval to construct a "Pollutant Control Facility" is required under Section 6 of the *The Mineral Industry Environmental Protection Regulations.* Section 2(m) of *The Mineral Industry Environmental Protection Regulations* defines a Pollutant Control Facility as:

> *…a facility or area for the collection, containment, storage, transmission, treatment or disposal of any pollutant arising from any mining operations or from the development of or the exploration for any mineral, and includes environmental protection components of;*
>
> *(i) a mine or mill;*
> *(ii) a tailings management area;*
> *(iii) an ore storage facility;*
> *(iv) a waste rock disposal area;*
> *(v) a mine overburden or spoil disposal area;*
> *(vi) a waste treatment plant;*
> *(vii) a fuel storage facility;*
> *(viii) a chemical storage facility;*
> *(ix) a waste sump;*
> *(x) a site drainage control;*
> *(xi) a groundwater dewatering system;*
> *(xii) any equipment used for exploration; and,*
> *(xiii) all associated machinery and equipment, including pumps, pipes, conveyors, launders and ditches used in connection with facilities or areas mentioned in subclauses (i) to (xii).*

A person who wishes to construct, install, alter, extend, operate or temporarily close a pollutant control facility or decommission and reclaim a mining site shall meet the requirements of and obtain the approvals outlined in Sections 5 & 6 (construction) and Sections 7–10 (operation) of *The Mineral Industry Environmental Protection Regulations* (SMOE 1996). The application requirements and processes for construction and operating approvals are well understood by the project team and consultants. It is anticipated that all required construction and operating approvals will be acquired within the scheduled timelines.

In addition to the above provincial permits, other minor permits may include:

1. An aquatics habitat protection permit (under EMPA) related to any stream crossings, wetland changes and any potential surface water intakes prior to construction from the Saskatchewan Water Security Agency (WSA).
2. Permits from WSA for any water diversion.
3. A permit from Saskatchewan Ministry of Economy -- Energy and Resources for the construction and operation of a disposal well.

As described in section 20.3, there is no additional Federal EA assessment required for the Milestone Project. For construction and operations, Federal permitting may be required for rail construction.

Utilities including power, gas, telecommunications and water are being provided by utility providers and therefore will be managed as separate from the main project. There will be no Federal involvement in the supply of power, gas and telecommunications.

At the Municipal Level, changes will be required to the Rural Municipality of Lajord development plan and zoning bylaws that must be approved by the RM and the government of Saskatchewan.

20.6 Results-Based Regulations

MOE is developing a new environmental regulatory process termed “Results Based Regulatory (RBR) reform.” The RBR process essentially moves the regulatory process from a prescriptive process to one of performance codes. For certain activities, WPX will be required to meet performance codes rather than prescriptive measures dictated by MOE (as is currently the practice).

WPX anticipates the RBR process will be beneficial to the construction and operation of the Milestone project because the process endorses environmental performance that takes into account site-specific conditions and project design criteria rather than prescription guidelines and objectives that apply to the entire province.

21.0 CAPITAL AND OPERATING COSTS

The Capital Cost estimate is based on the following:

- Process flow diagrams
- Project scope of facilities
- Equipment list
- Design criteria
- General arrangement drawings
- Piping and instrumentation diagrams (P&IDs)
- Electrical single-line diagrams
- Supplemental sketches where required
- Major equipment budget quotations from vendors
- Budget pricing for bulk materials
- Geotechnical and hydrogeological reports
- Regional climatic data
- Discipline material takeoffs
- Project development schedule
- Project execution plan
- Project work breakdown structure (WBS)
- AMEC's in-house data

It is assumed that plant and other site construction will be performed by contractors under the supervision of an engineering, procurement and construction management (EPCM) contractor.

Costs are given in Canadian dollars (Cdn$) and prices are given in United States (US) dollars ($), but parity between the two currencies is assumed.

The purpose of escalation in the estimate is to take into account factors such as inflation and changes in commodity prices. The overall escalation was supplied by WPX at $204.8 million, equivalent to 2.4% compounded annually. AMEC performed an initial contingency analysis using a risk analysis program (@RISK) to generate a range of probable costs. The contingency was determined to be 12.1% based on the 85th percentile of the risk simulation results. A contingency of $342.0 million was applied to the CAPEX estimate.

Indirect costs for EPCM and Owner's Cost items were included in the Estimate based upon experience with ongoing or historical potash projects. Construction-related indirect costs were factored from total project construction labour hours, and benchmarked from historical data and recent potash projects of similar size and scope. Labour rates were benchmarked from current and historical Saskatchewan project experience. Significant changes in labour availability and rates will directly affect the CAPEX. Where data was available costs were calculated based on quantity, unit rate and duration. EPCM services normally include:

- Project management
- Construction management
- Engineering

- Project services (procurement, cost control, document control, estimating, scheduling, IT services, administration)

Owner's costs were provided by WPX and normally include:

- Commissioning
- Escalation
- Risk allocation
- Major spares costs
- First fills costs
- Sales tax
- Financing costs
- Insurance costs
- Environmental costs

The capital cost estimated for the Milestone Project is summarized in Table 10.

Table 10. Milestone Project Capital Cost Estimate

Description	Total Direct Hours	Total Subcontractor Hours	Total Direct Labor Cost ($M)	Total Material Cost ($M)	Total Subcontractor Cost ($M)	Total Construction Equipment Cost ($M)	Total Provision Cost ($M)	Total Cost ($M)
Mining	933,994	184,306	$131.19	$117.24	$202.04	$17.37		$467.8
Site grading and general	59,211	10,367	$8.11	$17.42	$3.67	$1.82		$31.0
Processing plant	3,059,022	20,326	$450.18	$501.24	$21.35	$86.82		$1,059.6
Waste salt management	164,616	636	$23.01	$16.64	$4.68	$8.00		$52.3
Utilities	520,173	12,440	$75.51	$71.09	$3.34	$12.63		$162.6
Ancillary services facilities	195,142	0	$26.90	$29.83	$0.00	$3.63		$60.4
Off-site facilities	450,995	24,358	$61.78	$41.52	$36.87	$11.53		$151.7
Subtotal direct costs			$776.68	$794.98	$271.95	$141.80	$0.00	$1,985.4
Indirects		2,754,715			$493.85			$493.9
Owner's costs					$268.93			$268.9
Contingency							$342.02	$342.0
Escalation							$204.80	$204.8
TOTAL	5,383,153	3,007,148	$776.7	$795.0	$1,034.7	$141.8	$546.8	$3,295.0

The mine and surface operations for this project will operate as an integrated facility under the direction of a locally based General Manager and operations team. Normal operations will include:

- Mine planning and operation
- Production drilling for cavern development
- Well field operation
- Processing of brine to produce agricultural grade potash
- Storage of product
- Loading of product and traffic control

- Management of tailings, brine and other waste materials
- Environmental management

Fixed operating costs are the costs associated with nominal capacity, including labor and maintenance supplies. Personnel are assumed to consist of 117 salaried staff members, and 222 hourly paid personnel in 4 shifts, to allow continuous operation. Personnel costs include 35% payroll burden to cover benefits and allowances. An allowance for 8% overtime at a premium of 50% was allowed for hourly paid personnel. Maintenance material costs have been calculated on the basis of the total value of priced equipment in the equipment list, including the value of elements in the evaporation and crystallization circuits subject to wear.

Variable operating costs are dependent on production rates, and include power, energy, raw materials and consumables. The primary raw material for production of potash is the potash-rich brine generated on-site from the well field. Secondary requirements are water, fuel, energy and reagents as discussed in previous sections.

The power consumption estimate for surface operations has been calculated based on an assessment of the load profile used to determine the power supply for the project. The cost has been calculated based on SaskPower's E25 rate, which consists of a monthly base charge of $6,750 plus a demand charge of $5.82 per kilovolt-ampere plus a usage charge of $0.04651 per kilowatt-hour. Annual consumption and demand charges were calculated by applying usage factors to connected loads, assuming the consumption will be 85% of the maximum level, and the plant will operate 8,200 hours per year. The monthly demand charge was based on 95% of the maximum MVA.

Natural gas consumption was calculated from the information provided by the process vendor with additional calculated loads for drying product and an allowance for additional loads such as building heat and auxiliary water heating. An efficiency of 80% was applied for boiler and dryer efficiency. The natural gas price was set at $4.00/gigajoules (GJ) based on actual and forecasted Alberta gas trading prices (AECO-C). The rate included allowance for transportation to Saskatchewan. Any significant changes in natural gas price will directly affect OPEX as natural gas is a significant portion of OPEX.

A water supply was secured under an agreement to use City of Regina treated effluent as the source of raw water. It will be transported to site by pipeline. It is assumed that the pipeline will be operated by the City of Regina, but that Western Potash will be responsible for the capital cost of the line in order to secure the most favourable rate for water consumed. The rate used for this study is $0.35/m^3. The pipeline is contingent on acquiring pipeline rights-of way.

The primary component in the consumable category is reagents. For the process described, the significant reagents are flocculent, dedusting oil, and anti-caking agents applied to the finished product before shipping to prevent degradation during transportation. The allowance is based on a recommendation from Whiting, for flocculent, and AMEC's work on other projects. Allowances have been included for consumption of diesel fuel required for mobile equipment used to manage the salt pile, maintain roads and other civil structures, and move railcars. The allowance for other commodities includes:

- Hydraulic and lube oil used in the process plant
- Screen and sieve cloth and panels for all sizing equipment
- Bags for bag house dust collectors
- Lines, apex and vortex finders for Hydrocyclones
- Process plan control room and office supplies
- Personal protective equipment

Well field operating costs include allowances for fuel, surveys, workovers (all aspects), and sonar surveys. Directly paid personnel, power and maintenance materials have been included with the site-wide requirements. Costs were based on 3.22 years of primary mining with 37 caverns and 5.15 years of secondary mining with 54 caverns. The diesel is used in primary mining to control the cavern roof. Wireline trucks will be used to determine the elevation of the diesel blanket for an accurate cavern roof height. A 140-mm pipe will be used to suspend the downhole pump used for secondary mining. Workovers are operations such as fracturing that are intended to increase the production from a cavern. Sonar is used to determine the size of the caverns. Two sonar readings per year per cavern are assumed.

Operating cost estimates have been developed for the potash mining and processing circuit previously described. Estimates are presented for nominal 2.0 Mtpy with primary mining only and 2.8 Mtpy with primary and secondary mining. Operating costs shown are annual costs, operating at full capacity. Unit costs are expressed as Canadian dollars/product tonne. Unit cost is averaged over 1 year, as there are slight seasonal variations to these rates. The estimated annual operating costs are summarized in Table 11. Estimated unit costs are summarized in Table 12.

In addition to the operating costs shown in Table 11 costs for rail, port and rail cars were also included at $59.00/t.

Table 11. Estimated Annual Operating Costs for the Milestone Project

Annual Operating Costs	Primary	Primary and Secondary
Plant capacity (tpa)	2,000,000	2,800,000
Product grade (% K_2O)	62.0%	62.0%
Labor ($)	39,348,000	41,795,800
Repair supplies ($)	10,646,000	11,946,000
Power ($)	23,902,900	26,246,000
Natural gas($)	52,855,300	64,233,900
Water ($)	4,486,400	4,662,900
Consumables ($)	9,556,300	13,202,600
Well field operation ($)	8,475,300	12,305,800
Total Operating Costs ($)	**149,270,200**	**174,393,000**

Table 12. Unit Costs used in Estimating Operating Costs

Unit Cost (CAD$/t)	Primary	Primary and Secondary
Labour	19.67	14.93
Repair supplies	5.32	4.27
Power	11.95	9.37
Natural gas	26.43	22.94
Water	2.24	1.67
Consumables	4.78	4.72
Well field operation	4.24	4.39
Total Unit Cost	**74.64**	**62.28**

22.0 ECONOMIC ANALYSIS

The results of the economic analysis discussed in this section represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Such risks include commodity price, and availability of port capacity, rail, water, and project financing.

22.1 Inputs to the Financial Analysis Model

22.1.1 Assumptions

The economic analysis was based on the following assumptions:

- The economic analysis is based on a 100% equity scenario.
- Potash production is 80% granular and 20% standard.
- Pricing for standard product is USD$450/t, FOB Vancouver.
- Pricing for granular product is USD$470/t, FOB Vancouver
- There will be no expansion beyond 2.8 Mt/y.
- The project life is 43 years, including 40 years of production.
- Consideration was given to the expected timing of construction expenses as well as deferred CAPEX.
- OPEX and sustaining CAPEX are included in the models.
- Insurance during construction is included in the models.
- The cash flows include taxes and royalties.
- Transportation to port costs are included under the OPEX section of the cash flow.
- All figures included in this section are quoted in Canadian Dollars, except potash price which is quoted in US Dollars; a US:Canadian dollar exchange rate of 1:1 is assumed.
- Economic analysis based upon a mine plan developed during the study that contemplates mining only Measured and Indicated Resources.

22.1.2 Construction Period

Construction begins in Year 1 of the model, corresponding with 2013. Construction of the process plant will take place between Q3 2013 and Q2 2016. The initial drilling program will be executed in 2014 and early 2015. Plant commissioning will occur in Q3 2016 with initial production occurring in Year 4 corresponding to Q4 2016.

22.1.3 Production Ramp-up Period

Production ramp-up to 2.8 Mt/y is expected to occur over six years, as shown in Figure 20. This is to allow ample time to develop sufficient secondary mining capacity. The first year of full production at 2.8 Mt/y is expected to be Year 10, corresponding to the year ending Q4 2022.

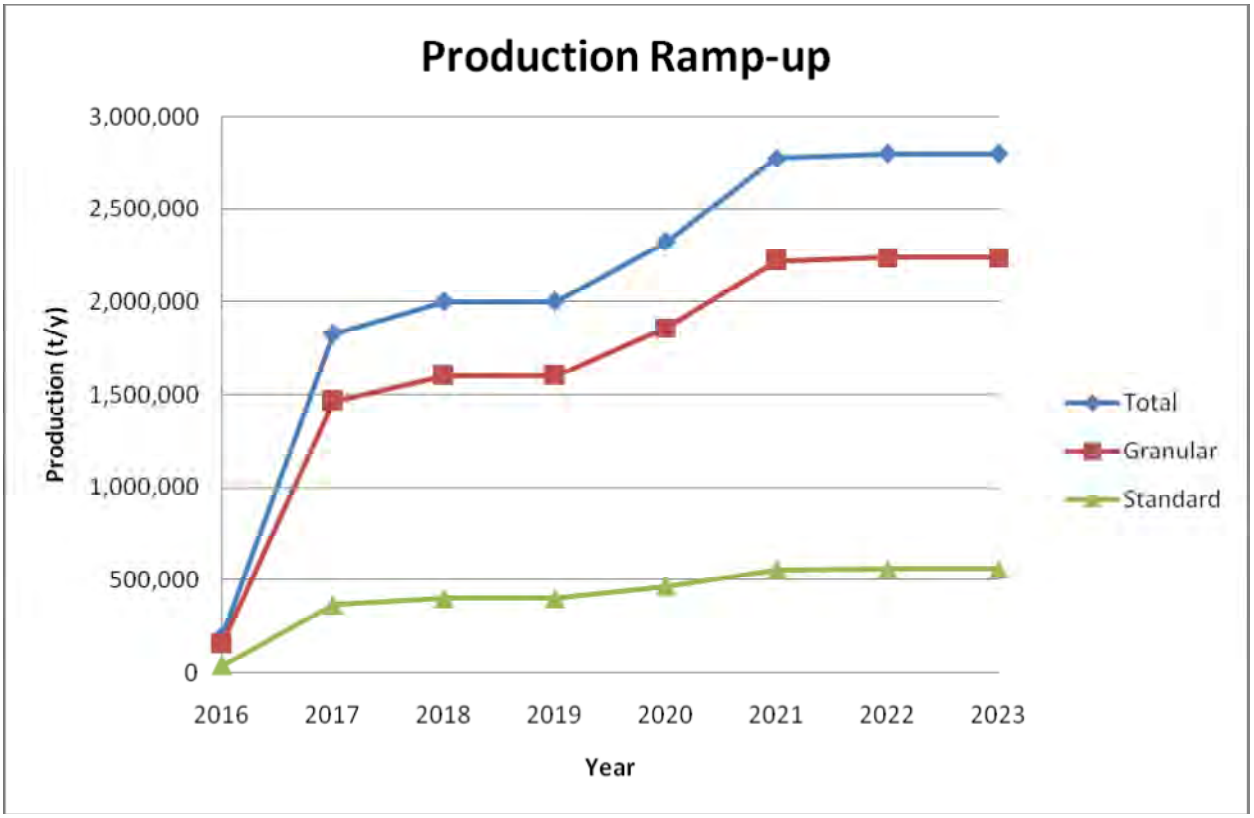


Figure 20. Production Ramp-up Schedule

22.1.4 Sustaining CAPEX

Sustaining capital is included in the analysis. For well field operations, the sustaining capital is the cost associated with continuous expansion as caverns are converted from primary to secondary operation and eventually phased out. The cost per year of adding 12 new caverns with associated support facilities will be $79.8 million, equivalent to $28.49/t of product.

For large industrial plants, sustaining capital expenses are generally estimated as a factor of the replacement cost of the entire plant. For a fully established potash plant, a typical factor for sustaining capital costs is 2.0% of replacement cost. A relatively new plant requires a minimal level of sustaining capital. Therefore, the following assumptions have been included in the model:

- Sustaining capital remains flat at 0.5% of replacement cost for the first 10 years of operation, corresponding to Years 5–14 of the cash flow model.
- Sustaining capital ramps up from 0.5 to 2.0% of replacement cost between Years 15 and 24 of the model.
- Sustaining capital expenses are expected to level out after Year 24 of the model.

22.1.5 Operating Costs

Operating costs for the project are discussed in Section 21.0 of this Technical Report. Annual operating costs were estimated to be $62.28/t once the annual production rate of 2.8 Mt was reached. This cost does not include transportation to port. Annual rail and port costs were estimated to be $59.00/t which includes the port operator return on capital.

22.1.6 Capital Costs

Capital costs are detailed and summarized in Section 21.0 of this Technical Report. A summary of these costs are presented in Table 13[3]. Note that the amount shown for Year 2018, which is expected to be the first year of production, represents deferred CAPEX, and the total estimated outlay for Years 2013 through 2016 of $2.909 billion represents the initial CAPEX. The CAPEX includes an escalation value of $205 million. Salvage value was incorporated into the CAPEX—for example, selected construction equipment will be sold after construction at a planned salvage value of 25% of purchase cost. Working capital is considered to be a temporary use of funds, incurred at the startup of operations and intended to fund mining and production operations until the receipt of revenues. Working capital was assumed to be drawn from sustaining capital funds.

Table 13. CAPEX Summary by Year

Year	CAPEX ($M)
2013	$418.2
2014	672.2
2015	934.8
2016	883.3
2017	43.5
2018	343.0
TOTAL	**$3,295.0**

A capital carryover allowance was added to convert the committed costs to actual costs. It was assumed that all work completed in November and December of any calendar year would not be paid (and therefore expensed) until the following calendar year. Therefore, one quarter of

[3] The estimate for 2013 is based on completion of all civil earthworks, as well as a large portion of the belled pilings for building foundations in 2013. The number includes about $263M of direct costs and $155M of indirect costs, including owner's costs, contingency and escalation.

all CAPEX scheduled for 2013, and one sixth of all CAPEX scheduled for subsequent years, is carried over to the following year in the economic model.

Financial provision for reclamation must be made during operation. The amount of closure provision is estimated according to World Bank standards as 10% of the total capital cost. An allowance of $330 million was included in the final year of the economic model to cover reclamation capital costs associated with the mine.

22.1.7 Taxes and Royalties

Four taxes were included in the cash flow. In addition to corporate income tax, WPX is subject to three specific resource taxes. Saskatchewan's general tax rate on corporate taxable income is 12%. Under the Potash Production Tax Schedule of the Saskatchewan Mineral Taxation Act, 1983 and the Potash Tax Regulations introduced in 1990, there are three taxes that would apply to the Milestone Project:

- Base payment production tax
- Profit tax
- Royalties

The base payment and profit tax are considered to be potash production taxes.

The base payment is a monthly payment based on estimated sales for the year, with a rate in 2011 that has a minimum payment of $11.00/t and a maximum payment of $12.33/t sold of K_2O. As a new producer, however, Western Potash would be exempt from paying this tax for 10 years, providing its production capacity exceeds 122,000 t of K_2O per year.

The profit tax is a progressive payment based on net profit from mine operation, with the rate of tax based on per tonne profit, net of base payments, corporate allowance (currently 2%), corporate office incentive, depreciation allowance (120% on new capital expenditures in excess of 90% of a company's 2002 capital expenditures), loss carry-forward (to a maximum of 5 years), research and development tax credit (40% of approved expenditure) and royalties. The profit tax rate payable in 2011 was 15% on profit up to $59.55/t of K_2O and 35% for profit over $59.55/t of K_2O.

Royalty rates payable under Section 38 of The Subsurface Mineral Regulations (1960), to the province of Saskatchewan vary between 4.25% and 9.0% of the sale value (US$ FOB mine gate), depending on the grade of the ore and value of production on land with Crown mineral rights. Based on drilling results, the grade from the Milestone Project is less than the 21% K_2O grade threshold and the corresponding rate of royalty will be the lowest level of 4.25%. This gross royalty rate is subject to a 51% write-off for operating costs, effectively putting the net royalty rate at around 2.1%. Royalty rates in respect of production from freehold subsurface mineral leases will reflect the same level as those paid for production from Crown lands.

Mining activities are also subject to other federal and provincial taxes, such as the GST, PST, less applicable allowances, credits, and deductions. Although Saskatchewan no longer imposes a capital tax on corporations (it was eliminated in 2008), it does apply a 3% resource surcharge based on the value of fiscal-year resource sales, including potash, oil, natural gas, uranium and coal, for companies with gross assets of $100 million or more (as determined by its balance sheet for income tax purposes) and a positive taxable paid-up capital balance. A resource company with gross assets under $100 million may deduct sales up to $2.5 million from its value of resource, the amount being the lesser of the value of resource sales and $2.5 million less the proportion of salaries paid outside Saskatchewan. In the case of potash, the value of resource sales (gross revenue) is determined by Section 5 of The Potash Production Tax Regulations.

22.2 Cash Flow and Financial Valuation Analysis

The project was evaluated using a nominal discounted cash flow (DCF) analysis. All Q4 2012 real values for revenues and costs have been inflated at a flat rate of 2.0% per year. CAPEX was not inflated, as it already includes a substantial allowance for escalation. Construction insurance allowances were also not inflated. Cash inflows consisted of annual revenue projections for the mine and for 3.5 years of preproduction. Cash outflows such as capital, operating costs, taxes, and royalties were subtracted from the inflows to arrive at the annual cash flow projections. Annual net cash flow (NCF) projections were discounted back to the project valuation date using an assumed nominal discount rate of 10%. The discounted present values of the cash flows were summed to arrive at the project's net present value (NPV).

The economic results yielded an after-tax NPV of CAD$2.44B at a discount rate of 10%, an internal rate of return (IRR) of 18.6%, and a payback period of 5.6 years. On a before-tax basis with the 10% discount rate, the project yields an NPV of $CAD 3.6B and an IRR of 21%. The project economic results are favorable and the authors of this report are of the opinion that the project is of sufficient size and grade to support primary and secondary potash solution mining for more than forty years at an ultimate production rate of 2.8Mt/yr, and is economically viable. As a result of the mine plan and favorable economic results developed and presented in the study, a portion of the previously reported Measured and Indicated Resources were upgraded to Proven and Probable Reserves, respectively, as discussed in Section 15.0 of this report.

22.3 Sensitivity Analysis and Risks

A sensitivity analysis was performed on the economic analysis taking into account variations in the potash price, operating cost, capital cost, and discount rate. Analysis shows that the Milestone Project is most sensitive to changes in potash price, as this directly affects the revenue stream. A significant change in potash price will impact the project economics accordingly. The project is less sensitive to changes in capital expenditure and least so to changes in operating cost. The sensitivity to changes in capital costs is due to the high up-front capital investment required. Exchange rate sensitivity was not considered and a one-to-one conversion between Canadian and US dollars was assumed. Sensitivity to grade was assumed to be identical to sensitivity to price. Tables 14 and 15 evaluate the key economic sensitivities of

the Milestone Project. Because the analysis is based on a cash flow estimate, actual financial results may vary from these predictions.

Table 14. Project Potash Price, OPEX, and CAPEX Sensitivities

	NPV_{10} ($CAD billions)	**IRR (%)**
Base Case Discounted Nominal Cash Flow Model	2.44	18.6
10% Increase/Decrease in Potash Price	3.09/1.79	20.5/16.5
10% Increase in OPEX	2.34	18.2
10% Increase in CAPEX	2.25	17.3

Table 15. Project Discount Rate Sensitivities

	NPV_9	**NPV_{10}**	**NPV_{11}**
Nominal After-tax NPV ($CAD billions)	3.09	2.44	1.91

23.0 ADJACENT PROPERTIES

Lease KLSA 008 is bordered to the south by unpermitted land, to the east by Permit KP 405 held by a joint venture between North Atlantic Potash Inc. (a subsidiary of JSC Acron) and Rio Tinto, to the north by Permit KPSA 001 held by K+S Potash Canada, Permit KP 353 held by BHP Billiton Diamonds Inc. and Permit KP 336 held by Vale Potash Canada Ltd. (Kronau Project), and to the west by land without a potash permit. On December 3, 2012, Vale announced that it planned to divest its Kronau Project assets (Industrial Minerals 2012). Since 2008, Vale and previous permit holder Kennecott have drilled 19 drill holes that penetrate the Prairie Evaporite Formation on Permit KP 336. Rio Tinto recently (2011) drilled several holes in KP 405. Information on the potash thicknesses and grades encountered in these holes is confidential. The locations of the adjacent permits are shown on Figure 21.

The plant site of the Belle Plaine solution mine operated by Mosaic is approximately 50 km northwest of the estimated centre point of KLSA 008. This mine has been in operation since the early 1960s, and currently produces 2.3 Mtpy of KCl (Mosaic 2012). Mosaic plans to expand its production capacity at Belle Plaine by 0.6 Mtpy of KCl by 2016 and by a further 1.5 Mtpy sometime after 2018 (Mosaic 2012).

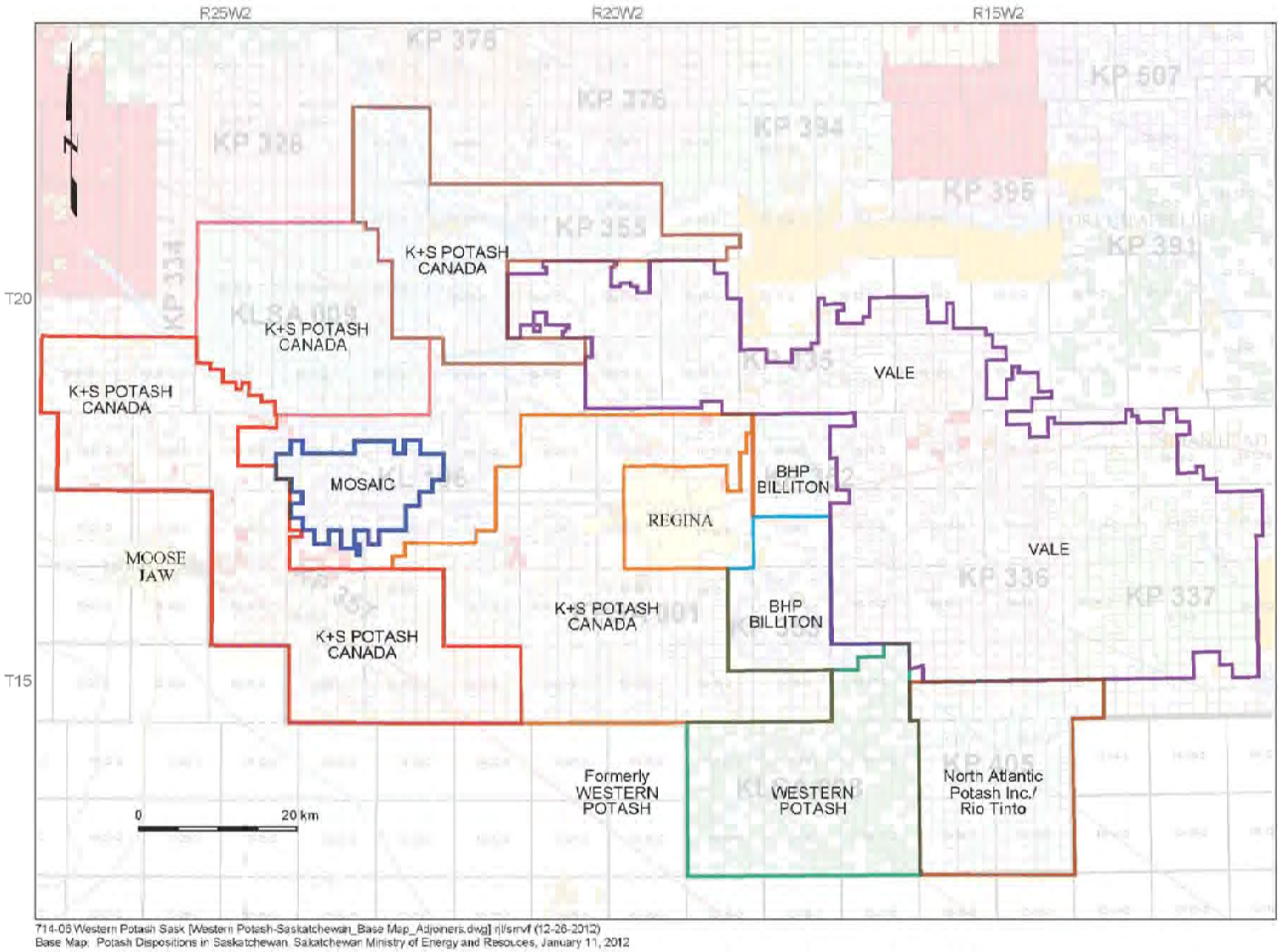


Figure 21. Adjacent Properties

24.0 OTHER RELEVANT DATA AND INFORMATION

Potash (MOP) is commonly marketed as K60, which is defined as potash with 60% K_2O content. Pure KCl contains 63% K_2O (or K63). To be sold as K60, MOP must have KCl content equal to or greater than 95%. The remaining 5% content of K60 is NaCl and other impurities. Resources can be specified as tonnes KCl or tonnes K60. To convert tonnes KCl to tonnes K60, multiply by 1.0526. Potash producers may opt to produce potash that is purer than K60, especially if their processing plants have evaporator/crystallizer units. To convert from any K_2O content to %KCl, divide by 0.6317. For example, 62% K_2O (K62) contains 98.1% KCl.

In comparing plant capacity with the reserves to estimate the life-of-mine, the reserve tonnes must be divided by the plant capacity in tonnes of KCl per year.

25.0 INTERPRETATION AND CONCLUSIONS

25.1 Exploration, Drilling and other Studies

Potash mineralization, in the form of sylvite-bearing sylvinite rock, is projected to be present underlying parts of the KLSA 008 Lease area. The potash-bearing sylvinite rock is mineralogically simple and consists of a mechanical mixture of sylvite, halite, with minor amounts of carnallite ($KCl.MgCl_2.6H_2O$) and insolubles such as clay, dolomite, and anhydrite.

All eleven of the wells drilled by WPX within the KLSA 008 Lease area penetrated the potash-bearing beds and ten have sufficient assayed core to allow the estimation of potash mineralization thickness and grade. The beds considered to be amenable to solution mining of potash are, in descending order, the Patience Lake Member, the Belle Plaine Member and the Esterhazy Member. The Esterhazy Member has high carnallite grades in some wells (see below) but brines can be blended to minimize the effect of the carnallite.

Following are the thickness and weighted average potash, carnallite (as carnallite mineral, ($KCl.MgCl_2.6H_2O$), and insolubles grades for the individual potash members based upon averages of the values for 10 wells:

- Patience Lake Member: 10.55 m averaging 17.97% K_2O, 0.64% carnallite, and 10.92% insolubles
- Belle Plaine Member: 4.40 m averaging 18.53% K_2O, 0.56% carnallite, and 4.32% insolubles
- Esterhazy Member: 5.68 m averaging 20.96% K_2O, 4.00% carnallite, and 3.96% insolubles
- Patience Lake and Belle Plaine Members including waste interbeds: 17.89 m averaging 14.42% K_2O, 0.58% carnallite, and 8.46% insolubles
- Patience Lake and Belle Plaine Members excluding interbeds: 14.98 m averaging 18.15% K_2O, 0.61% carnallite, and 8.83% insolubles.

Laboratory geotechnical (creep and strength) tests were performed by RESPEC of Rapid City, South Dakota. The laboratory study comprised four types of mechanical properties tests on core recovered from the Milestone Project in Saskatchewan, Canada. The mechanical testing consisted of (1) 50 BRZ indirect tensile strength tests, (2) 29 CSR compressive strength tests, (3) 17 tests of CMC, and (4) 24 triaxial compression creep tests. The results of the CMC tests were compared to a dilation criterion (Van Sambeek et al., 1993) typically used for salt and potash and found to be consistent. The creep tests consisted of tests on various halite zones and on potash at temperatures of 65°C and 75°C. Steady-state axial strain rates were estimated for all the tests, which were run for 30 to 60 days. The strain rate data from the creep tests were fitted to the Munson-Dawson multi-mechanism creep model (Munson and Dawson 1979) developed for the US Department of Defense Waste Isolation Pilot Plant (WIPP). The results of the creep tests are used in modeling studies examining the dimensions and closure potential of the caverns.

Laboratory dissolution testing of core samples was performed in 2011 and in January 2012 by NG Consulting of Sondershausen, Germany. The samples were collected from the Patience Lake Member, the interbed between the Patience Lake and Belle Plaine Members, the floor below the Belle Plaine Member, the interbed above the Esterhazy Member, the Esterhazy Member, and the basal salt below the Esterhazy Member. The results of the testing indicated that:

- Dissolution rates ranged between those for pure sylvinite and pure halite and correlated well with theoretical data.
- Dissolution rates of the WPX samples fell in a range similar to that for common sylvinite from other deposits.
- No significant difference was observed between dissolution rates for the Patience Lake, Belle Plaine, and Esterhazy Members.
- Roughly 20% higher dissolution rates were observed for 75°C compared to 60°C.
- The presence of insoluble material, e.g. anhydrite, reduced the dissolution rate by up to 30%.
- The dissolution testing provided a preliminary relationship between dissolution rate and KCl content of the sylvinite at 60°C and 75°C.

25.2 Mineral Resources and Mineral Reserves

Measured and Indicated Resources surrounding wells M 003 through M 009 have been upgraded to Proven and Probable Reserves, respectively. Mineral Reserves for the proposed solution mining intervals (Patience Lake, Belle Plaine, and Esterhazy Members including interbeds) are estimated to be as follows (based on a cutoff grade of 15% K_2O or 23.8% KCl):

- Proven Reserve: 35.8 Mt of KCl, or 36.0 Mt K62
- Probable Reserve: 101 Mt of KCl, or 103 Mt K62

The Proven and Probable Mineral Reserves are based on the mine plan and geologic model that accounts for local variability of grade and thickness of individual caverns. The Proven and Probable Reserves were adjusted downwards by 5% and 9% respectively to account for unknown anomalies. The Reserves account for KCl recovery from the caverns, plant recovery and losses between the plant and the port.

The Measured, Indicated and Inferred Mineral Resources are reported exclusive of Mineral Reserves. The Proven and Probable Mineral Reserves were upgraded from Measured and Indicated Mineral Resources, respectively, as discussed above. The resources have been classified based on the volume of potash in a cylinder centered on each available cored and assayed drill hole with an ROI based on best available practices similar to that adopted by Mosaic at their Belle Plaine operations. The Measured, Indicated and Inferred Mineral Resource estimates were based on the radius from the cored drill holes, the thickness and grade of the selected solution mine interval, removals to adjust for known geological anomalies, mineral title

and allowances for surface infrastructure, and loss factors to account for unknowns. Most of the previously defined Measured and Indicated Mineral Resources in earlier NI 43-101 Technical Reports, (see Hardy et al. 2012), have been classified as Proven or Probable Reserves by the FS so only the areas around M 001, M 002 and M 002A are classified as Measured and Indicated Mineral Resources; the areas beyond the ROI for Indicated Resources are still classified as Inferred Mineral Resources.

Mineral resources for the intervals amenable to solution mining (Patience Lake, Belle Plaine, and Esterhazy Members including interbeds) are estimated to be as follows (based on a cutoff grade of 15% K_2O or 23.8% KCl):

- Measured Mineral Resource: 226 Mt in-place sylvinite grading 21.11% KCl, or 13.36% K_2O (16 Mt of recoverable KCl, or 10 Mt recoverable K_2O)
- Indicated Mineral Resource: 530 Mt in-place sylvinite grading 21.66% KCl, or 13.71% K_2O (37 Mt of recoverable KCl, or 23 Mt recoverable K_2O)
- Inferred Mineral Resource: 10,513 Mt in-place sylvinite grading 25.96% KCl, or 16.40% K_2O (708 Mt of recoverable KCl, or 447 Mt recoverable K_2O).

The Measured, Indicated, and Inferred Mineral Resources stated above do not include the losses associated with the brine remaining in the cavern or the plant and transport losses.

The potash grade and mineralized interval thickness data, which is based solely on drilling data, is limited in that only the east half of the KLSA 008 Lease area is sufficiently tested by surface drill holes to allow detailed estimation of potash grade and Mineral Resource tonnage and distribution. Drill cores and assay values are not available for the west half of the KLSA 008 Lease area due to the lack of drilling. Copies of interpreted structure maps based upon seismic surveys for the aforementioned west half of the lease area were reviewed by authors Hardy and Hambley who are of the opinion that a substantial portion of the western portion of KSLA 008 lands should be underlain by potash mineralization. It is the opinion of these authors that it is reasonable to conclude that potash mineralization identified in the drill cores of the eleven drill holes may extend to portions of the remainder of the KLSA 008 Lease area and that further studies should be considered to confirm this.

Overall, Crown lands within the KLSA 008 Lease area plus the leased Freehold land, in the opinion of the authors contain sufficient Proven and Probable Reserves to justify the further expenditure of funds to develop the property for production.

25.3 Feasibility Study

The results of the FS for a potash solution mine at the Milestone Project include a detailed financial analysis that demonstrates that the project is reasonably justified. Based on the assumptions in the FS, the economics are sufficient to support the development of a solution mine and processing plant to exploit the potash Mineral Reserves within the KLSA 008 Lease area. The FS provides reasonable basis to support an investment decision by the WPX board.

Capital and operating cost estimates were generated with a target accuracy of +15% to –10%, typical for a Class 3 study. The estimates are based on AMEC's recent and extensive EPCM experience with potash projects in Saskatchewan. The initial CAPEX estimate for the plant is Cdn$2.909 billion, including allowances for the raw water supply pipelines, with an additional deferred CAPEX of Cdn$387 million. The total CAPEX estimate for the 2.8 Mtpy plant was Cdn$3.295 billion. Assuming a nominal discount rate of 10%, the economic analysis yielded an after-tax project Net Present Value (NPV) of Cdn$2.4 billion, with an Internal Rate of Return (IRR) of 18.6% and a payback period of 5.6 years, based on potash prices of $450/t for standard product and $470/t for granular product. A corresponding set of project metrics was also developed for the cash flow in real dollars.

The plant unit operating costs were estimated to be Cdn$62.28/t of product at full production capacity. These operating costs include estimates for labour, maintenance, power, natural gas, water, consumables, diesel, and uncapitalized wellfield operations. Operating costs excluded taxes, royalties, or the costs associated with transportation to port and ship loading. Sustaining capital for the plant remains flat at 0.5% of replacement cost for the first 10 years of operation and then ramps up from 0.5 to 2.0% of replacement cost between Years 15 and 24 of the model. Sustaining capital expenses are expected to level out after Year 24. In addition, there is an allowance for future wellfield development within the sustaining capital. For wellfield operations, the sustaining capital is the cost associated with continuous expansion as caverns are converted from primary to secondary operation and eventually phased out. The cost per year of adding 12 new caverns with associated support facilities will be $79.8 million, equivalent to $28.49/t of product.

The project schedule developed in the FS calls for site early works to begin in April 2013. With a 42-month construction period, commercial production is anticipated in October 2016. In addition, full production from primary mining is expected in 2018, followed by full primary and secondary production in 2022.

The Milestone FS resulted in significant advancement of the level of definition of the project. Despite a modest increase in the capital cost estimate from the Prefeasibility Study, the Milestone Project remains financially robust and the path forward for developing the mine is well understood.

25.4 Additional Work

No additional resource definition work is necessary to support the current mine plan.

26.0 RECOMMENDATIONS

Should the WPX Board decide to proceed with development of the Milestone Project, WPX should contract with an engineering, procurement and construction management (EPCM) firm and proceed with detailed engineering, long-lead item procurement, and infrastructure (water, power, etc.) upgrades necessary for production. General recommendations for the Milestone Project include:

Phase 1

1. Conclude the environmental approval through the SMOE Environmental Impact Analysis process. Estimated cost: $0.25 million.
2. Complete a value engineering exercise for the Milestone Project. Estimated cost: $0.5 million.
3. Complete the necessary detailed engineering and procurement activities so as to allow for a construction start in 2013. Estimated cost: $2 million.
4. Finalize contract for engineering and supply of evaporation and crystallization equipment. Estimated cost: $225 million.
5. Purchase all other long-lead equipment. Estimated cost: $50 million, payment terms on equipment to be determined.

Phase 2

1. Detailed engineering and procurement of plant facilities and equipment. Estimated cost: $170 million.
2. Construction of Milestone Project infrastructure, plant and well field. Estimated cost: $2.47 billion.

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28.0 DATE AND SIGNATURE

Dated, signed, and sealed by the undersigned this 25th day of November 2013.

Respectfully submitted,

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Dr. Michael P. Hardy, P.E. (Colorado), P.Eng. (Saskatchewan)

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Dr. Douglas F. Hambley, P.E. (Colorado), P.Eng (Saskatchewan), P.G. (Illinois)

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Dr. Bo Yu, P.E. (Colorado)

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Mr. Ryan P. Leland, P.Eng. (Saskatchewan)

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Mr. A. Stuart Middleton, P.Eng. (Saskatchewan)

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Mr. Paul O'Hara, P.Eng. (Saskatchewan)

28.1 Statement of Certification by Author

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

1. I am a Principal and President of Agapito Associates, Inc., Suite 340, 715 Horizon Drive, Grand Junction, Colorado, 81506, USA, and senior author of the report "NI 43-101 Technical Report Summarizing the Feasibility Study for a Potash Solution Mine on the Milestone Project (Subsurface Mineral Lease KLSA 008), Saskatchewan" dated November 25, 2013 and effective as of December 6, 2012 (the "Technical Report"). I am responsible for Sections 1.2, 1.4, 16, and 24, 25.1, 25.2 and 26, and I have reviewed, and am responsible for, and jointly edited all sections of this Technical Report except for Sections 1.3, 13, 17, 18, 21, and 25.3.

2. I graduated with a degree in Civil Engineering from the University of Adelaide, Australia, in 1969. I completed my Doctor of Philosophy in GeoEngineering at the University of Minnesota in 1973.

3. I am and have been since 1976 a Registered Professional Engineer in the State of Colorado (Number 13857). I am a Registered Professional Engineer in the State of Texas (Number 98760). I have a temporary registration as a Professional Engineer with the Association of Professional Engineers and Geoscientists of Saskatchewan.

4. I have practiced my profession since 1974.

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

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

7. 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 1999. Tasks include the investigation of the feasibility of commercial recovery of potash from bedded potash and/or halite deposits in North and South America, Kazakhstan, Russia and Africa; those studies specifically evaluated the technical feasibility of mining potash deposits using solution mining and/or conventional dry mining techniques. Specific activities have included development of pilot testing programs, mine layout, assessment of the geologic parameters impacting solution mining, evaluation of drill-hole data, 3D seismic data to support estimation of Measured, Indicated and Inferred Resources and, where appropriate, Mineral Reserves.

8. 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.

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

10. I have no involvement with Subsurface Mineral Lease KLSA 008 or Western Potash Corp beyond my involvement with the Prefeasibility Study and preparation and writing of the Technical Reports.

11. I am independent of the issuer according to the definition of independence presented in Section 1.5 of National Instrument 43-101.

12. I visited the site on January 31, 2011, and inspected the drill core from the 2011 drilling program at North Rim Exploration's Field Office in Saskatoon on February 1, 2011.

13. As at the effective date of the Technical Report, to the best of my knowledge, information, and belief, those sections or parts of the Technical Report for which I was responsible contain all scientific and technical information that is required to be disclosed to make those sections or parts of the Technical Report not misleading.

14. 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 my understanding.

15. I consent to the filing of the 43-101 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 web sites accessible by the public, of the Technical Report.

Dated this 25th day of November 2013.

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Dr. Michael Hardy, P.E. (Colorado), P.Eng. (Saskatchewan)

28.2 Statement of Certification by Author

I, Dr. Douglas F. Hambley, P.E., P.Eng., P.G. do hereby certify that:

1. I am a consulting mining engineer and geologist and Senior Associate of Agapito Associates, Inc. at its office located at 1536 Cole Boulevard, Suite 220 in Lakewood, Colorado, USA and co-author of the report "NI 43-101 Technical Report Summarizing the Feasibility Study for a Potash Solution Mine on the Milestone Project (Subsurface Mineral Lease KLSA 008), Saskatchewan" dated November 25, 2013 and effective as of December 6, 2012 (the "Technical Report"). I am solely responsible for Sections 1.1, 2 through 12, 14 and 23, and jointly responsible for Sections 15 and 16 of this Technical Report and I have reviewed and jointly edited all sections of this Technical Report except for Sections 1.3, 13, 17, 18, 21 and 25.3.

2. I am a member in good standing of Professional Engineers Ontario, being registered as a Professional Engineer (No. 18026013) since July 1975 and of the Association of Professional Engineers and Geoscientists of Saskatchewan, being registered as a Professional Engineer (No. 16124) since January 2009.

3. I am also licensed as a Professional Engineer in the states of Colorado, Illinois, Nebraska, Ohio, Pennsylvania and Wisconsin and as a Professional Geologist in Illinois and Indiana. I served on the Board of Licensing for Professional Geologists of Illinois during its initial four years (1996 to 2000).

4. I have practiced my profession as a mining engineer and geologist since 1972. I have been practicing as a consulting engineer and geologist since May 1980.

5. I am a graduate of the Faculty of Applied Science at Queen's University at Kingston, Ontario, and earned a Bachelor of Science with Honours degree in Mining Engineering in May 1972. I earned a Doctor of Philosophy in Earth Sciences from the University of Waterloo in May 1991. My PhD thesis concerned the prediction of creep around mined openings in salt and potash.

6. I am a Life Member of the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM), a Professional Member of the Society for Mining, Metallurgy, and Exploration (SME) and a member of the Society of Petroleum Engineers (SPE). I am a member of the Potash Subcommittee of the CIM Committee on Mineral Resources and Mineral Reserves.

7. As a consulting mining engineer and geologist, I have been involved from 1984 to 1991 and from 2007 to present with evaluation of resources and reserves and design of mines and other underground facilities in salt and potash in Louisiana, Texas, New Mexico, New Brunswick, Michigan, Ontario, Saskatchewan, Manitoba, Colorado, Arizona, Brazil, Russia, the Republic of Congo and Ethiopia. I have been involved in construction management and project cost estimation since 1977.

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

9. I have no involvement with Subsurface Mineral Lease KLSA 008 or Western Potash Corp. beyond my involvement with the Feasibility Study and preparation and writing of the Technical Reports. I am independent of the issuer according to the definition of independence presented in Section 1.5 of National Instrument 43-101.

10. I visited the site on December 14, 2009, and January 31, 2011, and inspected the drill core from the WPX wells at the Saskatchewan Energy and Resources core warehouse in Regina on December 15 and 16, 2009, and at North Rim Exploration's Field Office in Saskatoon on February 1, 2011.

11. As at the effective date of the Technical Report, to the best of my knowledge, information, and belief, those sections or parts of the Technical Report for which I was responsible contain all scientific and technical information that is required to be disclosed to make those sections or parts of the Technical Report not misleading.

12. 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 my understanding.

13. 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 web sites accessible by the public, of the Technical Report.

Dated this 25th day of November 2013.

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Dr. Douglas F. Hambley, P.E. (Colorado), P.Eng (Saskatchewan), P.G. (Illinois)

28.3 Statement of Certification by Author

I, Dr. Bo Yu, P.E., do hereby certify that:

1. I am a consulting mining engineer and Associate of Agapito Associates, Inc. at its office located at 715 Horizon Drive, Suite 340, in Grand Junction, Colorado, USA and co-author of the report "NI 43-101 Technical Report Summarizing the Feasibility Study for a Potash Solution Mine on the Milestone Project (Subsurface Mineral Lease KLSA 008), Saskatchewan" dated November 25, 2013 and effective as of December 6, 2012 (the "Technical Report").. I am jointly responsible for Sections 15 and 16 of this Technical Report.

2. I have been registered as a Professional Engineer in Colorado (No. 43926) since December 2009.

3. I have practiced my profession as a mining engineer since 1994. I have been practicing as a consulting mining engineer since March 1994.

4. I am a graduate of Beijing University of Science and Technology in Beijing, China, where I earned Bachelor and Master of Science degrees in Mining Engineering in May 1991 and May 1994, respectively. I earned a Doctor of Philosophy in Mining Engineering from West Virginia University in May 2005.

5. I am a member of the Society for Mining, Metallurgy, and Exploration (SME).

6. As a consulting mining engineer, I have been involved since 2006 with mine design, production and prediction of subsidence for solution mines in Utah, Colorado, Saskatchewan and Turkey.

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

8. I have no involvement with Subsurface Mineral Lease KLSA 008 or Western Potash Corp beyond my involvement with the Feasibility Study and preparation and writing of the Technical Reports.

9. I am independent of the issuer according to the definition of independence presented in Section 1.5 of National Instrument 43-101.

10. I have not visited the site.

11. As at the effective date of the Technical Report, to the best of my knowledge, information, and belief, those sections or parts of the Technical Report for which I was responsible contain all scientific and technical information that is required to be disclosed to make those sections or parts of the Technical Report not misleading.

12. 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 my understanding.

13. 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 web sites accessible by the public, of the Technical Report.

Dated this 25th day of November 2013.

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Dr. Bo Yu, P.E. (Colorado)

28.4 Statement of Certification by Author

I, Ryan P. Leland, P.Eng. do hereby certify that:

1. I am employed as a Project Manager with AMEC Americas Limited at its office located at 301-121 Research Drive in Saskatoon, Saskatchewan, and am co-author of the technical report "NI 43-101 Technical Report Summarizing the Feasibility Study for a Potash Solution Mine on the Milestone Project (Subsurface Mineral Lease KLSA 008), Saskatchewan" with an effective date of December 6, 2012. I am responsible for Sections 1.3, 21 and 25.3 of this technical report.
2. I am a member of the Association of Professional Engineers and Geoscientists of Saskatchewan (Member No. 09303). I graduated from the University of Saskatchewan at Saskatoon, Saskatchewan, with a Bachelor of Science degree in Mechanical Engineering in May 1994.
3. I have practiced my profession for 18 years. I have been directly involved in the operation of potash processing facilities in Canada. I have been involved in equipment selection and plant design for potash process facilities in Canada and Jordan. I have been involved with project management and project cost estimation throughout my career. As a result of my experience and qualifications, I am a Qualified Person for those portions of the technical report that I am responsible for, as that term is as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).
4. I have visited the Milestone Property several times, most recently on October 28, 2011, to visit geotechnical testing and to examine rail options.
5. I am independent of Western Potash Corp. as independence is described by Section 1.5 of NI 43–101.
6. I have been involved with the Milestone project since April 2010, the preparation of the Feasibility Study for the Milestone Project prepared by AMEC Americas Limited since October 2011.
7. I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.
8. As of the date of this certificate, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated this 25th day of November 2013.

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Mr. Ryan P. Leland, P.Eng (Saskatchewan)

28.5 Statement of Certification by Author

I, A. Stuart Middleton, P.Eng. do hereby certify that:

1. I am employed as a Technical Director with AMEC Americas Limited at its office located at 301-121 Research Drive in Saskatoon, Saskatchewan, and am co-author of the technical report "NI 43-101 Technical Report Summarizing the Feasibility Study for a Potash Solution Mine on the Milestone Project (Subsurface Mineral Lease KLSA 008), Saskatchewan" with an effective date of December 6, 2012. I am responsible for Section 18 of this technical report.

2. I am a member of the Association of Professional Engineers and Geoscientists of Saskatchewan (Member No. 2785). I graduated from Robert Gordon's Technical College in Aberdeen, Scotland with a Higher National Diploma in Mechanical Engineering in 1964 and from the University of Saskatchewan with a Bachelor of Science degree in Mechanical Engineering in November 1971.

3. I am a Fellow of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and a Chartered Engineer in the United Kingdom as a Member of the Institution of Mechanical Engineers.

4. I have practiced my profession for 48 years. I have been directly involved in the design of potash processing facilities in Canada for 38 years and have also been involved with project management and project cost estimation for potash projects throughout that time. I have been involved in equipment selection and plant design for potash process facilities in Canada and Jordan and for studies for proposed potash production facilities in Canada, Thailand, Argentina and Jordan. As a result of my experience and qualifications, I am a Qualified Person for those portions of the technical report that I am responsible for, as that term is as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

5. I visited the Milestone Property on July 8, 2011, to inspect the site.

6. I am independent of Western Potash Corp. as independence is described by Section 1.5 of NI 43–101.

7. I have been involved with the Milestone project since April 2010, the preparation of the Feasibility Study for the Milestone Project prepared by AMEC Americas Limited since October 2011.

8. I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

9. As of the date of this certificate, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and

technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated this 25th day of November 2013.

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Mr. A. Stuart Middleton, P.Eng (Saskatchewan), C. Eng (U.K.)

28.6 Statement of Certification by Author

I, Paul O'Hara, P.Eng. do hereby certify that:

1. I am employed as the Manager, Process with AMEC Americas Limited at its office located at 301-121 Research Drive in Saskatoon, Saskatchewan, and am co-author of the technical report "NI 43-101 Technical Report Summarizing the Feasibility Study for a Potash Solution Mine on the Milestone Project (Subsurface Mineral Lease KLSA 008), Saskatchewan" with an effective date of December 6, 2012. I am responsible for Sections 13 and 17 of this Technical Report.
2. I am a member of the Association of Professional Engineers and Geoscientists of Saskatchewan (Member No. 11687). I graduated from the University of British Columbia at Vancouver, British Columbia, with a Bachelor of Science degree in Mining and Mineral Process Engineering in May 1986.
3. I have practiced my profession for 26 years. I have been directly involved in the operation of copper, gold, and potash processing plants in Canada. I have been involved in process design for gold and potash process plants in Canada, England, Jordan and the Republic of Congo. As a result of my experience and qualifications, I am a Qualified Person for those portions of the Technical Report that I am responsible for, as that term is as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).
4. I have not visited the Milestone Property.
5. I am independent of Western Potash Corp. as independence is described by Section 1.5 of NI 43–101.
6. I have been involved with the preparation of the Feasibility Study for the Milestone Project prepared by AMEC Americas Limited since October 2011.
7. I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.
8. As of the date of this certificate, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated this 25th day of November 2013.

"SIGNED AND SEALED"

PROFESSIONAL SEAL

Mr. Paul O'Hara, P.Eng (Saskatchewan)