



**Saskatchewan  
Ministry of the  
Economy**

# HOW TO SUCCESSFULLY ACCESS THE MINING SUPPLY CHAIN

## Resource Material

The purpose of this document is to provide key information to Saskatchewan manufacturers to aid in understanding the Saskatchewan mining industry, with a focus on the Potash and Uranium industries. The objective is to provide accurate and relevant information to assist manufacturers in understanding the opportunities and the important steps in becoming a successful preferred supplier.

**March Consulting Associates Inc.  
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In partnership with:



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# I. INTRODUCTION

In response to numerous inquiries on supply chain opportunities in the Mining industry, Enterprise Saskatchewan (now the Saskatchewan Ministry of the Economy), in partnership with the Saskatchewan Mining Association (SMA) and Saskatchewan Trade and Export Partnership Inc. (STEP), contracted March Consulting Associates Inc., Saskatoon to complete a project to address these needs.

Key players in the Saskatchewan mining and mining service industry were contacted to complete a survey which assisted in the development of resource materials catered to suppliers or manufacturing companies wanting further information on supply chain opportunities in the Saskatchewan Mining industry. A copy of the on-line survey can be found in **Appendix A**.

The purpose of the on-line portion of the survey was to collect a broad base of data on the supply chain opportunities in the Saskatchewan mining industry. Follow up interviews were conducted for any clarification and/or elaboration on critical areas. This piece was updated in March of 2012 by Derek Murray Consulting and Associates.

## DISTRIBUTION OF RESULTS

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The information was consolidated and developed into resource materials and workshops. The purpose of this material is to provide key information to manufacturers in understanding the mining industry, supply opportunities, important factors to consider in the current market, as well as practical information on participating in the supply chain with a focus on the potash and uranium industry.

It is the objective of this project to provide accurate and relevant information to assist manufacturers in understanding the opportunities and the important steps in becoming a successful preferred supplier.

The following document is the result of the analysis of the survey and the focus was to compile a document which would be used as a Reference for Manufacturers.

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## A. HOW TO SUCCESSFULLY ACCESS THE MINING SUPPLY CHAIN

To be successful in the Mining Industry, as a new manufacturer, you need to:

- ✓ **Do your homework**
  - Fully understand your customers business (See Section – Mining Overview)
  - Know who your customers are, and what they are doing (See Section – Your Customer)
  - Learn the process they use for Procurement (See Section – Supply Chain)
  - Discover where opportunities exist (See Section – Services and Equipment)
  
- ✓ **Invest in the opportunity**
  - Develop your company image (See section – Marketing your company)
  - Develop your core competencies (See Section – Assessing needs)
  
- ✓ **Think long term**
  - Be realistic and focus on sustainability (See Section – Strategies)
  
- ✓ **Make your mark**
  - Follow the steps to becoming a new supplier (See Section - Becoming a New Supplier)
  - Strive for Excellence (See section – How to maintain your position)
  - Search for Continuous Improvement opportunities (See Section – Quality Management)

## II. DO YOUR HOMEWORK

*“Before everything else, getting ready is the secret of success.”*  
*-Henry Ford*

# A. UNDERSTANDING YOUR CUSTOMER'S BUSINESS: AN OVERVIEW OF THE MINING INDUSTRY

Canadian Mining Companies operating in Canada and abroad consume thousands of products, both goods and services, from suppliers in most industrial, commercial and consumer sectors of the economy. The majority of products consumed are specialized and of a scientific or technical nature. Mining Companies also consume substantial quantities of other products which have applications in mining that differ little from applications in other areas of the economy.

As much as the demand for mining products is global, so is the supply. No country is cost competitive or self-sufficient in all of the many goods and services required by Mining Companies. Canadian suppliers appear to rank among the major suppliers in the world.

Globalization of mining is creating export opportunities for domestic suppliers of all types of goods and services across the economy. Supplying expertise, goods, and services to Mining Companies results in quality jobs for Canadians, both at home and abroad. There appears to be considerable opportunity to derive further benefits from this activity.<sup>1</sup>

## CANADIAN MINING

Mining and mining related activities occur in all Canadian provinces and territories as shown in **Figure 1**. (See **Appendix B** for information by province.)



**Figure 1: Canadian Mining Map**

<sup>1</sup> Source: Canadian Suppliers of Mining Goods and Services: September 2000, Natural Resources Canada, Minerals and Metals Sector

Canada's mining industry produces about 60 mineral commodities, including 26 metals, 22 nonmetals and 5 industrial mineral commodities from some 250 mines and 3000 stone, sand and gravel operations.

Canada is one of the world's largest producers of zinc, potash and uranium. Canada supplies about one third of the world's potash, most of which comes from Saskatchewan with a small portion coming from a PotashCorp mine in New Brunswick.<sup>2</sup> The World Nuclear Association (WNA), reported in December 2011, that Canada produces 18% of uranium world supply from mines, followed by Kazakhstan (33%), and Australia (11%).

Canada continues to be the world's leader in the production (by volume) of potash, and it ranks in the top five countries for the production of primary aluminum, cobalt, molybdenum, nickel, platinum group metals, salt, titanium concentrate, uranium and zinc. Canada ranks second in the world in value of diamond production<sup>3</sup>.

Mining and mining related activities are the major source of economic activity in over 115 Canadian communities. Mining tends to be in areas of the country where other economic activities are less well developed. Every job in the mining industry indirectly creates more than one other job in the Canadian economy. Because of Canada's relatively small population, almost 80% of Canada's mineral production is exported.<sup>4</sup>

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<sup>2</sup> <http://www.saskmining.ca/info/Fact-Sheets/fact-sheet-general-information.html>

<sup>3</sup> Natural Resources Canada <http://www.nrcan.gc.ca/statistics-facts/minerals/902>

<sup>4</sup> Source: The Canadian Encyclopedia: [thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0005318](http://thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0005318): Author: T.H. Patching

SASKATCHEWAN MINING INDUSTRY

Saskatchewan is a significant player in the global mining scene. Saskatchewan is one of the world’s largest producer and exporter of both Potash and Uranium. In addition to potash and uranium, Saskatchewan has a wealth of developing mineral resources including diamonds, gold, platinum & palladium, rare earth elements, copper, zinc, nickel, sodium and potassium sulphates and mineralized brines.<sup>5</sup>

The Mineral Resource Map of Saskatchewan (**Figure 2**) shows the resource potential (i.e. Uranium in yellow and Potash in pink) as well as the Saskatchewan locations for mineral deposits for Salt, Uranium, Gold, Copper-Zinc, Copper-Nickel and Copper Cobalt, Lead-Zinc Iron Formation, Rare Earth Occurrences, Sodium Sulphate and Potassium Sulphate, Clay Resources, Building Materials, and Silica Sand.

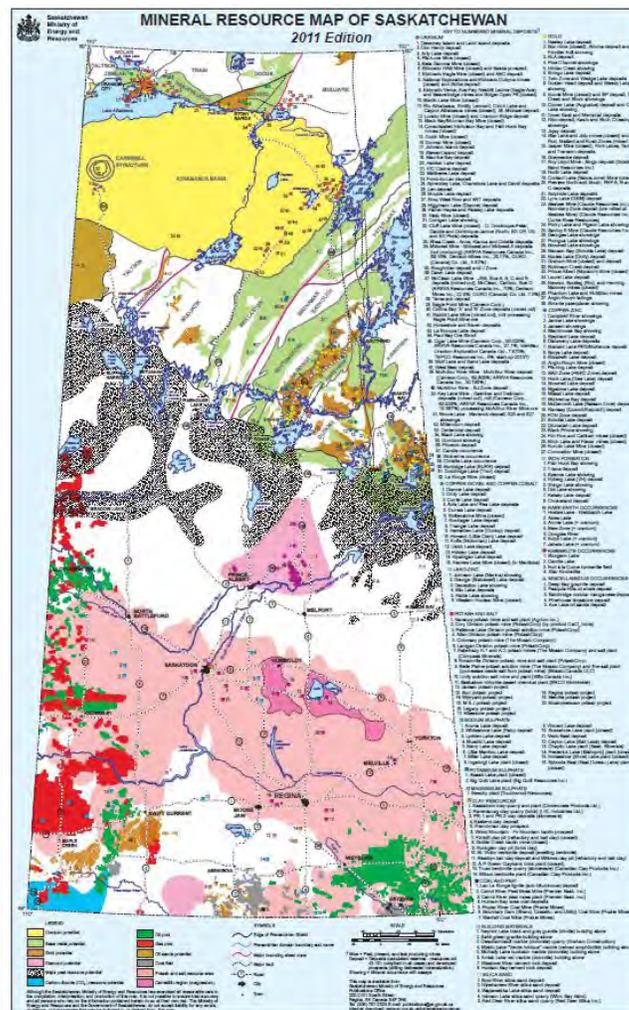


Figure 2: Mineral Resource Map of Saskatchewan

Source: Energy and Resources: <http://www.er.gov.sk.ca/>

<sup>5</sup> <http://www.saskmining.ca/info/Fact-Sheets/fact-sheet-general-information.html>

## B. THE POTASH MINING INDUSTRY: AN OVERVIEW

Saskatchewan has the largest potash resources in the world; by conservative estimates, Saskatchewan could supply world demand at current levels for several hundred years. Saskatchewan's competitive advantage is the exceptional extent and quality of its ore reserves.

Only about five per cent of the potash produced in Saskatchewan is consumed in Canada. About 45% of the exports go to the U.S., where Saskatchewan potash fills approximately 70% of the market demand. The province is also a major supplier to the large Pacific Rim offshore markets: China, Japan, Malaysia, Korea and Indonesia. All Saskatchewan producers make offshore sales through Canpotex, a Saskatoon-based marketing company owned by its member companies.<sup>6</sup>

### POTASH MINING IN SASKATCHEWAN

Saskatchewan companies are the world's largest producers of Potash and account for 95% of Canada's production.<sup>7</sup> There are 10 producing mines (8 underground and 2 solution) in Saskatchewan operated by 3 companies, PotashCorp, Mosaic and Agrium. **Table 1** shows the current operating mines in Saskatchewan.

**Table 1: Potash Producers in Saskatchewan**

Company	Location	Mining	Processing	2010 Potash Production (Mt KCI)	Capacity (Mt KCI)
Agrium	Vanscoy	Conventional	Flotation	1.78	2.05
Mosaic	Belle Plaine	Solution	Mech Crystallization	1.50	2.8
Mosaic	Colonsay	Conventional	Flotation	0.80	1.8
Mosaic	Esterhazy (K1 & K2)	Conventional	Heavy Media-Flotation	2.30	4.0
PCS	Allan	Conventional	Flotation	1.10	1.9
PCS	Cory	Conventional	Mech Crystallization	0.55	1.4
PCS	Patience Lake	Solution	Natural Crystallization	0.37	1.0
PCS	Lanigan	Conventional	Flotation	2.37	3.8
PCS	Rocanville	Conventional	Flotation	2.18	3.0

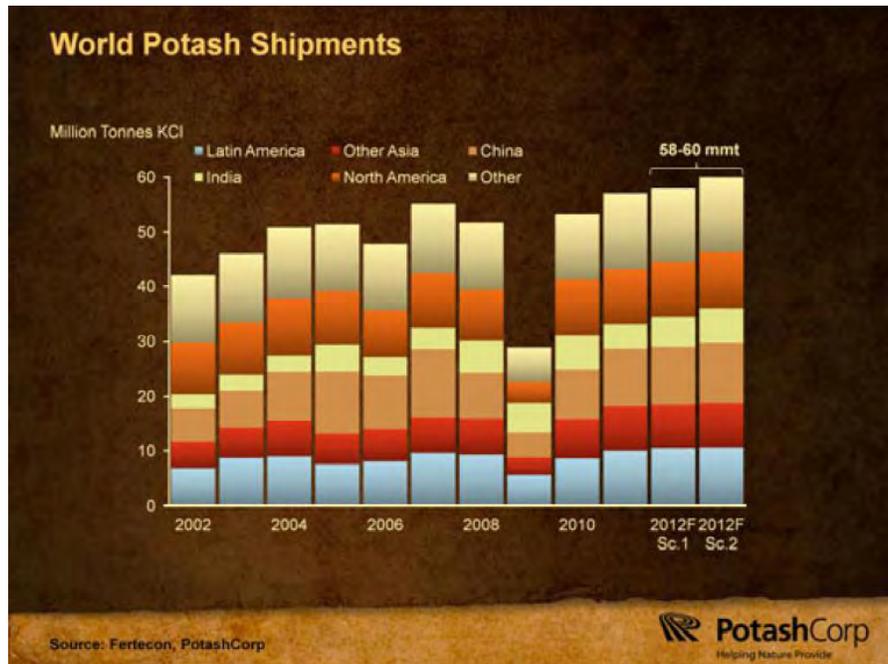
Two other companies that now have a Saskatchewan presence are BHP Billiton and K+S Potash. Both of these companies are in the early stages of large Potash projects that are looking to have new operational mines in the near future. This is a significant undertaking, as there hasn't been a new potash mine in the Province in almost 40 years.

<sup>6</sup> Source: Energy and Resource: <http://www.er.gov.sk.ca/Default.aspx?DN=3558,3541,3538,3385,2936,Documents>

<sup>7</sup> Source: SMA presentation: Mining Supply Chain Forum, Manufacturing Sector May 28, 2009, Saskatchewan Mining Week May 24 –30<sup>th</sup>, P.L. Schwann, Executive Director, SMA

## CONSUMERS AND PRODUCTION DEMAND

Approximately 95% of the world potash production is used as fertilizer, the rest being used in a variety of chemical and manufactured products.<sup>8</sup> **Figure 3** shows the increasing fertilizer consumption in countries including China, India and Brazil. Potash is used to increase the yields of key crops in these countries such important crops as corn, soybeans, coffee and rice.<sup>9</sup>



**Figure 3: The Fertilizer and Grain Consumption Chart**

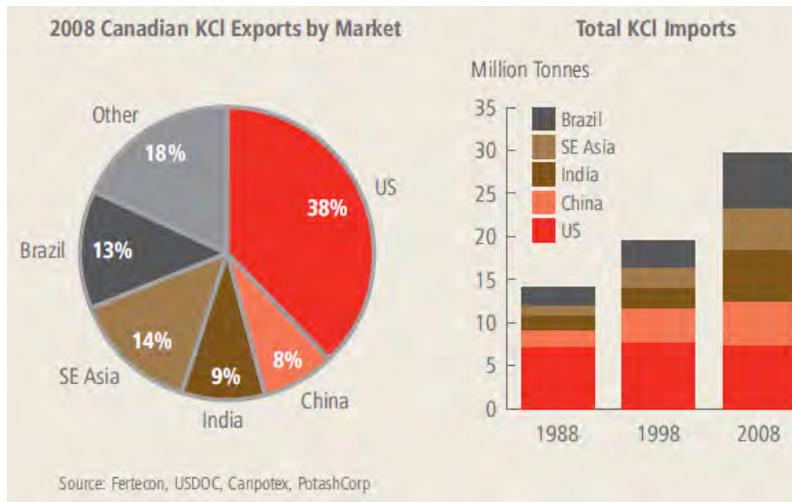
Source: PotashCorp: [http://www.potashcorp.com/media/POT\\_Q4\\_MAR\\_2011.pdf](http://www.potashcorp.com/media/POT_Q4_MAR_2011.pdf)

The growth in potash consumption has been most pronounced in developing countries that are beginning to address the need for balanced soil nutrition to increase yields. As shown in **Figure 4**, in 2008, 44% of Canadian potash exports went to the four major markets of China (8%), India (9%), Southeast Asia (14%) and Brazil (13%).

These markets have no or limited domestic supply or resources to develop, and depend heavily on imports. Driven by the need to produce more food for their rising populations, they have more than tripled their total potash imports in the last 20 years and continued growth is expected.

<sup>8</sup> Source: Saskatchewan Mining Association: <http://www.saskmining.ca/commodity-info/Commodities/6/potash.html>

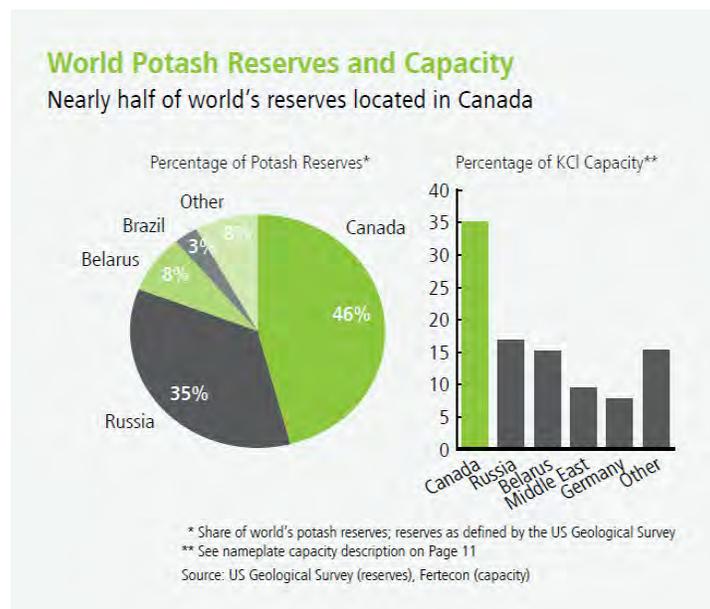
<sup>9</sup> Source: Saskatchewan Mining Association: [http://www.saskmining.ca/commodity\\_content/show/menu/commodities/permalink/potash](http://www.saskmining.ca/commodity_content/show/menu/commodities/permalink/potash)



**Figure 4: Potash Exports and Import by Market**

Source: PotashCorp Annual Report 2009 (Pg. 32)

As shown in **Figure 5**, Canada is the world’s largest potash producer and exporter, in which Saskatchewan has the largest potash industry in the world, accounting for about 46% of the world’s trade in potash. The value of Saskatchewan potash sales was \$ \$5.6 billion in 2010<sup>10</sup>.

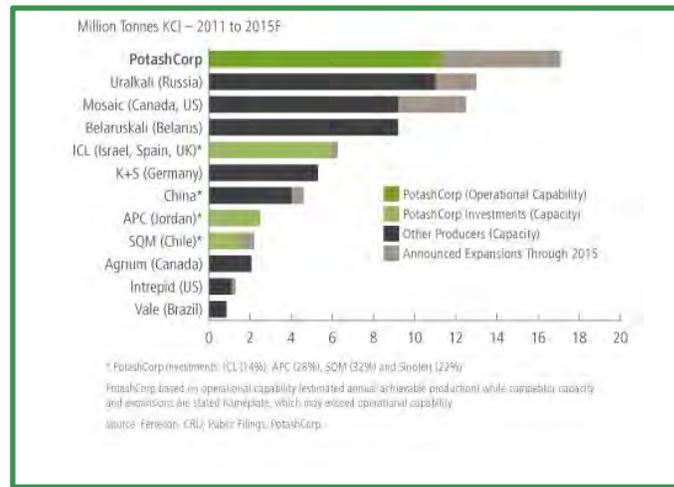


**Figure 5: World Potash Exporting Country**

Source: PotashCorp Mine Tour & Meeting Presentations: <http://www.potashcorp.com/news/webcast/923/>

<sup>10</sup> Source: <http://www.stats.gov.sk.ca/stats/ER2010.pdf>

Potash Corporation of Saskatchewan Inc. (PotashCorp), The Mosaic Company (Mosaic), and Agrium Inc. (Agrium) are the three largest Canadian potash companies worldwide by capacity and production as shown in **Figure 6**.



**Figure 6: World Potash Producer Profile**

Source: PotashCorp Mine Tour & Meeting Presentations: <http://www.potashcorp.com/news/webcast/923/>

The collapse of the Soviet Union in the late 1980s resulted in a sharp reduction in potash demand from this region, leading to increased exports of its production and an extended period of excess global capacity during the 1990s. High-cost operations shut down and reinvestment in new capacity was limited.

Operating rates gradually rose over the last 15 years as growth in demand in developing regions surpassed new global supply. By 2003, operating rates exceeded 80% and the potash industry shifted from one defined by excess capacity to one that is likely to remain supply-challenged for years to come.<sup>11</sup>



**Figure 7: World Potash Production and Operating Rate**

Source: PotashCorp Mine Tour & Meeting Presentations: <http://www.potashcorp.com/news/webcast/923/>

<sup>11</sup> Source: PotashCorp: <http://www.potashcorp.com/slideshow/165/#slide7417>

Due to the delayed contract settlement with China and India, there was a significant reduction in demand in 2008-09 as shown in **Figure 7**. As a result the global potash industry operating rate fell to approximately 50%. With a steady improvement anticipated for world consumption, particularly in developing countries, the average world industry operating rate should continue to rise to the end of the forecast period.

As a result of high potash demand, expansions and upgrades to existing Saskatchewan potash mines began in 2004 and are still on-going at Agrium, Mosaic and PotashCorp's operations. There are several new mines planned for the province involving new players such as K+S Potash and BHP-Billiton.

# 1. OVERVIEW OF A POTASH MINE: CONSTRUCTION AND MINE PROCESSES

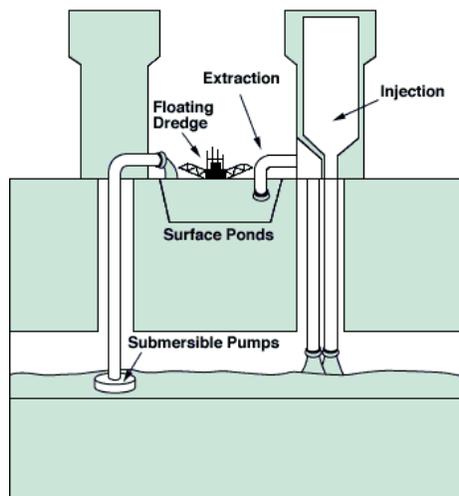
There are two types of mining methods used in Potash mines:

- Solution mining
- Conventional underground mining

Below is an overview of each mining method.

## SOLUTION MINING

Underground solution mining is a technique that refers to the dissolution of soluble rock minerals such as salt by using borehole wells to pump water into the deposit and remove the resulting saturated brine (**Figure 8**).



**Figure 8: Solution Mining**

Source: <http://www.emt-india.net/process/fertilizer/pdf/PotassiumProcess.pdf>

The process is initiated by drilling two wells through the potash resource, followed by developing a solution mining cavern. Once the cavern roof is developed, heated fresh water is injected to dissolve the minerals like KCl and NaCl. Brine with dissolved minerals is brought to surface via the casing system and sent to a processing facility for recovery by crystallization, followed by dewatering and drying. The process of developing a solution mining cavern<sup>12</sup> is shown in **Figure 9**.

<sup>12</sup> Source: <http://www.potash1.ca/s/AboutSolutionMining.asp>

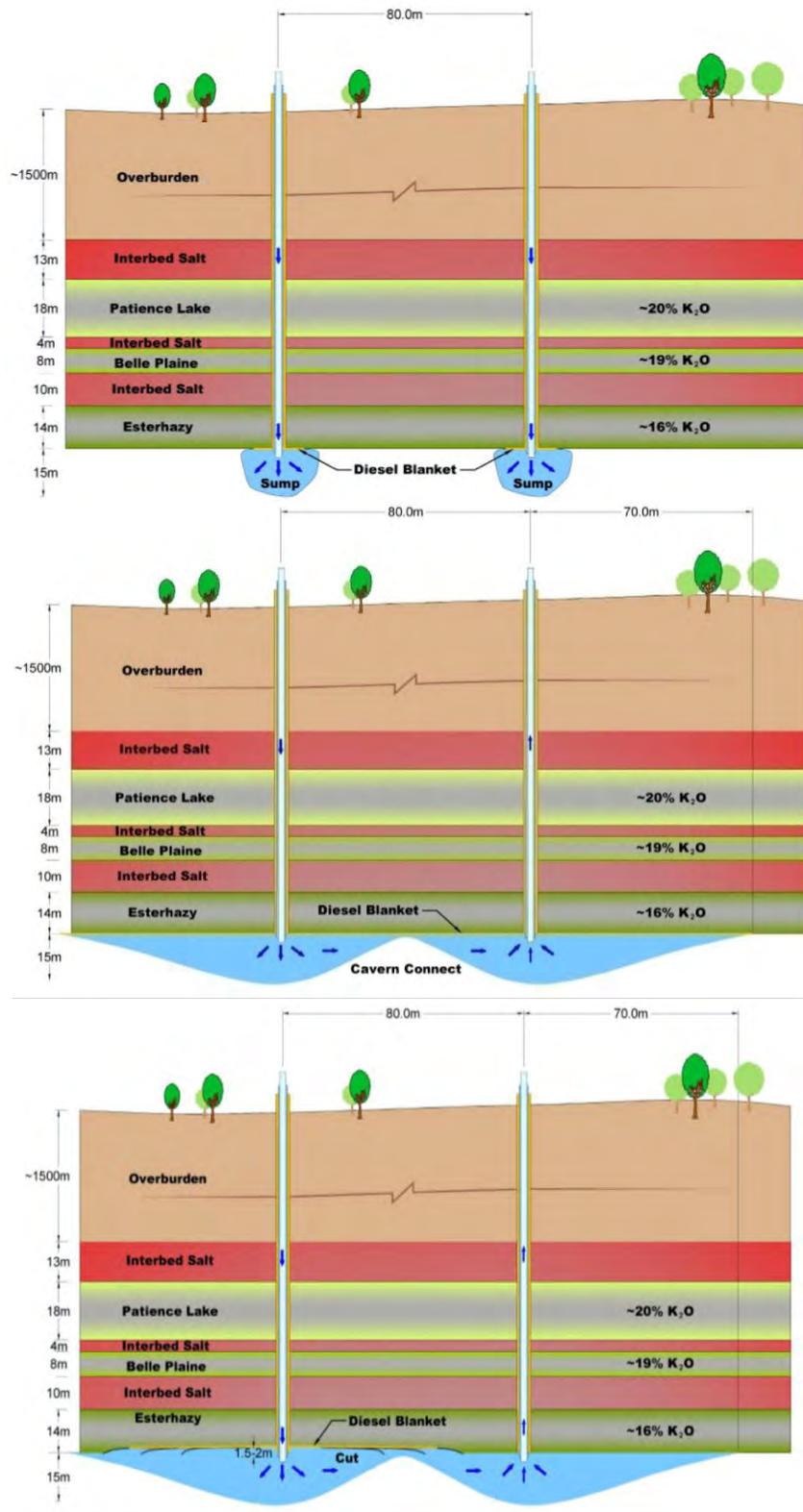
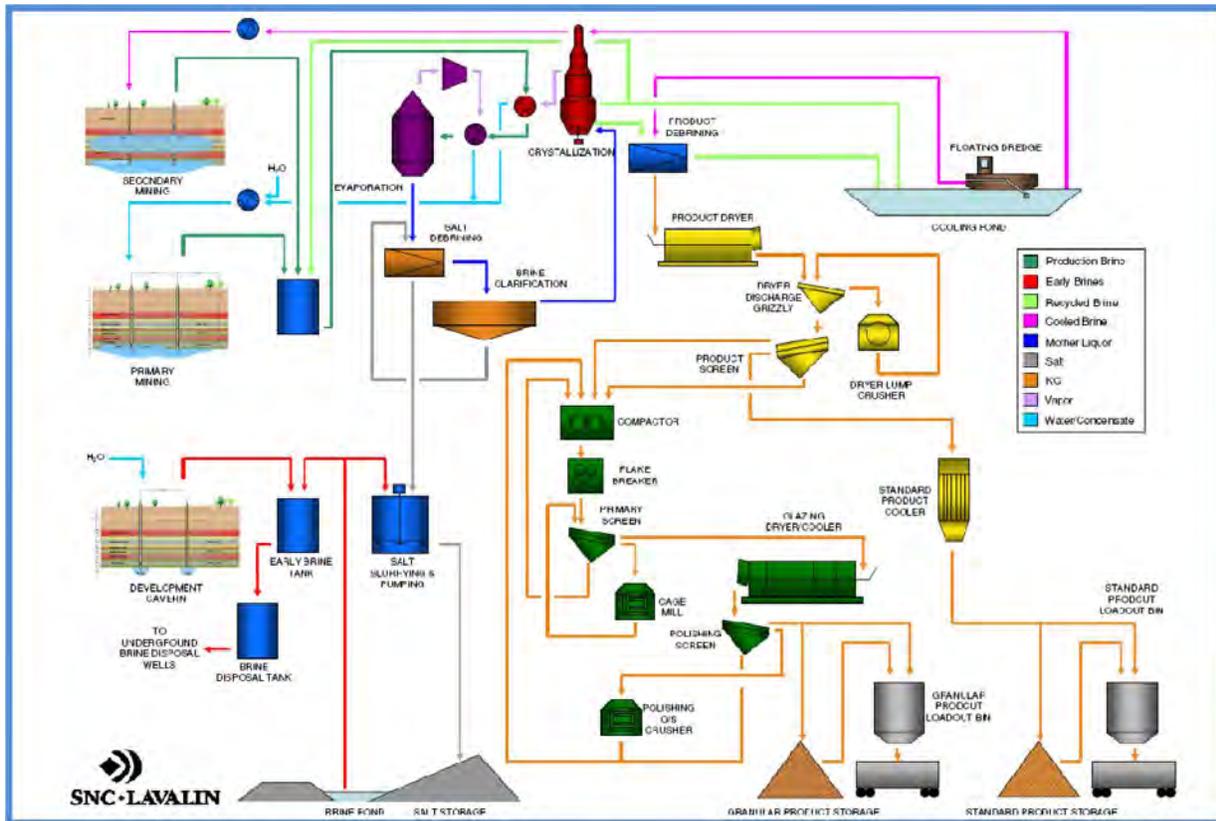


Figure 9: Solution Mining Process - Developing a Solution Mining Cavern

Solution mining creates minimal surface disturbance and little waste, compared to conventional mining.<sup>13</sup> **Figure 10** illustrates the process flow of solution mining.



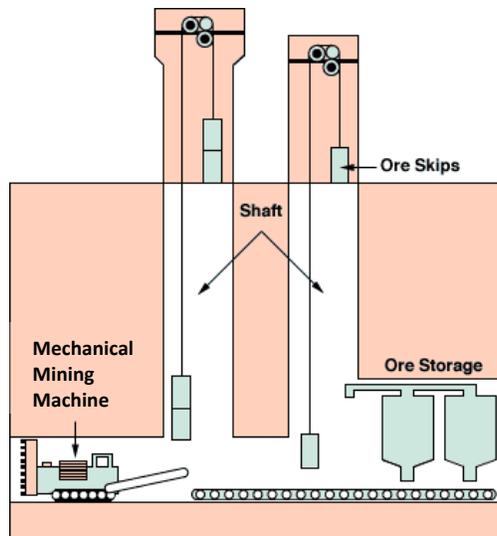
**Figure 10: Solution Mining Flow Sheet**

Source: <http://www.potash1.ca/s/AboutSolutionMining.asp>

<sup>13</sup> Source: Western Potash Corp: <http://www.westernpotash.com/about-potash/solution-mining>

**CONVENTIONAL UNDERGROUND MINING**

Conventional underground mining involves both underground equipment and personnel (**Figure 11**). Processes include underground mining, crushing, hauling to the surface, flotation and screening of potash.

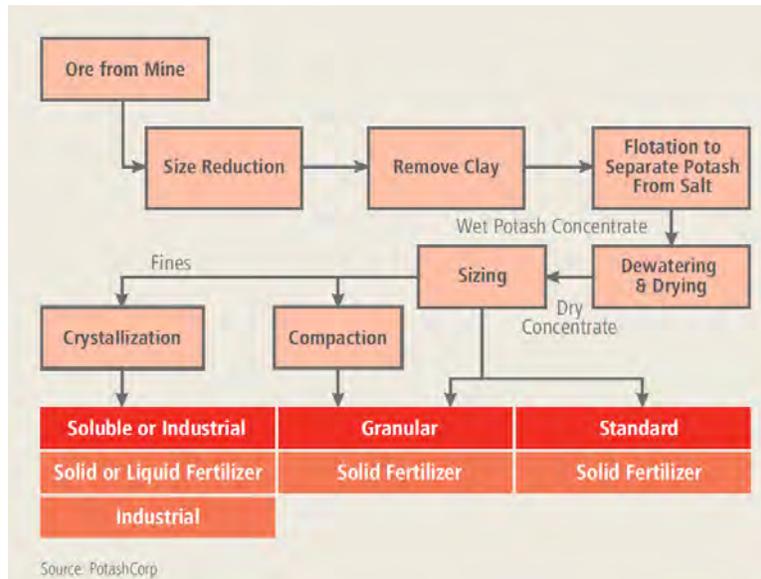


**Figure 11: Conventional Underground Mining**

Source: <http://www.potash1.ca/s/AboutSolutionMining.asp>

Potash is mined using boring machines and is carried to the underground bins by conveyor belts. It is then brought to surface to the mill by the shaft hoist. Through processing in the mill, unwanted components are separated to ensure minimum product standards (i.e., > 60%K O) and various particle size categories are met.

**Figure 12** shows the generalized flow chart of potash process.



Source: PotashCorp

**Figure 12: Generalized Potash Processing Flow Chart**

Source: PotashCorp Annual Report 2009: [www.potashcorp.com/customers/markets/](http://www.potashcorp.com/customers/markets/) (Pg. 31)

For further definitions of the potash mining processes, see **Appendix C**.

## 2. POTASH MINING COMPANIES IN SASKATCHEWAN

It is important to know who the key producers and developers are within the Province, before you approach them with your goods or services.

The following section is a summary of each of the major potash suppliers in Saskatchewan.

### CURRENT PRODUCERS

#### AGRIUM

Agrium is a global company with more than 10,000 employees. Agrium is a major retail supplier of agricultural products and services in North and South America and a leading global producer and marketer of agricultural nutrients and industrial products. The company produces and markets three primary groups of nutrients: nitrogen, phosphate and potash as well as controlled-release fertilizers and micronutrients.

Agrium's world scale Vanscoy, Saskatchewan facility has a capacity of just over two million tonnes.

Website address: [www.agrium.com](http://www.agrium.com)

#### MOSAIC

Mosaic is a global company with over 7,400 employees. Mosaic is the world's leading producer and marketer of concentrated phosphate and potash, two of the primary nutrients required to grow the food the world needs. The business engages in every phase of crop nutrition development, from the mining of resources to the production of crop nutrients, feed and industrial products for customers around the globe. The Mosaic customer base includes wholesalers, retail dealers and individual growers in more than 40 countries.

Mosaic's headquarters for their potash business unit is located in Regina. Its corporate headquarters is in Plymouth, Minnesota.

Website address: [www.mosaicco.com](http://www.mosaicco.com)

#### POTASHCORP

PotashCorp is the world's largest fertilizer company by capacity<sup>14</sup>, producing the three primary crop nutrients - potash (K), phosphate (P), and nitrogen (N). As the world's leading potash producer, PotashCorp is responsible for about 20% of global capacity.

PotashCorp's headquarters for their Potash business unit is located in Saskatoon. PotashCorp also has potash-related investment interests in ICL (Israel), APC (Jordan), SQM (Chile) and Sinofert (China).<sup>15</sup>

Website address: [www.potashcorp.com](http://www.potashcorp.com)

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<sup>14</sup> Source: PotashCorp: <http://www.potashcorp.com/about/overview/>

<sup>15</sup> Source: PotashCorp Annual Report 2009 (Pg. 29)

## NEW VENTURES

### BHP BILLITON

BHP Billiton is a global leader in the resources industry with over 100 operations in 25 countries, and about 40,000 employees. BHP has significant positions in major commodity businesses including aluminum, energy coal and metallurgical coal, copper, manganese, iron ore, uranium, nickel, silver and titanium minerals and has substantial interests in oil, gas, liquefied natural gas and diamonds.<sup>16</sup>

BHP Billiton is developing the Jansen project which involves the construction of a completely new mine and all associated operations. The first phase of the \$12 billion project will be completed in 2015 with all subsequent phases completed in 2025. The headquarters of BHP Billiton Limited and the global headquarters of the combined BHP Billiton Group are located in Melbourne, Australia. BHP Billiton Plc is located in London, United Kingdom. They have just recently opened an office in Saskatoon.<sup>17</sup>

Website address: [www.bhpbilliton.com](http://www.bhpbilliton.com)

### K+S POTASH

K+S Potash has recently acquired Potash One Inc., is a Canadian resource company engaged in the exploration and development of advanced potash properties amenable to solution mining. K+S Potash now owns 100% interest in the 97,240 acre Legacy Project which has a compliant Measured Resource of 29 million tonnes of recoverable KCl, Indicated Mineral Resource of 222 million tonnes of KCl and an Inferred Mineral Resource of 852 million tonnes of KCl.

Website address: <http://www.ks-potashcanada.com/en/index.html>

### VALE

Vale Potash Canada Limited (Vale) is proposing to construct and operate a new potash mine, approximately 25 km southeast of the City of Regina near Kronau, Saskatchewan. The proposed mine would produce up to 2.9 million tonnes of potash per year using solution mining techniques.

Website address: <http://www.vale.com/en-us/Pages/default.aspx>

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<sup>16</sup> <http://www.bhpbilliton.com/bb/aboutUs/companyOverview/ourProfile.jsp>

<sup>17</sup> <http://www.bhpbilliton.com/bb/aboutUs/companyOverview/ourProfile.jsp>

## OTHER POTASH EXPLORATION

Other earlier state exploration projects in Saskatchewan include:

- North Atlantic Potash (JSC Acron)
  - 26 permits
  - Foam Lake area
- Rio Tinto PIC
  - Joint venture with Acron
- Last Mountain Lake – Broadview area
- Agrium
  - Yorkton area
- Encanto Potash
  - Muskowekwan area (100 km north of Regina)
- Karnalyte Resource Inc.
  - Wynyard area
- Western Potash Corp.

## C. THE URANIUM MINING INDUSTRY: AN OVERVIEW

Uranium deposits are found all over the world. The largest deposits of uranium are found in Australia, Kazakhstan and Canada. High-grade deposits (2%U or higher = 20,000ppm\*U) are only found in Canada.

Figure 13 shows known conventional resources of uranium:



**Figure 13: Distribution of Identified Uranium Resources Worldwide (< 130 US\$/kg U): 5.47 Mt**

(Source: OECD NEA & IAEA, Uranium 2007: Resources, Production and Demand, (Red Book 2007)

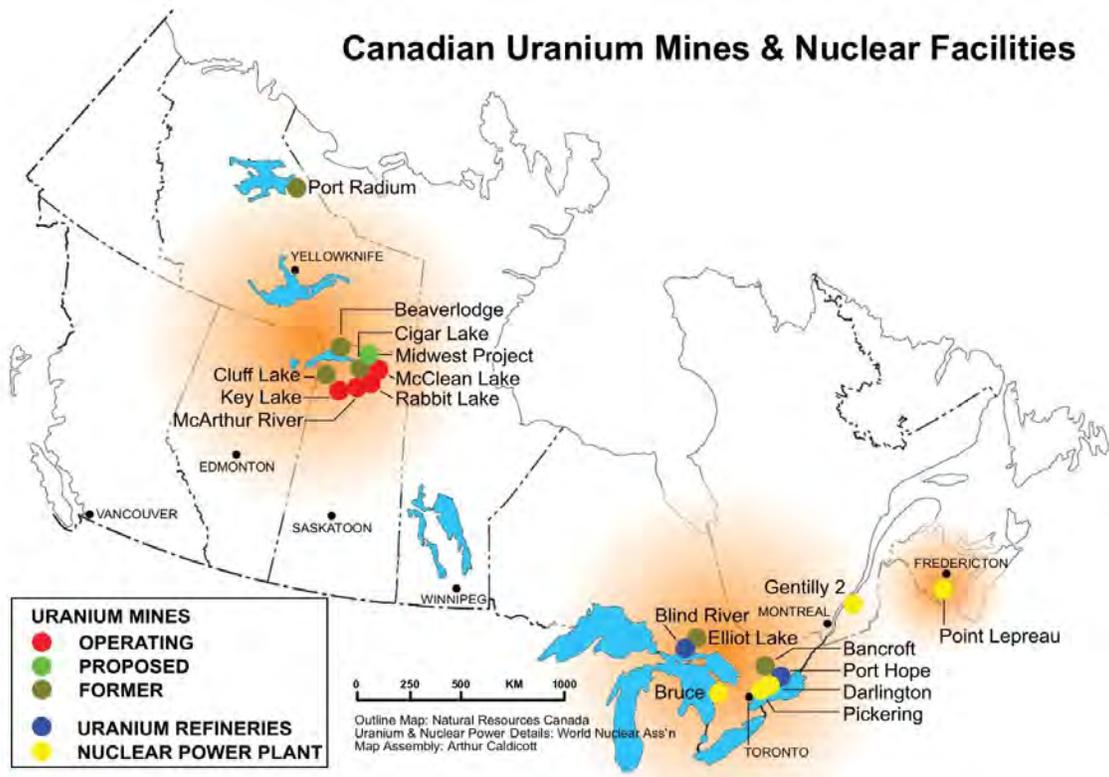
Source: Cameco: [http://www.cameco.com/uranium\\_101/uranium\\_science/uranium/](http://www.cameco.com/uranium_101/uranium_science/uranium/)

Canada is one of the world's largest uranium producers, accounting for about 22% (10,173 t U) of world output in 2012.<sup>18</sup>

- Production comes mainly from the McArthur River mine in northern Saskatchewan
- Production is expected to increase as the new Cigar Lake mine comes into operation.
- With known uranium resources of 572,000 t U<sub>3O<sub>8</sub>, as well as continuing exploration, Canada is in a strong position to meet future world demand. Only Australia has more known uranium resources.</sub>

<sup>18</sup> Source: World Nuclear Association: <http://www.world-nuclear.org/info/inf49.html>

Canada has been a major world producer of uranium since the global demand for this material developed. Today, the only producing Province is Saskatchewan<sup>19</sup>, as shown in **Figure 14**.



**Figure 14: Uranium Mining in Canada**

Source: The Watershed Sentinel: <http://www.watershedsentinel.ca/images/Features/CanadaUranium&NuclearSitesIrg.jpg>

<sup>19</sup> Source: Canadian Nuclear Association: [http://www.cna.ca/curriculum/cna\\_can\\_nuc\\_hist/uranium\\_hist\\_mining-eng.asp?bc=History%20of%20Uranium%20Mining%20in%20Canada&pid=History%20of%20Uranium%20Mining%20in%20Canada](http://www.cna.ca/curriculum/cna_can_nuc_hist/uranium_hist_mining-eng.asp?bc=History%20of%20Uranium%20Mining%20in%20Canada&pid=History%20of%20Uranium%20Mining%20in%20Canada)

## URANIUM MINING IN SASKATCHEWAN

The Athabasca Basin of northern Saskatchewan has been the site of all major Canadian uranium discoveries for the past 40 years.

AREVA Resources Canada Inc. and Cameco Corporation are the two uranium producers in Saskatchewan, producing all of Canada's uranium.<sup>20</sup> Their ownership of Saskatchewan mines is shown in **Table 2**.

The Uranium map of Saskatchewan (**Figure 15**) shows the location of the mines and mills in the Athabasca Basin (shown in black).

With their enormous reserves and exceptionally high uranium concentrations, about 100 times the world average grade, the up-coming Cigar Lake mine and the operating McArthur River mine are the future of Saskatchewan uranium mining and eclipse any other deposits in the world.<sup>21</sup>

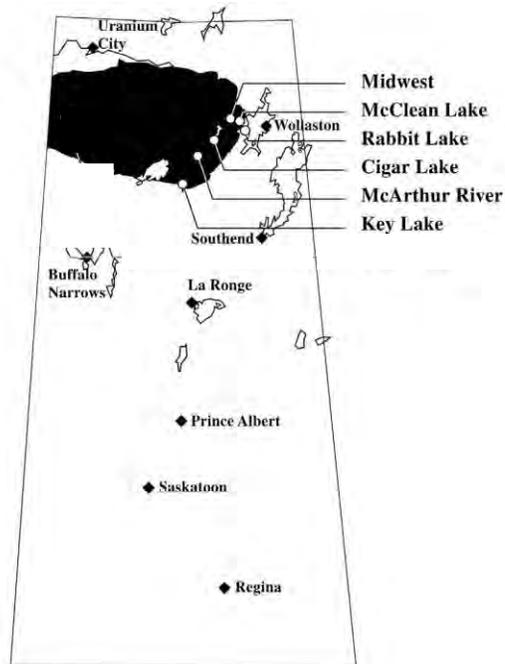
**Table 2: Major Owners and Operators of Saskatchewan Mines**

Mine	OWNERS AND OPERATORS		
	Cameco	AREVA	Others
Key Lake	83%	17%	
McArthur River	70%	30%	
McLean Lake		70%	30%
Rabbit Lake	100%		

Source: World Nuclear Association: <http://www.world-nuclear.org/info/inf49.html#Notes>

<sup>20</sup> Source: [http://www.saskmining.ca/commodity\\_info/Commodities/4/uranium.html](http://www.saskmining.ca/commodity_info/Commodities/4/uranium.html)

<sup>21</sup> Source: Canadian Nuclear Association: [http://www.cna.ca/curriculum/cna\\_can\\_nuc\\_hist/uranium\\_sask-eng.asp?bc=Uranium%20Mining%20in%20Northern%20Saskatchewan&pid=Uranium%20Mining%20in%20Northern%20Saskatchewan](http://www.cna.ca/curriculum/cna_can_nuc_hist/uranium_sask-eng.asp?bc=Uranium%20Mining%20in%20Northern%20Saskatchewan&pid=Uranium%20Mining%20in%20Northern%20Saskatchewan)



**Figure 15: Uranium Mining in Saskatchewan**

Source: Saskatchewan Mining Association: [http://www.cameco.com/common/pdf/uranium\\_101/SMA\\_-\\_Uranium\\_Fact\\_Sheets\\_2008.pdf](http://www.cameco.com/common/pdf/uranium_101/SMA_-_Uranium_Fact_Sheets_2008.pdf)

## CONSUMERS AND PRODUCTION DEMAND

Uranium is a naturally occurring radioactive element used for fuel in nuclear power reactors. Uranium mines provide raw ore which is processed at a milling facility to recover the uranium concentrate. The uranium concentrate is then processed further to create fuel for nuclear power reactors. All uranium mines and mills in Canada are regulated and licensed by the Canadian Nuclear Safety Commission (CNSC) for the protection of Canadians and the environment.<sup>22</sup>

Canada's uranium is used exclusively for electricity generation at nuclear power plants. Nuclear energy provides one of the cleanest energy sources and accounts for 15.3% of Canada's electricity. Approximately 90% of the uranium shipped from Saskatchewan mines goes to non-Canadian market for electricity generation.

13.8% of the world's electricity is generated from uranium in nuclear reactors. This amounts to about 2,630 billion kWh each year, as much as from all sources of electricity worldwide in 1960. It comes from about 440 nuclear reactors with a total output capacity of about 370 000 megawatts (MWe) operating in 31 countries. Globally, 61 more reactors are under construction and another 162 are planned<sup>23</sup>.

Belgium, Bulgaria, Finland, France, Germany, Hungary, Japan, South Korea, Lithuania, Slovakia, Slovenia, Sweden, Switzerland and Ukraine all get 30% or more of their electricity from nuclear reactors. The USA has over 100 reactors operating, with capacity of almost three times Australia's total, and supplying 20% of its electricity. The UK gets almost 16% of its electricity from uranium.

<sup>22</sup> Source: Canadian Nuclear Safety Commission: <http://www.nuclearsafety.gc.ca/eng/about/regulated/minesmills/>

<sup>23</sup> <http://www.world-nuclear.org/info/reactors.html>

Other than nuclear reactors, the use of radioisotopes plays an important role in our daily life, for example, food, water and health. In preservation of food, radioisotopes are used to inhibit the sprouting of root crops after harvesting, to kill parasites and pests. Irradiated foods are accepted by world and national health authorities for human consumption. In medicine, radioisotopes are used for diagnosis and research. Radioactive chemical tracers and radiotherapy are used in providing diagnostic information and treatment of cancer respectively.

Radioisotopes are also used in detecting and analyzing pollutants in the environment, to study the movement of surface water and to measure water runoffs from rain and snow, as well as flow rates of streams and rivers.<sup>24</sup>

Canada is one of the world's leading producers of uranium; all of Canada's uranium production comes from Saskatchewan mines, as shown in **Table 3**. The McArthur River mine in northern Saskatchewan is the largest, high-grade uranium mine in the province.

In 2010 Saskatchewan produced 18% of the world's Uranium (25.4 M lb U<sub>3</sub>O<sub>8</sub>) compared with Australia (11%) and Kazakhstan (33%).<sup>25</sup>

**Table 3: Annual Uranium Production at Saskatchewan Mines**

	Annual Uranium Production (tonnes U <sub>3</sub> O <sub>8</sub> )										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>McArthur River</b>	4,409	7,830	8,490	6,877	8,491	8,491	8,492	8,492	7,528	8,654	9,029
<b>Key Lake</b>	474	353	*	*	-	-	-	-	-	-	-
<b>McClellan Lake</b>	2,722	2,994	2,762	2,734	2,724	2,490	814	867	1,476	1,637	785
<b>Rabbit Lake</b>	3,290	2,070	519	2,690	2,462	2,732	2,326	1,821	1,613	1,706	1,726
<b>Cluff Lake</b>	1,702	1,496	1,918	32	-	-	-	-	-	-	-
<b>Total</b>	12,597	14,743	13,689	12,333	13,676	13,713	11,632	11,180	10,617	11,997	11,540
<b>cf. World</b>	40,962	42,886	42,529	41,998	47,430	49,052	46,499	48,680	51,611	59,772	

Source: World Nuclear Association: <http://www.world-nuclear.org/info/inf49.html#Notes>

The energy potential of Saskatchewan's uranium reserves is equivalent to approximately 4 billion tonnes of coal or 19 billion barrels of oil. More energy is contained in Saskatchewan's known uranium reserves than in all known Canadian conventional oil reserves (not including the Athabasca oil sands). At the current rate of extraction, Saskatchewan's known uranium deposits will last for 20 to 30 years. This figure only includes known deposits. New deposits are continually being discovered through exploration activities.

<sup>24</sup> Source: World Nuclear Organization: <http://www.world-nuclear.org/education/uran.htm>

<sup>25</sup> Source: SMA presentation: Mining Supply Chain Forum, Manufacturing Sector May 28, 2009, Saskatchewan Mining Week May 24 –30<sup>th</sup>, P.L. Schwann, Executive Director, SMA

AREVA's mining reserves are estimated at more than 200,000 tonnes.<sup>26</sup> Cameco has 475 million pounds of proven and probable reserves. McArthur River has produced more than 191 million pounds of uranium oxide ( $U_3O_8$ ) and has reserves sufficient to sustain production until 2034.<sup>27</sup> The Cigar Lake ore body is the richest undeveloped uranium deposit in the world, with an average ore grade of 17%  $U_3O_8$ . It is also one of the largest, with geological reserves totaling 209 million pound Of  $U_3O_8$ .<sup>28</sup>

There is more than 25 years of remaining production at current rates plus new deposits continue to be discovered.

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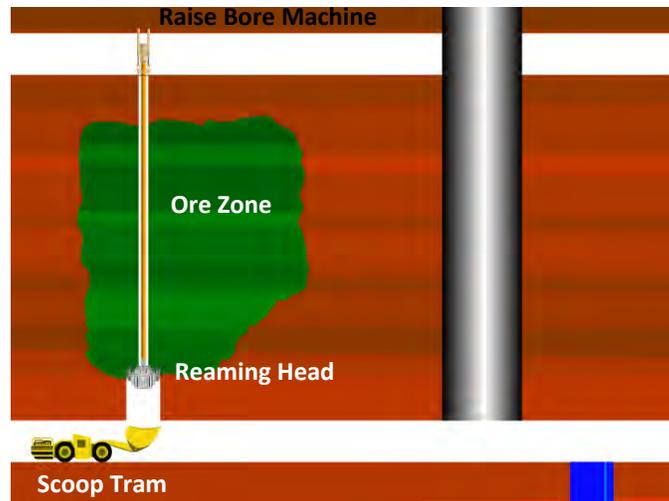
<sup>26</sup> Source: AREVA: <http://areva.com/EN/global-offer-412/uranium-prospecting-and-extraction-for-sustainable-supply.html>

<sup>27</sup> Source: Cameco: [http://www.cameco.com/common/pdf/media/factsheets\\_publications/Cameco\\_Uranium\\_Operations\\_Fact\\_Sheet.pdf](http://www.cameco.com/common/pdf/media/factsheets_publications/Cameco_Uranium_Operations_Fact_Sheet.pdf)

<sup>28</sup> Source: [http://www.cna.ca/curriculum/cna\\_can\\_nuc\\_hist/uranium\\_sask-eng.asp?bc=Uranium%20Mining%20in%20Northern%20Saskatchewan&pid=Uranium%20Mining%20in%20Northern%20Saskatchewan](http://www.cna.ca/curriculum/cna_can_nuc_hist/uranium_sask-eng.asp?bc=Uranium%20Mining%20in%20Northern%20Saskatchewan&pid=Uranium%20Mining%20in%20Northern%20Saskatchewan)

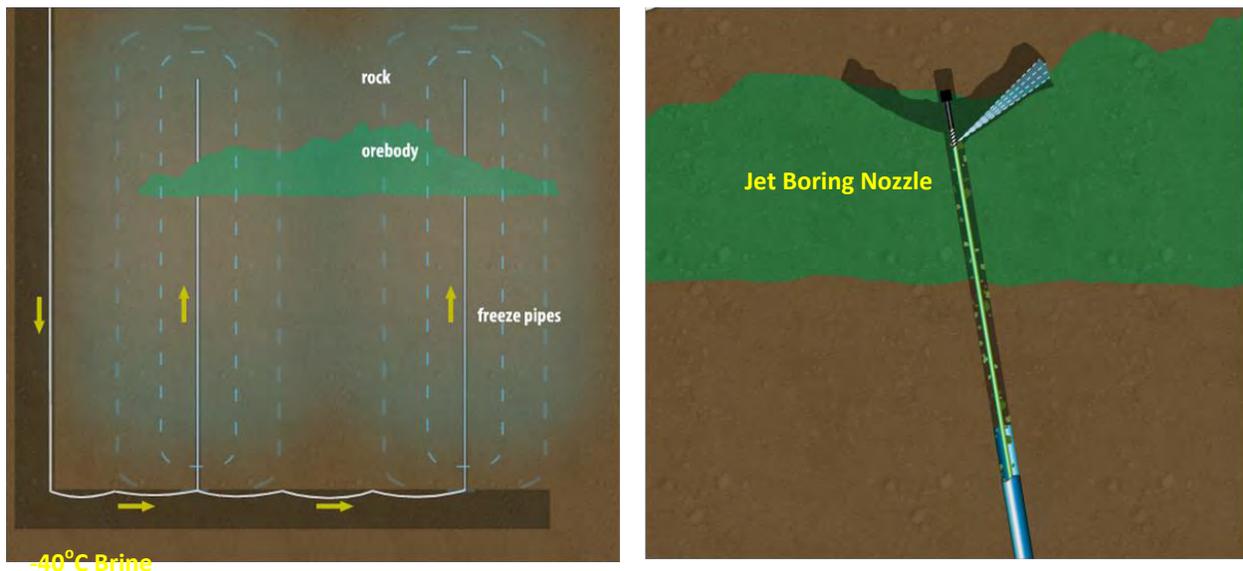
# 1. OVERVIEW OF A URANIUM MINE: CONSTRUCTION AND MINE PROCESSES

Uranium ore can be mined by underground or open-pit methods, depending on its depth and the mine's geological factors. Some methods being used by Cameco include Raise Boring Mining (**Figure 16**) and Jet Boring Mining (**Figure 17**). After mining, the ore is crushed and ground up. It is then treated with acid to dissolve the uranium, which is recovered from solution.



**Figure 16: Raise Boring Mining**

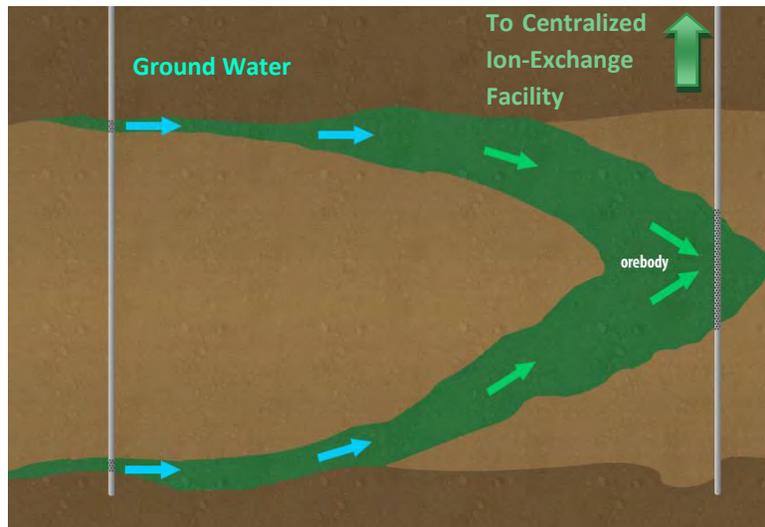
Source: <http://www.cameco.com/common/flash/fuelcycle/index.html>



**Figure 17: Jet Boring Mining**

Source: <http://www.cameco.com/common/flash/fuelcycle/index.html>

Uranium may also be mined by in-situ leaching (ISL), where it is dissolved from a porous underground ore body in situ and pumped to the surface, shown in **Figure 18**.



**Figure 18: In-Situ Leach Mining**

The end product of the mining and milling stages, or of ISL, is uranium oxide concentrate ( $U_3O_8$ ). This is the form in which uranium is sold. Before it can be used in a reactor for electricity generation, however, it must undergo a series of processes to produce a useable fuel.

This simplified flow chart (**Figure 19**) shows the uranium ore process from mining to the production of concentrate. These processes are commonly known as milling and the product – uranium oxide concentrate – is the raw material for making nuclear fuel. For further definitions of the process, see **Appendix D**.

Before uranium can be used as fuel in a nuclear reactor, it is sent to the Blind River Refinery in Ontario, for removal of impurities and yellowcake (uranium oxide concentrate,  $U_3O_8$ ) is converted to uranium trioxide ( $UO_3$ ), which is then fabricated into fuel pellets for nuclear reactors.



Figure 19: Simplified Uranium Mine Process Flow Chart

## 2. URANIUM MINING COMPANIES IN SASKATCHEWAN

The following section is a summary of each of the major uranium suppliers in Saskatchewan.

### CURRENT PRODUCERS

#### AREVA RESOURCES CANADA INC.

AREVA Resources Canada Inc. is a uranium mining, milling, and exploration company based in Saskatoon, Saskatchewan. It is a subsidiary of the French parent company, AREVA. AREVA has over 75,000 employees worldwide, with about 320 employees in Saskatchewan. AREVA Resources Canada Inc. plays an important role in providing nuclear energy to the world.

In 2008, AREVA Resources Canada Inc., based in Saskatoon, was named head office for the North American Mining Division.<sup>29</sup>

**Table 4: AREVA Resources' Major Exploration and Mining Projects**

Major Exploration Projects	Major Mining Projects
Midwest	Cigar Lake
Shea Creek	McArthur River/Key Lake
	McClellan Lake

AREVA Resources' production in 2010 increased slightly from the prior year to over 7.2M lb U<sub>3</sub>O<sub>8</sub>. In addition to an active exploration program for a range of projects in northern Saskatchewan, AREVA Resources is the operator of the Kiggavik project in Nunavut. Their exploration projects focus on Athabasca Basin and Saskatchewan as shown in **Table 4**.

Website address: [www.aveva.com](http://www.aveva.com)

<sup>29</sup> Source: Energy Sector, Natural Resources Canada: Uranium by H. Thomas Calvert (Pg. 2)

## CAMECO CORPORATION

Cameco is a major player in the global uranium industry. Canada produced 18% uranium in 2010, of which 16% was produced by Cameco.<sup>30</sup>

Cameco's portfolio includes about 66 active projects in nine countries. Including partner-operated projects, the company holds about 5.9 million hectares of land, primarily in Canada, Australia, the US, Mongolia and Africa. Their major projects are listed in **Table 5**.

**Table 5: Cameco's Major Exploration and Mining Projects**

Major Exploration Projects	Major Mining Projects
Wheeler River Property	Cigar Lake
Virgin River	McArthur River/Key Lake
Dawn Lake	McClellan Lake
Millennium	

Cameco sustains their position by pursuing a long-term strategy of diversifying the production by geography and mining method. Cameco has major projects in advanced development in northern Saskatchewan and Kazakhstan where production at the Inkai joint venture is ramping up towards the goal doubling their production capacity through their Double U strategy. Double U focuses on expanding production at existing mines, bringing development properties into production, and advancing other projects already in Cameco's portfolio<sup>31</sup> with a target of doubling annual uranium production from 20 million pounds U<sub>3</sub>O<sub>8</sub> to 40 million by 2018.

Website address: [www.cameco.com](http://www.cameco.com)

## NEW VENTURES

### UEX

**UEX Corporation** is a Canadian uranium exploration and development company formed in 2002 under agreement between Cameco Corporation and Pioneer Metals Corporation. UEX is an active explorer in the Athabasca Basin in northern Saskatchewan. UEX has a total of 18 projects either 100% owned, joint ventured or under option totaling 308,320 hectares (761,875 acres) located in the eastern, western and northern perimeters of the Athabasca Basin. Major projects include a joint exploration project on the Shea Creek Property including the Anne Colette and Kianna Deposits which still requires underground development to verify the mineralization. As well, the Hidden Bay Project which has completed a Preliminary Economic Assessment with a recommendation to continue on to the pre-feasibility stage.

Website address: <http://www.uex-corporation.com/s/Home.asp>

<sup>30</sup> Source: Cameco Annual Report 2008: [www.cameco.com/investors/fincancial\\_reporting/annual\\_reports/2008/](http://www.cameco.com/investors/fincancial_reporting/annual_reports/2008/) (Pg. 13)

<sup>31</sup> [http://www.cameco.com/responsibility/finance/stories/a\\_plan\\_for\\_growth/](http://www.cameco.com/responsibility/finance/stories/a_plan_for_growth/)

## RIO TINTO

**(Formerly HATHOR owned)** – Rio Tinto, the world’s third largest mining company, has recently acquired HATHOR Exploration. They are exploring the Roughrider property near Points North Landing in Northern Saskatchewan. HATHOR has been acquired by Rio Tinto as of late 2011. The Preliminary Economic Assessment has been completed for the area and exploration continues.

Website address: <http://www.riotinto.com/>

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## DENISON

Denison is an intermediate uranium producer with production in the U.S., combined with a diversified development portfolio of projects in the U.S., Canada, Zambia and Mongolia. Denison (60%) is the operator for the Wheeler River Property in a joint venture with Cameco (30%); and JCU (10%). They have recently completed a drilling program at the property.

Website address: <http://www.denisonmines.com/home/home>

## D. OTHER MINERAL SECTOR ACTIVITIES: AN OVERVIEW

Uranium and potash are the two dominant forms of mineral activity in the province, however, there are also precious metal, coal, diamond, salt, and other activities in the province. The following outlines some of the key activities in these areas.

### OTHER MINING IN SASKATCHEWAN

#### PRECIOUS METALS MINING

Gold has been a much sought after mineral in Saskatchewan historically. Gold was first discovered in Saskatchewan in the North Saskatchewan River near Prince Albert in 1859. In the late 1980s there was a push for gold exploration with large areas of high gold potential still remaining unexplored. Since then five new gold mines have entered production. Today, Saskatchewan has two operating gold mines.

#### LIGNITE/COAL MINING

Coal mining in Saskatchewan dates back to 1857, making it one of the earliest commodities to be mined in the province. Coal produced in Saskatchewan is lignite, which is a lower quality coal with relatively low heating value. However, these coals are also low in sulphur. Only the Ravenscrag Formation contains lignite deposits of current economic interest. The Ravenscrag Formation is an extension of lignite bearing beds distributed through North and South Dakota, Montana and Wyoming. The deposits are located in three coal basins: Estevan, Willow Bunch/Wood Mountain and Shaunavon<sup>32</sup>. While Saskatchewan has vast resources, approximately 90 per cent of coal produced is consumed in the province, almost all by mine-mouth electricity generating plants. Approximately 10 per cent is exported to Ontario and Manitoba, mostly for generation of electricity.

#### DIAMOND MINING

While there is not operating gold mine in the province, there are major late state exploration projects. Shore Gold is the largest operator with millions of annual expenditures regarding the main exploration site in the Fort à la Corne area. While it is one of the largest kimberlite fields in the world considerable testing and investigations remain to be conducted before it will be known whether any of these kimberlites will develop into a feasible diamond mine in Saskatchewan. The Fort à la Corne Kimberlite Province occurs approximately 80 km east of Prince Albert.

#### POTASSIUM SULPHATE, SALT, AND BENTONITE

There are several other types of operating and developing mines in the province. Salt, which the province has in abundance, is mined in several areas. These are a smaller part of the mineral value supply chain, but require goods and services none-the-less and should be considered in any business plan.

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<sup>32</sup> <http://er.gov.sk.ca/Default.aspx?DN=29fcf745-56de-4358-8246-5ca9b1ad5ade>

## CURRENT PRODUCERS – PRECIOUS METALS, COAL, DIAMONDS, SALT AND OTHERS

### GOLDEN BAND RESOURCES

Golden Band Resources Inc. recently opened a gold mine located in the La Ronge Gold Belt of northern Saskatchewan. Production has begun at the Roy Lloyd Mine (Bingo Deposit), to be followed initially by production at other mines in the region including EP and Komis properties. Also in the same region development of the underground infrastructure at the Roy Lloyd Mine is continuing and on schedule. Production from these deposits will feed the centrally located and 100% owned Jolu mill. The company has a sizeable operation that directly employs around 80 people with another 160 working for various contractors.

Website address: <http://www.goldenbandresources.com/index.cfm>

### CLAUDE RESOURCES INC.

Claude is a gold exploration and mining company with an asset base located entirely in Canada with one operating gold mine near La Ronge as well as late stage exploration projects in Saskatchewan and Manitoba. Since 1991, Claude has produced over 973,000 ounces of gold from its Seabee mining operation in Northeastern Saskatchewan. The Company also owns 100 percent of the Amisk Gold Project in Northeastern Saskatchewan. The mine employs 360 people with a significant camp component capable of housing up to 160 people.

Website address: <http://www.clauderresources.com/index.cfm>

### PRAIRIE MINES & ROYALTY LTD.

Prairie Mines & Royalty Ltd. is the largest thermal coal producer in Canada. In Saskatchewan the company owns and operates the Poplar River, Boundary Dam and Bienfait mines. A total of 36.1 million tonnes of coal was produced by the Company in 2007 from its mines in Alberta and Saskatchewan<sup>33</sup>.

### SHORE GOLD

Shore Gold Inc. is a Canadian natural resource company focused on exploring and developing Saskatchewan's diamond resources. The company is currently advancing the FALC-JV and Star Diamond Project in the Fort à la Corne forest in central Saskatchewan. The company is still trying to determine the economic viability of the site and exploring financing options. The company has had significant employment levels in the past as well as significant contracted services, however, in the current financial analysis phase the company does not have the field presence it once had.

Website address: <http://www.shoregold.com/>

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<sup>33</sup> Prairie Mines & Royalty Ltd Environmental Impact Statement Bienfait Extension – April 2010.

## E. KNOW YOUR CUSTOMER: MINING AND CONSULTANT COMPANIES

Before approaching a mining or consulting firm, do your homework. Gain an understanding of how the company operates and what products they offer. This can be done simply by going to their website, as listed below, to view the wealth of information provided.

### MINING COMPANIES

For a brief description of Mining Companies in Saskatchewan, refer to pages 22, 23, & 24 for Potash and pages 34 & 35 for Uranium.

### POTASH KEY PRODUCERS:

The following is a summary of the key producers in the Saskatchewan Potash industry (**Table 6**).

**Table 6: Potash Key Producers**

Owner:	Website Address:	Mine Location:
Agrium Inc.	<a href="http://www.agrium.com">www.agrium.com</a>	Agrium Vanscoy Potash Operations Vanscoy, SK
The Mosaic Company	<a href="http://www.mosaicco.com">www.mosaicco.com</a>	Mosaic Potash Colonsay
		Mosaic Canada ULC Mosaic Potash Belle Plaine Regina, SK
		Mosaic Potash Esterhazy Canada Partnership Ltd. K-1 & K-2 Mines Esterhazy, SK
PotashCorp	<a href="http://www.potashcorp.com">www.potashcorp.com</a>	PCS Allan Division Allan, SK
		PCS Cory Division Saskatoon, SK
		PCS Lanigan Division Lanigan, SK
		PCS Patience Lake Division Saskatoon, SK
		PCS Rocanville Division Rocanville, SK

## URANIUM KEY PRODUCERS:

The following is a summary of the key producers in the Saskatchewan Uranium industry (**Table 7**).

**Table 7: Uranium Key Producers**

Owner:	Website address:	Mine Location:
AREVA Resources Canada Inc.	www.arevaresources.ca	McClellan Lake Northern Saskatchewan
		Key Lake Northern Saskatchewan
Cameco Corporation	www.cameco.com	McArthur River Northern Saskatchewan
		Rabbit Lake Northern Saskatchewan

## F. CONSULTING AND ENGINEERING FIRMS IN SASKATCHEWAN

Mining Companies work closely with consulting firms when working on New or Expansion projects, exploration and in some cases, within their day to day operations. As these Consultants will often manage the Procurement functions for the Mining Companies on Projects, it is important to understand who they are and which projects they are involved with.

Consultants and Engineering Firms offer a diverse range of services to solve complex engineering challenges. From analysis and planning to design and implementation, professional engineering consultants use their industry knowledge, project management experience and specialized skills to provide tailored consulting services. The following section is a summary of each of the consulting firms who participated in the survey.

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### AMEC AMERICAS LTD.

AMEC is a global supplier of consultancy, engineering and project management services to the world's natural resources, nuclear, clean energy, water and environmental sectors. AMEC employs over 20,000 people in about 40 countries worldwide.

Website address: [www.amec.com](http://www.amec.com)

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### HATCH LTD.

Hatch is an employee-owned multidiscipline firm that provides custom process design; business strategies; technologies; and project and construction management from 65 offices around the world for clients in the Metals; Infrastructure; and Energy market sectors.

Website address: [www.hatch.ca](http://www.hatch.ca)

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### MARCH CONSULTING ASSOCIATES INC.

March, headquartered in Saskatoon, Saskatchewan, is an employee owned, multi-discipline engineering, project and construction management provider to the Canadian industry with an emphasis on the mining sector.

Website address: [www.marchconsulting.com](http://www.marchconsulting.com)

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### MDH ENGINEERED SOLUTIONS CORP.

MDH is a firm that provides solutions to geoenvironmental, geotechnical, hydro geological, and environmental problems. The company is involved in major projects in Canada and internationally. MDH project experience spans mining, industrial, and municipal waste management, hydrogeology, geology and water resource studies, natural resource development, and environmental protection. MDH Engineered Solutions have specialized laboratory facilities in Saskatoon and Edmonton, with offices based out of Saskatoon.

Website address: [www.mdhsolutions.com](http://www.mdhsolutions.com)

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**WARDROP ENGINEERING INC.**

Wardrop is a multi-disciplined engineering and consulting firm that provides solutions for the natural resource management, energy, and infrastructure markets globally. Wardrop is a subsidiary of Tetra Tech, a provider of consulting, engineering, program management, construction and technical services.

Website address: [www.wardrop.com](http://www.wardrop.com)

## G. CURRENT MINING PROJECTS IN SASKATCHEWAN

Between 2008 -2012, Mining Companies in Saskatchewan will invest over **\$10 B** in projects

In the next 20 years, Mining Companies in Saskatchewan will invest over **\$43 B** in new projects

### POTASH

**Table 8: Current Potash Mining Projects in Saskatchewan**

COMPANY	PROJECT	CAPITAL EXPENDITURE	START/COMPLETION DATE	EPCM/EPC CONSULTANTS
AGRIUM	Vault Triton	>\$1 Billion >\$3 Billion	2009 - 2014 Require Partner To Proceed	SNC-Lavalin/PCL* (EPC)
MOSAIC	Belle Plaine Colonsay Esterhazy K1&K2	\$1.2 Billion \$530 Million \$1.73 Billion	2008-2020 2008-2016 2008-2020	Mosaic's engineering group HATCH HATCH
POTASHCORP	Allan Cory Rocanville	\$350 Million \$1.1 Billion \$2.8 Billion	2008-2012 2008-2012 2008-2014	AMEC AMEC AMEC
BHP BILLITON	Jansen Project Acquired Athabasca Potash	\$12Billion	Current-undetermined	SNC Lavalin
K+S Potash	Legacy Project	\$3.25 Billion	2012-2015	<b>AMEC Americas Inc./ March Tron Alliance</b>

\*Construction Management

## URANIUM

Table 9: Current Uranium Mining Projects in Saskatchewan

COMPANY	PROJECT	CAPITAL EXPENDITURE	START/COMPLETION DATE	EPCM/EPC CONSULTANTS
AREVA	McClellan Lake North And Caribou	57 Million	Current (Exploration)	Not Disclosed
	Midwest		Postponed	Not Disclosed
	Shea Creek	100 Million	Current (Exploration)	Not Disclosed
CAMECO	Cigar Lake	1.8 Billion	Current - 2015	Cameco/Wardrop*
	McArthur River P2 Structure And Expanded Capacity	Not Disclosed	Current-Delineation Of New Reserves	Cameco/Wardrop *
	Millennium Deposit	Not Disclosed	Current (Exploration/ Feasibility Stage)	Cameco/Wardrop *

\*Strategic Alliance with Wardrop for provision of Engineering, Project Management and Construction Management resources for Capital Projects being executed by Cameco.

## H. PROCUREMENT CONTACTS

Before making contact with Procurement at a Mine or Consulting firm, check the company's website for their Procurement Policies and Procedures or for the Company's Code of Conduct/Ethics Policies. These Corporate statements will provide guidelines for acceptable behavior of supplier's wishing to do business with their organization.

An example of Corporate Procurement Policies and Procedures (PotashCorp) can be found in **Appendix E** or at [http://www.potashcorp.com/media/POT\\_Corp\\_Purchasing\\_Policy.pdf](http://www.potashcorp.com/media/POT_Corp_Purchasing_Policy.pdf)

*Procurement staff, whether they work for a Mining Company or a Consultant, have limited availability; therefore, it is imperative for a supplier to have an understanding of the active projects, and whether or not their product or service is applicable. See pages 45 and 46 for a list of active projects in the Province.*

*Both Potash One and BHP Billiton are in the very early stages of bringing their Potash mines on stream. These companies do not plan to meet with potential suppliers until their projects are more advanced.*

The following are Procurement Contacts of Potash and Uranium Mining Companies and Consultants that participated in the survey. Detailed procurement contact list can be found in **Appendix F**.

# 1. PROCUREMENT CONTACTS: SASKATCHEWAN MINING COMPANIES

Table 10: Potash Mining Companies: Procurement Contacts

Mining Company	Operations	Primary Procurement Contact	Job Title	Phone	Email	Area of Specialization	Comments
Potash Mines							
AGRIUM		Rob Varga	Contracts Specialist	306 683 1732	<a href="mailto:rvarga@agrium.com">rvarga@agrium.com</a>		
BHP BILLITON	Jansen	Bob Bunclark	Contracts & Procurement Superintendent	306 385 8585	<a href="mailto:Robert.bunclark@bhpbilliton.com">Robert.bunclark@bhpbilliton.com</a>	Procurement	
K+S POTASH CANADA	“Legacy Project”	Michael Khouri	Vice President Procurement	306-651-6204	<a href="mailto:procurement@ks-potashcanada.com">procurement@ks-potashcanada.com</a>		
MOSAIC	Corporate Procurement	Gord Prince	Director, Strategic Sourcing, Potash	306-523-2855	<a href="mailto:Gord.prince@mosaicco.com">Gord.prince@mosaicco.com</a>	Global	
	Corporate Procurement	Les Anderson	Purchasing Manager, Projects	306-523-2851	<a href="mailto:Lesrw.anderson@mosaicco.com">Lesrw.anderson@mosaicco.com</a>	Expansions and Capital Spend	
POTASHCORP	Procurement	Ralph Sanders	Manager, Corporate Procurement	306-933-8535	<a href="mailto:ralph.sanders@potashcorp.com">ralph.sanders@potashcorp.com</a>		General Note: - Please use discretion when contacting procurement staff. Suppliers should be contacting procurement only regarding relevant issues and not using this information indiscriminately for sending flyers, publications etc. on a weekly basis - Email the company for up-to-date procurement contacts. Procurement contacts are rotated as a matter of policy
	Procurement	Rochelle Fjeldstrom	Coordinator, Corporate Procurement	306-933-8603	<a href="mailto:rochelle.fjeldstrom@potashcorp.com">rochelle.fjeldstrom@potashcorp.com</a>		
	Procurement	Lois Spock	Buyer, Corporate Procurement	306-933-8602	<a href="mailto:lois.spock@potashcorp.com">lois.spock@potashcorp.com</a>		
	Procurement	Darryl Stann	Vice President, Procurement	306-933-8795	<a href="mailto:dsstann@potashcorp.com">dsstann@potashcorp.com</a>		
	Technical Services - Pilot Plant	Shonna Molle	Administrative Coordinator/Buyer	306-933-8832	<a href="mailto:shonna.molle@potashcorp.com">shonna.molle@potashcorp.com</a>		
	Allan Division	Glenn Murphy	Purchasing Agent	306-257-5319	<a href="mailto:glenn.murphy@potashcorp.com">glenn.murphy@potashcorp.com</a>		
	Cory & Patience Lake Division	Roger Dauvin	Purchasing Agent	306-657-5130	<a href="mailto:rpauvin@potashcorp.com">rpauvin@potashcorp.com</a>		
	Lanigan Division	Pat Stevenson	Purchasing Agent	306-365-5300	<a href="mailto:pat.stevenson@potashcorp.com">pat.stevenson@potashcorp.com</a>		
	New Brunswick Division	Bob Candy	Purchasing Agent	506-432-8410	<a href="mailto:bob.candy@potashcorp.com">bob.candy@potashcorp.com</a>		
	Rocanville Division	Quinton Cloarec	Purchasing Agent	306-645-7152	<a href="mailto:quinton.cloarec@potashcorp.com">quinton.cloarec@potashcorp.com</a>		
RIO TINTO	Global procurement site and supplier registration.			306 719 2500 in Sask.	<a href="http://procurement.riotinto.com/default.asp">procurement.riotinto.com/default.asp</a>		- Email the company for up-to-date procurement contacts. Procurement contacts are rotated as a matter of policy
VALE	Still at pre-feasibility – no local procurement contacts established			306 791-4510			

Table 11: Uranium Mining Companies: Procurement Contacts

Mining Company	Operations	Primary Procurement Contact	Job Title	Phone	Email	Area of Specialization	Comments
Uranium Mines							
AREVA	Corporate Procurement	Arden Sobush	Director, Materials	306-343-4572	<a href="mailto:arden.sobush@areva.ca">arden.sobush@areva.ca</a>	Supply Chain, Supervision of Staff	Yearly Spend
	Corporate Procurement	Blaise Kouame	Contracts Administrator	306-343-4694	<a href="mailto:blaise.kouame@areva.ca">blaise.kouame@areva.ca</a>	Mining Process	Opex & Genex Expenses
	Corporate Procurement	Anne Ford	Administrative Assistant	306-343-4599	<a href="mailto:anne.ford@areva.ca">anne.ford@areva.ca</a>	Operating & General Expenses	Office Expenses
	Corporate Procurement	Ed Horban	Buyer	306-633-2177 ext 1485	<a href="mailto:ed.horban@areva.ca">ed.horban@areva.ca</a>	Operating & General Expenses	All Site Expenses
	Shea Creek	Trevor Cooney	Contracts Administrator	306-343-4688	<a href="mailto:trevor.cooney@areva.ca">trevor.cooney@areva.ca</a>	Capex All Exploration Field Work	All Projects
CAMECO	Corporate Procurement	Dmitry Barsukov	Director, Projects Procurement & Contracts	306-385-5708	<a href="mailto:dmitry_barsukov@cameco.com">dmitry_barsukov@cameco.com</a>	Capital Projects	
	Corporate Procurement	Rob Gilmour	Superintendent, Operations Procurement Supply Chain Management	306-956-6495	<a href="mailto:rob_gilmour@cameco.com">rob_gilmour@cameco.com</a>	Operations	
		Lockhart Stankowski	Director, Operations Procurement and Logistics	306-956-8171	<a href="mailto:lockhart_stankowski@cameco.com">lockhart_stankowski@cameco.com</a>	Operations	

## 2. PROCUREMENT CONTACTS: CONSULTANT COMPANIES SURVEYED

**Table 12: Consulting Companies: Procurement Contacts**

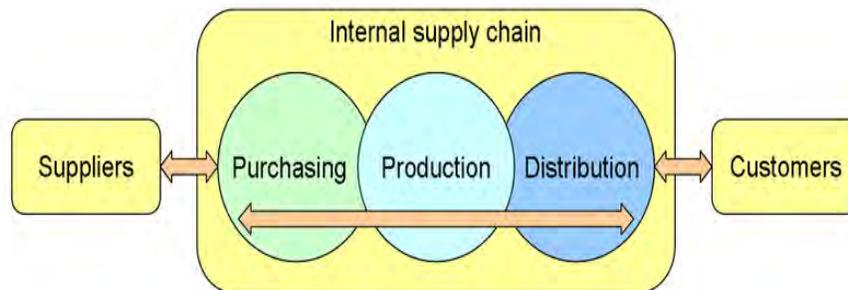
Consulting Company	Primary Procurement Contact	Job Title	Phone	Email	Comments
AMEC Americas Ltd	Jodi Simonson	Procurement Lead	306-477-1155 ext 230	<a href="mailto:Jodi.simonson@amec.com">Jodi.simonson@amec.com</a>	
	Jill Hagen	Procurement Lead	306-477-1155 ext 319	<a href="mailto:Jill.hagen@amec.com">Jill.hagen@amec.com</a>	
	Holly Ealey	Junior Buyer	306-477-1155 ext 652	<a href="mailto:Holly.ealey@amec.com">Holly.ealey@amec.com</a>	
	Mandy Wilson	Junior Buyer	306-477-1155 ext 637	<a href="mailto:Mandy.wilson@amec.com">Mandy.wilson@amec.com</a>	
	Bill Kowal	Manager, Supply Chain	306-477-5886	<a href="mailto:Bill.kowal@amec.com">Bill.kowal@amec.com</a>	
	Colin Staruiala	Procurement Lead	306.477.1155 ext 469	<a href="mailto:colin.staruiala@amec.com">colin.staruiala@amec.com</a>	
Hatch Ltd.	Mike Fedoroff	GM SK Operations & Sr. Proj. Mgr.	306-657-7500	<a href="mailto:mfedoroff@hatch.ca">mfedoroff@hatch.ca</a>	
	Jesal Jani	SK PDG Director	306-657-7515	<a href="mailto:jjani@hatch.ca">jjani@hatch.ca</a>	
	Zia Ulislam	SK Procurement Lead	306-657-7629	<a href="mailto:zulislam@hatch.ca">zulislam@hatch.ca</a>	
	Jim Gallagher	Director, Global Director, Mining	705-688-1603 ext 294	<a href="mailto:jgallagher@hatch.ca">jgallagher@hatch.ca</a>	
	Ernie Cote	Sr. Project Manager & Program Director	705-688-1603 ext. 5156	<a href="mailto:ecote@hatch.ca">ecote@hatch.ca</a>	
MDH Engineered Solutions	Moir Haug	Special Advisor	306-934-7527	<a href="mailto:mhaug@mdhsolutions.com">mhaug@mdhsolutions.com</a>	Member of the SNC Lavalin Group
	Chad Lepoudre	VP Geotechnical Services	306-934-7527	<a href="mailto:clepoudre@mdhsolutions.com">clepoudre@mdhsolutions.com</a>	Member of the SNC Lavalin Group
	Andrew Karvonen	VP Operations	306-934-7527	<a href="mailto:akarvonen@mdhsolutions.com">akarvonen@mdhsolutions.com</a>	Member of the SNC Lavalin Group
	Jorge Antunes	VP Technical Services	306-546-4220	<a href="mailto:jantunes@mdhsolutions.com">jantunes@mdhsolutions.com</a>	Member of the SNC Lavalin Group
March Consulting Associates Inc.	Shawn Purcell	Procurement Lead	306-651-6227	<a href="mailto:spurcell@marchconsulting.com">spurcell@marchconsulting.com</a>	
	Kobina Wood	Senior Purchaser	306-651-6216	<a href="mailto:kwood@marchconsulting.com">kwood@marchconsulting.com</a>	
Tetra Tech Inc.	Joe Moser	Manager, Business Development	306-649-1580	<a href="mailto:joe.moser@tetrattech.com">joe.moser@tetrattech.com</a>	
	Dave Kelly	V.P. Operations, Cameco	306-649-1561	<a href="mailto:dave.kelly@tetrattech.com">dave.kelly@tetrattech.com</a>	
	Doug Kramble	V.P. EPCM	306-649-1567	<a href="mailto:doug.kramble@tetrattech.com">doug.kramble@tetrattech.com</a>	

# I. LEARN THE PROCESS:

## SUPPLY CHAIN MANAGEMENT

Supply Chain Management (SCM) is defined as the process of planning, implementing and monitoring the everyday operations of a supply chain. SCM is the management of the availability of raw materials, their process into finished goods and the distribution of the finished goods. The aim of SCM is to provide the highest level of satisfaction to the customer and increase the business of the company.

A supply chain is made up of several elements that are linked by the movement of products along it. The supply chain starts and ends with customers. As shown in Figure 20, suppliers are external to the organization and can supply raw materials, partially finished and finished goods to be used in the internal manufacturing process of an organization. The organization will procure the materials required and pass these goods to production where they will, in turn, create finished goods for distribution to an organization's external customers.



**Figure 20: Basic Components of a Supply Chain**

Source: <http://www.improvedb2b.com/wp-content/uploads/2008/12/supplychainmanagementsoftware.png>

To ensure an efficient supply chain operation and high satisfaction of customers, at the lowest cost, companies have adopted supply chain management processes. These processes are the management of a network of interconnected businesses involved in providing product and service packages required by end customers. This includes procuring supplies from suppliers, transporting them, supervising the means of production, and distributing finished products to end-buyers. At each phase there are important relationships that must be maintained, such as those between suppliers, intermediaries, service providers and customers.<sup>34</sup>

<sup>34</sup> Source: [http://logistics.about.com/od/supplychainintroduction/a/into\\_scm.htm](http://logistics.about.com/od/supplychainintroduction/a/into_scm.htm)

# 1. HOW THE SUPPLY CHAIN WORKS IN THE MINING INDUSTRY

There are 4 distinct phases of the mineral value chain, each with their own unique procurement requirements. These include;



Procurement contacts for each of these areas can be found on pages 45 and 46.

Below is a description of a typical supply chain process for each of these variations.

## EXPLORATION

Exploration procurement is usually handled by the corporate office much the same as they would handle direct to project purchases. The end users create requisitions internally and purchasers complete the transactions with suppliers. For more complex purchases, such as hiring drilling contractors, a purchaser responsible for contracts or a contract administrator would be in charge of the bid process, evaluation of suppliers, award and administration of the contract. Exploration consists of three stages itself. The following outlines the activities at each stage.

### Stage 1 – Preliminary Analysis

In the preliminary stage of exploration, large areas are evaluated by airborne surveys or geological surveys of the Earth's surface. From large maps and data, specific areas are singled out for more detailed study on the ground. Studies may involve land clearing and mineral sampling by prospectors and geologists. If valuable mineral potential is anticipated, a "claim" is staked, which is often then sold (or optioned) to a larger mining company for further evaluation and exploration.

## Stage 2 – Exploration – Detailed Analysis

The second stage of exploration is Detailed Analysis of a specific area. This often involves detailed mineral sampling, ground and geological surveys, mapping to determine the size and shape of the mineral deposit, drilling (often at great depths) for more samples, and environmental studies. Field camps can be established at either stage of exploration, but tend to become larger and involve more people and equipment as exploration progresses. As stated previously, the bulk of the field work would be completed in this phase. As identified in the following, drilling is the most significant expense. Items such as the camp costs run around 1% to 2% of the total project cost. To provide an example of the types of goods, services and skills required a typical budget for field exploration work is provided below.

<b>Budget for Typical Field Exploration Work</b>	
<b>Staff Costs and Salaries</b>	<b>\$ 294,000</b>
<ul style="list-style-type: none"> <li>• 1 senior geologist – 8 months @\$12,000 per month = \$96,000</li> <li>• 3 geologists – 3 months @ \$12,000 = \$108,000</li> <li>• 2 technicians – 3 months @\$9,000 = \$ 54,000</li> <li>• 2 prospectors – 2 months @\$9,000 = \$ 36,000</li> </ul>	
Transportation – Truck	\$ 6,000
Lodging/Board: Camp Costs – 8 men @\$105 per day for 60 days	\$ 50,400
Linecutting: 40 km @\$750/km	\$ 30,000
Geophysics: IP/Mag 55 km@\$3,000/km	\$ 165,000
Drilling: 6,000 m @\$400/m	\$ 2,400,000
Helicopter: 300 hours @\$1,800/hour	\$ 540,000
Geochem Analysis: 1,000 samples @\$50/sample	\$ 50,000
Field Supplies and Equipment	\$ 10,000
Communications and Freight	\$ 10,000
Resource Estimate	\$ 47,000
<b>Total</b>	<b>\$ 3,602,400</b>

## Stage 3 – Mineral Deposit Appraisal

This stage involves analysis of market, prices, product development, and financial studies as well as environmental, economic, financial, and sociopolitical risk analysis. This is used to develop prefeasibility and complete cost benefit reports.

## DEVELOPMENT - NEW PROJECTS/EXPANSIONS

Mining Companies will typically have their large project work managed through an EPCM agreement with a Consulting Firm.

### DEFINITION OF EPCM AND EPC CONTRACTS

Mining Companies will enter into a contract with Consulting Firms to provide them with required services.

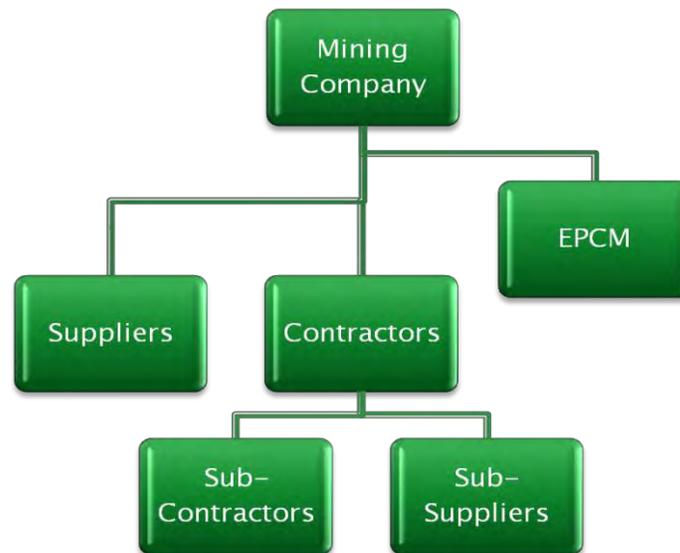
There are two prevalent types of contracts within the mining industry:

- EPCM (Engineering, Procurement, and Construction Management)
- EPC (Engineering, Procurement, and Construction)

EPCM contracts are becoming the more commonly used contract within the industry.

## EPCM (ENGINEERING, PROCUREMENT AND CONSTRUCTION MANAGEMENT)

With an EPCM contract, the contractor **is not** responsible for construction, but instead responsible for design, and manages the construction process on behalf of the Mining Company. This type of contract works best for less defined projects with anticipated changes to scope. Refer to **Figure 21** below.



**Figure 21: A Typical EPCM Arrangement**

The EPCM contractor will:

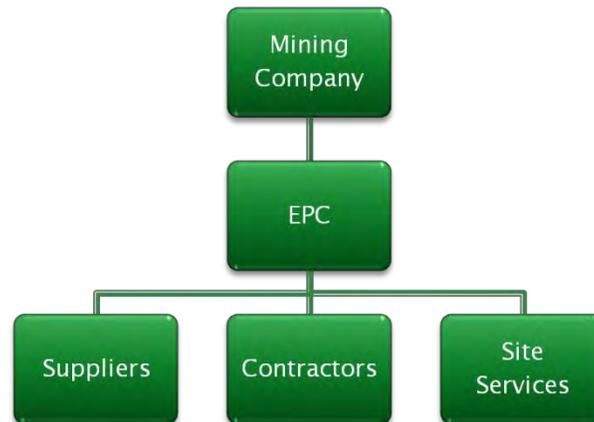
- Advise the Mining Company on the best strategy for the construction and procurement of materials and equipment
- Supervise the construction and overall management of the project to ensure work is carried out by various contractors according to the design criteria and to the required standards
- Not be party to the agreements between trade contractors and the Mining Company

The Mining Company will:

- Award and sign contracts directly with suppliers
- Have more control over the process

## EPC (ENGINEERING, PROCUREMENT AND CONSTRUCTION SERVICES)

With an EPC contract, the Mining Company has a more ‘hands off’ approach to the project. The EPC contractor provides the majority of the resources, and acts as a single point of contact for all parties involved. This type of contract works best for well defined projects, where the Detailed Engineering is complete in advance of the EPC contractor being awarded. Refer to **Figure 22** below.



**Figure 22: A Typical EPC Arrangement**

The EPC contractor will:

- Have full responsibility for procurement
- Award and manage all supplier contracts

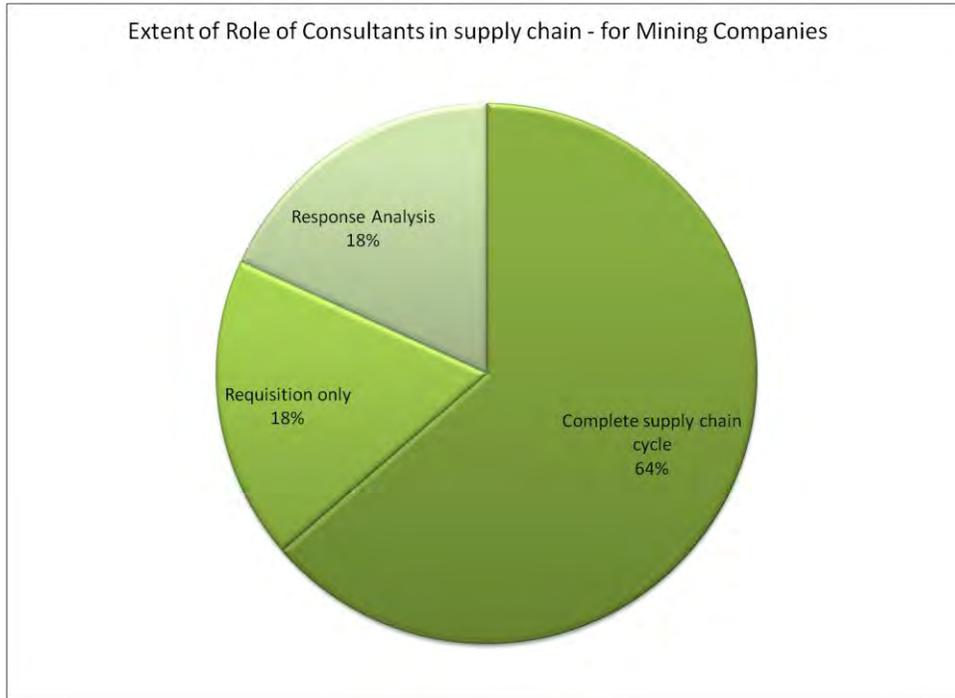
The Mining Company will:

- Have minimal staffing requirements
- Maintain a more ‘hands off’ approach to the project

**SURVEY RESULTS**

Mining Companies were asked:

**Does your organization use Consultants to perform supply chain and procurement functions? And if so, what is the extent of their role? (Complete supply chain; Requisition only; Response/Technical Analysis; Other)**



**Figure 23: Extent of Role of Consultants in Supply Chain Process for Mining Companies**

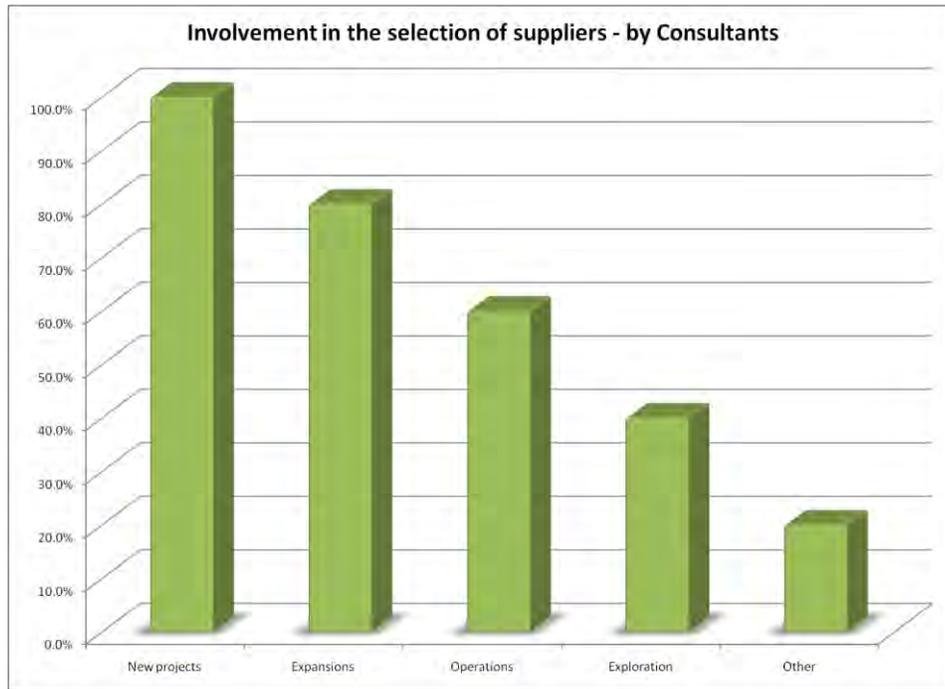
**ANALYSIS**

This pie chart indicates that Consultants are used extensively by Mining Companies for the complete supply chain cycle. They also provide Requisition information and Response/Technical Analysis.

## SURVEY RESULTS

Consultants were asked:

**Are you typically involved in the selection of suppliers for New Projects/ Expansions/ Operations/ Exploration/ Other?** The results are found in **Figure 24**, below.



**Figure 24: Consultants Involvement in the Selection of Suppliers by Type of Work**

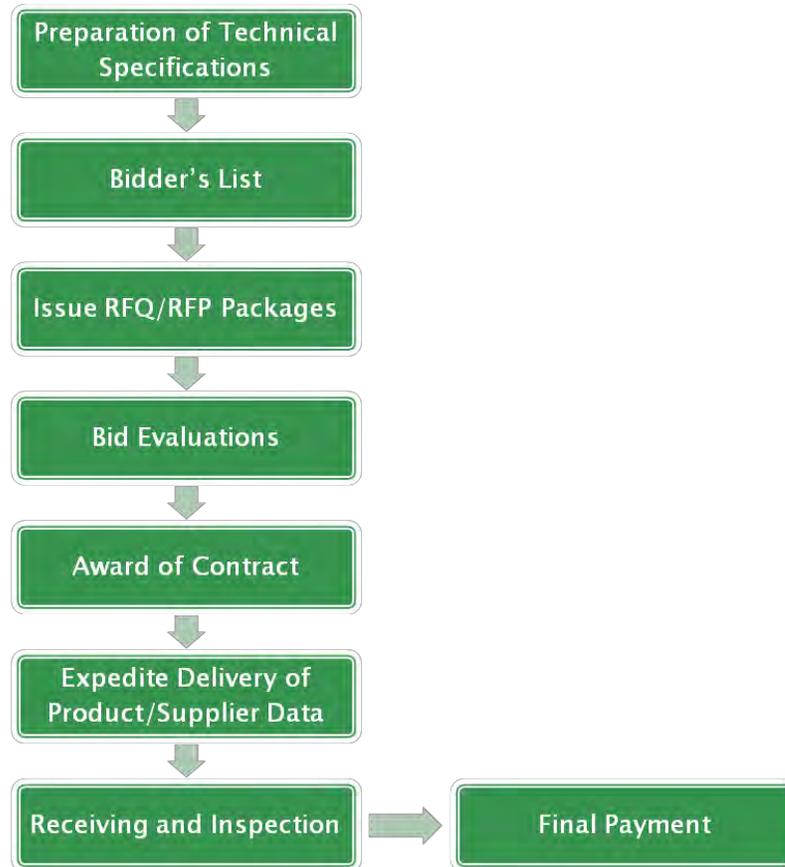
### ANALYSIS

As indicated in the above bar chart, the majority of work performed by Consultants for Mining Companies is for New Projects/Expansions; therefore, suppliers must take this into consideration when marketing their products.

You will need to connect with Consulting Firms to vie for business, in addition to connecting with Mining Companies.

NEW PROJECTS/EXPANSIONS PROCUREMENT PROCESS FLOWCHART

**Figure 25** provides the processes and flow for New Projects/Expansions that would be conducted by a Consultant in conjunction with a Mining Company. It should be noted that this same process is used by purchasers of the Mining Companies when carrying out competitive bids.



**Figure 25: Flowchart of Procurement Process for New Projects/Expansions**

**Table 13** provides details on the responsibilities between the Mining Companies and the EPCM Consultants for the procurement process for new projects or expansions.

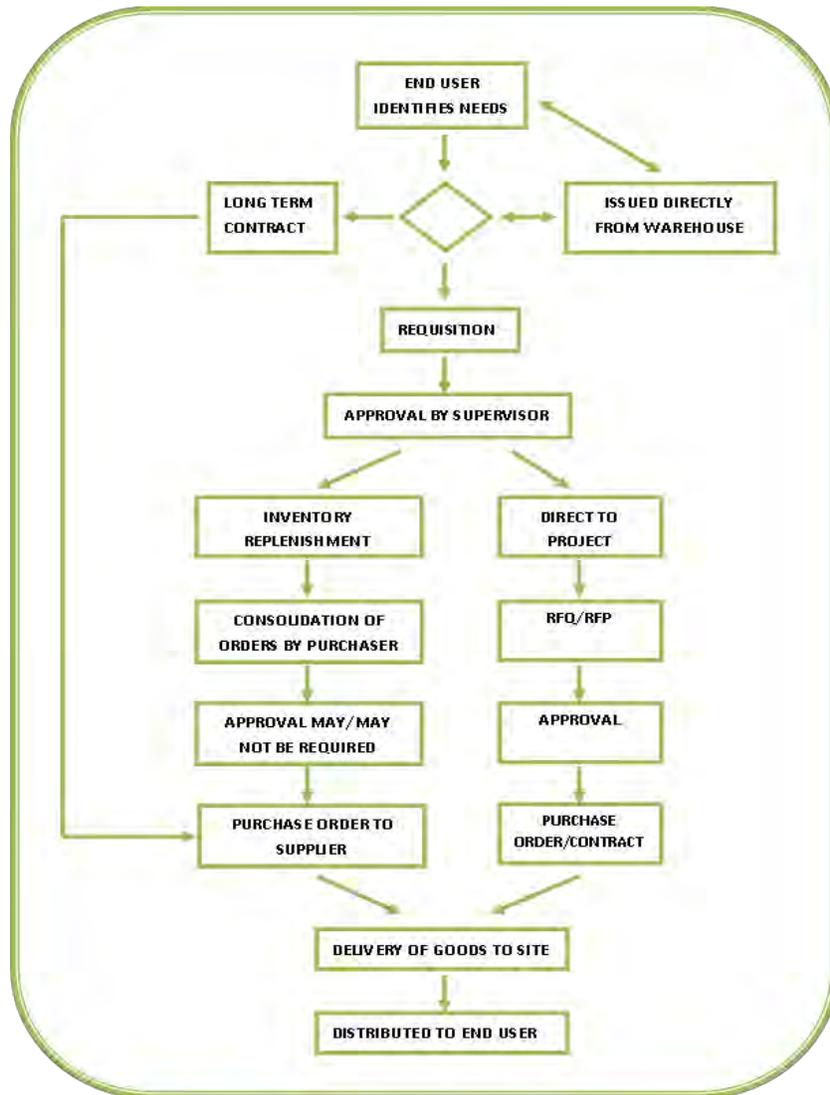
**Table 13: Tasks for Procurement Process for New Projects/Expansions**

TASK	MINING COMPANY	EPCM CONSULTANT
PREPARATION OF TECHNICAL SPECIFICATIONS	PROVIDE SCOPE OF WORK	PREPARE TECHNICAL SPECIFICATIONS FOR ITEMS TO BE PROCURED
	PROVIDE INPUT	PREPARE DETAILED SCOPE OF WORK
	SIGN-OFF ON FINAL SPECIFICATIONS	PREPARE SPECIFICATIONS
		PREPARE DRAWINGS
DEVELOP BIDDER'S LIST	PROVIDE INPUT ON BID PROCESS	DETERMINE IF ITEM WILL REQUIRE TENDERS, OR SOLE SOURCED
	PROVIDE RECOMMENDATIONS FOR BIDDER'S LIST	PREPARE A QUALIFIED BIDDER'S LIST
	SIGN-OFF ON FINAL BIDDER'S LIST	PRE-QUALIFY BIDDERS BASED ON MINING COMPANY AND/OR EPCM REQUIREMENTS
		MANAGE THE COMPETITIVE BIDDING PROCESS
ISSUING RFQ/RFP PACKAGES		PREPARE RFQ/RFP BID PACKAGES
	MAY DISTRIBUTE RFQ/RFP PACKAGES TO THOSE ON THE BIDDER'S LIST	MAY DISTRIBUTE RFQ/RFP PACKAGES TO THOSE ON THE BIDDER'S LIST
BID EVALUATIONS	MAY PARTICIPATE IN THE BID EVALUATION PROCESS	COMPLETE BID EVALUATION BASED ON MINING COMPANY AND/OR EPCM CRITERIA FOR EVALUATION
		MAKE PROCUREMENT RECOMMENDATIONS TO MINING COMPANY, BASED ON EVALUATION RESULTS
		GENERATE A PURCHASE REQUISITION TO THE MINING COMPANY FOR THE REQUIRED ITEMS
AWARD OF CONTRACT	MAKE FINAL DECISION FOR CONTRACT AWARD	
	ENTER INTO CONTRACT OR AGREEMENT WITH THE SUPPLIER THAT IS AWARDED THE WORK	MANAGE THE CONTRACT
EXPEDITING		MANAGE THE PROJECT SCHEDULE
		MANAGE DELIVERY DATES, SUPPLIER DATA, SHIPPING REQUIREMENTS AND LOGISTICAL ISSUES
RECEIVING AND INSPECTION		RECEIVE SHIPMENTS
		COMPLETE INITIAL INSPECTION
		COMPLETE QUALITY INSPECTION TO ENSURE TECHNICAL SPECIFICATIONS HAVE BEEN MET
		TRACK AND REPORT ANY NON-CONFORMANCES
FINAL PAYMENT	ISSUE FINAL PAYMENT TO SUPPLIER	SIGN-OFF THAT CONDITIONS OF CONTRACT HAVE BEEN MET

**OPERATIONS**

Mining Companies will typically use their own internal Procurement groups to manage procurement processes for Operations. Mining Companies focus on developing long-term supplier relationships for their Operational needs. A high percentage of recurrent spend will be setup on corporate contracts with suppliers. These are typically for a 3 to 5 year term.

OPERATIONS PROCUREMENT PROCESS FLOWCHART



**Figure 26: Flowchart of Typical Procurement Process**

**Typical Operations supply chain process:**

Purchase requisitions are issued or initiated by end users at mine sites

Purchases are usually grouped into one of two categories:

- Inventory replenishment
- Direct to Project purchases

Inventory replenishment items are usually managed under long term contracts

Direct to project purchases are usually managed by contacting suppliers for quotations or proposals, evaluating the offer and choosing the supplier who offers the product with the best overall value

Contracted goods Purchase Orders may be issued directly to supplier from end-user and/or consolidated and managed by a purchaser

Direct to Project purchase Orders are usually managed by a purchaser

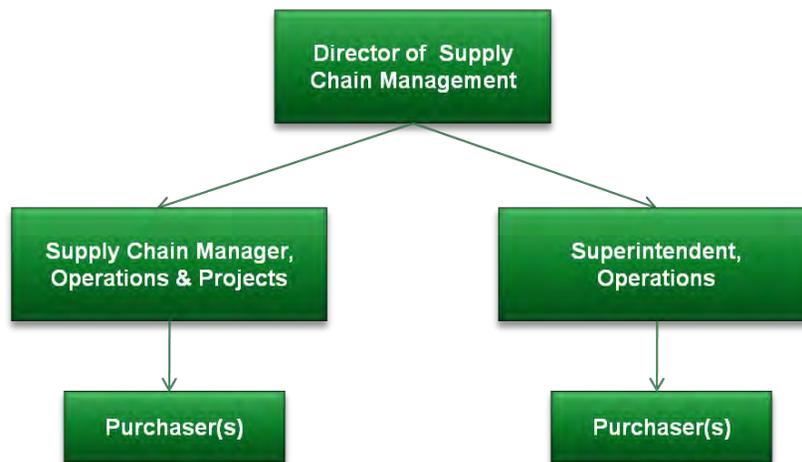
Orders are received at the mine site, and delivered to end-user

Strategic sourcing and alliances for operations are typically managed by the Procurement group located at their corporate offices.

Procurement within a Mining Company may be structured as follows:

**CENTRALIZED SUPPLY CHAIN MANAGEMENT**

Some companies have a centralized procurement group which is typically located at their Corporate office. Procurement is directed and managed from a single point, encompassing targets, lines of authority and prioritization.



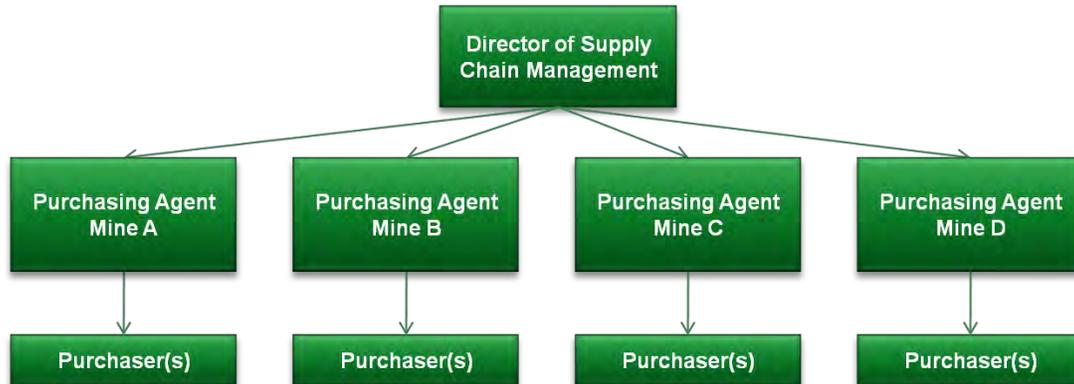
**Figure 27: Centralized Supply Chain Chart**

A centrally managed Supply Chain is depicted above and contract negotiations, pricing adjustments, strategic sourcing etc. would all be handled through one central group (Figure 27).

The benefits of Centralized Supply Chain Management are consolidation of common purchases throughout the organization, standardization and significant saving opportunities. The disadvantage is the lack of knowledge and awareness of some of the local operational requirements that on site purchasers would possess. Cameco Corporation and Potash One follow a centralized structure.

## DECENTRALIZED SUPPLY CHAIN MANAGEMENT

A decentralized Supply Chain is illustrated below (**Figure 28**). While there is a Corporate office, Procurement is managed at the operations level with some co-ordination between procurement operations. Targets, lines of authority and prioritization tend to be controlled by the operation location rather than controlled by Corporate. Strategic savings may not be fully realized by organizations structured in this manner. PotashCorp follows a decentralized structure.



**Figure 28: Decentralized Supply Chain Chart**

## HYBRID SUPPLY CHAIN MANAGEMENT

Hybrid Supply Chain Management is governed both corporately and at each site location. Procurement activities are coordinated and center-led, but with a range of activities left under operations control, as depicted in **Figure 29**.



**Figure 29: Hybrid Procurement Chart**

The Hybrid structure allows an organization to reap the benefits of cost savings across the organization while utilizing the skills and knowledge of the local on site purchasers. Good communication across all divisions provides maximum efficiency and effectiveness regarding procurement decisions. Agrium, AREVA Resources Canada, BHP Billiton and Mosaic all follow a hybrid structure.

## 2. PROCUREMENT METHODS

There are numerous methods of procuring products. Below is a chart which shows the typical use for each procurement method (**Table 14**):

**Table 14: Types of Procurement Method**

Types of Procurement Method	Typical Use	Typical Value Range
<b>RFI (Request for Information)</b>	Budget or estimate pricing only	Any dollar range
<b>P-Card (Procurement Card)</b>	One time purchases; Low dollar purchases; Emergency purchases; Non-complex items; Site Lunches	\$10,000-20,000
<b>Blanket Order</b>	Repetitive purchases Non-complex purchases Hardware, nuts and bolts	\$10,000-20,000
<b>No form of Competitive Bid Required</b>	Sole source purchase; Spare parts purchase; Repetitive purchases with reliable suppliers	<\$20,000
<b>RFQ (Request for Quotation)</b>	Well defined scope of work Non-contract purchases; Standard equipment; Non-complex items	>\$20,000
<b>RFP (Request for Proposal)</b>	Less defined scope of work Complex manufactured items Technically specific purchases; Installations; Commissioning; Large equipment	>\$20,000

The Request for quotation (RFQ) and Request for Proposal (RFP) are the most frequently used procurement methods for competitive bidding.

### REQUEST FOR QUOTATION (RFQ) PROCESS

An RFQ is a solicitation sent to potential suppliers containing a list of relevant parameters of the intended purchase, such as:

- Scope
- Specifications
- Drawings
- Description or part numbers
- Quantities/Volumes
- Quality requirements
- Delivery requirements
- Draft contract
- Personnel skills or competencies
- Terms and conditions/Contract
- Term of contract
- Other value added requirements or terms

TYPICAL USE

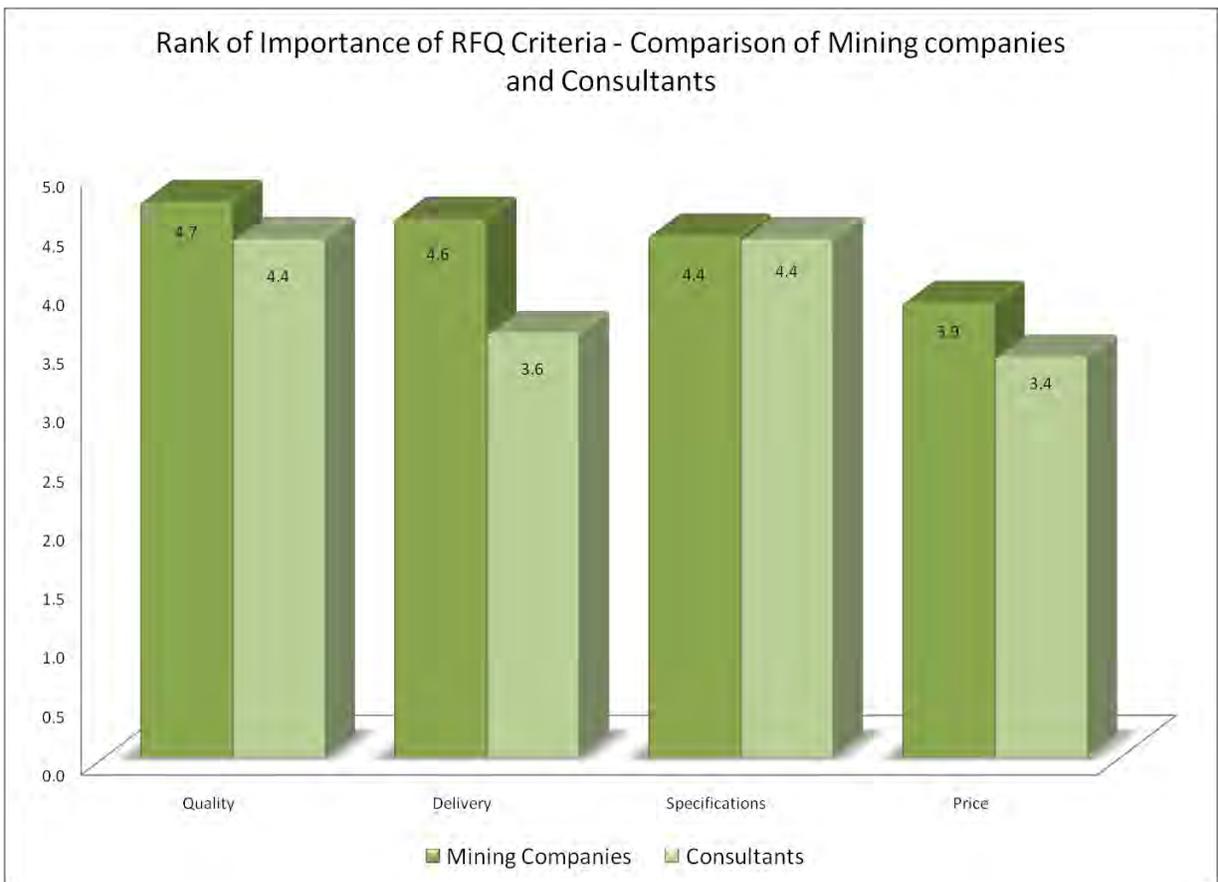
An RFQ is typically used for:

- Non-complex items
- Non-contract purchases
- Standard equipment
- Well defined scope of work

SURVEY RESULTS

Mining Companies and Consultants were asked:

**Please explain your criteria and selection practice for manufacturers for RFQ Processes: Rate importance: (1 – less important, 5 – very important).** The results are found in **Figure 30**, below:



**Figure 30: Shows a Comparison of the Rank of Importance of RFQ Criteria, According to Survey Participants**

## ANALYSIS

It should be noted that for RFQ processes Mining Companies rank quality the highest value; whereas, quality and specifications tie for the highest value for Consulting Firms. Both Mining Companies and Consultants view pricing as the lowest ranking criteria.

This chart indicates that all of the criteria are considered important, and that pricing is not the dominant factor in choosing a supplier. Companies are looking for quality and best overall value for their money. Overall value includes excellent service from suppliers.

## REQUEST FOR PROPOSAL (RFP) PROCESS

An RFP is a solicitation sent to potential suppliers for more complex work that is less defined. Typically, the RFP leaves all or part of the precise structure and format of the response to the discretion of the suppliers. The creativity and innovation that suppliers choose to build into their proposals may be used to distinguish one from another.

## TYPICAL USE

An RFP is typically used for:

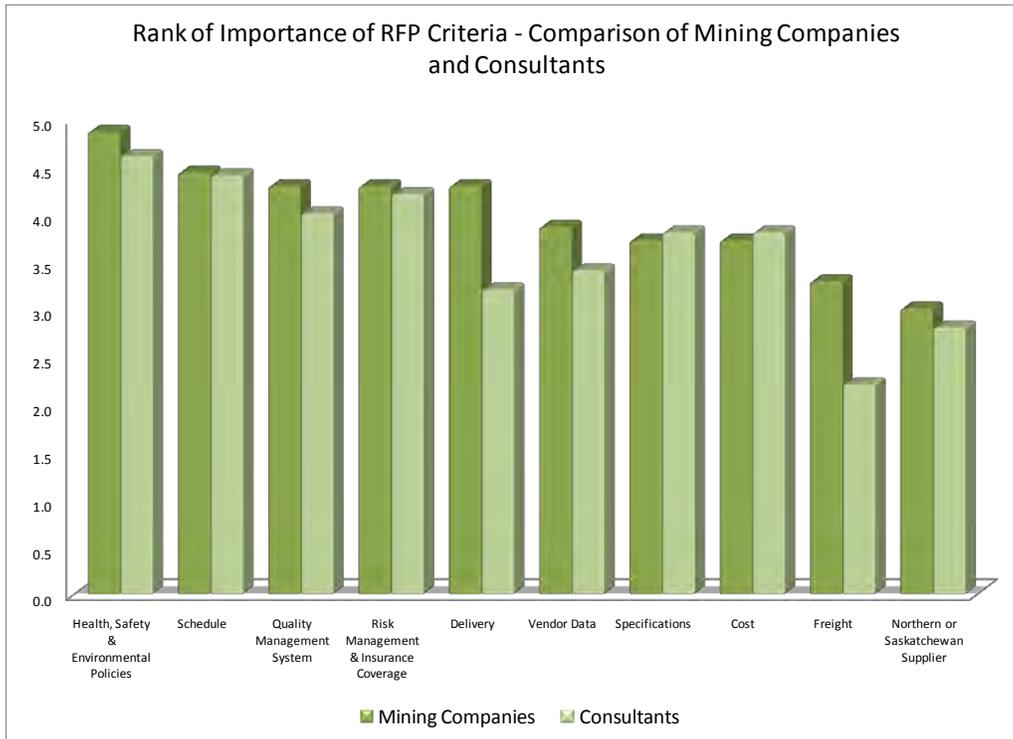
- Less defined scope of work
- Technically specific purchases
- Complex manufactured items
- Large equipment
- Installations
- Commissioning
- Expertise from supplier is expected

**SURVEY RESULTS**

Mining Companies and Consultants were asked:

**Please explain your criteria and selection practice for manufacturers for RFP Processes: Rate importance: (1 – less important, 5 – very important).** The results are found in **Figure 31**, below:

**31:  
a**



**Figure Shows**

**Comparison of the Rank of Importance of RFP Criteria, According to Survey Participants**

**ANALYSIS**

It is interesting to note that both Mining Companies and Consultants rank Health, Safety and Environmental Policies and Schedule with the highest values for RFP processes. All criteria are highly ranked by both Mining Companies and Consultants. Again, as with the criteria for request for quotation, pricing is not the predominant factor for either Mining Companies or Consultants.

**MINE CLOSURE**

The closure of a mine is a multi-stage process. Shutdown and decommissioning involve the removal of equipment, the dismantling of facilities and the safe closure of all mine workings. Reclamation involves earthwork and site restoration including re-vegetation of waste rock disposal areas. The final stage of mine closure is Monitoring, which includes environmental testing and structural monitoring. This phase would involve the least expenditures relative to other phases of the mining cycle, however, there are opportunities for the supply of goods and services. Much of the remediation and long-term monitoring is done by specialized companies and people as well as opportunities for general contractors for the reclamation of the land itself involving demolition, forestation, and debris removal services.

## 3. CONTRACTS: WHAT IS A CONTRACT?

A contract is an agreement or mutual assent between two or more parties (typically brought about by an offer by one party and the acceptance of another), an intention to enter into a binding agreement on the part of both parties, legal subject matter, and consideration (example: something of value to be exchanged between the parties), even if there is no document formalizing the agreement.

### PURPOSE OF A CONTRACT

There are six main reasons to enter into a contract with another party, as follows:

- To formalize obligations and rights
- To control and allocate risk
- To “lock in” benefits
- To eliminate the need for negotiation
- To agree on how exceptions will be handled
- For some other advantage

### RISK

All Contracts should be reviewed by a lawyer before use. If a contract is to be negotiated with another party, consult with a lawyer prior to the start of negotiations.

### PURCHASE ORDER TERMS AND CONDITIONS

The simplest form of a contract is a Purchase Order. Refer to the Mosaic website below for Mosaic’s Canadian Purchase Order Terms and Conditions.

[http://www.mosaicco.com/images/po\\_terms\\_canada.pdf](http://www.mosaicco.com/images/po_terms_canada.pdf)

## 4. A DEFINITION OF COMMON TYPES OF CONTRACTS

There are numerous types of contracts being used for mining projects and operations. The different types of contracts allow more or less flexibility, and allocate different amounts of risk to the supplier and the Mining Company. There is usually a cost associated with assuming risk, so contracts where the supplier bears most of the risk typically cost more.

The following is a table which shows the different types of contracts and their typical use:

**Table 15: Types of Commonly Used Contracts**

Types of Contracts	Typical Use
<b>Time and Material</b>	A Contract that provides no positive profit incentive to the supplier for cost control or labour efficiency.
<b>Firm Fixed Price</b>	The Contract is for a firm price, or under some circumstances may provide for an adjustable price. (It gives the supplier the maximum incentive to produce efficiently and all financial risks are borne by the supplier).
<b>Fixed Price with Economic Price Adjustment</b>	The Contract allows for an upward and downward revision (based on a price scale such as consumer price index) of the stated contract price.
<b>Fixed Price Incentive Fee</b>	The Contract allows for a target price, a ceiling price and a variable profit formula. This is used when a target price can be established but exact pricing is impossible without payment of a contingency. (A ceiling price or upper limit is agreed upon above which the purchaser would not pay regardless of the supplier's cost).
<b>Cost Plus Fixed Fee</b>	A Contract that minimizes the supplier's cost responsibility. Supplier is reimbursed for allowable, allocable costs. The Supplier's profit is fixed. The price of the contract is not fixed.
<b>Cost Plus Incentive Fee</b>	A Contract where the purchaser and supplier agree beforehand on a tentative fee based on the estimated target cost. If the supplier can reduce costs below the target costs, both parties may share in the reduction. Under this contract a supplier can lose all or part of its fee, but all costs must be paid by the purchaser.
<b>Cost Plus Award Fee</b>	A cost plus contract where a supplier is offered an incentive award amount that may be earned (in part or in full) based on the excellence displayed in contract completion time, cost effectiveness, quality of work and technical ingenuity.

## DEFINITIONS

**Time and Material** – It is a contract which gives simple billing at pre-negotiated rates for labor and materials on a project. Some Fixed Price contracts specify this as a method for determining costs of change orders. Labor rates include a certain percentage markup for overhead. In this arrangement all risk goes to the owner.

**Firm Fixed Price** – It is the simplest type of contract, provides for a price which normally is not subject to any adjustment unless certain provisions (such as contract change, economic pricing, or defective pricing) are included in the agreement. These contracts are negotiated usually where reasonably definite specifications are available, and costs can be estimated with reasonable accuracy. A fixed price contract places minimum administrative burden on the contracting parties, but subjects the contractor to the maximum risk arising from full responsibility for all cost escalations.

**Fixed Price w Economic Price Adjustment** - Provision in a contract document for upward or downward revision of specified prices, if and when certain conditions (such as inflation or deflation) occur.

**Fixed Price Incentive Fee** – It is a fixed price contract which provides for the adjustment of the contract price and profit. Amount of this adjustment is determined by a formula based on the relationship between total negotiated cost and the target cost or the actual cost, or some other agreed upon factor.

**Cost plus fixed fee** - This type of contract shifts most of the risk to the owner, but also allows the owner a high degree of flexibility. The contractor under this form of contract has profit at risk and will seek to minimize cost/duration to return a higher proportional profit margin. This type of contract is more common on projects which have high amounts of risk and uncertainty which would scare contractors into giving impossibly high bids, or where the owner just needs resources to work on a project.

**Cost plus incentive fee** – In this contract, a contractor is offered a negotiated incentive fee which is tied to the amount by which the actual total cost is less than the contracted total cost. Some Fixed Price contracts specify this as a method for determining costs of change orders. Labor rates include a certain percentage markup for overhead. In this arrangement all risk goes to the owner.

**Cost plus award fee** – This is where a contractor is offered an incentive award amount that may be earned (in part or in full) based on the excellence displayed in contract completion time, cost effectiveness, quality of work, and technical ingenuity.<sup>35</sup>

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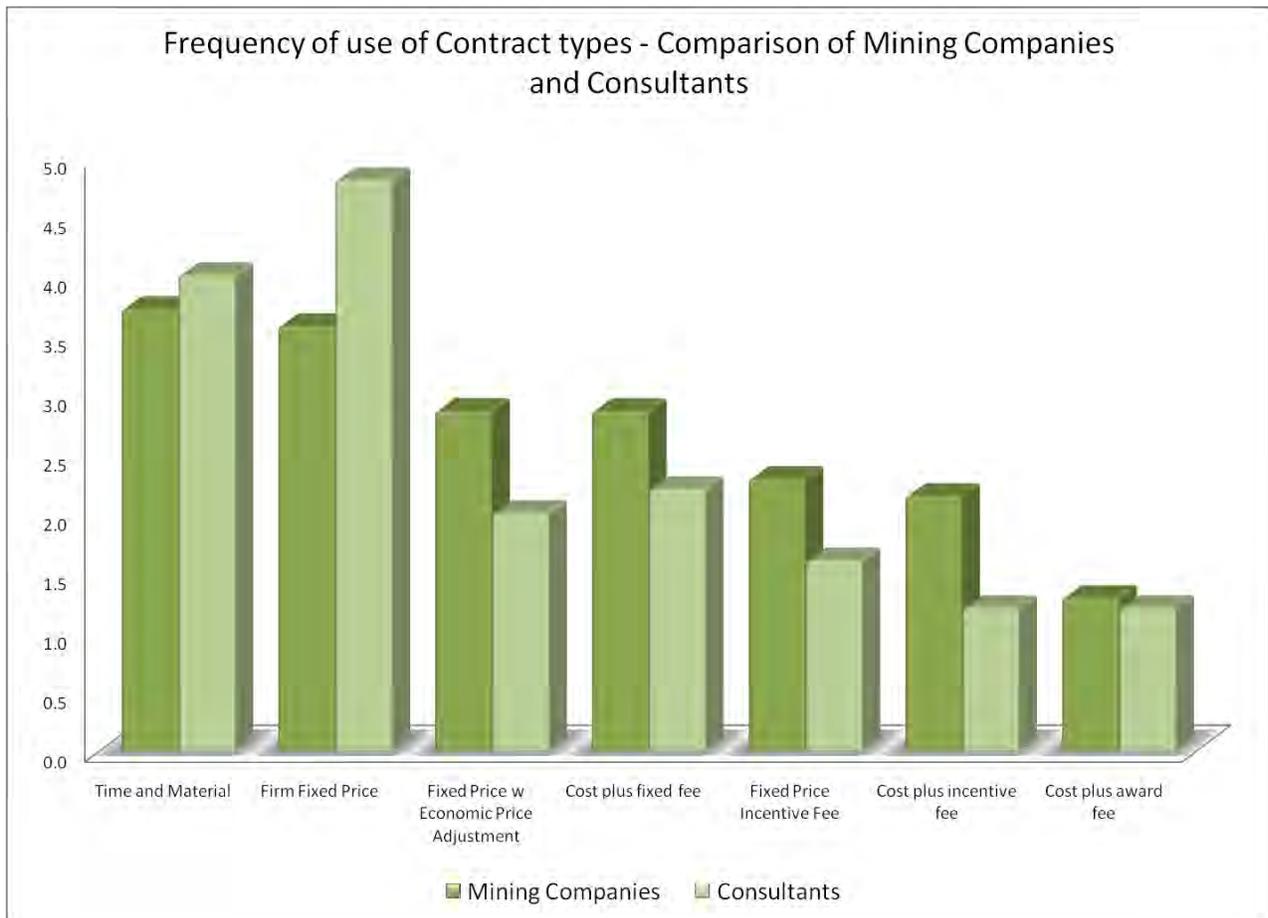
<sup>35</sup> Source: <http://www.businessdictionary.com/>, <http://zo-d.com/blog/archives/taking-the-pmp-exam/taking-the-pmp-exam-appendix-b-contract-types.html>

## 5. HOW CONTRACTS ARE USED IN THE MINING INDUSTRY

### SURVEY RESULTS

Mining Companies and Consultants were asked:

**What type of agreements/contracts do you use when committing to purchases with manufacturers? Rate frequency of use (1-rarely used, 5- frequently used).** The results are found in **Figure 32**, below:



**Figure 32: Shows a Comparison of the Frequency of Contract Types, According to Survey Participants**

### ANALYSIS

The above chart demonstrates that Mining Companies control the type of contracts they wish to use and are now expanding into using more flexible incentive type contracts. Consultants have less flexibility as they are governed by the Mining Companies, and they are shown as more conservative in their contract choices.

# J. PRODUCTS REQUIRED IN THE MINING INDUSTRY: EQUIPMENT AND SERVICES

## NEW MINES

It takes 46 major tasks and approximately 6-8 years to build a new Potash Mine. (Arnfinn Prugger, Director of Earth Sciences and Mining, for PotashCorp)

There are four major areas of concentration that are required to build a new mine:

1. Exploration
2. Establish Infrastructure
3. Construct Underground
4. Construct Surface

The following are the requirements for each area:

### EXPLORATION

**Table 16** lists some of the basic tasks required at the Exploration stage of building a new Potash mine.

**Table 16: Basic Tasks required for Exploration Stage of Building a New Potash Mine**

Task	Description
Seismic Drilling	Perform seismic testing and drilling to calculate the grade of the ore and determine the inferred resources
Secure Rights to Property	If deemed profitable, it is then necessary to secure the rights to the property through mineral rights and leaseholds from the Government of Saskatchewan
Environmental Assessments	Conduct assessments and approval to proceed must be obtained from the Province
Budget for Design	Pre-feasibility, feasibility and several design stages are carried out before actual work commences at the site
Water Bearing	As Potash ore is significantly water bearing, freezing is required to prepare the ground work to sink a shaft in stable ground
Drill exploration holes	Define the resource
Shaft Borehole	Drill rigs required, Shaft ~\$1/4 Billion

Exploration supply opportunities primarily focus on drilling activities. Some of these supply opportunities are listed in **Table 17**.

**Table 17: Equipment and Services Required During Exploration Stage of Building a New Potash Mine**

Equipment	Services
Drilling Rigs	Drillers
Transformers	General Contractors
Generators	Electrical Contractors

## INFRASTRUCTURE

**Table 18** lists some of the basic tasks required during the Infrastructure stage of building a new Potash mine.

**Table 18: Tasks Required During Infrastructure Stage of Building a New Potash Mine**

Task	Description
Road Construction	Necessary to create access routes to the new mine and site roads. The use of heavy earth moving equipment, bulldozers, graders, spreaders, dump trucks, hoppers, shaking screens, etc. are required.
Establish Tailings Ponds	Need to be established for any waste material created as a result of the mining process. Earth moving equipment, concrete and geotextile material are all necessary.
Camp construction	Temporary structures such as rented movable trailers or pre-fabricated buildings.*
Railway construction	Necessary to connect the mine to the main line. Earth moving equipment, rail ties and steel rails are the prime requirements.
Pipelines to other Tailings areas	Necessary throughout the infrastructure and in some cases the pipeline is buried as well as heat temperature controlled and monitored. Earth moving equipment, HDPE Piping, Fusion of Piping, Heat Tracing and Installation as well as instrumentation are components of this requirement.

\*Some companies such as AREVA are using innovative green solutions in the North of the Province such as heating and cooling their camp facilities with geothermal energy.

Infrastructure supply opportunities are listed in **Table 19**.

**Table 19: Equipment and Services Required During Infrastructure Stage of Building a New Potash Mine**

Equipment		Services
Earth Moving Equipment	Geotextile Material	Road Construction/Earth Moving/General Contractors
Bulldozers	Pre-Fabricated Buildings	Electrical Contractors
Graders	Rail Ties	Geochemical, Geophysical, Geological , and Hydrogeological Consultants
Spreaders	Steel Rails	Geotextile Installers
Dump Trucks	HDPE Piping	Rental of Portable Trailers
Hoppers	Heat Trace Cable	Pipe Fusion Technicians
Shaking Screens	Instrumentation	Heat Tracing Installations Technicians
Concrete		

## CONSTRUCT UNDERGROUND

**Table 20** lists some of the basic tasks required during the Construct Underground stage of building a new Potash mine.

**Table 20: Tasks Required During Underground Stage of Building a New Potash Mine**

Task	Description
Design Shaft	Skilled consultants/contractors hired to design the shaft of a mine, due to the risk factors involved in the movement of people and products
Freeze Ground	Ground must be frozen as it is water bearing. Drills and drilling contractors will be required for the specialized work involved in sinking a mine shaft.
Sink Shaft	
Lower and Assemble Mining Machines	
Walking Rigs	Walking rigs used in Oilfield drilling are often used in shaft sinking process.
Freeze Holes	
Brine Solution	
Line Shaft with Blairmore rings	Blairmore rings are specially designed to provide watertight protection and will line the shaft.
Temperature monitor wells	Drilling is required to insert temperature monitoring wells. These wells require steel casings as well as ultra sound measurement instrumentation
Pour footings for Headframe	Huge quantities of steel and concrete are required in the construction of the shaft itself
Hoist and Hoisting Equipment	Specialty hoist rope/wire rope, winch, hydraulic motor, and limit switches are used
Construct Concrete Headframe	
Shaft Steel	
Freeze Plant running with circulating brine	A Mobile freeze plant with brine solution assists in the freezing the ground to allow for safe construction.
Excavate a mine room underground – machine shops, refuge stations, etc.	
Mining machines, Pumps, Pipes, Fans, Electrical Equipment	

Supply opportunities for the Construct Underground stage are listed in **Table 21**.

**Table 21: Equipment and Services Required During Underground Stage of Building a New Potash Mine**

Equipment			Services
Walking/Drill rigs and Drill Bits	Hydraulic motor	Rock Drills	<b>General Contractors</b>
Ultrasound Measurement Instrumentation	Conveyors and Conveyor Components	Load and Hauling Machinery	<b>Electrical Contractors</b>
Steel casing	Scoop trams	Raise Bore Systems	<b>Design Consultants</b>
Blairmore Rings	Limit Switches	Crushers	<b>Drillers</b>
Steel	Shovels	Screens	<b>Shaft Specialists/ Consultants</b>
Concrete	Cranes	Rock drills	<b>Rental of Mobile Freeze Plant</b>
Hoist Rope/Wire Rope	Specialized Mine Vehicles	Lifts	<b>Explosives Expert</b>
Winch	Rock Tools	Instrumentation	
Pumps	Pipes	Fans	
Electrical Equipment	Explosives and Supplies		

## CONSTRUCT SURFACE

**Table 22** lists some of the basic tasks required during the Construct Surface stage of building a new Potash mine.

**Table 22: Tasks Required During Construct Stage of Building a New Potash Mine**

Task	Description
Mill	Construction of building
Building(s)	Construction of building
Concrete Slabs	Concrete foundations for several buildings
Crushing	Specialized equipment required
Grinding	Specialized equipment required
Flotation Building	Specialized equipment required
Drying	Specialized equipment required
Screening	Specialized equipment required
Compaction	Specialized equipment required
Recrystallization	Specialized equipment required
Product Storage Building	Wooden building, due to corrosive nature of Potash
Conveyor Belts for Load-out	Specialized equipment required

Supply opportunities for the Construct Surface stage are listed in **Table 23**.

**Table 23: Equipment and Services Required During Construct Surface Stage of Building a New Potash Mine**

Equipment		Services
Mill/Product Storage/Flotation Buildings	Concrete and Concrete Slabs, Foundations	Mill Design Specialists/Consultants
Cyclones	Centrifuges	General Contractors
Lumber	Overhead Cranes	Electrical Contractors
Grinding Equipment	Compressors	Fire Protection Specialists
Scrubbers	Agitators	HVAC Specialists
Pumps & Piping	Belt Scales	
Dryers	Transformers	
Thickeners	Switch Gears	
Tanks, Storage Bins	Fire Protection System	
Conveyors	Process Control Equipment	
Bucket Elevators	Process Chemicals	
Boilers	HVAC Equipment	

**OPERATING MINES**

There are numerous classifications for Equipment and Services used in an Operating Mine, as detailed in the following example provided by AREVA Resources Canada Inc. From this sample you can see there are many supply opportunities in an Operating Mine.

SAMPLE OF EQUIPMENT AND SERVICES REQUIRED FOR AN OPERATING MINE

CLASSIFICATION	DESCRIPTION	CLASSIFICATION	DESCRIPTION
1	<b>COMPUTING and TELECOMS</b>	4	<b>CIVIL ENGINEERING and SECOND WORK</b>
	<b>Hardware</b>		<b>Civil engineering</b>
	Office hardware		Equipment and tools of site building
	Other computing and telecom hardware		Construction raw materials
	<b>Software</b>		Demolition, unroofing
	Software licences and maintenance		Topography, drilling and survey, earthwork
	<b>Computing services</b>		Construction of building, frames and roof
	Computing project services		Ways and networks
	Reccuring computing services, outsourcing and third party maintenance		<b>Second works</b>
	<b>Telecom subscriptions</b>		Plumbing, sanitary
2	<b>INTELLECTUAL SERVICES</b>	5	Coatings, boardings, glazeries, joineries, iron works, completions
	<b>Human Resources</b>		Scaffolding, heat insulation
	Interim		Elevators
	Training		HVAC (Heating, Ventilation, filtration, air-conditionning)
	Other HR services		<b>RAW MATERIALS and SEMI FINISHED</b>
	<b>Marketing, Advertising and Communication</b>		<b>Metals and plastics</b>
	Editing, printing and promotional goods		Black steel
	Advertising		Stainless steel and alloys
	Communication events organisation		Aluminium
	<b>Technical services</b>		Copper
Engineering staff augmentation / lumpsum	Other metals		
Technical documentation	Plastics		
Translation and interpretership	GOS - Grain oriented steel		
Quality, certification and reglementary control	Insulating materials		
<b>Consulting services</b>	<b>Chemical products</b>		
Legal	Chemical products		
Finance / accounting	<b>Gases</b>		
Other consulting services	Industrial gases		
3	<b>GENERAL SERVICES</b>	6	<b>FORGING, BOILER MAKING, PIPING</b>
	<b>Fluids</b>		<b>Forging</b>
	Energy		Large forged components
	Other fluids		Other forged components
	<b>General expenses</b>		<b>Constructed boilers components</b>
	Office supplies		Large constructed boilers components, weldings great thicknesses
	Office furniture		Other constructed boilers and tack welded components
	Conception and reproduction		<b>Piping</b>
	Subscriptions and adhesions		Piping (products and installation services)
	Industrial and laboratory supplies		<b>Foundry</b>
	Work clothing	Large die-casted components	
	Individual protection equipment	Aluminium castings	
	<b>Travels and vehicles</b>	<b>Maintenance boilers, piping</b>	
	Air	Maintenance boilers, piping	
	Rail	<b>EQUIPMENTS, COMPONENTS and MECHANICAL DEVICES</b>	
	Hotel, lodging	<b>Mechanical and electromechanical components</b>	
	Travel agencies and other expenses	Nuclear material and process equipments	
	Car renting - short duration	Machines tools	
	Vehicle renting - long duration (incl. forklifts)	Pumps and other revolving machines	
	<b>Service externalisation</b>	<b>Mechanical components</b>	
Catering	Mechanical sets to be integrated in equipments for nuclear process		
Reception and guarding	Mechanical machining and treatments		
Buidling maintenance	Metal components and moulded plastic		
Building cleaning	Valves and fittings		
Protection and security	Standard mechanical components (on catalogue)		
Moving	Ironwork, mechanic work, welding		
Facility Management (building, internal logistics, reception, mailing, security, cleaning, health care)	Mechanical subsystems		
Waste management	Large heavy steel frames		
<b>Mail</b>	<b>Form tooling</b>		
Shipment below 70 kg	Tooling for plastics		
Postal services	Tooling for metals		
	<b>Maintenance mechanical components</b>		
	Maintenance mechanical components		

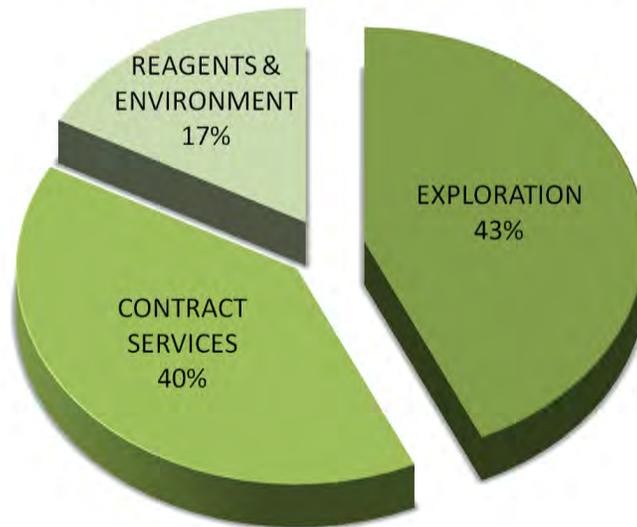
Figure 33: Procurement Segmentation Example from AREVA

CLASSIFICATION	DESCRIPTION
8	<b>ELECTRICITY, ELECTRONICS, INSTRUMENTATION</b>
	<b>Electricity</b>
	High voltage
	Medium and low voltage
	Emergency power supplies
	Electrical components
	Insulators & bushings
	Wire and cables
	Low currents (access controls, video, fire)
	<b>Electronics</b>
	Electronic boards and components
	Industrial control and command
	Nuclear controls of processes
	<b>Instrumentation</b>
Instrumentation analytical measurements	
Instrumentation nuclear measurements - Nuclear sources	
Sensors, transmitters, other instruments	
<b>Maintenance electricity, electronics, instrumentation</b>	
Maintenance electricity, electronics, instrumentation	
9	<b>LOGISTICS, HANDLING and STORAGE</b>
	<b>Handling</b>
	Lifting: bridge, doors and trap doors
	Traction - conveying
	<b>Storage</b>
	Containers
	Barrels
	Small conditioning, pallets, fitted latticework, cradles
	Services of packing, compaction, coating, preparing, renting
	<b>Logistics</b>
	Transport of nuclear materials
	Exceptional transport (all means)
	Maritime transport by containers
	Airborne
Conventional transport (road, rail...)	
Intermediaries	
10	<b>PRODUCTION SERVICES</b>
	<b>Cleaning, decommissioning</b>
	Cleaning, nuclear decommissioning
	Nuclear measurements services
	Cleaning, non nuclear decommissioning
	<b>Waste management</b>
	Nuclear wastes
	Non nuclear wastes
	<b>T&amp;D specific production services</b>
	Customer project subcontracting
Production engineering	

Figure 34: Procurement Segmentation Example from AREVA

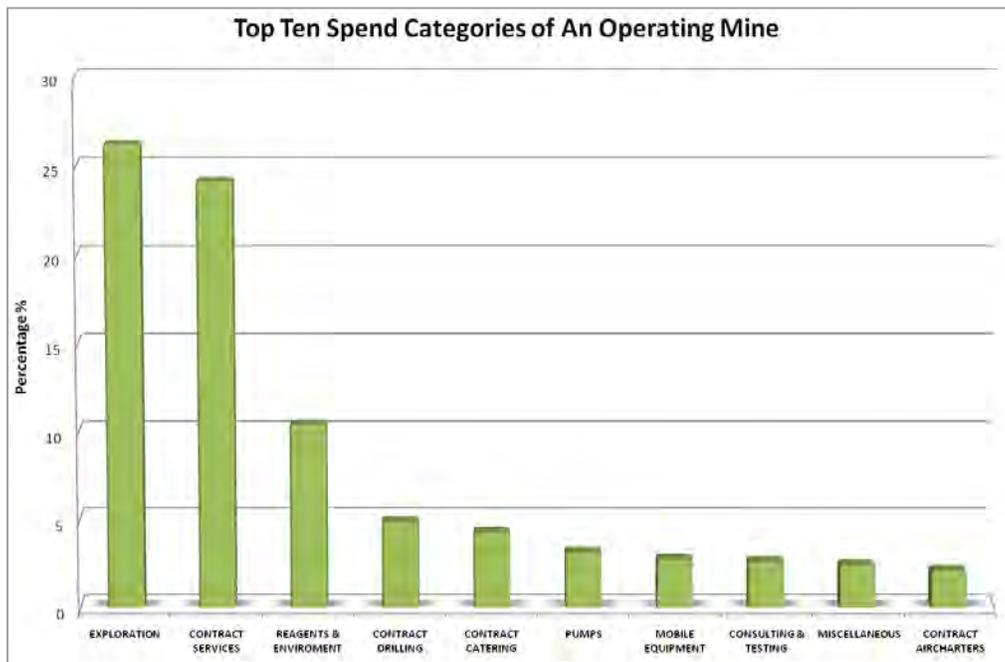
**Figure 35** shows the top three (3) spend categories of AREVA’s Operating Mine. AREVA is currently slowing down its operations at McClean Lake; therefore, you will notice that Exploration (looking for new mines) is a top priority for AREVA. Contract Services, Reagents and Chemicals rank second and third respectively.

**Top Three Spend Categories of An Operating Mine**



**Figure 35: Top Three Spend Categories of an Operating Mine - Example Provided by AREVA**

The chart below (**Figure 36**) provides a sample of the top 10 spend categories of an operating mine. It should be noted that services comprise a large portion of this sample.



**Figure 36: Top Ten Spend Categories of an Operating Mine - Example Provided by AREVA**

**Figure 37** below shows ABC analysis of products used by AREVA. ABC analysis is a powerful tool by which items are compared according to their annual usage, allowing the purchaser to prioritize the management of classes A, B, and C in selection and procurement decisions.

- A items represent 10-20% of items and account for 70-80% of funds spent
- C items represent 70-80% of items and account for 10-20% of spend, and
- B items represent those items that fall in between.

Purchasers traditionally try to secure A items with long term agreements. C items may be handled using innovative procurement methods such as blanket purchase orders and vendor managed inventory. B items are more complex purchases as they can be specialty items that require purchaser attention and may necessitate using a Request for Proposal process.

### ABC Analysis of Spend Distribution of an Operating Mine



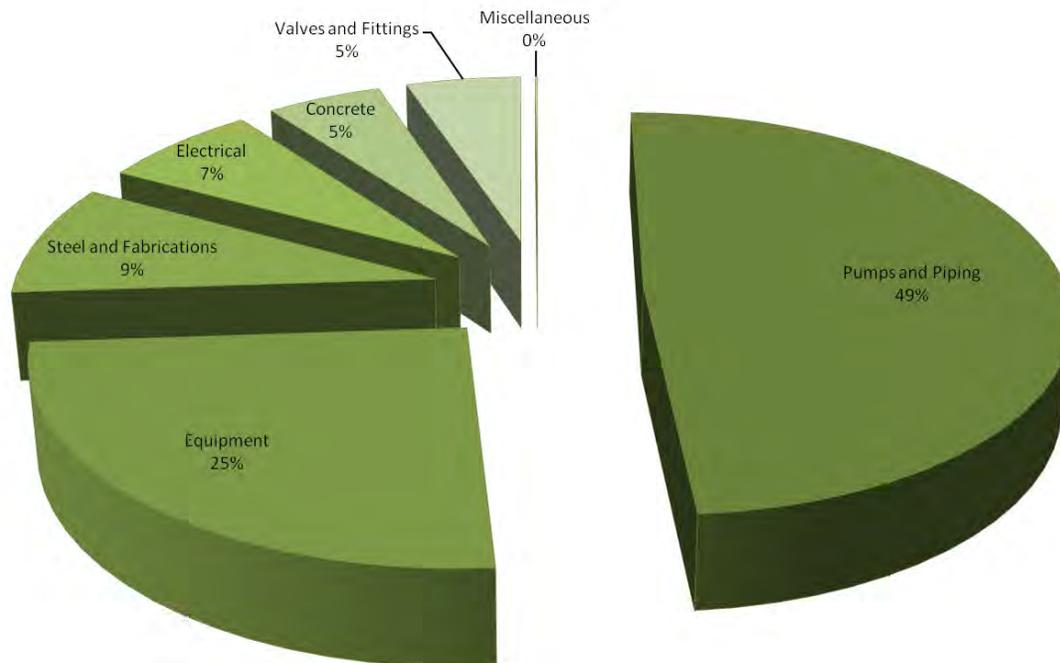
**Figure 37: ABC Analysis of Spend Distribution of an Operating Mine - Example Provided by AREVA**

Further details of the type of purchases found in an Operating Mine can be found in **Appendix H**.

## NEW PROJECTS/EXPANSIONS

The Equipment and Services required for New Projects or Expansions is quite diverse. The pie chart below (**Figure 38**) shows the major spend categories for New Projects/Expansions, as provided by March Consulting Associates Inc. Notice that pumps and piping rank highest, while equipment and steel and fabrications rank second and third, respectively. This chart indicates that Manufacturers are used extensively during New Projects/Expansions.

### Spend Categories of Manufactured Goods for Mining Projects



**Figure 38: Seven Spend Categories of Manufactured Goods for Mining Projects - Example Provided by March Consulting**

The list of manufactured goods listed below is divided into 7 groupings:

- Pumps and Piping
- Valves and Fittings
- Concrete
- Electrical
- Steel and Fabrications
- Equipment
- Miscellaneous

REPRESENTATIVE SAMPLE OF EQUIPMENT AND SERVICES REQUIRED FOR NEW PROJECTS OR EXPANSIONS

Table 24 below provides a sample of both Equipment and Services that were required for New or Expansion Projects.

**Table 24: Representative Sample of Equipment Required for New Projects or Expansions**

Description	Approximate Value	Description	Approximate Value	Description	Approximate Value	Description	Approximate Value	Description	Approximate Value	Description	Approximate Value
HDPE Pipe	\$ 5,629,080	Bucket Elevators	\$ 1,087,914	Pumping Platform Header Assy	\$ 394,117	5kv MCC	\$ 250,235	Manual Valves	\$ 286,825	Aggregates	\$ 660,000
Containment Pipes	\$ 1,246,459	Car Puller	\$ 1,019,668	Surge Bin	\$ 269,527	Delta V System Accessories	\$ 156,044	HP Piping Spools	\$ 198,133	Piles	\$ 127,925
Pumps & Motors	\$ 1,018,000	Floating Pump Platforms	\$ 560,128	Wall Anchors	\$ 149,000	1kv Tech 90 Cable	\$ 113,934	Low Pressure Spooling	\$ 116,873	Concrete Pilings	\$ 98,329
HDPE Fittings	\$ 219,684	Bulk Weighers	\$ 529,255	Cable Tray Fabrication	\$ 104,707	3MVA Transformer	\$ 110,846	Test Flanges	\$ 48,525	Foundation	\$ 54,545
High Pressure Piping	\$ 198,953	Screens	\$ 374,736	Surge Bin	\$ 97,566	1500 Kva Transformer	\$ 76,200	Control Valves / Diffusers	\$ 46,707	<b>Subtotal</b>	<b>\$ 940,799</b>
HDPE Pipe	\$ 169,000	Belt Conveyor Machinery	\$ 279,316	Surge Bin	\$ 95,554	PLC Control Panel	\$ 74,580	Elbow Stiffener	\$ 42,630		
Low Pressure Piping	\$ 143,361	Conveyor Belting	\$ 184,087	Diverter Gate	\$ 59,110	15kv Disconnect	\$ 66,045	HDPE Repair Clamps	\$ 23,726		
Steel Pipe for Road Crossings	\$ 115,470	Pressure Vessels	\$ 134,300	Chute	\$ 49,260	Cable Tray	\$ 62,961	HDPE Repair Pipe Clamps	\$ 23,726	Signs	\$ 18,029
HDPE Pipe for Road Crossings	\$ 98,057	Screen	\$ 110,374	Wall Anchor	\$ 47,201	PLC Hardware	\$ 62,944	Victaulic Couplings	\$ 18,950	<b>Subtotal</b>	<b>\$ 18,029</b>
Diesel Pump c/w Standby Pump	\$ 71,668	Weigh In Motion	\$ 110,232	Chute	\$ 46,060	Flowmeters	\$ 43,224	Rupture Disks/holders	\$ 17,536		
Sump Pumps	\$ 38,211	Crusher	\$ 92,958	Chute	\$ 39,625	PLC Panels	\$ 42,389	Segmented Elbow	\$ 16,468		
Sump HDPE Piping	\$ 27,376	Weightometers	\$ 52,335	Wall Anchors	\$ 36,703	1kv Power Cable	\$ 34,209	Repair Clamps HDPE Pipe	\$ 16,260		
Hose for Pumping Platforms	\$ 18,660	Auto Samplers	\$ 46,907	Sheet Pile Walkway	\$ 35,485	Flow Meters	\$ 31,036	Ball Valves	\$ 14,868		
Test Hose	\$ 16,200	Jib Cranes	\$ 27,450	Pump Extension Spools and Modifications to Pump Platforms	\$ 34,340	Delta V Wired Equipment	\$ 25,479	Victaulic Coupling	\$ 11,449		
Pump Shaft	\$ 12,595	Cranes (Floor Mounted)	\$ 22,040	Extension Spool and High Pressure Pipe Supports	\$ 33,552	15, 5,& 1 KV Cables	\$ 24,845	Victaulic Coupling	\$ 10,600		
HDPE Conduit	\$ 10,772	Air Quality Monitors	\$ 20,875	Chute	\$ 33,525	Fibre Switches	\$ 19,365	Extension Spools	\$ 10,133		
HDPE Pipe	\$ 10,226	Water Tank / Septic Tank	\$ 7,004	Pull Station Spares	\$ 18,029	PLC Hardware	\$ 19,072	Ball Valves	\$ 8,986		
HDPE Pipe	\$ 7,296	Water and Septic Tanks	\$ 7,003	Grizzly	\$ 17,150	PLC for Combustion Burner	\$ 18,527	Rupture Disks	\$ 4,760		
Welding Casing Pipe Extensions	\$ 4,212	Heaters	\$ 5,033	Back up Ring and Pump Inlet	\$ 17,034	Fibre Optic Cable	\$ 16,239	24" Spool Piece Flange	\$ 4,600		
Pressure System	\$ 2,394	Unit Heater	\$ 4,660	Screen	\$ 12,465	PLC	\$ 12,168	Shim Plates and O-Rings	\$ 4,078		
Flex Hose	\$ 2,055	Tankless Water Heater	\$ 3,000	Clamshell Shims	\$ 12,000	UPS System	\$ 7,662	Ball Valves	\$ 3,391		
<b>Subtotal</b>	<b>\$ 9,059,728</b>	Exhaust Fans	\$ 1,815	Bridge Plugs	\$ 11,180	Fibre Optic Conduit	\$ 6,945	Adapter	\$ 3,300		
		<b>Subtotal</b>	<b>\$ 4,681,090</b>	Shim Plates	\$ 11,180	Fibre Optic Cable	\$ 4,140	Back Up Rings	\$ 2,800		
				Cone	\$ 10,835	Fibre Optic Cable	\$ 4,140	Temporary Pump Spool	\$ 2,398		
				Bolting	\$ 10,799	Level Indicator	\$ 3,430	Pipe Spool Modifications	\$ 1,100		
				Spool Installation Restraint	\$ 6,579	Instrumentation Equipment	\$ 3,207	Splice Plates, Bolts, Nuts and Washers	\$ 951		
				NW Burst Disk Line Modifications	\$ 6,054	Fibre Optic Termination Box	\$ 1,630	Pressure Test Fitting	\$ 760		
				Shim Plates	\$ 3,793	Software and Modem	\$ 780	Resurfaced Flange on Spool Assembly	\$ 670		
Pumps and Piping				Cable Tray Support Modifications	\$ 2,886	<b>Subtotal</b>	<b>\$ 1,288,135</b>	Flanges, Studs, etc.	\$ 363		
Equipment				Wall Anchor	\$ 2,066			Flanges, Studs, Gaskets	\$ 346		
Steel and Fabrications				Cable Tray Cover	\$ 1,635			Pipe Spools	\$ 300		
Electrical				SS Plate	\$ 1,003			Pipe Clamps, Gaskets	\$ 133		
Valves and Fittings				Computer Mount	\$ 516			<b>Subtotal</b>	<b>\$ 942,344</b>		
Concrete				<b>Subtotal</b>	<b>\$ 1,659,356</b>			<b>TOTAL:</b>	<b>\$ 18,589,481</b>		
Miscellaneous											

REPRESENTATIVE SAMPLE OF SERVICES REQUIRED FOR NEW PROJECTS OR EXPANSIONS

**Table 25: Representative Sample of Services for New Projects or Expansions**

<i>Service</i>	<i>Approximate Value</i>	<i>Service</i>	<i>Approximate Value</i>	<i>Service</i>	<i>Approximate Value</i>
Mechanical Works	\$ 1,300,000	Buildings	\$ 1,094,845	Electrical Works	\$ 420,000
HDPE Pipe Fusion Works	\$ 1,226,895	Geotechnical Works	\$ 470,081	Fibre Optic Terminations	\$ 311,000
Boring Services	\$ 200,000	Retaining Wall - Pond	\$ 466,664	Electrical Works	\$ 221,000
Offloading Pipe Contract	\$ 164,000	Crossing	\$ 329,271	Trenching, Conduit & Cable Install	\$ 94,600
Pond Liner Supply and Install	\$ 161,000	FlexTrak & Skyboy	\$ 325,000	15 KV Power Line	\$ 45,990
Equipment Rentals	\$ 77,000	Grid Road	\$ 63,532	Energy	\$ 21,440
Pumper Truck	\$ 60,000	Crossing	\$ 47,000	Analog Licences	\$ 10,667
Water Supply Line	\$ 45,000	Geomembrane	\$ 44,334	Fibre Optic and Power Cable Line Location	\$ 1,883
Fusing Technicians	\$ 40,000	Geomembrane - Additional Requirements	\$ 39,915	<b>Subtotal</b>	\$ 1,126,580
Septic and Water Services	\$ 32,411	Retrieving Bridge Plugs	\$ 34,378		
Corrosion Control Study	\$ 20,000	Surveying	\$ 9,000		
Casing Reaming	\$ 16,943	Rental of Scaffolding	\$ 6,980		
Fusing Technician	\$ 15,350	Wireless Site Survey	\$ 2,960		
Pressure Vessel Coating	\$ 7,300	Spreader Bar Certification	\$ 1,290		
Roller Rentals	\$ 6,890	<b>Subtotal</b>	\$ 2,935,250		
Welder for day	\$ 1,620				
Welder for day	\$ 1,620				
Welder for 1/2 day	\$ 851				
<b>Subtotal</b>	\$ 3,376,879			<b>TOTAL</b>	\$ 4,503,460

Mechanical  
Civil  
Electrical

# 1. SUPPLY OPPORTUNITIES THAT CURRENTLY EXIST IN THE MINING INDUSTRY

There is great diversity in the equipment and services required for the Mining Industry, as discussed in the above section. **Table 26** lists some areas in both Equipment and Services, where opportunities may exist for local suppliers as provided by survey participants.

For a summary of current mining projects in Saskatchewan, refer to pages 43 (Potash) and 44 (Uranium).

**Table 26: List of Equipment and Services Supply Opportunities in Mining Industry**

Equipment	Services
Bridge conveyors	Drillers
Chutes	Fabricators with experience in Potash
Conveyor belts	Fiber Optic installation and terminations
Drilling machines	Installation of rubber linings
Flotation parts for mill upgrades	Line carbon steel tanks and cover in fibre glass
Gear boxes	Maintenance and repair of OEM equipment
Grinding media	Painting (for Potash environment)
Hoist ropes	Pipe Fusion Technicians
Instrumentation (for use in a corrosive environment; potash)	Trenching
Local parts supplier for OEM's	Welders (with pressure tickets)
Mobile equipment	
Motors (electric)	
Pipe	
Process equipment	
Propane	
Quality rubber liners (sag mill), rubber products	
Raised bore machines	
Reagents (for example sulfuric acid)	
Ring gear (sag mill)	
Screens (underground)	
Stainless steel (opportunities for 316 SS applications for Potash)	
Underground radio control systems	
Underground vehicles	
Wire and cable	

Some of the large equipment required is currently being made outside the Province, such as:

- Centrifuges
- Compactors
- Crushers
- Process Vessels
- Screens (wet and dry)
- Underground shaft lining

This equipment is highly specialized and the processes required to fabricate them are complex.

## III. INVEST IN THE OPPORTUNITY

*“Developing the plan is actually laying out the sequence of events that have to occur for you to achieve your goal.”*

*George L. Morrissey*

# A. MARKETING YOUR COMPANY

## DEVELOPING YOUR COMPANY IMAGE

A company image is the combination of the thoughts, perceptions and opinions the public has about a company. A company's image might precede actual contact with a prospective customer and it will play a role with all future contact. Consequently, a company should promote and protect its image at all times.

Company image is both a simple and complex concept. It is simple because successful companies create images that are easily described and recognized by their target audiences. It is complex because it takes many discreet elements working together to create an image.

All outputs (including marketing, advertising, reports, proposals, letters, etc.) should portray a cohesive image within a common theme. This helps brand a company as confident, competent and well-organized. All of your marketing efforts should complement each other.

### STYLE COMPONENTS INCLUDE:

- Theme & Style (including colour palette, fonts, graphics)
  - Colour – choose a colour palette. This is often the colours of your logo and a few complimenting colours. These colours will be used on all of your marketing components.
  - Choose two fonts that you will use for everything you do. One should be your standard font used for all general documentation. The second can be used for headings in brochures, your website, or when you need to add a bit of style.
- Logo (Integrity, Usage)
  - Your logo is important! A logo, above all must facilitate immediate recognition. A logo has to be scalable, and recognizable even when tiny.
- Marketing Materials (brochures, business cards, etc.)
  - The most important factor is to make sure all marketing materials belong together. Your marketing materials must look similar in style and formatting as they are all part of the same promotional package.
- Website
  - A website is a must! If you do not possess the budget or expertise to create a fancy website, make sure you have a simple, yet informative one. Make sure that is intuitive and easy to navigate.
- External Documents (reports, proposals, presentations, etc.)
  - Your external documents do not have to be elaborate but should be professional. Create a template using Microsoft Office 2007 and change the colour palette and fonts to match those of your company.
- Advertising
  - Create unique, eye-catching advertisements that project your image and promote your company. Targeted advertising such as the Saskatchewan Mining Journal (yearly publication) and CIM Magazine (monthly publication) are great ways to ensure your advertising dollars reach the right people.

- Promotional Products
  - Try to choose practical promotional products that will not be used only once and then thrown away. Items of good quality will be kept and used again and again.
- Community Involvement (sponsorship marketing)
  - Sponsorship Marketing is the financial support of an activity or event, used primarily to reach specified business goals. When done well, Sponsorship Marketing offers significant opportunities for distinct marketing and competitive advantages, as well as showing support for the event or cause.
- Conduct
  - The conduct of you and your employees could tarnish your image. This includes the attitude, appearance and professionalism of ALL your employees, from the Chief Executive Officer to the receptionist to the site workers.

#### WHERE TO START

Creating an image is a dynamic process, with components evolving over time to continually improve outputs. It is important to have a solid foundation before attempting to enter new markets.

## ASSESSING THE NEEDS OF YOUR FUTURE CUSTOMER

A **Core Competency** is a specific factor that a business sees as being central to the way it, or its employees, works.

It fulfills three key criteria:

- It provides consumer benefits
- It is not easy for competitors to imitate
- It can be leveraged widely to many products and markets.

A core competency can take various forms, including:

- Technical/subject matter know-how
- A reliable process
- Close relationships with customers and suppliers.<sup>36</sup>

## SURVEY RESULTS

Mining Companies and Consultants were asked:

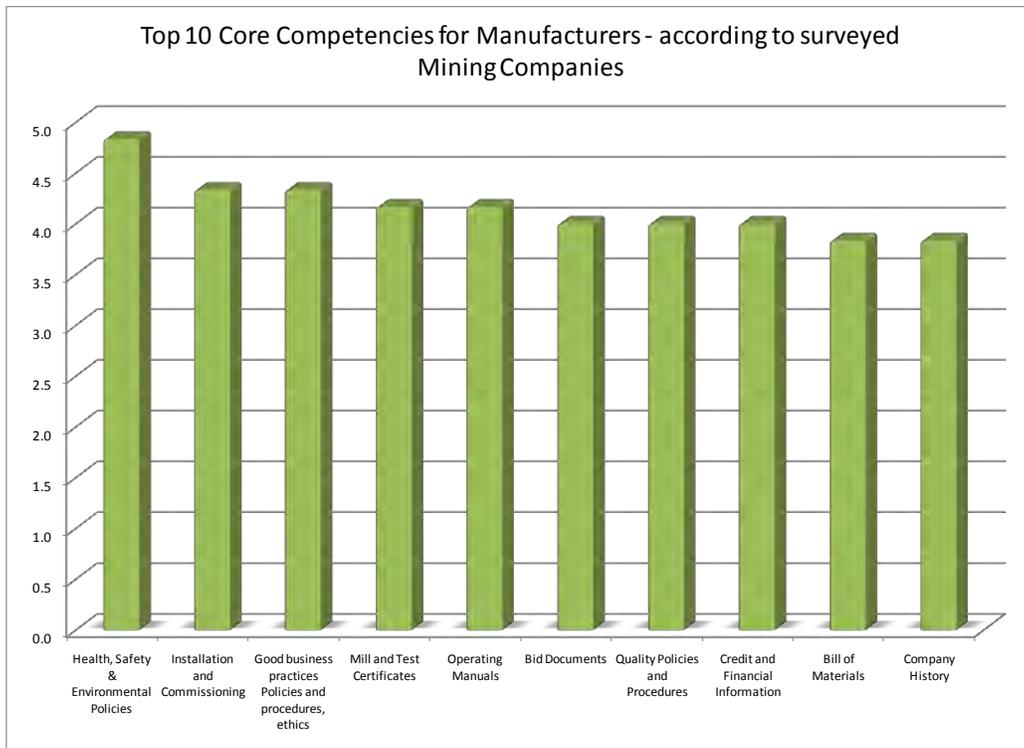
**Which Manufacturer core competencies do you consider to be an asset to your organization?**

The list of core competencies is shown in **Table 27** below. The results showing the top ten core competencies are shown below in **Figures 39** and **40**.

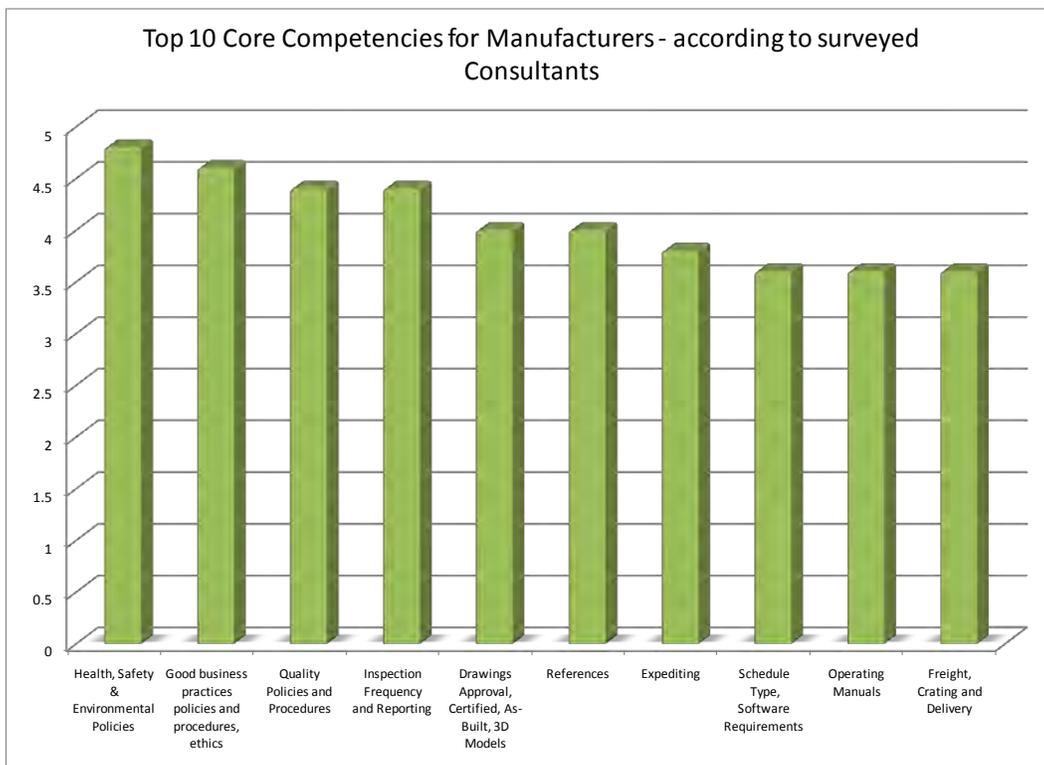
**Table 27: List of Core Competencies for a Manufacturer**

Core Competencies	
Bid Documents	Installation and Commissioning
Bill of Materials	Invoicing
Change Order Procedure	ISO Certification
Company History	Mill and Test Certificates
Credit and Financial Information	Operating Manuals
Drawings - Approval, Certified, As-Built, 3D Models	Quality Policies and Procedures
Expediting	References
Freight, Crating and Delivery	Schedule - Type, Software Requirements
Good business practices - Policies & Procedures, ethics	Software capabilities required
Health, Safety & Environmental Policies	Turnover Package
Inspection Frequency and Reporting	

- <sup>36</sup> Source: Prahalad, C.K. and Hamel, G. (1990) The core competence of the corporation, Harvard Business Review (v. 68, no. 3) pp. 79–91.



**Figure 39: Top 10 Core Competencies for a Manufacturer Ranked by Mining Companies**



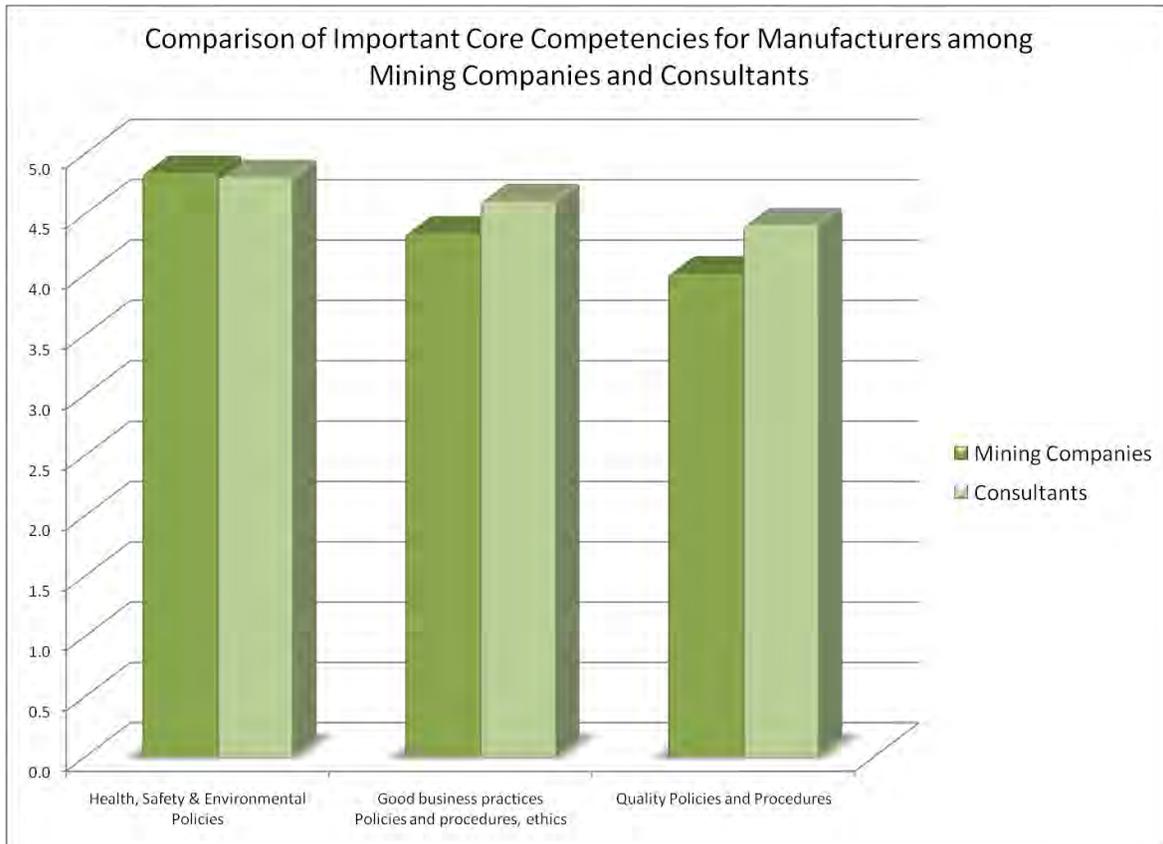
**Figure 40: Top 10 Core Competencies for a Manufacturer Ranked by Consultants**

ANALYSIS

From the top ten results, we then focused on those key areas that were common between both groups:

- Health, Safety & Environmental Policies
- Good Business practices, policies and procedures, ethics
- Quality Policies and Procedures

Figure 41 below shows the three common areas between the Mining Companies and Consultants.



**Figure 41: Shows Comparison of Importance of Core Competencies, According to Mining Companies and Consultants Surveyed**

As a supplier looking to access this industry, the core competencies outlined below are the areas to examine within your own business.

## HEALTH, SAFETY AND ENVIRONMENT

**Table 28: Core Competencies - Health, Safety and Environment**

Core Competencies	Definition
Health, Safety, and Environmental Policies	<p>Written EHS Policy and supporting Procedures:</p> <ul style="list-style-type: none"> <li>•Safety Management Policies</li> <li>•Waste Management Policies, etc.</li> </ul> <p>Tangible Evidence of Safety Performance:</p> <ul style="list-style-type: none"> <li>•Safety records – LTI, Reportable Incidents, OSHA infractions, etc.</li> </ul> <p>Objective Evidence of Robust Safety Culture:</p> <ul style="list-style-type: none"> <li>•Record of Actions – e.g. OHC minutes</li> </ul>

## GOOD BUSINESS PRACTICES, ETHICS

**Table 29: Core Competencies - Good Business Practices, Ethics**

Core Competencies	Definition
Bid Documents	Complete and in the format as required by the customer
Bill of Materials	The list of components, parts and quantities that make up the final product. Every item that is required to assemble and use the final product.
Company History	Information regarding the formation and background of your company.
Credit and Financial Information	Mines and Consultants may perform a Dunn & Bradstreet Financial review reducing their risk.
Revision or Change Order Procedure	<p>Any changes to the Purchase Order must be documented in the form of a revision or a change order.</p> <ul style="list-style-type: none"> <li>• A change that impacts the cost of the order,</li> <li>• Additions and/or deletions from the Order</li> <li>• A change or revision to the specifications, etc.</li> </ul>
Expediting	Purchaser/Expeditors will contact suppliers to accelerate or speed up the receipt of drawings, schedule, manuals, bill of materials and delivery of the product.
Freight, Crating and Delivery	<p>Freight – method of transportation used</p> <p>Crating of product for protection ie. palletizing, skidding, rust inhibiting, etc.</p> <p>Delivery – actual delivery of product to the requested location</p>
Good Business Practices – Policies and Procedures, Ethics	Policy and Procedures regarding Ethics, Human Rights, Sarbane–Oxley compliance, etc.
Invoicing	Providing a bill to the customer for the product – ensure accuracy against the Purchase Order Contract.
References	A person/company to whom one refers for testimony as to one's character, abilities, etc.
Schedule	A plan for a project allocating the work to be done and the time required to complete the work.
Software Requirements	Website, Email, Electronic Fund Transfer capability, 3 D capability are some of the requirements

## QUALITY POLICIES AND PROCEDURES

Table 30: Core Competencies - Quality Policies and Procedures

Core Competencies	Definition
Drawings	Approval - preliminary drawings which are reviewed and approved by the customer Certified - Engineer stamped drawings As Built - record of what was actually constructed
Inspection Frequency and Reporting	Mid-point and final inspections for customer, weld-inspections, pressure vessel inspections, paint quality inspections, etc.
Installation, Commissioning and Start-Up	Customer or Supplier may perform this service. A benefit to Mining Companies and Consultants if Suppliers can provide this service.
ISO Certification	International Standards Organization Certification which ensures a certain level of quality is achieved.
Mill and Test Certificates	Standards of Products produced by a mill ie. steel and the Test Certificate verifies that the mill has met the standards such as CSA-G40.21 (Canadian Standards Association).
Operating Manuals	Manuals which may provide installation, commissioning and operating instructions as well as warranty, trouble-shooting information, etc.
Quality Policies and Procedures	Commitment to Continual Improvement Setting of Quality Objectives Performance Measurements Management Review
Turnover Package	A package that is given to the customer upon completion of manufacturing a product. The package includes drawings, test reports, etc.

## YOUR COMPETITIVE ADVANTAGE

**A Competitive advantage** occurs when an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors.

These attributes can include:

- Access to natural resources, such as high grade ores
- Access to highly trained and skilled personnel human resources
- New (or proprietary) technologies

The term competitive advantage is the ability gained through attributes and resources to **perform at a higher level than others in the same industry or market.**<sup>37</sup>

As a Saskatchewan Supplier, you have to assess your competitive advantage.

It is probable that you have the following competitive advantages:

- Location – close proximity to the operating or developing mines in Saskatchewan
- Specialized Knowledge or Skill – a niche area of expertise that could be transferrable to a new customer/industry/global market

Take the knowledge of the needs assessment, and what your company strengths already are, and focus your efforts to maximize your competitive advantage.

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<sup>37</sup> Christensen and Fahey 1984, Kay 1994, Porter 1980

## IV. THINK LONG TERM

*"The best time to plant a tree is 20 years ago. The second best time is now."*

*-Chinese Proverb*

# A. STRATEGIES FOR ENTERING THE MINING SUPPLY CHAIN

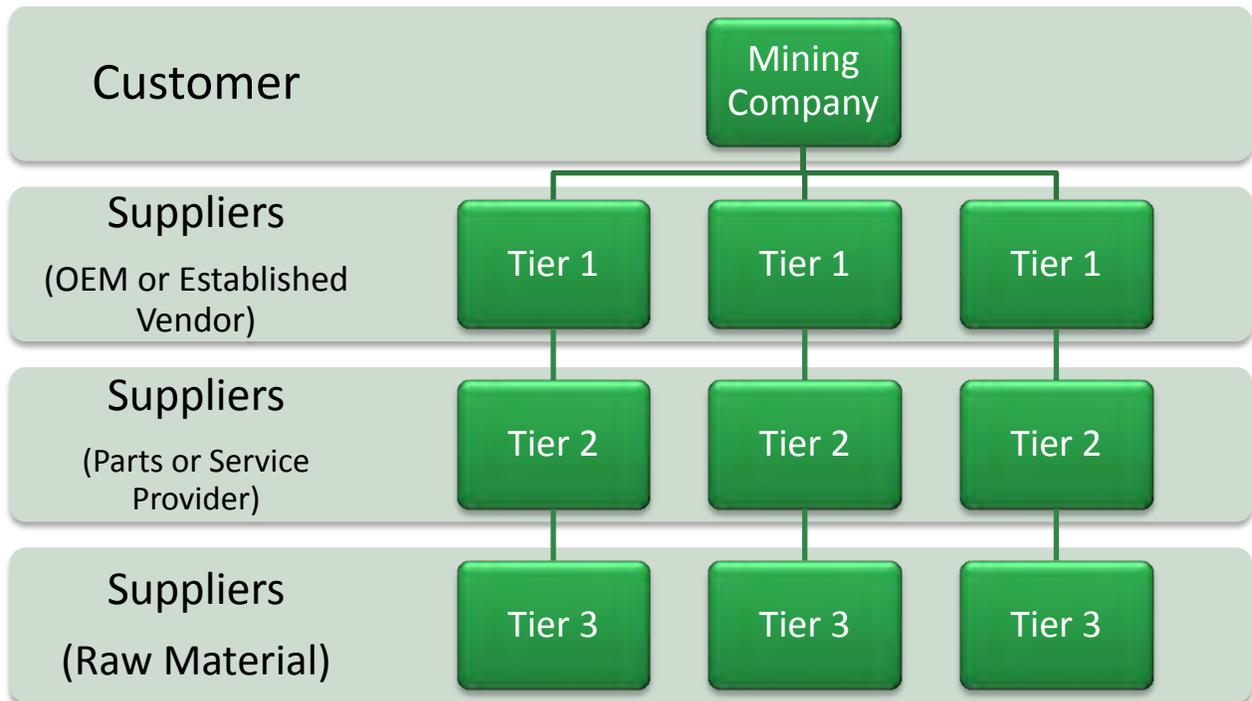
***“You are selling me a product (or service) - What I’m buying is a solution to my problem”***

*-Womach, James and Jones, Daniel T  
 “Lean Solutions - How Companies and Customers Can Create Wealth Together”  
 2005, Free Press*

A supplier looking to enter into the Mining Industry needs to learn who their customer is and their needs. Mining Companies are long term customers and they are looking for long term relationships with their suppliers.

The supply chain for the mining industry is accessible from various angles. Depending upon the goods or services that a supplier has to offer will best determine how to access the supply chain for this industry. Below is a simple supply chain that shows the different access points that a new supplier could consider when starting to market their goods or service to this industry (**Figure 42**).

## OPERATIONS SUPPLY CHAIN



**Figure 42: Simplified Supply Chain for Mining Industry Operations**

Some strategies for entering the mining supply chain are detailed below.

## PARTNERING WITH MINING COMPANIES

Most of the Mining Companies that were surveyed were open to new partnering opportunities. Many partnerships already exist between Mining Companies and goods or service providers.

Mining Companies are looking for ways to eliminate safety concerns, and maximize reliability of equipment and services. Here are a few examples of how they are looking to address these areas:

- Standardization of parts across all of their operations – reduce inventory
- VMI (vendor managed inventory) – reduce stocking time
- Kitted assemblies from suppliers – reduce set-up time
- Increased reliability programs for their existing assets
- Training on preventive maintenance
- Training on predicting failure

*Proximity to Customers, Specialized*

## PARTNERING WITH OTHER SUPPLIERS OF GOODS OR SERVICES

With the large number of Potash projects underway, there is opportunity for partnering with other suppliers to maximize the value across all projects.

There are a growing number of suppliers that are working together with other suppliers to meet the needs of their customers in more creative ways. For example, a manufacturing consortium may form out of a business need that cannot be met by an existing sole source supplier.

*Combined Intellectual  
Capacity*

*Combined Financial Capacity*

## WORK WITH EXISTING OEM'S (ORIGINAL EQUIPMENT MANUFACTURERS)

Mining Companies will deal with the OEM's of large equipment directly. Some of the large equipment suppliers will have their products and/or Service parts made by a local fabricator.

The Mining Companies will typically encourage the use of Saskatchewan manufacturers; however, it is not up to the Mining Companies to determine where the OEM's have their products fabricated.

You need to:

- Focus on the OEM's of specialized equipment
- Move toward becoming a parts and service supplier for these suppliers
- Consider Installation, Commissioning and Start-Up services for OEM's

*"Get in touch with EPCM and stay ahead of the procurement curve -anticipate opportunities for local fabrication and go to the OEM to follow those opportunities up."*

*-Mike Ferguson*

## AWARENESS OF GLOBAL SUPPLY

Feedback from the survey indicates that some local suppliers are not providing the level of service desired. There is a sense that local suppliers are either too busy, with no capacity, or there is a complacency or monopoly and therefore the service or support is lacking. These factors can lead to alternate sourcing, which may then lead to Global sourcing.

*Become the local presence  
of a global company*

All of the Mining Companies surveyed have a significant presence internationally; therefore they are looking for alliances with suppliers to supply all of their locations, globally.

This is an opportunity for Saskatchewan suppliers that work with the Mining Companies to recognize that if they meet and exceed the expectations of their customer, at a local level, global opportunities may follow as a result.

## V. MAKE YOUR MARK

*“Developing the plan is actually laying out the sequence of events that have to occur for you to achieve your goal.”*

*-George L. Morrisey*

Once you have:

- ✓ **Done your homework**
  - learned about your new customer
  - Identified that you have a viable product or service
- ✓ **Invested in the Opportunity**
  - Developed a consistent Company image
  - Focused on relevant Core competencies
- ✓ **Thought long term**
  - Developed a realistic strategy for accessing the industry

You are now ready to approach your future customer.

## A. BECOMING A NEW SUPPLIER

The process for becoming a new supplier is quite varied across the industry. Please refer to the procurement contact tables on **pages 46, 47 and 48**, for details, by company, on who to contact.

### STEPS TO BECOMING A NEW SUPPLIER

A typical process for becoming a new supplier may involve:

#### **Review procurement policies and procedures of Mining Companies and Consultants (See Appendix E)**

- Important facts and information such as purchasing objectives, Conflict of Interest Policies, Ethical Considerations, Relations with suppliers, etc. are all covered in a company's Procurement Policies and Procedures.

#### **Make an appointment with the appropriate representatives from each company (See Tables 10, 11 and 12)**

- Some companies have certain days set aside to see suppliers; therefore, it is important to schedule an appointment with the purchaser you would like to connect with.

#### **Provide product literature, catalogs (preferably electronically), website address**

- Most companies prefer paperless information to reduce waste, as well as to receive the most current, up to date information so they can make it available to other departments.
- Companies searching for a new supplier will typically use the internet as a tool. This makes your company website an extremely important part of your company image. (See page 86 for further information).

#### **Conduct a 'Lunch and Learn' session to showcase your products and/or services**

- Suppliers should contact the purchaser of an organization and arrange a Lunch and Learn.
- The supplier will make a formal presentation providing key information showcasing their company/products.
- The supplier is responsible to provide the lunch and bear the cost of the lunch for the attending participants.
- The Lunch and Learn setting provides the supplier with the opportunity to meet with several key contacts such as the purchaser, end user, engineers, operators, etc.

#### **Complete a supplier qualification questionnaire**

- Usually a supplier is invited by a Mining Company or Consultant to complete a supplier pre-qualification questionnaire.
- By completing this questionnaire you are providing important information about your company so that the requester can make the necessary assessment as to whether or not to use your company as a supplier.

#### **Complete a supplier pre-qualification process**

- Again a supplier is invited by a Mining Company or Consultant to sign up for a third party supplier pre-qualification process which is quite stringent.
- The purpose of these third party pre-qualification processes are to reduce as much risk as possible to the Mining Company or Consultant, especially in the cases where the supplier is performing work at the company's site location.
- A supplier's presence on site poses both insurance and liability risks.

AREVA and Cameco are unique with regard to the remote locations of their sites. If the Purchasing group out of Saskatoon is interested in a product, they will then provide the supplier with site specific contacts. Due to their remote locations, and contamination requirements for the uranium mining industry, information must be sent to key personnel at the mine sites to review and determine if the product is suitable for a uranium mining environment. Also, it is more difficult for suppliers to access a Northern site as it requires a significant amount of co-ordination for the visit such as approvals, flight arrangements and special meetings to be set up to ensure that safety and risk to the supplier are taken into account.

## PRE-QUALIFICATION PROCEDURES

The pre-qualification process can vary significantly between companies, and may vary if services at the site are required. The pre-qualification process for a new supplier will typically be carried out by the Mining Company itself or by a Consultant on behalf of the Mining Company and will adhere to the Mining Company's policies and procedures, as a minimum requirement. The Consultant may have additional requirements, depending on the nature of the product or services required.

Example of common pre-qualification requirements:

- Pre-qualification assessment/questionnaire
- ISNetworld qualification

These pre-qualification processes will examine a number of different elements of a company, some of which may include:

- Quality certification – ISO 9001:2000, ISO 14001-2004
- Training programs
- Company stability
- Financial review
- Experience
- Reference checks
- QA/QC system
  - Non-conformance process
  - Continuous Improvement process
  - Test procedures
  - Inspection process control
- Management team information
- Execution or delivery team information

For an example of AREVA's pre-qualification form, see **Appendix I**.

## ON-SITE SUPPLIERS/CONTRACTORS

For on-site suppliers/contractors, the pre-qualification will be more rigorous, and will have a greater focus on health, safety and the environment.

This may include, but is not limited to, information on:

- Quality, Health, Safety and Environmental records
- Safety certification
- Liability insurance for workers and vehicles (dependent upon the dollar value of the work performed)
- WCB certificate of clearance – Letter in Good Standing

**SURVEY RESULTS**

Mining Companies were asked:

**Please describe the pre-qualification process for manufacturers in your organization.**

See **Figure 43** below with Mining Companies' response to usage of ISNetworld as a pre-qualification tool.

Mining Companies use of ISNetworld as Pre-qualification Requirement



**Figure 43: Mining Companies Surveyed Use of ISNetworld as Pre-Qualification Requirement**

ANALYSIS

Many of the Mining Companies are moving towards using ISNetworld as a pre-qualification tool for Contractors, Sub-Contractors and Services.

The chart above shows that Agrium, Mosaic and PotashCorp all are using ISNetworld to pre-qualify their suppliers. AREVA and Cameco do not use ISNetworld and BHP and Potash One have not made any decision at this time as to whether or not they will go in this direction.

**ISNETWORLD**

ISNetworld is a global resource that connects corporations with safe, reliable vendors from capital-intensive industries. ISNetworld collects self-reported conformance information from vendors, verifies its accuracy, and then reports the results in an easy-to-follow format. This allows corporations to select those resources that best meet internal and governmental requirements, while providing vendors and suppliers the opportunity to centralize their conformance information, saving time and gaining presence in the marketplace.

URANIUM – SPECIAL REQUIREMENTS

It is important to make the distinction that both AREVA and Cameco’s pre-qualification processes place more emphasis on risk and contamination control requirements of an item that is being purchased rather than the value of the item.

Neither company uses ISNetworld at this time, but they do have internal Quality programs and detailed pre-qualification processes.

See **Figure 44** for AREVA’s Contractor/Vendor Qualification Flowchart, below:

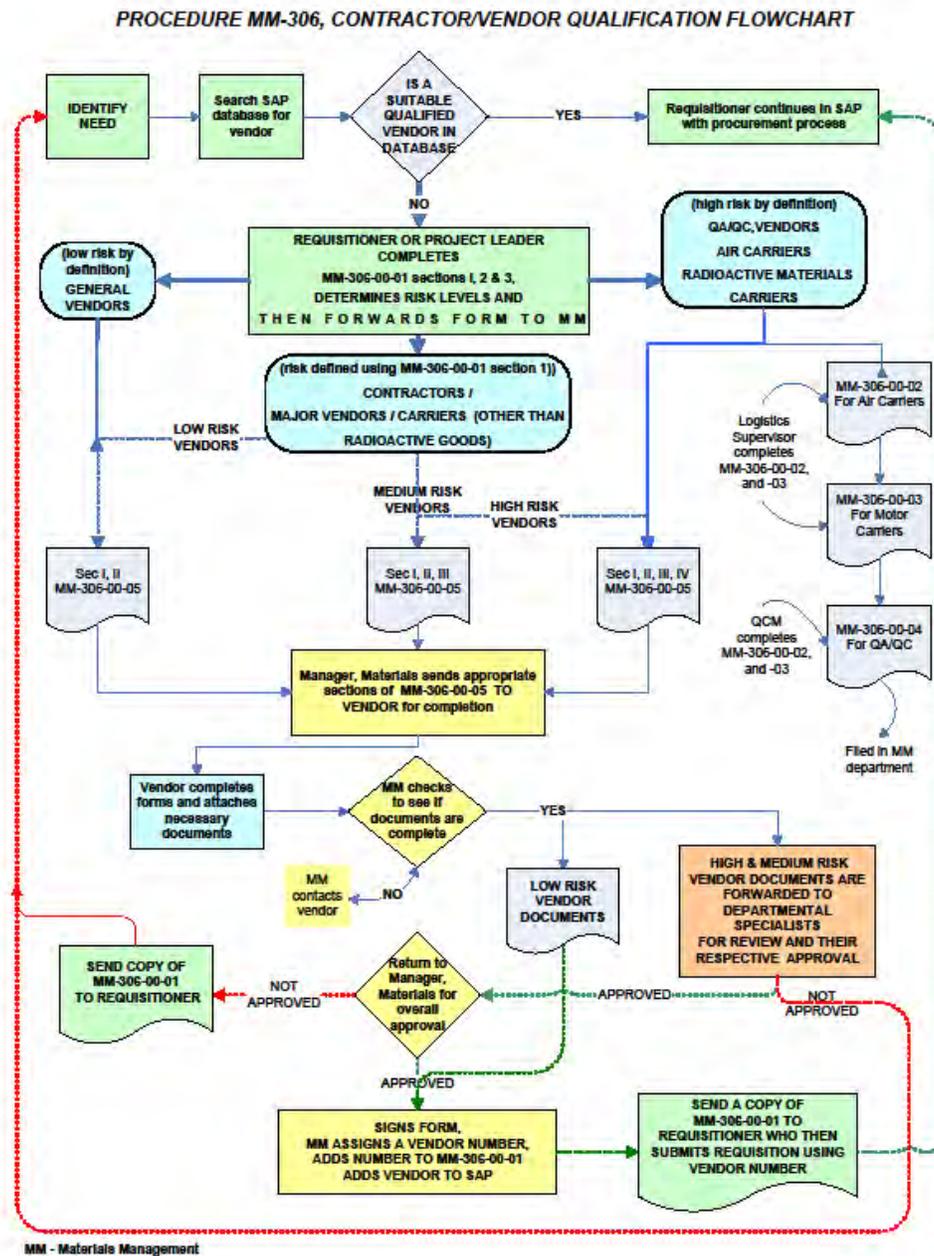


Figure 44: Example Flowchart of AREVA’s Pre-Qualification Process

## PROTOCOL FOR HANDLING ORDERS

It is very important that suppliers follow the protocol outlined by each company regarding orders, change orders, invoicing, packing slips, freight, delivery and final payment of invoices. These small details can have a significant impact on the evaluation of a supplier and may result in a supplier being rejected as a “preferred supplier”. Even though you may be an excellent supplier with a good quality product and service, how you handle an order is very important. The purchaser is your point of contact. You must follow through with your service from the start of the project until completion and start-up of the equipment in order to attain/maintain a preferred supplier status.

Examples of Protocols for Handling Orders from both Mosaic and Corning can be found in **Appendix J**.

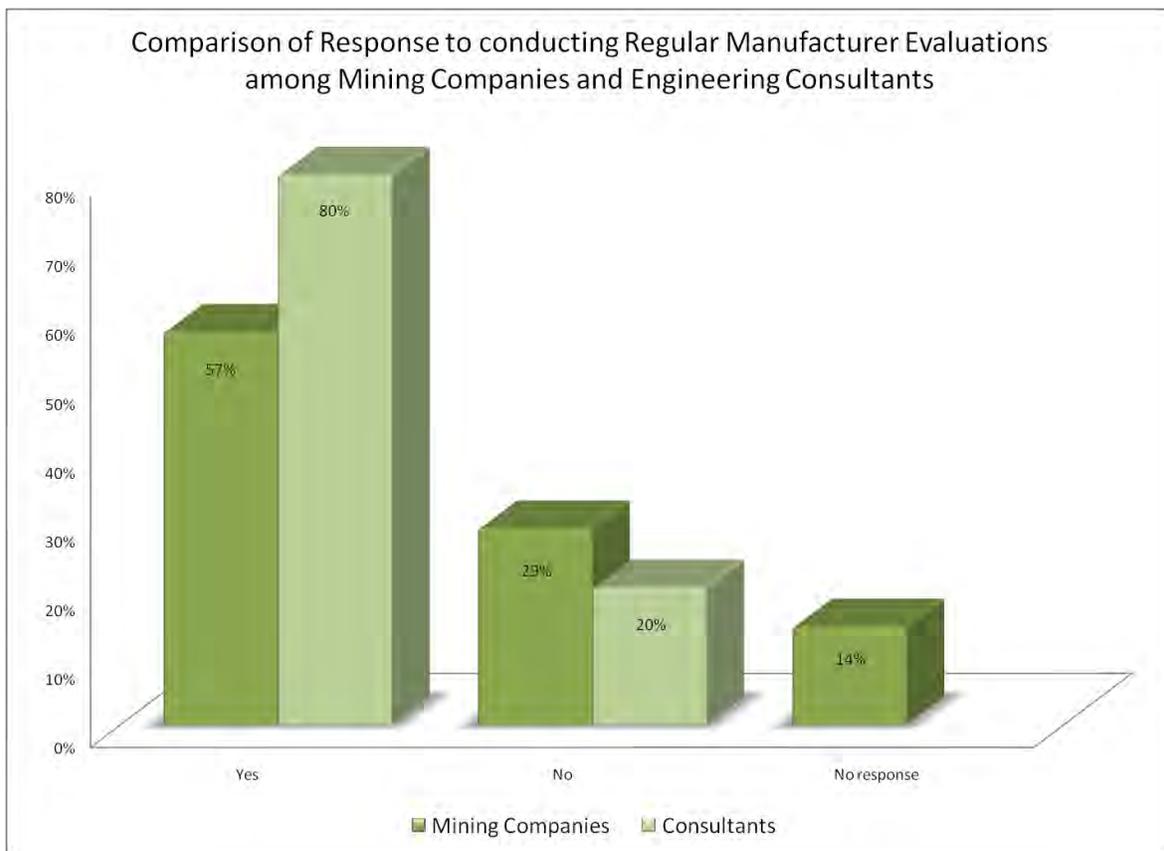
## SUPPLIER EVALUATIONS

### SURVEY RESULTS

Mining Companies and Consultants were asked:

**Do you evaluate manufacturers on a regular basis?**

The results are found in **Figure 45**, below:



**Figure 45: Shows Comparison of Regular Manufacturer Evaluations, According to Mining Companies and Consultants Surveyed**

## ANALYSIS

As seen above, the majority of Mining Companies and Consultants have some type of consistent evaluation of Manufacturers/Suppliers.

## EVALUATION PROCESS

Most companies have a defined process for supplier evaluations. This may be a standardized form, or as simple as an informal discussion. See **Appendix K** for a sample supplier evaluation form.

The criteria for evaluating suppliers may vary depending on whether it is an evaluation of a supplier of goods or a supplier of services. The evaluation of a service provider may be weighted more heavily on quality, timeliness and performance.

Common criteria for supplier evaluations may include:

- Quality of finished product
- Delivery
- Price
- Safety
- Experience
- Compliance to specifications
- Turnover packages
- Mutually agreed upon performance standards
- SAP Vendor performance module
- Past history

The frequency of evaluations will vary greatly. It may be a scheduled annual review, or may be tied to project schedules and completion/delivery dates.

## B. HOW TO MAINTAIN YOUR POSITION IN THE INDUSTRY

### OBTAINING PREFERRED SUPPLIER STATUS

Maintaining a healthy working relationship with your customer will ensure repeat business, and in some cases will result in obtaining a 'preferred supplier' status.

This status is usually obtained through the Mining Companies, and not through the Consultants. This may vary, if it is an EPC Project, or depending on the Policies and Procedures of the consulting firm.

A supplier may obtain a 'preferred supplier' status by:

- Excelling in all aspects of their work
- Proven service and supply
- Competitive or advantageous pricing
- Exclusive supply
- Proprietary issues
- Grade A rating on ISNetworld

The benefits to being a preferred or contract supplier may include:

- Increased business
- Go to them first, before all others, for pricing
- Put on preferred bidder's list
- Long term contracts
- Exclusive arrangements

A formal bid process may not be required, and the work may be awarded directly to a reliable, preferred supplier. This is more common for lower dollar value purchases. (An example may be goods or services under \$50,000). In some cases, it may be that the preferred supplier is short-listed, but will still be required to participate in a formal bid process and evaluation.

### NORTHERN OR SASKATCHEWAN PREFERRED SUPPLIER PROGRAM

The majority of the Mining Companies surveyed have some type of Northern or Saskatchewan preferred Supplier program in place as part of their Procurement processes. The criteria are not standardized, but it may require:

- Over 51% First Nations ownership
- workforce primarily of First Nation decent
- In business for a given number of years (10 years for AREVA)
- Offices must be above the NAD (Northern Administration District) line
- Capacity and capability to provide work requested in timely and cost effective manner
- Employ people from the impact areas, as part of Government surface lease agreement
- Business owned and operated in Saskatchewan

The benefits of qualifying for the Northern or Saskatchewan preferred supplier program would be:

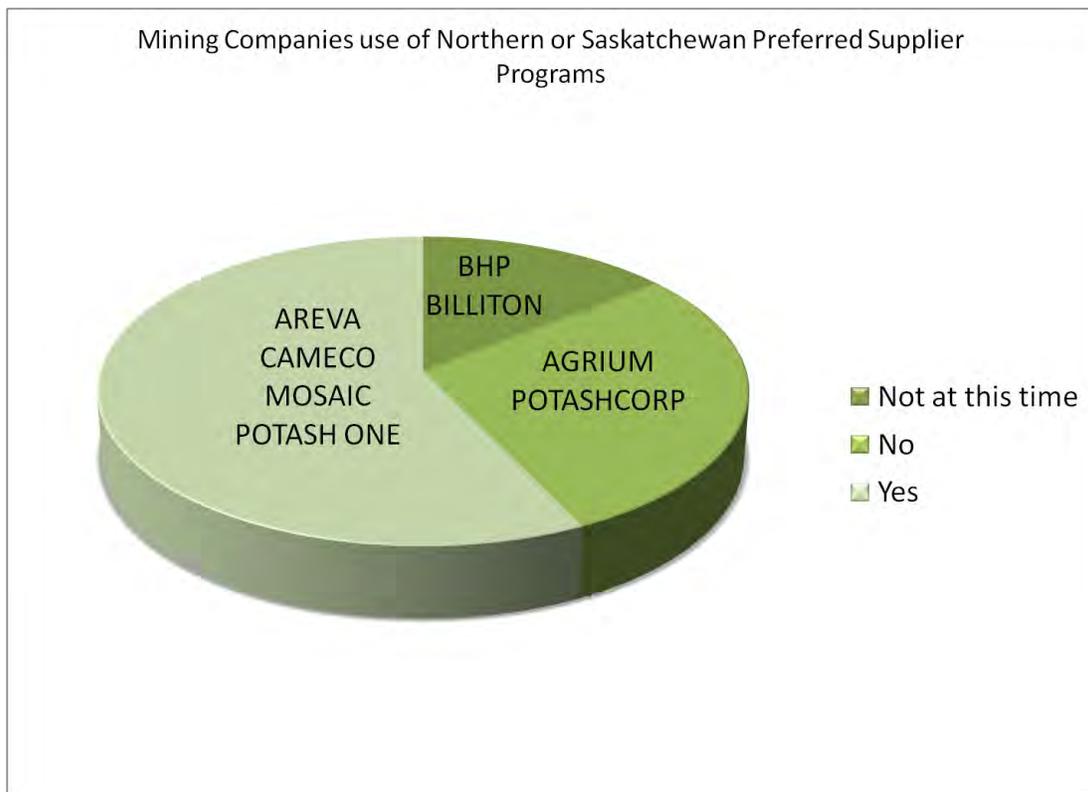
- Higher weighting during bid analysis
- Preferred supplier status

## SURVEY RESULTS

Mining Companies were asked:

**Do you have any type of Northern or Saskatchewan company preferred supplier program?**

The results can be found in **Figure 46**, below:



**Figure 46: Mining Companies Surveyed Use of Northern or Saskatchewan Preferred Supplier Programs**

### ANALYSIS

AREVA, Cameco, Mosaic and Potash One all had Northern or Saskatchewan company preferred supplier programs. Agrium and PotashCorp do not and they would like to see suppliers remain competitive. BHP does not have any preferred supplier program at this time.

## C. QUALITY MANAGEMENT: UNDERSTANDING, MEETING AND EXCEEDING THE STANDARDS

### WHAT IS QUALITY?

*“The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.” - ISO 8402*

### WHAT IS A QUALITY MANAGEMENT SYSTEM?

The larger the organization, the more people and the more complicated processes become. To ensure time, money and other resources are utilized effectively; the organization must manage its way of doing things by systemizing it.

**A Quality management system** refers to what the organization does to manage its processes, or activities, so that its products or services meet the objectives the organization has set for itself.

These objectives may be:

- To satisfy the customer’s quality requirements
- To comply with industry regulations
- To meet environmental objectives

Continual improvement is the basis of any quality system. The Plan-Do-Check-Act (PDCA) cycle is the operating principle of ISO’s management system standards (**Figure 47**).



**Figure 47: The Plan-Do-Check-Act Cycle**

Source: [http://www.iso.org/iso/iso\\_catalogue/management\\_standards/understand\\_the\\_basics.htm](http://www.iso.org/iso/iso_catalogue/management_standards/understand_the_basics.htm)

**Plan** – establish objectives and make plans (analyze your organization's situation, establish your overall objectives and set your interim targets, and develop plans to achieve them).

**Do** – implement your plans (do what you planned to).

**Check** – measure your results (measure/monitor how far your actual achievements meet your planned objectives).

**Act** – correct and improve your plans and how you put them into practice (correct and learn from your mistakes to improve your plans in order to achieve better results next time).

## EIGHT QUALITY MANAGEMENT PRINCIPLES

The following eight quality management principles are based on the quality management standards of the ISO 9000:2000 and ISO 9000:2008 series. They provide a framework to guide organizations towards improved performance<sup>38</sup>:

1. **Customer focus:** understanding the needs of customers and meeting their expectations.
2. **Leadership:** establishing a clear vision of the organization's future and creating an environment for people to be fully involved in the organization's objectives.
3. **Involvement of people:** enabling people's abilities to be used for the organization's benefits
4. **Process approach:** managing activities and related resources as a process to achieve a desired result
5. **System approach to management:** identifying, understanding and managing interrelated processes as a system.
6. **Continual improvement:** making continual improvement of the organization's overall performance a permanent objective of the organization.
7. **Factual approach to decision making:** making effective decisions based on the analysis of data and information.
8. **Mutually beneficial supplier relationships:** enhancing the ability to create value for both the organization and its suppliers.

There are many different ways of applying these quality management principles. The nature of the organization and the specific challenges it faces will determine how to implement them.

For the purposes of this project, we will focus on 2 of the 8 Quality Principles:

- Customer focus
- Mutually beneficial supplier relationships

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<sup>38</sup> Source: International Organization for Standardization:  
[http://www.iso.org/iso/iso\\_catalogue/management\\_standards/iso\\_9000\\_iso\\_14000/qmp.htm](http://www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000/qmp.htm)

# 1. CUSTOMER FOCUS: UNDERSTANDING THEIR NEEDS

Repeat business relies on good quality. The participants that were surveyed provided some common areas where quality and reliability are essential. These suggestions should be viewed as opportunities for new suppliers to learn and grow.

## PRODUCT QUALITY AND ACCURACY

In the area of manufacturing, a customer is looking for:

- Quality workmanship
- No rework required
- Minimal adjustments in the field
- Proper labeling and assembly drawings/instructions
- Ensure the quality of outsourced work
- Attention to drawing details and specifications

Some specific areas of focus in the mining industry would include:

- Quality of seal welding
- Accuracy of sheet metal fabrication
- Compliance with painting specifications
- Experience in designing equipment for a corrosive Potash environment
- Contamination control requirements for Uranium mining

## PRODUCT PERFORMANCE

Schedules are tight and delivery dates of equipment can get extended, leaving little time between installation and commissioning. This reality raises the importance of a product to be proven operational at the manufacturer's location, whenever possible, to reduce the rework time required. If the product is delivered to site without any testing completed, and functionality issues arise, the lost time to the schedules can significantly increase not only costs, but risk to the success of a project or down time for Operations. This is especially important when sourcing equipment/products internationally.

Some specific areas of focus in the mining industry:

- Inspection frequency
- Product test capabilities
- In-house testing at the manufacturers
- Being able to assemble and run the equipment in the factory prior to shipping from their location
- A full dead head test at the factory
- Structural steel -Pre-assembly

## PRODUCT DOCUMENTATION

Timely and accurate product documentation is especially important for specialized equipment with very specific and detailed procedures for unloading, installation, commissioning, operation and maintenance. Some of the critical documentation required includes, but is not limited to:

- Auditable quality documentation
- Access to manufacturer's Quality Management System and facilities
- Project quality plan and project execution plan
- Accuracy of Supplier drawings
- Complete Supplier Turnover packages
- Quality Assurance and Quality Control documentation, in advance of shipment, to prove quality and completeness

## SUPPLIER PERFORMANCE

Manufacturers are being evaluated on their performance. Some of the key performance indicators include, but are not limited to:

- Recognizable Quality Management System – ISO, ISO like or similar
- Solid quality policy statement
- Proven quality programs
- Proof of conformance to your own program
- Commitment to continual improvement
- Service Support
- Accurate Scheduling
- Accurate Shipments
- On-time Delivery
- Firm Pricing

Companies that did not have significant issues with their current suppliers made note that these suppliers were proactive when looking at their critical commodities. They kept adequate inventory at all times, in preparation for any emergency requirements. Partnerships and strong supplier relationships are critical to the functioning of their operations.

## 2. MUTUALLY BENEFICIAL SUPPLIER RELATIONSHIPS

The cost of quality is foremost in the minds of Mining Companies and Consultants. They understand the success of their operations and projects relies heavily upon the quality of the products and services that they procure.

Decreased quality results in rework which results in delays to project schedules. With that in mind, here are of some of the value added services that would be considered an asset for suppliers:

- Safety programs and safety officers
- Service
  - Local capabilities to provide service requirements
  - Work with Mining Companies to resolve issues
  - Site presence is crucial
  - Good inventory - Stocked parts
  - On-time delivery
- Quality programs in place
  - ISO certification
  - In-house testing at manufacturer
  - Assemble and run product prior to shipping
  - Structural steel - pre-assembly to reduce QA/QC
  - Proper shop drawings
- Technical Competency
  - Custom Design capabilities, engineering
  - Custom packaging/assembly programs
  - Special design considerations
- Relationships
  - Provide input to assist with problem solving
  - Effective Communication
  - Honesty
  - Expertise and advice
  - Training and expertise when required
  - Installers and trainers for large equipment
  - Looking for what can someone else can do and provide a warranty, instead of having to do the work internally
  - Review past performance for what has worked and what has not

## WHY QUALITY?

The benefit to the supplier is that you will become a supplier of choice or preferred supplier. It will enhance your reputation and marketability.

The benefit to the customer is that they have quality and reliability, no surprises. They can facilitate better planning and gain improved cost control, for example:

- Improve performance and delivery
- Optimize the number of suppliers
- Suppliers and customer can find rapid solutions to problems
- Improved product performance and reduced warranty claims
- Shared equipment operation training costs
- Reliable continual improvement feedback loop

The customer understands the benefits of investing in quality. Suppliers should have clear quality standards, an accurate audit trail and always invest the time and effort required to reap the opportunities/benefits provided by continual improvement:

- Quality management pays
- Understand your customers needs
- Understand your product or service
- Set realistic objectives to meet customer needs
- Control your processes to meet objectives
- Measure and document your processes
- Build long term relationships



*Always search for continual  
improvement opportunities.*

## D. ADVICE FROM CORPORATIONS AND CONSULTANTS

### GRANT GARDINER, AREVA:

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“Provide a competitive product, priced correctly, and be prepared to support our purchase on a local level”

“Listen to our concerns and work with us to correct the issues”

“Make sure you have inventory! If you know our annual usage, have inventory on hand.”

### ROB VARGA, AGRIMUM:

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“Communicate, Communicate, Communicate”

### ART STEWART, CAMECO:

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“Stand fully behind your products”

### GORD PRINCE, MOSAIC:

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“Stand behind your product. Mosaic is looking for quality material with a high service factor behind it. On-site service - when it fails, have someone to assist.”

### RALPH SANDERS, POTASHCORP:

---

“Don't sacrifice quality to reduce cost”

“Strive for excellent performance in all aspects of working with PotashCorp. Discuss opportunities openly and transparently without hidden agendas. PotashCorp plans to be mining for the long term.”

### MIKE FERGUSON, POTASH ONE:

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“Get in touch with EPCM and stay ahead of the procurement curve - anticipate opportunities for local fabrication and go to the OEM to follow those opportunities up.”

### CATHY MAHONEY, AMEC

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“Try to work with OEM.”

Ensure timely resolution of any existing quality problem. Just resolve the problem, without being defensive of the product.

**PAULINE MCGUIRK, MARCH CONSULTING**

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“Try to be as professional as possible when dealing with any company. Be consistent with quality, pricing and delivery. Check your procedures from the start of a job to the completion of a job and try to constantly improve your service and efficiency.”

**RANDY MCMEEKIN, HATCH**

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Highest overall value is considered, not necessarily always the lowest price.  
Quality control and drawing capacity are important - be able to put on paper what you are going to produce.  
Have an awareness of international suppliers.

**PAUL LABBE, WARDROP (FORMERLY)**

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“Don't take on more work than you can actually deliver on time on budget. Never ship anything that isn't 100% correct.”  
“Spend the time to do it right the first time.”  
“Get proper systems in place to catch problems as early in your business process as you can.”  
“Train and nurture your best people.”

## VI. GLOSSARY

List of common mining terms and their definitions

**Brownfield** – To convert a no longer used “industrial asset” (i.e. a parcel of land or building) to something new and useful

**Greenfield** – Any project on virgin land

**Potash** – The generic term used to describe a naturally occurring, reddish colored, mixture of the minerals sylvite (KCl) and halite (NaCl) that form a rock called sylvinitic. Commercial products produced from sylvinitic are referred to as muriate of potash and often symbolized by potassium (K). Equivalent percentage potassium oxide ( $K_2O$ ) is the common industry standard for comparing potassium content. Most potash contains about 60%  $K_2O$  = 95% KCl.

**N – P – K** – Nitrogen – Phosphorous – Potassium

**Uranium** –

**Mining** – Mining is the process of extracting rocks and solid MINERALS of economic value from the earth. These products include metallic ores (eg, IRON, COPPER, LEAD, ZINC), industrial minerals (eg, LIMESTONE, rock SALT, POTASH, GYPSUM), native metals (principally GOLD and SILVER), COAL, oil sands, URANIUM ores and precious stones. Excavation of SAND AND GRAVEL is a mining activity, as is QUARRYING for building and monument stone. However, the production of liquids and gases, as in the PETROLEUM INDUSTRY, is not usually considered mining.

**Open pit** – A mining method used to mine relatively shallow deposits. Economics depend on the ratio of ore to waste, higher grade ores being able to produce higher ratios.

**Underground** – A mining method used to mine deposits too deep for open pit mining. For mining to be viable, these deposits must be comparatively high grade.

**In situ leach** – A method is applicable only to sandstone-hosted uranium deposits located below the water table in a confined aquifer. The uranium is dissolved in a mildly alkaline or acidic solution that is injected into and recovered from the aquifer by means of wells. The geology remains undisturbed.

**By-product** - Uranium often occurs in association with other minerals such as gold (Witwatersand), phosphate (United States and elsewhere) and copper (Australia).

### Processing and extraction

**Crushing and grinding** – breaks down the ore to sand/ silt sized particles, thereby freeing the uranium minerals.

**Leaching** – acid or alkali dissolves the freed uranium, allowing the uranium-bearing solution to be separated from the leached solids by solid-liquid separation device, resulting in a clarified uranium-bearing solution.

**Extraction** – ion exchange or solvent extraction methods are used to separate the dissolved uranium from the aqueous solution.

**Precipitation and drying** – uranium is precipitated from solution using one of several chemicals. Dewatering, filtration and drying complete the process. The final product is sometimes known as yellowcake, although it is typically khaki.

**Mine development** - The term employed to designate the operations involved in preparing a mine for ore extraction. These operations include tunneling, sinking, cross-cutting, drifting, and raising.

**Exploration** - The search for mineral deposits and the work done to prove or establish the extent of a mineral deposit. Alt: Prospecting and subsequent evaluation.

**Mill** - A plant in which ore is treated and metals are recovered or prepared for smelting; also a revolving drum used for the grinding of ores in preparation for treatment.

**Reclamation** – The restoration of land and environmental values to a surface mine site after the coal is extracted. Reclamation operations are usually underway as soon as the coal has been removed from a mine site. The process includes restoring the land to its approximate original appearance by restoring topsoil and planting native grasses and ground covers.

**Resources** – Concentrations of coal in such forms that economic extraction is currently or may become feasible. Coal resources broken down by identified and undiscovered resources. Identified coal resources are classified as demonstrated and inferred. Demonstrated resources are further broken down as measured and indicated. Undiscovered resources are broken down as hypothetical and speculative.

**Reserve** – That portion of the identified coal resource that can be economically mined at the time of determination. The reserve is derived by applying a recovery factor to that component of the identified coal resource designated as the reserve base.

**In situ** - In the natural or original position. Applied to a rock, soil, or fossil when occurring in the situation in which it was originally formed or deposited.

**Waste** - That rock or mineral which must be removed from a mine to keep the mining scheme practical, but which has no value.

## **VII. APPENDICES**

APPENDIX A:

SURVEY QUESTIONS FOR  
CORPORATIONS AND CONSULTANTS

**Survey: Enterprise Saskatchewan | Survey for Corporations**Status: **Launched**

## 1. Introduction

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In response to numerous inquiries on supply chain opportunities in the Mining industry, Enterprise Saskatchewan, in partnership with the Saskatchewan Mining Association (SMA) and Saskatchewan Trade and Export Partnership Inc. (STEP), have contracted March Consulting Associates Inc., Saskatoon to complete a project to address these needs.

March Consulting, on behalf of Enterprise Saskatchewan, will be contacting key players in the mining and mining service industry to assist in developing resource materials for manufacturing companies wanting further information on supply chain opportunities in the Mining industry.

The purpose of the on-line portion of the survey is to:

- collect a broad base of data on the supply chain opportunities in the mining industry

*Those that participate may be contacted for a follow-up interview which will involve some clarification and/or elaboration on some of the critical areas.*

### **Distribution of Results**

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This information will be consolidated and developed into resource materials and one day workshops. The purpose of the workshops is to provide key information to manufacturers in understanding the mining industry, supply opportunities, important factors to consider in the current market, as well as practical information on participating in the supply chain.

It is the objective of this project to provide accurate and relevant information to assist manufacturers in understanding the opportunities and the important steps in becoming a successful preferred supplier.

### **Please Participate**

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If you are selected to participate, please do! Your input is key to informing potential future suppliers of the importance of understanding your industry and how to best prepare and service your company successfully.

*Questions about the purpose and content of this survey should be directed to:*

Monique Lischynski, Sector Specialist, Manufacturing and Supply Chains, Enterprise Saskatchewan  
Please call 306-933-7484 or email: [monique.lischynski@enterprisesask.ca](mailto:monique.lischynski@enterprisesask.ca)

or

Renée D. Alvi, P. Eng, PMP, Project Manager/Project Engineer, March Consulting Associates Inc.  
Please call 306.651.6342 or email: [ralvi@marchconsulting.com](mailto:ralvi@marchconsulting.com)

**Participant Information**

**First Name\***

**Last Name\***

**Title**

**Company Name\***

**Street Address**

**City**

**Province**

**Postal Code**

**Country**

**Email Address\***

**Phone Number\***

**Fax Number**

2. Section 1: Supply Chain & Procurement Within the Organization...

---

**1. How is the Supply Chain and Procurement process managed within your organization:**

- Centralized**
- Decentralized**
- Both**

**2. Who is responsible for the Supply Chain and Procurement processes within your organization?**

	Location/Site	Primary Contact	Job Title
<b>Corporate</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Operations</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Expansions</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Exploration</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>New Projects</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**3. Please describe your supply chain and procurement processes.**

**4. Please describe any supply chain and procurement processes that may be unique to your organization.**

**5. Should we be contacting other divisions/operations for additional information?**

- Yes
- No

**6. If yes, please provide further information in space provided:**

**7. Does your organization use Consultants (ie. EPCM) and/or Contractors to perform Supply Chain and procu**

- Yes
- No

**8. If so, what is the extent of their role?**

- Complete supply chain cycle
- Requisition only
- Technical Analysis
- Other, please specify

**9. Please describe the procurement process when utilizing Consultants and/or Contractors.**

**10. Does your organization use E-Procurement?**

- Yes
- No

11. If yes, do you participate in the following:

Enterprise Resource Planning

E-MRO

E-Sourcing

E-Tendering

Electronic Funds Transfer

Other, please specify

12. What third party providers do you use to facilitate E-Procurement within your organization?

13. What software capabilities do you expect from suppliers to interface effectively with your organization?

14. Does your organization look for innovative solutions from suppliers such as discounts, JIT, supplier man.

Yes

No

15. If yes, please describe:

### 3. Section 2: New Suppliers

---

**16. Please describe your guidelines for meeting with potential new suppliers:**

**17. Please describe the process for adding a new manufacturer to your organization:**

**18. Please describe the pre-qualification process for manufacturers to your organization;**

**19. Does the pre-qualification process differ for manufacturers providing services at various site locations? Please explain.**

**20. Does the pre-qualification process for manufacturers differ for small, medium and large manufacturers? Please explain:**

**21. How does a manufacturer obtain 'preferred supplier' status?**

22. What are the benefits to being a 'preferred supplier'? Please describe.

23. Do you have any type of Northern or Saskatchewan company preferred supplier program?

- Yes
- No

24. What are the requirements to qualify for the Northern or Saskatchewan preferred supplier programs in your organization?

25. What are the benefits to being a Northern or Saskatchewan preferred supplier?

#### 4. Section 3: Manufacturer Procurement Requirements

---

26. What type of Procurement methods do you use to procure manufactured products?

	Dollar Range	Example Type of Purchase
RFI (Request for Information)	<input type="text"/>	<input type="text"/>
No form of Competitive Bid Required	<input type="text"/>	<input type="text"/>
P-Card, Blanket Order, Other, please explain	<input type="text"/>	<input type="text"/>
RFQ (Request for Quotation)	<input type="text"/>	<input type="text"/>
RFP (Request for Proposal)	<input type="text"/>	<input type="text"/>

Other, please explain

Procurement Method	Dollar Range	Type of Purchase
> <input type="text"/>	<input type="text"/>	<input type="text"/>

27. Please explain your criteria and selection practice for manufacturers.

FOR RFQ PROCESSES:

Rate Importance: (1 – less important, 5 – very important)

- Specifications
- Quality
- Price
- Delivery

Other, please specify

FOR RFP PROCESSES

Rate importance: (1 – less important, 5 – very important)

- Specifications**
- Northern or Saskatchewan Supplier**
- Schedule**
- Quality Management System**
- Health, Safety and Environmental Policies**
- Risk Management and Insurance Coverage**
- Vendor Data**
- Cost**
- Freight**
- Delivery**

**Other, please specify**

**28. Which manufacturer core competencies do you consider to be an asset to your organization?**

**Rate Importance (1- less important, 5-very important)**

<b>Bid Documents</b>	-- Please Select --
<b>Health, Safety &amp; Environmental Policies</b>	-- Please Select --
<b>Quality Policies and Procedures</b>	-- Please Select --
<b>Inspection Frequency and Reporting</b>	-- Please Select --
<b>ISO Certification</b>	-- Please Select --
<b>Drawings – Approval, Certified, As-Built, 3D Models</b>	-- Please Select --
<b>Schedule – Type, Software Requirements</b>	-- Please Select --
<b>Bill of Materials</b>	-- Please Select --
<b>Turnover Package</b>	-- Please Select --
<b>Mill and Test Certificates</b>	-- Please Select --
<b>Operating Manuals</b>	-- Please Select --
<b>Freight, Crating and Delivery</b>	-- Please Select --
<b>Installation and Commissioning</b>	-- Please Select --
<b>Company History</b>	-- Please Select --
<b>Credit and Financial Information</b>	-- Please Select --
<b>References</b>	-- Please Select --
<b>Good business practices – policies and procedures, ethics</b>	-- Please Select --
<b>Software capabilities required</b>	-- Please Select --
<b>Change Order Procedure</b>	-- Please Select --
<b>Expediting</b>	-- Please Select --
<b>Invoicing</b>	-- Please Select --
<b>Other, please specify:</b>	

**Comments:**

**29. What type of agreements/contracts do you use when committing to purchases with manufacturers?**

Rate frequency of use: (1 – rarely used, 5 – frequently used)

Firm Fixed Price

Fixed Price Incentive Fee

Fixed Price w Economic Price Adjustment

Cost plus fixed fee

Cost plus incentive fee

Cost plus award fee

Time and Material

Other, please describe

**30. Do you evaluate manufacturers on a regular basis?**

Yes

No

**31. Please explain the criteria used to evaluate manufacturers.**

**32. What is the frequency of evaluations for manufacturers? (i.e. every 6 months, annually)**

**33. What type of process is used to evaluate manufacturers?**

- Standard Form
- Interview
- Informal Discussion
- Other, please specify

**34. Do you share the results of your evaluation with the manufacturers? Please explain:**

## 5. Section 4: Service Providers

---

**35. Does your organization have a standard *procurement* procedure for installation and commissioning services?**

- Yes
- No

**If yes, please describe:**

**36. Would installation and commissioning of its product(s) be considered an asset for a manufacturer?**

- Yes
- No

**37. If a manufacturer were to supply a service to one of your organization's site locations, what do you require?**

- Safety Training
- Safety Equipment (PPE)
- Site Orientation Training
- Insurance (Liability, Vehicle, WCB)
- Other
- 

## 6. Section 5: Equipment/Services Required

---

**38. Please provide a list of the OEM/MRO equipment/services required for your organization.**

	Location/Site	OEM/MRO Equipment Requirements	OEM/MRO Service
<b>Operations</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Expansions</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Exploration</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>New Projects</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### 7. Section 6: Supplier Opportunities

---

**39. Does your organization currently purchase manufactured goods from outside the province that have the potential to be manufactured locally?**

**Please provide detail in space provided**

**40. Does your organization currently have any supply opportunities specific to your mining or milling processes?**

**Please provide detail in space provided**

**41. Do you have any recurring supply problems that require solutions?**

- Yes**
- No**

**If yes, please describe in space provided:**

**42. Do you have any recurring quality, warranty issues that require solutions?**

- Yes**
- No**

**If yes, please describe in space provided:**

**43. What value added services would be considered an asset for a manufacturer?**

**44. Are there any current opportunities for partnering, alliances, reverse marketing for your organization?**

- Yes
- No

If yes, please describe in the space provided:

**45. What action/event may result in your organization switching from one manufacturer to another?**

**46. If you had any advice to give to potential manufacturers, what would it be?**

## 8. Supporting Documentation

---

**47. Please indicate below if you would be willing to provide us with the following information to be shared with manufacturers:**

- Procurement Policies and Procedures Manual
- A Product Category Report with the annual % of Spend for each grouping
- ABC Analysis Report for your Product Categories
- Generic Quality/Warranty data to identify potential manufacturing opportunities

## 9. Survey Evaluation

---

**Please tell us how satisfied or dissatisfied you were with the following:**

**How did you find the length of the survey?**

**How satisfied were you with the content of the survey?**

**How satisfied were you with the format of the survey?**

**Additional comments:**

'Thank You'/Redirect  
Page

---

**Thank you for taking the time to complete this survey. Your response is greatly appreciated.**

**We look forward to the opportunity to meet with you personally, in the coming weeks, to further discuss the mining supply chain process.**

**Survey: Enterprise Saskatchewan | Survey for Consultants**Status: **Launched**

## 1. Introduction

---

In response to numerous inquiries on supply chain opportunities in the Mining industry, Enterprise Saskatchewan, in partnership with the Saskatchewan Mining Association (SMA) and Saskatchewan Trade and Export Partnership Inc. (STEP), have contracted March Consulting Associates Inc., Saskatoon to complete a project to address these needs.

March Consulting, on behalf of Enterprise Saskatchewan, will be contacting key players in the mining and mining service industry to assist in developing resource materials for manufacturing companies wanting further information on supply chain opportunities in the Mining industry.

The purpose of the on-line portion of the survey is to:

- collect a broad base of data on the supply chain opportunities in the mining industry

*Those that participate may be contacted for a follow-up interview which will involve some clarification and/or elaboration on some of the critical areas.*

### Distribution of Results

---

This information will be consolidated and developed into resource materials and one day workshops. The purpose of the workshops is to provide key information to manufacturers in understanding the mining industry, supply opportunities, important factors to consider in the current market, as well as practical information on participating in the supply chain.

It is the objective of this project to provide accurate and relevant information to assist manufacturers in understanding the opportunities and the important steps in becoming a successful preferred supplier.

### Please Participate

---

If you are selected to participate, please do! Your input is key to informing potential future suppliers of the importance of understanding your industry and how to best prepare and service your company successfully.

*Questions about the purpose and content of this survey should be directed to:*

Monique Lischynski, Sector Specialist, Manufacturing and Supply Chains, Enterprise Saskatchewan  
Please call 306-933-7484 or email: [monique.lischynski@enterprisesask.ca](mailto:monique.lischynski@enterprisesask.ca)

or

Renée D. Alvi, P. Eng, PMP, Project Manager/Project Engineer, March Consulting Associates Inc.  
Please call 306.651.6342 or email: [ralvi@marchconsulting.com](mailto:ralvi@marchconsulting.com)

**Participant Information**

**First Name\***

**Last Name\***

**Title**

**Company Name\***

**Street Address**

**City**

**Province**

**Postal Code**

**Country**

**Email Address\***

**Phone Number\***

**Fax Number**

2. Section 1: Supply Chain & Procurement Within the Organization...

---

**1. Are you currently working for any Potash mining companies?**

- Provincially**
- Nationally**
- Internationally**

2. Are you currently working for any Uranium mining companies?

- Provincially
- Nationally
- Internationally

3. Please indicate which companies you are working with currently:

4. Please indicate the type of work you are performing for these companies:

- Operations
- Expansions
- Exploration
- New projects
- Other, Please describe

5. When working with mining companies, what is the extent of your role in the supply chain process?

- Complete supply chain cycle
- Requisition only
- Technical Analysis
- Other, please describe

6. When working with mining companies, who is responsible for the Supply Chain and Procurement process?

	Location/Site	Primary Contact	Job Title
<b>Corporate</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Operations</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Expansions</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Exploration</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>New Projects</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**7. Please describe your supply chain and procurement processes.**

**8. Please describe any supply chain and procurement processes that may be unique to your organization.**

9. Should we be contacting other divisions/operations for additional information?

- Yes
- No

10. If yes, please provide further information in space provided:

11. Are you typically involved in the selection of suppliers for:

- Operations
- Expansions
- Exploration
- New projects
- Other, Please describe

12. Does your organization use E-Procurement?

- Yes
- No

13. If yes, do you participate in the following:

- Enterprise Resource Planning
- E-MRO
- E-Sourcing
- E-Tendering
- Electronic Funds Transfer
- Other, please specify

14. What third party providers do you use to facilitate E-Procurement within your organization?

**15. What software capabilities do you expect from suppliers to interface effectively with your organization?**

**16. Does your organization look for innovative solutions from suppliers such as discounts, JIT, supplier man.**

- Yes
- No

**17. If yes, please describe:**

### 3. Section 2: New Suppliers

---

**18. Please describe your guidelines for meeting with potential new suppliers:**

**19. Please describe the process for adding a new manufacturer to your organization:**

20. Please describe the pre-qualification process for manufacturers to your organization;

21. Does the pre-qualification process differ for manufacturers providing services at various site locations? Please explain.

22. Does the pre-qualification process for manufacturers differ for small, medium and large manufacturers? Please explain:

23. How does a manufacturer obtain 'preferred supplier' status?

24. What are the benefits to being a 'preferred supplier'? Please describe.

25. Do you have any type of Northern or Saskatchewan company preferred supplier program?

- Yes
- No

26. What are the requirements to qualify for the Northern or Saskatchewan preferred supplier programs in your organization?

**27. What are the benefits to being a Northern or Saskatchewan preferred supplier?**

#### 4. Section 3: Manufacturer Procurement Requirements

---

**28. What type of Procurement methods do you use to procure manufactured products?**

	Dollar Range	Example Type of Purchase
RFI (Request for Information)	<input type="text"/>	<input type="text"/>
No form of Competitive Bid Required	<input type="text"/>	<input type="text"/>
P-Card, Blanket Order, Other, please explain	<input type="text"/>	<input type="text"/>
RFQ (Request for Quotation)	<input type="text"/>	<input type="text"/>
RFP (Request for Proposal)	<input type="text"/>	<input type="text"/>

**Other, please explain**

Procurement Method	Dollar Range	Type of Purchase
> <input type="text"/>	<input type="text"/>	<input type="text"/>

29. Please explain your criteria and selection practice for manufacturers.

**FOR RFQ PROCESSES:**

Rate importance: (1 – less important, 5 – very important)

Specifications

Quality

Price

Delivery

Other, please specify

**FOR RFP PROCESSES**

Rate importance: (1 – less important, 5 – very important)

Specifications

Northern or Saskatchewan Supplier

Schedule

Quality Management System

Health, Safety and Environmental Policies

Risk Management and Insurance Coverage

Vendor Data

Cost

Freight

Delivery

Other, please specify

30. Which manufacturer core competencies do you consider to be an asset to your organization?

Rate Importance (1- less important, 5-very important)

<b>Bid Documents</b>	-- Please Select --
<b>Health, Safety &amp; Environmental Policies</b>	-- Please Select --
<b>Quality Policies and Procedures</b>	-- Please Select --
<b>Inspection Frequency and Reporting</b>	-- Please Select --
<b>ISO Certification</b>	-- Please Select --
<b>Drawings – Approval, Certified, As-Built, 3D Models</b>	-- Please Select --
<b>Schedule – Type, Software Requirements</b>	-- Please Select --
<b>Bill of Materials</b>	-- Please Select --
<b>Turnover Package</b>	-- Please Select --
<b>Mill and Test Certificates</b>	-- Please Select --
<b>Operating Manuals</b>	-- Please Select --
<b>Freight, Crating and Delivery</b>	-- Please Select --
<b>Installation and Commissioning</b>	-- Please Select --
<b>Company History</b>	-- Please Select --
<b>Credit and Financial Information</b>	-- Please Select --
<b>References</b>	-- Please Select --
<b>Good business practices – policies and procedures, ethics</b>	-- Please Select --
<b>Software capabilities required</b>	-- Please Select --
<b>Change Order Procedure</b>	-- Please Select --
<b>Expediting</b>	-- Please Select --
<b>Invoicing</b>	-- Please Select --
<b>Other, please specify:</b>	

**Comments:**

**31. What type of agreements/contracts do you use when committing to purchases with manufacturers?**

Rate frequency of use: (1 – rarely used, 5 – frequently used)

Firm Fixed Price

Fixed Price Incentive Fee

Fixed Price w Economic Price Adjustment

Cost plus fixed fee

Cost plus incentive fee

Cost plus award fee

Time and Material

Other, please describe

**32. Do you evaluate manufacturers on a regular basis?**

Yes

No

**33. Please explain the criteria used to evaluate manufacturers.**

34. What is the frequency of evaluations for manufacturers? (i.e. every 6 months, annually)

35. What type of process is used to evaluate manufacturers?

Standard Form

Interview

Informal Discussion

Other, please specify

36. Do you share the results of your evaluation with the manufacturers? Please explain:

## 5. Section 4: Service Providers

---

37. Does your organization have a standard *procurement* procedure for installation and commissioning services?

Yes

No

If yes, please describe:

**38. Would installation and commissioning of its product(s) be considered an asset for a manufacturer?**

- Yes
- No

**39. If a manufacturer were to supply a service to one of your organization's site locations, what do you require?**

- Safety Training
- Safety Equipment (PPE)
- Site Orientation Training
- Insurance (Liability, Vehicle, WCB)

**Other**

**40. What value added services would be considered an asset for a manufacturer?**

## 6. Section 5: Equipment/Services Required

---

**41. Please provide a list of the OEM/MRO equipment/services required for your organization.**

	Location/Site	OEM/MRO Equipment Requirements	OEM/MRO Service
<b>Operations</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Expansions</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Exploration</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>New Projects</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>
>	<input type="text"/>	<input type="text"/>	<input type="text"/>

7. Section 6: Supplier Opportunities

---

**42. Does your organization currently purchase manufactured goods from outside the province that have the potential to be manufactured locally?**

Please provide detail in space provided

**43. Do you have any recurring supply problems that require solutions?**

- Yes
- No

If yes, please describe in space provided:

**44. Do you have any recurring quality, warranty issues that require solutions?**

- Yes
- No

If yes, please describe in space provided:

**45. What value added services would be considered an asset for a manufacturer?**

**46. Are there any current opportunities for partnering, alliances, reverse marketing for your organization?**

- Yes
- No

If yes, please describe in the space provided:

**47. What action/event may result in your organization switching from one manufacturer to another?**

**48. If you had any advice to give to potential manufacturers, what would it be?**

## 8. Supporting Documentation

---

**49. Please indicate below if you would be willing to provide us with the following information to be shared with manufacturers:**

- Procurement Policies and Procedures Manual
- A Product Category Report with the annual % of Spend for each grouping
- ABC Analysis Report for your Product Categories
- Generic Quality/Warranty data to identify potential manufacturing opportunities

## 9. Survey Evaluation

---

**Please tell us how satisfied or dissatisfied you were with the following:**

**How did you find the length of the survey?**

-- Please Select --

**How satisfied were you with the content of the survey?**

-- Please Select --

**How satisfied were you with the format of the survey?**

**Additional comments:**

'Thank You'/Redirect  
Page

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**Thank you for taking the time to complete this survey. Your response is greatly appreciated.  
We look forward to the opportunity to meet with you personally, in the coming weeks, to further discuss the  
mining supply chain process.**

## APPENDIX B:

# PROVINCIAL MINING INFORMATION

Yukon Territory 

In the Yukon Territory, placer mining still contributes significantly to the territorial economy. The Dawson City district, where placer gold mines have operated since the late 1800s, is the Yukon's major mining centre. The principal minerals and metals produced in the Yukon are gold, zinc, lead, silver and sand and gravel.

Northwest Territories 

In the Northwest Territories the famous ELDORADO mine, beside Great Bear Lake, was operating by 1933 for the silver and radium in its ores. Operations were suspended in 1940, then resumed in 1942 to meet wartime demands for uranium. It was closed in 1960 and reopened in 1964 as a silver mine, finally closing in 1981.

The first major gold discovery in the Northwest Territories was in 1935 at the Con-Rycon mine. This ore deposit, on the west side of Yellowknife Bay, is still the site of an operating mine. The discovery of diamonds in the Northwest Territories by Dia Met Minerals Ltd in 1991 started one of the largest staking rushes in recent Canadian history. Canada's first diamond mine, the Ekati mine near Lac de Gras, began production in October 1998. Most of the diamond production is exported, but a small percentage is reserved for cutting in Canada. Annual production began at 5 million carats per year.

Nunavut 

The Polaris lead-zinc mine on Little Cornwallis Island, over 1000 km inside the Arctic Circle, is the most northerly base-metal mine in the world. The Lupin mine on Contwoyto Lake, about 89 km south of the Arctic Circle, is the most northerly gold mine in the world, outside of Russia. It mills approximately one million tonnes of ore each year at a grade of 12% zinc and 3.5% lead.

British Columbia 

BC is a major producer of base and precious metals, coal and industrial minerals. Copper and molybdenum ores are obtained from several big open-pit mines, the largest being the Highland Valley operation near Kamloops. The underground Sullivan lead-zinc-silver mine at Kimberley, in production since 1909 (Closed in 2001 – 92 years of production, 1909: The Sullivan mine begins production under Cominco's<sup>39</sup>) has been one of the world's largest producers. The Eskay Creek mine, which opened in 1995, is one of the highest-grade gold and silver deposits in North America. Coal is mined from large open pits in the Crowsnest and Tumbler Ridge areas.

Alberta 

Coal and bituminous sand are the principal outputs of mines in Alberta, and nearly half of Canada's coal production is mined in the province. Except for one small underground mine, the coal is produced from about 7 large strip mines in the plains and 5 open pit mines in the foothills west of Edmonton. The bituminous sand is mined from 2 huge surface mines in the Fort McMurray area of northeastern Alberta. Other products include limestone, clay, and sand and gravel.

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<sup>39</sup> <http://www.answers.com/topic/cominco-ltd>

Saskatchewan 

Saskatchewan is the world's largest producer of uranium. Key Lake is home to world's largest high-grade uranium mill (largest high-grade uranium milling operation in the world<sup>40</sup>) –with an annual production capacity of approximately 8.2 million kg. Rabbit Lake is the world's second largest milling operation, with a capacity of about 5.5 million kg. Although Cluff Lake was expected to close in 2000, operations were extended through 2001. The McClean Lake and McArthur River mines began production in 1999. McArthur River is the world's largest high-grade uranium deposit, with proven and probable reserves greater than 215 million kg. Due to water flood issue, Cigar Lake is expected to begin production by mid-2013<sup>41</sup> and should have a production life of 30-40 years. Canada is also the world's largest producer of potash and Saskatchewan is Canada's largest producer. Deep mines in the central part of the province produce about 30% of the world's potash. Coal mining, which started in the province before 1900, is one of Saskatchewan's oldest industries. Today, coal is produced by strip-mining at several mines in the southern part of the province, chiefly for use in power generation.

Manitoba 

Large-scale mining began in Manitoba in 1930 when a copper-zinc mine at Flin Flon on the Manitoba-Saskatchewan border went into production. Since then, Thompson, Lynn Lake, The Pas and Leaf Rapids have become major mining centres for copper, zinc, nickel and precious metals. Nickel from the huge Thompson nickel belt, where production began in 1960, accounts for nearly 40% of the value of Manitoba's mineral production, with copper and zinc each accounting for 18%.

Ontario 

Ontario is a major producer of base metals, gold and precious metals. The Sudbury district, where ore bodies were first discovered in 1883-85, is the world's most important nickel mining and smelting area. The Creighton nickel and copper mine in Sudbury, Ontario, is the deepest nickel (about 2.2km depth) mine in Canada, reaching a depth of about 2.2 km. Large amounts of copper and other valuable metals are also produced in the region. The Kidd Creek copper-zinc-lead-silver mine near Timmins is the largest mine in northern Ontario. Gold mines in the Timmins and Kirkland Lake districts, where gold mining began in the early years of the 20th century, have passed peak production, but important discoveries have made up the loss. The most striking of these discoveries is the huge Hemlo deposit, which, in 1982-83, was discovered literally underneath the Trans-Canada Highway near Marathon in northern Ontario.

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<sup>40</sup> Cameco website: [http://www.cameco.com/mining/key\\_lake/](http://www.cameco.com/mining/key_lake/)

<sup>41</sup> Mining Weekly: <http://www.miningweekly.com/article/cameco-sees-mid-2013-start-up-at-cigar-lake-2010-02-25>

Québec 

Mines in northwestern Québec have been important contributors to the mineral wealth of the nation since 1926, when the Noranda copper mine went into production. While some of the earliest-discovered ore bodies have been depleted, others have sustained production. Besides copper, large amounts of zinc, lead and other metals are produced in the area. Open-pit mines at Thetford Mines and Asbestos, in the southern part of the province, produce about one-fifth of the world's ASBESTOS. Québec produces about 42% of Canada's iron ore tonnage and has the only titanium mine in Canada. Québec has the only titanium mine in Canada<sup>42</sup> and is the world's third-largest producer of titanium oxide slag. Titanium pigments are used in high-quality paints and plastics.

New Brunswick 

In New Brunswick, the principal minerals and metals produced are zinc, potash, silver, lead, peat, copper and coal. The major areas of mineral production are Bathurst, Sussex, Minto and the North Shore. The Bathurst mining camp recorded mineral production as early as 1837, although most production from the area has resulted from the opening of the Heath Steele mine in the late 1950s and the Brunswick No. 6 and Brunswick No. 12 mines in the 1960s. The Brunswick No. 12 is one of the largest base-metal deposits in the world. With its 2 potash mines, New Brunswick ranks as the world's sixth-largest potash producer.

Nova Scotia 

Coal mining has been an important industry on Cape Breton Island for over 200 years. Two underground mines, extending under the ocean, produce about 2.6 million tonnes per year. In a mining museum at GLACE BAY, visitors can descend into part of an old coal mine. The Cape Breton Coal Research Laboratory, located in Sydney, was created by the Canadian government in 1981. Working closely with industry, the laboratory carries out research and investigates ways of improving the health and safety of underground miners. In addition to coal, gypsum, salt, mineral aggregates, crude petroleum and cement are important mineral commodities in the province.

Prince Edward Island 

Sand and gravel production makes a significant contribution to PEI's economy. Peat and natural gas are also important resources.

Newfoundland and Labrador 

Iron ore production from open pits in Labrador makes up the majority of the province's mineral production. The province accounts for about 57% of Canada's iron ore production. Other important mineral products are nonmetals and structural materials such as slate, cement, asbestos, stone and clay products. The Hope Brook mine on the southwest coast of the province is a major gold producer. In 1994, Labrador was the site of the Voisey Bay discovery, the one of the richest nickel-copper-cobalt deposit in the world. After Diamond Fields Resources Inc announced the find in November 1994, a staking rush ensued, with nearly 250 000 claims being registered in the vicinity of the discovery.

Source: The Canadian Encyclopedia: [thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0005318](http://thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0005318): Author: T.H. Patching

<sup>42</sup> Natural Resources of Canada: [http://atlas.nrcan.gc.ca/site/english/maps/economic/mining/metal\\_mines/1](http://atlas.nrcan.gc.ca/site/english/maps/economic/mining/metal_mines/1)

APPENDIX C:

DEFINITIONS OF POTASH MINING  
PROCESS – CONVENTIONAL  
UNDERGROUND MINING

**Scalping:** Potash ore is sized and oversized potash is separated from smaller material. Oversized potash is crushed and mixed with brine to create slurry.

**Desliming:** The slurry, further crushed and sized to liberate KCl particles, is agitated and cycloned to remove clay, fine potash, and salt. Material from the desliming stage is pumped to the mine for disposal in the excavated salt stopes.

**Flotation:** The process following desliming where the slurry is mixed with various chemicals to assist in separation of additional KCl.

**Air Injection:** The treated slurry is placed in a series of cells and air is circulated through the slurry; particles of KCl attach to rising air bubbles to form a KCl-rich froth on top and is subsequently skimmed off as concentrate.

**Reagent and Agitate:** The concentrate is washed with a weak NaCl solution to dissolve any leftover salt, further improving the quality of the KCl product.

The salt particles, which do not attach to the air bubbles, sink and are re-ground to further liberate any fine-grained KCl that will be recovered in a final flotation process. The balance of waste materials (salt tailings and clay slimes) are transported underground to active potash stopes.

**Sizing:** The resultant KCl concentrate is dried and sized to granular and standard grade products. Additional KCl recovered from salt stope brines, is compacted, crushed, sized, and added to product lines.

**Shipping:** The KCl products (referred to as muriate of potash) produced are sent by rail to a potash terminal.<sup>43</sup>

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<sup>43</sup> Source: Government of New Brunswick: [www.gnb.ca/0078/minerals/PDF/Potash\\_profile-e.pdf](http://www.gnb.ca/0078/minerals/PDF/Potash_profile-e.pdf)

**APPENDIX D:**

**DEFINITIONS FOR URANIUM  
MINING PROCESS**

**Open pit:** used to mine relatively shallow deposits. Economics depend on the ratio of ore to waste, higher grade ores being able to produce higher ratios.

**Underground:** used to mine deposits too deep for open pit mining. For mining to be viable, these deposits must be comparatively high grade.

**In situ leach:** this method is applicable only to sandstone-hosted uranium deposits located below the water table in a confined aquifer. The uranium is dissolved in a mildly alkaline or acidic solution that is injected into and recovered from the aquifer by means of wells. The geology remains undisturbed.

**By-product:** uranium often occurs in association with other minerals such as gold (Witwatersrand), phosphate (United States and elsewhere) and copper (Australia).

## PROCESSING AND EXTRACTION

**Crushing and grinding:** breaks down the ore to sand/ silt sized particles, thereby freeing the uranium minerals.

**Leaching:** Acid or alkali dissolves the freed uranium, allowing the uranium-bearing solution to be separated from the leached solids by solid-liquid separation device, resulting in a clarified uranium-bearing solution.

**Extraction:** ion exchange or solvent extraction methods are used to separate the dissolved uranium from the aqueous solution.

**Precipitation and drying:** uranium is precipitated from solution using one of several chemicals. Dewatering, filtration and drying complete the process. The final product is sometimes known as yellowcake, although it is typically khaki<sup>44</sup>

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<sup>44</sup> Source: World Nuclear Association: [www.world-nuclear.org](http://www.world-nuclear.org)

# APPENDIX E:

## POTASHCORP PURCHASING POLICY



## **CORPORATE PURCHASING POLICY**

- 1. MANAGEMENT COMMENTS**
- 2. GENERAL PURCHASING POLICY**
- 3. PURCHASING OBJECTIVES**
- 5. CONFLICT OF INTEREST**
- 8. ETHICAL CONSIDERATIONS**
- 9. RELATIONS WITH VENDORS**
- 12. RELATIONS WITH OTHER DEPARTMENTS**
- 14. SELECTION OF SOURCES OF SUPPLY**
- 16. RISK MANAGEMENT**
- 18. TYPES OF PURCHASING AGREEMENTS**
- 22. COMMITMENT AUTHORIZATION LEVELS**
- 23. CONTRACTS**
- 26. TERMS AND CONDITIONS**
- 27. CONFIDENTIALITY**

## **CORPORATE PURCHASING POLICY MANAGEMENT'S COMMENTS**

The attached Purchasing policy manual encompasses all purchasing policies as approved by the COO and Vice President, Procurement. The policy statements contained in this manual represent the basic intentions and goals of the company. They establish the permanent foundation upon which the company operates and are expected to be relatively independent of the changing technologies and methods used to carry them out.

These policies are subject to change from time to time as circumstances dictate, and these changes, when approved by the COO and Vice President, Procurement, will be distributed to all manual holders.

We would like to maintain the highest level of ethics in Purchasing and deal with our suppliers on a uniform basis.

## **CORPORATE PURCHASING POLICY GENERAL PURCHASING POLICY**

The overall goal of Purchasing is to procure quality products and services in the most cost-effective manner and satisfy the company's requirements on a timely basis, consistent with company objectives while maintaining the highest ethical standards. Purchasing shall aim to acquire these quality products and services for the lowest long-term cost. Factors considered in determination of the "lowest long-term cost" will be identified and documented for significant purchasing decisions. Responsibility for determining the threshold or parameters for "significant" purchasing decisions requiring decision documentation shall reside with the site and corporate department heads, and such thresholds/parameters shall be incorporated in the procedures governing site or department operations.

## **CORPORATE PURCHASING POLICY PURCHASING OBJECTIVES**

The primary objective of Purchasing is to contribute to the efficiency of the overall operation of PCS.

In support of this prime objective, Purchasing will:

- Comply, in all respects, with all applicable laws and regulations without qualification or evasion.
- Ensure the uninterrupted flow of production by obtaining and ensuring delivery of acceptable quality goods and services, at the right time and price, unless ensuring uninterrupted flow of production is not cost-effective in the judgment of enterprise or executive management.
- Develop reliable alternate sources of supply to meet company requirements.
- Resolve complaints on all purchased goods and services.
- Provide leadership in the standardization of materials, supplies, equipment, services and policies.
- Provide leadership for the management of inventories of purchased goods so as to meet the use requirements of the company's departments at the lowest possible cost.
- Dispose of, to the best advantage, all material and equipment declared to be surplus or obsolete. All disposal activities shall be conducted in a manner that does not compromise the environment.
- Establish and maintain effective communication channels to develop a supply culture which fosters a learning and growth environment, promotes a team concept that crosses functional organizations and company boundaries, and values an individual's skills, knowledge and performance of responsibilities.
- Give prime consideration to the company's interests while seeking to maintain and further long-term, mutually profitable, ethical supplier relationships.
- Carry out the policies of the company so that the best interests of the company are served. Develop and keep up to date a purchasing manual outlining the organization, policies and procedures by which goods and services are to be procured throughout the company and ensure that the divisions operate according to these policies.

## **CORPORATE PURCHASING POLICY PURCHASING OBJECTIVES**

- Establish and direct a program of purchasing research designed to keep this activity conducted in line with the best and latest techniques in the field. To recommend desirable improvements resulting from these research activities are put in effect.
- Ensure pertinent information on market conditions, trends, prices, government regulations, etc. is properly disseminated to relevant personnel within the company.
- Acknowledge and fulfill its function as a service department, including its vested mandate as designated negotiator/principal with regard to outside supply and services agreements.

## **CORPORATE PURCHASING POLICY CONFLICT OF INTEREST**

An employee is in a conflict of interest situation when he/she has an interest or a potential interest of any kind in a contract, agreement or financial relationship in which the company has an interest or potential interest. In relationships with vendors, a conflict can be created by non-monetary interests such as gifts and business courtesies, so the giving and receiving of gifts/courtesies are subject to the guidelines below.

### **POLICY**

Employees are expected to be free of interests or relationships that are actually or potentially detrimental to the company. They shall not engage or participate in any commercial transaction involving the company in which they have an undisclosed interest. In addition to being in violation of the employee's duty of loyalty to PotashCorp, improper relationships with vendors are at odds with the company's goal of treating fairly and impartially all persons and entities engaged in business dealings with PotashCorp.

### **PRACTICE**

#### **General Requirements and Responsibilities**

Any employee who has assumed, or is about to assume, a financial or other outside business relationship that might involve a conflict of interest immediately must inform his/her supervisor in writing of the circumstances involved. At a site, this information is to be forwarded to and reviewed by senior management, and copied to the purchasing manager at the site, for a decision on whether a conflict of interest is present and, if so, what course of action is to be taken. Within corporate departments, supervisors shall forward the written notice to departmental heads, with a copy to the General Counsel. Company's Code of Conduct provides additional guidance and is the overriding authority for conflicts of interest.

The company does not seek to gain or provide any improper advantage through the receiving or giving of gifts, meals, entertainment or other business courtesies. Accordingly, it is imperative that employees act in a fair and impartial manner in all business dealings.

## **CORPORATE PURCHASING POLICY**

### **CONFLICT OF INTEREST**

Business courtesies are gifts, entertainment or other benefits provided by or to persons or firms with whom PotashCorp maintains or may establish business relationships and for which fair market value is not paid by the recipient. A business courtesy may be a tangible or intangible benefit, including, but not limited to, such items as cash, non-monetary gifts, meals, drinks, entertainment, hospitality, recreation, door prizes, transportation, lodging discounts, tickets, passes, conference fees, loans or use of a donor's time, materials or equipment.

As a general rule, employees must act lawfully, reasonably and with moderation in connection with business courtesies. Employees must exercise good judgment and avoid even the appearance of impropriety or illegality.

Employees may accept or provide business courtesy gifts only if:

- They are lawful;
- They are of nominal value, or if they exceed nominal value have been approved by the recipient's manager;
- They are not cash;
- They are not solicited;
- They do not obligate the recipient in any manner;
- They do not create even the appearance of impropriety or illegality;
- They are in accordance with the ordinary and proper course of business, and
- They are not exchanged on a regular or frequent basis.

Employees may accept or provide business entertainment only if:

- It is lawful;
- It is reasonable (not lavish, excessive or extravagant) and of nominal value (or if they exceed nominal value have been approved by the recipient's manager);
- There is a legitimate business purpose for the event;
- It does not obligate the recipient in any manner;
- It does not create even the appearance of impropriety or illegality;
- It is in accordance with the ordinary and proper course of business; and
- It is not regularly or frequently provided.

Determination of "nominal value" shall be the responsibility of the senior site or corporate department manager, and site or departmental operational procedures shall contain this guidance.

## **CORPORATE PURCHASING POLICY**

### **CONFLICT OF INTEREST**

#### **Disposition of Unacceptable Business Courtesies**

Employees should try to anticipate and avoid situations that might lead to the offering of improper business courtesies. However, if such a courtesy is extended, the employee must politely decline the offer and explain that PotashCorp's policy prohibits acceptance or retention of such business courtesies. If the situation is such that the custom of the culture would make it awkward or insulting to refuse a gift, then the employee may accept the gift and consult with the Vice President, Procurement, to determine its final disposition.

If a business courtesy gift is accepted and subsequently determined to be improper, the employee must return it to the donor with a polite explanation that PotashCorp's policy prohibits the retention of the courtesy. If the unacceptable business courtesy is of such a nature that its return is not feasible (such as a perishable gift), after consultation with site management or the Vice President, Procurement, the gift may be anonymously donated to a charitable or educational organization (with a letter to the donor that explains PotashCorp's policy and the disposition of the courtesy). Site management, in consultation with the Vice President, Procurement, may approve of an alternate disposition of the business courtesy.

#### **Accurate Recordkeeping**

Complete and accurate records are necessary for receipt of all business courtesies exceeding nominal value, as determined by site or corporate department management, and approved by the supervisor. The log of such approved and accepted courtesies shall be maintained by the recipient and include the date, gift/occasion, donating vendor and PotashCorp recipients/attendees. Logs may be reviewed by executive management upon request. A template for Logs (Addendum A) is provided with this policy. However, site or corporate department management may devise their own template provided such template at a minimum incorporates the same data as Addendum A.

## **CORPORATE PURCHASING POLICY ETHICAL CONSIDERATIONS**

Employees shall at all times in the performance of their assigned duties:

- conduct themselves in a manner consistent with the highest ethical standards including the company's Conflict of Interest Policy and will purchase without prejudice;
- uphold their positions of trust in the conservation and expenditure of company funds; and
- be vigilant in preserving and protecting the integrity of the company through daily contacts and business dealings.

## **CORPORATE PURCHASING POLICY RELATIONS WITH VENDORS**

Sound business relations with vendors are essential in order to maintain a dependable, competent source of supply for the uninterrupted flow of quality goods and services.

Purchasing is the primary source of contact and channel of communication with all vendors. Honesty, integrity, confidence and tact should be employed by purchasing staff to establish and maintain mutually satisfactory bonds of respect and understanding with vendors. These relationships will enable purchasing staff to enhance the reputation of the company in the course of their duties, building goodwill that will serve the company well in all of its activities.

In this regard, the following should be observed when dealing with vendors and their representatives in these circumstances:

### **INTERVIEWS**

It is a major obligation of purchasing to be courteous, honest and fair in its dealings with vendors' representatives, for such treatment is expected by the company for its representatives. Courtesy shall include a prompt reception to business callers and a reasonable regard for their time. Sales representatives shall be afforded a fair and equal opportunity to present legitimate and pertinent information concerning materials, equipment, methods or techniques that the vendor company markets and that may have potential or immediate application in PCS operations.

Vendor representatives will be seen only by appointment, as unscheduled sales calls are of little or no benefit to either party. The time of both purchasing and other company personnel will not be made absolutely and indiscriminately available to any and all comers.

Other company personnel shall be given every opportunity to discuss with vendors new developments, materials, methods or ideas that may result in cost reduction or production improvements. Purchasing shall assist vendors' representatives in developing and maintaining proper relations with other company representatives and are to be informed of the results of consultations with vendors when Purchasing is not present.

## **CORPORATE PURCHASING POLICY RELATIONS WITH VENDORS**

Contacts with vendors are not limited to purchasing. However, the purchasing group shall be kept up to date on all communications either through vendor or employee reports. This will allow the company's communications with vendors to be consistent, and Purchasing will be advised of programs and matters that may result in eventual purchases.

### **VENDOR VISITS**

Purchasing shall, if required and approved by senior management, make purposeful visits to vendors' plants. Such visits serve to: cement good relations; enable buyers to know their sources of supply, including the caliber of service, quality, progressiveness, and manufacturing methods; and broaden their knowledge of the commodities they purchase.

### **TRIAL ORDERS AND SAMPLES**

Purchasing shall be receptive to new commodities and ideas that appear beneficial to the company. Use of new or different products or services may be suggested by Purchasing or by other departments. Since testing is expensive, tests should be restricted to those products that appear most promising. Company personnel should avoid imposing upon vendors requests for free sample lots or free demonstration units.

### **DISCLOSURE OF INFORMATION**

All employees shall promote the reputation of the company for integrity by respecting the confidence of the vendor regarding quotations or other confidential information. Prices shall not be divulged to competitors nor should such information be circulated indiscriminately within the company.

Purchasing shall advise employees having access to information regarding supply sources, competitive performance, bids or prices paid for any product or service that this information is proprietary and may not be divulged to anyone outside the company.

## **CORPORATE PURCHASING POLICY RELATIONS WITH VENDORS**

Upon specific request, unsuccessful bidders should be told as fully as possible, without disclosing confidential information, the reason for rejecting their bids. All questions concerning the awarding of business should be referred to Purchasing.

### **CLAIMS AND ADJUSTMENTS**

The clearance and execution of all claims and adjustments arising out of disputes regarding performance of equipment, materials, services or price shall be referred to Purchasing for negotiation and/or resolution. In doing so, it may be necessary for Purchasing to involve other company personnel or disciplines.

Vendors with complaints about unfair treatment or unethical or illegal practices may raise such complaints in any of three ways. The vendor may direct such complaints to the site General Manager, to the Vice President, Procurement, or to ComplianceLine, the external hotline operated by an independent firm engaged by PotashCorp. In each case, such complaints shall be thoroughly and impartially investigated and appropriately addressed. Formal vendor complaints shall be documented at each site, and on an annual basis the number and substance of such complaints shall be communicated to the Subsidiary President and the Vice President, Procurement.

### **SUPPLIER RESEARCH AND DEVELOPMENT**

We expect our vendors to apply every possible method of examination and measurement to their products and services in a continuous search for better value. We encourage our vendors to inform us about new ideas and developments. It is the responsibility of Purchasing to receive maximum advantage from this readily available source of constructive ideas and applications. We shall keep our vendors fully and currently informed but shall not disclose information considered confidential or potentially detrimental.

## **CORPORATE PURCHASING POLICY RELATIONS WITH OTHER DEPARTMENTS**

The value of Purchasing to the company depends on the service it renders on procuring materials, services, supplies and information necessary for operations of the other departments. A high degree of coordination and communication between departments is paramount.

Members of the purchasing staff should obtain the advice of Engineering, Maintenance, IT, Distribution, Legal, Tax, Insurance, Finance and other specialized departments on problems relating to their respective areas of interest so that decisions reflect the most authoritative opinion available.

Request for price and availability of specific items relative to possible future requirements should be made through Purchasing in memo form or other locally acceptable methods. It should be specified that the intent is to accumulate data and not to commit to a purchase.

Although vendor contact is primarily a Purchasing responsibility, it is recognized that various departments must seek technical information that may affect the selection of materials or equipment. As soon as it is determined this information may impact a potential purchase, Purchasing must be advised so the potential bidders lists can be developed. Upon request, Purchasing will arrange for visits of qualified technical personnel from suppliers or potential suppliers. Similarly, whenever Purchasing feels that such representatives calling on Purchasing have something of value to offer, they will arrange meetings with appropriate company personnel. If appropriate, a representative of Purchasing will be present at these meetings. When convenient, further contacts, requests for samples, etc., arising from such meetings are to be handled through Purchasing. Written reports of meetings should be circulated to purchasing and other interested parties.

The effectiveness and efficiency of Purchasing depends greatly on the amount of advance notice of requirements. Therefore the purchasing discipline must receive adequate notification of potential purchases to provide for sufficient performance of the necessary procurement functions. All departments should advise Purchasing of any requirements likely to arise from any new development as soon as this information is available.

## **CORPORATE PURCHASING POLICY RELATIONS WITH OTHER DEPARTMENTS**

Price information will only be given by Purchasing to those within the company who require this information in the performance of their duties. In interviews with salespeople, **no one** shall commit himself to a vendor on preference for any product or source of supply, nor give any information regarding a competitive supplier's performance, final approval or price. Requests by vendors for information of this nature shall be denied. After proper approval is obtained, only Purchasing is authorized to commit to a selected vendor at operational sites. Within corporate offices for purchases not delegated to Corporate Procurement staff, the department head shall delegate purchasing commitment authority under the guidelines provided in the Corporate Accounting Procedure Manual (section 2.02).

## **CORPORATE PURCHASING POLICY SELECTION OF SOURCES OF SUPPLY**

### **PHILOSOPHY**

The company recognizes the importance of developing a strong support base geographically close to its various operations. It is in the best economic interests of the company that materials, services and personnel skilled in areas relevant to the industry be readily available as and when required by the company.

### **EVALUATION**

It is the responsibility of Purchasing to develop and maintain adequate numbers of competent vendors for all material and service requirements of the company. This ensures better opportunity for continuity of supply, fosters competition and generates good will and a broader range of industry contacts.

In evaluating the relative qualifications of existing and potential vendors, Purchasing shall select those qualified sources that offer the optimum combination of the following considerations for the facility(ies) served:

- Exhibits documented excellence on safety, health and environmental performance and performs drug testing if a provider of contract labor
- Current and historical financial position
- Reliability and reputation
- Willingness to work with PotashCorp in developing mutually beneficial arrangements
- Satisfactory performance
- Proof of an active, effective quality program that stresses continuous improvement. ISO certification may be desirable.
- Competitive prices
- Management integrity and progressiveness
- Position in industry
- Trade relations

## **CORPORATE PURCHASING POLICY SELECTION OF SOURCES OF SUPPLY**

- Suitable physical facilities
- Inventory levels and storage locations
- Stable labor force and raw material sources
- Cooperative and available source of technical advice
- Proof of regulatory compliance
- Electronic communication capability
- Accessibility
- Contribution to local economy

Key vendor performance shall be evaluated periodically. The legitimate competitive advantage accruing to an established supplier through continued opportunity to supply our needs must be earned and maintained by satisfactory performance.

### **BUSINESS AWARDS**

When significant business is to be awarded, Purchasing shall document the bidding and selection process, retaining alternate price quotes and other materials explaining the final award decision. These records shall remain on file for the duration of that commercial relationship.

Purchasing shall periodically test through rebidding the business whether the company continues to be best served from trade with a specific vendor for specific services. Such rebidding exercises shall respect the terms of active contracts.

## **CORPORATE PURCHASING POLICY RISK MANAGEMENT**

### **POLICY**

It is the corporate policy to maintain consistency in the protection of assets through the use of insurance, bonds, progress payments, retainage, holdbacks and other accepted methods when using contractors/service providers.

### **INSURANCE**

All contractors, and service providers shall provide proof of financial responsibility in the form of adequate insurance coverage. Purchasing or a third party delegated by the company to assume the responsibility must obtain and review the insurance certificates from companies under consideration to perform work prior to committing an order or contract. Insurance requirements are defined in the company's applicable Terms and Conditions. Purchasing is responsible for establishing basic supplier data for quick and easy reference. This should include developing methods to retain and track individual insurance certificates by location.

### **BONDS**

Under certain conditions, bonds may be required as part of a construction contract. Bonds generally have not been required for equipment, supply and service contracts. The principle types of bonds utilized include:

- Bid Bonds, which afford protection against an offer being withdrawn after opening.
- Payment Bonds, which require the contractor to guarantee payment of suppliers and subcontractors.
- Performance Bonds, which afford protection against a contractor's failure to fulfill a contract.
- Labor and Materials Bonds, which afford protection against substandard workmanship and materials.

## **CORPORATE PURCHASING POLICY RISK MANAGEMENT**

### **CONTRACTORS**

Depending on the experience of the contractor and their history with sub-contractors (subs), controls for payment of subs may:

- a. Rely on monitoring of an exclusive bank account to remit to subs or
- b. Direct payment by the company to individual subs

The implementation of the control will be determined by the project manager. As a guideline, managers for projects with budgets of \$5 million and greater should consider whether this system should be implemented. However, in all projects, including those below \$5 million, the cost of the project, its relative complexity, and the experience and capability of the general contractor will all influence the decision on what control is exercised.

General contractors must submit to a review by the company's credit group to evaluate their financial stability.

The project controls coordinator must be identified to the Corporate Controller to give some assurance that an appropriate control has been selected and has been implemented.

## **CORPORATE PURCHASING POLICY TYPES OF PURCHASING AGREEMENTS**

One of the major pricing aids available to a buyer is utilization of a wide variety of contract types. To determine the best type of contract to use, a buyer must consider those available and the factors influencing the use of each. The most important factors are:

- The intensity of competition among potential suppliers.
- Each supplier's cost and production experience in manufacturing identical or similar items.
- The availability, accuracy and reliability of pricing data.
- The extent of the business risk involved.

In a rapidly changing economic and technological world, purchasing many items on a fixed price basis may be costly and wasteful. Generally speaking, as the complexity of the item or service being procured increases, so does the complexity of the pricing mechanism. There are four basic types of contracts:

- Fixed price
- Incentive
- Cost-type
- Alliances

These are arranged according to risk, with firm fixed price contracts (minimum risk to buyer) at one end and cost contracts (maximum risk to the buyer) at the other end.

### **FIXED PRICE CONTRACTS**

The firm fixed price contract is simply an agreement for the buyer to pay a specified price to the seller when the latter delivers that which was purchased. If a fair and reasonable price can be determined, either by competition or by adequate price or cost analysis, a firm fixed price contract may be the best choice. Among its advantages are that it requires minimum administration (no auditing of costs), it gives the seller the maximum incentive to produce efficiently, and all financial risks are borne by the seller.

## **CORPORATE PURCHASING POLICY TYPES OF PURCHASING AGREEMENTS**

### **INCENTIVE CONTRACTS**

Incentive contracts are appropriate when the following three conditions all exist:

1. A significant amount of uncertainty exists regarding the level of effort required to accomplish the task properly.
2. The supplier's management can, through its efforts, have an impact on the level of effort and costs required.
3. The size of the procurement justifies the efforts involved in establishing and managing the resulting contract.

Under certain circumstances low risk, well-defined projects can use incentive contracts. These types of contracts are generally more costly to administer. All costs that are allowable under the contract must be agreed on in advance, and subsequently, they must be audited. There are two basic types of incentive contracts:

- Fixed price incentive
- Cost plus incentive fee

### **Fixed Price Incentive**

This contract calls for a target price, a ceiling price and a variable profit formula. This is used when a reasonable target price can be established but exact pricing is impossible without payment of a contingency. For example, both buyer and seller agree on a reasonable target price. Cost reduction may be shared or accrued to the buyer. A ceiling price or upper limit is agreed upon above which the buyer would not pay regardless of seller's cost. This type of contract has its greatest application in the purchase of high-cost, long-run production items.

## **CORPORATE PURCHASING POLICY TYPES OF PURCHASING AGREEMENTS**

### **Cost plus Incentive Fee**

The buyer and seller agree beforehand on a tentative fee based on the estimated target cost. If the seller can reduce costs below target costs, both parties may share in the reduction. Under this contract, a seller can lose all or part of its fee, but all costs must be paid by the buyer. This type of contract is used in development work where successful results are reasonably certain.

### **COST-TYPE CONTRACTS**

Cost Type Contracts are used where there is a large number of components of the feedstock and/or service that are subject to volatility of price due to supply demand, currency, freight etc. This is the only way to prevent the supplier from building in large contingency fees to cover the risk in these various components. Since this type of contract requires extensive analysis, the administrative cost must be factored into the equation on cost analysis. The Seller is guaranteed reimbursement for all their allowable costs (fee portion) plus the cost of the variable priced components. This type of contract puts the buyer in a less controlled position, so, where possible, it is important to have the components tied to some independent index. At times it is the only method available to purchase some goods and services. Several examples of cost type contracts are:

- Cost plus Incentive
- Cost plus Fixed Fee
- Cost plus Award Fee
- Cost without Fee
- Cost Sharing
- Time and Materials
- Letter Contracts

### **ALLIANCES**

For certain categories of spend, it may be in the company's interest to establish an alliance with a vendor/vendors able to support company goals.

A strategic alliance, once established, shall be honored by all covered operations.

## **CORPORATE PURCHASING POLICY TYPES OF PURCHASING AGREEMENTS**

### **SUMMARY**

The buyer's preference for a firm fixed price contract is just the starting point for an analysis of alternative contract choices. As the buyer considers all available contract types, he or she must weigh the preference for fixed prices against the risk involved, the time available, the degree of competition involved, experience with the industry involved, the apparent soundness of the offered price, the technical and developmental state of the item being purchased, and all other technical and economic information that affect the purchase transaction. Determination of the best contract type for a given situation requires a careful analysis of all the relevant factors.

## **CORPORATE PURCHASING POLICY COMMITMENT AUTHORIZATION LEVELS**

Only those persons delegated by the subsidiary President are authorized to commit the company for materials, equipment, supplies and services. Subsidiary-based or departmental "Purchasing and Requisition Commitment Authority" schedules will establish who is authorized to requisition materials, equipment, services and supplies and what the maximum delegated authority is for position titles and individual employees. Such delegated authority shall be consistent with the Limits of Authority outlined in the Corporate Accounting Procedure Manual (Section 2.02).. Each site will append its "Purchasing and Requisition Commitment Authority" list to this policy section.

The "Purchasing and Requisition Commitment Authority" schedules should be sufficient for the respective employees to efficiently perform their assigned procurement responsibilities. It is desirable that commitment authorization levels be electronically stored and managed. All approval authorizations should be periodically reviewed for appropriateness.

Purchasing practice in regard to requirements for purchase orders shall be consistent with corporate accounting practice as reflected in the Corporate Accounting Procedure Manual. That manual establishes that purchase orders are not required for: travel expenses; telephone, fax and usage charges; contracts, leases, customer refunds and freight on product shipments; travel advance requests' payroll distribution and remittances; foreign exchange contracts; legal and audit fees; utilities; insurance; advertising; bursaries or grants; moving expenses; professional memberships; brokerage fees; taxes, royalties and other statutory payments; natural gas; purchases under \$100 and credit card purchases. Even though purchase orders are not required, site-based "Purchasing and Requisition Commitment Authorities" will identify those able to commit company funds for such expenses.

The responsibility to commit company funds for the procurement of all materials, equipment, services and supplies at sites is delegated to Purchasing, based on approved requisitions. Within corporate offices for purchases not delegated to Corporate Procurement staff, the department head shall delegate purchasing commitment authority.

## **CORPORATE PURCHASING POLICY CONTRACTS**

Contracts have the purpose of establishing firm relationships with desirable suppliers, assuring supply, establishing pricing mechanisms and other terms of trade. Many purchases are made subject to the company's standard terms and conditions, a condition of acceptance of the company's purchase orders. In these instances the terms and conditions define the contract between the company as buyer and the vendor. For certain kinds of purchases, a negotiated contract will be required. To be valid and enforceable, a contract must contain four basic elements:

1. Agreement resulting from an offer and acceptance;
2. Consideration or mutual obligation;
3. Competent parties; and
4. A lawful purpose.

Transactions that may require a contract include, but are not limited to:

- Energy (electricity, gas, etc)
- Major feedstocks/raw materials
- Major expenditures for equipment, supplies or services
- Real estate transactions
- Third party leases
- Business consultants
- Environmental or waste disposal transactions
- Professional services (engineering, accounting, testing, etc)
- Outsource agreements
- Commodity agreements
- Supply integration agreements
- Electronic information technology agreements

All contracts must be written to comply with all applicable federal, state and local laws. The terms and conditions incorporated into a contract should conform to accepted company standards.

## **CORPORATE PURCHASING POLICY CONTRACTS**

Evergreen contracts permit an automatic renewal of the agreement if the company fails to act before specific deadlines. The use of evergreen contracts other than for raw material and energy purchases should be very limited. Any such existing contracts, outside of raw material and energy, should be reviewed and converted to regular type agreements as soon as possible, unless the purchasing department documents in its files the compelling reasons for retaining the evergreen provision. All contracts should include a specified term.

A Letter of Intent, which describes the basic commercial issues of an agreement, may be required when a business situation requires a commitment to a supplier prior to the execution of a formal written contract.

The most common forms of contracts include the following:

- **Blanket Orders**  
These are contracts placed with local suppliers for use by specific company employees. They cover requirements that are quite small in dollar value whose use is both sporadic and unpredictable. Total dollars spent each period is also tightly restricted.
- **Systems Contracts**  
This contract form is typically used for products that are industry standards such as fasteners, electrical supplies, plumbing supplies, janitorial supplies, and office products. These contracts should minimize paperwork, attack small order problems, and reduce inventories.
- **Annual Contracts**  
Contracts are typically established for products that are used in large volumes with some degree of predictability. The primary objectives of this contract form are to assure supply continuity, to maximize purchasing leverage by consolidating requirements, and to minimize inventories by scheduling deliveries to coincide with needs. Goods covered by this form of agreement are those used for production and other high-volume needs such as copy-machine paper.

## **CORPORATE PURCHASING POLICY CONTRACTS**

All contractual documents concerning materials and/or services must clearly state the legal jurisdiction and the point of delivery and acceptance of the materials and/or services by the company.

## **CORPORATE PURCHASING POLICY TERMS AND CONDITIONS**

It is important that suppliers, contractors and service companies review, understand, concur with and abide by the company's applicable Terms and Conditions. Purchasing will assure that the appropriate Terms and Conditions are provided to each supplier company, either electronically or by mail as applicable, along with the valid purchasing documents.

### **STANDARD TERMS AND CONDITIONS**

There are different types of standard Terms and Conditions designed for specific transactions. The Purchase Order Attachment will be utilized for materials and supplies. A Construction/Maintenance Attachment will be utilized for construction, maintenance, or service activities to be performed either at or on behalf of the company.

### **NON-STANDARD TERMS AND CONDITIONS**

Before non-standard Terms and Conditions can be utilized, they must be reviewed and approved by Purchasing management and the Legal Department. The use of non-standard Terms and Conditions is not encouraged, but may occasionally be necessary in order to satisfy the requirements of both the buyer and seller and to achieve a very favorable position for the company. History indicates that procurement of such items as technical services, contract engineering, transportation and distribution services, travel, and consulting services may require negotiation of non-standard Terms and Conditions.

## **CORPORATE PURCHASING POLICY CONFIDENTIALITY**

It is recognized that most of the transactions relating to the company's purchases are confidential, especially with regard to our suppliers and competitors.

It is considered unethical and illegal, as well as damaging to the company's competitive position, and a breach of trust, to allow company proprietary information about one supplier's quotation to pass to another supplier. Discussing proprietary information in telephone calls made/taken while vendors are present, leaving documents on desks during supplier interviews, and conversing with other buyers within hearing of suppliers in other offices are some examples of behavior that can allow proprietary information to pass to others inappropriately. These types of situations should be avoided.

Passage of pricing, technologic or strategic information from an employee of the company to an employee of a competitor is not only unethical, but is likely to be in violation of one or more of the various antitrust laws and should be scrupulously avoided.

All files within Purchasing are to be maintained in an up-to-date and confidential manner. Access to these files and any other documentation found within this department shall be restricted.

Proprietary information requires protection of the name, composition, process of manufacture, or rights to unique or exclusive information which has marketable value and is upheld by patent, copyright, or non-disclosure agreements. Others in the organization may be unaware of the possible consequences of the misuse of such information. The purchasing personnel should therefore avoid releasing information to other parties until assured they understand and accept the responsibility for maintaining the confidentiality of the material. Extreme care and good judgement should be used if confidential information is communicated verbally. Such information should be shared only on a "need to know" basis. If the purchasing professional is unclear regarding disclosure requirements, corporate counsel should be consulted.

## **CORPORATE PURCHASING POLICY CONFIDENTIALITY**

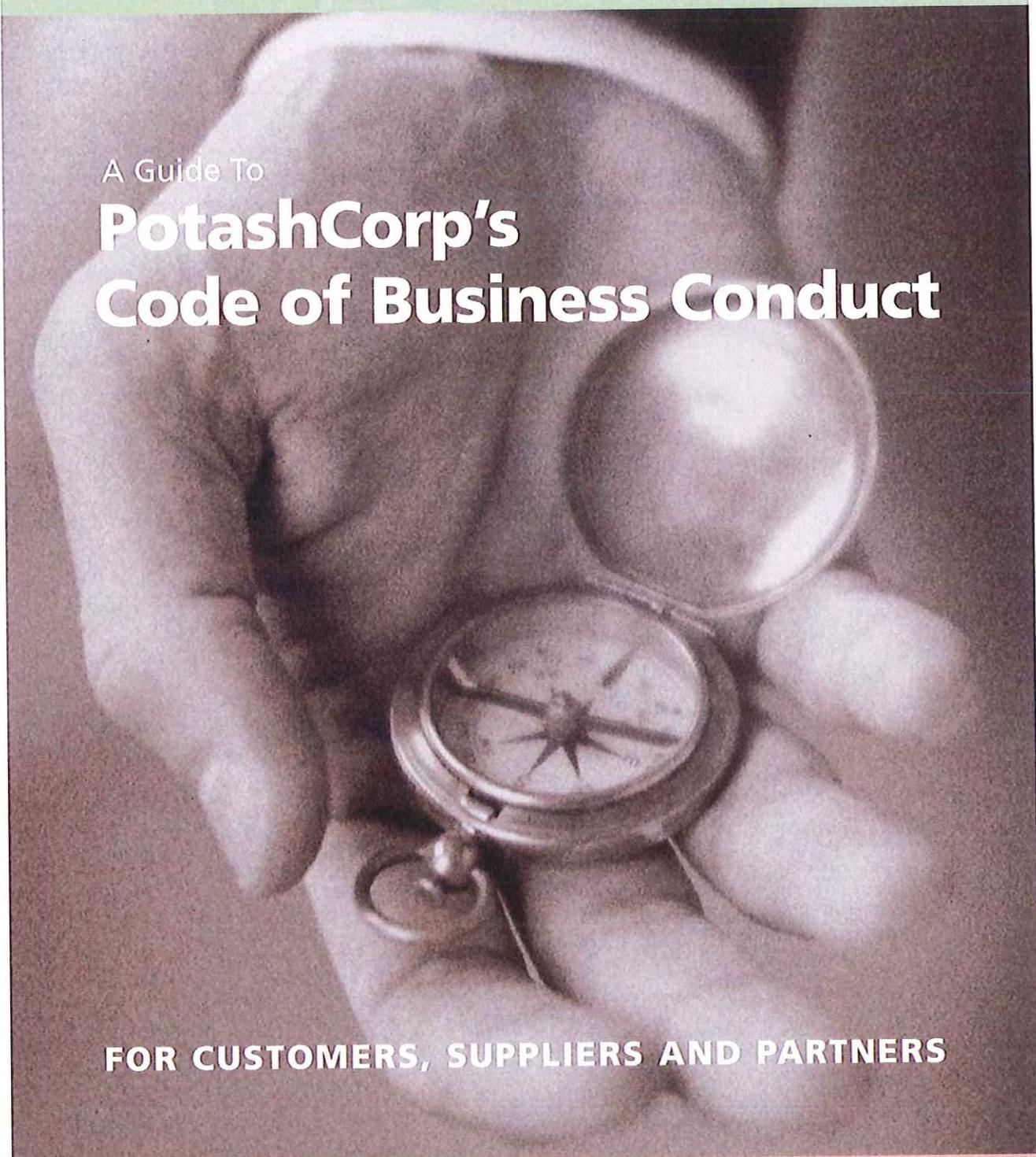
Some examples of information which may be considered confidential or proprietary are:

- Pricing
- Bid or quotation information
- Cost sheets
- Formulas and/or process information
- Design information (drawings, blueprints, etc)
- Company plans, goals, strategies, etc.
- Profit information
- Asset information
- Wage and salary scales
- Personal information about employees or trustees
- Supply sources or supplier information
- Customer lists and/or information
- Computer software programs

The following are recommended guidelines in dealing with confidential information:

- The attitude of the purchasing personnel regarding the preservation and proper disbursement of confidential information should be one of vigilance; i.e., divulging information only on a “need to know” basis.
- When transmitting confidential information, document the information in writing, and clearly label it as confidential.
- Consider the use of a formal confidentiality agreement (i.e., disclosure or non-disclosure agreements) clarifying parameters for use of the information and responsibilities inherent in its use.
- When dealing with any information, whether or not classified as confidential, extreme care, sound judgement and integrity should be exercised in determining the effects of its use, and in providing adequate protection based on its content.



A close-up photograph of a hand holding an open, vintage-style pocket compass. The compass is silver or chrome with a clear lens over the dial. The hand is positioned in the center of the frame, with the fingers gently gripping the sides of the compass. The background is a dark, textured surface. The overall tone is professional and focused.

A Guide To  
**PotashCorp's**  
**Code of Business Conduct**

**FOR CUSTOMERS, SUPPLIERS AND PARTNERS**



**PotashCorp**

Helping Nature Provide



PotashCorp's long-term success is directly linked to the strength of our partnerships with the stakeholders in our company. We strive to develop and maintain healthy, respectful and mutually beneficial relationships with our customers and suppliers, knowing these will help all of us achieve our goals.

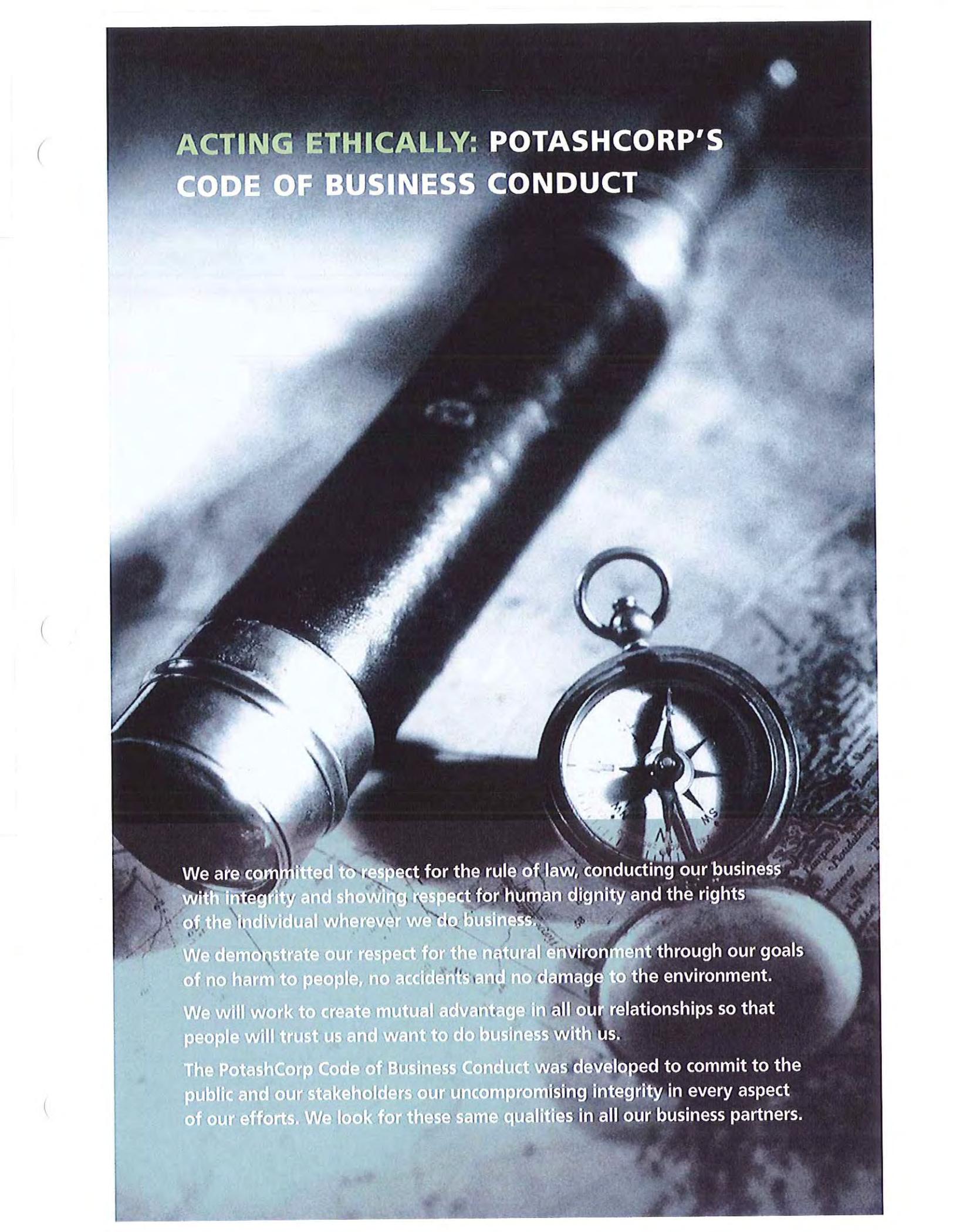
In any partnership, it's important to have a clear understanding of each other's expectations. To that end, I'm pleased to provide you with this guide to PotashCorp's Statement of Core Values and Code of Business Conduct. It outlines the values that are important to our company and the qualities we look for in our business partners.

It is my hope that you will review this material and work alongside us in maintaining the highest standards for integrity and safety.

Sincerely,

A handwritten signature in blue ink, which appears to read 'William J. Doyle'. The signature is fluid and cursive, with a large loop at the end.

William J. Doyle  
*President and Chief Executive Officer*



## **ACTING ETHICALLY: POTASHCORP'S CODE OF BUSINESS CONDUCT**

We are committed to respect for the rule of law, conducting our business with integrity and showing respect for human dignity and the rights of the individual wherever we do business.

We demonstrate our respect for the natural environment through our goals of no harm to people, no accidents and no damage to the environment.

We will work to create mutual advantage in all our relationships so that people will trust us and want to do business with us.

The PotashCorp Code of Business Conduct was developed to commit to the public and our stakeholders our uncompromising integrity in every aspect of our efforts. We look for these same qualities in all our business partners.

## **COMPLYING WITH THE LAW**

**We will comply with the law, rules and regulations in the countries and communities in which we operate.**

**We will always compete vigorously and independently in the conduct of our business.**

**PotashCorp will never offer, pay, solicit or accept bribes in any form, either directly or indirectly.**

**We will hold no secret or unrecorded funds of money or assets.**

**We will never use company information that is not available to the public to make stock trades.**

**We will only give or accept gifts and entertainment that are for business purposes and are not material or frequent.**

Business unit leaders will put into place rules covering the giving and acceptance of gifts and entertainment that reflect the custom in their industry or locale. We will never accept gifts or entertainment during the process of a competitive bid or tender exercise.

**We will not choose business partners to do things on our behalf that contravene these commitments.**

We will not employ agents to carry out actions that conflict with these commitments. In joint operations, we will apply these commitments where we are operators; where we are not, we will seek to influence our partners such that the joint operation adopts similar commitments.



## CONFIDENTIALITY

We will maintain the confidentiality of information entrusted to us, except where disclosure is authorized or required by law. Confidential information includes all non-public information that might be of use to competitors, or harmful to the company or its customers, if disclosed.

## DEALING WITH OTHER PEOPLE AND ORGANIZATIONS

### Acting Fairly and Professionally

We strive to build the value of PotashCorp by meeting the highest standards of professional conduct. We will not take unfair advantage of anyone through manipulation, concealment, abuse of privileged information, misrepresentation of material facts or any other unfair dealing practice.

### Communicating with Others

We will engage in dialogue and build relationships with many different groups to promote understanding and seek new ways of conducting our business to greater mutual advantage.

### Industry Groups

PotashCorp supports membership in organizations that aim to maintain a sound business environment, such as trade associations.

### Support for Communities Where We Work and Live

PotashCorp is committed to supporting various local programs and initiatives.



## SAFETY, HEALTH AND ENVIRONMENT

Our goals are no harm to people, no accidents and no damage to the environment. We are committed to a healthy and safe work environment for all employees and contractors, who must learn the safety procedures applicable to their job and abide by them.

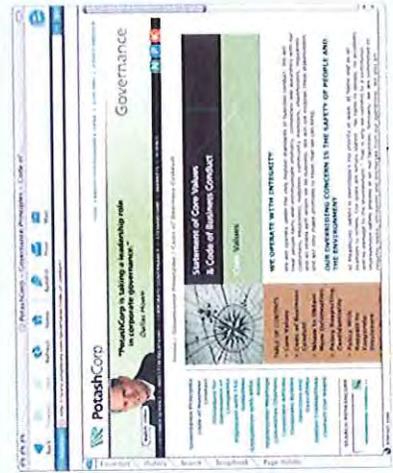
## WHERE TO OBTAIN MORE INFORMATION

A full version of PotashCorp's Statement of Core Values and Code of Business Conduct is available on our website at:

[www.potashcorp.com/governance/code\\_of\\_conduct](http://www.potashcorp.com/governance/code_of_conduct)

Any employee who has a good faith belief that another employee, representative or director of PotashCorp, or any joint venture partner has contravened the Code, is asked to report it immediately. We will strive to protect the anonymity of anyone who in good faith reports suspected Code infractions.

No retaliation will be taken against any employee for raising any concern, question or complaint in good faith. We wish to encourage an open culture where all concerns expressed in good faith will be investigated and, if appropriate, acted upon.



## **WHY DO WE NEED A CODE?**

PotashCorp's most important assets are our employees, customers, shareholders, suppliers and the communities in which we operate. It is critical that we maintain the trust of each. The Code helps us fulfill our commitment to them by providing guidelines for high standards of ethical professional behavior.

## **TO WHOM DOES THE CODE APPLY?**

The Code applies to all directors, officers, employees and representatives of PotashCorp. Each of us is personally responsible for making sure that our business decisions and actions comply at all times with the letter and spirit of this Code.

## **HOW DO I APPLY THE CODE IN MY BUSINESS DEALINGS?**

The Code sets minimum standards that each of us is expected to meet or exceed in our business dealings and provides guidelines to help us address new situations. As always, each of us will be expected to use our best judgment and common sense, keeping in mind that we are required to comply with the spirit, as well as the written words, of the Code.

If you encounter a situation for which the Code does not provide specific guidance, asking yourself the following questions may help you determine how to apply the Code.

- Is this fair?
- Is this legal?
- Am I confident that PotashCorp would not be embarrassed if this situation became public knowledge?
- Would I approve of this situation if I were a fellow employee, a supplier, a customer, a shareholder or a member of the community affected by this action?

We should be able to answer Yes to each of these questions.

*The PotashCorp Code of Business Conduct was developed to commit to the public and our stakeholders our uncompromising integrity in every aspect of our efforts. We look for these same qualities in all our business partners.*



# POTASHCORP'S CORE VALUES

## **WE OPERATE WITH INTEGRITY**

We will not mislead our stakeholders and will only make promises to them that we can keep.

## **OUR OVERRIDING CONCERN IS THE SAFETY OF PEOPLE AND THE ENVIRONMENT**

At PotashCorp, safety is everybody's top priority. We are continuously strengthening safety processes in all of our contractor relationships with an emphasis on product stewardship and the safe transport of our products.

## **WE LISTEN TO ALL POTASHCORP STAKEHOLDERS**

At PotashCorp, we value our stakeholders' opinions. Only by listening do we learn.

## **WE SEEK CONTINUOUS IMPROVEMENT**

As a leader in our industry and in our communities, we take responsibility (individually and collectively) for our actions. We are proactive, not passive – continuously reviewing our practices to ensure continuous improvement.

## **WE SHARE WHAT WE LEARN**

Education is at the core of our business. We ensure that all employees and contractors are well informed, well trained, engaged and committed to our Safety, Health and Environmental improvement process.

## **WE ARE ACCESSIBLE AND ACCOUNTABLE**

Our policies and code of conduct are accessible to the public, government officials, customers and investors to aid them in understanding the company's direction, values and overall progress.

**TO VIEW BILL DOYLE DISCUSSING POTASHCORP'S CORE VALUES, GO TO:** [www.potashcorp.com/governance](http://www.potashcorp.com/governance)



Suite 500 - 122 1st Avenue South  
Saskatoon, SK CANADA S7K 7G3

1101 Skokie Boulevard, Suite 400  
Northbrook, IL USA 60062

[www.potashcorp.com](http://www.potashcorp.com)

## APPENDIX F:

# DETAILED PROCUREMENT CONTACT OF MINING COMPANIES AND CONSULTING COMPANIES

**Table 1: Potash Mining Companies - Procurement Contacts**

Mining Company	Operations	Primary Procurement Contact	Job Title	Phone	Email	Area of Specialization	Comments
Potash Mines							
AGRIUM		Rob Varga	Contracts Specialist	306 683 1732	rvarga@agrium.com		
BHP BILLITON	Jansen	Bob Bunclark	Contracts & Procurement Superintendent	306 385 8585	Robert.bunclark@bhpbilliton.com	Procurement	
K+S POTASH CANADA	“Legacy Project”	Michael Khouri	Vice President Procurement	306-651-6204	procurement@ks-potashcanada.com		
MOSAIC	Corporate Procurement	Gord Prince	Director, Strategic Sourcing, Potash	306-523-2855	Gord.prince@mosaicco.com	Global	
	Corporate Procurement	Les Anderson	Purchasing Manager, Projects	306-523-2851	Lesrw.anderson@mosaicco.com	Expansions and Capital Spend	
POTASHCORP	Procurement	Ralph Sanders	Manager, Corporate Procurement	306-933-8535	<a href="mailto:ralph.sanders@potashcorp.com">ralph.sanders@potashcorp.com</a>		General Note: - Email the company for up-to-date procurement contacts. Procurement contacts are rotated as a matter of policy - Please use discretion when contacting procurement staff. Suppliers should be contacting procurement only regarding relevant issues and not using this information indiscriminately for sending flyers, publications etc. on a weekly basis
	Procurement	Rochelle Fjeldstrom	Coordinator, Corporate Procurement	306-933-8603	<a href="mailto:rochelle.fjeldstrom@potashcorp.com">rochelle.fjeldstrom@potashcorp.com</a>		
	Procurement	Lois Spock	Buyer, Corporate Procurement	306-933-8602	<a href="mailto:lois.spock@potashcorp.com">lois.spock@potashcorp.com</a>		
	Procurement	Darryl Stann	Vice President, Procurement	306-933-8795	<a href="mailto:dsstann@potashcorp.com">dsstann@potashcorp.com</a>		
	Technical Services - Pilot Plant	Shonna Molle	Administrative Coordinator/Buyer	306-933-8832	<a href="mailto:shonna.molle@potashcorp.com">shonna.molle@potashcorp.com</a>		
	Allan Division	Glenn Murphy	Purchasing Agent	306-257-5319	<a href="mailto:glenn.murphy@potashcorp.com">glenn.murphy@potashcorp.com</a>		
	Cory & Patience Lake Division	Roger Dauvin	Purchasing Agent	306-657-5130	<a href="mailto:rpdaubin@potashcorp.com">rpdaubin@potashcorp.com</a>		
	Lanigan Division	Pat Stevenson	Purchasing Agent	306-365-5300	<a href="mailto:pat.stevenson@potashcorp.com">pat.stevenson@potashcorp.com</a>		
	New Brunswick Division	Bob Candy	Purchasing Agent	506-432-8410	<a href="mailto:bob.candy@potashcorp.com">bob.candy@potashcorp.com</a>		
	Rocanville Division	Quinton Cloarec	Purchasing Agent	306-645-7152	<a href="mailto:quinton.cloarec@potashcorp.com">quinton.cloarec@potashcorp.com</a>		
RIO TINTO	global procurement site and supplier registration.	306 719 2500 in Sask.	<a href="http://procurement.riotinto.com/default.asp">procurement.riotinto.com/default.asp</a>				- Email the company for up-to-date procurement contacts. Procurement contacts are rotated as a matter of policy
VALE	Still at pre-feasibility	306 791-4510					- no local procurement contacts established

Table 2: Uranium Mining Companies – Procurement Contacts

Mining Company	Operations	Primary Procurement Contact	Job Title	Phone	Email	Area of Specialization	Comments
Uranium Mines							
AREVA	Corporate Procurement	Arden Sobush	Director, Materials	306-343-4572	<a href="mailto:arden.sobush@areva.ca">arden.sobush@areva.ca</a>	Supply Chain, Supervision of Staff	Yearly Spend
	Corporate Procurement	Blaise Kouame	Contracts Administrator	306-343-4694	<a href="mailto:blaise.kouame@areva.ca">blaise.kouame@areva.ca</a>	Mining Process	Opex & Genex Expenses
	Corporate Procurement	Anne Ford	Administrative Assistant	306-343-4599	<a href="mailto:anne.ford@areva.ca">anne.ford@areva.ca</a>	Operating & General Expenses	Office Expenses
	Corporate Procurement	Ed Horban	Buyer	306-633-2177 ext 1485	<a href="mailto:ed.horban@areva.ca">ed.horban@areva.ca</a>	Operating & General Expenses	All Site Expenses
	Shea Creek	Trevor Cooney	Contracts Administrator	306-343-4688	<a href="mailto:trevor.cooney@areva.ca">trevor.cooney@areva.ca</a>	Capex All Exploration Field Work	All Projects
CAMECO	Corporate Procurement	Dmitry Barsukov	Director, Projects Procurement & Contracts	306-385-5708	<a href="mailto:dmitry_barsukov@cameco.com">dmitry_barsukov@cameco.com</a>	Capital Projects	
	Corporate Procurement	Rob Gilmour	Superintendent, Operations Procurement Supply Chain Management	306-956-6495	<a href="mailto:rob_gilmour@cameco.com">rob_gilmour@cameco.com</a>	Operations	
		Lockhart Stankowski	Director, Operations Procurement and Logistics	306-956-8171	<a href="mailto:lockhart_stankowski@cameco.com">lockhart_stankowski@cameco.com</a>	Operations	

Table 3: Engineering Consulting Companies - Procurement Contacts

Consulting Company	Primary Procurement Contact	Job Title	Phone	Email	Comments
AMEC Americas Ltd	Jodi Simonson	Procurement Lead	306-477-1155 ext 230	<a href="mailto:Jodi.simonson@amec.com">Jodi.simonson@amec.com</a>	
	Jill Hagen	Procurement Lead	306-477-1155 ext 319	<a href="mailto:Jill.hagen@amec.com">Jill.hagen@amec.com</a>	
	Holly Ealey	Junior Buyer	306-477-1155 ext 652	<a href="mailto:Holly.ealey@amec.com">Holly.ealey@amec.com</a>	
	Mandy Wilson	Junior Buyer	306-477-1155 ext 637	<a href="mailto:Mandy.wilson@amec.com">Mandy.wilson@amec.com</a>	
	Bill Kowal	Manager, Supply Chain	306-477-5886	<a href="mailto:Bill.kowal@amec.com">Bill.kowal@amec.com</a>	
	Colin Staruiala	Procurement Lead	306.477.1155 ext 469	<a href="mailto:colin.staruiala@amec.com">colin.staruiala@amec.com</a>	
Hatch Ltd.	Mike Fedoroff	GM SK Operations & Sr. Proj. Mgr.	306-657-7500	<a href="mailto:mfedoroff@hatch.ca">mfedoroff@hatch.ca</a>	
	Jesal Jani	SK PDG Director	306-657-7515	<a href="mailto:jjani@hatch.ca">jjani@hatch.ca</a>	
	Zia Ulislam	SK Procurement Lead	306-657-7629	<a href="mailto:zulislam@hatch.ca">zulislam@hatch.ca</a>	
	Jim Gallagher	Director, Global Director, Mining	705-688-1603 ext 294	<a href="mailto:jgallagher@hatch.ca">jgallagher@hatch.ca</a>	
	Ernie Cote	Sr. Project Manager & Program Director	705-688-1603 ext. 5156	<a href="mailto:ecote@hatch.ca">ecote@hatch.ca</a>	
MDH Engineered Solutions	Moir Haug	Special Advisor	306-934-7527	<a href="mailto:mhaug@mdhsolutions.com">mhaug@mdhsolutions.com</a>	Member of the SNC Lavalin Group
	Chad Lepoudre	VP Geotechnical Services	306-934-7527	<a href="mailto:clepoudre@mdhsolutions.com">clepoudre@mdhsolutions.com</a>	Member of the SNC Lavalin Group
	Andrew Karvonen	VP Operations	306-934-7527	<a href="mailto:akarvonen@mdhsolutions.com">akarvonen@mdhsolutions.com</a>	Member of the SNC Lavalin Group
	Jorge Antunes	VP Technical Services	306-546-4220	<a href="mailto:jantunes@mdhsolutions.com">jantunes@mdhsolutions.com</a>	Member of the SNC Lavalin Group
March Consulting Associates Inc.	Shawn Purcell	Procurement Lead	306-651-6227	<a href="mailto:spurcell@marchconsulting.com">spurcell@marchconsulting.com</a>	
	Kobina Wood	Senior Purchaser	306-651-6216	<a href="mailto:kwood@marchconsulting.com">kwood@marchconsulting.com</a>	
Tetra Tech Inc.	Joe Moser	Manager, Business Development	306-649-1580	<a href="mailto:joe.moser@tetrattech.com">joe.moser@tetrattech.com</a>	
	Dave Kelly	V.P. Operations, Cameco	306-649-1561	<a href="mailto:dave.kelly@tetrattech.com">dave.kelly@tetrattech.com</a>	
	Doug Kramble	V.P. EPCM	306-649-1567	<a href="mailto:doug.kramble@tetrattech.com">doug.kramble@tetrattech.com</a>	
SNC Lavalin	<a href="https://gps.snclavalin.com">https://gps.snclavalin.com</a> to register as a supplier.		306 668-6614	<a href="mailto:jansen.project@snclavalin.com">jansen.project@snclavalin.com</a>	See Appendix G

## APPENDIX G:

# PROCUREMENT REGISTRATION PROCEDURE WITH SNC LAVALIN FOR BHP BILLITON JANSEN PROJECT

Registration of your company in the SNC Lavalin is a two-step process. In order to register on the Global Procurement System, please follow these steps:

**Phase 1**

1. Follow the link <https://gps.snclavalin.com>
2. Click on “**Suppliers**” link on the left frame
3. Click on “**Register Supplier Organization**” link on the left frame
4. A new window will open, titled “**Vendor Registration**”
5. Scroll to the bottom and click on the “**Register**” link.
6. Complete the registration form and click “**Save**” at the bottom of the page when you are finished.

**Phase 2**

Once the information you have provided has been internally validated, by SNC Lavalin, your company will receive login information (within 48 hours). The activation of your account allows you to add complementary information on different aspects of your business including products, services and quality management processes.

Additional inquiries regarding the procurement process can be directed to [jansen.project@snclavalin.com](mailto:jansen.project@snclavalin.com) or by phone (306) 668-6614 / Toll free 1-855-668-6614.

BHP Billiton and SNC Lavalin are interested in identifying Saskatchewan companies, including First Nations and Métis members.

## APPENDIX H:

### TYPE OF PURCHASE FOUND IN OPERATING MINE

Table 4: PO value by Material Group - AREVA Example

Category	Material Group	PO value (CAD \$)	Category	Material Group	PO value (CAD \$)	Category	Material Group	PO value (CAD \$)
A	EXPLORATION	24,452,025.01	C	TIRES	39,675.69	C	PLUMBING REPAIR SUPP	5,707.07
A	CONTRACT SERVICES	22,517,704.43	C	HOSE & FITTING MISC	39,269.07	C	PIPE BMI	5,603.46
A	REAGENTS & ENVIROMENT	9,697,878.81	C	MINE DEVELOPEMENT	36,750.00	C	CUTLER HAMMER	5,560.12
A	CONTRACT DRILLING	4,562,880.32	C	HARDWARE	36,679.98	C	VALVES GATE	5,544.21
A	CONTRACT CATERING	3,975,256.63	C	SUPPLIES MEDICAL	36,060.30	C	POWER GENERATION MIS	5,333.94
B	CONSULTING & TESTING	2,434,813.70	C	PIPE VICTAULIC	35,879.70	C	EQUIPMENT EUCLID	5,314.91
B	MISCELLANEOUS	2,239,600.97	C	BUILDING LUMBER	35,342.33	C	SCREENS	5,271.48
B	CONTRACT AIRCHARTERS	1,936,500.00	C	ELECTRICAL MISC	34,578.31	C	AUTO DODGE TRUCKS	5,240.89
B	CONTRACT SEC/JANITOR	1,831,326.63	C	PUMPS ITT A-C	33,819.90	C	HOIST HOOKS&SHACKLES	5,199.29
B	CAPITAL	1,414,004.33	C	PIPE ACCESSORIES	33,408.55	C	AUTO STARTERS & ALTE	4,604.27
B	PUMPS	1,367,132.95	C	FILTERS INDUSTRIAL	32,241.53	C	DRYER MISC.	4,534.52
B	EQUIPMENT CAT TRUCKS	1,041,570.19	C	HOSE & FITTINGS	31,994.58	C	VAPORIZER AL-GAS	4,510.80
B	EQUIPMENT MISC	732,354.37	C	CRUSHING GRINDING	31,695.65	C	CRUSH A/C BALL MILL	4,410.00
B	SUPPLIES COMPUTERS	657,519.59	C	MOBILE EQUIPMENT	30,176.40	C	FEEDERS A5B 44X6 GRI	4,397.40
B	CONTRACT ADVERTISING	642,855.71	C	HEAT/VENT & AIR COND	30,021.14	C	HOIST SLINGS	3,877.11
B	PUMPS WARMAN	637,966.42	C	EQUIPMENT CAT	29,759.89	C	MODINE UNIT HEATER	3,683.41
B	SUPPLIES LAB.EQUIP	623,335.41	C	POWER GENERATION	28,306.28	C	PIPE FIBERGLAS	3,303.79
B	INSTRUMENTATION	577,170.56	C	BUILDING PAINTS&COAT	28,285.29	C	RAW ORE	3,175.20
B	MILL EQUIPMENT	501,595.62	C	ELEC MOTOR CONTOLS	28,019.44	C	AUTO BOMBARDIER	3,059.38
B	COMPUTER SOFTWARE	456,563.55	C	DURCO	27,744.43	C	HOISTS & COME ALONGS	2,802.13
B	ELECTRICAL	451,561.23	C	AUTO GMC TRUCKS	26,064.19	C	POWER TRANSMISSION	2,775.98
B	AIR TRANSPORTATION	375,711.64	C	CLOTHING	25,238.05	C	HOSE AIR	2,685.57
B	CONTRACT TRAINING	341,265.91	C	BUILDING MISC MATERI	25,185.91	C	CRUSH SYMONDS	2,683.49
B	PIPE,VALVES,FITTINGS	308,936.68	C	POWER CATERPILLAR	25,084.65	C	COMPRESSOR COMPAIR	2,555.70
C	CRUSH MISC.	295,251.86	C	VALVES MISC	24,457.01	C	PIPE GALVANIZED	2,442.69
C	EQUIPMENT KOMATSU	281,438.98	C	PIPE C-PVC	24,418.82	C	TIRES AND TUBES MISC	2,301.11
C	CONSTRUCTION MISC.	280,470.43	C	HOSE HYDRAULIC	24,254.77	C	GRADERS	2,230.12
C	LEASES/RENTALS	258,859.67	C	PIPE PVC	23,430.24	C	POWER CHAIN, ROLLER	2,225.77
C	SUPPLIES STATIONARY	249,958.46	C	FASTENERS S.A.E.	23,123.64	C	LEGAL SERVICES	2,100.00
C	VALVES	248,724.80	C	TOOLS HAND	23,026.32	C	EPIC WASTE SAMPLER	2,073.54
C	POWER PACKINGS	225,482.00	C	TIRES	22,729.84	C	ELEC FUSES COILS	1,987.81
C	CLOTHING FOOTWEAR	212,864.52	C	LOADER	21,618.39	C	HOIST CABLE,WIRE&POL	1,977.42
C	SAFETY FIRE SUPPRESS	203,801.53	C	PUMPS MOYNO	21,229.26	C	PETRO PROPANE	1,929.06
C	EQUIPMENT CAT LOADER	189,367.92	C	PUMPS SANDPIPER	20,604.72	C	BELTS	1,811.68
C	PUMPS SALA	182,416.12	C	ELEC BULBS & LAMPS	20,422.00	C	PUMPS BURKS	1,727.25
C	CLOTHING	173,684.82	C	PIPE RUBBERLINED	20,289.58	C	ALLAN BRADLEY	1,632.73
C	PETRO FUEL	165,590.69	C	BUILDING & YARD MAIN	19,626.79	C	UNDERGROUND EQUIP.	1,608.69
C	PETRO LUBRICANTS	159,613.40	C	FILTERS AUTOMOTIVE	19,421.23	C	EQUIPMENT CUMMINS	1,590.37
C	MILL MISC,	157,506.71	C	HOSE MATERIAL CONDUCT	19,157.07	C	HOIST CHAIN, LIFTING	1,489.32
C	BUILDING MATERIALS	155,758.13	C	THICKENERS	18,756.65	C	BUILDING NAILS	1,406.37
C	PUMP CONCRETE	142,278.00	C	FITTING INSTRUMENT	17,788.55	C	TELEPHONES	1,361.10
C	MACHINING/FABRICATIN	141,564.45	C	AUTOMOTIVE EQUIPMENT	17,725.92	C	BELTS AUTO H/D	1,297.69
C	DETECTORS & SENSORS	141,207.85	C	TOOLS POWER	17,607.19	C	FASTENERS	1,250.33
C	CEMENT- FLYASH (UG)	138,124.17	C	INSTRUMENT MISC.	17,245.36	C	EQUIPMENT WESTRN STA	1,218.89
C	MISC	137,608.81	C	ELEC BUILDINGS	17,096.22	C	SHOVELS BACKHOES	1,180.54
C	MIXERS MISC.	126,334.42	C	HOSE WATER	17,042.59	C	RECREATION EQUIPMENT	953.82
C	BOOKS & PUBLICATIONS	124,561.59	C	EMPLOYEE RELOCATION	16,540.00	C	GROUND ENGAGING TOOL	951.62
C	CONTRACT BROKERAGE	121,909.81	C	GORMAN RUPP	16,402.98	C	PETRO MISC.	919.04
C	EQUIPMENT CAT GRADER	120,887.87	C	CLOTHING MISC.	16,315.92	C	DISPENSING LINCOLN	809.62
C	FILTERS MISC.	115,373.42	C	TOOLS,HAND,POWER,SHP	15,958.31	C	POWER CONVEYORS	776.92
C	SUPPLIES JANITORIAL	113,773.81	C	CLARIFIER EIMCO	15,919.05	C	SUPPLIES PHOTOGRAPHI	747.67
C	GOULD	112,801.07	C	FILTERS EIMCO SAND	15,669.91	C	PIPE COPPER	526.88
C	ELECT MOTORS	104,330.05	C	ELECTRODES AND ROD	15,548.65	C	PIPE ABS	488.59
C	WELDING	102,629.25	C	FINISHED PRODUCT	15,337.34	C	WASHERS AND DRYERS	478.54
C	CONSTRUCTION METALS	101,265.42	C	AUTO ELECTRICAL	15,288.10	C	U/G JARVIS CLARK	467.62
C	TRANSPORTATION	99,714.97	C	FASTENERS STAINLESS	15,174.42	C	SURVEY-EQUIPMENT	420.07
C	TOOLS MISC.	95,051.32	C	EQUIPMENT FORKLIFTS	14,549.66	C	PUMPS ARMSTRONG	415.95
C	INGERSOLL DRESSER	91,695.11	C	JOURNALS-SUBSCRIPTIO	14,474.49	C	PUMPS TURNER HAYWARD	377.53
C	MIXERS & SEPARATORS	90,522.17	C	POWER SHEAVE&COUPLIN	14,387.34	C	SUPPLIES EXPLORATION	338.75
C	POWER SEALS,SHAFT	88,705.13	C	FURNISHINGS OFFICE	14,160.34	C	CYCLONES	327.6
C	EQUIPMENT CAT DOZER	88,483.77	C	LINE CUTTING	13,805.40	C	PUMPS ODS	320.25
C	PUMPS GALIGHER	87,948.15	C	DISPENSING MISC.	13,632.80	C	FEEDERS MISC	302.28
C	AUTO MISC PARTS	82,561.77	C	ACCESSORIES	13,189.63	C	EQUIPMENT O & K	262.11
C	SUPPLIES KITCHEN	79,538.23	C	ELEC WIRE&CABLE,ACCS	12,379.30	C	PUMPS CANADA	216.02
C	COMPUTER HARDWARE	77,106.94	C	STEAM CLEANING EQUIP	12,288.82	C	SUPPLIES UNDERGROUND	199.5
C	HEAT/VENT MISC.	73,075.94	C	TELECOMMUNICATIONS	11,736.00	C	FEEDERS STEPHAN APRO	183.45
C	PUMPS PEERLESS	65,891.63	C	LODGING AND FOOD	11,547.59	C	PIPE SCLAIR INSULATE	140.15
C	GASES	64,968.40	C	EQUIPMENT CRANE MOBI	11,408.72	C	FASTENERS METRIC	129.8
C	SUPPLIES PIPE	64,642.57	C	FASTENERS MISC.	11,114.13	C	BELTS MISC	113.46
C	PRINTING & DUPLICATE	64,218.33	C	POWER SPEED REDUCERS	11,102.66	C	HOIST MISC	76.31
C	CRUSH TELEDYNE	61,788.56	C	WEIGH/SCALE SYSTEM	11,067.17	C	EQUIPMENT CAT 768B	53.47
C	PUMPS FLYGT	61,025.74	C	PUMPS ITT ALLIS CHAL	11,000.22	C	TELEMECANIQUE	49.19
C	PIPE SCLAIR	58,946.41	C	ELEC CONNECTORS	10,964.40	C	THICKNERS MISC.	19.16
C	INSTRUMENT METER&GUA	56,369.91	C	PETROLEUM PRODUCTS	10,410.03	C	POWER MITSUBISHI	11.54
C	POWER BEARINGS	55,720.81	C	SOLVENTS, COOLANTS	9,868.85	C	POWER TRANSMISS MISC	9.72
C	COMPRESSORS	55,697.89	C	FITTING BRASS	9,850.31	C	PUMPS FRUITLAND	1.05
C	INSTRUMENT SUPPLIES	54,713.97	C	TOOLS PARTS	9,836.00	C	AUTO TOYOTA TRUCKS	0
C	ELEC CABLE AND WIRE	54,536.11	C	VALVES BUTTERFLY	9,471.96	C	RECREATION MISC.	0
C	RADIOS	53,212.96	C	ELEC BALLAST BAT COI	9,403.95	C	DISPENSING FITTINGS	0
C	THICKENER EIMCO	51,754.50	C	COMPRESSOR ATLAS COP	9,246.15	C	AUTOMOTIVE CAPITAL	0
C	AUTO FORD TRUCKS	50,549.66	C	FILTERS	8,851.76	C	CONTRACT TAXI SERVIC	0
C	CONTRACT SURVEY	46,599.00	C	SCREEN MISC.	8,030.41	C	FEEDERS	0
C	MILL EQUIP. CAPITAL	44,100.00	C	VAPORIZER B&S	7,891.61	C	ASH	0
C	DRYERS	42,867.68	C	DOZER	7,722.31	C	DRILL STEEL	0
C	CHANGE ROOMS & EQUIP	42,800.00	C	BELTS IND DRIVE	7,132.67	C	U/G SCOOPMOBILES	0
C	PUMPS GRUNDFOS	42,261.89	C	COMPRESSORS MISC.	6,975.51	C	URANIUM CONCENTRATE	0
C	PIPE STAINLESS	42,018.02	C	CLEAVER BROOKS BOILE	6,877.86			
C	COMPRESSOR SULLAIR	41,609.35	C	HOISTING EQUIPMENT	6,861.57			
							<b>TOTAL</b>	<b>93,013,570</b>

Category	PO Value	Percentage
A	65205745.20	70%
B	18571785.46	20%
C	9277648.92	10%

**APPENDIX I:**

**SAMPLE SUPPLIER PRE-QUALIFICATION  
FORM FROM AREVA AND MARCH**

**CONTRACTOR SAFETY QUESTIONNAIRE**

**Contractor/Subcontractor: Please return completed form to:**

Geraud Marset  
 AREVA Resources Canada inc.  
 Purchasing General Manager  
 P.O. Box 9204  
 817 – 45<sup>th</sup> Street West  
 Saskatoon, SK, S7K 3X5  
 Canada

**1. COMPANY INFORMATION (contractors are required to submit a form for subcontractors as well)**

Name of Contractor/Subcontractor: .....

Address: .....

WCB Number: .....

Expected Number of Employees for Project: .....

**2. CONTACT INFORMATION**

Title	Name	Contact Information
CEO/Director/ Manager		Telephone: Email:
EHS Manager/ Co-ordinator/Supervisor		Telephone: Email:

**3. SAFETY CERTIFICATION**

Indicate if your company is certified for any of the following standards:

	Yes	No
ISO 9001		
ISO 14001		
OHSAS 18001		
OTHER (eg. COR, SECOR); specify:		

**4. SAFETY PERFORMANCE**

Indicate previous three years' safety performance indicators, plus the current year:

	Year 1	Year 2	Year 3	Current Year
Number of First Aids				
Number of Medical Aids				
Number of Lost Time Accidents				
Number of Fatal Accidents				
Man-hours worked for the year				

b. Have there been any fatalities in your company? Y N

5. **INCIDENTS**

Discuss lost time accidents in the last 4 years and any fatality (attach additional paper if necessary):

Circle Accident Type: (Lost Time, Fatality)
Date of Occurrence:
Description of Incident:
Describe Corrective Actions:

Circle Accident Type: (Lost Time, Fatality)
Date of Occurrence:
Description of Incident:
Describe Corrective Actions:

Circle Accident Type: (Lost Time, Fatality)
Date of Occurrence:
Description of Incident:
Describe Corrective Actions:

### CONTRACTOR SAFETY SCREENING

		Yes	No	N/A
<b>General</b>	Does your company regularly work in the line of activity concerned?			
<b>PLAN</b>	Do you have a safety policy?			
	Do you have a safety program?			
	Is your safety program certified?			
	Do you have a Safety manager?			
	Will you have a dedicated safety representative on site?			
	Does your company have a selection procedure for subcontractors?			
	Do you set safety objectives?			
	Do your employees have adequate certification for tasks they will be performing at site?			
	Are your supervisors trained in Standard First Aid?			
	Are your employees aware of hazards and know how to identify them?			
	Does your company have measures to ensure your employees comply with regulations and procedures?			
	Will you create safe work plans for the tasks performed at site?			
	Does your company develop safe work plans, risk assessments and job safety analyses?			
	Will you provide personal protective equipment for your employees?			
<b>DO</b>	Are your employees aware of the safety objectives?			
	Does your company have a procedure for work conducted at heights?			
	Does your company have a procedure for electrical work?			
	Does your company have a procedure for confined space entry work?			
	Does your company have a procedure for work on equipment under pressure?			
	Does your company have a procedure for ground disturbance work?			
	Does your company have a procedure for working with hazardous materials?			
	Does your company have a procedure for working in an extreme environment (e.g. hot or cold weather, isolated)?			
	Does your company have procedures for inspection and regular maintenance of equipment, tools and powered mobile equipment?			
	Will you perform regular workplace inspections?			
	Will you conduct toolbox and safety meetings with your employees?			
<b>CHECK</b>	Do you audit your Safety Program?			
	Have you achieved your safety objectives?			
	Has your company been issued any stop work orders by any regulatory agencies over the past three years?			
	Do you investigate accidents?			





**March Consulting Associates Inc.**  
 Suite 200 CIBC Building  
 201 - 21<sup>st</sup> Street East  
 Saskatoon, Saskatchewan  
 Canada S7K 0B8

Telephone: (306) 651-6330  
 Fax: (306) 651-6348  
 Email: march@marchconsulting.com

Thank you for your interest in March Consulting Associates Inc. In order to develop a more complete knowledge of your Company's capabilities please complete this form and return to:

Pauline McGuirk, Purchaser  
 Email: [pmcguirk@marchconsulting.com](mailto:pmcguirk@marchconsulting.com)  
 Phone: 306-651-6444  
 Fax: 306-651-6348

Date of Response: \_\_\_\_\_

**SUPPLIER PRE-QUALIFICATION**

Legal Name of Company: \_\_\_\_\_

Street Address: \_\_\_\_\_

(City) \_\_\_\_\_ (Province) \_\_\_\_\_ (PostalCode) \_\_\_\_\_

Mailing Address: \_\_\_\_\_

(City) \_\_\_\_\_ (Province) \_\_\_\_\_ (PostalCode) \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Is this address the:  Main Office  Regional Office  Branch Office  Other

**Local Contact Individuals: Project Management, Accounting, Safety, Etc.**

Contact:	Position:	Phone or Ext:	Cell Phone	E-mail:
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Website: \_\_\_\_\_

Name of Parent Company: \_\_\_\_\_

Address of Parent Company: \_\_\_\_\_

Year Company Started: \_\_\_\_\_

Type of Company (Inc., Partnership, etc.): \_\_\_\_\_

Province of Incorporation: \_\_\_\_\_ Date of Incorporation: \_\_\_\_\_

GST Number: \_\_\_\_\_ PST Number: \_\_\_\_\_

Under what other names has your Company operated? \_\_\_\_\_

**Supplier Pre-qualification (Continued)**

Please provide a brief description of your company:

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List the geographical areas in which you work: \_\_\_\_\_

Indicate the size of project scope you are able of performing: (Dollar volume equals your scope)

Under \$100,000	_____	\$3,000,000 - \$6,000,000	_____
\$100,000 - \$200,000	_____	\$6,000,000 - \$9,000,000	_____
\$200,000 - \$500,000	_____	\$10,000,000 - \$15,000,000	_____
\$500,000 - \$1,000,000	_____	Over \$15,000,000	_____
\$1,000,000 - \$3,000,000	_____		

List the trades you normally perform with your own forces:

Trade	Description of Work
_____	_____
_____	_____
_____	_____
_____	_____

What trades do you normally subcontract?

Trade	Description of Work
_____	_____
_____	_____
_____	_____
_____	_____

**Banking**

Name of your Bank: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_

**Dunn & Bradstreet**

What is Company's Dunn & Bradstreet Number: \_\_\_\_\_

**List three references:**

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Address: \_\_\_\_\_

Contact: \_\_\_\_\_

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Address: \_\_\_\_\_

Contact: \_\_\_\_\_

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Address: \_\_\_\_\_

Contact: \_\_\_\_\_

**Supplier Pre-qualification (Continued)**

**Quality, Health, Safety and Environmental Pre-qualification Form (if applicable)**

Please provide a brief description of your Company's Quality, Health, Safety and Environmental policies:

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**WCB Information:**

WCB Account Number: \_\_\_\_\_ Province \_\_\_\_\_  
Industry Code: \_\_\_\_\_  
WCB Employer Rate: \_\_\_\_\_ Time Period \_\_\_\_\_  
WCB Industry Rate: \_\_\_\_\_

**LTI/TRI Information (previous 12 months):**

Total Contractor Work:

Total Work Hours: \_\_\_\_\_ (previous 12 months)  
L.T.I. Frequency \_\_\_\_\_ T.R.I. Frequency \_\_\_\_\_

For VPO Work: List Locations: \_\_\_\_\_

L.T.I. Frequency \_\_\_\_\_ T.R.I. Frequency \_\_\_\_\_

**\*Note:**

*L.T.I. – Lost Time Incidents*

*T.R.I. – Total Recordable (L.T.I. + Medical Aid Injuries)*

*Frequency: = Number of incidents (LTI or TRI X 200,000 hours)*

*Number of hours (previous 12 months) worked by Contractor*

**Supplier Pre-qualification (Continued)**

**Quality, Health, Safety and Environmental Pre-qualification Form (Continued)**

**Environmental Information:**

How many government reportable environmental incidents, non compliances, orders, and enforcement actions has your company had within the past twelve months?

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Do you have a qualified person responsible for safety within your Company: \_\_\_Yes \_\_\_No  
Please list his/her qualifications:

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Do you have a written Company Safety Policy and Program and will you provide copies if requested:  
\_\_\_Yes \_\_\_No

Do you require documented safety meetings for your employees? Indicate which, and how often.  
\_\_\_Yes \_\_\_No \_\_\_Frequency

Does your Company review the safety management systems of your sub-subcontractors?  
\_\_\_Yes \_\_\_No

Do you have a written Company Quality Management Policy/Program and will you provide copies if requested? \_\_\_Yes \_\_\_No

Do you have representatives (not directly involved in the project) who will visit and audit the project for Quality? \_\_\_Yes \_\_\_No \_\_\_Frequency

**Insurance Information:**

All Contractors/Vendors are required to carry a minimum of Five Million Dollars (\$5,000,000) General Liability Insurance and Two Million Dollars Vehicle Insurance (\$2,000,000), per vehicle.

**Commercial General Liability Insurance:**

Agent/Broker: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Phone: \_\_\_\_\_

**Supplier Pre-qualification (Continued)**  
**Insurance Information (Continued)**

**Vehicle Insurance:**

Agent/Broker: \_\_\_\_\_

Contact: \_\_\_\_\_

Phone: \_\_\_\_\_

**The undersigned warrants and represents the information provided herein is accurate in all respects.**

Name of Company: \_\_\_\_\_

Prepared by: \_\_\_\_\_ (must be an officer of the Company)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Signature \_\_\_\_\_

**APPENDIX J:**

**EXAMPLES OF PROTOCOLS FOR  
HANDLING ORDERS FROM BOTH  
MOSAIC AND CORNING**



## Protocol for Handling Orders from Mosaic

4/27/2008

Most, if not all, of a Supplier's questions regarding the handling of a Mosaic Purchase Order should be answered on the face of the Purchase Order document itself. It is important that you read and become familiar with this document. It is also important that you have the document in your possession prior to performing services and/or supplying goods to Mosaic in nearly all cases. Mosaic recognizes that there are some issues around our procurement process that may require additional clarity. The following is a list of those issues with appropriate responses.

### ☛ **Types of Orders & Invoices:**

Mosaic issues both Service and Non-Service Purchase Orders. The type of order, whether "Service" or "Non-Service", is clearly noted on each Purchase Order. Non-Service Orders are generally for goods and do not require an invoice in order to be paid. In fact, you should not send an invoice for Non-Service Orders. Service orders are generally for work performed on site and these do require an invoice along with back-up documentation in order to be paid. This back-up can be in the form of a milestone billing for work complete, time sheets, delivery tickets for material, etc. It is preferable that you have the back-up documentation signed by your Mosaic project representative prior to submittal which will expedite payment. However, if this is not possible, send these documents with your invoice and they can be routed by Mosaic for approval prior to payment.

### ☛ **Invoices for Service Orders:**

Invoices and original signed back-up documents for Service Purchase Orders must be sent to the Mosaic Accounting Department. Do not leave originals at our locations. Any copies the Mosaic project representative may request should be clearly marked COPY.

### ☛ **Delivery Tickets:**

Original Delivery Tickets for Non-Service Orders must be left at a Mosaic warehouse. (This refers to Delivery tickets for materials or repaired items not associated with a Service Order.)

### ☛ **Signatures:**

Make sure that all signed documents are *clearly* signed with a signature and printed name.

### ☛ **Emergency Orders:**

At times Mosaic will have emergency requirements for goods and services. We ask that all our suppliers respond to an emergency by providing what is needed in the timeliest manner possible. During normal business hours suppliers should have an order for any emergency requirements. In the event a company is asked to perform on an emergency basis after-hours, the company is required to keep records of all materials and/or services provided and

who at Mosaic requested the materials and/or services. Obviously, documentation signed by a Mosaic representative is best. Mosaic will make every effort to provide a Purchase Order on the following business day.

☞ **Receipts:**

Mosaic's system is designed such that a payment to a supplier cannot be made without a receipt being made and a receipt cannot be made without first having a Purchase Order in the system to receive against. Therefore, in all cases, you must have a valid Purchase Order. That Purchase order must be received at a Mosaic Warehouse, in the case of Non-Service orders, or be received by Mosaic Accounting Department, in the case of Service orders, prior to any payment being made.

☞ **Repairs:**

Equipment such as pumps, gear boxes, valves, motors, etc. that Mosaic sends off-site to be worked on are referred to as "Repairs." Repairs are performed under Non-Service orders and the same guidelines apply with the following differences. The initial Purchase Order a Supplier receives for a repair will show a dollar amount of \$0.00. The Supplier is responsible for providing the buyer noted on the face of the order with the cost of the repair prior to performing the work. Once the buyer has the correct price, the buyer will re-issue the same Purchase Order with that corrected price. It is extremely important that the Supplier and the buyer agree to a final price and that the price be on the order prior to the repaired item being received. The Supplier will only be paid the amount shown on the face of the order at the time of receipt. Sometimes repairs are made on an emergency basis. In these cases, the supplier should follow the procedure for emergency orders and hold their paperwork until all costs are in and the receipt can be made with the correct price.

☞ **Priced Delivery Tickets:**

Under some circumstances Mosaic will require the Supplier to provide a priced Delivery Ticket with the shipment of goods on a Non-Service order. The order will state this as a requirement on the Purchase Order and the Supplier will recognize these as the Non-Service order will show a dollar amount in the Quantity field and \$1.00 in the Amount field. This is usually the case when a Supplier may be required to make shipments on an order and may not know the value of order prior to shipment or there may be multiple shipments without predetermined values. In these cases the Supplier must supply a priced Delivery Ticket with the shipment so that the goods can be received properly.

☞ **Third Party Shipments:**

Many times Suppliers ship from a third party such as a manufacturer. In these cases, it is the responsibility of the Supplier to assure that the Mosaic Purchase Order is included with the shipping documentation in order for proper receipt to be made.

☞ **Freight Costs:**

Mosaic expects the Supplier of goods to provide prices for those goods with freight cost included in the sale price. In those rare cases when the freight is not included, Mosaic will pay the freight cost as indicated on the Mosaic Purchase Order. Freight will only be paid for shipments made from the final shipping point to a Mosaic location. Mosaic will not pay for freight from a third party to a supplier. All freight invoices must reference a Mosaic Purchase Order in order to be paid.

☞ **CAT Expedite Report:**

The CAT Expedite Report is extremely important. This report is only sent out for items that are currently coming due. It is our method of confirming that ordered items are on track to meet the required delivery. The CAT Expedite Report is sent out daily. The Supplier needs to respond by the end of the business day on which they receive the report or the expedited order will show on the next day's report. The Supplier needs to be aware that Mosaic uses this report as a planning tool and delivery dates must be realistic and accurate.

☞ **Price Changes:**

A Mosaic Purchase Order allows the Supplier twenty four (24) hours to challenge the price shown on the order. If the price shown is not correct, the Supplier should e-mail the buyer shown on the face of the order immediately with the correct price. The Mosaic buyer will notify the Supplier that the order has been changed by returned e-mail and a corrected order within twenty four (24) hours. The Supplier should appreciate that large changes may require approvals beyond the buyer and may require additional time to confirm or deny. Changes to rush orders will require closer communication between the Supplier and buyer in order to make appropriate corrections prior to delivery.

☞ **Correct Prices and final Invoice Notice:**

In all cases, prices – both higher and lower – need to be correct on the Mosaic Purchase Order. It is extremely helpful that the final invoice for Service Orders be noted as "Final Invoice" on the face of the invoice.

☞ **Credits:**

Mosaic realizes that from time to time credits will need to be issued against some orders. Mosaic will communicate the appropriate information that the Supplier needs to properly apply the credit and to assure that the terms of the credit are appropriate to the order.

# CORNING

## Transaction Requirements

Suppliers play an important role to ensure purchase transactions accurately represent contractual requirements, are error free, and facilitate timely payments. Corning's policies require that all goods and/or services be purchased using an approved Purchase Order or P-Card.

In addition to stated terms and conditions and other contractual requirements, Supplier transactional responsibilities include the following:

### Purchase Order Review and Acceptance

Unless otherwise specified in a contract, Purchase Orders must be received from an authorized Corning representative before a product can be shipped or a service performed. The information on the Purchase Order is binding and drives all downstream transactions (including payment). It is the supplier's responsibility (prior to fulfillment) to validate that Purchase Orders represent accurately the terms of sale (what is being delivered, pricing, unit of measure, etc.). **Suppliers must notify Corning of any changes and receive a Corning Change Order to confirm agreement before the order is shipped and/or service provided. Fulfillment/invoicing which deviates from the Corning Purchase Order will cause errors and payment processing delays.**

### Shipment & Delivery

Delivery of goods or services must be performed in accordance with the Purchase Order requirements. Shipment of products must be delivered to the stated ship to address on the Purchase Order. All product shipments must include an itemized Packing Slip in each container or package. Minimally, Packing Slips must include:

- Corning's authorized Purchase Order number
- The Purchase Order Line Item number(s)
- Description of line item(s)
- Manufacturer Part Number (if applicable)
- Quantity and UOM of line item(s)
- Supplier Packing Slip Number (shipment identification number)

Other requirements may apply based on transportation, supply chain, or commercial requirements.

Receiving is required in order to systemically match and generate payments to Corning's Suppliers. To ensure accurate and timely receiving and therefore payments:

- The required pack slip information (listed above) must accurately match the Corning Incorporated PO. Missing or incorrect packing slip information will require follow-up and will also cause delays to receiving and payment.
- Ship only to the address specified on the PO, deliveries made to individuals or to locations other than the PO ship to address will cause delays in receiving.
- Notify the Corning requester/buyer prior to Purchase Order acceptance when product delivery cannot be made as specified on the Purchase Order.
- Clearly indicate on the packing slip when items have been purchased using a Corning Incorporated P-Card, or have been provided as samples (no charge, no PO).

### Over Shipments

Unless otherwise stated in contractual instructions, shipments cannot exceed stated quantities on the Purchase Order. Over shipments will require the issuance of a PO Change Order. The supplier must notify the Corning requester/buyer to authorize the over shipment. The Corning requester/buyer must issue the appropriate change order prior to delivery of quantities in excess of the purchase order request.

## Invoice and Payment

Payment requests to Corning must match the Purchase Order and Shipment information. Prior to invoice submission, suppliers must verify that the invoice accurately matches the Purchase Order requirements and the products or services delivered. If there is a discrepancy, the supplier must notify the Corning requester/buyer prior to invoice submission for resolution. This may result in a change order being issued (by the Corning requester/buyer) to ensure that the Purchase Order, Shipment, and invoice information matches.

Corning Incorporated requires basic information from suppliers in order to process an invoice:

- The Corning Purchase Order number and Purchase Order Line number must appear on the invoice for all services and products ordered using this tool. If no Purchase Order is required, the requester name, their Corning address and telephone number must appear on the invoice.
- The invoice must match line item numbers, descriptions, quantities, and prices with the corresponding information on the purchase order. If the information does not match exactly, payment may be delayed.
- Use the "Ship To" and "Bill To" Address as specified on the Purchase order
- Do not invoice for items that are not on the purchase order.
- Do not invoice prior to the shipment of materials ordered, or prior to the delivery of services.

Please review the [Sample Invoice](#) which illustrates Corning's requirements. Invoices may vary in their appearance and layout, although they must contain all of the information outlined on the example. Invoices that do not contain all the required information will be returned to the supplier resulting in a delay of payment.

Corning prefers to receive invoices by email for POs originating from US locations to: [Mailsvc@corning.com](mailto:Mailsvc@corning.com). Please contact Customer Service if you have any questions at (607) 248-1200, option 1.

Invoices for POs originating from Non-US Corning locations should be submitted according to the bill-to instruction on the PO Form.

## Payment Terms & Options

Unless otherwise negotiated and made part of the Purchase Order contract, Corning's standard payment term is NET 60 days. Payment dates are calculated from the date Corning receives a good invoice (per the sample invoice requirements) and the payment terms.

When submitting invoices, the preferred method of delivery is via electronic means, such as email or eInvoicing solutions. Fax and paper invoices are accepted only if electronic solutions are not possible.

Electronic Funds Transfer (EFT) or Automated Clearing House (ACH) are Corning's preferred payment methods and we encourage suppliers enroll in one of these programs. For details on enrolling in the Corning EFT or ACH program, visit [Supplier Payment Options](#).

[http://www.corning.com/about\\_us/suppliers/transaction\\_requirements.aspx](http://www.corning.com/about_us/suppliers/transaction_requirements.aspx)

**APPENDIX K:**

**SAMPLE SUPPLIER EVALUATION FORM  
FROM AREVA AND MARCH**



**MAJOR VENDOR / SUPPLY CONTRACTOR  
PERFORMANCE REVIEW FORM  
(YEARLY)**

Fill in as much information as possible.

Vendor name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Phone Number: Work: \_\_\_\_\_ Cell: \_\_\_\_\_

**Does the vendor meet the following criteria:**

How many staff members at your location? \_\_\_\_\_

How many qualified staff members at your location? Provide copies of certificates.

Engineering? \_\_\_\_\_ Welding? \_\_\_\_\_ Drafting? \_\_\_\_\_

What is your approximate average value of inventory? \_\_\_\_\_

Where is your nearest stocking location? \_\_\_\_\_

What is your average delivery time? \_\_\_\_\_ Stock items? \_\_\_\_\_ Rush shipments? \_\_\_\_\_

What is your return policy? \_\_\_\_\_

Normal stock items? \_\_\_\_\_ Special items? \_\_\_\_\_

What are your E-commerce capabilities? Describe.

QA/QC program? ISO? Environmental Protection Program? Do you have a training program?

What can AREVA Resources Canada Inc. expect from your company?

Do you have concern for the environment? \_\_\_\_\_

Do you have concern for health & safety? \_\_\_\_\_

Do you have professional, courteous staff? \_\_\_\_\_

**FOR ARC USE ONLY**

Areva/ARC Statistics: (last 12 months)		
# of P.O.'s _____	\$ of P.O.'s _____	# of price changes _____
# of line items _____	# of discrepancies _____	
ratio # of line items	# of discrepancies _____	
Meantime to delivery Current Year _____	Past Year _____	

Form Completed by (Print Name) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Reviewed by (Print Name) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**SUPPLIER EVALUATION**

PROJECT: \_\_\_\_\_

SUPPLIER: \_\_\_\_\_

DIV. #: \_\_\_\_\_

EVALUATOR: \_\_\_\_\_

EQUIPMENT: \_\_\_\_\_

**Legend:**

<i>Rating</i>	<i>Score</i>	<i>Description</i>
Excellent	5	Highly competent
Above Average	4	Noticeably competent
Average	3	Satisfactory: no major problems
Marginal	2	Fair
Below Average	1	Incompetent
Not Applicable	0	Not observed or applicable

<i>EVALUATION</i>	<i>COMMENTS</i>	<i>SCORE</i>
<b>TECHNICAL SKILLS</b>		
Quality of Product		
Warranty Issues		
Sub-Supplier Management		
Management of Time/Schedule		
Deliverables: usable and delivered on time		
Ability to analyze problems		
Ability to work with others		
Ability to Communicate effectively		
<b>COST</b>		
Pricing as quoted or frequent Revisions, Change Orders		
Payment Terms		
Shipping/Customs Issues		
Invoicing		
<b>COMPLIANCE</b>		
Committed to satisfying the Client		
Conformed to Contract's Terms and Conditions		
Legal Proceedings or Issues		
Safety Conscious		
<b>ATTRIBUTES</b>		
Professionalism		
Initiative		
Dependability		
<b>TOTAL SCORE: (A score of 65% of questions responded to is required in order to recommend using this Vendor again)</b>		



***WORK INSTRUCTIONS***

The Procurement Specialist shall complete the above evaluation form for all significant purchases. Representatives from Engineering shall complete supplier evaluations independent of Procurement. These evaluations shall be kept in the Project records under Procurement. Information from the evaluations may be shared with suppliers, if deemed appropriate.

# APPENDIX L:

## LIST OF MINING RESOURCES

## GENERAL RESOURCES:

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- Link to List of OEM's <http://buyersguide.ascendmedia.com/minexpo>
- The Canadian Encyclopedia <http://thecanadianencyclopedia.com>
- Saskatchewan Mining Association <http://www.saskmining.ca>
- Saskatchewan uranium producers <http://www.saskmining.ca>
- Saskatchewan Ministry of the Economy <http://www.economy.gov.sk.ca>

## URANIUM

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- AREVA Resources <http://www.avevaresources.com>
- Cameco <http://www.cameco.com>
- UEX <http://www.uex-corporation.com>
- Rio Tinto <http://www.riotinto.com/>
- World Nuclear Association <http://www.world-nuclear.org>
- Denison <http://www.denisonmines.com/home/home>

## POTASH

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- Potash Development Association <http://www.pda.org.uk>
- Agrium <http://www.agrium.com>
- BHP Billiton <http://www.bhpbilliton.com>
- PotashCorp <http://www.potashcorp.com>
- K + S Potash <http://www.ks-potashcanada.com/en/index.html>
- Mosaic Potash <http://www.mosaicco.com>
- Vale <http://www.vale.com>