















Town of Moosomin Town of Wapella Town of Esterhazy Community of Welwyn/RM of Moosomin RM of Rocanville RM of Spy Hill The communities of the area thank **Nutrien** and **Mosaic** for their contributions to our communities.

Nutrien and Mosaic have been a good corporate citizens and have contributed greatly to all of our communities.

We're proud to see the major investments that **Nutrien** and **Mosaic** have made in our area, and we look forward to working with you in the future!







These are all photos from construction on the Enbridge Line 3 Replacement in southeast Saskatchewan and southwest Manitoba. Construction is still ramping up in the Moosomin area, with more pipeliners arrriving in the area in November.









## Eyre sees bright future for resource industries

World-Spectator editor Kevin Weedmark spoke to Saskatchewan Minister of Energy and Resources, Bronwyn Eyre, about the future of Saskatchewan's resource industries. Following is the interview:

How important is potash to the provincial economy? As you probaby know, and you'll have see the numbers, that the Saskatchewan sales in 2017 reached a new record, 12.2 million tornes, and they were driven by excellent movement throughout almost the entire year, and the

novement uroughout annost the entry year, and the reserves continue to be very substantial. By conservative estimates you know the province could supply world demand at current levels for several hundreds of years.

But the long term prospects also are very, very good for the industry, and so we are very optimistic about that and those prospects. in Saskatchewan, the potash industry typically accounts for 30 per cent of world production and employs about 5,000 people, and it certainly contributes to the livelihoods of thousands more, and communities who are directly impacted know that very well. And so the prospects are good and the numbers are good, and so we're in a pretty optimistic place I think in that regard.

## We have seen some major investments in the potash mines in Rocanville and Esterhazy. What role will the provincial government play in encouraging that kind of investment in the future?

investment in the future? Just in terms of those expansions, the expansions of that productive capability have been competed in every Sasktachewan mine in the past nine years so that the total capital cost of those expansions, the current project at Mosaic in Esterhazy, which you've mentioned, the new K+S Bethune mine, is all together estimated at \$17.6 billion. And there are a number of companies that are considering constructing new Saskatchewan poteh are considering constructing new Saskatchewan potash mines, including BHP, and there are economic conditions that come into that with decreased potash prices that have caused some companies to push pause on those projects for a while.



MINISTER OF ENERGY AND RESOURCES BRONWYN EYRE

All we can try to do, and continue to do as a province is just to hang the open for business sign and do everything we can in terms of a stable royalty structure and a pro-investment environment, to work with them, to make sure that they can make the investments that they are willing and able to make.

It has been pretty positive considering some of the volatility we have seen over the last few years. There are other companies that are looking and that have been involved in developing projects in Saskatchewan–Western Potash, YanCoal, CanPacific, CenSource Potash, and a number of other ones. Several of these projects are looking at innovative new technologies for extraction in the province, and that's all good news for us.

#### Do you see a lot of room for further expansion of the

It's always hard to tell the future. In terms of some of those I've just listed, that's an indication that there is room for further investment.

## Is the province doing anything to encourage investment in other areas of mining in Saskatchewan?

One of the most notable things is the Mineral Development Strategy. That was announced in last year's throne speech, and the way it works is it covers a portion of cortracointed units of the sector of the sector. throne speech, and the way it works is it covers a portion of costs associated with ground based exploration for base metals, precious metals, and diamonds, to try to expand beyond uranium and potash. Twenty-five per cent of eligible direct drilling costs up to a maximum of \$50,000 per company will rebated and will be prorated if it exceeds that \$750,000. We had the sense by companies that some projects maybe were bypassing us. Other provinces have incentives such as this in place. This is intended to promote new discoveries. It's not for drilling on mining leases. That would not be elicible, but

drilling on mining leases. That would not be eligible, but we just feel that around that Creighton Denare Beach area and so on that there is room there and call for some new exploratory drilling, and this is made to order that way and we hope it will incentivise companies. We've had a lot of interest on it, so that is something else that we are doing in another space.

Continued on Page C5







Big Lou's extends our appreciation to all our customers in the mining industry during Mining Week. To add to our supplies and service, Big Lou's Glass and Exteriors will be moving to the lumber yard in the near future.

**BIG LOU'S LUMBER** Hwy 22 • Esterhazy, SK Mon - Sat: 8 a.m. - 5 p.m. 306-745-2332 306-745-2600



## Eyre sees bright future for resource industries

#### Section Continued from Page C4

Is it limited to certain minerals? It's limited to the base metals, precious metals and diamonds.

#### Where do you see the mining industry

in Saskatchewan 10 years from now? That's difficult. It's difficult always to Inars difficult. It's difficult always to speculate, but there are a lot of positive developments that we hear of as a ministry around the whole energy and resources space. Some of this gets into such things as helium and other areas,

and more into the oil and gas sphere. But really there is a lot of innovation that is still happening, a lot of interest by companies and junior mining companies in the province. And as I say, we hope this mineral development strategy will incentivise them a little bit more. But I think that it is positive. Overall we would say it is a positive outlook for the sector.

Another big industry around here is the pipelines. Does the province have a role in encouraging other pipeline projects to move forward. Is there a role for the province there? Well absolutely, and we've tried to do

everything we can to get other projects online. As you know Northern Gateway was something that died on the order on paper as it were, and Energy East I know there has been some movement around there has been some movement around trying to get that going again in terms of the National Energy Board queue. It is a little further back I guess in terms of that project, and there is some further distractions in terms of other projects that they've got going on that maybe will take slight priority. But certainly we as a province have tried to do everything that we can with former premeir Wall



of course and the current premier, and I am certainly trying in my role to do everything we can to lobby for these projects to get product to tide water. If the federal government can't build pipelines—I mean we lost over \$200 million in royalties last year alone and that would be \$500 million if the current that would be \$500 million if the current differential continued for a year, industry cost to industry would be \$7.4 billion. So this differential is unsustainable, it was unsustainable before. Just in the sense of economic impact it's very substantial, and of course that is money for hospitals and roads and social services and people in jobs and investment, and so we need to do everything we can to continue to try and get those projects built, but of course it's not only up to us, that's the terrible delema

What would be your advice to the Town of Moosomin and RM of

Moosomin, and a local committee trying to bring Energy East to national attention again?

I've spoken on this before. I know Moosomin and the former reeve has been active, and again all these on the ground efforts are to be commended and everything we can do and anything anyone can do to mobalize and lobby for a pipeline project, we completely support. As I say there, are in terms of Keystone XL and on other projects on the go for them, and the National Energy Board, my understanding is that was withdrawn by them simply because I think they were daunted by all the headwinds that they were facing But still, absolutley by all means, no one But still, absolutiley by all means, no one should never say never, we have a new government in Ontario, we have a new government in Quebec, and political winds can change and the views about projects can change, and so of course we are supportive. It would be very significant if we could get some of our other provincial partners interested in looking at that project again, and it is all good—pipelines in any direction.

The oil industry around here in southeast Saskatchewan from here right down to Estevan is much quieter than it was two and three years ago. What do you think all of the issues are there and how do you think those could be addressed?

Well we are looking a lot of different things, potential incentives. I was on a tour of the southwest in August and down in the southeast in September

and I've talked a lot to operators on the ground, in industry, in corporate Calgary, but also as I say on the ground in some of these communities, and I've tried to canvass from them what might incentivize things, and we've got some

we know there are issues with getting some of the junior oil companies back in the game and getting people who are previously involved in this sector and employed by this sector, in some cases reattracted back to the sector. And no wonder, because of the down turn and being a bit spooked— reattracting them to the center.

to the center. But we are looking at everything we possibly can. It is a perfect storm in terms of not being able to build a pipeline, and that's the federal government and the deregulation that we're seeing south of the border, and all the regulatory threats that we're also seeing from our federal government that hurt our industry and burt the sector. So in the midet of all of government that hurt our industry and hurt the sector. So in the midst of all of that and despite all of that, we have got to try and stay positive and do absolutley everything we can just to reincentivize the sector and to retain our competitive of the sector and to retain our competitive edge in Saskatchewan.

## Do you have anything specific in

Do you have anything specific in mind for reincentivizing sector? Well as I say, we are looking at a number of options now just in terms of potential incentives and that sort of thing, and so I will leave that for now just because there are a number of things we're doing and considering at the moment moment.









**READY-TO-MOVE HOMES FOR EVERY BUDGET!** 



1066 Springfield Rd at Lagimodière Blvd, Winnipeg: 204-669-9200 Toll Free: 1-888-545-2662 StarReadyToMoveHomes.ca

tor.'





Enbridge is preparing for the replacement of a segment of the Line 3 pipeline in your area.

This upgrade will help us maintain our stringent safety standards.

Rest assured that throughout the process, our number one priority is to ensure the safety of communities and our employees and contractors. We thank you for your patience and cooperation.

#### **For Your Safety**

Use extra caution when driving near any pipeline construction.

- Watch for:
- flaggers
- caution signs
- slow traffic

For your safety and the safety of others, please do not enter our work areas.



For more information, visit enbridge.com/line3construction



## Pipeline construction work under way across the area Work on Enbridge Line 3 is in full swing 6 is expected to run at 800

Work is well under way Work is well under way in southeast Saskatchewan and southern Manitoba on the largest construction project in Enbridge Pipe-lines' history. Spreads 1, 3, and 4 of the Line 3 replacement were started in 2017, and work on the other six Canadian spreads are under way this

spreads are under way this

year. White City is the base of operations for work on Spread 5, Moosomin is the 6, Brandon is the base for work on spreads 7 and 8, and Morden/Winkler is the base for Spread 9. The complete list of field

offices and contractors is as follows:

Spread 2 – Kindersley, SK Spread 2 – Kindersley, SK (O] Pipelines) Spread 5 – White City, SK (Banister) Spread 6 – Moosomin, SK (Banister) Spread 7 – Brandon, MB (Banister)

(Banister)

Spread 8 – Brandon, MB (SA Energy)

Reclaim, level. develop and grade · Put a dirt cap on cattails and willows · Fill and elevate pot holes · Cut and maintain ditches

· Remove and replace top soil

Cut down

hills - fast · Cut a clean trench in one pass

• Digs deep ·

digs fast

Morden/Winkler, MB (SA Energy) The \$9 billion Line 3

Replacement project is intended to enhance the safety and reliability of the Subtraction of the System and provide incre-mental export capacity to Western Canadian producers and increased security of supply for key refining markets along the Mainline system as well as to mar-

kets further downstream. Work will continue to ramp up in the Moosomin area into November and

continue into the new year. Moosomin, now the field office for Spread 6 on the Line 3 replacement project, has historically been a base of operations for work on the Enbridge Pipeline to the south and the TransCanada

South and the franscanada pipeline to the north. On the Enbridge line, Moosomin was the field office site for the Terrace B project in 1998 and Alberta Clipper in 2009. The workforce on Spread The workforce on Spread

BRIDGEVIE

bridgeviewmanufacturing.com

306-745-3364

BRIDGEVIEW

306-745-2711

people, and the first part of the work will run from August through February. Crews will be back next summer for surface remediation, and once the Line 3 replacement is in service, crews will be back to decommision the old pipeline.

The original Line 3 pipe-line was built in 1968, to to the highest standard at the time. However, the line has needed a number of repairs over the years, so in 2013 Enbridge made the decision to do a complete line replacement. The replacement is a

maintenance project, not an expansion, restoring the pipeline to its original op-erating capacity. In recent years it has been

running at roughly half its capacity, 390,000 barrels per day, due to Enbridge's self-imposed pressure re-ductions on the existing line

With the new line, the

**Built for** 

Double your

1220A Lead Scraper Upgrade Kit" you can work them in tandem.

Find us on Facebook

capacity: With the available

**Tough Digging** 

pipeline will be able to han-dle 760,000 barrels per day, close to the original specifi-cation for the 1968 line. "It is actually a replace-

ment of our current Line 3, not an expansion," Joanne Bradbury of Enbridge said. It involves 18 new pump stations in Canada. Where feasible, those are at exist-

reasible, those are at exist-ing sites. There will be three 375,000-bbl. tanks built at Hardisty, Alta. Already, 400 kilometres of pipe have been put in the ground in Canada during the 2017 construction season. The project's target in-service date is for the latter

half of 2019.

Once the new line is completed and in service, Enbridge will begin decom-missioning work on the old Line 3. Bradbury said they will remove the oil and

clean the pipeline. The old line would be taken out of service and continue to be monitored by Enbridge.



www.cduncanconstruction.com

## wood

## Shaping the future of mining

Wood is an industry leader in global mining solutions. For more than 60 years, we have been trusted to deliver some of the most logistically and technically challenging mining projects in Saskatchewan.

woodplc.com/mms









## **Doyle Piwniuk** MLA for Arthur-Virden

**Constituency Office** 250 Nelson St. W Virden, MB ROM 2CO

Contact 204.748.6443 doyle.piwniuk@leg.gov.mb.ca





#### Sales & Service for PUMPS / METERS / VALVES **CONTROLS / SWITCHES**

Instrumentation Service PLC/RTU Programming **Treater Parts** Shop & Field Calibrations

**Combustion Services SCADA Services PSV** Service Shop & Field Repairs



124 Anson Street Tel: 204-748-3704 Estevan, Saskatchewan 321 Imperial Avenue Tel: 306-634-5304

www.virdenmeter.com

## Saskatchewan oil facts

Saskatchewan is number two in the amount of oil produced among Canadian provinces, accounting for 13 per cent of Canada's oil production. Saskatchewan's oil and natural gas development can be traced back to the 1880s with natural gas drilling near Re-gina. The first commercial oil well was discovered in



FULL CREW OF EXPERIENCED FINISHERS CALL NOW FOR MORE INFORMATION & TO BOOK EARLY!

306.434.9001 | info@finerspray.com

Llovdminster in 1943. Saskatchewan has about seven billion barrels of crude oil and about 9.5 trillion cubic feet of natural gas. Follow-ing are a few figures on Saskatchewan oil produc-

486,000 barrels per day - Saskatchewan oil produc-tion in 2015.

\$750 million - payments industry made for the use of Saskatchewan's oil and

or Saskatchewan's on and natural gas resources in fis-cal 2015/16 \$4.4 billion - industry spending on exploration and development in 2015

33,000 - person years of direct and indirect employment by the industry in 2015 1.8 Trillion cubic feet - re-

maining marketable natu-ral gas reserves at 2014 1.0 billion - barrels of re-

maining crude oil reserves at 2014

 $(\mathbf{D})$ 



## EXPERT MACHINING AND MANUFACTURING SERVICES CENTRALLY LOCATED IN BRANDON, MB

Atom-Jet has served the mining, oil, and gas industries with diverse capabilities, technology, and qualified trades people. For over 50 years, our name has stood for quality products and service, resulting in 99% due date performance. We have the capacity to accommodate your business needs.

Let us explain how Atom-Jet can work for you.

### **ALIGN BORING**

- In-house align boring
- Surface grinding
- · Spray welding capabilities

#### **DRIVELINE & PTO**

- Shaft repair
- Dynamic balancing
- Turning capabilities up to 30" diameter & 144" shaft length

### **CNC MACHINING**

- Custom machining solutions
- CNC production machining
- Custom hydraulic-cylinders & repairs

WWW.ATOMJET.COM | PHONE: (800) 573-5048 | EMAIL: INFO@ATOMJET.COM





## October public offering shows sustained oil and gas interest

Saskatchewan's October public offering of Crown petroleum and natural gas rights held on Tuesday, gen-erated \$2.1 million in revenue for the province, largely on the strength of continued interest in the Kindersley area

This was the fourth of six public offerings scheduled throughout the fiscal year, which brings the 2018-19 fiscal revenue total to \$27.2 million.

The energy industry in western Canada is prepared to compete for the right to explore and develop Sas-katchewan's oil and gas rights, as the province's public offerings have averaged more than \$500 on a per-hect-are basis to date, compared to approximately \$275 per hectare in Alberta.

"We are encouraged by the confidence shown by the oil and gas industry in Saskatchewan's prospects," En-ergy and Resources Minister Bronwyn Eyre said. "The

purchased, for a total of \$2,134,898.07. The Kindersley area received the most attention in this public offering, where 24 leases totalling 5,293.318 hectares were sold for \$1 295 855 70

Southeast Saskatchewan brought in a total of

\$664,626.03 for 19 leases totalling 1,434.942 hectares. The highest bonus bid for a parcel was \$170,388.33 for 259 hectares. This parcel, located north of Eston, was purchased by Millennium Land Ltd. and is pro-spective for oil in the Viking Formation. The top dollars per hectare in this offering was

\$3,203.36 per hectare for a 32.376-hectare parcel located southeast of Carnduff, which was purchased by Federated Co-operatives Ltd. and is prospective for oil in the

industry continues to see Saskatchewan as a strong choice for long-term investment." Frobisher Beds of the Madison Group. The next public offering of petroleum and natural gas rights will be held on December 4, 2018.



306.434.9001 | info@finerspray.com

Spray Insulation Closed Cell Polyurethane Insulation

sit our website fo

finerspray.com

## GEE+ CONSTRUCTION

Box 640 Kipling, SK, SOG 2SO PH:(306)736-2332 FAX:(306)736-2334 contactus@geebee.ca





Potash is reached a 1962 1957 K1 shaft shing begins	at K1 1967 K2 mine completed	bri	? experiences ine inflow 985 •	+	Shaft sinkir begins at k 201 2009 Plans for K3 mine announced	3 reached at K3	2024 K3 expected completion	350 million years ago	I

## **Mosaic K3** Timeline and facts

The North K3 headframe at Mosaic Esterhazytowers more than 380 feet above the prairies.This structure houses two massive hoists — the Koepe and Blair. The Koepe has skips that bring potash to the surface from nearly a kilometer underground.

The Koepe hoist will move 60-ton skips, capable of lifting 10 million short tons of potash

per year. The Blair hoist will carry a cage for people and equipment.

Mosaic used state-of-the-art-technology like 3D seismic and exploration drilling to study the geology of the K3 mine for years.

To reach potash, two 20-foot diameter shafts were built. To sink the shaft, freezing technology is used to control water inflow. A cycle of drill-ing, blasting and mucking are used to break

up each laver An excavator suspended from a platform,

Bumper to Bumper

We can get the products you need

faster and at a more affordable price

than from your average supplier!

Try us today for

**your industrial** 

product needs!

**ROCANVILLE, SK 306-645-2112** 

known as Galloway, removes blasted muck with a large bucket and carries it to the sur-

The World-Spectator - Moosomin, Sask

At 3,350 feet, the potash zone was reached at K3. This marked a significant milestone for the project and for shaft sinking in Saskatch-

Once shaft sinking was completed, mine development begans by first cutting a horizontal pass between the two shafts.

Much of the required infrastructure will be added underground, including equipment that will be lowered and reassembled for mine de-

velopment and future production.

On the surface, a conveyor system to trans-port ore from the new mine to the existing mills at K1 and K2 has been built

Upon completion of K3, Mosaic's Esterhazy operation is expected to be the largest, most competitive underground potash mine in the world

• 76 Rooms, 16 Extended

(for up to 40 people)

Four-Storey Elevator

Truck/Bus/RV Parking

 Complimentary Continental Breakfast Close to Tim Hortons, KFC, A&W, Subway, Red Barn Restaurant & Lounge, Moosomin Communiplex & Co-op Gas Station/ Truck Sto Thanks for staying with us!

Guest Laundry

Board Room

• Gym Wireless Internet



**C11** Shaft





T5	ЖM	SUPI	PLY
Estevan, SK	Weyburn, SK	Carlyle, SK	Moosomin, SK
306.634.6494	306.842.4604	306.453.6100	306.435.2969
Oxbow, SK	Redvers, SK	Regina, SK	Saskatoon, SK
306.483.2522	306.452.3470	306.721.2260	306.931.2929
Calgary, AB	Leduc, AB	Provost, AB	Redcliff, AB
403.531.5600	780.612.6781	780.753.2364	403.548.6131
Melita, MB 204 522 3238	Virden, MB	Virden, MB (FG)	

Proud Distributor of Oilfield, Mining & Industrial Supplies for Over 45 Years

Williston, ND 701.572.9301

www.tsmsupply.com

Winnipeg, MB Thunder Bay, ON 204.888.5454 807.622,5554

f Tesar President & CEO

Josef & Krista Tesa

Family Owned & Managed

Roman Chernykh

Manage

Odessa, TX

432.381.5255

Capacity

4,000

3,000

3.800

6,500

3,024

2,000

3 400

2,600

6.600

35,224

380

165

100

90

735

35,959

300



**Nutrien Rocanville and Mosaic Esterhazy:** 

## Area home to the two largest potash mines in the world

BY KEVIN WEEDMARK

Many people realize that Nutrien Rocanville and Mosaic Esterhazy are two very large mines and two very stable anchors for the economy in southeast Sas-katchewan and southwest Manitoba.

But a lot of people might not realize just how big the two mines are.

They are not only the two largest potash mines in Saskatchewan. They are not only the two largest potash mines in Canada in Canada.

They are not only the two largest potash mines in North America. They are the two largest potash mines in the world.

With nameplate capacities of 6.6 million tonnes of KCl (Mosaic Esterhazy) and 6.5 million tonnes (Nutrien Rocanville), the two mines are far larger than any other potash mines in operation.

Between the two mines there are almost 1,800 peo-ple directly employed.

## ROCANVILLE THE LARGEST NUTRIEN MINE

Production at Rocanville doubled with the completion of the \$3 billion expan-sion. The Rocarville mine produced 2.48 million tonnes of KCl in 2015, 2.72 million tonnes in 2016, and 4.86 million tonnes in 2017. In 2017—before the merger that created Nu-trien—Rocanville pro-duced about half of the 9.8 million tonnes of pot-ash produced by the five PotashCorp mines in Sas-

katchewan

ESTERHAZY THE LARGEST MOSAIC MINE Mosaic Esterhazy is the largest of the three Mosaic

potash mines in Saskatchewan. Mosaic has a nameplate capacity of 6,600 tonnes of potash, more than the other two Mosaic mines in Saskatchewan combined

ROCANVILLE, ESTERHAZY HAVE MORE POTASH

PRODUCTION CAPACITY THAN

MOST COUNTRIES Between Nutien Rocanville and Mosaic Esterhazy, this area has more potash production capacity than any country outside Canaďa

Between Nutrien Rocanville and Mosaic Esterhazy, this area has 13.1 million tonnes per year of pot-ash production capacity, helping make Canada the world's largest producer of Patach Potash.

The number two coun-try in the world for Potash production is Russia, which produced 7.2 million tonnes in 2017, less than the capacity of the two potash mines in this area.



380 FRONTAGE ROAD WEST - VIRDEN, MB



Company

Nutrien

Nutrien

Nutrien

Nutrien

Nutrien

Nutrien

Nutrien

Mosaic Company Mosaic Company

Mosaic Company

Intrepid Potash

Intrepid Potash

Intrepid Potash

Intrepid Potash

P.O. Box 4 Midale, SK S0C 1S0 Phone: (306) 458-2367 or (306) 861-1001 Fax: (306) 458-2373 247enterprisesItd@sasktel.net

 Fluid Levels Dynamometers

Site

Allan, SK

Cory, SK

Lanigan, SK

Patience Lake, SK

Rocanville, SK

Belle Plaine, SK

Colonsay, SK

Esterhazy, SK

Carlsbad (West), NM

Carlsbad (HB), NM

Cane Creek, UT

Wendover, UT

Vanscoy, SK

Sussex, NB

- Pressure Surveys
- Foam Depressions
- New or Reconditioned Equipment Sales &
- Rentals Repairs For All Acoustic
- Well Sounder Equipment Automated & Manual

 Major Parts & Supplies Always In Stock

## **D.J. Miller & Sons Construction Ltd.**

We wish to Thank and Recognize Mosaic and Nutrien and their employees for their continued success & support throughout the province!



- Earth Moving & Land Clearing
- Oil Field Lease Work

Dwight Miller Res: 306-743-2643 · Shop: 306-743-5530 Cell: 306-745-7608 Langenburg, SK



GOODMAN

EELLT The commitment we have to safety in our workplace and quality in our products are fundamentally essential to the successful role we play in the Saskatchewan Mining Industry. Goodman Steel Ltd. 902 Railway Ave. Rocanville, SK S0A 3L0 Ph: 306-645-2040 Fax: 306-645-2140

### 2017 Muriate of Potash Capacities and Locations ('000 metric tonnes of KCL per year)

Canada

Total Canada

**United States** 

**Total United States** 

Total Canada and United States



#### POTASH PRODUCTION

(million tonnes KCI)						
	Nameplate	Operational		Production	Employees	
	Capacity 1	Capability (2017) <sup>2</sup>	2017	2016	2015	(December 31, 2017)
Lanigan SK	3.8	2.0	1.82	2.03	1.83	426
Rocanville SK	6.5	5.0	4.86	2.72	2.48	762
Allan SK	4.0	2.0	1.83	2.38	2.38	575
Cory SK 3	3.0	0.8	0.99	1.24	1.51	367
Patience Lake SK	0.3	0.3	0.30	0.23	0.26	76
New Brunswick 4	2.0	-	-	-	0.65	35
Total	19.6	10.1	9.80	8.60	9.11	2,241

\* Represents estimates of Capacity as at December 31, 2017. Estimates based on capacity as per design specifications or Canpotex entitlements once determined. In the case of New Brunswick, nameplate capacity represents design specifications for the Picadilly mine, which is <sup>1</sup> Represents estimates of capacity as at December 31, 2017. Estimates based on capacity as per design specifications for Capacity enditients on cedetermined. In the case of New Trunswick, nameplate capacity represents design specifications for the Picadity mine, which is currently in care-and-maintenance mode. In the case of New Trunswick, nameplate capacity represents generating and capacity in care capacity as at December 31, 2017. Estimates based on capacity as per design specifications for the Picadity mine, which is currently in care-and-maintenance mode.
<sup>2</sup> Estimated annual achievable production level at current staffing and operational readiness (estimated at beginning of year). Estimate does not include inventory-related shutdowns and urplanned downtime.
<sup>3</sup> In November 2016, the company announced operational capability.
<sup>4</sup> In 2015, the company announced operational changes at Cory to produce only white potacity white potacity operational capability of approximately 0.8 million tornes per year; these operational changes were completed in the third quarter of 2017. Potential exists to reach previous careational capability of approximately 0.8 million tornes per year; these operational changes were completed in the third quarter of 2017. Potential exists to reach previous careational capability of approximately 0.8 million tornes per year; these operational changes were completed in the third quarter of 2017. Potential exists to reach previous careational capability of approximately 0.8 million tornes per year; these operational changes at Cory to produce only white potacity. New Brunswick potation short the previous careational capability of approximately 0.8 million tornes per year; these operational changes were completed in the third quarter of 2017. Potential exists to reach previous careational capability of approximately 0.8 million tornes per year; these operational changes were completed in the third quarter of 2017. Potential exists to reac



#### Ore From Mine

- Potash is mined using two- and four-rotor continuous boring machines
- Onderground Ore Storage Conveyor belts carry ore to underground bins, where it is stored until transportation to the loading pocket of the shaft hoist

Production Hoist stash ore is hoisted to the surface through the production shaft

- Milling Process Crushing, Grinding and Desliming → Flotation → Drying and Sizing → Compaction and
- Finished Products & Primary Uses **Primary Distribution Methods**

The above page from PotashCorp's 2017 annual report (PotashCorp is now part of Nutiren) shows production of the various PotashCorp mines, showing production at the Nutrien mine as about half of total PotashCorp production last year.

## SAPARA'S DRUG MART RepharmaChoice Ph. (306) 745-6662

- Sat: 9am - 5:30

To Mosaic, Nutrien, our local manufacturing businesses and their employees:

Thank you for your hard work and contributions to our community and for your continued support.



supporting our business!





## **Mosaic K3 expansion on track**

In 2008, Mosaic embarked on a multi-billion dollar expansion program in Saskatchewan. The program included multi-year projects at each of Mosaic's three Canadian mine sites— Belle Plaine, Colonsay and Esterhazy. The ex-pansion program was designed to leverage ex-isting facilities and infrastructure at the mines, which possess a century's worth of potash reserves

serves. K3 at Esterhazy is the remaining project in Mosaic's potash expansion. Standing 374 feet above the prairie landscape, there is no greater representation of Mosaic's growth and invest-ment in the future than the Esterhazy K3 pro-duction headframe and the development of the mine site below. As the current tallest structure in Saskatchewan, the production headframe will house and operate the massive hoist and skips that will bring potash to the surface from

skips that will bring potash to the surface from nearly a klometer underground. The first stage of the K3 Project was approved in 2009 as part of Mosaic's strategy to ensure the viability of their Esterhazy operations. In 2015, a modified project scope was approved to accelerate the second stage of K3 development. K3 will consist of two shafts, mine develop-ment and surface facilities. Overground con-vergens will take the ore from K3 to existing mill

veyors will take the ore from K3 to existing mill facilities at K1 and K2.

February 16, 2017 is a date that signifies one of the biggest moments in Mosaic's potash his-tory. On that date, Mosaic hit the potash level at K3.

After hitting potash in February 2017, work continued to join the two shafts. Late on May 2, 2017 workers broke through the connec-tion drift between the two, allowing for flowthrough ventilation that can accommodate the diesel-run equipment required for underground development.

This milestone happened to occur the night before Mosaic's stakeholder celebration held in Esterhazy to recognize the "next 50 years" of potash production at Esterhazy. By June, the team completed the North

shaft potash level station and permanent un-derground pump station excavations. Further work helped complete the bench for the main shaft steel hitch pedestals and the loading pocket excavation. Once in, the sinking of the North shaft continued. July 1 brought the completion of the South

July 1 brought the completion of the South shaft potash station, including the equipment assembly bay and temporary electrical substa-tion excavation. This work allowed Mosaic to prepare for the establishment of permanent power underground to transition from only drilling and blasting to mechanical excavation. Next came the shaft feeder cables and small-er mine communication and grounding cables in September and October. Over in the North shaft. crews completed the installation of the

shaft, crews completed the installation of the

main mine dewatering line. By October 13, 2017, another big milestone took place—Mosaic turned on the lights un-derground, lighting the way for the K3 team to complete a feat that was a first for a Saskatchewan mine.

"We lowered a fully assembled drum miner chassis, weighing 127,000 lbs. or 60 tons (ap-proximately the weight of 30 family size cars). Typically equipment of this size is assembled underground and taken down piece by piece," says Director of Capital Expansion, Lawrence Berthelet.

Berthelet. "We safely completed this task by using two of the Galloway winch ropes. Other parts of the miner were lowered down and later put together, cutting down assembly time from 28 days to just four," he adds.

The new drum miner was busy cutting by mid-November. Three more three-drum miners will be lowered in 2018. A conveyor has been built from K3 to K2. A

second conveyor is planned to run from the new K3 mine to K1. Mosaic held a community open house in September to share their plans for this second conveyor with local stakehold-ers. The required approvals and permits are being submitted to start construction activities

With the ramp up of the K3 project resulting in ceasing underground mining operations at K1 and K2 to move to the new mine, significant transition planning is underway, both for product and people. "Over the next seven years, our Esterhazy

operations will transform into the largest and one of the most competitive underground potash mines in the world—capable of moving 21 million short tons of potash ore per year from one of the best ore deposits," says Gerry Cou-ture, Vice President, Capital and Engineering, Potash

Lawrence Berthelet is director of the K3 ex-pansion at Mosaic Esterhazy. World-Spectator editor Kevin Weedmark interviewed Berthelet earlier this year on the status of the massive expansion.

## Why did the K3 expansion come about and

how has it come to this point? The K3 expansion is a strategic capital project by Mosaic to continue to be able to mine in the Esterhazy area and be the low cost producer. As you know, K2 has had the water inflow for over 30 years which is an expense and a risk. The commitment of \$3.2 billion Canadian to the K3 project takes that risk away and extends the life of those mills and that mining area.

#### What point are you at right now in develop-

ing K3? Well, we reached the potash level last year and now we're developing the shaft pillar area which is basically the mine underground inwhich is basically the mine underground in-frastructure. That work is progressing. We've cold commissioned the hoist in the big north head frame that will start hauling ore probably towards the end of the year. The overland con-veyor to K2 is pretty much complete. We are wrapping up some of the electrical and instru-mentation work and we will probably com-mission that towards the fall. The conveyor to L we've worked through the narmit and are KI, we've worked through the permits and are starting to strip land and we've initiated con-struction on the conveyor—another 11 km conveyor to K1.

At what point do you anticipate K3 will be completely developed and in full production? Not until 2024 is when we will see the full tonnage from K3. There is quite a bit of under-ground mine development work to do. Even after the belts are in place we'll have to do quite a bit of underground development to produce the full tonnage

## Once K3 is in full production what will the impact be on overall staffing at the mine? Will you be moving resources from K1 and K2 to K3?

K3? We have a pretty extensive transition team project working on that. For the most part, the impact will be moving the K1, K2 folks from underground over to K3. It is two mines com-bining to one so there is some overlap. We are pretty confident that most of the overlap will be taken up with attrition. Given the demo-

graphic of our workforce. It will probably be a minimal impact to our employees because we will take advantage of the fact that people will be retiring anyway. We've gone out of our way to make sure that is the case, so we should see little impact on the workforce

How will capacity be impacted once you complete K3? We will be a 21 million short ton producer

of ore. If you look at a three to one split on production you are in the six to seven million tonne range for finished product tonnes. So not only does it mitigate the risk from water but it also adds some incremental capacity which we had prepared for through the various phases of our capital expansion at the two mills, K1 and K2.

## How did Mosaic decide to make this major

Mosaic is committed to the community and always has been. Esterhazy is a low cost pro-ducer. It makes business sense. The workforce is dedicated. From an employee stakeholder investor perspective, it makes good sense. The stakeholder community, the RM, the local towns around and of course the provincial gov-ernment—there are all very positive relation-ships there. It was an easy decision to make, to invest in Esterhazy. It's a good investment both from a risk mitigation perspective and a business perspective.

How many total of employees does Mosaic have in Esterhazy currently? 1,200 I would say.

How much of a problem has the water in-flow at K2 been over the years? How much is spent on mitigating that or managing that each year?

Lots. It ebbs and flows because the ground is not predictable. I actually started my career in the water group back in 1986 just after water came in and I remember those years we got a handle on it and I would say the dedication of the team in Esterhazy has made it a relative non-event, other than a nagging increase to our cost per tonne. In terms of safety and risk



I think the team in K2 and Esterhazy in gen-eral has handled it well but it's always a risk and it's always there as a cost. The costs are not insignificant and they certainly help offset the cost of the capital project that is K3.

#### Once K3 is fully developed will it be connected to the current mines or will it be totally separate to avoid inflow?

Absolutely not connected. It's a good question. You can put that in bold letters if you want—absolutely not connected.

## What kind of engineering goes into mak-ing sure you don't ever end up with the water

inflow situation again? We have a pretty extensive geotechnical group that identified the best location for the shaft to ensure the most stable mine infrastructure footprint, which is important. Then of course the mine planning that goes out from the shafts has been all engineered by our geotechnical group using every tool available. 3D seismic, and our 50 years of experience mining in the area to define and design a buffer Ing in the area to define and design a burfer to ensure no connection and to minimize any ground movement that could cause problems. Through the sinking of the shafts we've had absolutely no water issues, no water events, no real show stoppers when it came to going through the various levels that bear water in our area.

## You referred to Mosaic Esterhazy as a lowcost mine, and Nutrien refers to Rocanville as a low-cost mine. Is that because of the geol-ogy of the ore body in this region? Because we mine the Esterhazy member of the potash deposits in the east side of the prov-

The mines around Saskatoon are minince ing the Patience Lake member. The Esterhazy member has lower insolubles, it has higher liberation size meaning we have to crush it less to get the KCl away from the NaCl, and the salt beam above the Esterhazy member is much more robust. That allows us to make wider mining rooms underground, which lowers our cost of mining production. Those would be the big three: the salt beam, the insolubles, and the liberation size.

## Liquor Franchise & Reverse Osmosis **Bottled Water**

## Home Delivery & In-Store Pickup

We congratulate Nutrien on its continued success and Mosaic for the continuing conveyor expansion at K3.



Mosaic

Manufacturing



## Together, we're creating a legacy we can all share.

At Mosaic, we believe our success is rooted in our people. Generation after generation, we've built a company and community where they can grow. Through innovation, sustainability and strength – our commitment reflects their efforts to create a legacy we can all share. Together, we can see tomorrow from here.



Mosaic

The Priers

mosaicco.com



# Planting seeds for a better tomorrow.

The seeds we plant today hold our dreams and aspirations. At Nutrien, we're committed to expanding our relationships with Indigenous people globally, including Aboriginal people in Canada, knowing that diversity and inclusion will help us feed the future – together.

> **Stacy Sutherland** Muskeg Lake Cree Nation Treaty 6, Saskatchewan



www.nutrien.com