CDR Addendum: Fortune Minerals Limited – Saskatchewan Minerals Processing Plant

Public Meeting
July 5, 2018
Langham Community Hall

At the request of the RM of Corman Park Council, Fortune Minerals Limited organized and hosted a come and go public information session to provide an opportunity for the public to receive updated details regarding the proposed development and to engage the technical experts associated with the project to discuss the main topics of public concern.

An estimated 204 people were present at the meeting. A total of seven stations were set-up representing high priority topics based upon previous public and stakeholder consultations. Copies of the display boards are attached for reference. The technical project team included the following individuals representing each topic:

Glen Koropchuk (FML) – Economic Benefits
Rick Schryer (FML) – Facility Closure
Andrew Karvonen M.Sc, P.Eng, P.Geo (SNC Lavalin) – Deep Well Injection
Greg Potter P.Eng., P.Geo (SNC Lavalin) – Water Resources
Lyndsey MacBride M.Sc., P.Geo (SNC Lavalin) – Air Resources
Janice Paslawski Ph.D., P.Eng. (SNC Lavalin) – Air Resources
Jason Morrissey M.Eng, (SNC Lavalin) – Water Resources
Moir Haug Ph.D., P.Eng (SNC Lavalin) – Process Residue Storage
Bill Delainey RRP (Associated Engineering) – Municipal Land Use and Approval Process

A total of 17 written comments were received from this meeting and are attached for reference. The attached written comments relate to the following topics:

1. The presence of asbestos in the process residue.
2. Long term effects of human exposure to airborne cobalt.
3. Negative impact on land values.
5. Impacts to the quality of ground and surface water resources.
6. Air emissions.
7. Negative impacts to water supply.
8. General environmental hazard.
9. Soil contamination.
10. Project legacy.
11. Lack of confirmed project financing.
12. Impact of operations on local farms and wildlife.
13. Railway crossing safety and noise pollution.
Fortune Minerals Limited is in the process of providing responses to all of the questions posed within the written comments received. We note that all of the issues brought forward have already been addressed in the Comprehensive Development Review report.

Of note, Fortune Minerals Limited circulated application forms at the information session for the community-based monitoring group that the company has committed to initiating and funding. No applications were received from the public.

Attachments:

1. Open House Display Boards
2. Written Comments Received
Attachment #1:
Open House Boards
19:00 – 21:00
PURPOSE OF THE OPEN HOUSE

• Provide information on the proposed Saskatchewan Metals Processing Plant, with a focus on:
  - Process Residue Storage Facility
  - Water Use
  - Deep Well Injection
  - Air Quality & Dust
  - Closure
  - Project Benefits

• Receive feedback, comments, concerns, and questions regarding the project

We encourage you to take this opportunity to review the display boards, speak with representatives from Fortune Minerals and our consultant team, ask questions, and provide feedback on the provided comment form.

FORTUNE MINERALS LIMITED
Fortune Minerals Limited is a North American development stage mining company. Fortune is currently focused on advancing the vertically integrated NICO cobalt-gold-bismuth-copper project, comprised of a proposed mine and mill in the Northwest Territories that will produce a bulk concentrate for shipment to the proposed Saskatchewan Metals Processing Plant, that Fortune plans to construct outside of Langham. The products will include in particular: cobalt to make high performance rechargeable batteries; bismuth, a non-toxic replacement for lead; gold; and copper.

Fortune Minerals is committed to developing strong working relationships with the communities in which we operate. Fortune Minerals will continue to work with the RM of Corman Park and Communities of Langham and Dalmeny to ensure the sustainable development of the project.

SNC-LAVALIN
SNC-Lavalin was retained by Fortune Minerals to provide environmental and engineering services for the project. Founded in 1911, SNC-Lavalin is one of the leading engineering and construction groups in the world. Our Saskatchewan team are specialists in in hydrogeology, geotechnology, environmental assessment and engineering, as well as human health and ecological risk assessment.

ASSOCIATED ENGINEERING
Associated Engineering has been engaged to provide professional planning services for the project. With more than 70 years in business, Associated Engineering is recognized for providing clients with cost-effective, innovative, value-added solutions. Our company prides itself on achieving solutions that are aesthetically pleasing and environmentally sustainable.
Deep Well Injection

WASTEWATER DISPOSAL
- The process water will create saline wastewater (1.5x the salinity of ocean water)
- Wastewater will be recycled, where possible, or disposed of via deep well injection
- There will be two deep injection wells (primary and secondary wells), designed to inject up to 20 m³/h
- Deep well injection is a proven technology regulated by the Saskatchewan Ministry of Energy and Resources, as the preferred wastewater disposal method in Saskatchewan
- Other industries in the province (e.g. potash, oil and gas) utilize deep injection wells that pass through freshwater aquifers such as the Dalmeny Aquifer
- There are over one hundred of these wells in operation in Saskatchewan, including at least 8 injection wells within 50 km of the proposed project site (e.g. Cory, Vanscoy, Saskatoon, and Patience Lake)
- Potential impacts to the environment will be minimal (if any) due to design installation, operation and maintenance standards and regulations

INJECTION WELLS
Fortune Minerals will use the best available technology, which includes a number of barriers to prevent wastewater from infiltrating freshwater aquifers:
- Multiple casings;
- Pressure tested seals;
- Injection tubing inhibitor;
- Leak monitoring;
- Geologic seal; and
- Cathodic protection.
Continuous monitoring, annual testing and maintenance will be conducted.

DISPOSAL HORIZON
- Wastewater will be injected into the Souris River Formation, approximately 740 m below ground level and 450 m below the Dalmeny Aquifer
- The Souris River Formation is 170 m thick, with high permeability and porosity making it ideal for the disposal of the wastewater
- The pore water in the Souris Formation is highly mineralized (10x more saline than ocean water)
- The injection wells are designed based on the characteristics of the wastewater and the water within the disposal horizon
- A permit for a Waste Water Disposal Well has been issued by the regulator
- Fortune Minerals is preparing a Deep Well Management Plan outlining operational, maintenance, spill response, and training procedures

"Fortune Minerals will monitor and report their injection as per applicable regulations."
WATER REQUIREMENTS

- An estimated 36 m³/h of water will be required for the plant and domestic use

DALMENY AQUIFER

- The approved water source for the project is the Dalmeny Aquifer
- The Dalmeny Aquifer is the primary source of freshwater within the rural areas surrounding the proposed facility
- There are 5 domestic groundwater wells located within 1.6 km of the site
- Water production for the facility (0.01% of the aquifer volume on a yearly basis) is not expected to adversely impact other users, as it would take about 10,000 years to deplete this source, assuming no recharge

GROUNDWATER PRODUCTION MODELLING

- The potential effects of water use on the groundwater level in the Dalmeny Aquifer was studied through field testing and groundwater production simulations
- Drought conditions (i.e. minimal recharge) were assumed to simulate worst case scenarios for the life of the facility
- The worst case scenarios demonstrate that the proposed production rate has little impact on the Dalmeny Aquifer
- Modelling shows that only three of the wells closest to the facility could experience drawdown of more than 1 m after 20 years of continuous pumping
- Natural fluctuations in groundwater levels range between 1 m and 2.5 m annually
- Drawdown at existing groundwater wells may not be distinguishable from natural fluctuations in groundwater levels as the predicted influence is less than 2 m after 20 years
- An adaptive management and groundwater monitoring plan outlines measures to proactively ensure that other users of the Dalmeny Aquifer are not affected by the proposed facility
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Air Quality & Dust

AIR EMISSIONS MODELLING
- The proposed facility will generate air emissions from vents, unit heaters, boilers, vehicles/equipment, and the use of an emergency diesel generator
- Air emissions modelling was conducted to estimate maximum ground-level contaminant concentrations
- All estimated ground-level concentrations of contaminants outside of the property fence line are below regulatory ambient air quality objectives
- The facility will utilize a variety of mechanisms and processes to control air emissions including bag houses (fabric filters), denisters (filters vapours), and air scrubbers
- Air emissions monitoring will be conducted to confirm predictions and ensure regulatory compliance

"Fortune Minerals will be required to report all air, dust, and greenhouse gas emissions to the provincial and federal government on an annual basis during operation."

DUST
- Dust emissions may result from the movement of vehicles and heavy equipment
- Dust fall monitoring was conducted to establish baseline dust conditions
- Fortune Minerals has committed to paving the section of Shultz Road from Highway 305 to the property line
- The process residue will have limited dust emissions due to its high (approximately 31%) moisture content
- Additional dust controls will be in place to minimize emissions, including:
  - A retractable cover within the active cell
  - Wind baffles
  - Operational procedures (e.g. limit residue handling during high winds)
- Once a containment cell is filled with residue, the "store and release" cover system will be constructed to cap the cells and prevent dust emissions, limit oxygen and water ingress, and support re-vegetation
- An independent laboratory tested the residue for asbestos, and determined the residue is not considered to be an asbestos-containing material
- Monitoring on and off site will be used to demonstrate dust suppression. The monitoring plan will be revised as required with input from the community monitoring group
"Fortune Minerals will provide a conceptual decommissioning & reclamation plan and financial assurance (e.g. bond held by the Government of Saskatchewan) to fund closure activities prior to operations, in accordance with provincial legislation."

The objectives of decommissioning and reclamation will be to restore the area to a state that will be both safe and environmentally stable. The relative success of site reclamation is generally measured by assessing the post reclamation physical conditions of the site including any long-term health and safety (hazards), the ecological conditions, aesthetics, socio-economic expectations, ongoing financial liabilities and future land use capability.

At the time of decommissioning, the following activities are expected to be undertaken:

**PROCESS RESIDUE STORAGE FACILITY**
- The PRSF cells will be progressively closed and reclaimed as they are filled. They will contoured, capped with an engineered cover system, and revegetated.

**DEEP INJECTION WELLS**
- At closure the deep injection wells will be plugged and capped according to applicable regulatory and industry standards.

**PONDS**
- The process water and brine solution ponds will be drained, infilled, and re-vegetated. All fluids removed from the ponds will be tested and disposed of appropriately.
- The stormwater pond could be retained and transitioned to a constructed wetland or utilized as a dugout to support farming activities.

**BUILDINGS AND FACILITIES**
- The buildings and facilities on the property will either be repurposed for continued industrial use or demolished in lieu of a planned conversion to agricultural production or as a recreational amenity.
- All salvageable material will be reused, sold, or recycled.
- Hazardous materials will be recycled or disposed of according to applicable provincial regulations.
- Concrete pads and building foundations no longer required will be demolished.

**REMEDIAITION**
- Areas where contaminated soils may be present will be assessed and remediated as required.

**RECLAMATION**
- Re-contouring, replacing topsoil, and re-vegetation of the plant site and roads.
PROJECT BENEFITS

JOBS, ECONOMY & INFRASTRUCTURE
- The SMPP will require about 80 to 90 full-time employees (annual payroll of approximately ~$9 million)
- Potential for two additional indirect jobs for every direct job (additional 170 jobs)
- Contracting opportunities during construction of ~$76 million
- Annual operational expenditures of ~$25 million (~$525 million over the project life)
- Diversification of the economy in Saskatchewan, including the potential for secondary industries to be built around the SMPP (e.g. specialty batteries, recycling of battery materials)
- The construction of a power line to the facility
- The paving of 800 m of Schultz Road
- The possibility of using discharge from the Town of Lengham’s new sewage lagoon as process water to reduce aquifer use by up to 20%

COBALT
- Cobalt is needed to build lithium-ion batteries for devices including:
  - Portable electronic devices (Smartphones, Laptops, Tablets)
  - Electric vehicles (EVs)
  - Stationary storage cell's (Grid Storage)
- Stationary grid storage enables renewable generation from wind, solar & off-peak charging to be optimized, which will help drive the move to a less carbon intensive world
- Cobalt is used to build EVs and will help reduce carbon emissions
- Cobalt-based batteries will remain the standard for the foreseeable future
- Key component of high temperature and high speed steel alloys required for the Aerospace and Electricity industries
- Typical smartphone contains 5 g to 20 g of cobalt vs 4,000 g to 30,000 g (9 lbs to 66 lbs) per EV
- Saskatchewan and Canada can be positioned as contributing to a greener, less carbon intensive world and helping to slow climate change

BISMUTH
- Environmentally friendly replacement for lead in many applications, as it is scientifically recognized as non-toxic but has many of the characteristics of lead
- Uses include:
  - Glass & alloys for stability (expands during cooling)
  - Pharmaceuticals (e.g. Pepto-Bismol)
  - Fire retardants & sprinkler system activators
  - Cosmetics
  - Automotive: anti-corrosion coatings; glass frits (lending dimensional stability to windscreens so they won't fall out in cold temperatures); pearlescent paints & pigments.
  - Superconductors & solar panels

SASKATCHEWAN METALS PROCESSING PLANT
Attachment #2:
Written Comments
Hello, my name is Don Berreclout, I live in Dalmeny, and I am, for one, looking towards this venture in our area.

But I do have a safety & noise concern with the increase of rail traffic going through Dalmeny.
1) Is there any plans to improve the 2 train crossing with crossing arms to prevent vehicle or pedestrians being hit by a train?
2) and how about the noise from the train whistles? With the increase train traffic, it will undoubtedly lead to more traffic at night, blowing their whistle, and this will lead to more disruptive sleep. Is something going to be done about this?

I know for a fact that the city of Leduc, AB (where I lived before) was able to get the rail company to stop blowing their whistles, but the city had to put up fencing all along both sides of the tracks right-of-way, and crossing arms & lights at all road crossing for that to happen.

What does Fortune Minerals have in plan to improve rail safety and the noise pollution from the increase rail traffic? and who is fitting the bill? Tax payers in Dalmeny or Mineral Fortune? My opinion it should be the company.

Best

Don Berreclout
Thank you for your attendance at our public information session. Your feedback is appreciated.

In addition to exploring the display information Fortune Minerals Limited would like to extend another opportunity for you to express any comments and or concerns you may have related to the proposed Metals Processing Plant. Please take the time to review the display materials and discuss the proposed plans with company representatives prior to providing comments.

The information boards from this event and the Comprehensive Development Review (CDR) report submitted to the RM of Corman Park to support the property rezoning are available online at the following address: https://www.fortuneminerals.com/assets/SMPP/default.aspx

1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

   (yes, 1) the effects of exposure to cobalt present in air emissions is largely unknown and unstudied - yet Health Canada labels it as highly toxic. Why would we want to risk this so close to our homes?

   (2) overly optimistic assessment of cobalt demand and length of project once complete, how can anyone safely grow anything or farm? This devalues the land and surrounding land.

   TRACK RECORD - enough said. Fortune Minerals has a poor record trying to run mines. Their commitment to labor standards, financial security and abandonment of past responsibility show their integrity as a company.

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

Bill Delainey, RPP
Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X6
delaineyb@ae.ca

Please note that the deadline for submitting comments is July 19th, 2018.

Contact Information
Name: ________________________________
Phone, email and / or address: ________________________________
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   [Handwritten text: Underground leaching from overflow
    Containment - above ground leaching
    (water will always "leak" as anyone who has moved dirt, or used containment techniques above or below ground is well aware)]

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

Bill Delainey, RPP
Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X6
delaineyb@ae.ca

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Contact Information
Name: [Handwritten text: John Sanders]
Phone, email and / or address: [Handwritten text: [redacted]]
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1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

   THE POISONING OF OUR WATER
   & AIR, MAKING A TOXIC DUMP
   & LEAVING IT TO REMAIN.

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1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?
   - [ ] Yes. How will this affect the future of our water supply? How can we be sure that when it is done that it will be a total clean-up and the site be returned to its original state.

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Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X6
delaineyb@ae.ca

Please note that the deadline for submitting comments is July 18th, 2018.

Contact Information
Name: [Signature]
Phone, email and / or address: [Space for details]
Thank you for your attendance at our public information session. Your feedback is appreciated.

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1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

   I am very concerned about the environmental hazards this project could cause. I do NOT want it in my R.M.!

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

Bill Delainey, RPP
Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X6
delaineyb@ae.ca

Please note that the deadline for submitting comments is July 19th, 2018.

Contact Information
Name: LuAnne Fortier
Phone, email and/or address: Langham, SK
Thank you for your attendance at our public information session. Your feedback is appreciated.

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   Please take your Metal Processing Plant and put it somewhere else. How about Quebec? They got the equalization payment.

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

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Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X6
delaineyb@ae.ca

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Contact Information
Name: Heather Udell
Phone, email and/or address: [redacted]
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- The company's poor record (environmental) (not standing behind the product you're pitching to us)
- These info sessions are the same - where is your Q & A session? If you stand behind your product then do so. Standing beside placards at an info session isn't facing the difficult questions

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

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Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X8
delaineyb@ae.ca

Please note that the deadline for submitting comments is July 19th, 2018.

Contact Information
Name: Langham resident
Phone, email and / or address: ____________________________________
Saskatchewan Metals Processing Plant
Public Information Session - July 5th, 2018.

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1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

   [ ] Yes - contaminating the water, the air, the soil.
   [ ] No matter what the advanced technology + science available at this time, nothing prevents human error and no one can 100% predict all the possible problems that will affect the lives of everyone in the immediate + future generations. As well as the potential for contaminating water a long ways away - could take years, fortune minerals owners + shareholders would be long gone, but the nasty legacy will carry on.

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   Yes

   No mention of recycling batteries.

   - Financing should be in place before rezoning
   - Processing system including ponds may be in maintenance mode for many years because product or Reclamation may be too expensive
   - Air pollutants at pitch point

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Contact Information
Name: Jim Ryan
Phone, email and / or address:
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Do not allow Fortune Minerals to continue our future is at stake. We can not afford an environmental disaster to happen. It needs to stop before beginning. All evidence points to bad ideas for Corman Park & surrounding areas. We do not want this to continue.

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

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Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X8

delainenb@as.ca

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How long are the containment units going to last for.
What will be the impact on the ecology and the drain on the aquifer.
What kind of fumes will be released into the air.
What impact will there be on farmland and wildlife.
What contingency plans are in place in case of a spill or leak?

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email the following:

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The information boards from this event and the Comprehensive Development Review (CDR) report submitted to the RM of Corman Park to support the property rezoning are available online at the following address: https://www.fortuneminerals.com/assets/SMPP/default.aspx

1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

Comments on some of the issues from Saskatchewan Environmental Society are summarized on the attached page.

Thank you for providing your feedback. You can leave your comments at the registration desk or alternatively mail or email to the following:

Bill Delainey, RPP
Associated Engineering Ltd.
1-2225 Northridge Drive
Saskatoon, SK S7L 6X6
delaineyb@ae.ca
Please note that the deadline for submitting comments is July 19th, 2018.

Contact Information
Name: [Redacted]
Phone, email and / or address: [Redacted]
The Saskatchewan Environmental Society (SES) has asked Dr. Graham N. George, Professor in the Department of Geological Sciences at the University of Saskatchewan, to review and comment on Fortune Minerals Ltd.'s (FML) Environmental Impact Statement regarding the Saskatchewan Minerals Processing Plant (SMPP) proposed for a site 2.5 km east of Langham, SK.

Dr. George has extensive experience in toxicology, biomedical engineering and microbial metabolism of arsenic compounds. In his review he states:

"Without more studies of the longer term mobilization of arsenic in the process waste, the plan to construct such a facility within only 5 km of the North Saskatchewan River is bordering upon irresponsible. The possible consequences of constructing this facility may not be realized for many years, but might substantially outweigh the short-term economic stimulus that will be provided by the proposed Langham FML development."

Dr. George offers the following points in support of this position:

~ The proposed Langham FML development will use ore to be shipped from the NICO ore deposit. The NICO project is located approximately 81 km northwest of the infamous Giant Mine, one of the world’s largest arsenic contamination sites, and a problem to this day for both the Federal Government of Canada and the Government of the Northwest Territories.

~ The metal ore will be transported by rail and processed at the new facility to be built near Langham SK, approximately 2.5 km due east of Langham and within 5 km of the North Saskatchewan River. This river provides drinking water for Prince Albert, our third most populous city, and the SMPP’s proximity to the river and the arsenic content of process residue are the basis for most of my concerns.

~ The process residue (waste materials) will consist of three primary components that will be crudely combined in the Process Residue Storage Facilities (PRSFS). The material to be stored is predicted to contain substantial quantities of scorodite (ferric arsenate dehydrate), a stable rock material containing arsenic.

~ FML’s Environmental Impact Statement contains no plan for long-term disposal of the process residue, and backhauling to the NICO ore deposit site in the Northwest Territories is (not surprisingly) deemed to be economically unfeasible. Metal ore processing wastes are notoriously complex systems, in which microbial action can liberate, mobilize and transform arsenic into the more toxic trivalent species. These possibilities are not considered in the Environmental Impact Statement.
SES further observes that 1.58,000 tonnes of hazardous wastes generated each year from the chemical processing facility will be placed in the Process Residue Storage Facilities (PRSFs); 7 percent of that waste will be arsenic by weight. Arsenic is a chemical element; it will not decompose; it will be there forever. That means that each year more than 11,000 tonnes of arsenic will be disposed of 2.5 km east of Langham on a site that could potentially be a family residential area in the future.

SES questions: Could these huge, buried waste deposits containing arsenic significantly affect the future growth of Langham and Dalmeny and the real estate values of their homes in the future? Could our increasingly severe rain events and windstorms damage the PRSFs and spread a light coat of arsenic-laden dust over the region and in many parts of Saskatoon? Dr. Brian Jackson of the Dartmouth Toxic Metals Research Program documented that chronic, low doses of arsenic is a major factor causing lung and bladder cancer, cardiovascular problems, diabetes and severe skin lesions.

Dr. George concludes his report stating: “My recommendation is that this construction should be delayed, pending external scientific review and studies by qualified experts, including microbiologists specialising in arsenic metabolizing bacteria, and by environmental chemists.”

SES concurs with Dr. George’s assessment, and strongly advises the RM of Corman Park to consider these concerns in their deliberations on the proposed project.

S. David Hegg, SES
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1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

   I think if the SMP is built in Langham, the value of housing in Saskatchewan Delays and other communities will fall as value and people will move away. Who wants to live and raise their children within miles of storage pits and waste ponds with tonnes of arsenic wastes contained in them.

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1. In general, do you have any concerns with the proposed Saskatchewan Metals Processing Plant?

[Handwritten text: By mistake, most of your table do not have pens on the table, it makes people feel that you don't want participation very badly at all. Inaccurate mistake.]

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[Handwritten text]

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delaineyb@ae.ca

Please note that the deadline for submitting comments is July 19th, 2018.

Contact Information
Name: [Handwritten text]
Phone, email and / or address: [Handwritten text]
Thanks for your interest in the project at our information session. I have spoken to the engineering team and they have provided me with the following response to your questions about the asbestos levels in the process residue:

1) Asbestos is a unique form of serpentine that is fibrous and is not present in the NICO ore.
2) Some minerals, including tremolite-actinolite (an amphibole mineral) can sometimes exhibit asbestiform shape, but is not asbestos. Actinolite is also a common alteration mineral in many mineral deposits.
3) The actinolite is that is present in the mineral deposit would only be contained in very small quantities in the sulphide concentrate (1-2%). The vast majority of the residue that would be stored at the refinery site would be comprised of gypsum and ferric arsenate (scorodite).
4) However, to ensure this definitively, we tested the process residue for the presence of asbestiform minerals and determined it was only present at levels that do not pose a health concern (see attached report which I believe you have already seen).

Please contact me if you have any further questions

Rick

From: Grant Ebenal Ce: delaineyb@ae.ca
Sent: Saturday, July 7, 2018 9:42 PM
To: Rick Schryer Ce: delaineyb@ae.ca
Subject: Asbestos content in SMPP process residue

Hi Rick,

Per our discussion Thursday night in Langham, please clarify whether any of the samples tested by Lex Scientific Inc. and found to be non-asbestos containing materials represent the same process residue components (or updated versions thereof) as those listed in Section 3.4.1 of the EIS. I am still a little unsure how to reconcile LSI’s findings with the EIS data, specifically the acid leach recovery of Co and Au cyanidation residue (19.1% actinolite). It may be helpful to include your explanation in the documentation on your website as well. Thank you.

Regards,

Grant Ebenal, P.Eng.

Rick Schryer
VP Environmental & Regulatory Affairs
Fortune Minerals Limited
148 Fullarton Street, Suite 1600
London, Ontario, CANADA N6A 5P3
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LETTER OF OPINION REGARDING ACTINOLITE IN SULPHIDE CONCENTRATE

May 27, 2014

Mr. Robin Goad, President
Fortune Minerals Limited
148 Fullarton Street, Suite 1600
London, ON N6A 5P3

Dear Mr. Goad,
LEX Scientific received the three following mineralogical samples and analyzed them for asbestos:

PP-03 POX Thickener U/F: Filtercake, Tailings
Fe/As PPT, Filtercake, Process Water Precipitate
Bulk Concentrate, Filter cake, concentrate, arsenic, iron

The samples were received directly from SGS Lakefield. The samples were from a pilot plant process development project: Nico 11758-006. We were informed that this was for a project by Fortune Minerals Limited. Information pertaining to these samples was provided to LEX. These samples of materials were from a 200-ton processing trial and, taking into consideration the processing/mixing that the materials had undergone, we believe that these samples are representative of the original materials. SGS Lakefield is an independent lab and had custody and control of the samples prior to submission to LEX Scientific. LEX was asked to provide an opinion if this material may pose an asbestos related health hazard in the surrounding environment. Two samples contained traces of actinolite below Saskatchewan regulatory limits.

The three samples were analyzed by a Professional Geologist using the PLM 1000 Point Count Method (EPA 600/R-93/119). This method is considered very sensitive and accurate for the purposes to which it was applied to this project. If the samples were to have been analyzed by the routine analytical method the asbestos would most likely not have been detected. The Asbestos Analysis Laboratory of LEX Scientific Inc. is accredited in the National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of bulk materials for asbestos, which is administered by the National Institute for Standards and Technology (NIST). Our Laboratory Code No. is 101949. The Project Manager for this project is Michael Hoffbauer who has over 30 years of experience with asbestos analysis, including eight years with the Ontario Ministry of Environment using both optical and electron microscopic methods. A summary of the analytical results are as follows:

PP-03 POX Thickener U/F: Filtercake, Tailings: 0.2% actinolite
Fe/As PPT, Filtercake, Process Water Precipitate: no asbestos detected
Bulk Concentrate, Filter cake, concentrate, arsenic/iron: less than 0.1% actinolite

2 Quebec Street, Suite 204 Guelph, Ontario N1H 2T3
Phone: 519.824.7082 Fax: 519.824.5784 Toll Free: 1.800.824.7082
e-mail: admin@lexscientific.com Website: www.lexscientific.com
These results indicate that there is a very low percentage or trace of asbestos in these materials. These results are not unexpected. Actinolite is present in many rock formations and subsequently also becomes a part of the soil. The state rock of California is serpentine which is the host rock for chrysotile asbestos. As expected, asbestos was mined in California. Thus, the presence of asbestos in nature makes it important to define a level of asbestos in a material which may present a health hazard.

The Saskatchewan Occupational Health and Safety Act, 1996 defines "asbestos containing material", pursuant to the March 2014 amendment and can be seen in the quote below.

"THE SASKATCHEWAN GAZETTE, MARCH 21, 2014
Section 330 amended
4 The following clause is added after clause 330(b):
\"(b.1) \'asbestos-containing material\' means:
(i) vermiculite determined to contain any asbestos when tested according
to an approved method; or
(ii) any material, other than vermiculite, that when tested according to
an approved method is determined to contain:
(A) a proportion of asbestos greater than 0.5\%, if the material is
friable; or
(B) a proportion of asbestos greater than 1.0\%, if the material is
non-friable\"."

These definitions are similar to those in other Canadian jurisdictions. For example, in Ontario 0.5% is also the level at which a material is considered an "asbestos containing material". These values represent a conservative approach to environmental and occupational health and safety. It must be stressed that it has been proven from the study of glacial ice from Antarctica, that asbestos has been present as an airborne dust particle for thousands of years. In 1982, the province of Ontario conducted a study of air samples, taken from across the province, to determine ambient levels of airborne asbestos. The median fibre concentration for an area considered suburban was 0.001 f/cc; for a small city (Peterborough) the ambient airborne asbestos fibre concentration was 0.0018 f/cc. A similar study could not be found for the province of Saskatchewan.

The materials that were tested were not friable and did not meet the definition of being asbestos containing materials. Even if these materials were to become friable at some point, they would still not reach fifty percent of the level of asbestos that would justify a classification of "asbestos containing material" as per the most recent and most stringent revision of the Saskatchewan regulation quoted above.

Another fact must also be considered: the asbestos portion of the entire material will not selectively become airborne. Rather, the material as a whole, if it were to become airborne 0.2% of it would then be the actinolite. This raises the question: is the rest of the material, the 99.8% fraction, less hazardous than the 0.2% asbestos fraction? In my experience, during indoor asbestos abatement projects where friable materials containing an excess 10% asbestos are being abated, asbestos is usually only detected when there is visible airborne dust. This is usually due to insufficient wetting of friable materials prior to disturbance. Therefore, if a detectable level of asbestos were to become airborne, it would certainly have to be a part of a significant dust cloud.
LEX has conducted outdoor air monitoring during large scale demolition of large structures clad in asbestos cement boards. Analysis was performed and reviewed by both the Ontario Ministry of Labour and the Ontario Ministry of Environment and completed to their satisfaction. Even though the disturbance was great, ambient air quality criteria guidelines were never exceeded. Furthermore, with the exception of one or two samples, asbestos was not even detected. This success can be credited to the diligent application of work practices to mitigate airborne asbestos. I feel that even better results would be achieved on this project because the material being processed has such low levels of fibrous actinolite to begin with and because engineering controls, in addition to work practices applied, would be part of the overall process.

The presence of trace amounts of actinolite in the bulk concentrate (less than 0.1%) and POX thickener filtercake tailings (0.2%) are below Saskatchewan regulatory limits. It is my professional opinion that airborne actinolite from a facility processing the materials that were tested will not pose a measurable asbestos related health hazard in the surrounding environment.

Thank you for the opportunity to be of assistance to you. If you have any questions regarding this project or any other Environmental or Health and Safety matter, please do not hesitate to call me at 800-824-7082 X223.

Michael M. Hoffbauer B.Sc.
Director

Mark A. Nazar, PhD, PEng, CIH, ROH
Associate
Senior Industrial Hygienist