

***Government of Yukon
Response to the Review
of the determination of
security for reclamation
and closure of the
Wolverine Mine***

Energy, Mines and Resources

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Introduction

Document context

This document is the Government of Yukon response to the PricewaterhouseCoopers (PwC) *Review of the determination of security for reclamation and closure of the Wolverine Mine (2019)*. The government response takes the form of a report, which substantively addresses each recommendation of PricewaterhouseCoopers.

Recommendations and Responses

PricewaterhouseCoopers Recommendation 1

RISK ASSESSMENT

The Yukon government should consider a holistic risk assessment prior to granting a license to a mine operator. This risk assessment should consider:

- a. The company's financial statements
- b. The company's financial relationships to its parent company, if applicable
- c. The life of mine plan and feasibility study
- d. The sensitivity of the above to changing circumstances including metal prices

Based on the results of the risk analysis, the Yukon government may choose to adjust the amount of security required, including possibly requesting more than 100 per cent of estimated closure and reclamation costs for high-risk applicants.

Government of Yukon Response 1

The current policy framework requires:

- ❖ a mine operator to provide security to cover 100 per cent of the costs associated with reclamation and closure that may be incurred by the Government of Yukon for the activities planned at the mine over the following two years;
- ❖ the operator to furnish security before these activities are carried out; and,

- ❖ the operator to provide an update of the reclamation and closure plan every two years. Security is then re-determined, based on the updated plan and in relation to planned activities for the forthcoming two-year period.

In following these requirements of the framework, we significantly increased the Wolverine Mine security amount during a review of one of the company's updated reclamation and closure plans between 2016 and 2018. The increase in security was required due to changing conditions at the mine, which were related in part to the company's poor financial position.

The Government of Yukon made changes to the reclamation and closure plan requirements and closure costing guidance in 2013 that should greatly reduce the likelihood of a repeat of the situation at the Wolverine Mine. The key change to the guidance was the requirement to include the cost of installing key infrastructure that could be required at the mine site at some future date. Prior to 2013, these costs were not included and the operator would install key infrastructure as needed for the continued operation of the mine. For the Wolverine Mine, the water treatment plant, and installation costs were not included in the mine's 2013 security figure, because we reviewed and reset the security prior to the change in policy that occurred in the same year.

When we updated the security for the Wolverine Mine in 2017, the water treatment plant had not been purchased or installed, and the estimated cost to construct and operate the plant - \$14 million - was included in the security determination. The cost of the water treatment plant accounted for approximately 60 per cent of the increase in security that the company has not paid.

PricewaterhouseCoopers has provided a risk classification and options, which would apply to companies deemed high risk, based primarily on an assessment of the financial status of the company, requiring more than 100 per cent security. The Government of Yukon is not considering requiring companies to provide more than 100 per cent of the reclamation and closure cost as security. We have instead asked PricewaterhouseCoopers to review the feasibility of establishing a Yukon mine reclamation fund from which the Government of Yukon could draw in case a mine

operator fails to meet their statutory obligations, and there is inadequate security on deposit to complete the closure and reclamation. PricewaterhouseCoopers will outline the key considerations involved in implementing a Yukon mine reclamation fund, best practices and potential pitfalls.

The Government of Yukon is also conducting a systematic review of the reclamation and closure planning framework starting with revising the overarching, 2006 Yukon Mine Site Reclamation and Closure Policy. The policy has not undergone a comprehensive review since its inception. Updates are necessary to ensure consistency with current mine reclamation practices and associated guidance documents. We are looking for ways to engage First Nations, industry, environmental organizations and Yukoners in the review. As part of the review, we will be seeking input from stakeholders on the need for a risk assessment based upon the financial status of a company in determining security for major mines.

The recently launched engagement on a Yukon mineral development strategy will give First Nations, industry, stakeholders and interested Yukoners another opportunity to provide input into Yukon's reclamation and closure framework for quartz mines along with other ways to enhance Yukon's mineral investment climate while respecting the rights and traditions of Yukon First Nations, upholding environmental standards and improving regulatory certainty.

In short, the following Government of Yukon actions respond to PricewaterhouseCoopers' first recommendation and should reduce the risk of a security shortfall reoccurring:

- ❖ the requirement for reclamation and closure plans to be updated every two years and the changes to the guidance in 2013;
- ❖ discussions about including a risk assessment as part of our review of updated reclamation and closure plans; and,
- ❖ a feasibility study of a Yukon mine reclamation fund.

PricewaterhouseCoopers Recommendation 2

SPENDING OF SECURITY FUNDS

The Yukon government should consider being more proactive in identifying risks that could increase liabilities at the site. In this case, it appears that the Yukon government understood the risks present at the site, but did not enforce certain necessary actions by Yukon Zinc Corporation, principally the installation of bulkheads and the building of a water treatment plant. In this case, the Yukon government could have stepped in to prevent future increases in liabilities at the site, but did not do so. In the future, the results of the risk assessment [of increasing liabilities at the mine site] should inform decisions around when to intervene.

Government of Yukon Response 2

The Government of Yukon has, under the inspection and enforcement powers of both the *Quartz Mining Act* and the *Waters Act*, addressed non-compliance and carried out urgent works at the Wolverine Mine to reduce potential risks to public health and safety, and the environment. The work carried out to date by the Government of Yukon has been financed by Yukon Zinc Corporation's furnished security.

The Government of Yukon recently went to the Supreme Court of Yukon to obtain a court order appointing PricewaterhouseCoopers as receiver and manager of all of the assets, undertakings and property of Yukon Zinc Corporation including the Wolverine Mine. On September 13, 2019, PricewaterhouseCoopers was appointed receiver. We have already started to work with them to determine priorities for the mine site. Plans at the site for this fall include operation of a water treatment system to treat and discharge water from the tailings storage facility, conducting site-wide environmental and stability monitoring and providing additional logistical support. The water treatment system began discharging treated effluent in late September. We have also done work to address other high priority issues, including repairing the tailings facility liner and conducting a safety inspection of the dam and tailings facility. We are working with the receiver on a process for the marketing and sale of Yukon Zinc Corporation's

assets including the Wolverine Mine for approval by the court before the end of the year.

The Government of Yukon acknowledges that more timely intervention at the Wolverine Mine could have resulted in a reduction in the reclamation and closure liabilities at the mine. In order to take enforcement action, however, the mine operator has to be in non-compliance of the terms and conditions of its licence. As PricewaterhouseCoopers noted in its report during most of the temporary closure, Yukon Zinc Corporation was compliant with their licences. In addition, the Government of Yukon did take several regulatory steps in an effort to seek compliance with licence conditions, including warning letters and issuance of inspector's directions. Yukon Zinc Corporation failed to comply. The Government of Yukon, thus, sought other remedies, including seizure of security to carry out urgent work and appointment of the receiver.

In the end, Yukon Zinc Corporation's failure to comply with the terms and conditions of its licences increased the closure costs of the mine. The Government of Yukon is considering options we have in our toolbox to allow us to effect compliance with enforcement action as health and safety, environmental and financial risks are identified. We are currently examining how we structure the terms and conditions of licences to allow us to be more proactive in addressing risks at mine sites. In addition, we are committed to strengthening coordination between different branches of the Department of Energy, Mines and Resources to help proactively identify and reduce risks, and develop contingency plans to prevent a reoccurrence of the situation at Wolverine.

In short, the following Government of Yukon actions respond to PricewaterhouseCoopers' second recommendation and should result in the proactive identification of risk and potential reduction in reclamation and closure liabilities:

- ❖ consider options we have in our toolbox to allow us to effect compliance with enforcement action as health and safety, environmental and financial risks are identified;
- ❖ examine how we structure the terms and conditions of licences to allow us to be more proactive in addressing risks at mine sites; and

- ❖ strengthen coordination between different branches of the Department of Energy, Mines and Resources to help proactively identify and reduce risks, and develop contingency plans;

PricewaterhouseCoopers Recommendation 3

COMMUNICATIONS PROTOCOL

The Government should consider implementing a clearer communication protocol whereby risks are escalated to senior decision-makers in a timely and clear manner.

Government of Yukon Response 3

We are committed to enhancing the existing internal processes for sharing information with senior management about reclamation and closure at major mines. Staff will provide more detailed reports to Yukon government decision-makers that include the identification of potential health and safety, environmental and financial risks associated reclamation and closure of major mines. The goal of the changes to the internal communications protocol will be to ensure senior management is informed in a timely and clear manner of potential risks at major mines, potential impacts and proposed actions to mitigate the risks.

The Government of Yukon is updating the Major Projects Management Framework. This framework will provide additional clarity and guidance to assist departments in working together more effectively, consistently and efficiently to fulfill the government's responsibilities in major project assessment, licensing, operation and closure. The framework also formalizes the government's processes and accountabilities on major projects by clearly describing internal roles and responsibilities for all major projects, including quartz mines.

Backgrounder

1. PricewaterhouseCoopers' Review Mandate

PricewaterhouseCoopers was contracted to carry out an independent review of Energy, Mines and Resources' approval of reclamation and closure plans, and determination of financial security for the Wolverine Mine since October 2015 (following Yukon Zinc Corporation's emergence from protection under the federal *Companies' Creditors Arrangement Act*).

PricewaterhouseCoopers was asked to assess and comment on the following questions:

- ❖ Did the Government correctly implement the framework for the determination of financial security for quartz mine site reclamation and closure for the Wolverine Mine?
- ❖ Is the framework for quartz mine site reclamation and closure effective for the circumstances encountered with the Wolverine Mine? Are there general improvements that could be made to the framework to minimize the financial risk to the Government of Yukon associated with mine site reclamation and closure, particularly to address circumstances similar to those encountered with the Wolverine Mine, while recognizing the need for a competitive financial security regime?
- ❖ In July 2019, PWC submitted its report entitled - *Review of the Determination of Security for Reclamation and Closure of the Wolverine Mine*.

2. Summary of the Yukon Reclamation and Closure Plan Framework

The following are regulations, policies and guidelines that form the quartz mine site reclamation and closure framework pursuant to the *Quartz Mining Act* in Yukon:

- ❖ Yukon Mine Site Reclamation and Closure Policy – January 2006

- ❖ Reclamation and Closure Planning for Quartz Mining Projects – Plan requirements and closure costing guidance - August 2013
- ❖ Quartz Mining Act SY2003, c.14 and Security Regulation O.I.C. 2007/77
- ❖ Yukon Mine Site Reclamation and Closure Policy - Financial Guidelines – April 2014

The *Quartz Mining Act* sets out the legislated requirements for mine licensees to reclaim and close mine sites and to provide financial assurance as determined by the Minister to contain public risk for mine site reclamation and closure costs.

The Security Regulation under the *Quartz Mining Act* sets out the process for, and the criteria to be considered in, determining the amount and the form of financial security for mine reclamation and closure, as well as setting out provisions for periodically reviewing the amount of security.

The Yukon Mine Site Reclamation and Closure Policy – January 2006 (“the Policy”) sets out the vision, goals and implementation principles respecting quartz mine site reclamation and closure. Generally, the Policy provides that the mine operator is responsible for closure planning, progressive reclamation, care and maintenance and final closure of the mine site in accordance with the existing legislative framework and the goals and principles in this policy and accompanying guidelines. The amount of security on deposit is at all times to be commensurate with the outstanding mine site reclamation and closure liability. The liability estimate for security is based on third party costs to implement the approved reclamation and closure plan. Security provided by the mine operator is meant to cover the full amount of outstanding reclamation and closure liability throughout the development, operation and closure of a mine.

The basis of the Policy is that mine operators are responsible to fully fund the work of planning and implementing mine site reclamation and final closure, including temporary closure if necessary. Under the Policy, the reclamation and closure plan must be prepared by the mine owner and submitted for review and approval by the department of Energy, Mines and Resources prior to receiving a Quartz Mining License. The reclamation and closure plan must be updated periodically throughout the operating mine life. As part of the original and subsequent updates of the reclamation and closure plan, the licensee proposes a security estimate that is reviewed by the department,

which then makes a final determination of the required security amount and submits a formal request to the licensee for the security to be provided.

The document entitled “Reclamation and Closure Planning for Quartz Mining Projects – Plan requirements and closure costing guidance” (August 2013) sets out the information requirements for submission of Closure Plans under the Quartz Mining License. This document is intended to provide clarity on the information requirements needed by the Department to review a submitted plan and the related reclamation and closure liability.

The document entitled “Yukon Mine Site Reclamation and Closure Policy - Financial Guidelines – April 2014” provides additional details on the process and acceptable methods for calculating the amount of security and details on the acceptable terms of the various forms of security accepted.

3. History of Security at Wolverine Mine

- ❖ Between 2006 and 2018 the department of Energy, Mines and Resources reviewed seven different reclamation and closure plans (RCP) submitted by Yukon Zinc Corporation.
- ❖ Over this period financial security was increased from \$7.7 million to \$35.5 million with the majority of the increase in financial security occurring between 2016 to 2018 after the company emerged from protection under the federal *Companies' Creditors Arrangement Act*.
- ❖ Wolverine is the first mine since devolution where the operator has failed to provide the security determined by the Government of Yukon.
- ❖ In May 2018, after completing the review of Yukon Zinc Corporation’s latest reclamation and closure plan, the Government of Yukon notified Yukon Zinc Corporation of the increase in security from \$10.7 million to \$35.5 million, and requested payment of the outstanding amount.
- ❖ The company failed to pay the outstanding security and, in September, the Government of Yukon issued an invitational tender for the review of the determination of security for reclamation and closure of the Wolverine Mine.

- ❖ PricewaterhouseCoopers was the successful bidder and submitted their report, entitled *Review of the Determination of Security for Reclamation and Closure of the Wolverine Mine*, in July 2019.

4. Government of Yukon Actions

In fall 2018, the Government of Yukon began taking steps to address emerging water management and water quality issues at the Wolverine mine site. The primary focus was to ensure containment of contaminated water, re-instate environmental monitoring and implement water treatment to lower water levels within the tailings storage facility. To address these concerns and to safeguard stability of the site, the Government of Yukon has undertaken the following actions to date:

- ❖ On October 2, 2018, Compliance, Monitoring and Enforcement issued determinations under both the *Quartz Mining Act* and the *Waters Act* allowing the Government of Yukon to take reasonable measures at the Wolverine mine to prevent, counteract, mitigate and remedy any potential adverse effects on persons, property or the environment at the Wolverine mine.
- ❖ Immediately following issuance of the aforementioned determinations under the *Quartz Mining Act* and the *Waters Act*, the Government of Yukon began implementing urgent works including:
 - Repair of impermeable liners within the tailings facility and sumps to prevent the release of contaminated water to the environment and to improve water storage capacity.
 - Repair and re-instatement of a water conveyance pipeline from the portal to the tailings storage facility to improve overall water management at the site.
 - Implementation of a site-wide environmental monitoring program, including aquatic effects monitoring (water quality results from this program are publically available through the Yukon Water Board's website).
 - Completion of a safety inspection of the tailings facility dam and other earth structures.

- Procurement, commissioning and operation of a reverse osmosis treatment system to treat and discharge water within the tailings storage facility. Discharge of treated effluent commenced in late September 2019 and continued until the end of October 2019. Approximately 15,000 cubic metres of treated water was discharged from the tailings facility in 2019. Treatment will resume in spring 2020 to continue to lower water levels in the facility.
 - Implementation of a portal water treatment system to allow portal water to be treated and discharged to the environment, rather than being redirected to the tailings storage facility. Currently, portal water is the largest contributing factor to rising levels within the facility. The efficacy of the portal treatment system was verified through these efforts and will be operated during winter months upon shutdown of the tailings facility water treatment plant.
 - Provision of logistical services to support water management efforts at the site.
 - Retention of engineering support services to ensure technical performance and overall due diligence.
- ❖ The Government of Yukon promoted economic benefit to First Nations and Yukon businesses while undertaking urgent works at the Wolverine mine site. Dena Cho Environmental and Remediation Inc. (a subsidiary of Dena Nezzidi, Ross River Dena Council's development corporation) was contracted to commission the underground portal water treatment system and to carry out environmental monitoring of surface and groundwater at the site. Most recently, Yukon Government contracted Dena Nezzidi Development Corporation, partnering with Alexco Environmental Group, to implement the tailings storage facility water treatment program.
 - ❖ On September 13, 2019, PricewaterhouseCoopers was appointed receiver by order of the Supreme Court of Yukon.
 - ❖ The Receiver has assumed ongoing care and maintenance at the mine site and is working with the Yukon government to continue to address urgent works.

- ❖ The Receiver will develop, with input from the Yukon government, a sales and marketing plan for Yukon Zinc's assets including the Wolverine mine for approval by the court before the end of the year.

