

Freshet and snowmelt water management solutions.

Freshets occur when the spring thaw sets in. Melting snow and ice results in excess groundwater, impacting operations and preventing ongoing production.

HOUSTON, TEXAS, UNITED STATES, March 29, 2023 /EINPresswire.com/ -- Rising temperatures and seasonal changes bring risks and challenges to mining, industrial, oil and gas and power generation industries. Freshets start to occur when the spring thaw



sets in due to rising temperatures, melting snow and ice, resulting in excess groundwater. The impact of freshets can increase in severity when combined with heavy rainfall or extreme snow dumps. Potential impacts include onsite infrastructure, roads, [Tailings Storage Facilities](#) (TSF) and

waste storage areas. As a result, operations may cease production, and infrastructure can fail, leading to significant environmental and safety impacts.

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Minetek has successfully provided many world-class evaporation system solutions for clients in colder, northern-climate locations.”

*Duane Thompson - Head
Minetek Water*

Freshets & snowmelt operational impacts.

Early summer and spring are particularly challenging for industrial operations and mining industries. As snow and ice start to melt, freshets occur, leading to unfavourable conditions for ongoing production. Snowmelt runoff can impact mining operations, leading to onsite flooding and waterlogging. This dangerous scenario poses risks but,

more importantly, hinders progress and production. This forces mining and industrial operators to shift their focus away from production and towards [emergency water management](#) solutions. A temporary shutdown may be imminent without an effective mitigation and water management strategy.

Sibanye-Stillwater’s uranium and gold mines in Montana have been an economic force; however, in 2022, they faced a devastating flood event. On-site flooding at the Sibayne-Stillwater mine was triggered by the warm weather, with freshets forming due to rapid snow and ice melts. Excess

rainfall further intensified flooding, which exacerbated the situation creating substantial damage. The sheer scale of flooding resulted in the temporary suspension of operations and production. The impact was so severe that revenue losses were felt several months later, and significant repair and recovery efforts were required to restore operations and production to capacity.



The second quarter of 2022 was particularly challenging for Minto Gold Mine in Yukon, [Canada](#). They experienced on-site flooding from freshets with excess water derived from snow, and ice melts, impacting operations [1]. Snowfall in the region was 150% - 400% higher than usual, with operations suspended over four-and-a-half weeks, costing Minto Metals



Corp millions [2]. Over a three-month period, Minto Mine recorded a record loss of \$9.5 million CAD, adjusting the EBITDA from a profit of \$8.72 million CAD to a loss of \$941,000 CAD [3]. Minto Gold Mine has since implemented a robust water management plan to combat future snow melts and freshets utilising Minetek's innovative evaporation technology.

North American regions impacted by freshet snow melts.

Canada: British Columbia, Yukon, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, Northwest Territories, Nunavut, Newfoundland and Labrador

USA: Nevada, Idaho, Utah, Colorado, Alaska, Wyoming, Montana, Washington State, North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Ohio, Kentucky, Tennessee, Missouri, West Virginia

Mining, oil and gas, industrial and energy industries in northern climates such as Canada and America must be prepared and well-equipped for the unique challenges of snowmelts. As spring freshets and snow accumulated within the tailing's footprint area begin to melt, the resultant water must either be discharged or contained within the TSF. During these short and intense periods, the daily water inflow exceeds the discharge capacity of a mine, leading to the rise of water levels in TSFs.

TSFs and water storage facilities are pushed to their limits during spring, and impoundment areas may reach the maximum allowable water level. Without an effective water management plan and mitigation strategy, operations may be forced to halt production temporarily. Increased pressure on TSF could have catastrophic consequences if water levels exceed capacity and release toxic or caustic water into the environment.

Water management strategies & solutions.

Prepare for freshets and increased water inflow by implementing an effective water management plan and vigilant monitoring of changes in environmental conditions [6]. Mines in high-risk locations should assess their water management plans regularly; personnel must be aware of their roles and responsibilities, and resources required to implement an emergency response plan must be available.

Operations in high snowfall regions require efficient and effective solutions to mitigate the safety, environmental, and commercial risks of freshet snow and ice melts. A water evaporation system is an excellent solution designed to remove excess water, reduce dam water levels, and ensure compliance with global standards. Minetek provides a specialised Water Evaporation System serving as a cost-effective solution for mine operations across North America.

Minetek's innovative Water Evaporation Technology embodies advanced fan engineering and airflow principles, engineered and designed to evaporate wastewater efficiently, cost-effectively, and sustainably. Our units can evaporate water ranging from pH 2.2 to pH 12, including acid, caustic, and high TDS and TSS. Minetek Evaporators can evaporate, on average, 50% of the volume pumped through the evaporator system. These robust capabilities allow our customers to maximise performance and efficiency when using our equipment. Our patented nozzles are designed and engineered to process large solids up to 4.0mm in diameter, enabling longer life cycles and consistent performance. For mine sites with limited access, we offer floating wastewater evaporators with the same capabilities as the land-based system with a floating pontoon application.

Minetek has successfully completed over 500 projects in 25 countries worldwide. Our floating and land-based units are optimal for managing excess water derived from freshets and snow melts. Contact Minetek if you want an effective and environmentally friendly way to dispose of excess water from fresher snowmelts. <https://minetek.com/contact-us/>

Resources:

1. Mining Journal - <https://www.mining-journal.com/pgms/news/1434114/flooding-hits-sibanye-stillwaters-us-operations>
2. Mining Journal - <https://www.mining-journal.com/commodities/news/1438297/freshet-takes-spring-out-of-minto>

3. Mining Weekly - <https://www.miningweekly.com/article/spring-freshet-impacts-on-minto-2022-08-24>

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