



Gold Mining Project Profile

Nitrite Removal

Ozone Oxidation

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Confidential Gold Mining Client

Nitrite Removal - Ozone Oxidation

BACKGROUND:

ClearBakk was approached by major Gold Mining Client in British Columbia to help in treating their construction offspec water to a level that will be environmentally acceptable and meet the discharge quality criteria. The Project is on top of a glacier in BC which was close to the client's mining operations.



ClearBakk received the water analysis and the BC environmental regulator report and with the assistance of a specialized lab, conducted tests and trials to be able to design a water treatment system that could handle the wide range of flows and would be adequate for high spikes in concentrations.

CHALLENGES:

The client was experiencing a wide range of flow rates of high Nitrite construction waste water. They needed a system that was able to handle the wide range for flow rates and the non-consistent high nitrite concentration.

The Nitrite concentration was higher than the allowable discharge limitations to a surface water stream.

Due to the project location (Mountain Glacier), no chemicals or consumables could be used.

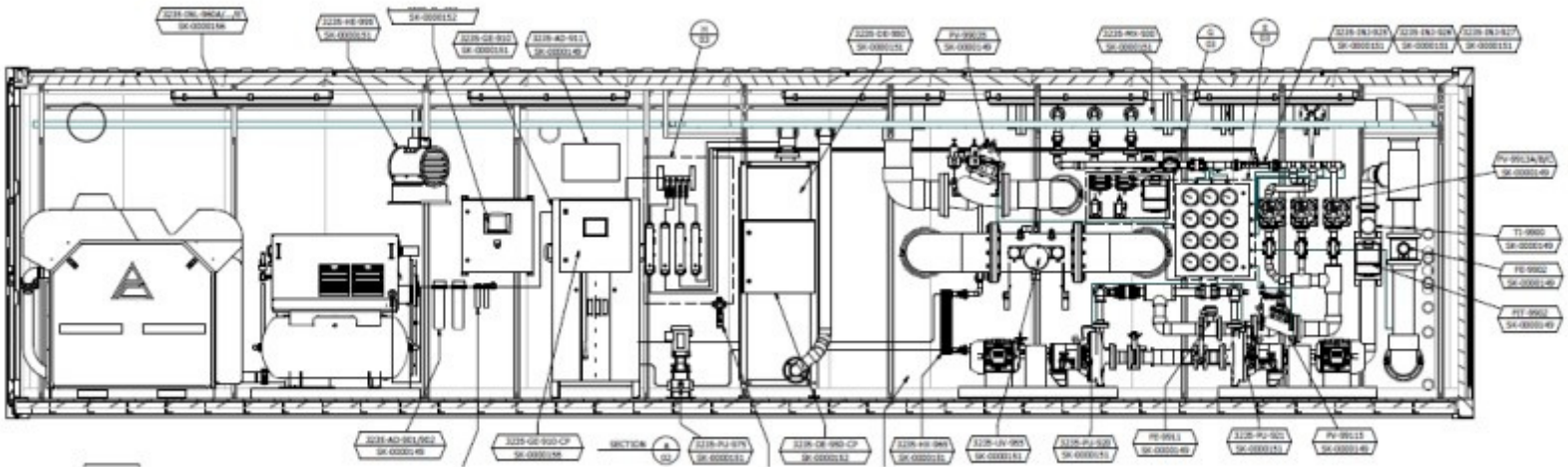
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SOLUTIONS:

Ozonation was selected to handle the high Nitrites concentration in this wide range of flow rates.

Nitrites were oxidized to form Nitrates that meet regulations.

Ozone Generation at site eliminated the need to fly-in oxidation chemicals and avoid using large real estate needed for conventional oxygen aeration in such a challenging location.



SUMMARY:

A Full scale system was design with the following criteria:

- Inlet Flow Rate: 480 to 6,000 m³ /day
- Overall system recovery: 100%
- Building Size: 1 x 53' ISO HC container



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SYSTEM OVERVIEW:

Waste Steam Characteristics from Sites:



Influent:

- Range of Flow rates: **20 m³/hr to 250 m³/hr**
- Range of Influent Nitrites: **0.9 mg/L to 1.2 mg/L**



Effluent Target to Meet Regulations:

- Nitrites **<0.6 mg/L**

Treatment Achieved:

- Exceeded the allowable targets with continuous concentration of less than **0.1 mg/L**

