



## Barrick Gold's PAX System



### THE CLIENT

Barrick Gold Corporation is a mining company headquartered in Toronto, Ontario, that operates sixteen gold and copper mines in thirteen different countries around the world.

Their Pueblo Viejo mine in the Dominican Republic is the largest gold mine in the Americas and the third largest in the world.

### THE PROBLEM

Barrick Gold came to us with a problem. They needed a new PAX System designed and installed at the Pueblo Viejo mine. We understood that Potassium Amyl Xanthate (PAX) was an extremely toxic chemical used in mining to separate ores.

For Mainland, the biggest challenges on this project were:

- The distance between Barrick's mine in the Dominican Republic and our manufacturing facility in Canada, which required a high level of trust and very careful communication.
- The danger of the substances that this system would mix and carry, which required strict attention to detail to ensure the highest health and safety standards.

Barrick Gold not only wanted an updated mixing system, but one that would be easier to monitor and maintain in the future.

# QUALITY SOLUTIONS YOU CAN COUNT ON



Mainland Machinery prides ourselves on our ability to not only build top quality steel fabrication, but also on our ability to build strong, long-lasting, relationships with all of our customers. Regardless of scale or complexity, we work hand in hand with our customers to help them achieve their goals.

## THE SOLUTION

To address these challenges and concerns, Mainland designed a large-capacity ZChemGear™ mixing and dosing system, which included the following components:

- mixing tank with agitator
- transfer pump
- solution storage tank
- dosing pump
- exhaust fan
- auxiliary equipment and instruments
- local dedicated PLC with HMI

The system features a 2400-gallon (9.1 m<sup>3</sup>) tank with live xanthate mixing capability for 10-30% solution concentrations.

Solutions are transferred to a day tank of 3000 gallons (11.4 m<sup>3</sup>), from which feed pumps deliver solution to the process. In addition, the supporting structure included a monorail, hoist, stairs, and platforms.

After the system was manufactured at Mainland's facility in Abbotsford, BC, all dismantled sub-assemblies were fitted into standard 40' containers and delivered to the Dominican Republic.

Mainland sent a qualified Mechanical Engineer to the mine to oversee the installation of the system, to provide technical supervision, and to conduct the necessary inspections.





## THE SOLUTION (cont.)

Due to potential hazards of the PAX System, special attention was paid to the following design elements:

- Mixer, pumps, piping, and valves optimally designed for trouble free performance
- Venting as one unit to control CS<sub>2</sub> emissions (which are a known neurological hazard generated by constant xanthate solution breakdown)
- System captures fugitive xanthate dust when dumping
- Collected vent gases scrubbed with carbon for enhanced CS<sub>2</sub> and organic safety
- All motors NEMA 4x rated
- Motorized supersack hoist for placement on bag breaker and dumping into hopper
- Mix tank recirculation-solution transfer to day tank pump
- Full tank level monitoring
- Tanks and system components are highly accessible

## THE OUTCOME

In the end, Barrick Gold was very happy with the new system, and Mainland Machinery was very pleased to provide another rigorously designed product that was built not only to meet code requirements but to maximize health and safety conditions.

# NOTES

*Quality solutions you can count on.*

