

# CYANIDE SUCCESS IN GOLD MINING !

## BACKGROUND

Gold is typically extracted from ores using a complex method called leaching. This involves dissolving the ore in a complexant, usually cyanide, creating a slurry. However, cyanide is considered dangerous even at very low levels (100ppm is considered lethal for skin exposure and 200ppm for oral ingestion). In leaching, cyanide levels can be anywhere from 300 to 1500ppm. At Polus Gold Mine in central Siberia, an operator does a cyanide analysis on the slurry once every several hours. This puts the operator in constant danger of cyanide poisoning.

## ANALYZER SETUP

An Advanced OMNIChem was setup to handle 6 slurry tanks at Polus. It was equipped with a sampling system designed so robust that it can handle the high particle content (50% solids) and fine particle size (<50 micron) of the slurry. The Advanced OMNIChem analyzer utilized our proprietary "self-cleaning" sample valve; its innovative design allows very dirty



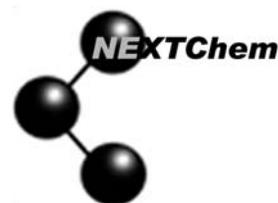
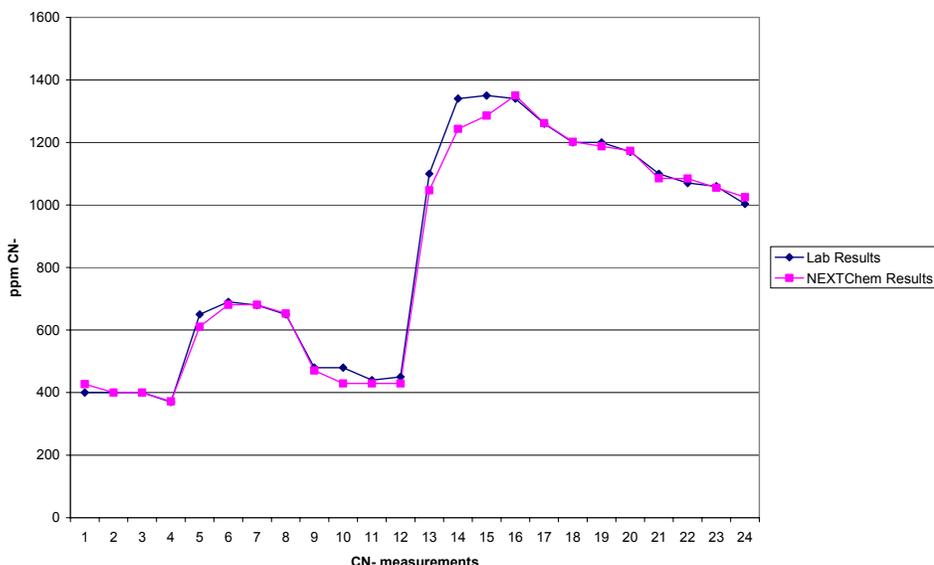
samples to be collected without the sample tubing becoming blocked. The analyzer already comes with a self cleaning step after each analysis. However at the customer's request, a much more rigorous cleaning cycle (designed by the customer) was utilized to ensure the sample lines and will not be plugged. Also at the request of the customer was the ability for the analyzer to recognize which tanks are not in operation. The analyzer can continue to analyze the other tanks despite one point being down. With this feature the operator can take a tank offline without worrying the analyzer would produce inaccurate results. The dilution capability allows the analyzer to

measure the high concentration cyanide with great accuracy very closely following the lab results (see graph). The results were sent to their control room PLC via a Modbus connection. This allows for more than just results to be conveyed to the control room. In addition to receiving concentration data for the 6 tanks, they also have access to all analyzer alarms and valve states.

## ADVANTAGES

- 1) Lab Accuracy On-line
- 2) Reliable Analyzer On-line
- 3) Complete Detail of Analyzer Status
- 4) Compete Gold Extraction
- 5) Minimizes Cyanide Exposure

Cyanide Results



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