

MINE WASTE CONFERENCE 2011

Drumlummon Mine A NEW DAY

Presented by: Joe Bardswich, P.Eng.

- **Owner Operator – Drumlummon Gold Corp.**
a subsidiary of Rx Exploration
- **Consulting Engineer – CDM**



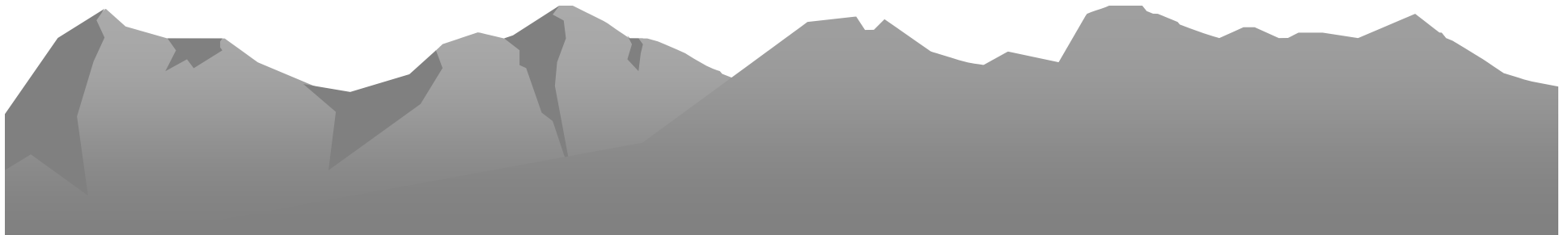
Mining at the Drumlummon Started in 1876

- Tommy Cruse discovered the Mother Lode in 1876 after working a placer claim in Silver Creek
- He named the mining camp Marysville after the first female resident, Mary Ralston
- He named the mine after the Parish in Ireland where he was born



The Drumlummon Mine was one of the Richest Gold Mines in the West

- In almost no time, Cruse had made hundreds of thousands of dollars on the claim
- Miners flocked to Marysville in 1884
- Cruse sold the mine to an English Company for \$ 1M and \$1/2 M in stock
- The new company built a 110 stamp mill



Hundreds of Miners Came in Search of Riches

- 12 mines sprung up in the area
- It has been estimated that more than \$50M in gold was mined from the district
- Most of the gold was at \$20.67



The City Market in Marysville, 1889

- About 1890 Marysville was reported to have 60 businesses including:
 - 27 Saloons
 - 7 Hotels
 - 3 Newspapers
 - 2 doctors
 - 1 school house for 250 kids



Drumlummon Gold Helped Build the Cathedral and Carroll College

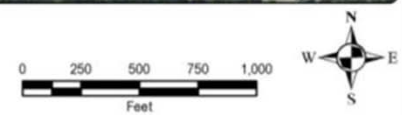
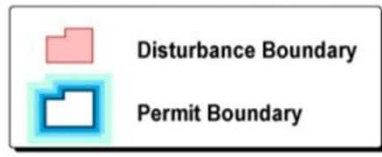


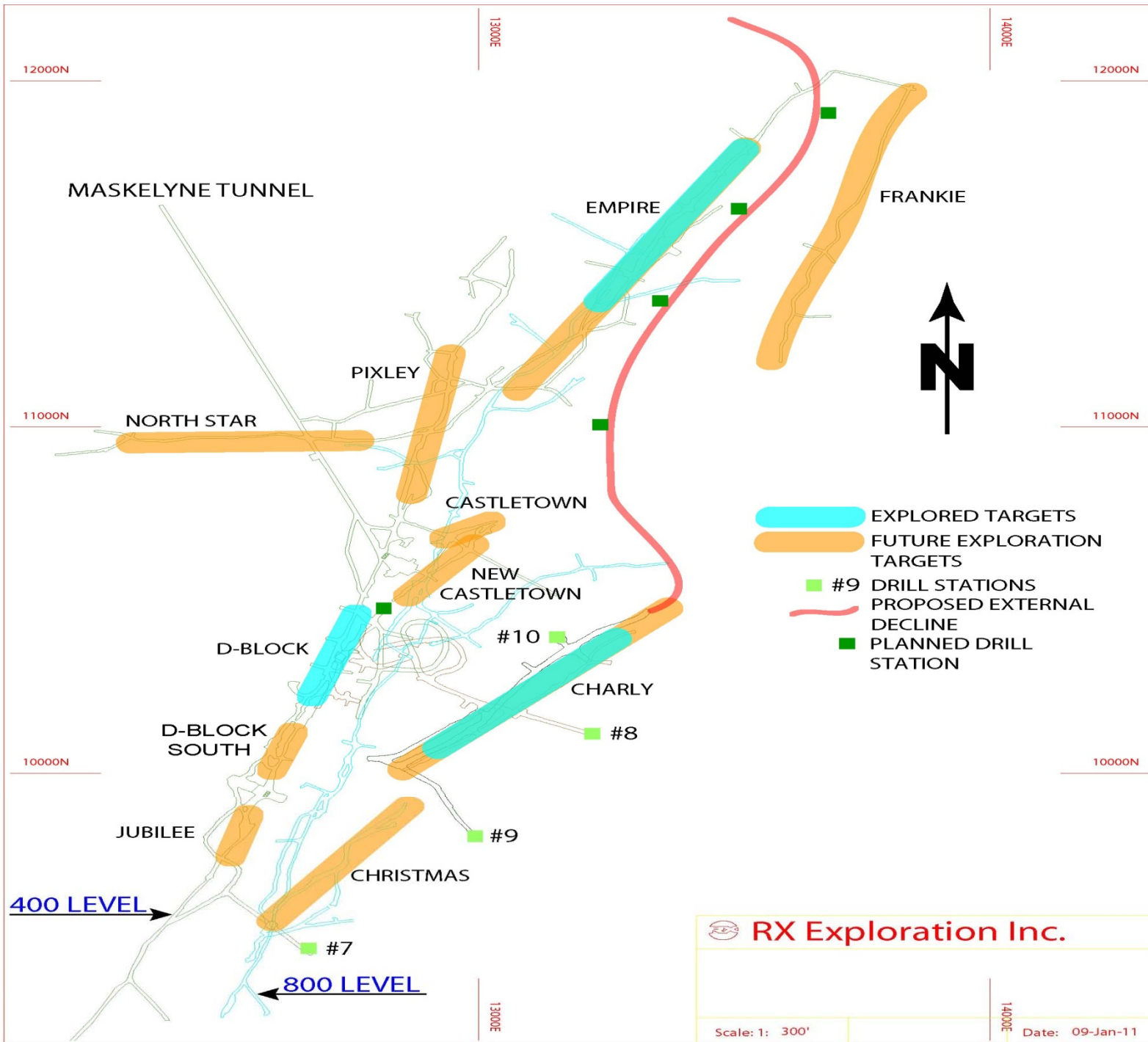
Drumlummon Gold Site Map

(proposed permit boundary)



Figure ____
Permit and Disturbance Boundaries
Drumlummon Mine Site
Marysville, MT





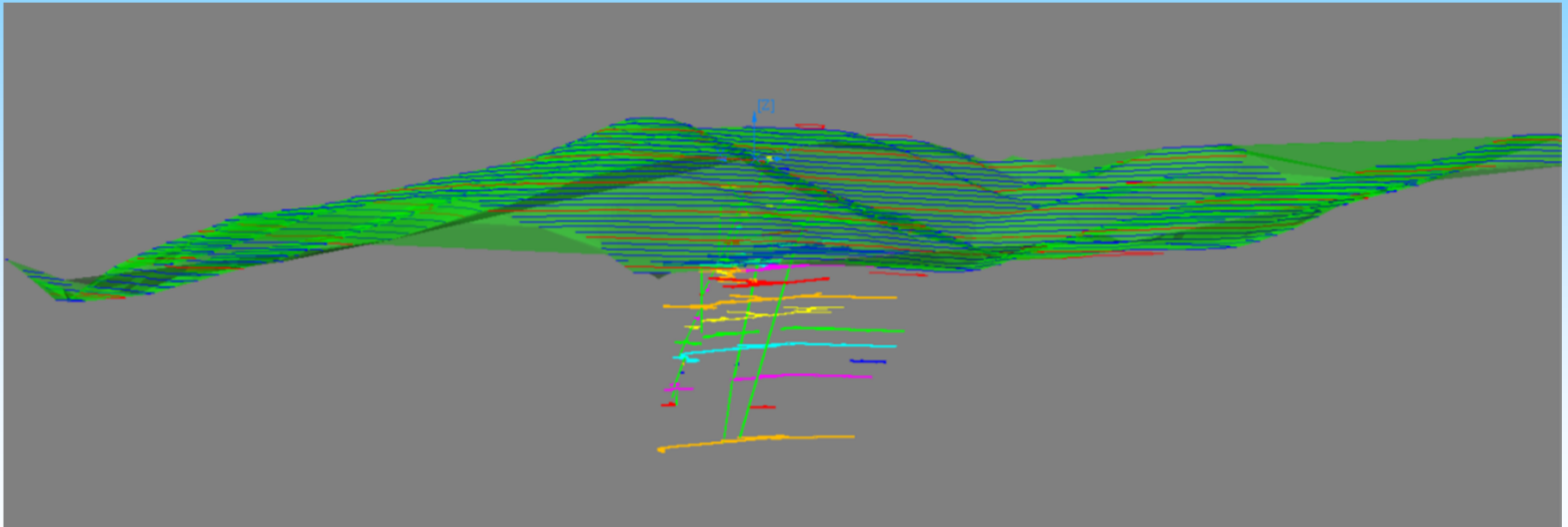
RX Exploration Inc.

Scale: 1: 300'

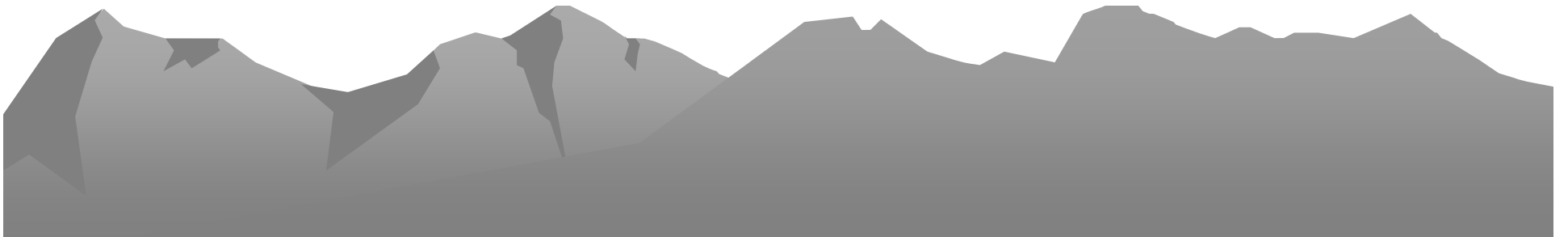
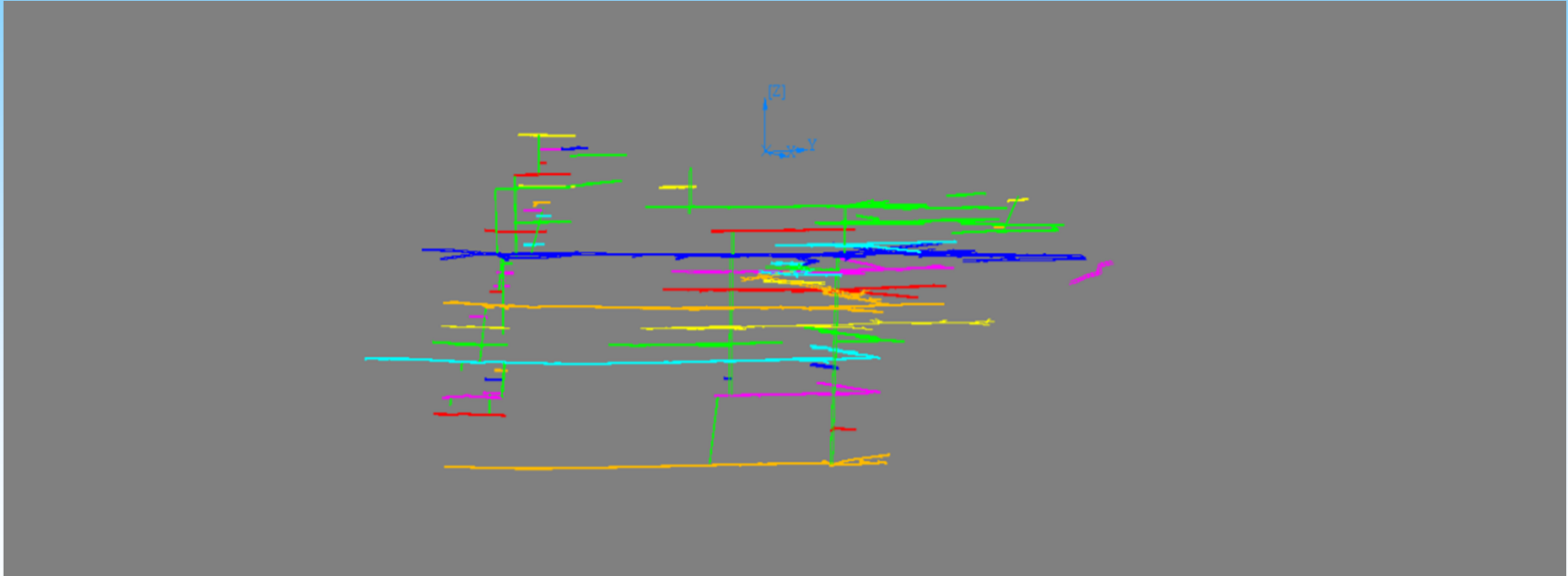
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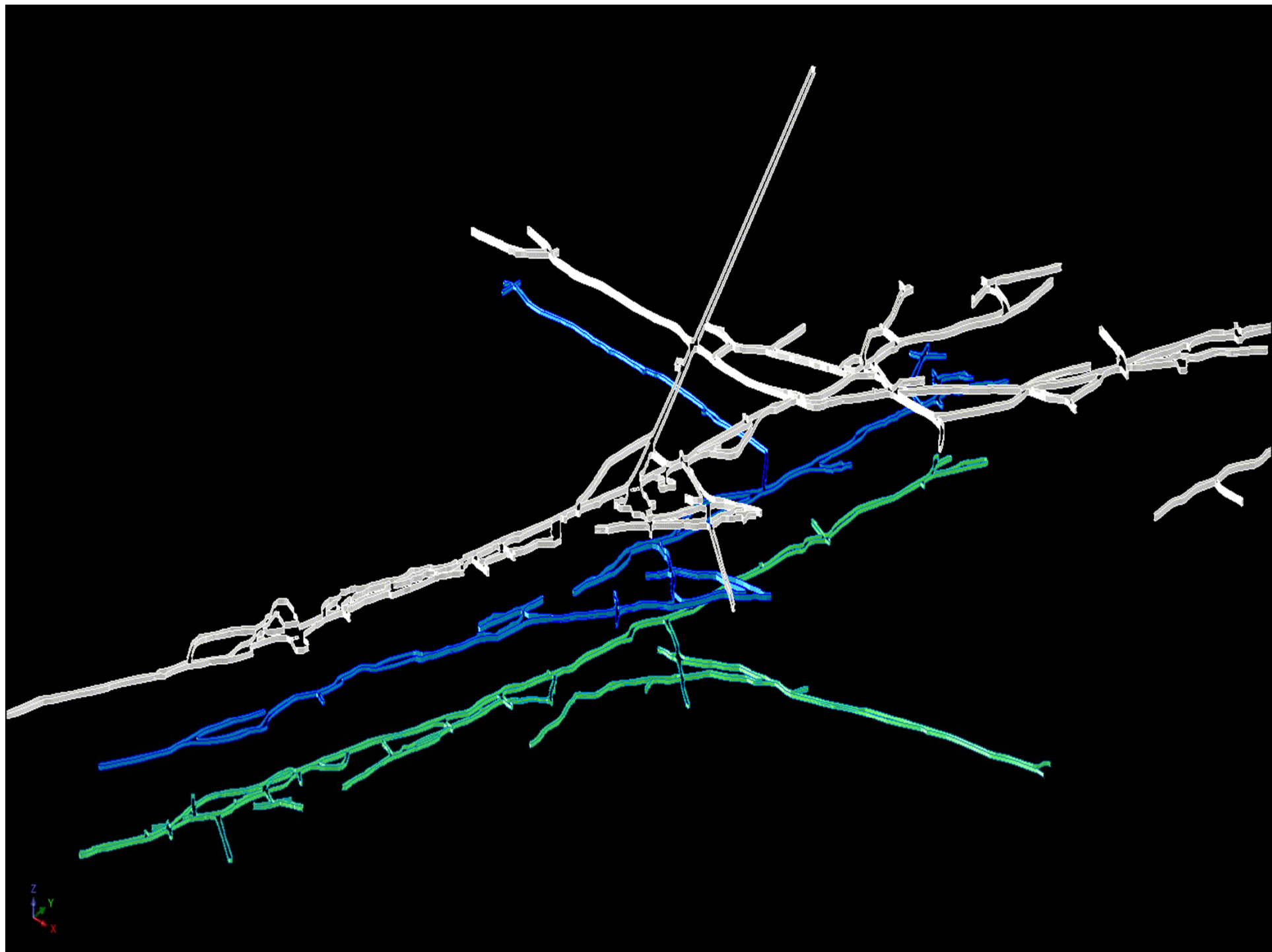
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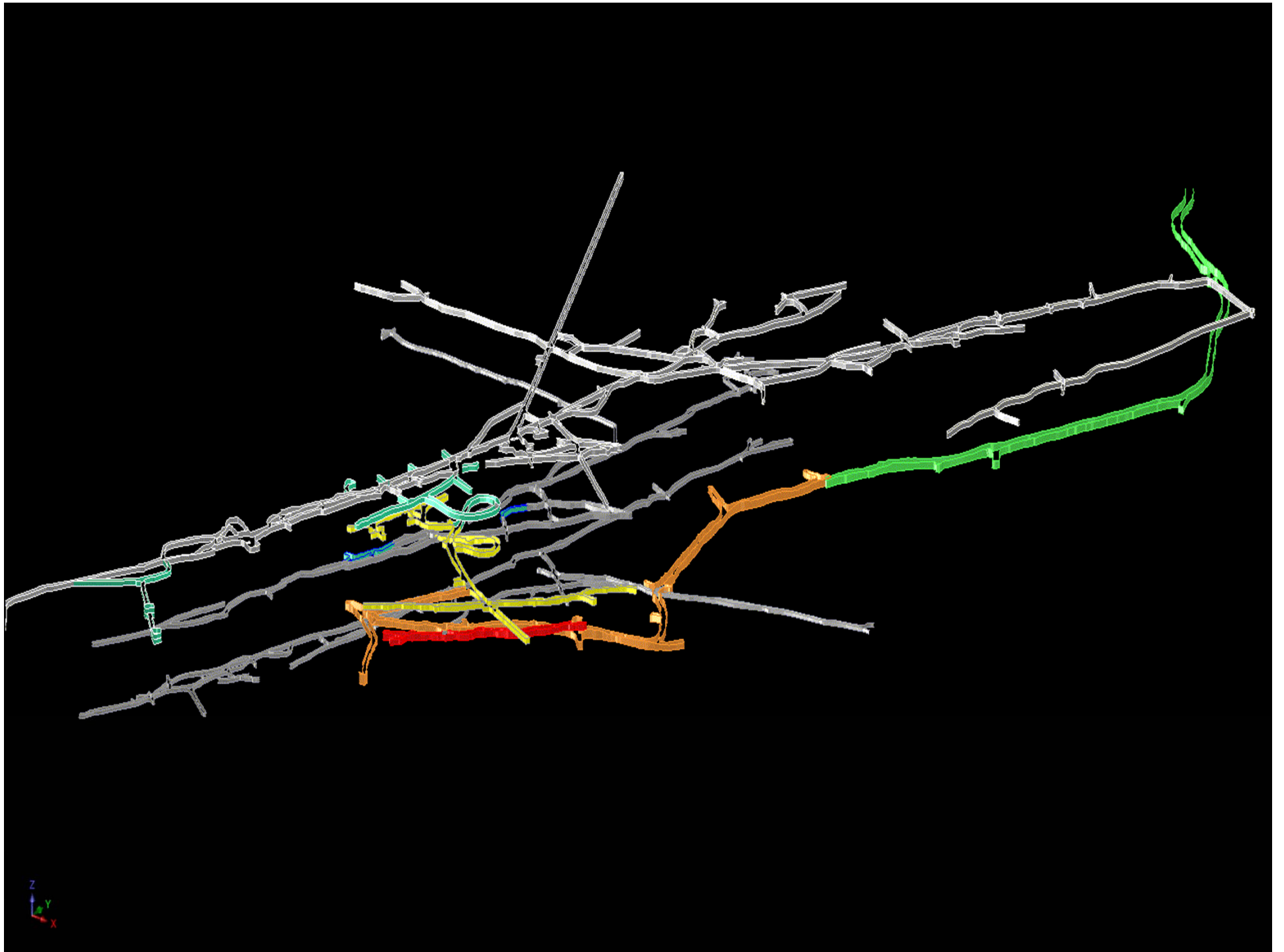
Drumlummon Gold Mine Workings Location



Drumlummon Gold Mine Workings







Drumlummon Gold Mine Workings





Objectives

- Provide a safe and healthy work place
- Maximize ounces of gold produced
- Minimize waste rock excavated
- Minimize cost per ounce
- Minimize Capex, lead time to production
- Result is to maximize profit and return to shareholders

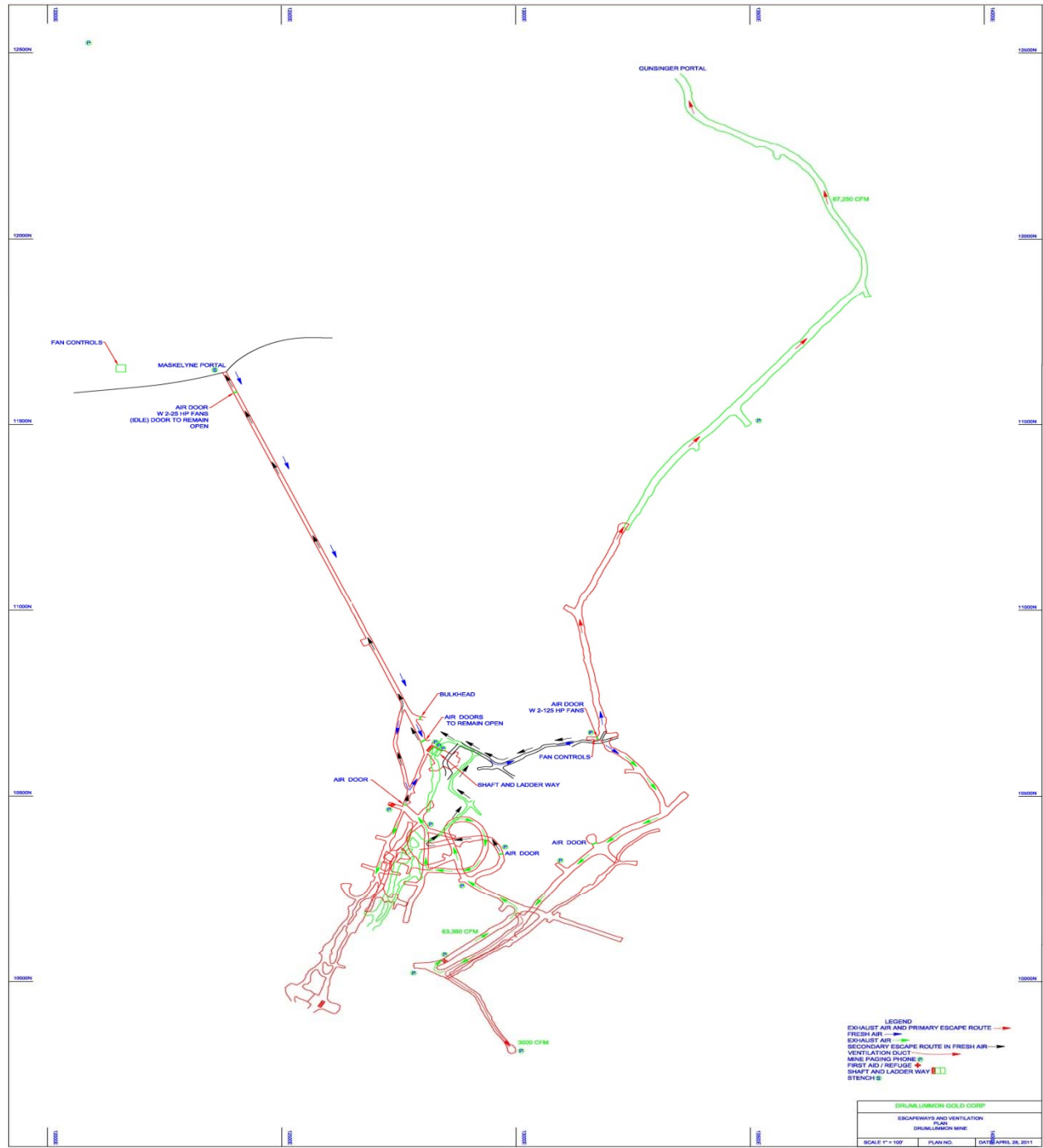


Safety

- Size and shape the excavations to enhance the self-supporting characteristics of the rock
- Provide ground support such as rock bolts, screen, shotcrete and timber where necessary
- Provide sufficient ventilation for men and equipment and evacuation of noxious gases



- Design roadways to meet safe equipment operating conditions
- Control water inflow
- Meet MSHA requirements
- “An unsafe mine is an unprofitable mine”

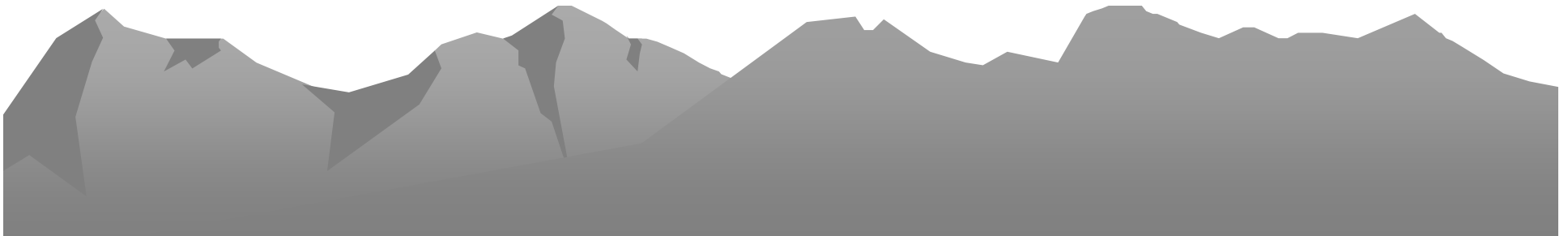


Drumlummon Mine Drilling with the Jumbo



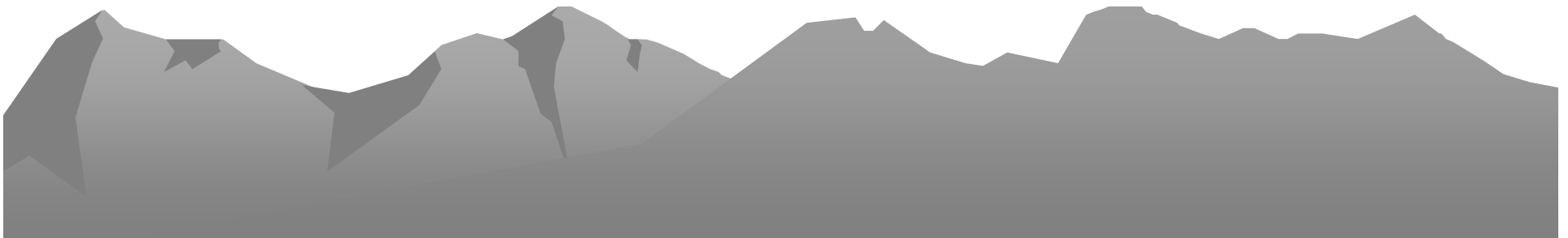
Maximizing Ounces Produced

- Goal should be 100% extraction of the ore to maximize the ounces produced
- Ore is mineralized material that can be mined at a profit so the design must be flexible enough to allow the mining of all the ore and recognize when mineralized material is no longer ore
- Pillars in ore will reduce extraction percentage
- Loss of mineral values in fines has to be minimized to maximize the ounces produced



Minimizing Waste Rock

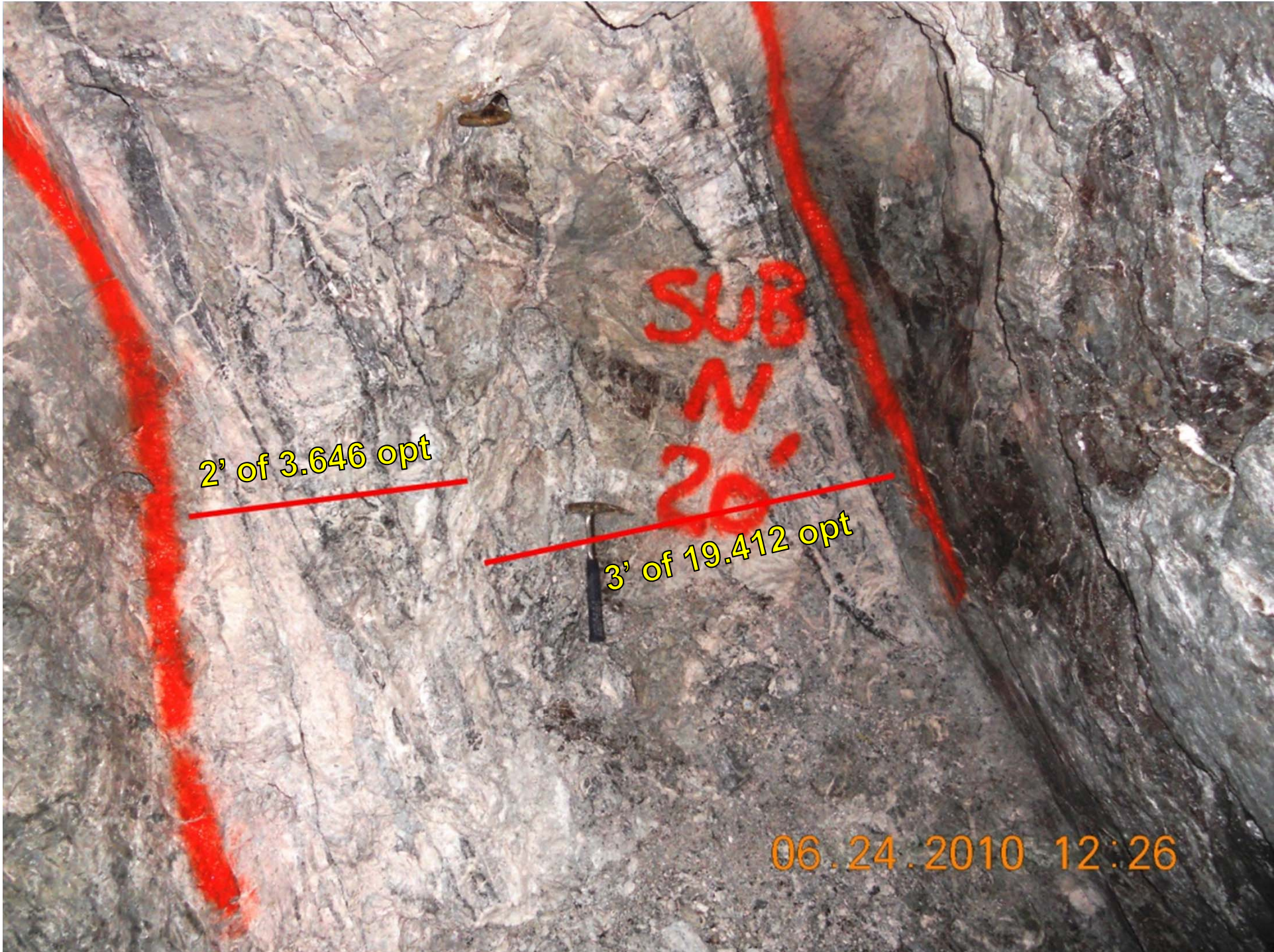
- Shorten development headings where possible
- Minimize dilution of ore with waste rock from over-blasting
- Lay-out drill patterns properly and use proper explosives loads
- Aim to eliminate spalling of walls, wall or back failure
- Enhance the ability of miners to differentiate between ore and waste



Minimize Cost Per Ounce

- Avoid dilution. Every ton of dilution has to be hauled to surface and to the mill, for crushing and milling
- Maximize mechanization
- Minimize re-handling of ore and waste
- “Smooth” operations minimize costs
- Provision of multiple headings lowers costs
- Higher the grade, the lower the cost per ounce





2' of 3.646 opt

3' of 19.412 opt

SUB
N
20'

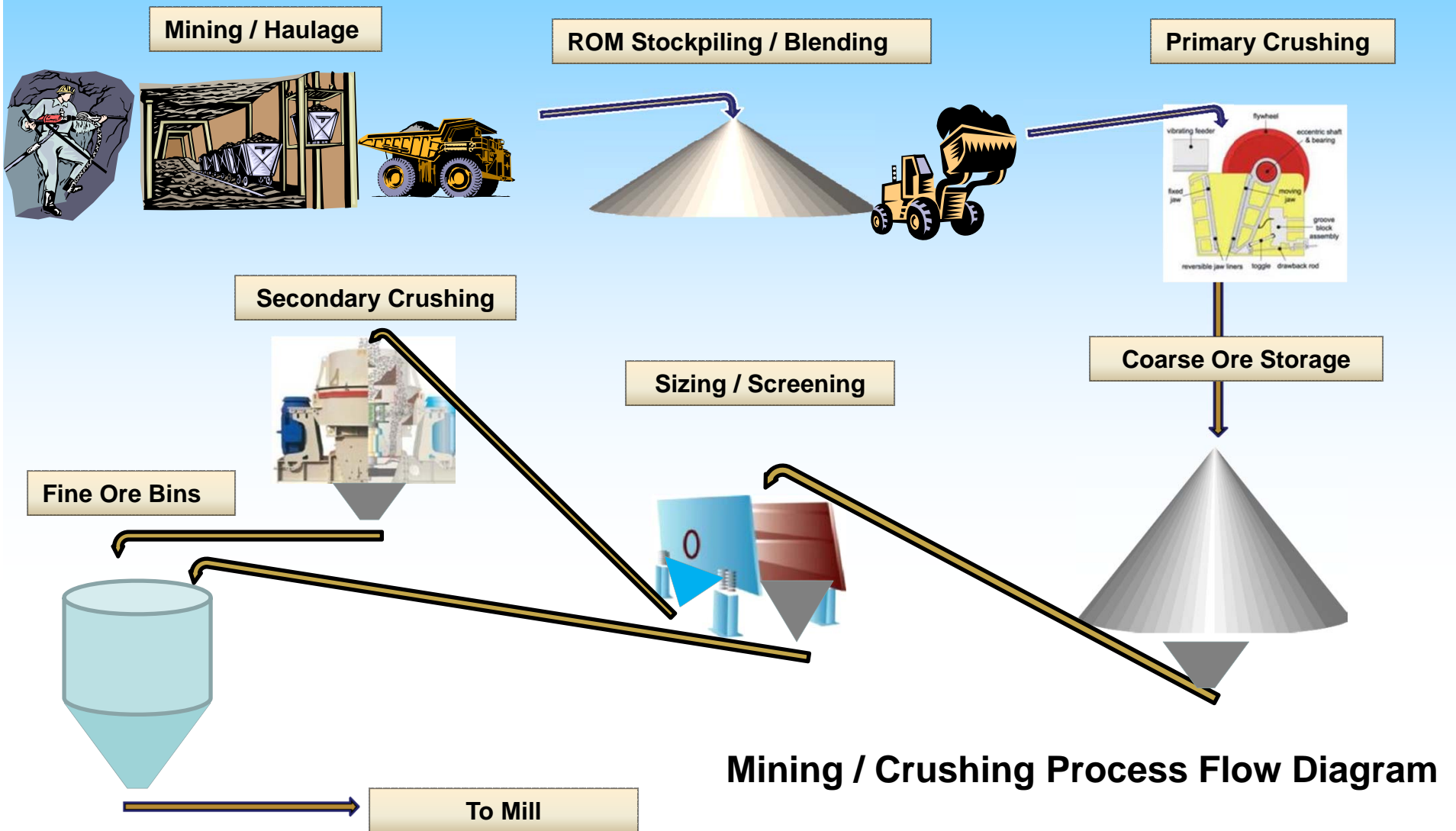
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Minimizing Capex

- Minimize the overall development requirements
- Achieve ore production as early as possible, start mining the upper level ore while lower level development is on-going
- Use contractors and/or rental equipment

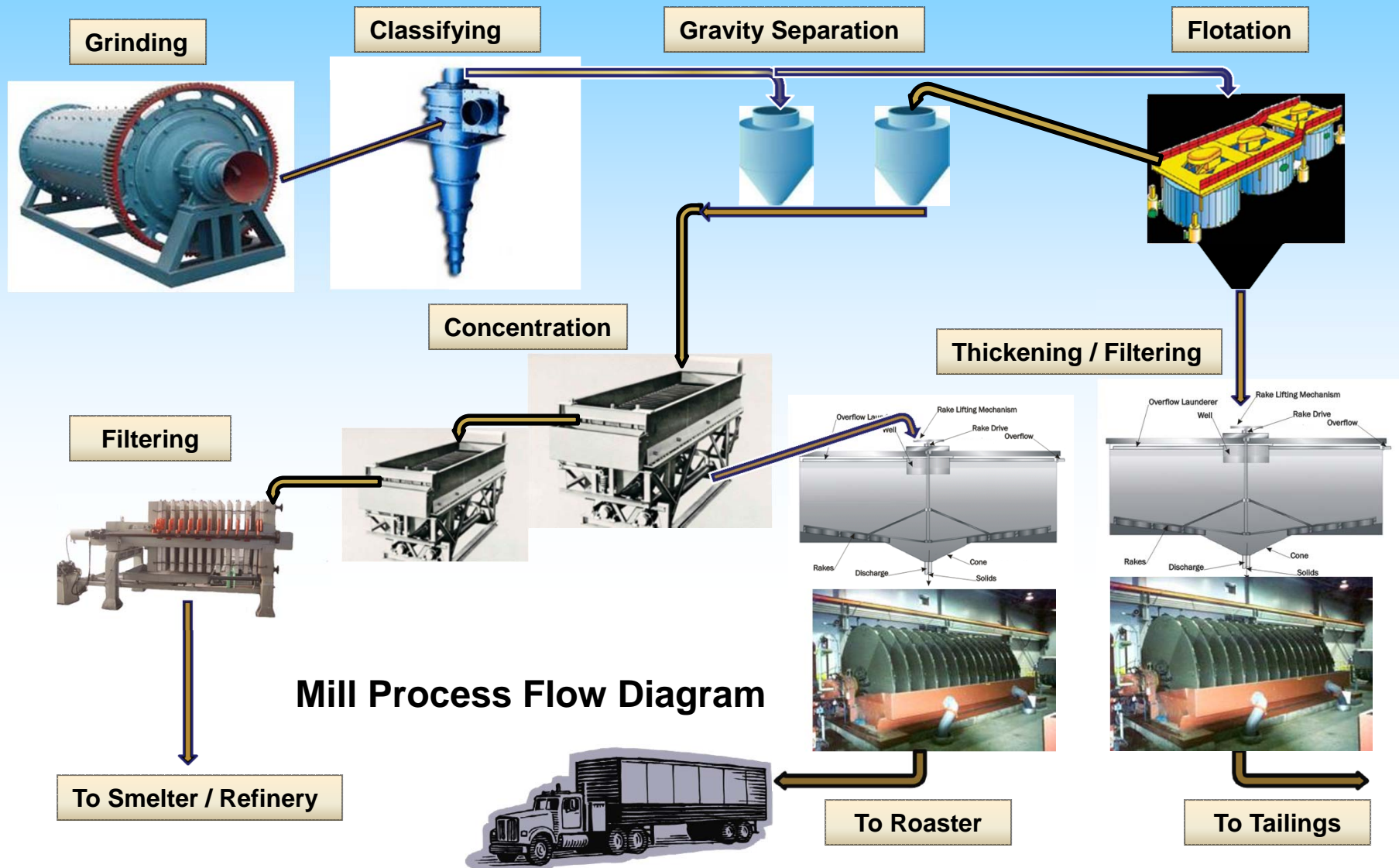


Engineering – Mill Design and Metallurgy

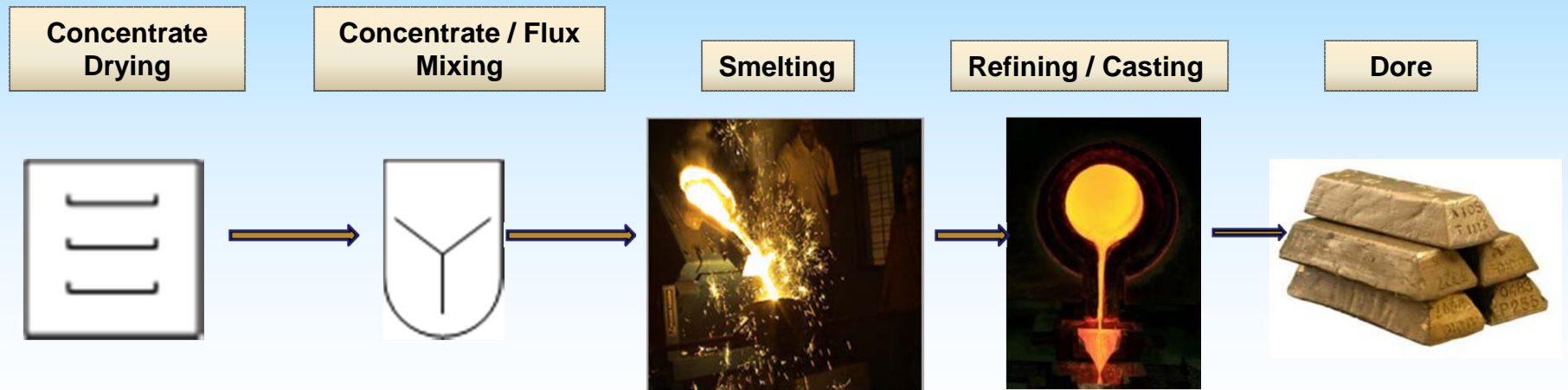


Mining / Crushing Process Flow Diagram

Engineering – Mill Design and Metallurgy



Engineering – Mill Design and Metallurgy



Smelter Process Flow Diagram



Questions?

Q&A

