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.
Drumulummon Gold Site Map
(proposed permit boundary)
Drummond 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
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

- Concentrate Drying
- Concentrate / Flux Mixing
- Smelting
- Refining / Casting
- Dore

Smelter Process Flow Diagram
Questions?