

Independent Environmental Monitoring Agency

Waste Rock



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January 18, 2018

What is Waste Rock?





Why is it Important?

Long term landform on the Landscape – closure implications

Largest landscape disturbance from the Mine site

Interacts with Water, Air, Wildlife and Plants

Ekati Mine July 2017

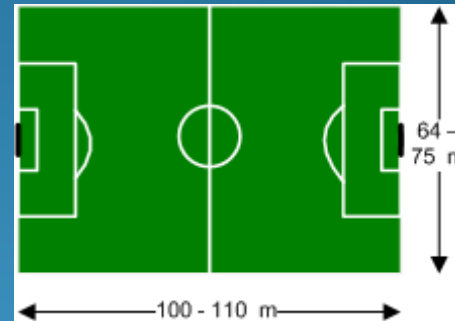
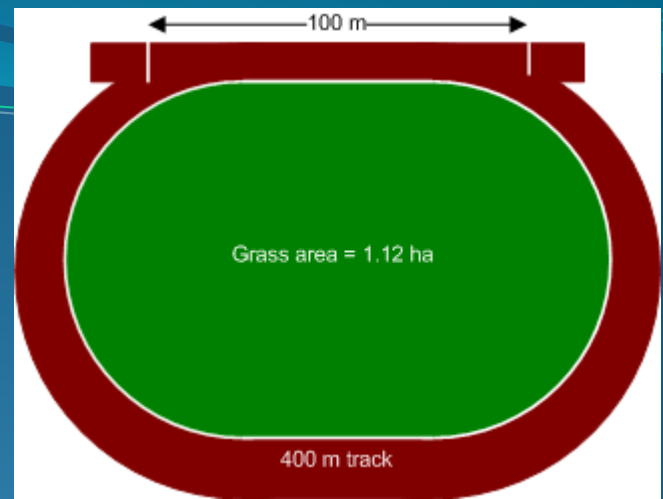
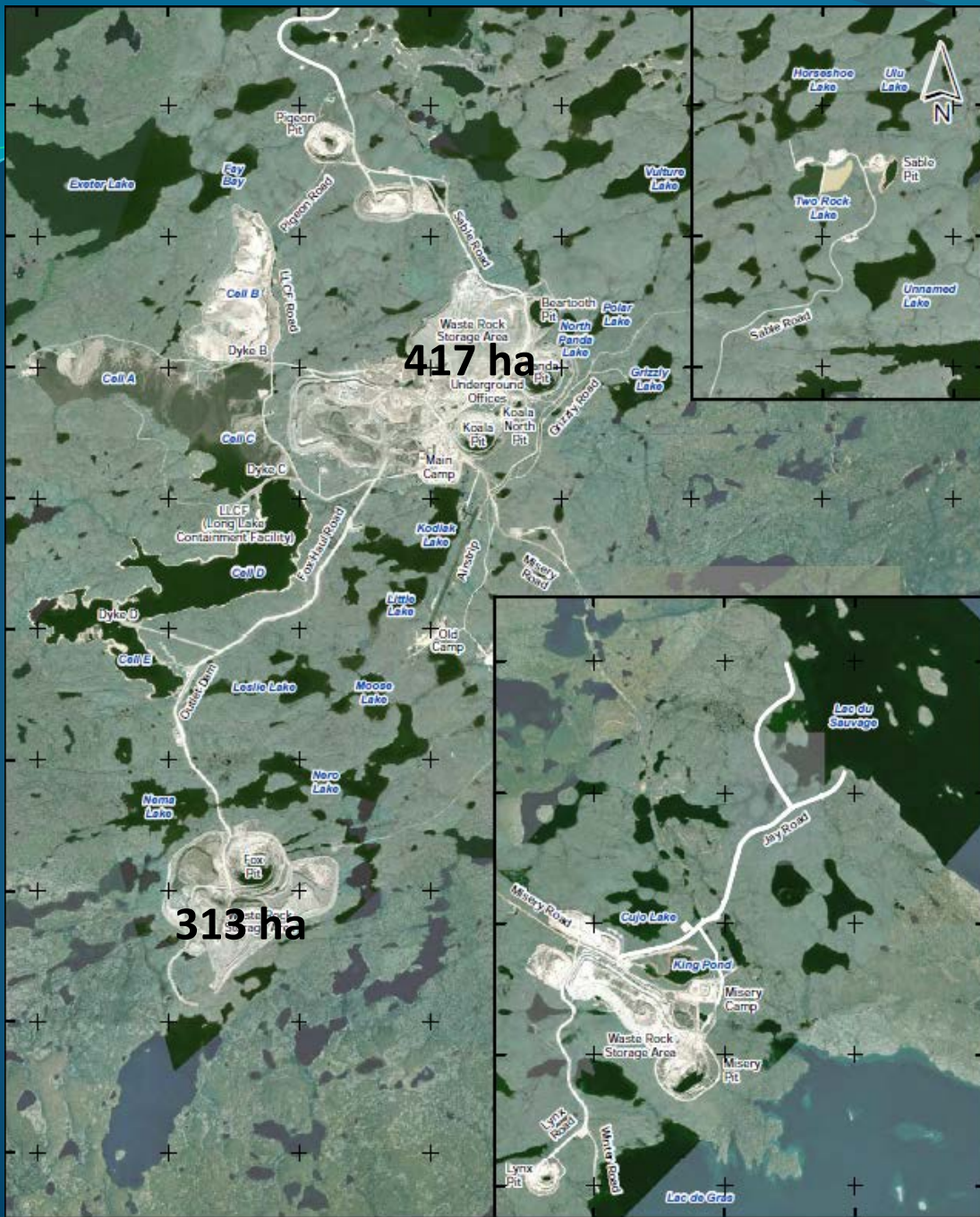


Waste Rock Pile	Total Area ha
Fox	313
Misery	110
CKRSA	97
Pand/Koala/ Beartooth	417
Pigeon	66
Lynx	35
Total	1038 (10.4 km²)
Sable	130
Jay	219
Total	1387 (14 km²)

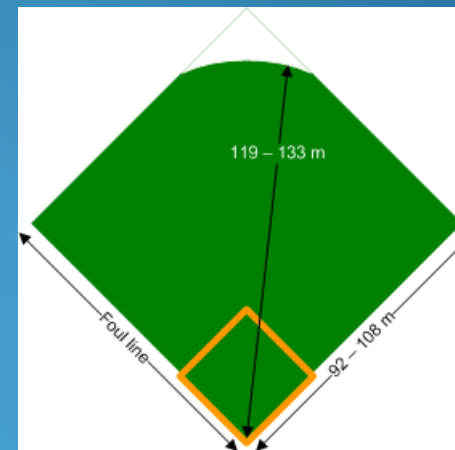
Source: Closure ERA- Water Quality Model
Jay WL Application – Appendix F

Current Mine Footprint: 35 km²
Total length of roads – 136 km

Figure 2.1 – WROMP 7.0



0.62 to 0.82 ha
(500 Panda WRSA)



0.83 to 1.12
(417 Panda WRSA)

Waste Rock vs Tailings or Processed Kimberlite



Types of Waste Rock at Ekati Mine

Granite

Kimberlite Rejects

Metasediment

Diabase

Schist

Granite



Kimberlite



Metasediment



Diabase



Schist





Photograph 41 (top) and 42 (bottom). Mine rock, tailings, and overburden are composed of many grains of various minerals. Each mineral grain can react at different rates and to different extents.

The Big Question?

What effect will these Waste Rock piles have on the land, water and wildlife in 10, 20, 50, 100, 1000 years?

Do we have a definite answer for this question? NO! These systems are very complex with a lot of variables that we don't actually know yet.

So what can we do to help us answer this important question?

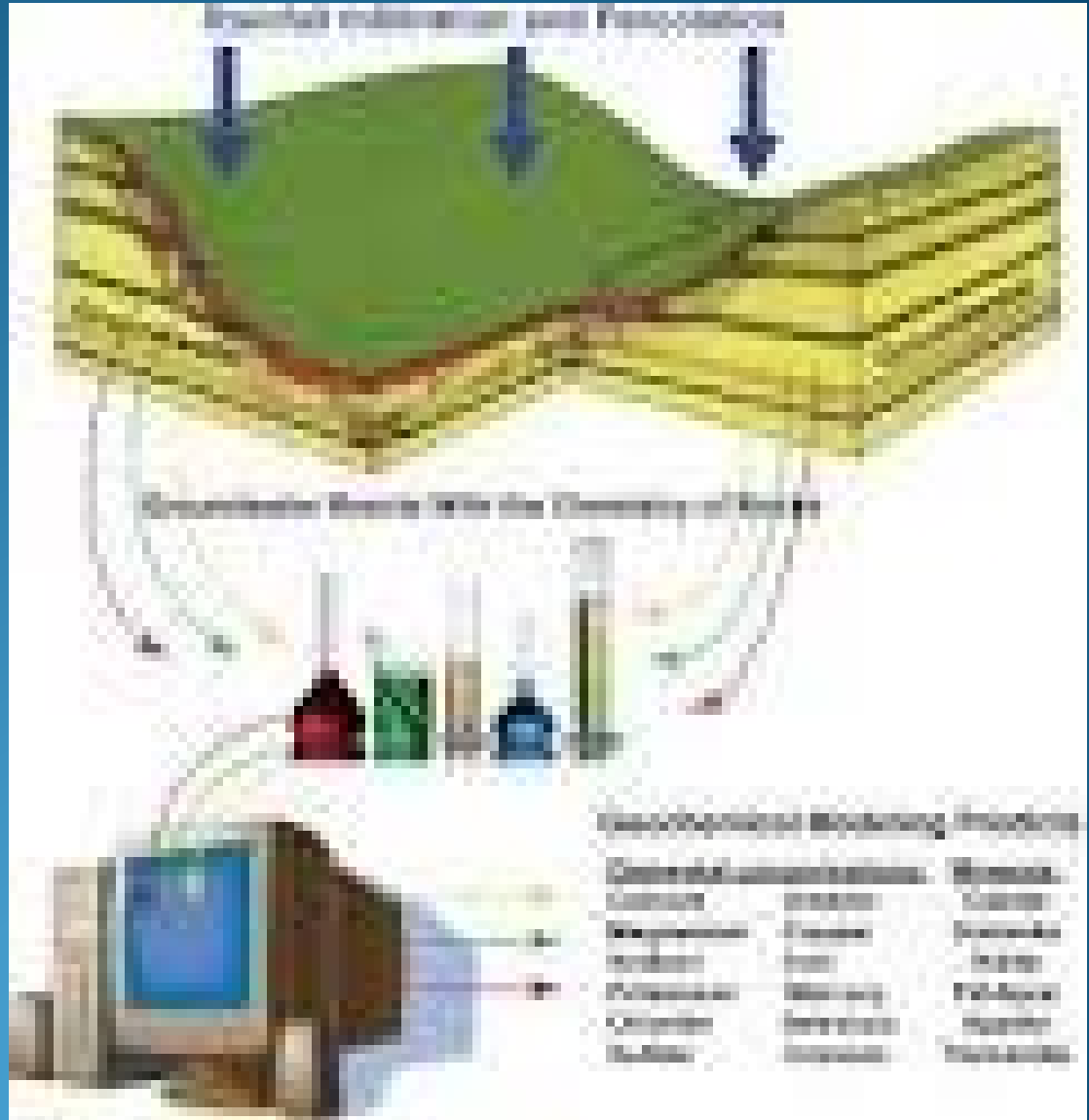
- What do we know – Factor effecting Waste Rock Piles
- What do we need more information on?
 - Monitor – Temp, water quality, water quantity, etc.
 - Research

Modeling

Only way to project or predict future effects

Can work well (Water Quality Models – lots data)

Identify potential concerns

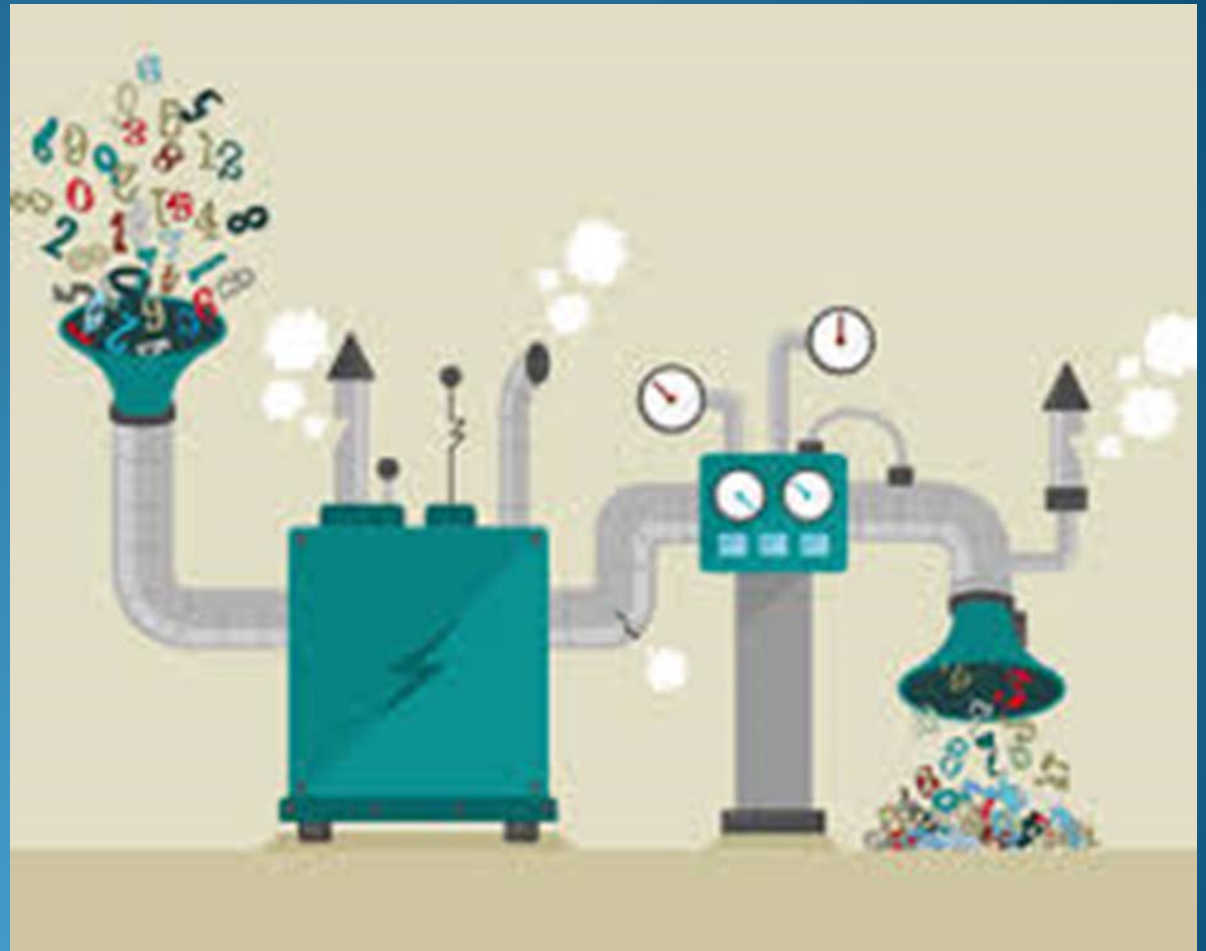


Models

Assumptions

Input data

**Models are
only as good
as the data
that goes into
them**



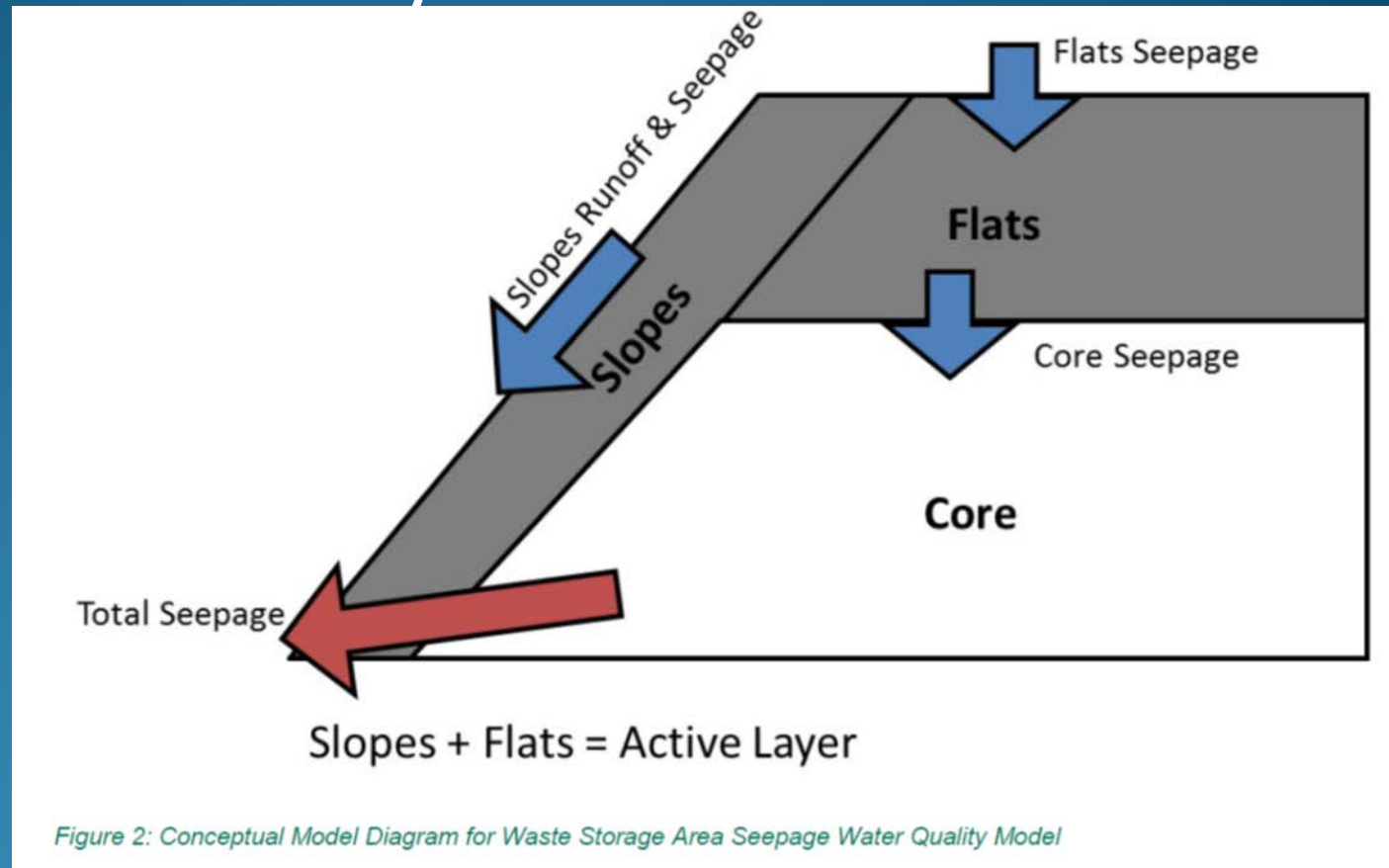
Model



Data

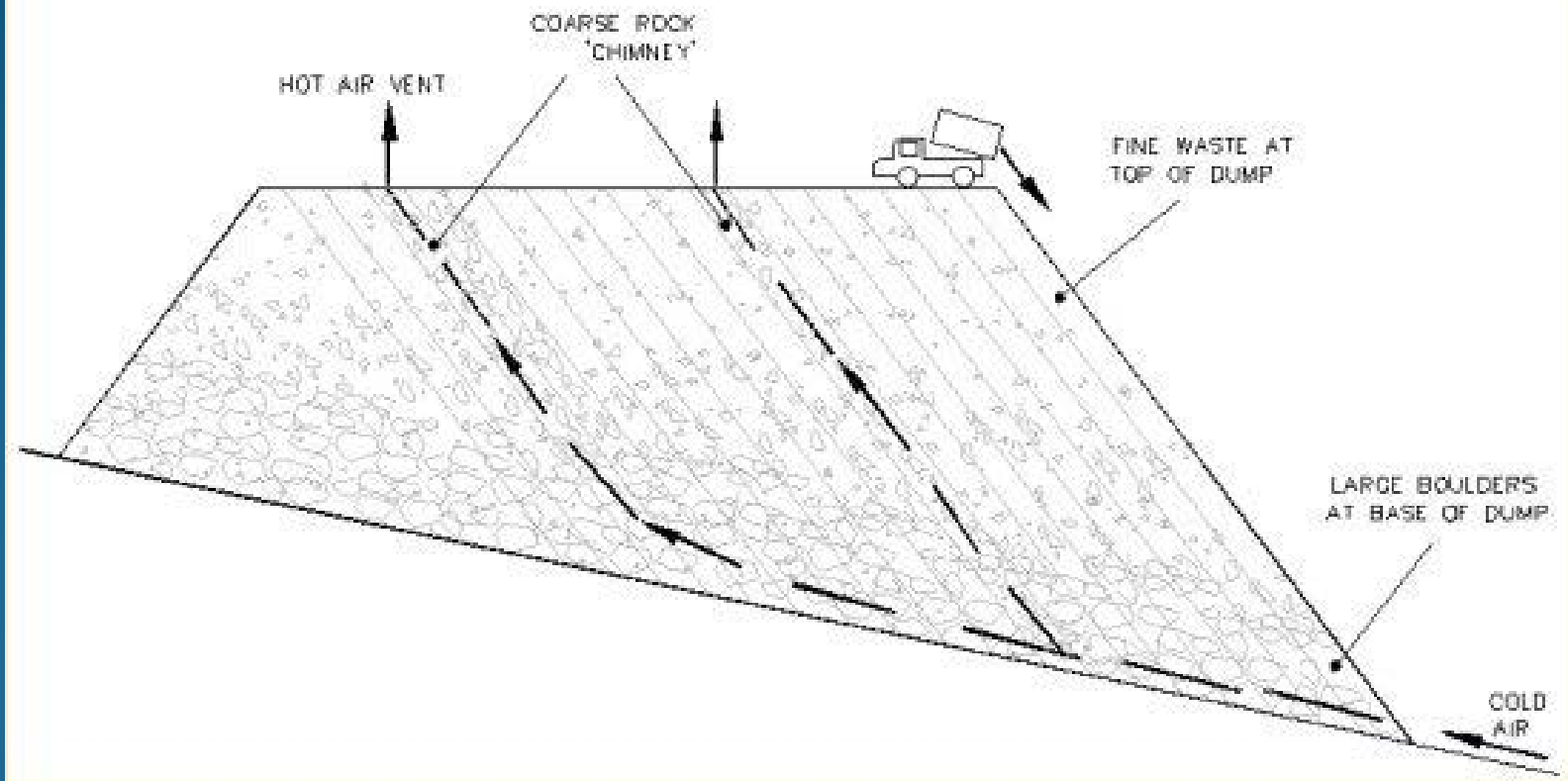


Complexity of these systems is a challenge



“The WRSAs and CKRSA are assumed to be homogeneous. In reality, mining schedules and waste placement techniques yield heterogeneous facilities. If distinct flow paths exist, where the amount and type of material differ significantly between those flow paths, then seepage water quantity can differ spatially and possibly temporally.” Reference Part 2 of the Closure ERA – Water Quality Modeling of Seepage from Waste Rock Storage Areas – Golder Oct 11, 2016

Convection of Air Through a Waste Dump



InfoMines info sheet on waste rock piles:
(<http://technology.infomine.com/reviews/wasterockdumps/welcome.asp?view=full>)

Take Away Message

We all need to work together with Dominion Diamonds to make sure the Assumptions and Data best reflect the actual conditions at the different Waste Rock Piles



Thank you!

Questions?

