

Update on Mt Polley Failure

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Mount Polley TMF

Mount Polley TMF Failed on August 4, 2014

Released: 10 million
cubic metres of water
and 4.5 million cubic
metres of tailings



Photos from Vancouver Sun



**Tailings near the Likely, BC August 5, 2014.
Hazeltine Creek in background (Vancouver Sun)**

Information

- Time of failure: early morning of August 4, 2014 (BC Day)
- Flowed down Hazeltine Creek devastating the Creek Bed
 - Creek bed was 1 to 2m wide, now 50 plus meters, trees removed and tailings deposited

Reactions

- Disbelief from engineers, mining industry
- Anger from First Nations, public
- Press - feeding frenzy
- Emergency management by BC Provincial Government and Imperial Metals
- Local comments about potential sabotage

Quotes

- “Mount Polley Mines thinks of how many millions they can make, that’s their economy. Our economy, the First Nations’ economy, swims by in the river. Our economy walks on the land.”
- “So, when the mining is spent, do the tailing ponds just remain there as a toxic pond or do the mines deal with it? If this is responsible mining, then we don’t need more mines to pollute.”

The Province, August 6, 2014

Immediate Environmental Concerns

- Water contamination
- Aquatic impacts
 - Physical
 - Chemical (related to metals listed in National Pollution Release Inventory)
- Specific concern about spawning salmon
 - One of the largest runs, 4 year olds after the largest run in 2010
 - Fears have subsided

Reporters Questions

- Give us a Tailings 101 lesson
- Can failures like this be prevented?
- What are the typical failure modes for tailings facilities?
 - Water, water, water
- Environmental impact

Immediate BC Provincial Responses

- Site review
- Ban on water use – large number of households impacted
- Water quality samples
- Other samples
- Recall ban on water use

- In the meantime, until additional tests come back, Interior Health has maintained the drinking water advisory not to drink, bath or feed livestock drawn from the following waterways: Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek. The entire Quesnel River system right up to the Fraser River is under a “do not drink” advisory.

****Note: boiling will not help****

- There have been no reports of injuries or people getting sick from drinking water. There have been no reports of property damage.

Independent Panel to Investigate the Failure

- Contacted by BC Department of Energy and Mines Deputy Minister on August 13 to confirm availability to serve on panel
- Potential announcement on August 15; cancelled
- Final announcement on August 18

Independent Panel to Investigate the Failure (2)

- Panel announced
 - Norbert Morgenstern, Chairman
 - Steven Vick
 - Dirk van Zyl
- Detailed task description
- Report due January 31, 2015, report to be shared with government and Williams Lake and Soda Creek Indian Bands at the same time
- Secretariat being established to support the work of the panel

BC Government Actions

- For a collection of documents from government and partners surrounding the Mount Polley breach, visit:

<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

BC Government Actions (2)

- There are 98 tailings facilities at mines in BC
- Chief Inspector ordered dam safety inspections (DSI) for all tailings facilities on mine site
- Mine manager must have the “DSI reviewed by a qualified third party engineer from a firm that has not been associated with the tailings dam”
- Reports must be submitted by December 1, 2014

Crack in Mount Polley mine's dam noted in 2010 inspection report (with report)

Imperial Metals, B.C. government refuse to comment on report, cite ongoing investigation into dam's collapse
Vancouver Sun, September 26, 2014

"A 2010 dam safety inspection at the Mount Polley gold and copper mine identified several concerns, including the discovery of a 10 to 15-metre long "tension" crack in the earthen dam.

The crack was discovered in the perimeter wall, the same embankment where a section failed Aug. 4 of this year "

Knight Piésold



“Steve Robertson, Imperial Metals vice-president of corporate affairs, said the company would not comment during investigations of the dam collapse.

Those investigations are being carried out by the B.C. Conservation Service, B.C.’s chief inspector of mines, the company and a panel of geotechnical experts appointed by the B.C. government.

“It’s an important conversation, but the timing isn’t right. It would best take place after the investigations are complete,” Robertson said Thursday.”

“In its statement, Imperial Metals said the crack was 900 metres from the breach, and it was subject to a series of recommendations by the engineer of record, including a stability assessment in 2011, which were fully complied with under the direction of the engineer.”

Vancouver Sun, October 6, 2014

“Noting that the details into the collapse will not be known until investigations are complete, B.C. Mines Minister Bill Bennett said Sunday his understanding is that the company addressed the issues raised in the 2010 dam safety inspection report.

The mines ministry had also declined earlier to comment on whether the concerns had been addressed. The ministry continued to decline to release dam inspection reports by the company - required under B.C. law - or its own inspection reports.

Bennett said he's been advised by the B.C. Attorney General's office that releasing documents could jeopardize investigations. Investigations are being carried out by the B.C. Conservation Service, the province's chief inspector of mines and a three person expert panel appointed by the B.C. government.”

Soda Creek and Williams Lake Indian Bands Liaison to the Panel

Many highly qualified people were considered for the liaison, but in the end, the successful candidate was Jim Kuipers, a mining engineer expert out of Butte, Montana, who has many years of experience in every aspect of mining, and responding to mining disasters and investigations. It seems mining disasters are not as rare as the government would like us to believe.

In his position as Panel Liaison, Mr. Kuipers will keep the NStQ updated on the progress of the investigation, and will closely audit the processes throughout. In this way, the NStQ will have an expert witness and third party association with the ongoing investigation.

-Soda Creek October 2014 Newsletter, 2014

http://www.xatsull.com/LinkClick.aspx?fileticket=x9jP6QZ_NYY%3d&tabid=74&mid=411

Satelite Images



Mount Polley
Mine

Polley
Lake

retention
basin

Hazeltine Creek

Quesnel
Lake





Mount Polley
Mine

Polley
Lake

Hazeltine Creek

Quesnel
Lake



1 km

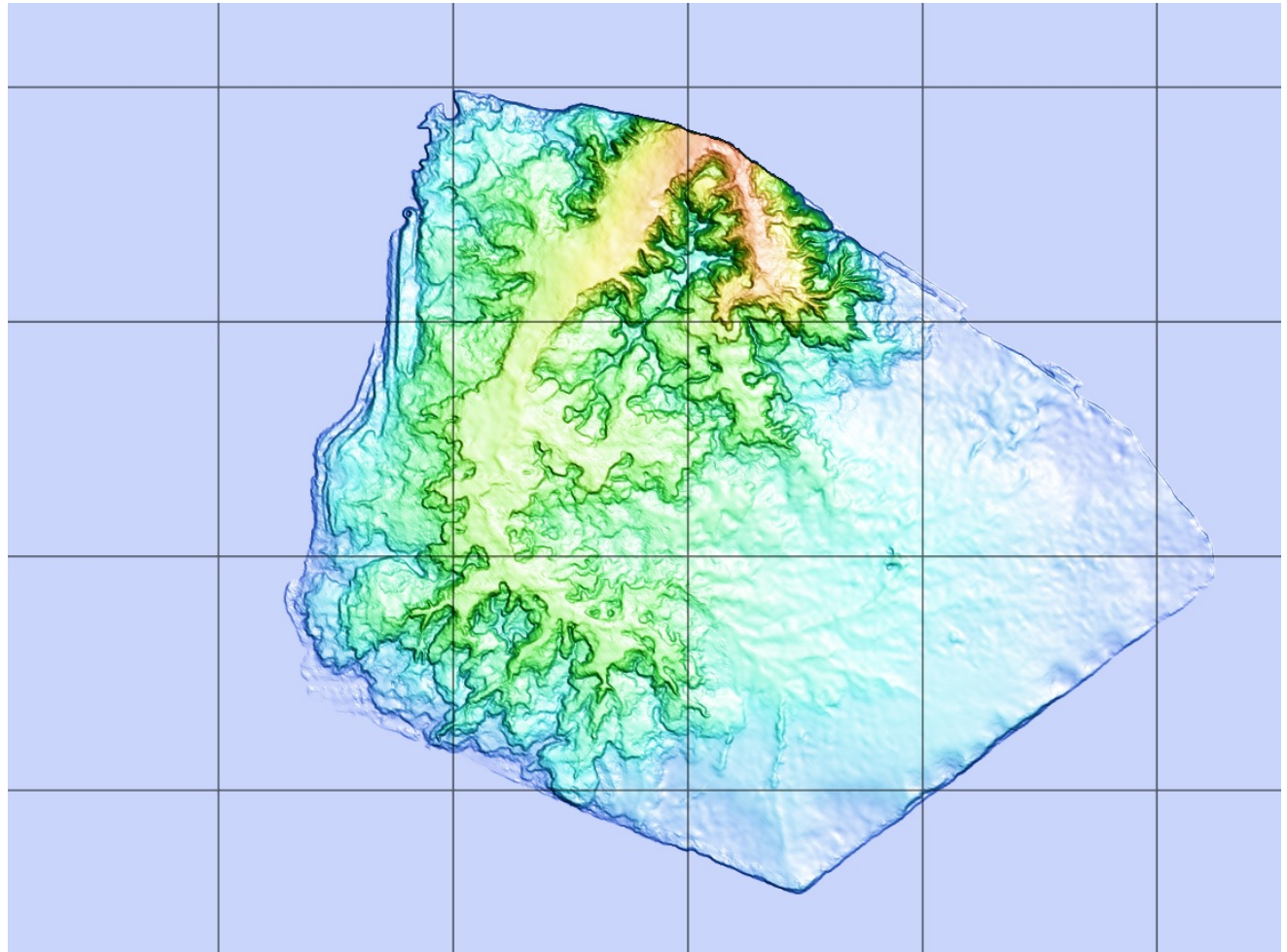
Interesting Technology



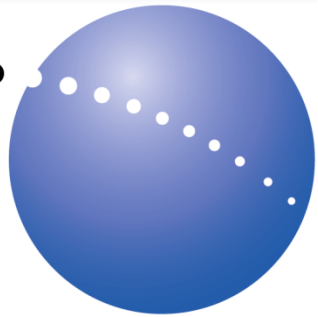
**Mount Polley Tailings
top surface a few days before the breach
overlaid on the breached structure**



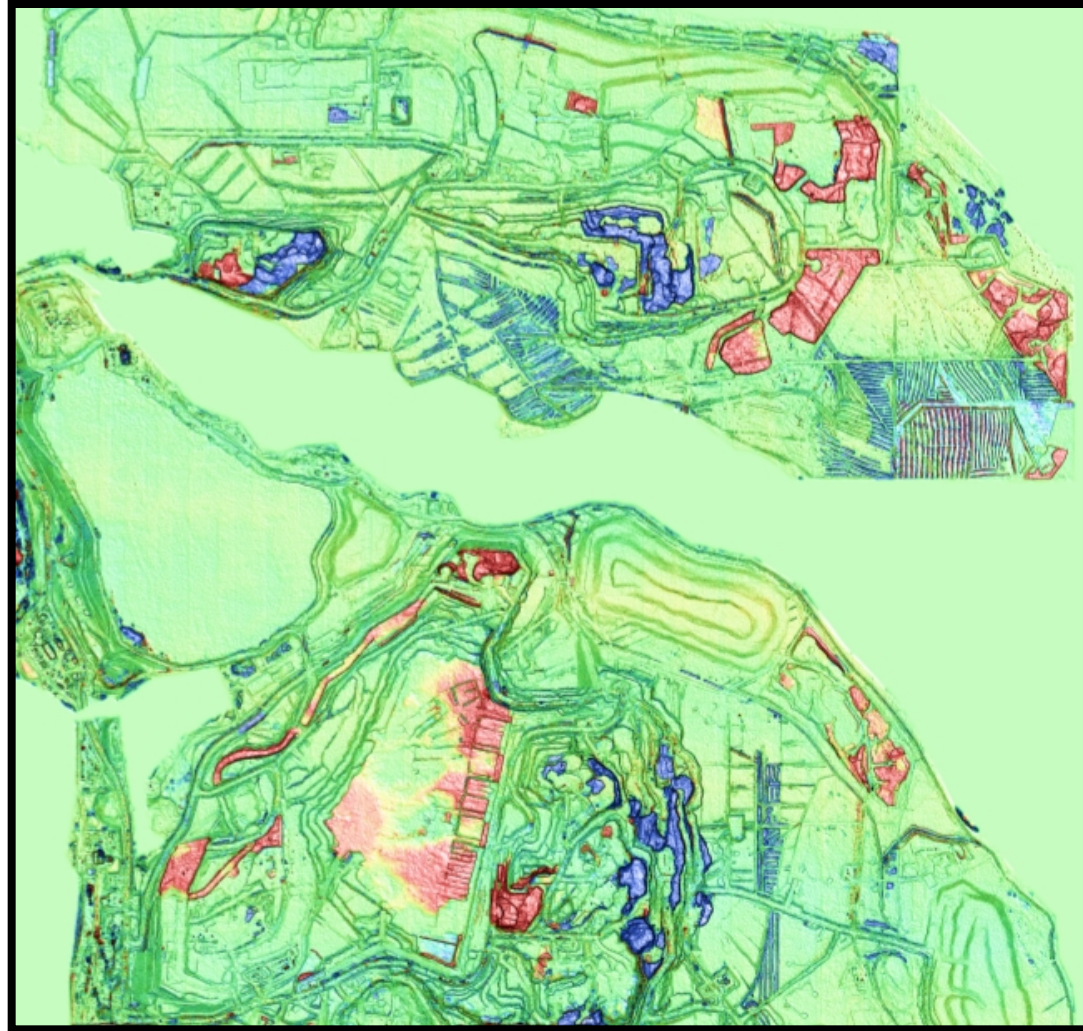
**Mount Polley tailings dam topography
after the breach**



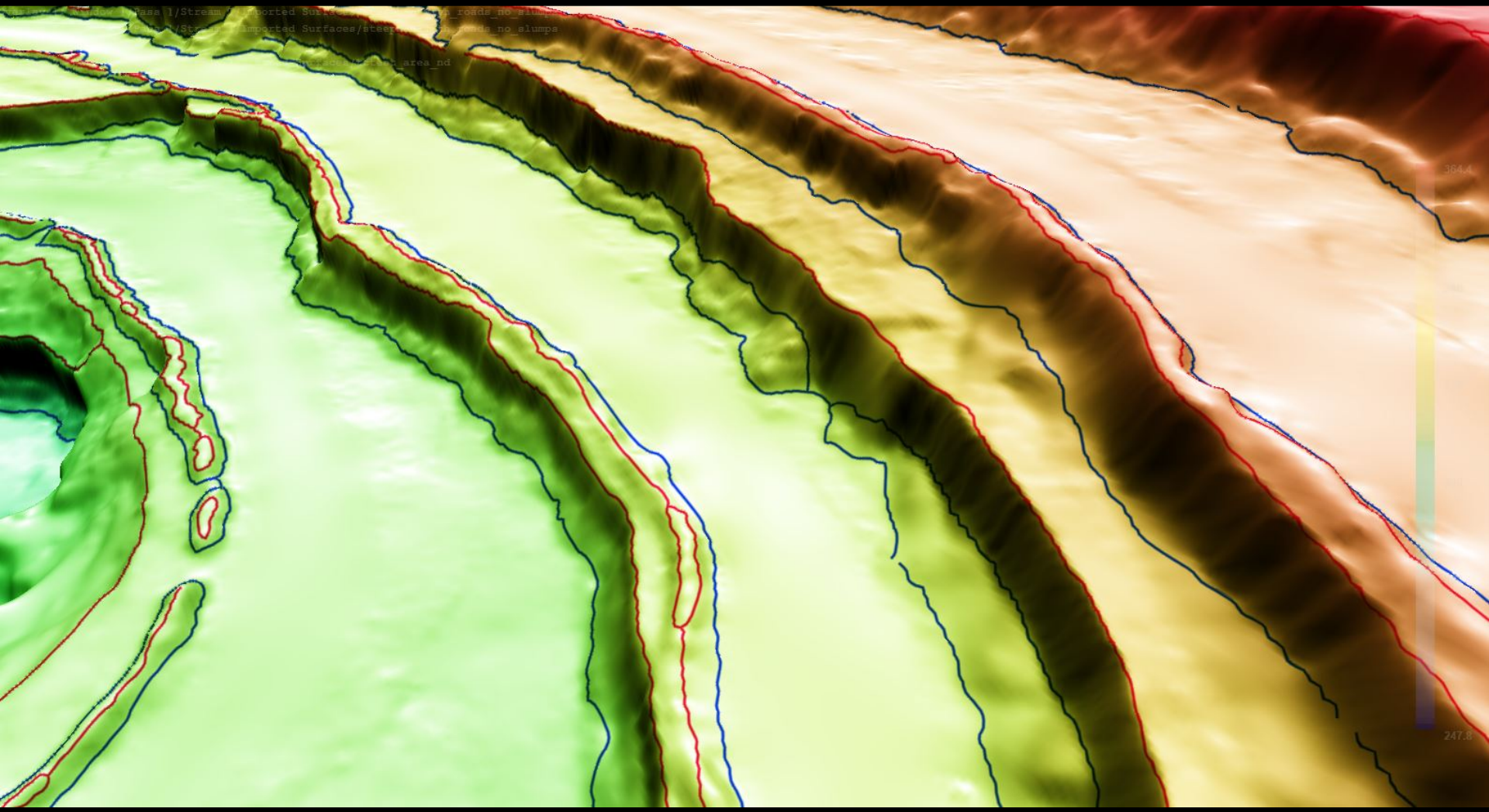
**Mount Polley 3D volume of
water and tailings that exited the dam**



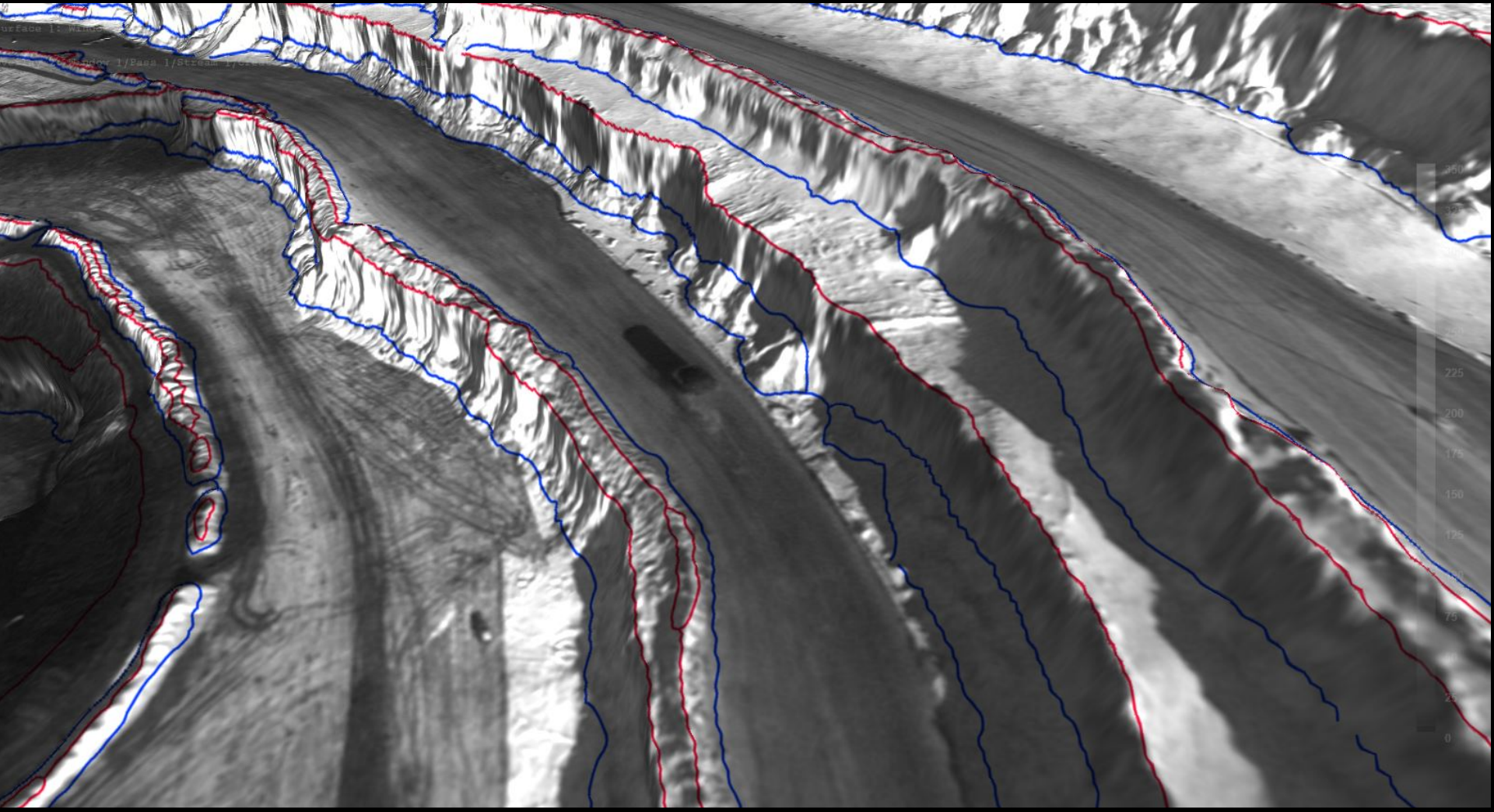
PhotoSat.ca



Monthly elevation differences. Blue areas are cuts. Yellow and red areas are fills and tailings disposal. Accuracy better than 15cm



Automated Mapping of Toes and Crests



Mapping Toes and Crests