

KYBA / NELSON REPORT

In late 2014, a report by Jeff Kyba and JoAnne Nelson of the British Columbia Geological Survey, Ministry of Energy and Mines was published entitled:

[Structural and stratigraphic control of porphyry and related mineralization in the Treaty Glacier – KSM – Brucejack – Stewart trend of western Stikinia.](#)

A Northern Miner article entitled:

[BC Survey's 'red line' a game changer for explorers](#) did a good job of summarizing the extensive report which essentially stated that Kyba and Nelson may have unlocked the secret to world-class porphyry- and intrusion-related gold-copper deposits in northwestern B.C.

Quoting sections of the article:

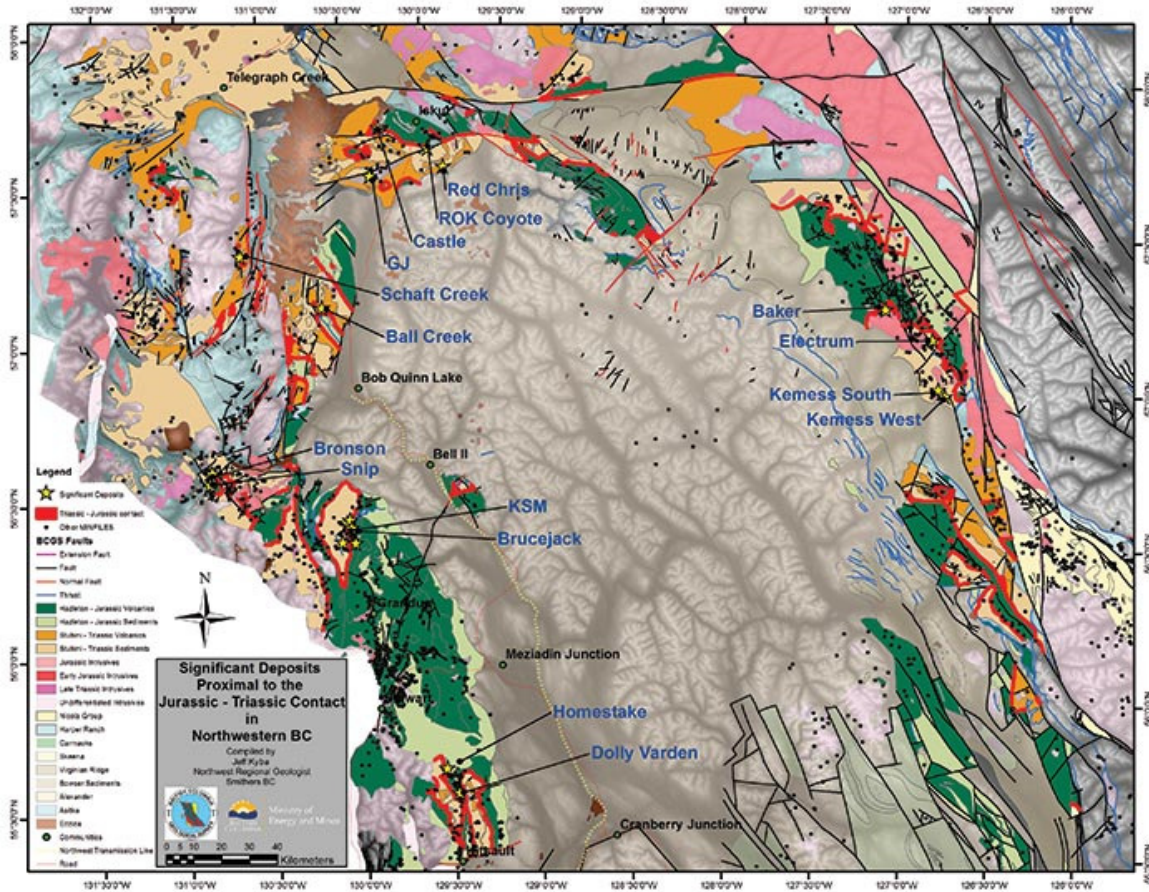
They've discovered that most of the major deposits in the region occur within 2 km of a regional stratigraphic contact, and according to Kyba, there are lithological and structural clues to narrow that window even more.

What they found was a unique package of basal conglomerates and turbidites along the Stuhini-Hazelton group stratigraphic contact.

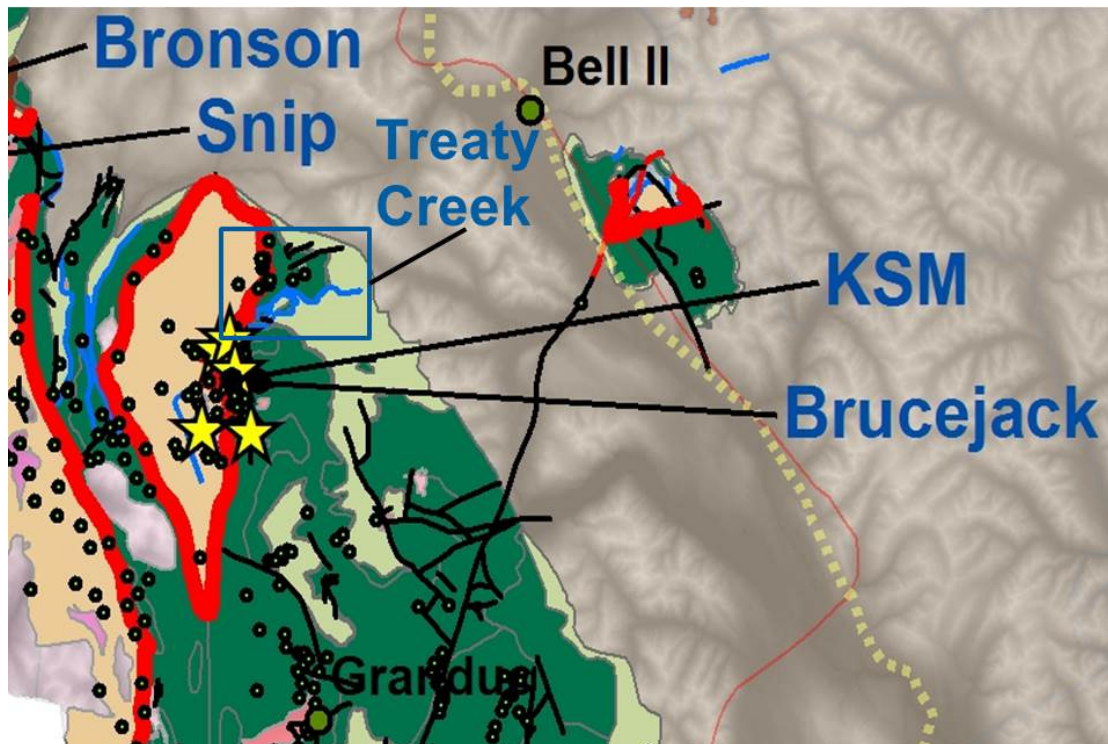
Kyba mentions he has an “open-door” policy on the data he uses, and offers explorers a geological map that [highlights the prospective contact as a thick, red line.](#)

[“If you're near that red line, and there's a clastic sequence coupled with large-scale faults, then you might be in the neighbourhood of B.C.'s next big deposit,” he says. “And knowing that is a big game changer for explorers in the region, because it'll get them closer to making a discovery.”](#)

The image below is the map produced for the Kyba report. As noted above, the thick red line was created to indicate where stratigraphic contact is between the Stuhini and the Hazelton groups of bedrock geology.



Below is a zoomed in area of the map above that shows the Treaty Creek

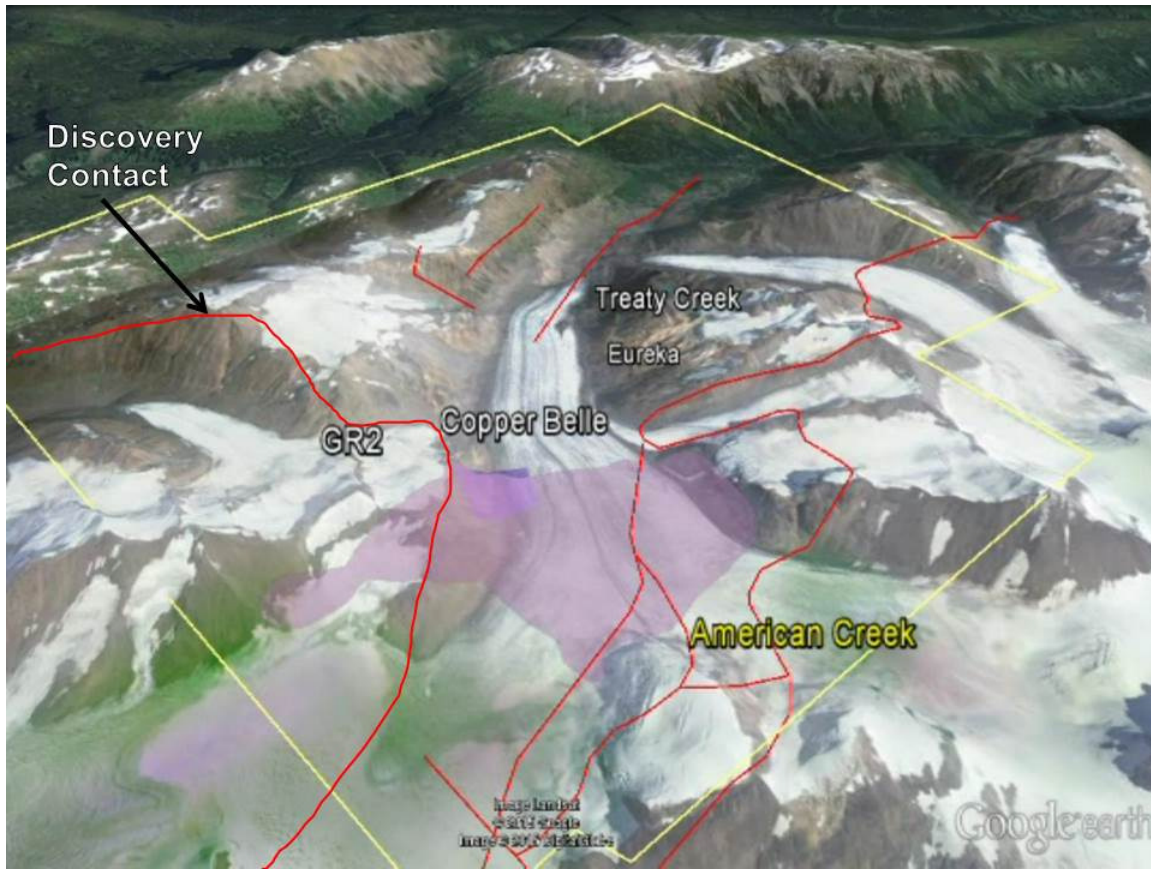


The thick red line or “Discovery Contact” runs right through the middle of Treaty Creek. More specifically it runs down the top of the West Nunatak within the Treaty property. This gossanous ridge hosts multiple zones of mineralization including the SW, AW, Konkin, Goat Trail, Copper Belle zones and GR2 zones.



Kyba states “that most of the major deposits in the region occur within 2 km of a regional stratigraphic contact”. Most of the currently known zones of mineralization on Treaty are within that range with most of them being directly next to the contact.

However, Kyba points out that there are more factors at play than just the discovery contact. He also points out there needs to be a clastic sequence coupled with large-scale faults. Clastic sequencing (basal conglomerates and turbidites) on Treaty Creek are noted extensively in both the property summary reports and the Kyba report. The Sulphurets Thrust Fault that Seabridge Gold states is directly associated with their deposits also runs through Treaty Creek.



The Google Earth image above is taken from a position directly over the Mitchell deposit (KSM) looking at the adjoining Treaty Creek property.

The image shows the red “discovery line” on the left with the Sulphurets thrust fault on the right. The large pink area in the middle is a nine square kilometer magnetic anomaly that is directly related to a magnetotelluric (MT) anomaly. Seabridge and Pretivm have used MT surveys extensively in the discoveries of their world class deposits.

“If you’re near that red line, and there’s a clastic sequence coupled with large-scale faults, then you might be in the neighbourhood of B.C.’s next big deposit,” he says. “And knowing that is a big game changer for explorers in the region, because it’ll get them closer to making a discovery.” (Kyba 2014)

As stated above, there are three major contributing factors in determining if “you might be in the right neighbourhood of BC’s next big deposit” and Treaty Creek has all three qualifiers coinciding with each other. Knowing this is a big game changer for American Creek because we know that we are “in the right neighbourhood of B.C’s next big deposit”.

BC Survey's 'red line' a game changer for explorers

The Northern Miner

By: Lesley Stokes

2015-05-06

VANCOUVER — Geologists Jeff Kyba and Joanne Nelson from the B.C. Geological Survey may have unlocked the secret to world-class porphyry- and intrusion-related gold-copper deposits in northwestern B.C.

They've discovered that most of the major deposits in the region occur within 2 km of a regional stratigraphic contact, and according to Kyba, there are lithological and structural clues to narrow that window even more.

“The contact represents a period in earth’s history when a lot of deposits in B.C. were forming,” Kyba says during an interview with *The Northern Miner*. “But no one really knows what controlled their emplacement and where best to look. We’re trying to answer that question, and so far the results are exciting.”

Northwest B.C. contains the remnants of a much larger, ancient volcanic arc — similar to the present-day Philippines — called the Stikine terrane.

Between 220 and 175 million years ago, subduction and volcanism along the arc promoted the emplacement of world-class deposits such as KSM, Brucejack, Eskay Creek, Schaft Creek and Red Chris — to name a few.

But during the Cretaceous period, starting 144 million years ago, the metal-rich arc was compressed to nearly half its length as the margin of western North America collided with other terranes. The deformation was so intense that it obliterated most structural clues related to the main mineralizing event, making it difficult for explorers to locate the deposits.

“The rocks here are much older than those in the Philippines or Indonesia, so they’ve been banged up quite a bit,” he says. “But just because the geology is more complex, doesn’t mean the deposits aren’t there.”

Kyba points out that the KSM-Brucejack camp “are in a comparable gold league” with Freeport McMoRan’s Grasberg deposit in Indonesia. Grasberg has 39.7 million oz. gold in developed and undeveloped reserves, according to the company’s 2014 annual report.

Seabridge Gold’s (TSX: SEA; NYSE: SA) KSM deposit has total proven and probable reserves of 38.2 million oz. gold and 9.9 billion lb. copper at 2.2 billion tonnes of 0.55 gram gold per tonne and 0.21% copper. **Pretium Resources**’ (TSX: PVG; NYSE: PVG) Brucejack epithermal

deposit has proven and probable reserves of 6.9 million oz. gold at 13.6 million tonnes of 15.7 grams gold.

“Over the past five years, the northwest Stikine has built its momentum towards becoming the world’s next big mineral province,” he says. “People are recognizing that these deposits have high-grade roots and big extensions they never thought were there.”

New to the neighbourhood is **Imperial Metals**’ (TSX: III; US-OTC: IPMLF) Red Chris mine, 80 km south of Dease Lake, that started production earlier this year. The open-ended porphyry contains measured and indicated resources of 1.3 billion tonnes of 0.32 gram gold and 0.3% copper.

Kyba and Nelson started their investigations at the KSM and Brucejack copper-gold camp, where Pretium geologists were finding evidence for an old tectonic event that influenced mineralization.

What they found was a unique package of basal conglomerates and turbidites along the Stuhini-Hazelton group stratigraphic contact.

“To a geologist, these rocks indicate a hiatus in ancient volcanism and an increase in earthquake activity,” he explains. “The land was uplifted along faults, and near its edges, the rocks were eroded and deposited into the basin below.”

Kyba believes this tectonism provided the framework for metal-rich fluids and intrusions to migrate along when volcanism resumed during Hazelton time.

“You don’t see these conglomerates everywhere in the region, and that’s the whole point,” he says. “The idea is if you see them, you’re near a basin-bounding structure that may be hosting something big.”

But a change in lithology across the contact isn’t the only thing Kyba suggests is a useful proxy to finding “nation-building” ore deposits.

Brucejack and KSM are both encased in a large halo of a highly deformed, quartz-sericite-altered host rock. Immediately east is a large, Cretaceous-aged thrust fault called “sulphurets” that caps the altered ore host.

Kyba reckons that it’s no coincidence the prominent fault is so close to the deposits.

“When the Stikine was compressed, all the prospective structures bounding these old basins were slippery because of the alteration associated with the porphyries. So they were the first to fail, and became reactivated as younger, prominent thrust faults.”

To test the theory elsewhere, Kyba and Nelson travelled 45 km northwest to the KSP project, owned by **Colorado Resources**’ (TSXV: CXO; US-OTC: CLASF). Across the 33,500-hectare

(335 sq. km) property, they saw similar clastic sequences at the Stuhini-Hazelton contact, extensive alteration and most notably, a large-scale thrust called the “Sky Fault System.”

“If you can send out a couple of government geologists on your property and they come back with visible gold in grab samples, you know it must be pretty good,” Kyba jokes. “But what we saw were the same unique elements we’ve seen at the other camps, and that’s really encouraging.”

This year, they plan on testing the theory at **Kaizen Discovery**’s (TSXV: KZD; US-OTC: CCNCF) Tanzilla property, 20 km southeast of Dease Lake, which is under joint-venture with mining giant Freeport-McMoRan.

“It’s still a fairly young concept, so we want to move into the other camps and districts, such as the Toodogone, and see if it stands up there,” he says. “We’ve had a lot of input and support from companies so far — everyone is interested in seeing the bigger picture.”

Kyba mentions he has an “open-door” policy on the data he uses, and offers explorers a geological map that highlights the prospective contact as a thick, red line.

“If you’re near that red line, and there’s a clastic sequence coupled with large-scale faults, then you might be in the neighbourhood of B.C.’s next big deposit,” he says. “And knowing that is a big game changer for explorers in the region, because it’ll get them closer to making a discovery.”

- See more at: <http://www.northernminer.com/news/bcgs-presents-a-big-game-changer-for-explorers-in-nw-stikine/1003601910/#sthash.FGdMXrsS.dpuf>