

**Investigation on the NOR claims
Northern Yukon
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Summary

Introduction

A total of two days of fieldwork were spent on the NOR claims, located east of Old Crow, covering the small Dave Lord Pluton. Very little information was available on these claims. The purpose of this work was to collect information on the geology and setting for the mineralization covered by the claims. The claims are located in a large area that has been "temporarily" withdrawn from dispositions in 1978 for the purpose of protected area planning and finalization of land claims. This "interim protection order" is generally referred to as the North Yukon IP. Since the withdrawal, final agreements have been reached with both the Vuntut Gwitchin First Nation (1993) and the Inuvialuit in N.W.T. Two national parks have been established in northern Yukon: Ivvavik National Park and Vuntut National Park, the Old Crow Flats SMA has also been established out of the Land Claims agreement. All the land north of the Porcupine and Bell Rivers that is not included in the National Parks or in the SMA is still under interim protection.

The NOR claims are located 15 km east of the town site of Old Crow, just north of the Porcupine River, within the North Yukon interim protected block, and abutting on the eastern boundary of the Old Crow Flats SMA.

The location of the claims on the map is considered approximate, no claim posts were observed in the field. The claims were staked to cover the intrusion. As mapped, the claim outline does not really cover the intrusion. The claims are located in a 30-year-old burn, which is densely overgrown. More outcropping would have been visible at the time of staking than what was observed during the 2001 field season.

Previous work

At the time of the withdrawal, north Yukon was the site of active exploration for uranium and base metals. Archer Cathro and Associates were actively prospecting in the area before the withdrawal. They located anomalous radiometric responses in the Dave Lord Pluton, and staked 32 claims in 1977. The following year (1978), the area was withdrawn from development activities. Over the years, claims were gradually dropped with only a few still held in the core of the original claim block. Archer Cathro has had to pay in lieu of assessment work. They applied for dispensation of the need to pay in lieu, which was granted and which still needs to be renewed every 2 or 3 years. No assessment report was available for this study. Al Archer provided some information via a phone conversation. Past work includes small hand trenches; results showed that radioactivity increased with depth, suggesting surface leaching of uranium. Samples were assayed at the time only for uranium and not for gold, base metals or rare earth elements, none of those results were available to us.

The anomalous area was found by airborne radiometric survey. The syenite has high radiometric response compared to background levels (MINFILE, Carswell occurrence, 106O 057) and was staked for potential uranium and rare earth elements mineralization. The potential for gold mineralization in granitic rocks, such as present in the Tombstone Suite, was unknown at the time. Tungsten skarns had been located in other Devonian granitoids; this feature is now known to be a favourable indicator for gold mineralization in these systems. Placer gold has also been recovered from other plutons in north Yukon. No work has been done on the NOR claims since the initial reconnaissance work as land withdrawal rapidly followed the staking of the claims.

Geology

The Dave Lord Pluton is a small nepheline-normative syenite intrusion, measuring about 6 km², which exhibits various phases and textures in its limited exposures. Burwash (1997) describes it as having generated in the mantle, the product of differentiation from an alkali basalt source at depth, and then emplaced into a rigid plate during crustal extension. This is contrast to the other intrusions of northern Yukon interpreted to be of orogenic origin. These intrusions have been dated from Late Devonian to Early Mississippian time; Rb-Sr dating for the Dave Lord Pluton gave an age of 352 +/-2 m.a..

Uranium content in XRF analyses (Burwash, 1997) of the Dave Lord syenite is listed at 20 to 93 ppm while the other plutons contained 3 to 9 ppm U. Therefore background uranium levels in the Dave Lord syenite are about 10 times higher than in other intrusions of the same age; Y + Nb were also higher by a factor of 10 to 50 times the other plutons.

The intrusion is mapped as nepheline syenite to syenite, is composed of orthoclase +/- nepheline (altered to sericite) and exhibits variation in texture and mafic content. Mafic minerals consist of biotite and greenish fibrous altered amphibole (?). Muscovite was observed. Magnetite is disseminated through the rock as silvery blebs up to 2-3mm; the rock can be so strongly magnetic as to affect the needle of a Brunton compass. Fluorite is reported to be around 1%, we observed samples containing up to 2-3% purple fluorite. Burwash (1997) lists accessory minerals as magnetite, titanite, apatite, allanite and zircon; melanite, a black garnet, is also reported from thin section work.

Veins, locally vuggy, were observed and sampled. Fluorite was often observed adjacent to vugs.

Float of fine-grained siliceous sandstone was located on the broad ridge crest between samples 01DH-93 and 94. Since the area is unglaciated and the relief extremely gentle, it is thought to be relatively autochthonous. It is unclear whether this constitutes a pendant of metasedimentary rocks in the pluton or whether the pluton actually consists of several sill-like intrusive bodies. Rock fragments in soil pits permitted a broader delineation of the northern contact of the intrusion.

The claims are located at the southern boundary of the Old Crow flats, in the Old Crow pediplain (Norris, 1997). This area is unglaciated and is underlain by continuous permafrost. Surface weathering has been active since at least Tertiary time. Local weathering of the syenite is evident in the pervasive orange "salmon-coloured" alteration of the rock. Where altered, only the thickest blocks would show a core of unaltered grey syenite.

North of the pluton, a moderately foliated gabbroic sill or flow (MPH2) forms the height of land. Chlorite and carbonate veinlets were observed, no mineralization was found.

Ash from an old forest fire is locally found in the soil profile.

2001 Fieldwork

Our work consisted of locating area of rock exposure and to prospect and sample both rocks and soils. Our original plan of prospecting with the scintillometer could not be carried through since it was malfunctioning and could not be calibrated. We were

therefore sampling "blindly" all the different phases of the intrusion that we could document. Uranium mineralization is extremely difficult to see; our experience shows that a scintillometer is essential to assess radioactivity and potential for intrusive-hosted uranium, as uranium-rich and -poor rocks may look identical.

No real outcrop was found, frost-heaved boulders, talus and subcrop were sampled, and a soil line was ran from the central "outcrop" towards the northwest, past the contact with the metasediments.

Samples that ran high in thorium were re-analyzed for a more detailed REE package.

Results

Assay results are listed further.

Soil sample S-01KS-46, located near the northern contact of the intrusion, ran 100 ppb Au, possibly indicating the potential for gold mineralization.

Uranium values were lower than those quoted in Burwash (1997). Uranium and REE content was anomalous but not economically significant. The most anomalous soil was S-01DH-96b with values of 679.1 pm La, 713.5 ppm Ce, 52.07 ppm Pr, and 113 ppm Nd. Obviously, the rocks and soils sampled did not contain U or REE mineralization and did not reproduce existing data. A detailed scintillometer survey would be necessary to focus the prospecting work.

Suggested further work

The central lobe of the intrusion, as mapped by the GSC, was not investigated and should be. Detailed soils across the whole intrusion and its contacts, as done in property scale exploration, would be needed to assess the significance of these claims. A detailed scintillometer survey would be essential to focus prospecting efforts. Unless these steps are followed, we cannot be certain of the mineral potential of these claims. Efforts should be made to locate the archival data belonging to Archer Cathro.

Conclusions

The Dave Lord Pluton is anomalous in its mineralogy, its radiometric response and its uranium, strontium, thorium and rare earth content. The potential for uranium mineralization was difficult to test due to the malfunction of our scintillometer. Because of this, our work was unsuccessful in documenting the uranium mineralization reported in 1977 and documented by the GSC. Our work did not document significant mineralization. However, our investigation of the NOR claims is by no means exhaustive. Vegetation following a burn is now very dense, rendering difficult the location of rock exposure, which where located, was poor. Rocks from only two main areas were sampled: the western-most lobe of the syenite and the easternmost knob. The central lobe, as mapped by the GSC, remains untested. Assays for rocks and soils returned low uranium and rare earth numbers. However, one highly anomalous soil sample returned 100 ppb Au, which indicates a potential target for gold mineralization. The thorough evaluation of these claims would necessitate a detailed property-scale exploration program. Unless these steps are followed, we cannot be certain of the mineral potential of these claims.

References:

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