

Vanadium

Investment Opportunities

NORTHWEST TERRITORIES

Government of
Northwest Territories

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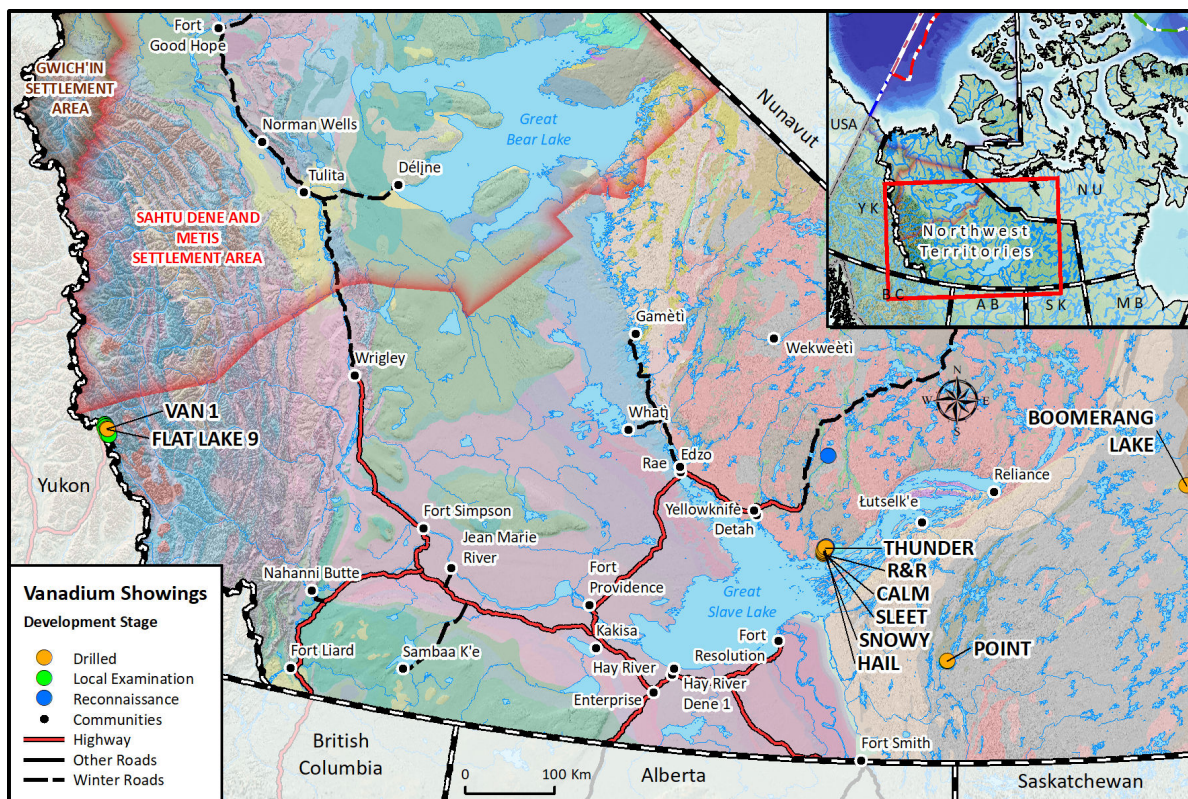
Vanadium is a metal that has been used for many years in small amounts to strengthen steel used in automobile and air transport parts. Currently 90% of V_2O_5 consumption is steel-related. Vanadium's use in new technology - vanadium redox flow batteries - is set to considerably expand the market.

Canada is not a primary vanadium producer. However, as a secondary producer (byproducts and recycling) in 2014, it accounted for about one per cent of global production. Vanadium has been mined and extracted from titaniferous magnetite deposits, vanadium-rich sandstone and carbon-rich shales. The principal sources of vanadium commonly contain from 0.1 to one per cent vanadium pentoxide.

Current Activity

In 2018, Vanadium North Resources Inc. optioned the Van project located about 10 kilometres northwest of the past producing Cantung tungsten Mine and host to a vanadium-rich carbonaceous mudstone. In early 2019, Regency Gold Corp. offered to acquire Vanadium North in order to explore and profit from the vanadium potential of the expanded Valley of Vanadium property.

Previous work on the VAN showing focused on a unit that was about 50 metres thick. In 1970, one drillhole returns 0.49 per cent V_2O_5 over a true width of 30 metres (calculated using 0.4 per cent V_2O_5 as a cut-off grade).





Vanadium

In 1998, chip sampling in two areas returned assays that averaged 0.6 per cent V_2O_5 over 56-60 metres.

The Cordilleran area in the Northwest Territories has supported a tungsten mine in the past and has infrastructure including a road access and an airport that were established to support that mine site.

Uses

- About 90 per cent of consumption is in the manufacturing of steel
- Adds strength and heat resistance to iron alloys (in automobile and machinery parts)
- Used in alloys that are non-ferrous such as titanium (in jet engines and high-speed airframes)
- Used in catalysts, dyes and phosphors
- Vanadium-redox flow batteries and other vanadium redox batteries have potential to expand the market – these batteries have large capacities with limited self-discharge and have potential to replace lead-acid batteries and possibly diesel generators.

Business Case

Currently, China produces over one-half of the world's V_2O_5 . South Africa and Russia account for another 25 per cent, while the United States produces around four percent. The majority of the world's vanadium production is a co-product of iron ore mining and only about one-quarter is sourced from primary vanadium mining.

There are other vanadium showings in the Selwyn Mountains of the Cordillera but they have seen limited exploration in the past. Vanadium is recyclable. However, an expanding market will lead to new opportunities to source the metal.

The vanadium price is similar to other commodities in that it is cyclical. The average price in 2018 was almost double that of 2017. The price was at a high that had not been realized in 10 years. In late 2018, the price began to fall back and in May 2019 it was similar to what it was in the first few months of 2018.

Prospects

Apart from the VAN and adjacent Flat Lake showings, a few other vanadium occurrences have seen limited work in the past. Vanadium has been found in uranium-bearing sandstones east of Great Slave Lake and in Iron Oxide Copper Gold (IOCG) deposits by Great Bear Lake. Elevated vanadium assays have been recorded from core samples of the Caribou Lake Gabbro near the East Arm of Great Slave Lake, drilled for its magmatic sulphide copper, nickel, and platinum group metals potential.

Other potential vanadium prospects in the territory include various layered igneous complexes.

This publication is produced by the Department of Industry Tourism and Investment (ITI). The Northwest Territories has one of the most diverse geological environments of any jurisdiction in Canada, one that includes the oldest rocks in the world and geological features that have resulted from modern and ongoing processes. The Northwest Territories Geological Survey (NTGS) surveys, collects, analyzes and makes available public geoscience information gathered from a variety of sources, including information on mineral deposits and geology. NTGS, ITI and the NWT and Nunavut Chamber of Mines host the Yellowknife Geoscience Forum each year in November: www.geoscienceforum.com

For more information about these deposits, please refer to Guide to Selected Mineral Deposits of the Northwest Territories

www.iti.gov.nt.ca/en/files/guide-mineral-deposits-northwest-territories

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Please visit company websites for latest information.

Note: Discrepancies in the numbers may differ from published reports due to rounding.