

Location/Identification

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|---------------------------|--|---|-------------------------------------|
| MINFILE Number: | 093N 174 | National Mineral Inventory Number: | 093N9 Cb2 |
| Name(s): | <u>VIRGIL</u> BRENT, WOLVERINE, FLOYD, VERGIL | | |
| Status: | Prospect | Mining Division: | Omineca |
| Regions: | British Columbia | Electoral District: | Nechako Lakes |
| BCGS Map: | 093N078 | Resource District: | Mackenzie Natural Resource District |
| NTS Map: | 093N09W | UTM Zone: | 10 (NAD 83) |
| Latitude: | 55 42 51 N | Northing: | 6175175 |
| Longitude: | 124 24 54 W | Easting: | 411103 |
| Elevation: | 1436 metres | | |
| Location Accuracy: | Within 500M | | |
| Comments: | Trenches, easily accessed by a foot trail beginning at the south end of Wolverine Lakes, approximately 7 kilometres north-northeast of Manson Creek (Assessment Report 10729). | | |

Mineral Occurrence

Commodities: Niobium, Zirconium, Titanium, Uranium, Lanthanum, Neodymium, Rare Earths

| | | |
|-----------------|----------------------------|-------------------------------------|
| Minerals | Significant: | Columbite, Pyrochlore, Zircon |
| | Associated: | Calcite, Biotite, Feldspar, Apatite |
| | Alteration Type: | Fenitic |
| | Mineralization Age: | Unknown |

| | | |
|----------------|------------------------|--|
| Deposit | Character: | Podiform, Concordant |
| | Classification: | Magmatic, Industrial Min. |
| | Type: | N01: Carbonatite-hosted deposits |
| | Shape: | Tabular |
| | Dimension: | 200x75x0 metres |
| | Strike/Dip: | 135/50 |
| | Comments: | Deposit classification is metasomatic (carbonatite). |

Host Rock

Dominant Host Rock: Metasedimentary

| Stratigraphic Age | Group | Formation | Igneous/Metamorphic/Other |
|----------------------|----------|---------------------|---------------------------|
| Proterozoic | Ingenika | Undefined Formation | ----- |
| Devonian-Mississipp. | ----- | ----- | Unnamed/Unknown Informal |

| Isotopic Age | Dating Method | Material Dated |
|----------------|---------------|----------------|
| ----- | ----- | ----- |
| 350 Ma, 370 Ma | Uranium/Lead | Zircon |

Lithology: Carbonatite, Syenite, Syenitic Carbonatite, Biotite Sovite, Aegirine Sovite, Fenite, Quartz Hornblende Gneiss, Quartzite, Sericitic Schist, Garnet Biotite Muscovite Schist

Comments: Carbonatite emplaced within rocks of the Ingenika Group. Dates from R. Parrish (Open File 1987-17).

Geological Setting

| | | | |
|--------------------------|--------------------------------------|----------------------------|---------------------|
| Tectonic Belt: | Omineca | Physiographic Area: | Manson Upland |
| Terrane: | Cassiar, Slide Mountain, Quesnel, Pl | | |
| Metamorphic Type: | Regional | Relationship: | Post-mineralization |
| Grade: | Amphibolite | | |

Inventory

Ore Zone: SAMPLE
Category: Assay/analysis

Year: 1982
Report On: N
NI 43-101: N

Sample Type: Chip

| Commodity | Grade |
|-----------|-----------------|
| Niobium | 0.1900 per cent |
| Zirconium | 0.1800 per cent |

Comments: A 120-metre sample. Assays are 0.19 per cent Nb₂O₅ and 0.18 per cent zirconium.
Reference: Assessment Report 10729.

Ore Zone: SAMPLE
Category: Assay/analysis

Year: 1974
Report On: N
NI 43-101: N

Sample Type: Chip

| Commodity | Grade |
|-----------|---------------|
| Lanthanum | 0.05 per cent |
| Neodymium | 0.03 per cent |
| Titanium | 0.15 per cent |

Comments: Sample 1 assayed 0.15 per cent titanium dioxide, 0.05 per cent lanthanum and 0.03 per cent neodymium
Reference: Geology, Exploration and Mining in British Columbia 1974

Capsule Geology

The Virgil occurrence is located approximately 7 kilometres north-northeast of Manson Creek and can be accessed by a foot trail from the southern end of the Wolverine Lakes. This carbonatite complex is probably related to the Lonnie complex (MINFILE 093N 012) found 3 kilometres to the southeast along strike, and is most likely of the same age (Upper Devonian to Lower Mississippian).

An Upper Devonian to Lower Mississippian syenite-carbonatite complex occurs in metasediments of the Proterozoic Ingenika Group. The metasediments consist of quartz hornblende gneiss, quartzite, sericitic schist, feldspathic wacke and garnet-biotite-muscovite schist. These rocks are metamorphosed to amphibolite grade and impose a penetrative fabric on the complex, concordant with that of the country rocks. The carbonatite appears fault bounded and may be within a mylonitized zone relating to regional tectonism. The country rocks are variable fenitized for tens of metres around the complex. Rocks of the Pennsylvanian to Permian Nina Creek Group lie to the west.

The carbonatite consists of syenite and biotite sovitte, which comprises calcite, biotite, and minor feldspar, apatite, zircon, columbite and pyrochlore. The zone, which strikes 135 degrees and dips 50 degrees, is 200 metres long and up to 75 metres wide. Sampling along the length assayed 0.19 per cent niobium pentoxide and 0.18 per cent zirconium (Assessment Report 10729). A sample assayed 0.007 per cent uranium and another (chip samples along 56 metres) assayed 0.15 per cent titanium dioxide, 0.05 per cent lanthanum and 0.03 per cent neodymium (Geology, Exploration and Mining in British Columbia 1974).

The mineralization was first discovered in the 1950s and a moderate amount of trenching and sampling was performed by Panther Mines Limited.

Work History

In 2002, Gary David Belik completed a mapping and rock sampling program on the Virgil showing to map exposed limits of carbonatite and estimate the nature and tenor of mineralization.

In 2010, American Manganese Inc. released the highlights of a geochemical prospecting program carried out on its Lonnie (MINFILE 093N 012) and Virgil (MINFILE 093N 174) rare earth metals project. A total of 8 rock chip and 106 soil samples were taken from two areas surrounding known mineralization. The first was a 200- by 150-metre area centred on the Virgil trenches and the second was a 1.4- by 0.5-kilometre area encompassing the Lonnie mineral occurrence. Of the eight rock chip samples, seven consisted of angular-shaped, subcrop boulders and cobbles float.

In 2011, Rara Terra Capital Corp. collected 17 rock samples from historical trenches on the Vergil property for mineralogical analysis. Additionally, 876 soil samples were collected with the objective of identifying location of and extent of near-surface carbonatite exposures using characteristic geochemical tracers to aid with placement of future trenching, diamond drilling and potential bulk sample locations.

Bibliography

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EMPR BULL *91
EMPR EXPL 1979-237; 1982-321
EMPR FIELDWORK 1974, p. 86; 1987, pp. 169-180
EMPR GEM 1973-368; *1974-278-279
EMPR MAP 22; 56
EMPR OF *1987-17, pp. 37-41; 1988-12; 1990-32
EMPR PF Chevron (Chevron Standard Ltd. (1977): Nation River - geochemical map, Virgil, Lonnie; J.W. Simpson (1976): Report on Property Examination - Virgil Property; Chevron Standard Ltd. (1900): Geochemical Lab Report - 26-954 - Virgil)
EMPR PFD 840206, 840207, 840234, 681515
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GSC EC GEOL 16 (Rev.), p. 233; 18, pp. 29,31; 29, pp. 71,134
GSC MAP 876A; 907A; 971A; 1424A: 5249G
GSC OF 551
GSC P 41-5; 42-2; 45-9; 75-33
GCNL #131, 1982
PR REL American Manganese Inc. Oct.1, 2010
Chevron File

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|----------------------|------------|--------------------|-----------------------------|---------------------|---|
| Date Coded: | 1985/07/24 | Coded By: | BC Geological Survey (BCGS) | Field Check: | Y |
| Date Revised: | 2021/04/15 | Revised By: | Nicole Barlow (NB) | Field Check: | Y |