Location/Identification

MINFILE Number: 082N 090

Name(s): **MOUNT MATHER CREEK**
MATHER CREEK, HOPE, MT. LAUSSEDAT, MT. MATHER, MATHER MOUNTAIN

Status: Prospect

Regions: British Columbia

BCGS Map: 082N056

NTS Map: 082N10W

Latitude: 51 33 00 N

Longitude: 116 53 16 W

Elevation: 1138 metres

Location Accuracy: Within 500M

Mining Division: Golden

Electoral District: Columbia River-Revelstoke

Resource District: Columbia Forest District

UTM Zone: 11 (NAD 83)

Northing: 5710996

Easting: 507781

Comments: Located at Mather Mountain, on the Blaeberry River north of Golden.

Mineral Occurrence

Commodities: Sodalite, Lead, Zinc

Minerals

Significant: Sodalite, Galena, Sphalerite

Associated: Albite, Calcite, Pyrite, Magnetite

Alteration: Limonite

Alteration Type: Oxidation

Mineralization Age: Devonian

Deposit

Character: Vein, Breccia, Disseminated, Stockwork

Classification: Industrial Min.

Type: R: INDUSTRIAL ROCKS, Q: GEMS AND SEMI-PRECIOUS STONES (diamonds under N)

Dimension: 80x10x0 metres

Comments: Dimensions of the syenite/carbonate breccia body.

Host Rock

Dominant Host Rock: Sedimentary

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Cambrian	Chancellor	Unnamed/Unknown Formation	------
Unknown	------	------	Unnamed/Unknown Informal

Isotopic Age	Dating Method	Material Dated
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Lithology: Limestone, Syenite Breccia Dike

Geological Setting

Tectonic Belt: Foreland

Physiographic Area: Continental Ranges

Terrane: Ancestral North America

Metamorphic Type: Regional

Grade: Greenschist

Inventory

No inventory data

Capsule Geology

The Mount Mather Creek sodalite prospect is located 30 kilometres north of Golden. The property is delineated by the Hope group of four claims.

The site can be accessed via the Blaeberry River Forestry Road thence following a trail north at kilometre 39 1/2. Sodalite outcrops in a steep, narrow cayon cut by a small Blaeberry River trubutary called Mount Mather Creek.

The property owner discovered this sodalite occurrence in 1957. At that time, there was already an old, short adit blasted into the main sodalite syenite breccia body. In the summer of 1996, the current owner, Dave Lefurgey, started to develop the site and mined about 3 tonnes of low grade sodalite breccia from loose boulders to market the stone for lapidary and ornamental use.

The Mount Mather Creek area is within a syncline of the western "shaly facies" of Middle and Upper Cambrian Chancellor Group carbonate rocks (Price, 1967). Although the broad regional structure is a syncline, the beds exhibit complicated folding at the property scale.

The lower units of the Chancellor Group, which host the sodalite showing, are massive, well-bedded, fine-grained carbonates. One main breccia dike of sodalite syenite with two tributary dikelets cut the carbonate host rock across bedding planes. The syenite dikes weather brown due to the presence of pyrite and the host limestone exhibits a yellow to buff weathering alteration halo in contrast to its otherwise grey weathered surface. The yellow weathering is often more extensive along some bedding planes. Freshly broken rocks, altered and unaltered, have the same dark grey colour and can not be distinguished macroscopically from each other.

The absence of syenite on the eastern side of the valley, an abrupt end of the dike in the Mount Mather Creek bed and a distinct bedding pattern on each side of the canyon makes the authors suspect that a fault with substantial displacement exists under the creek bed.

Sodalite is a major component of the syenite/carbonate breccia body. It is up to 10 metres wide and outcrops over a distance of approximately 80 metres in a vertical rocky cliff on the western side of the creek. It is also present as a minor component in the two thin independent dikes as fine-grained disseminations where albite is the dominant mineral. While the main breccia outcrop is practically inaccessible, large boulders that have fallen off the cliff and accumulated along, and within, the creek channel provided material for thin sections and are the source of most macroscopic observations.

The main body is part breccia and part stockwork. The host rock consists of fine-grained, bedded carbonate made of very fine-grained and possibly very small amounts of feldspar (0-50 per cent) and possibly very small amounts of quartz. Bed thickness varies from about 1 to 10 millimetres and in thin section is poorly defined. It is characterized by slight average grain size differences and is sometimes accented by iron staining either along bedding planes or throughout individual beds. Breccia clasts, from 1 to 10 centimetres long and 1 to 4 centimetres in diameter, are comprised of the same rock. The fragments exhibit features usually observed in plastic flow regimes, such as boudinage, rounded shapes and preferential orientation of clasts.

Sodalite syenite occurs as veins, breccia matrix and disseminations in the host rock.

The veins consist of coarse, blocky albite crystals up to 2 millimetres in width with calcite as a secondary vein filling. Calcite often forms secondary veinlets that branch from a central, albite rich "trunk" vein. The calcite grains typically grow perpendicular to vein walls and are up to 1 millimetre long.

The breccia matrix comprises a highly variable mix of albite, calcite, sodalite and scattered grains of pyrite, galena and magnetite. The albite and calcite grains are often 1 to 2 millimetres across and the calcite grains often have well formed twins.

Sodalite is ubiquitous in most of the syenite. It varies from coarse grain aggregrates in breccia matrix to fine disseminations that give a blue hue to both thin sections and rock fragments. Coarse sodalite appears restricted to veinlets and pockets within the breccia matrix. It forms anhedral to subhedral grains and grain aggregates that make up 5 to 15 per cent of the syenite. Occasionally, sodalite forms aggregates up to several centimetres in size. It can also impregnate large host rock blocks along the bedding planes. As disseminated grains, sodalite is characterized by small euhedral grains 0.25 to 0.50 millimetres in size that make up to 10 per cent of the rock.

Pyrite is a common accessory in many samples. It occurs as disseminated crystals up to 2 millimetres in size. A few samples contained galena grains up to 1 millimetre in diameter that, seen under the microscope, were corroded and rimmed by euhedral pyrite. Magnetite occurs as small, approximately 1/4 millimetre in diameter, disseminated euhedral grains. While not mineralogically confirmed, the syenite probably also contains sphalerite. Some old assays provided to the authors by Mr. Lefurgey indicate similar values of zinc and lead.

Sodalite is known at several localities in British Columbia. The Ketchika River area, Wicheeda Lake, Bearpaw Ridge, Paradise Lake, Trident Mountain and Moose Creek on the south edge of the Ice River Complex all have sodalite as a common accessory (Pell, 1994). In none of these sites has it been found in a similar quantity as at Mount Mather Creek.

Currie (Geological Survey of Canada Memoir 239) mentioned, without any site description, Mt. Laussedat as a sodalite locality. It is our opinion, that because of the circumstances of the initial discovery, the Mount Mather Creek is the same occurrence (D. Lefurgey, personal communication, 1996).

One characteristic phenomenon common to a number of alkaline intrusions in the Rocky Mountains is their yellow to brown weathering halo. It is a striking feature of the Aley carbonatite and Rock Canyon Creek Rare Earth element showings, particularly because these two localities ae not covered by vegetation. It is also a feature of the Mount Mather Creek sodalite occurrence. Such a colour anomaly is a very clear feature on low level colour air-photos and can be used as a prospecting tool for finding yet unknown alkaline intrusives. While, because of its location, the Mount Mather Creek site cannot be recognized on air-photos, large, unprospected brownish zones to the northwest and east of the sodalite showing are clearly visible.

Several thousand pounds of low-grade sodalite rock was produced in 1996.

Bibliography

EM EXPL 1996-E5
EM INF CIRC 1997-1
EMPR BULL 88
EMPR FIELDWORK *1996, pp. 317-320
EMPR PF (Prospectors Report 1996-18 by Dave Lefurgey)
GSC MEM 239
GSC P 62-32; 67-1B, pp. 88-91

Date Coded:	1996/11/25	**Coded By:**	Z. Dan Hora (ZDH)	**Field Check:**	Y
Date Revised:	2014/11/12	**Revised By:**	Laura deGroot (LDG)	**Field Check:**	Y