



### Location/Identification

**MINFILE Number:** 082FNW259

**Name(s):** **BLU STARR**  
BLU STARR SAPPHIRE, RAINBOW SOUTH, RAINBOW NORTH, NORTH RAINBOW

**Status:** Developed Prospect

**Mining Method:** Open Pit

**Regions:** British Columbia

**BCGS Map:** 082F052

**NTS Map:** 082F12E

**Latitude:** 49 32 54 N

**Longitude:** 117 38 57 W

**Elevation:** 0 metres

**Location Accuracy:** Within 500M

**Comments:** Rocks exposed in a highway cut (Highway 6) and along the railway below the highway, 250 metres south of the confluence of Little Slocan and Slocan rivers, about 28 kilometres south of Slocan (Industrial Mineral File - Sketch map of outcrop locations). See also Blu Moon (082FNW263).

**Mining Division:** Nelson, Slocan

**Electoral District:** Kootenay West

**Resource District:** Selkirk Natural Resource District

**UTM Zone:** 11 (NAD 83)

**Northings:** 5488617

**Easting:** 453042

### Mineral Occurrence

**Commodities:** Corundum, Gemstones, Titanium, Ruby, Beryl, Zirconium, Amethyst, Sapphire, Gai

**Minerals**

**Significant:** Corundum, Tourmaline, Cordierite, Beryl, Quartz, Graphite, Rutile, Titanite, Garnet, Spinel, Pyrope, Almandine

**Significant Comments:** Sapphire, "Japan" quartz. Cordierite, as iolite or "water sapphire".

**Associated:** Zircon, Feldspar, Mica, Sphene, Amphibole

**Alteration:** Zircon, Sphene, Amphibole

**Alteration Type:** Fenitic

**Mineralization Age:** Unknown

**Deposit**

**Character:** Disseminated

**Classification:** Magmatic, Industrial Min., Placer

**Type:** Q10: Gem corundum hosted by alkalic rocks, P04: Crystalline flake graphite

**Dimension:** 250x100x0 metres

**Comments:** Outcrops with corundum extend along a length of about 250 metres and vertically between 50 and 100 metres.

### Host Rock

**Dominant Host Rock:** Metasedimentary

**Stratigraphic Age**      **Group**      **Formation**      **Igneous/Metamorphic/Other**  
Unknown      -----      -----      Valhalla Complex

**Isotopic Age**      **Dating Method**      **Material Dated**  
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**Lithology:** Meta Sediment/Sedimentary Gneiss, Quartz Tourmaline Pegmatite

**Comments:** The metasedimentary gneiss is syenitic or monzonitic in bulk composition.

### Geological Setting

**Tectonic Belt:** Omineca

**Physiographic Area:** Selkirk Mountains

**Terrane:** Plutonic Rocks

## Inventory

No inventory data

## Capsule Geology

The Blu Starr deposit is located approximately 1 kilometre north of the community of Passmore. Outcrops with corundum are exposed in a highway (Highway 6) cut along the Slocan River and along the railway below the highway. The corundum-bearing outcrops extend over a length of approximately 250 metres and vertically from the riverbank up to the highway cut between 50 and 100 metres. See also Blu Moon (MINFILE 082FNW263).

The Slocan Blu Starr property lies within the southern portion of the Valhalla-Passmore Gneiss Complex, in the Passmore Dome. The Valhalla Complex consists of a high-grade metamorphic core with outwardly dipping metamorphic layering and foliation. Heterogeneous sequences of biotitic schist (pelitic schist), quartzo-feldspathic gneiss (psammitic gneiss), amphibolite gneiss, and minor marble, calc-silicate gneiss, quartzite, metaconglomerate and ultramafic rocks make up the Valhalla assemblage of metamorphic rocks.

Hostrocks at the Blu Starr occurrence consist of metasedimentary (augen) gneisses, mainly syenitic or monzonitic in bulk composition, of the Valhalla Complex. They contain abundant crystals of corundum; in some coarser zones, the crystals are up to 1 to 2 centimetres. The association with zircon and sphene with amphibole zones suggest affinity to fenite-nepheline syenite complexes known from similar environments north of Revelstoke and in the Blue River area (Personal Communication, D. Hora, 1993).

Shallow-dipping sapphire-bearing felsic gneiss layers are interbedded with mafic and garnet-rich layers. The sapphires are erratically distributed within felsic augen gneiss layers in high-grade pockets and as single crystals. Some sapphires occur in oligoclase feldspar-rich pegmatitic zones (plumasite dikes) crosscutting grey feldspar-biotite-amphibole gneisses. Sapphires recovered from Blu Starr have been identified as the star sapphire variety. The sapphire crystals vary in size, with rare crystals weighing over 50 grams (250 carats). The sapphires are predominantly black and bronze in colour; however, blue, grey, yellow, orange, green, clear and mixed-coloured sapphires also occur. Other notable gemstones and minerals found at the Blu Starr deposit include cherry-red almandine-pyropes, garnet, dark green epidote, golden yellow zircon, black schorl tourmaline and clear crystal quartz.

The corundum crystals are extracted, shaped and polished and the resulting cabochons are marketed as untreated, natural 'star sapphires', mostly of a translucent grey-blue to sky-blue colour (Geological Association of Canada Joint Annual Meeting, Edmonton, Alberta; Field Trip Guidebook [A-7], 1993, page 32).

The Blu Starr sapphire deposit was discovered in 1991, followed by the discovery of the Blu Moon sapphire deposit (MINFILE 082FNW263) to the northwest in 1993. From 1991 to 1995, approximately 10 tonnes of sapphire-bearing rock was hand mined, yielding approximately 10 kilograms (50 000 carats) of coarse rough sapphire from Blu Starr and 1 kilogram (5000 carats) from Blu Moon (Press Release, Anglo Swiss Resources Inc., December 18, 2012). The property was acquired by Anglo Swiss Resources Inc. (formerly known as Anglo Swiss Industries Inc.) in 1995. That same year, Marylou Coyle, PhD, was contracted to study the deposits and to make recommendations for development. In 1996, the first organized geological studies of sapphire deposits were conducted, leading to the discovery of aquamarine beryl crystals in quartz-tourmaline pegmatitic dikes. In 1997, a 150-tonne composite bulk sample was extracted from the Blu Moon deposit and sent for processing at the company's Kenville mine property (MINFILE 082FSW086). Smaller hand samples were taken from Blu Starr and other gem showings on the property. In 1998, a small gem garnet deposit was discovered on a mountainside near the Blu Starr deposit and a 2-tonne bulk sample was extracted. That same year, an extensive mineralized zone of crystalline graphite was discovered in the Tedesco area and the Sapphire Hill occurrences were found near the Blu Moon deposit. Three zones of iolite mineralization were also found north of the Blu Starr deposit in the fall of 1998. One tonne of sapphire-mineralized rock was extracted from Sapphire Hill and two 1-tonne bulk samples containing approximately 25 kilograms of coarse rough crystal and gem iolite were extracted from the I1 and I2 iolite zones. In 1999, a detailed geological examination of the iolite zones was completed.

In 2000, Hampton Court Resources partnered with Anglo Swiss Resources in a joint venture. Exploration by Hampton Court focused on evaluating the potential of placer claims along the Slocan River, west of the Blu Starr deposit. The potential of alluvial deposits along the Slocan Valley was assessed with respect to potentially commercial deposits of gemstones including garnet, iolite and sapphire. Work that year consisted of 8.5 kilometres of ground-penetrating radar, surface geological mapping and preparing a report titled Mineralogic Evaluation of the Slocan River Placer Claims. At the same time, exploration continued on other areas of the property. Thirteen new sapphire occurrences were identified, as were occurrences of amethyst quartz, rose quartz and titanite. Ten new iolite-anthophyllite occurrences were discovered along the Rainbow Horizon, and the New Star claim was staked to cover the northern extension of the iolite-anthophyllite-bearing Rainbow Horizon. A potentially large and economic gem garnet occurrence was identified in the Tedesco area. Bulk samples were extracted from the Tedesco garnet deposit (2.76 tonnes) and the I1 iolite deposit (greater than 100 tonnes). More than 1000 carats of red garnet gem rough were recovered from Tedesco and more than 5 tonnes of specimen crystal and coarse rough gem material were recovered from the I1 iolite (Assessment Report 26537).

In 2003, the joint venture with Hampton Court lapsed. Work on the property was suspended until 2008, when a graphite exploration program was

undertaken. Ground geophysics were used to explore for graphite up to 200 metres in depth. Three diamond drillholes totalling 812.9 metres were completed. In 2010, 525.9 kilometres of airborne geophysical surveys were completed across the entire property. A limited ground survey of soil sampling and prospecting was carried out on the region of known graphite occurrences. In 2012, an induced polarization survey was carried out over the Tedesco graphite showing.

By 1997, Anglo-Swiss Industries had trucked 150 000 kilograms of sapphire-bearing material to its Kenville minesite for processing. Apparently, “the best blue sapphires occur on the hinge of a recumbent fold, directly above a pegmatite sill and within the sill's metasomatic halo. The larger crystals occur within the core of the hinge zone” (T. Schroeter, personal communication, 1997). The company estimated approximately 500 000 kilograms of probable reserves.

In 1998, Anglo Swiss Resources Inc. discovered a garnet deposit. The garnet crystals frequently exceeded 10 centimetres in diameter. Facet-grade material, located in the centres, yielded several carat gemstones displaying excellent clarity and are an intense pinkish red in colour. Compositionally, the garnets are intermediate between almandine and pyrope, possibly the variety known as rhodolite. The garnets occur within feldspar-rich pegmatite sills and dikes, hosted by garnet-amphibolite. A transparent gem-grade variety of feldspar known as moonstone also occurs with the garnet. Several other zones containing megacrystic garnet have been located and are being explored (GCNL #127 [July 3], 1998). Anglo Swiss shipped 1000 carats of rough, gem-quality garnets to cutting facilities in Sri Lanka.

The extraction of approximately 10 tonnes of mineralized rock from the Blu Starr deposit has yielded 10 kilograms of coarse sapphire and over 1000 carats of finished gemstone (Press Release, Anglo Swiss Resources Inc., December 18, 2012).

### ***Bibliography***

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<b>Date Coded:</b>	1993/10/26	<b>Coded By:</b>	Z. Dan Hora (ZDH)	<b>Field Check:</b>	Y
<b>Date Revised:</b>	2020/07/07	<b>Revised By:</b>	Nicole Barlow (NB)	<b>Field Check:</b>	Y