MINFILE
NTS 092P – BONAPARTE RIVER

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Researched and compiled by: R.H. McMillan, J.M. Riddell, P.B. Read, B. Grant, P.S. Fischl, G. Owsiacki

The Bonaparte River map area contains 190 recorded mineral occurrences documented in the MINFILE database - these include metallic, non-metallic and coal occurrences. Although there are no active mines in the study area, there are several past producers and developed prospects - the map area is believed to contain some of the highest mineral potential in the province.

The Bonaparte River map area is located in south-central British Columbia, 40 kilometres north of the city of Kamloops, a major railway and highway junction as well as a major infrastructure centre. The Bonaparte River map area is readily accessible via two important highways which transect the area from north to south: the Cariboo Highway (97) on the west and the North Thompson or Yellowhead Highway (5) on the east. Both highways connect with the Trans-Canada Highway (1), located 40 kilometres south of the area. Highway 24 transects the central part of the area, connecting Highway 5 at Little Fort with Highway 97 in the west. Highway 5 and the main line of the Canadian National Railway are located in the North Thompson River valley. In addition to the aforementioned Canadian National Railway line, the main track of the Canadian Pacific Railway is located 30 kilometres south of the map area, and the British Columbia Railway transects the western part of the map area. Most of the map area is accessible on a network of active and former logging roads.

Physiographically, the area is dominated by the Cariboo and Thompson Plateaux. The Shuswap Highland borders the east, the Quesnel Highland borders the north, the Thompson Plateau the east-central portion, the Cariboo Plateau the centre and west and the Pavillion (Marble) Ranges the far southwest.

The oldest rocks in the map area are the Proterozoic to Paleozoic Eagle Bay and Shuswap Assemblages, which comprise moderately to highly metamorphosed shelf metasedimentary rocks of the Kootenay Terrane located in the eastern portion of the area near the North Thompson River valley. Also present in the eastern part of the area are: Carboniferous to Permian Slide Mountain Group ophiolitic basalts, Upper Paleozoic cherts and gabbros of the Fennell Formation, ultramafic rocks of the Upper Paleozoic Crooked Amphibolite and Upper Paleozoic limestone and associated argillite and siltstone of the Harper Ranch Group.

Relatively older rocks are also present in the southwestern corner of the map area. Here, Cache Creek Terrane strata composed of oceanic marine sedimentary and volcanic rocks (mafic flows, tuff, ribbon chert, limestone and argillite) of the Permian to Triassic Cache Creek Complex crop out. Slightly younger limestone, marble and calcareous sedimentary rocks of the Permian to Triassic Marble Canyon Formation (also part of the Cache Creek Complex) are interfolded and in fault contact with the volcanic and clastic sedimentary facies of the Cache Creek rocks.

Between the older Kootenay and Cache Creek Terranes and in fault contact with them, island arc and sedimentary strata of Quesnel Terrane crop out in a belt informally termed the Quesnel Trough. In the central part of the area, in particular in the Deadman River valley and in the northern portion near Timothy and Spout Lakes, Campbell and Tipper (1971) have mapped a predominantly mafic volcanic unit composed mainly of augite andesite, basalt, tuff and volcanic breccia with intercalated fine clastic and minor limestone, as part of the Upper Triassic Nicola Group. To the northeast, but west of the North Thompson Valley, more detailed mapping by Schiarizza and Israel (2001) and Schiarizza et al (2002) have designated Triassic rocks almost entirely to the Nicola Group. Within the Nicola Group they recognize three fault-bounded belts of contrasting lithologies which are thought to be at least partially coeval. The central belt consists mainly of volcanic rocks (volcanic breccia, tuff and basalt) stratigraphically overlain by sedimentary rocks (siltstone, sandstone, basalt, tuff, conglomerate, volcanic breccia, chert and dacite).

A prominent belt of ultramafic-mafic-syenitic plutonic rocks extends northwestward from Little Fort. These rocks intrude the central, predominantly volcanic belt of the Nicola Group, as well as underlying Paleozoic rocks of the Harper Ranch Group. This northwest-trending plutonic belt is believed to define an axis of magmatism within the Nicola arc and to be approximately coeval with the Nicola Group volcanic rocks. The ultramafic-mafic portion of this belt has been termed the Dum Lake Intrusive Complex by Schiarizza and Israel (2001) and is believed to be an Alaskan-type intrusive complex. Lithologies include dunite, wehrlite, pyroxenite, serpentinite, gabbro, diorite, microdiorite and intrusion breccia. North of the Triassic to Jurassic Dum Lake Intrusive Complex, several smaller dioritic and gabbroic intrusions and the Triassic to Jurassic Friendly Lake Intrusive Complex are considered to represent extensions of the aforementioned belt of ultramafic-mafic-syenitic plutonic rocks.

A second northwest-trending belt containing undersaturated subvolcanic rocks is present in a western belt of Nicola rocks extending from the Deadman and Rayfield Rivers to the Timothy and Spout Lakes area. The intrusive rocks are again undersaturated syenites, monzonites, diorites and gabbros and are commonly porphyritic intruded as dikes, breccias and small stocks. As with the central belt, they are generally believed to be coeval subvolcanic intrusive expressions of Nicola volcanism.

Nicola volcanic rocks and their undersaturated intrusive equivalents are crosscut by slightly younger large granodioritic intrusive bodies of the Thuya and Takomkane batholiths of Late Triassic to Early Jurassic age. Lithologies include granodiorite, diorite and monzodiorite, and minor mafic and ultramafic phases. The latest important intrusive bodies are Cretaceous granites and quartz-feldspar porphyry of the Baldy and Raft batholiths.

The early Tertiary within and west of the North Thompson Valley is represented by Eocene andesite and dacite of the Skull Hill Formation and by Eocene sandstone, shale, conglomerate and coal of the Chu Chua Formation, both part of the Kamloops Group. In the western part of the area, the Deadman Valley exposes portions of the Deadman River Formation (Chilcotin Group), a Miocene river channel filling of bentonite-bearing fluviatile and lacustrine sediments overlain by a thick section of rhyolitic ash. Alkaline plateau basalts of the Miocene to Early Pleistocene Chilcotin Group mantle all of the older rocks, forming an extensive blanket masking the older rocks under the extensive plateau surface in the west-central part of the map sheet.

The structure of the map area is dominated by systems of mainly northwest-striking Eocene block faults. Some faults in the central part of the area show southwest-side-down normal displacement, but a prominent system of dextral strike-slip faults, referred to as the Rock Island Lake fault system, dominates the structure west of the North Thompson Valley.

MINERAL OCCURRENCES

Introduction

The oldest metallic mineral deposits are Besshi-type (or Cyprus-type) volcanogenic massive sulphide and polymetallic and possibly some of the gold-quartz vein mineralization in the basaltic Fennell Formation (Slide Mountain Group) of Devonian to Permian age located in the eastern part of the map area. The Fennell Formation is also host to polymetallic veins. The western part of the Nicola belt contains a prolific assortment of copper and copper-gold skarn and porphyry-style occurrences and constitutes exceptionally high potential for copper and gold mineralization associated with these basaltic and andesitic volcanic rocks and their coeval subvolcanic ultramafic-mafic-syenitic intrusive bodies. In adjacent areas important past and current producing mines in this environment include the **Mount Polley** mine **(093A 008)** in the Quesnel Lake map sheet north of the area and the **Afton** mine **(092INE023)** near Kamloops, 40 kilometres south of the area. Between 1977 and 1988, the Afton open-pit mine produced 205,000 tonnes of copper, 13 tonnes of gold and 81.4 tonnes of silver from 31.6 million tonnes of ore. Within the Bonaparte River map area, similar syenite-diorite intrusive complexes host porphyry-style and skarn occurences at the Friendly Lake, Rayfield River and Spout Lake districts. Other occurrences, such as the platinum mineralization within ultramafic rocks of the Dum Lake complex, and metalliferous skarns adjacent to Deer Lake and Dum Lake dioritic bodies, show affinities to the Nicola subvolcanic mineralized complexes. Disseminated copper occurences are found within and along the margins of the Thuya and Takomkane batholiths, and in association with dioritic stocks and dikes cutting sedimentary rocks near their margins - these may represent mineralization related to late subvolcanic magmatism related to calcalkaline differentiates in the Nicola assemblage. They have potential for molybdenum as well - the **Boss Mountain** deposit **(093A 001)** is associated with a small Cretaceous granodioritic stock**,** but is hosted in the Takomkane Batholith in the Quesnel Lake map sheet (093A) to

the north, produced 15.5 tonnes of molybdenite concentrate form 7.6 million tonnes of ore from breccia zones and quartz veins in the granodioritic hostrocks of the Takomkane Batholith. Numerous molybdenum occurrences in the northern parts of the map area are associated with late aplitic phases of the Cretaceous Raft batholith and related smaller plugs and stocks.

Non-metallic mineral deposits include: developed prospects of limestone within the Permian to Triassic Cache Creek Complex, coal deposits hosted in small Eocene successor basins in the North Thompson area, diatomite and pozzolan within Miocene Deadman River Formation and brines and lacustrine deposits of sodium carbonate (natron) and magnesium salts (epsomite and hydromagnesite) associated with semi-evaporative playa lakes in the Cariboo Plateau. In the adjacent Ashcroft map area (092I) to the south, 200,000 tonnes of limestone is mined annually at the **Pavillion Limestone** quarry **(092INW081)** - at the end of 2000, approximately 4.3 million tonnes had been mined from Cache Creek Complex limestone. Also in Ashcroft map area, the **Red Lake Fullers Earth/Diatomite** quarry **(092INE081)** produces absorbant products such as kitty litter from the Deadman River Formation.

Volcanogenic massive sulphide occurrences associated with the Fennell Formation

The **Chu Chua** massive cupriferous pyrite deposit **(092P 140)** occurs within upper Fennell Formation basalts a short distance east of Chu Chua Mountain. It consists of two major and several minor stratiform massive sulphide lenses associated with pyritic cherty rock and lenses of magnetite and magnetite-talc. Drilling in 1978 and 1979 outlined indicated reserves of approximately 2 million tonnes grading 2 per cent copper, 0.4 per cent zinc, 0.1 per cent cobalt, 8 grams per tonne silver and 0.4 gram per tonne gold. The **McCarthy** property **(092P 187)** is just south of the old Queen Bess mine and consists of massive sulphide mineralization hosted by silicified basalt of the Fennell Formation. The sulphides occur as fragments and discontinuous bands within a prominent north-northwest striking fault zone (Farmer, 1992).

Vein mineralization hosted by the Fennell Assemblage

Greenstones and basalts of the Fennell Assemblage host a number of vein occurrences, some of which could be synvolcanic in origin, and others could be genetically related to later intrusive events. Examples include the past-producing **Queen Bess** lead-zinc-silver mine **(092P 042)**, and the **Windpass (092P 039)** and **Sweet Home (092P 040)** gold mines. The Queen Bess mine was developed underground between 1917 and 1920, when it produced 73 tonnes yielding 52,222 grams of silver, 13,789 kilograms of lead and 12,503 kilograms of zinc. The Windpass and Sweet Home mines worked gold-bearing quartz veins which cut the Fennell Formation east of Dunn Lake. Ore produced at Windpass between 1916 and 1944 amounted to 93,435 tonnes yielding 1,071,684 grams of gold, 53,469 grams of silver and 78,906 kilograms of copper. Gold also occurs at the **Gold Hill** showing **(092P 041)** approximately 2.5 kilometres southwest of Sweet Home. Other polymetallic vein occurrences in the Fennell Formation include the **Honeymoon (092P 174)**, and west of the Thompson River, **Mann Creek (092P 029)**, **Clearwater Peak** showings **(092P 116, 117 and 118)** and **Mahood Lake (092P 028)**.

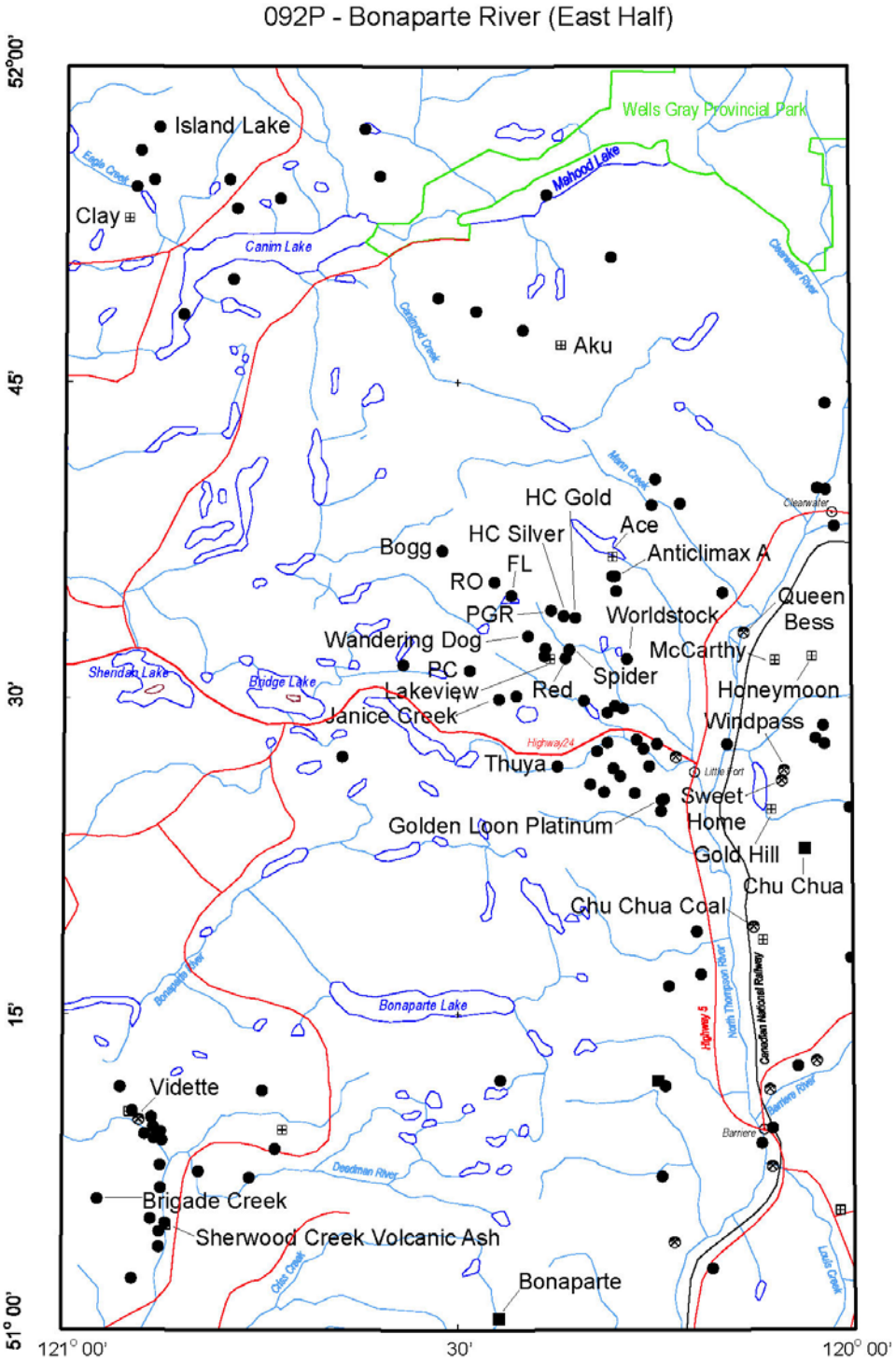
Gold-quartz veins

In the southern part of the area, quartz dioritic intrusions and Harper Ranch metasedimentary rocks are host to eight, narrow gold-quartz veins at the **Bonaparte** property **(092P 050)**. The older rocks are exposed in a window through the Miocene plateau basalts. Further west within Nicola Group metavolcanic rocks, the past producing **Vidette** mine **(092P 086)** reportedly contains "probable" resources in the old workings totalling 10,160 tonnes grading 19.1 grams per tonne gold and 29.8 grams per tonne silver. The underground mine milled 48,980 tonnes of ore between 1933 and 1940, producing about 929 kilograms of gold, 1448 kilograms of silver, 43 tonnes of copper and 161 kilograms of lead from several narrow north-northwest trending, steeply dipping gold-quartz veins which transect mafic volcanic rocks of the Nicola Group.

Occurrences associated with the Dum Lake Intrusive Complex

The rocks within and adjacent to the Dum Lake Intrusive Complex are host to a variety of mineral occurrences, including skarns, gold-quartz veins, gold in quartz-carbonate-altered fault zones, and platinum in ultramafic rocks. The Golden Loon property includes several areas of known precious and base metal mineralization within ultramafic and mafic plutonic rocks of the Dum Lake complex. At the **Golden Loon High Grade Zone (092P 141)**, a narrow, west dipping quartz vein contains scattered pyrite, sphalerite, chalcopyrite and galena. The

Golden Loon Low Grade Zone (092P 119) is described as a northwest trending, carbonate-silica-altered shear zone. Several other gold and base metal showings occur within and adjacent to Dum Lake intrusive rocks and adjacent hornfels and are described as gold-quartz veins, stockworks and skarns (**Cedar Skarn, 092P 026; Golden Loon 3 4, 5 and 6 showings, 092P 097, 096, 095 and 094; G, 092P 103; and Cedar Sheeted Veins, 092P 172**). In the summer of 1999, sampling of a football-sized sample of highly oxidized ultramafic material cut by thin chromite stringers at the **Golden Loon Platinum occurrence (092P 043)**, yielded 13,798 parts per billion platinum, 25 parts per billion palladium and 23 parts per billion gold - however, subsequent work has failed to duplicate these spectacular results.



Skarn occurrences near Deer Lake

Skarn mineralization in the Deer Lake area occurs where Upper Triassic limestone is cut by Triassic-Jurassic dioritic rocks. The most significant is the **Lakeview (092P 010)** iron-copper-gold skarn occurrence, located near the southwest corner of Deer Lake. The mineralization was discovered in 1930 (Nichols, 1931) and is currently receiving considerable attention, in part because of its high gold content. At the Lakeview occurrence, garnet-pyroxene exoskarn and endoskarn is developed where dioritic dikes, presumably related to larger stocks mapped a short distance to the northeast and southwest, intrude limestone that contains Upper Triassic fossils. Mineralization associated with the skarn includes massive to semi-massive lenses, pods and veins of magnetite or pyrrhotite, containing variable amounts of pyrite and chalcopyrite. Gold occurs within a silicified and pyritized skarn unit. The **Red** occurrence **(092P 027)** is located within the eastern part of the diorite stock that bounds the Lakeview prospect to the northeast. Two old adits cut magnetite-pyrrhotite-chalcopyrite mineralization within fractured and epidote-carbonate altered diorite. Several kilometres northwest of the Lakeview prospect is the **Wandering Dog showing (092P 183)**, where thin bedded, locally skarn-altered sedimentary rocks are separated from the diorite stock to the northeast by a poorly-exposed lens of massive pyrrhotite-pyrite, with traces of chalcopyrite.

Porphyry occurrences in Nicola Group volcanic rocks northwest of Canim Lake

A cluster of occurrences northwest of Canim Lake possibly represent an extension of the Dum Lake/Friendly Lake belt. The cluster mainly contains porphyry-style mineralization hosted in Nicola Group volcanic rocks intruded by small intrusive bodies of various compositions or intrusive rocks associated with the Takomkane batholith. These include the **July (092P 112)**, **Clay (092P 155)**, **Beer (092P 125)**, **Well (092P 144)**, **Christmas (092P 110)** and **Island Lake (092P 132)**. The Island Lake showing is associated with mafic and ultramafic rocks of the Takomkane batholith, and shows anomalous values for platinum, palladium and gold.

Occurrences associated with the Friendly Lake Intrusive Complex

The **Bogg** occurrence **(092P 007)** comprises porphyry-style copper mineralization within and along the northeast margin of the largest monzonite-syenite stock within the Friendly Lake Intrusive Complex. Disseminated and fracture-controlled pyrite, chalcopyrite and bornite occur within both the syenitic rocks and adjacent greenstone, microdiorite and intrusion breccia. A sample collected by the B.C. Geological Survey in 2000 carried copper and silver, and of particular interest, some platinum and palladium (Schiarizza and Israel, 2001). Mineralization at the **RO** occurrence **(092P 006)**, north of Friendly Lake, comprises disseminated galena, pyrite and chalcopyrite in fine grained andesitic rock (microdiorite?) that is strongly altered to bluish antigorite, pyroxene, chlorite and calcite (Preto, 1970a). Similar mineralization and alteration occur to the east near the eastern margin of the Friendly Lake complex (Preto, 1970a), and to the northwest, between the two monzonite-syenite stocks (Gamble and Farmer, 1986). The **FL** occurrence **(092P 134)** is located near the east end of Friendly Lake, along the eastern margin of the Friendly Lake Intrusive Complex. The mineralization is hosted by brecciated and carbonate-sericite-chlorite altered biotite hornfels derived from a mafic volcanic protolith (Rebagliati, 1987) and consists of disseminated fine-grained pyrite, with trace amounts of chalcopyrite, galena, sphalerite, molybdenite and arsenopyrite.

Porphyry and Skarn occurrences associated with the Spout Lake Intrusive Suite

The **Spout Lake** copper skarn **(092P 120)** is a developed prospect discovered around 1970. It contains an inventory of 554,000 tonnes grading 1.8 per cent Cu and 0.17 grams per tonne Au and is associated with calcareous interflow strata in the predominantly volcanic Nicola Group. There has been considerable work in the area since the 1970's and several new discoveries were made in the late 1990's. Promising occurrences in the the Spout and Peach Lakes area include the **Nemrud Bornite** skarn **(092P 003)**, and alkalic copper-gold porphyry-type occurrences including: **Peach 1 (092P001)**, **Ann North (092P 002)**, **Peach 2 (092P 034)**, **Peach 3 (092P 035)**, **Peach-Melba Zone (092P 108)**, **Peach 5 (092P 115)**, **Cyan (092P 121)**, **Tim 1, 2 and 3 (092P 122), Miracle (092P 124)** and **Aurizon Gold Zone (092P 153)**.

Porphyry occurrences in the Rayfield River area

The **Rayfield River** copper prospect **(092P 005)** is hosted by syentitic to dioritic rocks intrusive into Upper Triassic to Lower Jurassic Nicola Group volcanic rocks. The intrusive complex is locally pegmatitic and relatively free of mafic minerals and quartz and has potential as a feldspar prospect.

Occurrences associated with the Thuya batholith

The Thuya batholith is host to disseminated copper mineralization **(Thuya, 092P 106)** and gold-base metal stockwork and vein mineralization **(Central Golden Loon VI** area, **092P 047** and **Golden Loon (Montigny Lake), 092P 048)**. Copper skarn mineralization is also found at its margins **(Janice Creek, 092P 147)**. The **EC 60** occurrence **(092P 011)** is within calcareous shale, siltstone and chert about 800 metres north of Long Island Lake and the north contact of the Thuya batholith.

Occurrences associated with diorite northwest of the Thuya batholith

At the **PC (092P 009)** and **Ellen (092P 129)** occurrences, minor amounts of disseminated chalcopyrite occur within dioritic plugs, dikes and sills, or within adjacent pyritic hornfels (Preto, 1970a; Wares and MacDonald, 1972). Wares and MacDonald also report minor amounts of molybdenite within diorite at the Ellen occurrence.

Gold prospects north and east of Deer Lake

The **PGR** claim group **(092P 137)**, north of Deer Lake, includes a number of mineralized veins and alteration zones that have seen exploration in the 1990's directed mainly at their gold content. Three significant showings were identified and labelled Zones A, B and the Road Zone by Belik (1997). Numerous other occurrences in the same area are shown on maps by Wells and Evans (1992) and Belik (1997). The Road zone and Zone A showings contain several north-northwest trending quartz-carbonate vein systems and silicified stockwork-breccia zones cutting volcanic and sedimentary rocks of the Nicola Group. The vein systems are reported to have weak to moderately strong gold-silver-molybdenum-lead-zinc-copper mineralization. Zone B comprises a system of north-striking, polymetallic quartz-carbonate veins that contain up to 10 per cent sulphides as blebs, stringers, disseminations and massive pods. The sulphide minerals include pyrite, galena, sphalerite, tetrahedrite and chalcopyrite. The **Spider** occurrence **(092P 181)**, east of Deer Lake, comprises a northeast trending zone of sulphide-bearing quartz-carbonate veins and stockwork that resembles some of the mineralization on the PGR claims to the north (Watt, 1999). Sulphide minerals include pyrite, chalcopyrite and galena. The **HC Gold** occurrence **(092P 188)** consists of wide bands of quartz-carbonate-mariposite alteration enriched with gold, hosted by fragmental basalts of the Nicola Group. The **HC Silver** showing **(092P 189)** covers a number of calcite-quartz veins in Nicola Group sedimentary and volcanic rocks which contain sphalerite, chalcopyrite, galena, pyrite and tetrahedrite, and carry good silver values.

Occurrences east of the Rock Island Lake Fault

The **Ace** occurrence **(092P 018)** is along upper Lemieux Creek, a little more than 100 metres downstream from the outlet of Taweel Lake. It is hosted by metasedimentary rocks of the Nicola Group. The mineralization at the old shaft along Lemieux Creek consists of lenses of massive pyrrhotite-pyrite-arsenopyrite with minor chalcopyrite. Jenks (1999) reports that massive sulphide lenses, including sphalerite, galena, chalcopyrite and pyrite, also occur nearby. Both zones carry some gold. The **Worldstock** showing **(092P 145)** comprises an isolated outcrop of iron carbonate-chlorite-pyrite-silica-altered rock with traces of chalcopyrite in volcanic breccia and overlying conglomerate of the Upper Triassic Nicola Group. Schiarizza et al (2002) have described the showing as porphyry-style mineralization. The B.C. Geological Survey till geochemistry program described by Paulen et al. (2000) yielded several interesting anomalies within the Nehalliston plateau area. One sample is a multi-element anomaly **(092P 185)** for zinc, copper, cadmium, molybdenum, nickel, cobalt and antimony in an area of poor bedrock exposure about 4 kilometres southeast of Tintlhohtan Lake. This anomalous sample is within a linear, north-northwest trending belt of till and soil geochemical anomalies that local prospectors traced for more than 10 kilometres in 1998 and 1999 (Schiarizza and Israel, 2001). The anomaly has been reproduced (Bourdon and Addie, 2000) and is coincident with an airborne magnetic anomaly.

Molybdenum showings associated with the Raft and Baldy batholiths and other Cretaceous intrusions

Many minor molybdenite occurrences can be found in late-stage aplitic phases along the borders of the Raft and Baldy batholiths. These include the **Polly Ann (092P 021)**, **Double Lake (092P 022)**, **Aku (092P 023)**, **CL (092P 025)**, **Hood (092P 107)** and **Judy 4 (092P 036)** occurrences.

The **Anticlimax** showings **(092P 014, 015 and 016)** comprise molybdenum-tungsten mineralization within the small Cretaceous granitic stock northeast of Tintlhohtan Lake. Molybdenite occurs as lenses and in veins associated with patches of quartz-feldspar pegmatite within aplite and quartz-feldspar porphyry. The molybdenite is associated with varying amounts of pyrite, bismuthinite, pyrrhotite, wolframite and fluorite (Preto, 1970b). Radiometric work indicates that the mineralization is genetically related to the host stock (Soregaroli, 1979). The isotopic age of the Tintlhohtan Lake stock suggests that it is part of the mid-Cretaceous Bayonne suite of intrusions, which is widespread in southeastern British Columbia and currently the focus of a study to assess its potential for plutonic-related gold mineralization (Logan, 2000).

Limestone deposits in the Cache Creek complex

Limestone within the Permian to Triassic Cache Creek Complex, is located close to the B.C. Railway. A past producer and two developed prospects, **Bowden Creek (092P 150)**, **Jesmond Quarry (092P 142)** and **Kelly Lake (092P 173)**, are estimated to contain resources of 900 thousand tonnes, 36 million tonnes and 38 million tonnes respectively. Bowden Creek is hosted in a limestone layer within the "marine sedimentary and volcanic subdivision" of the Cache Creek Complex, whereas the Jesmond and Kelly Lake deposits are hosted in the Marble Canyon Formation, also part of the Cache Creek Complex.

Coal and industrial minerals in Early Tertiary rocks

Early Tertiary (Eocene) continental clastic sedimentary rocks are host to bituminous coal at the past producing **Chu Chua coal** deposit **(092P 053)** in the North Thompson Valley. In the Deadman Valley, the Miocene Deadman River Formation fluviatile and lacustrine sedimentary rocks host diatomite occurrences **(Brigade Creek, 092P 073; Moose Creek, 092P 075; Deadman Lake, 092P 098; Coal Creek, 092P 162; Sherwood Creek Diatomite, 092P 163; Skookum Lake, 092P 164; West Escarpment, 092P 167;** and **South Snohoosh, 092P 168)**. The bentonitic beds are overlain by a thick section of rhyolitic volcanic ash with potential as a pozzolan **(Sherwood Creek Volcanic Ash, 092P 093; Brigade Creek, 092P 073; Deadman Lake, 092P 098**; and **Sherwood Creek Diatomite, 092P 163)**. About 13 kilometres south and in similar hostrocks, diatomaceous earth material is currently being mined at the **Red Lake** deposit **(092INE081).**

Playa-related brines and natron, eposomite and hydromagnesite deposits

Several semi-evaporative playa lakes in the arid Cariboo Plateau have produced natron (hydrated sodium sulphate), epsomite (hydrated magnesium sulphate) and hydromagnesite (hydrated magnesium carbonate) from brines, "winter crystal" and lacustrine precipitates in the first half of the last century. The deposits are small and part of the "Green Timber Plateau" area of the Cariboo Plateau. The playa lakes are generally spring fed with no outlet and overlie glaciofllluvial sediments and till overlying alkaline basaltic flows of the Chilcotin Group. Sodium sulphate deposits include: **Eightythree Mile Lake (092P 056), Goodeneough Lake (092P 057), Safety Lake (092P 058), Lake No. 6 (092P 059), Liberty Lake (092P 060), Snow White Lake (092P 061), Rob and Nan Lake (092P 062), Last Chance Lake (092P 063), Margaret Lake (092P 064), Anita and Lela Lake (092P 065), White Elephant Lake (092P 066), Rose Lake (092P 067) and Sodium Lake (092P 068)**. Magnesium sulphate deposits include: **Clinton Lake (092P 069)** and **Three Mile Lake (092P 070)**. Magnesium carbonate deposits include: **Anzac (092P 071)**, **Clinton Hydromagnesite (092P 072)**, **Meadow Lake (092P 074), Watson Lake (092P 077), 61 Mile Creek (092P 078), Kelly Lake Playa (092P 080), Lac La Hache (092P 157)** and **Milk Lake (092P 173).**

Placer gold

Placer gold (about 16 kilograms) was recovered from several creeks and rivers from the 1920s to the 1940s. Production was recorded from **Dixon Creek (092P 045)**, **Barriere River (092P 046)**, **Louis Creek (092P 054)**, **Eakin Creek (092P 055)** and **North Thompson River (092P 179)**.

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