Klondike Gold Corp.
Suite 711 675 W. Hastings Street
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V6B 1N2

# Diamond Drill Hole CC 02-1 (M91-1 extension), Cold Creek area, Fort Steele Mining Division, Southeastern British Columbia

**NTS 082G/1: 49°06'N; 115°56.5'W**

**(Hot 2)**

**Claim owners: Abitibi Mining Corp.**
**Operator: Klondike Gold Corp.**

**by:**

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**February 7, 2003**

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**Fort Steele Mining Division,**
**Southeastern British Columbia**

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## Introduction

Diamond drill hole CC02-1 is located on the Hot 2 claim, approximately 10 kilometers east of Yahk and 50 kilometers southwest of Cranbrook in southeastern British Columbia (Figures 1 and 2). The area is accessible by a gravel road that follows Hawkins Creek for 11 km south from Yahk, then 6.6 km north along Cold Creek.

The drill site is located near the valley floor at an elevation of 1245 meters. Topography in the area is moderate with mountain ridges on the east and west reaching elevations of approximately 1800 meters. The summit of Mount Mahon, the highest mountain in the area, reaches an altitude of 1900 meters. Vegetation is relatively dense, comprising mainly conifer forests that extend to ridgelines. Outcrop is not abundant; a thin layer of glacial till covers most of the area.

## Exploration History

Considerable exploration, dating back to the mid 1800s has been carried out in the East Kootenays. This exploration initially focused on gold with discovery of rich placers in Wild Horse River east of Cranbrook and in the Perry and Moyie rivers to the west. Hard rock exploration in the area led to the discovery of the world-class Sullivan lead-zinc-silver massive sulphide deposit at Kimberley in 1892 and the silver-rich St. Eugene vein deposit at Moyie Lake in 1893 (Figure 1). These two properties led directly to the development of smelting facilities at Trail, B.C., 100 km to the west along Highway 3.

The East Kootenay area contains several other significant past producers. These include the Bull River Mine, a copper-gold porphyry deposit, Dardenelles, a gold-silver vein, and Estella, a lead- zinc-silver vein. The Kootenay King in the northern Hughes Range is a small sedex lead-zinc-silver deposit that had limited production in the early 1950s. A number of other significant properties, including the Vine and Fors near Moyie Lake, both lead-zinc prospects, have undergone extensive exploration, and numerous small mineral occurrences throughout the area have seen limited work.

Considerable exploration, including diamond drilling, has been carried out in the Yahk area. In 1991, Cominco Ltd. drilled several holes south of Hawkins Creek on the Canam property to test a thick zone of disseminated lead and zinc mineralization that extended across 300 meters of stratigraphy in the Middle Aldridge.

Diamond drilling in the Mount Mahon area in 1980-1981 by St. Eugene Mining Corp. followed discovery of extensive tourmalinites and vein lead-zinc mineralization. Thirteen holes were drilled with one, YA-6, intersecting massive sulphides at shallow depth within the Middle Aldridge. In 1984 Chevron Minerals Ltd. optioned the property and drilled two holes in an attempt to test the Sullivan horizon at the contact of the Middle and Lower Aldridge. Minnova Inc. optioned the property in 1991 and drilled six

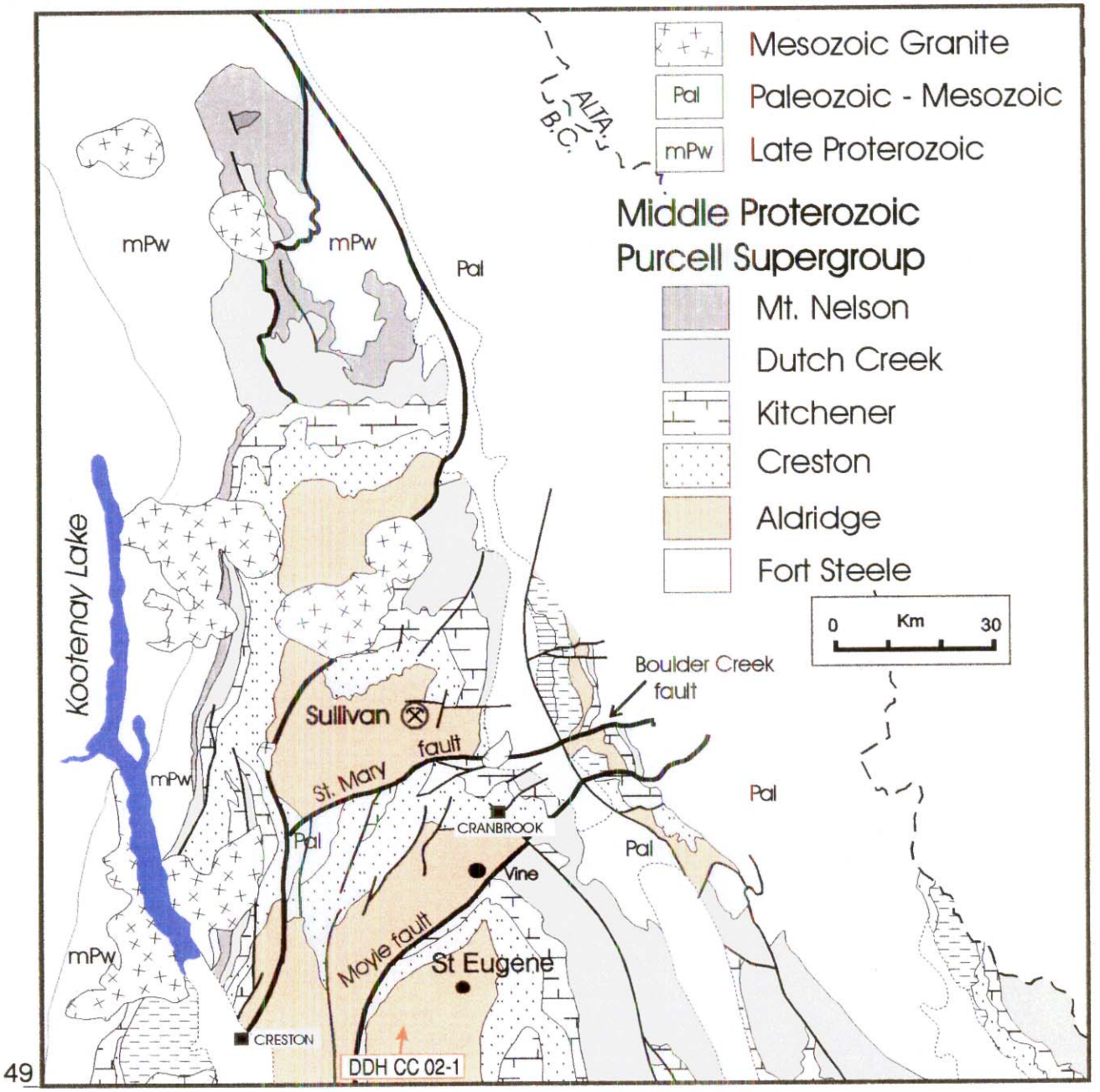


Figure 1: General location map showing regional geology

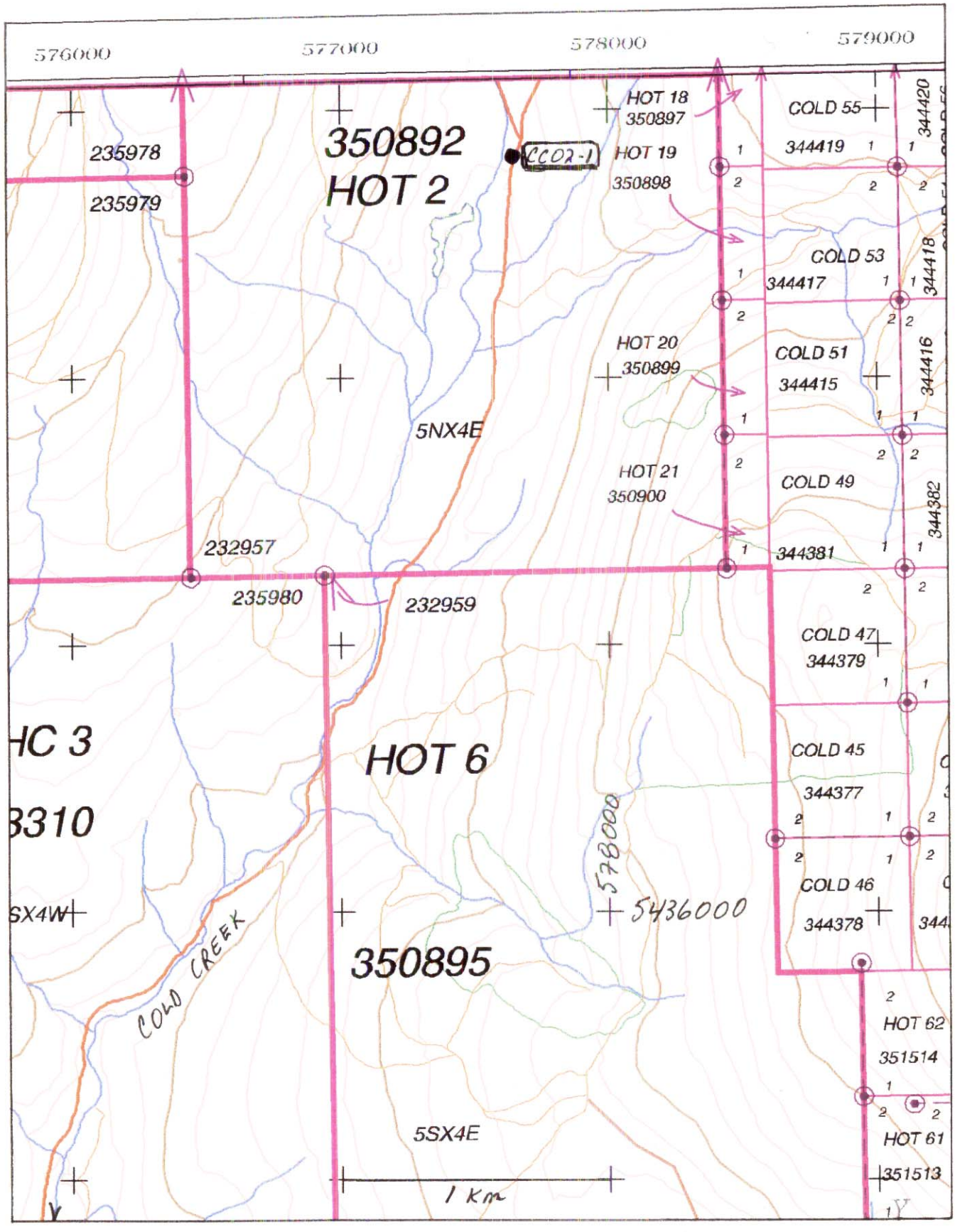


Figure 2: Claim location map

holes, mainly to test possible extensions of the sulphide zone in drill hole YA-6. Abitibi Mining Corp. acquired the Hot claims in 1996 and carried out geochemical sampling and mapping in 1997 and 1998. Three closely spaced holes were drilled on the east flank of Mount Mahon in 1998.

Rio Algom Exploration Inc. optioned the property from Abitibi in 1999. Work west of Cold Creek included some geological mapping, sampling and drilling an 883-meter hole (YK99-01) in an attempt to intersect the Sullivan horizon. No work was done east of Cold Creek. In 2001, Klondike Gold Corp. optioned the property and drilled several short holes on the slopes east of Cold Creek, mainly to test a large stratabound tourmalinite occurrence and a soil geochemical anomaly. Klondike Gold Corp also drilled a deep hole (540 meters) south of the area in the valley of Hawkins Creek, in an attempt to intersect the Sullivan horizon.

**Regional Geology**

The Yahk-Mount Mahon area is near the center of the Purcell anticlinorium, a broad generally north-plunging structure in southeastern British Columbia that is cored by Middle Proterozoic Purcell Supergroup and flanked by the Late Proterozoic Windermere Group or by Paleozoic metasedimentary rocks. These rocks were telescoped and carried eastward during compressional deformation along the western flank of ancestral North America, beginning in Middle Jurassic time and continuing through to the Eocene. This compressional deformation produced stacked east-verging thrust faults in the Rocky Mountains to the east and generally broad folds in the thick package of Purcell Supergroup rocks to the west.

Several prominent east to northeast-trending faults cut the Purcell Supergroup. These are right-lateral and reverse tear faults that merge with thrust faults in the Rocky Mountains. These faults have offsets in the order of 10s of kilometers and are critical in exploration for base metals in the Purcell Supergroup. They follow the loci of Middle Proterozoic growth faults, structures that were active during deposition of the Purcell Supergroup and locally modified sedimentary facies and appear to have controlled the distribution of hydrothermal base metal mineralization. Furthermore, the reverse displacement on these faults brings Lower and Middle Aldridge stratigraphy to the surface in the hanging wall (north blocks) thus increasing considerably the potential exploration area in the Purcell Mountains.

The Purcell Supergroup comprises an early synrift succession, the Aldridge Formation, and an overlying generally shallow water rift-fill or cover succession that includes the Creston and Kitchener formations and younger Purcell Supergroup rocks (Höy, 1993, 2001).

The Aldridge Formation comprises more than 3000 meters of mainly turbidites and numerous laterally extensive gabbroic sills, referred to as the Moyie intrusions. The Aldridge Formation has been subdivided into three members. The Lower Aldridge comprises mainly thin to medium-bedded, pyrrhotite-rich, distal argillaceous turbidites. The Middle Aldridge comprises more than 2400 meters of medium-bedded quartzitic turbidites with prominent intervals of interturbidite laminated siltstone. These laminated

siltstone units are markers that allow correlation of Middle Aldridge stratigraphy throughout the Purcell basin. The Upper Aldridge comprises approximately 500 meters of thin-bedded pyrrhotite-rich argillite and siltstone.

The Moyie intrusions are laterally extensive gabbro sills, typically up to several hundred meters thick, that can be traced across hundreds of square kilometers. Locally, particularly in the area of growth faulting, they cut across stratigraphy. For example, in the Sullivan mine area the footwall sill forms a gabbro arch that cuts sharply across stratigraphy in the vicinity of the deposit and within the graben that hosts the deposit. Many of the Moyie sills have contact features that indicate that they intruded into wet and partially consolidated sediments (Höy, 1999). Hence, a U-Pb age of 1468 Ma (Anderson and Parrish, 2002) from one of these sills provides a minimum age for the Aldridge Formation and the Sullivan sedex deposit.

Numerous paleocurrent data in the Aldridge Formation and correlative Prichard Formation in northern Montana suggest that the turbidites have a southern and southwestern source area. Furthermore, paleotectonic reconstructions indicate that the Aldridge succession was deposited in a northerly trending rift basin with shallow water facies along the eastern margin, in the Northern Hughes Range and Waterton area in Canada, and in the southwest in eastern Idaho and northern Montana. East-trending offsets in the rift basin are most evident along the margins of the basin, and these became the loci of late faults such as the St. Mary, Moyie River and Moyie faults.

A southwest source area for turbidites of the Lower and possibly Middle Aldridge is apparent in the Creston area, due west of Yahk. Here, a thick succession of massive quartzites, referred to as the Ramparts facies, is exposed on the cliffs east of Creston. These can be traced westward to the Yahk area, but appear to thin dramatically farther east and north and appear to be represented, at least in part, by the "footwall quartzites" that occur in the Lower Aldridge below the Sullivan mine.

**Property geology**

The Yahk area is entirely underlain by Middle and Lower Aldridge rocks (Brown, 1998). These include the typical thick-bedded Middle Aldridge turbidites and thinner bedded Lower Aldridge siltstones and argillites as well as the thick-bedded quartzites of the Ramparts facies. The Ramparts facies are exposed immediately east and south of Yahk, on the western slopes of Mount Mahon and extending to south of Hawkins Creek. The eastern limit of the facies is not known, mainly because the appropriate stratigraphic level is not exposed to the east, covered by younger Middle Aldridge stratigraphy. However, as discussed below, DDH CC02-1 intersected Ramparts facies interbedded with typical Lower Aldridge units which may indicate that the Cold Creek area is near the eastern limit of the Ramparts facies.

A number of prominent Moyie sills occur in both the Middle and Lower Aldridge. They appear to be concentrated at roughly two stratigraphic levels. Sills in the western part of the area occur in the Ramparts facies and upper part of the Lower Aldridge. They include one thick sill, exposed on the southwest slope of Mount Mahon and possibly a second thinner sill that is exposed just east of America Creek in the vicinity of the Canam

property. At least four sills, generally less than a hundred meters thick, occur on the west facing slopes east of Cold Creek. These are in the Middle Aldridge, several thousand meters above the Lower-Middle Aldridge contact.

### *Structure*

Lower and Middle Aldridge stratigraphy generally dips eastward throughout the area and, hence, the depth to the prospective Sullivan horizon increases to the east. Several prominent faults cut the area. The Hawkins Creek fault is an east-trending fault with net right-lateral movement of a few hundred meters. Displacement appears to decrease to the east. Several north-trending faults, including the Canuck and Mahon Creek faults (Brown, 1998), have minor normal displacement. They are interpreted to be older than the Hawkins Creek fault. Displacement on these faults is generally less than a few hundred meters.

It is probable that the north-trending faults parallel Aldridge-age growth faults. They appear to parallel a broad zone that marks a change in Lower Aldridge stratigraphy, from the thick-bedded, massive quartzites of the Ramparts facies to thinner-bedded turbidites of the Lower and Middle Aldridge. Furthermore, they occur in an area where a north-trending Middle Aldridge sill abruptly changes to a dyke, cutting westward across stratigraphy, a feature noted elsewhere in areas of growth faulting. A number of large fragmental units on the eastern slopes of Cold Creek are also suggestive of growth faulting in the Cold Creek area.

### *Mineralization*

Although no Minfile occurrences are noted in the immediate area, diamond drilling has discovered several mineral occurrences, and soil geochemical surveys have defined areas of anomalous base metal mineralization.

The Canam occurrence south of Hawkins Creek, discovered by Cominco Ltd., consists of approximately 300 meters of anomalous lead and zinc in Middle Aldridge siltstone and quartzite. Both sphalerite and galena were visible in drill core, with Pb+Zn values commonly reaching 2000 ppm over tens of meters. Although the zone is not well defined at surface, soil geochemistry indicates that it may extend for a kilometer along strike, primarily as a zinc anomaly with a core of zone of anomalously higher lead and elevated arsenic.

Considerable drilling on the east slopes of Mount Mahon by Chevron Ltd. led to the discovery of semi-massive sulphides in drill hole YA-6 near the Fringe marker in the Middle Aldridge. Subsequent drilling in the immediate area failed to locate the continuation of the zone.

In 1999 Rio Algom drilled an 883.2 meter hole a few hundred meters north of YA-6. The purpose of this hole was to test the Sullivan horizon (lmc) at the contact between the Lower and Middle Aldridge. However, due to a thick gabbro sill and 400 meters of Ramparts facies, lmc was not intersected or identified. The gabbro sill? was intersected between 414.6 and 792.75 meters and contained several copper and nickel

anomalies associated with patches of disseminated pyrrhotite and minor chalcopyrite. One chlorite-calcite shear vein, sub-parallel to the core axis assayed 12.84 grams/tonne gold over 80 cm. Several laminated siltstone units in the Middle Aldridge also contained visible sphalerite and galena, with zinc values ranging to 464 ppm.

**Drill results**

Drill hole CC02-1 is an extension of MM91-1, drilled in 1991 by Minnova Resources in the Cold Creek valley. Detailed logs are presented in Appendix 1 and summarized below.

| | |
|---|---|
| 0 – 425.7 m | DDH MM91-1 |
| 425.7 – 474.2 | Middle Aldridge siltstone, argillite |
| 474.2 – 474.5 | Possible Hiawatha marker siltstone |
| 474.5 – 526.1 | Siltstone, silty argillite |
| 526.1 – 558.5 | Quartzite interbedded with argillite and siltstone. |
| 558.5 – 571.0 | Massive "composite" siltstone-argillite unit |
| 571.0 – 815.0 | Interbedded quartzite; siltstone and argillite |
| 815.0 – 850.0 | Sections of Fringe marker preserved in quartzite and siltstone. |
| 850.0 - 998.5 | Interbedded quartzite; siltstone and argillite |
| 998.5 – 1006.1 | Gabbro |
| 1006.1 – 1055.0 | Siltstone, argillite and minor quartzite; some L. Ald. lithologies |
| 1055.0 – 1060.8 | Lower Aldridge argillite |
| 1060.8 – 1115.0 | Siltstone, argillite |
| 1115.0 – 1161.5 | Gabbro-granophyre |
| 1161.5 – 1200.9 | Lower Aldridge siltstone and argillite. |

Fairly typical Middle Aldridge turbidite units predominate from 425 to 526 meters, with the Hiawatha marker unit possibly recognized at 474 meters. The quartzites units below 526 meters are typical of the lower part of the Middle Aldridge, with the Fringe marker partially preserved between 815 and 850 meters. Below approximately 1024 meters, argillites typical of the Lower Aldridge begin to appear, interlayered with quartzites and siltstones. It is interpreted that these interlayers of Lower Aldridge argillites and siltstones with quartzitic units may represent eastern facies of the Ramparts facies. This may imply that Drill hole CC02-1 is near the eastern edge of the Ramparts facies, with more typical basinal facies of the Lower Aldridge farther east.

Laminated argillite and thin-bedded siltstone, typical of the Lower Aldridge, predominate below 1055 meters. Pyrrhotite is common, occurring as disseminations and thin lamellae. A 40-meter thick gabbro-granophyre complex in the Lower Aldridge contains thin veins with pyrrhotite, arsenopyrite and chalcopyrite.

The Lower-Middle Aldridge contact was not clearly identified. It is probable that it is replaced here by interbedded competent quartzites of the Ramparts facies with Lower Sullivan horizon and Lower Aldridge lithologies. The top of the Ramparts facies here may, therefore, correlate with the upper part of the Lower Aldridge. It is still probable, however, that the footwall quartzites in the Sullivan mine area are the distal equivalents of part the Rampart facies.

**Summary**

An extensional basin, the Cold Creek basin, is postulated to occur south of the Moyie fault, in the Cold Creek area east of the town of Yahk. The basin is inferred to trend north-northwest, parallel to the rift axis of the Purcell basin. It appears to be marked by a pronounced facies change in sediments of the Lower Aldridge, from the quartzitic Ramparts facies in the west to more typical turbidites farther east. The occurrence of several large fragmentals, on the east slopes of Mount Mahon and on the west slopes of Cold Creek, the pronounced facies change, and both tourmalinites and sulphide mineralization suggest that this basin may be a graben, similar to those recognized farther north.

Two zones of stratiform zinc-lead mineralization have been discovered in the Middle Aldridge in the Cold Creek area. The Can Am showing south of Hawkins Creek contains a 300-meter thick zone of disseminated sphalerite and galena, and drill hole YA-6 on the east slopes of Mount Mahon contains a semi-massive sulphide interval with pyrrhotite, sphalerite and galena. Extension of drill hole MM91-1 just east of YA-6 was an attempt to target the prospective Sullivan horizon at the Lower Aldridge-Middle Aldridge contact.

Diamond drill hole CC02-1 is an extension of hole MM91-1 drilled by Minnova in the Cold Creek valley in 1991. It intersected approximately 600 meters of typical Middle Aldridge stratigraphy, at a depth of 425 to 1025 meters, then quartzites more typical of the Ramparts interlayered with Lower (or Middle Aldridge?) facies to 1055 meters. Underlying argillites and siltstone are similar to those of the Lower Aldridge. Hence, it is possible that the Lower-Middle Aldridge contact or Sullivan horizon is, in part, replaced by quartzites of the Ramparts facies. Interlayered Lower Aldridge facies and Ramparts facies suggests further that this location may be close to the eastern limit of the Ramparts facies.

Farther west, Rio Algom drilled to 883 meters on the east slope of Mount Mahon in 1999 (DDH YK-99-01). This hole also appears to have intersected a Middle Aldridge-Ramparts contact, but this is not certain due to a lack of diagnostic markers. A distinct Sullivan horizon was not recognized here either. However, mineralization in YK99-01 included minor galena in fractures, anomalous zinc in laminated siltstone, and an 80 cm length of a quartz-sulphide in a gabbro sill that contained 12.87 g/t gold with highly anomalous nickel and copper.

A 540-meter hole (CA00-1) drilled by Abitibi just south of Hawkins Creek did not penetrate to Sullivan depth.

In summary, the laminated, pyrrhotite-rich Sullivan facies at the Lower-Middle Aldridge contact has not been tested in the Cold Creek area, as it appears to be replaced, in part, by more massive quartzites of the Ramparts facies. It is probable that the Ramparts facies dies out to the east, replaced by typical Lower and Middle Aldridge stratigraphy. Hence, a target Sullivan horizon test should be located farther east.

**References**


Anderson, H.E. and Parrish, R.R. (2001): U-Pb geochronological evidence for the geological history of the Belt-Purcell Supergroup, southeastern British Columbia; in The Geological Environment of the Sullivan Deposit, British Columbia; *Geological Association of Canada, Mineral Deposit Division*, Special Publication No. 1, J.W. Lydon, T. Höy, J.F. Slack and M.E. Knapp (*Editors*), pages 113-126.

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Höy, T. (1989): The age, chemistry and tectonic setting of the Middle Proterozoic Moyie sills, Purcell Supergroup, southeastern British Columbia; *Canadian Journal of Earth Sciences*, Volume 26, pages 2305-2317.

Höy, T. (1993): Geology of the Purcell Supergroup in the Fernie west-half map-area, southeastern British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Bulletin 84, 157 pages

Höy, T. (2001): Tectonic, magmatic and metallogenic history of the early synrift phase of the Purcell basin, southeastern British Columbia; in The Geological Environment of the Sullivan Deposit, British Columbia; *Geological Association of Canada, Mineral Deposit Division*, Special Publication No. 1, J.W. Lydon, T. Höy, J.F. Slack and M.E. Knapp (*Editors*), pages 32-60.

**Statement of qualifications: Doug Anderson**

I, Douglas Anderson, Consulting Geological Engineer, have my office at 3205 6th. St. South in Cranbrook, B.C., V1C 6K1.

I graduated from the University of British Columbia in 1969 with a Bachelor of Applied Science in Geological Engineering.

I have practiced my profession since 1969, predominantly with one large mining company, in a number of capacities all over Western Canada. I have been an independent geological consultant for the last four years.

I am a Registered Professional Engineer and member of the Association of Professional Engineers and Geoscientists of B.C., and I am authorized to use their seal which has been affixed to this report.

I am also a Fellow of the Geological Association of Canada.

Dated this 5th day of December, 2002

_____

Douglas Anderson, P.Eng., B.A.Sc., FGAC
Consulting Geological Engineer

**Statement of qualifications: Trygve Höy**

I, Trygve Höy, of the town of Sooke, province of British Columbia, do hereby certify that:

1. I am a an independent project geologist, with a business office at 2450 Dixon Road, Sooke, B.C., Canada, V0S 1N0.
2. I am a graduate in geology, with a BSc in geology from The University of British Columbia (1968).
3. I received my Masters degree in geology from Carleton University, Ottawa, Ontario in 1970.
4. I received my PhD in geology from Queens University, Kingston, Ontario in 1974.
5. I am a registered member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia (No. 10,342).
6. I am a fellow of the Geological Association of Canada and a member of the Society of Economic Geologists.
7. I have practiced my profession as a geologist for 28 years: 27 years as a project geologist with the British Columbia Geological Survey Branch, and approximately 1 year as an independent consultant.
8. I am the project geologist supervising exploration programs for Klondike Gold Corp. in the Purcell Mountains of southeastern British Columbia. The data of this report was collected by myself, my coauthor, and other qualified geologists employed by Super Group Holdings Ltd. of Cranbrook, British Columbia.

.....

Trygve Höy, P.Eng, Ph.D.
*Project geologist*
December 30, 2002

**Statement of qualifications: Dave Pighin**

I, Dave Pighin, of the town of Cranbrook, province of British Columbia, do hereby certify that:

1. I am a project geologist with Super Group Holdings Ltd., 1805 13th Ave S., Cranbrook, B.C., V1C 5Y1.
2. I am a registered member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
3. I have practiced my profession as a geologist for approximately 35 years:
   27 years as an exploration geologist with Cominco Ltd.
   8 years as an independent consultant, and with Super Group Holdings Ltd.
4. The field work for this report was carried out in the summer of 2002, and was written in collaboration with Trygve Höy.

.....
Dave Pighin
Exploration geologist
December 13, 2002

**Statement of Expenditures**

| | |
|---|---|
| Geology and mapping | $14,242.98 |
| Site administration | 2,149.46 |
| Drilling | 74,959.50 |
| Equipment | 2,375.49 |
| Food | 156.34 |
| Supplies | 1,192.10 |
| Travel | 1,327.57 |
| Sub total | $96,403.44 |
| Administration (15%) | 14,460.51 |
| **Total** | **$110,863.95** |

# Appendix 1

**Drill hole record: CC02-1**

| | |
|---|---|
| Hole No.: | CC02-1 |
| Property: | Cold Creek |
| District: | Nelson |
| Claim: | Hot 2 |
| Location: | Cold Creek valley, 10 km east of Yahk |
| Coordinates: | 577630 East; 5438820 North |
| Elevation: | 1245 meters |
| Commenced: | July 16, 2002 |
| Completed: | |
| Length of hole: | 1200.9 meters |
| Collar dip: | 73 degrees |
| Bearing: | 230 degrees |
| Dip test results: | none |
| Core size: | NQ |
| Objective: | To test for stratiform mineralization at the Sullivan horizon |
| Logged by: | Dave Pighin |
| Location of core: | Super Group field office (Vine property) |
| Drill contractor: | Leclerc Drilling Ltd. |
| Drill type: | |

**Drill Log:**

| Meters | Description |
|---|---|
| (note this is an extension of DDH MM91-1) | |
| 425.7 – 439.0 | Siltstone interbedded with silty argillite; at 428 m, 30 cm thick Hiawatha marker interval; thin bedded to very thin bedded; minor cross-beds; strong biotite throughout; some sericite, pink garnet. |
| 439.0 – 437.3 | Siltstone with minor interbedded argillite; thick to very thick bedded with rare thin-bedded argillite; silicified. |
| 437.3 – 445.6 | Siltstone interbedded with silty argillite and argillite; medium bedded to very thin bedded; some graded beds; minor cross-beds; rare pyrite with garnet. |
| 445.6 – 448.0 | Siltstone; medium bedded to thick bedded; biotite, minor sericite, and garnets continue. |
| 448.0 – 452.0 | Argillite interbedded with silty argillite; 448.8 – 449.0: Hiawatha marker bed; thin bedded to very thin bedded; laminated; pyrrhotite wisps and blebs occur throughout. |
| 452.0 – 464.3 | Siltstone; medium bedded to thick bedded Middle Aldridge turbidite beds; silicified; pink garnets; hairline fractures with sericite envelopes; weakly disseminated pyrite and pyrrhotite. |
| 464.3 – 481.6 | Siltstone interbedded with silty argillite and argillite; 474.2 – 474.5 m: marker bed (Hiawatha?); medium bedded to very thick bedded; some thin bedded siltstone beds with cross-beds; bedding – core angle = 87 deg.; rare pyrrhotite as discontinuous wispy lenses. |
| 481.6 – 493.0 | Siltstone; medium bedded to thick bedded; silicified; biotite; small pink euhedral garnets; 10 cm concretions of silicification, coarse biotite and garnet. |
| 493.0 – 504.0 | Silty argillite; argillite and siltstone; thin bedded to very thin bedded; some cross-beds; bedding – core angle = 83 deg. biotite throughout; some garnets; fine grained pyrrhotite overprinted by pyrite; some thin, irregular massive sulphide veinlets and lenses. |
| 504.0 – 516.0 | Siltstone, minor thin argillite tops to beds; medium bedded to thick bedded; typical turbidite beds; silicified, some disseminated biotite; concretions with pink garnet and black tourmaline needles; rare disseminated pyrrhotite. |
| 516.0 – 526.1 | Silty argillite interbedded with siltstone and minor argillite; thin bedded to very thin bedded; rare medium bedded; some fine cross-beds; biotite and sericite throughout; pink garnets; weak pyrrhotite disseminations. |
| 526.1 – 530.4 | Quartzite; interbedded with siltstone and argillite; medium bedded to thick bedded; flame structures; ball and pillow structures typical of |

| | |
|---|---|
| | turbidites; silicified; biotite and sericite throughout; some pink garnets; rare disseminated pyrrhotite. |
| 530.4 – 535.3 | Siltstone interbedded with argillite and silty argillite; medium bedded to thin bedded; graded, flame structures; bedding/core=81 deg.; weakly disseminated pyrrhotite. |
| 535.3 – 540.7 | Quartzite interbedded with argillite, minor siltstone; medium bedded to thick bedded; some argillite beds are finely laminated; rare disseminated pyrrhotite. |
| 540.7 – 558.8 | Quartzite interbedded with argillite; medium bedded to thin bedded; graded; disseminated garnets; widely disseminated pyrrhotite; some very thin laminae. |
| 558.5 – 571.0 | Massive "composite" unit; massive silty argillite; mixed siltstone-argillite; quartzite grading to a massive argillite base; generally dark grey; 558.5 – 565.8: massive unit; to 565.8: fine grained silty argillite, structureless slump zone; to 570.3: medium bedded quartzite with rare siltstone clasts; to 571: massive silty argillite; biotite throughout; some garnets; pyrrhotite disseminated throughout. |
| 571.0 – 580.5 | Quartzite interbedded with siltstone and argillite; medium bedded to thin bedded; thin shear at 576.5 at 45 deg.; some disseminated pyrrhotite; rare pyrite veinlets. |
| 580.5 – 600.0 | Quartzite; minor siltstone; rare argillite beds; generally thick to very thick bedded; silicified; weak disseminated biotite; pink garnets; minor disseminated pyrrhotite. |
| 600.0 – 603.0 | Silty argillite; interbedded with siltstone; thin bedded to very thin bedded; minor slump structures; finely disseminated pyrrhotite. |
| 603.0 – 616.0 | Siltstone interbedded with silty argillite, argillite and rare quartzite; medium bedded to thick bedded; typical turbidites; bedding/core = 87 deg.; minor disseminated pyrrhotite. |
| 616.0 – 620.8 | Quartzite; thick to very thick bedded; generally massive; silicified; sericite throughout; 30 cm intense biotite zone with amphibole and pink garnet; rare disseminated pyrrhotite. |
| 620.8 – 642.6 | Silty argillite interbedded with argillite, quartzite, and siltstone; medium bedded to thin bedded; sharp bedding planes; argillite is well laminated; common graded beds; concretions of biotite, amphibole and garnet; disseminated pyrrhotite in silty argillite; rare pyrrhotite laminae; arsenopyrite disseminated in concretion at 627.9 m. |
| 642.6 – 646.6 | Argillite interbedded with silty argillite; thin bedded to very thin bedded; well laminated; biotite throughout; rare disseminated pyrrhotite. |
| 646.6 – 649.5 | Quartzite; thick to very thick bedded; disseminated garnet; silicified; common biotite and sericite; rare disseminated pyrrhotite. |

| | |
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| 649.5 – 659.8 | Silty argillite interbedded with argillite; rare siltstone; thin bedded to very thin bedded with some medium bedded siltstone; some irregular load casting at base of siltstone; disseminated biotite; minor garnet; rare disseminated pyrrhotite. |
| 659.8 – 666.6 | Quartzite; thick to very thick bedded; silicified; silicified concretions with garnet, amphibole, coarse biotite and sericite; rare disseminated pyrrhotite. |
| 666.6 – 669.4 | Silty argillite interbedded with siltstone and minor argillite; medium bedded to thin bedded; core/bedding = 82 deg.; some biotite; rare pyrrhotite. |
| 669.4 – 673.4 | Quartzite; thick bedded; medium to fine grained; silicified; sericite; rare pyrrhotite. |
| 673.4 – 683.5 | Silty argillite interbedded with siltstone and argillite; medium bedded to thin bedded; silty argillite is finely laminated; fault zone at 673.5 – 673.8 with sheared gabbro at 45 deg. angle; 10 cm muscovite at 681.7 m; dendritic pyrrhotite from 680 to 682 meters. |
| 683.5 – 692.2 | Quartzite; thick to very thick bedded; typical turbidites; silicified; abundant sericite; some pink garnet. |
| 692.2 – 695.5 | Silty argillite interbedded with argillite; thin bedded to very thin bedded; biotite throughout; rare disseminated pyrrhotite. |
| 695.5 – 733.5 | Siltstone, minor quartzite interbedded with silty argillite and argillite; 714.5 – 720.0: medium bedded calcareous silty argillite (typical Lower Aldridge type bedding?); medium bedded to thin bedded; rare thick beds; bedding/core = 81 deg.; biotite locally intense; some biotite, garnet and sericite concretions; pyrrhotite disseminated and in thin laminae in calcareous zone; quartz veins at 717.7 m with coarse sphalerite and rare galena. |
| 733.5 – 737.4 | Siltstone interbedded with quartzite; rare thin argillite beds; medium bedded to thick bedded; generally wavy beds; commonly graded; silicified; weakly disseminated biotite; large 15 cm white albitic and calcareous concretions with abundant disseminated garnet and biotite; blebs of pyrrhotite in concretions. |
| 737.4 – 741.5 | Argillite interbedded with silty argillite and rare siltstone; thin bedded to very thin bedded; bedding/core = 77 deg.; biotite throughout. |
| 741.5 – 769.2 | Quartzite interbedded with siltstone and silty argillite; medium bedded to thick bedded; some load casts; fine laminations in argillite; silicified; sericite throughout; some garnet; minor albite in concretions; relatively abundant disseminated pyrrhotite in argillite beds and in concretions; 753.7 – 756.4: gabbro; fine grained, dark green, sharp boundaries. |
| 769.2 – 776.8 | Siltstone interbedded with silty argillite and rare quartzite; medium bedded to very thin bedded; sharp bedding planes; commonly graded |

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| | beds; silicified in part; albite-calcareous concretions; garnet-biotite-sericite concretions; pyrrhotite blebs in concretions. |
| 776.8 – 780.0 | Quartzite with thin argillite tops (turbidite beds); thick to very thick bedded; sharp contacts; some flames, load casts, graded beds; silicified; sericite alteration; some garnet. |
| 780.0 – 792.0 | Siltstone interbedded with silty argillite, minor argillite and quartzite; medium bedded to thin bedded; flame structures, load casts; soft-sediment structures; graded beds; bedding/core = 80 deg; biotite throughout; albite, late biotite, garnet and amphibole concretions; rare disseminated pyrrhotite. |
| 792.0 – 794.9 | Quartzite; thick to very thick bedded; silicified; some garnets. |
| 794.9 – 809.7 | Quartzite interbedded with siltstone, silty argillite and argillite; medium bedded to thin bedded; fine laminations in argillite; some soft sediment deformation; biotite and sericite throughout; typical concretion alteration; weakly disseminated pyrrhotite. |
| 809.7 – 813.0 | Quartzite; thick to very thick bedded; widely scattered garnet; very rare disseminated pyrrhotite. |
| 813.0 – 815.5 | Siltstone interbedded with silty argillite; medium bedded to thin bedded; abundant soft sediment structures; fine biotite; minor disseminated pyrrhotite. Fringe marker at 815 meters. |
| 815.5 – 829.7 | Quartzite with minor argillite beds; thick to very thick bedded; bouma turbidite sequences; widely scattered pyrrhotite blebs. |
| 829.7 – 835.4 | Siltstone interbedded with argillite; medium bedded to very thin bedded; graded beds; soft sediment structures in argillite; abundant biotite in siltstone beds; sericite; relatively abundant pyrrhotite as thin laminae and weakly disseminated. |
| 835.4 – 840.6 | Siltstone interbedded with silty argillite; medium bedded to thick bedded; fine biotite; sericite throughout; pyrrhotite in rare thin laminae and weakly disseminated. |
| 840.6 – 844.3 | Silty argillite interbedded with argillite; medium bedded to thin bedded; laminated; bedding/core = 80 deg.; sericite and biotite throughout; some chlorite and garnet; relatively abundant pyrrhotite as thin laminae and weakly disseminated. Fringe marker matched at 841.5 meters. |
| 844.3 – 851.0 | Siltstone with minor argillite; medium bedded to thick bedded; some thin to very thin beds in interval; some graded turbidite beds; biotite and sericite throughout; rare disseminated pyrrhotite. Base of Fringe marker occurs at 850 meters. |
| 851.0 – 858.0 | Quartzite interbedded with siltstone; thick to very thick-bedded turbidites; weak biotite and sericite throughout; rare disseminated pyrrhotite. |

858.0 – 861.2 Siltstone interbedded with silty argillite and argillite; medium bedded to very thin bedded; some soft sediment deformation; minor disseminated pyrrhotite.

861.2 – 867.8 Siltstone interbedded with quartzite and minor argillite; medium bedded to very thick bedded; silicified; weak biotite, some garnet; rare disseminated pyrrhotite.

867.8 – 876.0 Silty argillite interbedded with siltstone and argillite; thick bedded quartzite at 871.8 – 873.1 m; thin bedded to very thin bedded; argillite is finely laminated; core/bedding = 78 deg.; biotite throughout; weak disseminated pyrrhotite.

876.0 – 884.0 Quartzite interbedded with siltstone; rare thin argillite beds; medium bedded to thick bedded; typical turbidites; silicified; sericite; some large albitic concretions with coarse amphibole, biotite, and euhedral pink garnet;

884.0 – 888.0 Silty argillite and argillite; medium bedded to thin bedded; some soft sediment structures; biotite and sericite alteration; concretions; rare disseminated pyrrhotite.

888.0 – 893.0 Quartzite interbedded with siltstone and minor argillite; medium bedded to thick bedded; commonly graded; rare disseminated pyrrhotite.

893.0 – 924.2 Siltstone interbedded with silty argillite and argillite; medium bedded to very thin bedded; load casts and flame structures; bedding/core = 77 deg.; biotite and garnet throughout; concretions as above continue; rare disseminated pyrrhotite.

924.2 – 929.1 Siltstone interbedded with argillite; medium bedded to thick bedded; biotite throughout; rare disseminated pyrrhotite.

929.1 – 939.4 Siltstone interbedded with silty argillite and argillite; medium bedded to thin bedded; rip-up clasts in argillite; bedding/core = 79 deg; biotite throughout; relatively abundant pyrrhotite as massive blebs, disseminations and thin lamellae.

939.4 – 944.0 Calcareous silty argillite; very thick bedded; generally massive; biotite throughout; calcite as disseminated throughout; pyrrhotite locally abundant as fine disseminations and in blebs in calcite-quartz fractures parallel to core axis.

944.0 – 960.5 Quartzite with minor interbedded siltstone and silty argillite; medium bedded to thick bedded; silicified; sericite; rare disseminated pyrrhotite.

960.5 – 964.0 Silty argillite interbedded with siltstone and argillite; medium bedded to thin bedded; biotite throughout; rare disseminated pyrrhotite.

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| 964.0 – 976.4 | Siltstone interbedded with quartzite and minor argillite; medium bedded to thin bedded; typical graded turbidite beds with argillite tops. |
| 976.4 – 979.5 | Quartzite; thick to very thick bedded. |
| 979.5 – 989.4 | Quartzite interbedded with silty argillite and less siltstone and argillite; medium bedded to thin bedded; minor rip-up clasts in quartzite; load casts at base of quartzite; biotite common in siltstone and argillite; rare pyrrhotite. |
| 989.4 – 993.4 | Quartzite interbedded with minor argillite; medium bedded to thick bedded; rare pyrrhotite. |
| 993.4 – 998.5 | Siltstone interbedded with silty argillite and argillite; medium bedded to thin bedded; biotite and rare concretions; relatively abundant pyrrhotite, disseminated and in tension cracks. |
| 998.5 – 1006.1 | Gabbro sill; fine grained on margins with a coarse grained core. |
| 1006.1 – 1013.7 | Siltstone interbedded with quartzite, silty argillite and argillite; medium bedded to thick bedded; slump structures; biotite throughout siltstone and argillite; rare disseminated pyrrhotite. |
| 1013.7 – 1024.0 | Siltstone interbedded with silty argillite; medium bedded to thin bedded; some soft sediment deformation; some disseminated pyrrhotite. |
| 1024.0 – 1034.3 | Siltstone interbedded with argillite and silty argillite; generally medium bedded to thin bedded, typical of some Lower Aldridge sediments; graded beds; laminated beds; bedding/core = 80 deg.; minor disseminated pyrrhotite. |
| 1034.3 – 1040.0 | Siltstone interbedded with quartzite and silty argillite; medium bedded to thin bedded; flat distinct bedding planes typical of Lower Aldridge; fine biotite throughout; minor disseminated pyrrhotite. |
| 1040.0 – 1055.0 | Siltstone interbedded with quartzite and silty argillite and argillite; medium bedded to thin bedded; some thick bedding; rare disseminated pyrrhotite. |
| 1046.3 – 1055.0 | Siltstone interbedded with silty argillite; medium bedded to thin bedded; flame structures; rare disseminated pyrrhotite. |
| 1055.0 – 1060.8 | Argillite interbedded with silty argillite; typical Lower Aldridge sediments; medium bedded to thin bedded; flat, sharp bedding planes; biotite throughout; common pink garnet; abundant pyrrhotite as disseminations and thin lamellae. |
| 1060.8 – 1068.4 | Siltstone interbedded with argillite and silty argillite; medium bedded to thick bedded; some flame structures; graded beds; typical turbidites; biotite and sericite common; rare weakly disseminated pyrrhotite. |

1068.4 – 1077.7 Siltstone interbedded with argillite and silty argillite; graded beds; very thin bedded to thin bedded; some medium bedded to thick bedded; bedding/core = 78 deg.; biotite and sericite throughout; garnet is common, typically disseminated throughout; minor disseminated pyrrhotite.

1077.7 – 1080.6 Siltstone interbedded with argillite; medium bedded to thick and very thick bedded; typical turbidites with argillaceous tops; rare disseminated pyrrhotite.

1080.6 – 1086.0 Siltstone interbedded with argillite; thin bedded to very thin bedded; parallel laminated; local slump structures; some argillite beds are totally composed of biotite; widely scattered pink garnet overprints all other alteration; pyrrhotite is weakly disseminated.

1086.0 – 1090.0 Siltstone; medium bedded to thick bedded; silicified; biotite and sericite throughout; pink garnets common; pyrrhotite is common with locally 2 % disseminated.

1090.0 – 1115.0 Siltstone interbedded with quartzite and minor argillite; generally medium bedded to thick bedded; some intervals of laminated argillite; load casts common; soft sediment deformation structures; bedding/core = 75 deg.; biotite throughout; garnet is common; pyrrhotite disseminated throughout; locally abundant (to 35%) in a 10 cm siltstone unit.

1115.0 – 1127.5 Granophyric quartzite; massive with no bedding planes; intensely silicified; coarse blocks of biotite; no sulphides.

1127.5 – 1161.5 Gabbro-granophyre complex; to 1138.0 – gabbro gradational to granophyre; to 1156 – granophyre; to 1161.5 – gabbro; lower contact at 90 deg to core and marked by 5 cm of calcite-quartz breccia; granophyre is medium grained quartz and biotite; white tabular clasts with sericite alteration common, and typically aligned at 70 deg to core axis; the granophyre is probably an altered sediment (granofels) surrounded by two small gabbro sills. Mineralization: 1127.5 – 1128 m: biotite zone with talc?, thin veinlets containing very minor tetrahedrite, pyrite and arsenopyrite; at 1146.6 m: 2 cm quartz vein with massive pyrrhotite and chalcopyrite; also minor quartz-biotite veins with pyrrhotite.

1161.5 – 1200.9 Siltstone interbedded with argillite; typical Lower Aldridge sediments; thin bedded to very thin bedded; some medium bedded to thick bedded; bedding/core = 76 deg.; biotite throughout; disseminated pyrrhotite; tension cracks with pyrrhotite.

End of hole at 1200.9 meters.