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## V6B 1N2

M.R. \# UCTORIA, B.C.

# Diamond drilling (P02-1) in the Cooper Lake area, Nelson Mining Division, Southeastern British Columbia 

NTS 082F/8: $\mathbf{4 9}^{\circ} \mathbf{2 0}{ }^{\prime} \mathrm{N} ; \mathbf{1 1 6}^{\circ} 06.5^{\prime} \mathrm{W}$
(Lewis 6 claim)
Claim owners: Sedex Mining Corp. Operator: Klondike Gold Corp.

by:<br>Trygve Höy, P.Eng, Ph.D consultant 2450 Dixon Road Sooke, B.C., VOS 1N0<br>and<br>Dave Pighin, P.Geo<br>Super Group Holdings Ltd.<br>$180513^{\text {th }}$ Ave S.<br>Cranbrook, B.C., V1C 5Y1

## GEOLOGICAL SURVEY BRANCH ASSESSMENTMTV, $2002 T$



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## Introduction

Diamond drill hole P02-1 is located in the Purcell Mountains, approximately 30 kilometers southwest of Cranbrook (Figure 1). The site is on a logging landing in the Moyie River valley, 2 kilometers east-northeast of Cooper Lake (Figure 2). Access is via a well-maintained gravel road that follows the Moyie River, leaving Highway 3 at Lumberton just west of Cranbrook. Topography in the area is moderate to relatively steep, with relief ranging from approximately 1400 meters in the Moyie River to nearly 2200 meters on the ridges west of Cooper Lake.

Considerable past geological work has been done in the claim area, largely spurred by the success of the world-class Sullivan sedex deposit at Kimberley, and by the occurrence of a number past-producing lead-zinc-silver mines in the area, including the St. Eugene and the Estella. The immediate claim area has been mapped at $1: 50,000$ scale by Brown (1998) and in more detail $(1: 20,000)$ by D. Pighin and D. Anderson (personal communication, 2002). A large area, including the upper reaches of the Moyie River, was staked by Sedex Mining Corp. from 1994 through to 1997. The property was optioned to Kennecott Canada Exploration Inc. and an exploration program including geological mapping, diamond drilling, gravity, soil geochemical, and magnetic surveys was conducted in 1996 and 1997.

Drilling in the immediate claim area is limited. Diamond drill hole SMC 95-1, located 2 kilometers north of hole P02-1, was drilled by Sedex Mining Corp. in 1995 (Figure 3). The hole contained considerable hydrothermal alteration, a thickened section, visible sphalerite and anomalous base metal values at the prospective Sullivan horizon. Drill hole K97-1, located between SMC 95-1 and P02-1, was drilled by Kennecott Exploration Ltd in 1997, under an option with Sedex Mining Corp., to test a magnetic anomaly. It was drilled to a depth of 79 meters and intersected gabbro with disseminated magnetite, explaining the anomaly.

Drill hole K97-2, 5 kilometers south of P02-1, was drilled by Kennecott to test a gravity anomaly. The hole was stopped at 762.2 meters after intersecting a thick gabbro dike near the top of the hole that was interpreted to be the cause of the anomaly. Klondike Gold Corp. extended the hole in the fall of 2002, but due to considerable stratigraphic thickening and a fault repetition of a gabbro sill, the hole was stopped short of the Sullivan horizon (Pighin and Höy, 2003).

Several holes were also drilled by Kennecott in 1997, 3.5 kilometers east of K972, near the headwaters of Lewis Creek (Figure 3). These holes had encouraging results, with one intersection (DDH K97-3) of semi-massive sulphides that averaged 5.82 percent lead, 9.65 percent zinc and 49.4 g /tonne silver across 2.55 meters. Although parallel to layering, this intersection was interpreted to be a vein. The underlying Sullivan horizon in this hole was also anomalous, containing 168 ppm lead and 477 ppm zinc across a 3.0 meter interval.


Figure 1: General location map showing regional geology.


Figure 2: Claim location map.

Drill hole P02-1 began on October 15, 2002 and was completed on November 16 at a depth of 1111.6 meters (Appendix 1). It was drilled in an attempt to determine the source and extent of anomalous lead and zinc in hole SMC 95-1. It intersected approximately 24 meters of pyrrhotite-rich argillaceous sediments, referred to as the Sullivan horizon, with anomalous concentrations of base metals (Appendix 2).

## Regional Geology

The area is near the center of the Purcell anticlinorium, a broad generally northplunging structure in southeastern British Columbia that is cored by Middle Proterozoic Purcell Supergroup and flanked by Late Proterozoic Windermere Group or Paleozoic sedimentary rock. It lies west of the Rocky Mountain trench in the hanging wall of the Moyie fault, a northeast-trending right-lateral tear fault that is part of the Rocky Mountain fold and thrust belt. The Moyie fault follows earlier structures that have documented movements extending back to the Middle Proterozoic, and that partly controlled the distribution of the Middle Proterozoic through lower Paleozoic paleogeography.

The Purcell Supergroup comprises an early synrift succession, the Aldridge Formation, and an overlying generally shallow water post-rift or rift fill sequence, including the Creston and Kitchener Formations, and younger Purcell rocks (Höy, 1993; 2001).

The exposed part of the Aldridge Formation comprises more than 3000 meters of mainly turbidite deposits and numerous, laterally extensive gabbroic sills referred to as the Moyie intrusions. The Aldridge Formation has been subdivided into three informal, but well-established members. The lower sequence, the Lower Aldridge, comprises mainly thin to medium-bedded, pyrrhotite-rich, distal argillaceous turbidites. Its contact with the overlying Middle Aldridge, referred to as "Imc" or the "Sullivan horizon", is the focus of most of the exploration by Klondike Gold Corp. The Middle Aldridge comprises more than 2400 meters of medium-bedded quartzitic turbidites with prominent intervals of inter-turbidite 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 to laminated, pyrrhotite-rich argillite and siltstone.

The gabbroic sills are laterally extensive sills, typically up to several hundred meters thick, that can be traced over hundreds of square kilometers. Locally, particularly in areas of growth faulting, they cut across stratigraphy as dykes. Many of the Moyie sills have contact features that suggest intrusion into wet and partially consolidated sediments (Höy, 1989). Hence, a U-Pb age date of 1468 Ma (Anderson and Parrish, 2002) from one of these sills provides a minimum age for the Aldridge Formation and Sullivan sedex deposit.

## Property Geology

The area in the vicinity of drill hole P02-1 is entirely underlain by the Middle Proterozoic Aldridge Formation. The Aldridge Formation is relatively flat-lying or dips gently towards the east. A gabbro sill, several hundred meters thick, is exposed on the valley slopes just east of hole P02-1. Drill hole SMC 95-1, located just to the north, was collared in the sill and P02-1 intersected the sill at a depth of 84 meters.

Drill hole P02-1 is located in a structural panel between the northeast-trending Moyie fault and the Moyie River fault in the north. Although these faults have movements that continued into the Mesozoic, both are interpreted to be growth faults that were active in the Middle Proterozoic and controlled, in part, the distribution and thickness of the Aldridge Formation.

A variety of late faults cut the immediate area of P02-1. The Ice fault (Brown, 1998) is a northwest trending fault that extends from the Moyie fault to northwest of the Moyie River fault. The Kid fault trends northerly, following the Kid Creek valley. The Kid and the Ice fault intersect just north of drill hole P02-1. Movements on these faults are inferred to be normal, although displacements are minimal, probably less than a few hundred meters.

The area is inferred to be at the northern end of a generally north-trending, Aldridge-age structural basin or graben that is referred to as the Panda graben. The graben is characterized by a thickening of the Middle Aldridge succession., by concentrations of both cross-cutting and stratiform sedimentary fragmental or conglomerate units, and by anomalous concentrations of hydrothermal activity, including base metal mineralization and tourmalinites (Brown, 1998; Pighin and Höy, 2002).

Considerable work, including mapping, prospecting, geophysical surveys and some diamond drilling, has been done in the southern part of the graben, in the vicinity of Irishman Creek. This work was concentrated around several prominent fragmental units, including the "Miss Pickle" and "Goodie" fragmentals, and led to the discovery of the sulphide intersection in drill hole K97-3.

Sedimentary fragmental units are also prominent on the ridge east of drill hole P02-1. The "Active Ridge" fragmentals occur just east of SMC 95-1 and the "Big Lewis" fragmentals farther south on the ridge. This north-trending concentration of fragmental units, as well the prominent Middle Aldridge thickening, defines the axis of the Panda graben.

## Mineralization

Numerous small lead-zinc-silver veins have been discovered in the claim area. Most of these are in the vicinity of 1997 drilling by Kennecott (e.g., K97-3). This area is also marked by anomalous soil geochemistry, sedimentary fragmental units, and concentrations of tourmalinite. Similar features in the Sullivan camp, located 45 kilometers to the north, are known to be diagnostic indicators of growth faulting and development of a structural basin or graben.

Several showings of hematite breccias occur on the ridge east and south of P02-1 (see regional geology map of Brown, 1998). Little work has been done on these.

The area also lies within a broad, northeast-trending belt characterized by numerous gold showings, and past lode gold and placer mining. This belt extends from Creston in the Kootenay Lake valley to east of the Rocky Mountain trench, east of Cranbrook, and includes the historical placer creeks such as the Moyie River, Weaver Creek, Perry River, Sawmill Creek and the Wild Horse River. Many vein occurrences within this belt can be clearly tied to major structures, whereas others appear to be adjacent to felsic intrusions. Important gold deposits in the immediate area include David, located 4 kilometers north of P02-1 and Thea Gold, 7 kilometers to the south.

## Drill results

P02-1 is a vertical hole, drilled to a depth of 1111.6 meters. Details are given in Appendix 1 and analyses of the Sullivan horizon, in Appendix 2. The location of the hole is shown on figures 2 and 3.

P02-1 was collared in Middle Aldridge siltstone that is interbedded with argillite and minor quartzite. A gabbro sill, correlated with the Hiawatha sill, was intersected from 84.9 to 329 meters (Figure 4). A lower gabbro sill was intersected from 594.5 to 694 meters. The intervening succession is typical of Middle Aldridge stratigraphy elsewhere, comprising mainly argillaceous siltstone, some quartzite and interbedded argillite. However, no diagnostic marker units were recognized in this interval.

Medium bedded siltstone, quartzite and minor argillite occur from 694 meters to the "Sullivan horizon" (Lower-Middle Aldridge contact) at 1049 meters. Disseminated pyrrhotite and occasional pyrrhotite laminae occur throughout this interval. Sphalerite occurs rarely, in a crackle breccia at 748 meters, and as disseminated grains at 801, 970 and 1007 meters. Based on correlations with the stratigraphic succession in the Sullivan mine area and the Moyie Lake area to the south, the thickness of this basal part of the Middle Aldridge is considerably thicker here (by several hundred meters). This thickening is also noted in drill holes SMC 95-1 and K97-2 (and 2002 extension), supporting a model for a north-trending structural basin.

The "Sullivan horizon" comprises 25.6 meters of thin-bedded, laminated argillite and argillaceous siltstone. Fine-grained pyrrhotite is disseminated throughout and locally occurs as thin sulphide laminae. Sphalerite is fine grained, and notably visible over a 1.5 meter interval at 1071 meters. Lead and zinc are anomalous over the entire Sullivan horizon intersection, averaging 169 ppm zinc and 49 ppm lead over 22 meters. Two higher grade 2 -meter intervals, at 1067 meters and 1070 meters, contained 410 ppm zinc and 160 ppm lead, and 547 ppm zinc and 120 ppm lead, respectively (Appendix 2).

The Lower Aldridge below the Sullivan horizon, from 1074.6 to the end of the hole at 1111.6 meters, consists of maroon to grey siltstone interbedded with argillite. Pyrrhotite is disseminated throughout.


Figure 3: Simplified geology and location of drill holes in the Moyie West block.


Figure 4: Correlation of drill intersections in the Moyie West block, Kidd Creek and Irishman Creek areas: drill hole locations: P02-1: 564540E, 5464000N; K97-2: $564220 \mathrm{E}, 5458640 \mathrm{~N}$; SMC $95-1$ : $565579 \mathrm{E}, 5465432 \mathrm{~N}$; K97-3: 5678000E, 5457870 N. See Figure 3 for locations.

## Correlations

Figure 4 shows the correlation of drill hole P02-1 with other holes in the area. As no laminated marker units were recognized in this hole, these correlations are based mainly on matching the gabbros sills and the position of the Sullivan horizon at the Lower-Middle Aldridge contact.

Drill hole K97-3 was drilled approximately 7 kilometers to the south. It intersected a semi-massive concordant sulphide vein in the Middle Aldridge that assayed $5.82 \% \mathrm{~Pb}, 9.65 \% \mathrm{Zn}$ and $49.4 \mathrm{~g} /$ tonne Ag across 2.6 meters. The Sullivan horizon (lmc) in this hole consisted of approximately 17 meters of laminated, pyrrhotite-rich argillite and argillaceous siltstone that included a 3-meter interval containing 477 ppm Zn and 168 ppm Pb . Regionally, the Sullivan horizon is typically less than 10 meters in thickness.

K97-2 and its extension in 2002 (Pighin and Höy, 2002) is located 5 kilometers to the south of P02-1. This hole was stopped considerably short of the Sullivan target depth, due in part to limitations in the drill rig and to a considerably deeper target depth than originally estimated.

Drill hole SMC 95-1, located approximately 2 kilometers north of P02-1, contained an anomalously thick lmc intersection, with an interval ( 1 meter?) that graded 1471 ppm Zn and 782 ppm Pb .

## Discussion

The presence of a north-trending structural basin, from the Irishman Creek area to north of drill hole P02-1, is supported by this latest drilling. The basin is marked by a thickening of the lower part of the Middle Aldridge succession, anomalous concentrations of fragmental units and in the south, by tourmalinites and base metal mineralization.

Anomalous base metal values and a thickened Sullivan horizon suggest that the extensional faulting was active in the basin at Sullivan time. Further drilling is required to accurately vector the source of the anomalous base metal mineralization in the two northern drill holes (SMC 95-1 and P02-1). However, data in these two holes do indicate that both the absolute metal values and the lead/zinc ratios are increasing towards the northeast, from P02-1 to SMC 95-1. This suggests a metal source to the northeast and hence further drilling in the northern end of the Panda graben will be directed northeast of SMC95-1.

## 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.
Brown, D.A. (1998): Geological compilation of the Grassy Mountain (east half) and Moyie Lake (west half) map areas, southeastern British Columbia; B.C. Ministry of Energy and Mines, Geoscience Map 1998-3.
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.
Pighin, D. and Höy, T. (2002): Diamond drilling (K97-2) and geology in the Kidd Creek area, Nelson Mining Division, southeastern British Columbia; B.C. Ministry of Energy and Mines, Assessment report, 23 pages.

## 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 1 N0.
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.


## 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., $180513^{\text {th }}$ 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 and drilling for this report was carried out in the summer and fall of 2002, and was written in collaboration with Trygve Höy.

## Statement of expenditures

Geology and mapping:
Trygve Höy (geologist): ..... \$3,676.92
Dave Pighin (geologist) and Super Group staff. ..... $\$ 923.50$
Travel costs ..... \$1,593.59
Site administration. ..... \$2,243.49
Drilling costs ..... \$98,498.62
Assays ..... $\$ 459.67$
Supplies ..... \$817.55
Food costs ..... $\$ 134.45$
Report preparation. ..... $\$ 800.00$
Administration (15\%) ..... \$16,372.17
Total ..... $\mathbf{\$ 1 2 5 , 5 1 9 . 9 6}$

## Appendix 1

## Drill hole record: P02-1

Hole No.: ..... P02-1
Property: ..... Pay Day
District: Fort Steele
Claim: ..... Lew 6
Location: 1.4 km due east of Cooper Lake
Coordinates: 564540 East; 5464000 North
Elevation: ..... 1510 meters
Commenced: October 15, 2002
Completed: November 16, 2002
Length of hole: 1111.6 meters
Collar dip: 90 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: SuperGroup field office (Vine property)
Drill contractor: Lone Ranger Diamond Drilling Ltd.
Drill type: Longyear 44
meters Description

| 0-46 | Overburden |
| :---: | :---: |
| 46-84.9 | Middle Aldridge: siltstone interbedded with argillite and minor quartzite; generally thin bedded; core angle 86 deg. Biotite throughout, some silicification. |
| 84.9-329 | Gabbro; Hiawatha sill? coarsely crystalline; some scattered biotite throughout; quartz-calcite veins at 299 m . |
| 329-332.5 | Siltstone; crackle brecciated and intensely silicified |
| 332.5-345.1 | Siltstone interbedded with argillite and silty argillite; med. to thin bedded; soft sediment structures, cross-bedding; rare pyrrhotite and trace chalcopyrite . |
| 345.1-348 | Siltstone interbedded with quartzite; thick bedded; minor disseminated pyrrhotite. |
| 348-351.6 | Siltstone interbedded with argillite; very thin bedded; rare argillite beds host disseminated pyrrhotite. |
| 351.6-354.6 | Siltstone, thick bedded; 1.2 m gabbro at 352 m . |
| 354.6-360.5 | Siltstone interbedded with quartzite and minor argillite; medium to thin bedded; some soft sediment folding; silicified; minor disseminated pyrrhotite. |
| 360.5-368.2 | Argillite interbedded with siltstone; thin bedded to medium bedded; pyrrhotite relatively abundant in some sections. |
| 368.2-371.8 | Quartzite interbedded with argillite; medium bedded; some soft sediment folds; rare disseminated pyrrhotite. |
| 371.8-378.6 | Argillite interbedded with siltstone; thin bedded to very thin bedded; tension cracks filled with pyrrhotite; |
| 378.6-382.0 | Siltstone interbedded with silty argillite and argillite; medium bedded to thin bedded; minor disseminated pyrrhotite. |
| 382.0-403.9 | Siltstone interbedded with argillite and silty argillite; medium bedded to thick bedded; core to bedding angle - 84 deg; minor disseminated pyrrhotite. |
| 403.9-408.0 | Argillite; minor interbedded siltstone; generally thin bedded to very thin bedded; some soft sediment deformation including rip-up clasts and dewatering structures; minor disseminated pyrrhotite. |
| 408-413.2 | Quartzite interbedded with siltstone; rare argillite and rare 10 cm fragmental bed; medium bedded to thick bedded; these are fine |

to medium bedded turbidites with argillite tops; rare disseminated pyrrhotite.

| 413.2-423.6 | Siltstone interbedded with quartzite and argillite; medium <br> bedded to thin bedded; soft sediment structures; minor <br> disseminated pyrrhotite; rare sandy layers contain abundant |
| :--- | :--- |
|  | pyrrhotite and rare specks of chalcopyrite. |

423.6-429.5 Quartzite interbedded with argillite; medium bedded to thick bedded; intense silicification continues; rare pink garnet; finely disseminated pyrrhotite.
429.5-436.6 Argillite interbedded with siltstone; medium bedded to thick bedded; soft sediment deformation; minor disseminated pyrrhotite.
436.5-452.0 Siltstone interbedded with argillite; medium bedded to thick bedded; silicified; biotite; rare disseminated pyrrhotite.
452.0-458.6 Siltstone; minor quartzite; thick to very thick bedded; silicified; rare disseminated pyrrhotite.
458.6-466.9 Argillite interbedded with siltstone; thin bedded to very thin bedded; bedding to core angle -82 deg . biotite alteration throughout; rare disseminated pyrrhotite.
466.9-516.8 Siltstone, lesser quartzite; interbedded with argillite and silty argillite; 1 m gabbro sill at 515.8 with thin chloritic and albitic altered margins; medium bedded to thick bedded; soft sediment deformation; silicified; disseminated biotite; weakly disseminated pyrrhotite; $500 \mathrm{~m}-10 \mathrm{~cm}$ zone of chlorite and albite with irregular veinlets of pyrrhotite.
516.8-525.8 Argillite interbedded with siltstone; thin bedded to very thin bedded; biotite alteration; disseminated pyrrhotite.
525.8-545.9 Quartzite; minor interbedded siltstone and argillite; medium bedded to thick bedded; silicified; disseminated biotite and sericite; rare garnet; rare disseminated pyrrhotite.
545.9 - $548.1 \quad$ Argillite interbedded with siltstone; thin bedded to very thin bedded; biotite; rare pyrrhotite.
548.1-590.5 Quartzite interbedded with siltstone and rare argillite; medium bedded to thick bedded; bedding to core angle - 80 deg . silicified; weak biotite; weakly disseminated pyrrhotite; 586 m : 10 cm of intense albite-sericite with disseminated pyrrhotite and sphalerite.
590.5-594.5 Sedimentary fragmental; dark grey; massive unsorted sandy siltstone with widely scattered clasts of siltstone; intensely silicified; rare blebs of pyrrhotite.
594.5-694.0 Gabbro; green; 646.0-651.5: fracture zone cuts core at 42-65 deg, with quartz-calcite-chlorite veinlets; veinlets less than 1 cm thick; veinlets host abundant pyrrhotite and pyrite and rare hematite; also rarely chalcopyrite.
694.0-708.0 Siltstone interbedded with argillite; medium bedded to thick bedded; soft sediment deformation: slumping; bedding to core angle: 75 deg ; biotite alteration throughout; silicified; chlorite and garnet in thin tension cracks; widely scattered concretions with chlorite, biotite, quartz; blebs of pyrrhotite.
708.0-720.8 Siltstone interbedded with minor argillite; thick to very thick bedded; alteration continues; pyrrhotite in concretions and tension cracks.

| 720.8-725.1 | Argillite interbedded with siltstone; thin bedded to very thin <br> bedded; slump structures; alteration continues; rare pyrrhotite <br> blebs. |
| :--- | :--- |

725.1-759.6 Siltstone with minor interbedded argillite; rare quartzite; generally thick to very thick bedded; soft sediment turbidite structures; mineralized tension cracks; biotite and silicified throughout; pyrrhotite in tension cracks; 748.4: 10 cm of crackle breccia with calcite and rare disseminated sphalerite.

| 759.6-766 | Argillite interbedded with siltstone; thin bedded to very thin <br> bedded; cross-bedding; biotite alteration; widely scattered pink <br> garnets; 763.3 - 764: thin argillite hosts very weakly <br> disseminated sphalerite and pyrrhotite. |
| :--- | :--- |

766.0-780.5 Quartzite; minor siltstone and rare argillite turbidite tops; thick to very thick bedded; silicified; weak sericitic; rare albite-biotite-garnet concretions; weakly disseminated pyrrhotite.
780.5-783.1 Argillite interbedded with siltstone; thin bedded to very thin bedded; graded bedding; some turbidite soft sediment structures; biotite alteration; silicified; weakly disseminated pyrrhotite.
783.1-792.2 Siltstone interbedded with quartzite; rare argillite turbidite tops; mainly medium bedded to thick bedded; bedding to core angle: 77 deg ; alteration as above; rare disseminated pyrrhotite.
792.2-795.0 Argillite interbedded with siltstone; thin bedded to very thin bedded; load casts and rip-up clasts; sericite and biotite throughout; rare disseminated pyrrhotite.
795.0-803.6 Siltstone interbedded with argillite and minor quartzite; medium bedded to thin bedded; argillites are slumped; alteration continues; rare disseminated sphalerite at 801 m .
803.6-852.2 Siltstone interbedded with argillite; medium bedded to thick bedded; graded beds; biotite throughout; patchy late silification;
dolomitization, intensely silicified; crackle breccia and late quartz-dolomite pyrite veinlets.
852.2-835.7 Siltstone interbedded with argillite and minor quartzite; medium bedded to thick bedded; alteration as above; rare dolomite veinlets cut core at 30 deg.
$\begin{array}{cl}835.7-843.9 & \begin{array}{l}\text { Quartzite interbedded with minor argillite; thick to very thick } \\ \text { bedded; silicified; sericite; albite; coarse biotite; pink garnets; } \\ \text { some disseminated pyrrhotite. }\end{array} \\ 843.9-847.5 & \begin{array}{l}\text { Siltstone interbedded with argillite; medium bedded to thin } \\ \text { bedded; bedding to core angle: 75deg; alteration as above; rare } \\ \text { disseminated pyrrhotite. }\end{array} \\ 847.5-852.2 & \text { Quartzite interbedded with siltstone; thick to very thick bedded; }\end{array}$ rare disseminated pyrrhotite.
$852.2-858.0 \quad$ Siltstone interbedded with argillite; medium bedded to thin bedded; biotite throughout.
858.0 - 869.5 Quartzite with minor interbedded siltstone; medium bedded to thick bedded; silicified, fine biotite and sericite; rare bedding parallel veinlets with quartz, dolomite, and pyrrhotite.
869.5-884.4 Siltstone interbedded with argillite; medium bedded to thin bedded; bedding to core angle: 75 deg; biotite throughout; hairline cracks with quartz and muscovite; pyrrhotite and very rare sphalerite associated with muscovite; weakly disseminated pyrrhotite.
884.4-891.7 Quartzite; thick to very thick bedded; silicified; sericite; some pervasive muscovite (sericite) alteration; rare veinlets with quartz, calcite and chlorite.
891.7-902.0 Argillite interbedded with siltstone; medium bedded to thin bedded; biotite throughout; rare disseminated pyrrhotite; rare specks of sphalerite in pale green muscovite alteration.
902.0-907.0 Siltstone; thick to very thick bedded; biotite throughout; rare disseminated pyrrhotite.
907.0-913.8 Siltstone interbedded with argillite; medium bedded to thin bedded; biotite throughout; rare disseminated pyrrhotite.
913.8-929.0 Siltstone interbedded with argillite; medium bedded to thick bedded; alteration as above; rare disseminated pyrrhotite; 918 m : 5 cm bed is silicified and sericite altered and contains abundant disseminated sphalerite.
929.0-935.8 Siltstone interbedded with argillite; medium bedded to thin bedded; bedding to core angle: 80 deg ; biotite throughout; some
silicified beds; pink garnets; patchy pale green sericite alteration; rare disseminated pyrrhotite.
935.8-939.0 Siltstone; thick to very thick bedded; biotite; late silicification; pink garnets; minor disseminated pyrrhotite.
939.0-945.9 Argillite interbedded with siltstone; medium bedded to thick bedded; some very thin bedded argillite; biotite throughout; pale green sericite alteration; some fine pyrrhotite in widely scattered hairline fractures.
945.9-953.4 Quartzite and minor siltstone; thick to very thick bedded; silicified; weak biotite; patches of muscovite; garnet; weakly disseminated pyrrhotite.
953.4-968.0 Siltstone interbedded with argillite, minor quartzite; medium bedded to thick bedded; alteration as above; silicified; some garnets; some green sericite alteration; pyrrhotite blebs and finely disseminated pyrrhotite; mainly in concretionary structures.
968.0-977.8 Siltstone interbedded with argillite; medium bedded to thin bedded; biotite in veins, irregular alteration and concretions; mineralization as above: pyrrhotite, rare specks of sphalerite associated with sericite alteration.
977.8-983.2 Quartzite interbedded with siltstone; medium bedded to thick bedded; typical Middle Aldridge turbidites; crackle breccias with white calcite veinlets.
983.2-991.0 Quartzite interbedded with minor argillite; minor siltstone; mainly medium bedded to thick bedded; bedding to core angle: 87 deg; biotite throughout; common veins and alteration zones of silicification and sericite; disseminated pyrrhotite.
991.0-992.0 Siltstone interbedded with argillite; medium bedded to thin bedded; biotite; rare disseminated pyrrhotite.
992.0 - 1004.4 Quartzite interbedded with siltstone and argillite; medium bedded to thick bedded; argillite beds altered to biotite and sericite; garnets and biotite concretions; rare disseminated pyrrhotite.
1004.4-1009.6 Siltstone interbedded with argillite; medium bedded to thin bedded; graded; silicified; $1007.0: 10 \mathrm{~cm}$ of pale green sericite altered and silicified siltstone with disseminated sphalerite; pyrrhotite most abundant in thin chlorite tension cracks
1009.6-1018.0 Siltstone interbedded with argillite and quartzite; medium bedded to thick bedded turbidites; bedding to core angle: 83 deg; argillite beds altered to biotite and sericite; some tension cracks with chlorite and minor quartz; weakly disseminated pyrrhotite.
1018.0-1021.8 Siltstone interbedded with argillite; medium bedded to thin bedded; finely laminated beds; alteration as above; very weakly disseminated pyrrhotite.
1021.8-1044.3 Quartzite interbedded with siltstone and argillite; medium bedded to thick bedded; typical Middle Aldridge turbidites; silicified; sericite alteration; biotite; some albite and pink garnets; rare disseminated pyrrhotite.
1044.3-1049.0 Siltstone interbedded with argillite; medium bedded to thin bedded; alteration as above; disseminated pyrrhotite in thinbedded argillite.
1049.0 - 1074.6 "Sullivan horizon" at Lower-Middle Aldridge contact; argillite with siltstone bed at 1052.8 -1053.0; thin bedded to very thin bedded; bedding is distinct; finely laminated; near top, argillite beds are strongly disrupted by soft sediment deformation, slump folds; sericite alteration with some fine black biotite-rich beds; weakly dolomitic from $1071-1071.5 \mathrm{~m}$; fine pyrrhotite disseminated throughout; rare thin pyrrhotite laminae; sphalerite is most abundant from 1071.0 to 1071.5 m
1074.6-1111.6 Lower Aldridge: maroon to grey siltstone interbedded with white to grey argillite; medium bedded to thin bedded; bedding to core angle: 80 deg ; silicified; biotite; sericite altered; pyrrhotite is disseminated throughout.
End of hole at 1111.6 meters.

## Appendix 2

Analyses of intersections, DDH P02-1

| Sample | Interval <br> meters | Length <br> meters | Mo <br> ppm | Cu <br> ppm | Pb <br> ppm | Zn <br> ppm | Ag <br> ppm | Ni <br> ppm | Co <br> ppm | Mn <br> ppm | Fe <br> $\%$ |
| ---: | :---: | :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Sl |  |  |  |  |  |  |  |  |  |  |  |

Lab: Acme Analytical Laboratories Ltd., 852 E. Hastings St., Vancouver, B.C., V6A 1R6
Analysis: GROUP 1D-0.50 GM
Note: all $\mathrm{Au}<2 \mathrm{ppm}$; all $\mathrm{U}<8 \mathrm{ppm}$; all borron $<3 \mathrm{ppm}$

| Interval meters | Length meters | $\begin{gathered} \text { As } \\ \mathrm{ppm} \\ \hline \end{gathered}$ | $\begin{gathered} \mathrm{Th} \\ \mathrm{ppm} \\ \hline \hline \end{gathered}$ | $\begin{array}{r} \mathrm{Sr} \\ \mathrm{ppm} \\ \hline \hline \end{array}$ | $\begin{gathered} \mathrm{Cd} \\ \mathrm{ppm} \\ \hline \hline \end{gathered}$ | $\begin{gathered} \mathrm{Sb} \\ \mathrm{ppm} \end{gathered}$ | $\begin{array}{r} \mathrm{Bi} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{gathered} \vee \\ \mathrm{ppm} \\ \hline \hline \end{gathered}$ | $\begin{aligned} & \mathrm{Ca} \\ & \% \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{P} \\ & \% \\ & \hline \hline \end{aligned}$ | $\begin{gathered} \mathrm{La} \\ \mathrm{ppm} \end{gathered}$ | $\begin{array}{r} \mathrm{Cr} \\ \mathrm{ppm} \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | <2 | <2 | $<1$ | $<.5$ | $<3$ | $<3$ | <1 | < 01 | $<.001$ | <1 | <1 |
| 1052-1053 | 1.0 | 5 | 9 | 12 | < . 5 | < 3 | <3 | 19 | 0.19 | 0.02 | 28 | 22 |
| 1053-1054 | 1.0 | <2 | 13 | 8 | < . 5 | < 3 | 3 | 27 | 0.13 | 0.032 | 27 | 26 |
| 1054-1055 | 1.0 | 3 | 10 | 16 | < . 5 | < 3 | $<3$ | 19 | 0.37 | 0.021 | 28 | 23 |
| 1055-1056 | 1.0 | 7 | 11 | 10 | <. 5 | < 3 | $<3$ | 23 | 0.15 | 0.027 | 28 | 27 |
| 1056-1057 | 1.0 | <2 | 12 | 14 | < . 5 | $<3$ | $<3$ | 24 | 0.24 | 0.032 | 28 | 23 |
| 1057-1058 | 1.0 | <2 | 12 | 12 | < . 5 | < 3 | $<3$ | 22 | 0.21 | 0.03 | 31 | 26 |
| 1058-1059 | 1.0 | <2 | 14 | 12 | < . 5 | < 3 | $<3$ | 21 | 0.22 | 0.04 | 29 | 21 |
| 1059-1060 | 1.0 | 4 | 12 | 18 | 0.7 | < 3 | <3 | 18 | 0.31 | 0.043 | 19 | 21 |
| 1060-1061 | 1.0 | 2 | 15 | 13 | < . 5 | < 3 | <3 | 18 | 0.25 | 0.033 | 35 | 18 |
| 1061-1062 | 1.0 | 2 | 15 | 10 | <. 5 | <3 | $<3$ | 16 | 0.18 | 0.033 | 40 | 21 |
| 1062-1063 | 1.0 | <2 | 16 | 6 | < . 5 | <3 | $<3$ | 14 | 0.12 | 0.032 | 33 | 15 |
| 1063-1063.5 | 0.5 | 14 | 12 | 9 | < . 5 | <3 | <3 | 22 | 0.21 | 0.04 | 26 | 26 |
| 1063.5-1064 | 0.5 | 9 | 9 | 13 | < . 5 | < 3 | 3 | 50 | 0.3 | 0.052 | 31 | 43 |
| 1064-1064.5 | 0.5 | 6 | 8 |  | < . 5 | <3 | $<3$ | 32 | 0.25 | 0.047 | 25 | 37 |
| 1064.5-1065 | 0.5 | 13 | 10 | 15 | < . 5 | < 3 | <3 | 50 | 0.34 | 0.047 | 30 | 41 |
| 1065-1065.5 | 0.5 | 6 | 9 | 9 | <. 5 | <3 | <3 | 27 | 0.27 | 0.045 | 25 | 32 |
| 1065.5-1066 | 0.5 | 12 | 8 | - | <. 5 | < 3 | <3 | 29 | 0.25 | 0.045 | 23 | 30 |
|  |  | 14 | 8 | 9 | $<.5$ | < 3 | $<3$ | 30 | 0.26 | 0.047 | 24 | 31 |
|  |  | 14 | 9 | 9 | < . 5 | <3 | <3 | 31 | 0.26 | 0.046 | 25 | 37 |
| 1066-1066.5 | 0.5 | 6 | 11 | 8 | < 5 | < 3 | <3 | 25 | 0.25 | 0.046 | 26 | 28 |
| 1066.5-1067 | 0.5 | 41 | 9 | 10 | $<.5$ | < 3 | <3 | 38 | 0.29 | 0.046 | 25 | 42 |
| 1067-1067.5 | 0.5 | 8 | 10 |  | 1.6 | < 3 | <3 | 26 | 0.27 | 0.048 | 29 | 25 |
| 1067.5-1068 | 0.5 | 34 | 10 | 8 | 3.9 | <3 | $<3$ | 21 | 0.3 | 0.045 | 25 | 27 |
| 1068-1068.5 | 0.5 | 18 | 10 | 10 | 5.4 | <3 | $<3$ | 33 | 0.26 | 0.047 | 31 | 32 |
| 1068.5-1069 | 0.5 | 14 | 12 | 6 | 2.1 | $<3$ | $<3$ | 17 | 0.21 | 0.049 | 30 | 23 |
| 1069-1069.5 | 0.5 | 17 | 11 | 5 | 1 | <3 | $<3$ | 14 | 0.22 | 0.048 | 29 | 16 |
| 1069.5-1070 | 0.5 | 18 | 10 | 7 | 0.5 | <3 | $<3$ | 21 | 0.27 | 0.052 | 22 | 28 |
| 1070-1070.5 | 0.5 | 36 | 10 | 9 | < . 5 | <3 | $<3$ | 20 | 0.29 | 0.047 | 28 | 20 |
| 1070.5-1071 | 0.5 | 41 | 11 | 12 | 4.1 | $<3$ | $<3$ | 22 | 0.38 | 0.043 | 26 | 27 |
| 1071-1071.5 | 0.5 | 42 | 10 | 39 | 11.4 | <3 | <3 | 8 | 0.64 | 0.038 | 12 | 10 |
| 1071.5-1072 | 0.5 | 49 | 11 | 35 | 5.9 | <3 | <3 | 8 | 0.62 | 0.043 | 11 | 15 |
| 1072-1072.5 | 0.5 | 4 | 12 | 18 | $<.5$ | $<3$ | $<3$ | 16 | 0.39 | 0.039 | 13 | 16 |
| 1072.5-1073 | 0.5 | 65 | 13 | 15 | 0.6 | $<3$ | $<3$ | 12 | 0.37 | 0.04 | 12 | 20 |
| 1073-1073.5 | 0.5 | 110 | 13 | 13 | 0.5 | <3 | <3 | 11 | 0.36 | 0.041 | 15 | 14 |
|  |  | 21 | 4 | 27 | 5.2 | 5 | 5 | 73 | 0.51 | 0.091 | 16 | 160 |
| 1073.5-1074.E | 1.0 | 24 | 11 | 21 | 0.6 | $<3$ | $<3$ | 33 | 0.41 | 0.041 | 27 | 37 |
|  |  | 23 | 3 | 27 | 5.5 | 5 | 5 | 74 | 0.51 | 0.094 | 16 | 162 |


| Interval meters | Length meters | $\begin{gathered} \mathrm{Mg} \\ \% \end{gathered}$ | Ba ppm | $\begin{aligned} & \mathrm{Ti} \\ & \% \end{aligned}$ | $\begin{gathered} \mathrm{B} \\ \mathrm{ppm} \end{gathered}$ | $\begin{aligned} & \mathrm{Al} \\ & \% \end{aligned}$ | $\begin{gathered} \mathrm{Na} \\ \% \end{gathered}$ | $\begin{aligned} & \mathrm{K} \\ & \% \end{aligned}$ | $\begin{gathered} \mathrm{W} \\ \mathrm{ppm} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $<.01$ | < 1 | < 01 | $<3$ | < 01 | $<.01$ | < 01 | $<2$ |
| 1052-1053 | 1.0 | 0.33 | 84 | 0.09 | <3 | 0.93 | 0.05 | 0.53 | $<2$ |
| 1053-1054 | 1.0 | 0.68 | 159 | 0.16 | <3 | 1.75 | 0.03 | 1.43 | 2 |
| 1054-1055 | 1.0 | 0.39 | 87 | 0.09 | <3 | 1.1 | 0.05 | 0.61 | $<2$ |
| 1055-1056 | 1.0 | 0.57 | 130 | 0.14 | $<3$ | 1.48 | 0.03 | 1.24 | <2 |
| 1056-1057 | 1.0 | 0.62 | 132 | 0.14 | <3 | 1.52 | 0.03 | 1.29 | $<2$ |
| 1057-1058 | 1.0 | 0.64 | 118 | 0.14 | <3 | 1.5 | 0.03 | 1.25 | <2 |
| 1058-1059 | 1.0 | 0.68 | 130 | 0.14 | <3 | 1.57 | 0.02 | 1.32 | $<2$ |
| 1059-1060 | 1.0 | 0.59 | 103 | 0.09 | <3 | 1.23 | 0.03 | 0.84 | $<2$ |
| 1060-1061 | 1.0 | 0.58 | 117 | 0.11 | < 3 | 1.4 | 0.03 | 0.92 | <2 |
| 1061-1062 | 1.0 | 0.55 | 108 | 0.09 | <3 | 1.32 | 0.03 | 0.81 | <2 |
| 1062-1063 | 1.0 | 0.57 | 124 | 0.09 | $<3$ | 1.28 | 0.02 | 0.84 | <2 |
| 1063-1063.5 | 0.5 | 0.8 | 129 | 0.12 | <3 | 1.45 | 0.05 | 1.02 | <2 |
| 1063.5-1064 | 0.5 | 1.3 | 137 | 0.21 | <3 | 1.81 | 0.08 | 1.46 | 6 |
| 1064-1064.5 | 0.5 | 1.02 | 136 | 0.16 | <3 | 1.42 | 0.07 | 1 | $<2$ |
| 1064.5-1065 | 0.5 | 1.32 | 137 | 0.21 | <3 | 1.85 | 0.1 | 1.42 | 6 |
| 1065-1065.5 | 0.5 | 1 | 111 | 0.14 | <3 | 1.38 | 0.05 | 1.04 | $<2$ |
| 1065.5-1066 | 0.5 | 1.06 | 111 | 0.16 | <3 | 1.45 | 0.06 | 1.2 | <2 |
|  |  | 1.08 | 114 | 0.16 | <3 | 1.48 | 0.07 | 1.26 | <2 |
|  |  | 1.07 | 114 | 0.16 | < 3 | 1.47 | 0.06 | 1.21 | 3 |
| 1066-1066.5 | 0.5 | 0.95 | 123 | 0.14 |  | 1.38 | 0.05 | 1.12 | $<2$ |
| 1066.5-1067 | 0.5 | 1.13 | 103 | 0.18 | $<3$ | 1.53 | 0.08 | 1.34 | 3 |
| 1067-1067.5 | 0.5 | 1.09 | 123 | 0.15 | <3 | 1.52 | 0.05 | 1.3 | $<2$ |
| 1067.5-1068 | 0.5 | 0.94 | 71 | 0.11 | <3 | 1.2 | 0.05 | 0.53 | 2 |
| 1068-1068.5 | 0.5 | 1.09 | 117 | 0.16 | <3 | 1.49 | 0.06 | 1.25 | 5 |
| 1068.5-1069 | 0.5 | 0.84 | 126 | 0.11 | <3 | 1.29 | 0.03 | 1 | <2 |
| 1069-1069.5 | 0.5 | 0.8 | 126 | 0.11 | $<3$ | 1.26 | 0.03 | 0.98 | <2 |
| 1069.5-1070 | 0.5 | 1.02 | 109 | 0.15 | <3 | 1.37 | 0.05 | 1 | <2 |
| 1070-1070.5 | 0.5 | 1 | 112 | 0.14 | <3 | 1.42 | 0.04 | 0.98 | <2 |
| 1070.5-1071 | 0.5 | 1.04 | 111 | 0.15 | <3 | 1.48 | 0.04 | 1.06 | 7 |
| 1071-1071.5 | 0.5 | 0.82 | 77 | 0.02 | <3 | 0.73 | 0.03 | 0.48 | $<2$ |
| 1071.5-1072 | 0.5 | 0.76 | 84 | 0.03 | <3 | 0.89 | 0.02 | 0.58 | <2 |
| 1072-1072.5 | 0.5 | 0.98 | 128 | 0.08 | <3 | 1.42 | 0.03 | 1.03 | <2 |
| 1072.5-1073 | 0.5 | 0.8 | 118 | 0.07 | <3 | 1.3 | 0.02 | 0.9 | <2 |
| 1073-1073.5 | 0.5 | 0.71 | 115 | 0.06 | $<3$ | 1.23 | 0.03 | 0.78 | <2 |
|  |  | 0.57 | 140 | 0.07 | <3 | 1.65 | 0.03 | 0.15 | 5 |
| 1073.5-1074.5 | 1.0 | 1.23 | 119 | 0.18 | <3 | 1.8 | 0.08 | 1.34 | 7 |
|  |  | 0.59 | 146 | 0.0 | <3 | 1.68 | 0. | 0.1 |  |

