# REPORT ON PHASES VIII-b and IX DIAMOND DRILLING PROGRAMS

## SIDACE LAKE PROJECT

RED LAKE MINING DIVISION

FOR

PLANET EXPLORATION INC.

AND

GOLDCORP INC.



December, 2006

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## SUMMARY

A total of 43 diamond drill holes were completed in the period from January 23 to November 28, 2005. The cumulated linear metres drilled totaled 12,558. Nine of the drill holes were on the Main Zone with the remaining holes on regional targets around Upper Duck and Anderson Lakes.

Phase VIII drilling commenced in September of 2004 with RL-04-55. The drill holes up to and including wedge RL-04-62B were on the 2004 budget and do not form part of this report (reported as phase VIII-a). Phase VIII-b commenced on January 23 with RL-05-63 and continued to September of 2005 with the completion of RL-05-97. These 35 drill holes totaled 10,770 metres. Further funding was approved for an additional 8 diamond drill holes and were completed in October-November of 2005 for a total of 1788 metres. These are referenced as the Phase IX Drilling Program.

Drilling on the Main Zone was the first attempt to drill along east-west sections or sections oriented normal to the strike of the mineralization along the middle limb of the fold structure. The highlight section was in RL-05-63, which assayed 3.2 g/t Au over 20 metres.

RL-05-75 and 76 tested the zone at a depth of 400 metres. Extreme deviation in RL-05-75 resulted in the hole penetrating only the FW section of the main zone, while a lack of deviation in RL-05-76 resulted in the drill hole penetrating the nose of the fold between the North Limb and the Main Zone limb.

Hole RL-04-61 (previous drill program in the Upper Duck Lake area) was drilled as a follow-up to gold values in RL-04-40 and referred to as the Skarn Zone. The collar was set back to test a positive magnetic anomaly that turned out to be the response from a magnetite-amphibole iron formation that was silicified and mineralized with arsenopyrite and gold, assaying 7.64 g/t Au over 4.0 metres. This intersection became part of what is now known as the Upper Duck Zone. Other intersections include; RL-05-66, 7.02 g/t Au over 4.5m; RL-05-67, 15.18 g/t Au over 4.0m. All of the magnetic features identified from the airborne magnetic map and located to the west to south of Upper Duck Lake, were subsequently tested by drill holes under discussion within this report. The part of the program that tested these magnetic anomalies can be considered a success. A number of gold value zones were identified. These are typically associated with similar silicate

facies iron formations or quartz-diopside veining associated with broad alteration zones within the volcanics, porphyry and gabbroic intrusions. Value sections from RL-05-84 include 4.51 g/t Au over 2.0 metres and 3.98 g/t Au over 2.0 metres.

The second type of regional target that was explored by this phase of drilling was associated with the Anderson Lake magnetic anomaly that is interpreted as part of the East Bay Serpentinite. The focus was on the contact area and magnetic lows within the serpentinized intrusion. The sheared contacts produced assay values of 1 to 2 g/t Au over intervals of 2.0 metres. A talcose section with minor fine sulphides in the core area of the ultramafic in RL-05-93 assayed 9.76 g/t Au over 2.0 metres.

# 1. INTRODUCTION

Planet Exploration Inc. and Goldcorp Inc. entered into an option to joint venture on the Sidace Lake property in January, 2003. The management of the exploration programs prior to April, 2004 was conducted by Clarke Exploration Consulting of Thunder Bay, Ontario. Programs post April, 2004 were under the management of Goldcorp Inc. On March 15, 2005, Goldcorp gave notice to Planet Exploration that they had met all expenditure and payment conditions to satisfy the Option Agreement and nested themselves to 50% Joint Venture ownership. Program planning and layouts for Phase VIII-b and IX, covered by this report, were carried out by W. Paterson, L.C. Chastko and A.P. Pryslak from the Red Lake office and Michael Dehn from the Toronto office. Field supervision and core logging were conducted by Chastko and Pryslak.

The drilling, core logging, assaying and general logistics are discussed under the "Diamond Drill Program" section of this report.

The drill results led directly to the discovery of several new gold showings. Follow-up testing by further drilling was carried out on a number of these new showings; the results are presented under the heading of "Discussion of Results".

The text of this report was prepared by A.P. Pryslak; drawings, figures and tables were prepared mainly by P. Chantigny. Assistance by S. Lednicky and W. Paterson are also acknowledged.

# 2. PROPERTY DESCRIPTION AND LOCATION

The Sidace Lake property comprised 57 unpatented, non-leased, contiguous mining claims, totaling 660 units or approximately 10,684 hectares at the commencement of the drilling under discussion by this report (April 4, 2004). Subsequently, 7 more claims were staked in May, 2005. The property status as of December, 2005 is listed in Table 1. The claims occur in the following map sheets within the Red Lake Mining Division: Coli Lake Area (G-1759), Sobiski Lake Area (G-1885), Black Bear Lake Area (G-1739) and Nungesser Lake Area (G-1834). The property lies approximately 25 kilometers northeast of the towns of Red Lake and Balmertown in

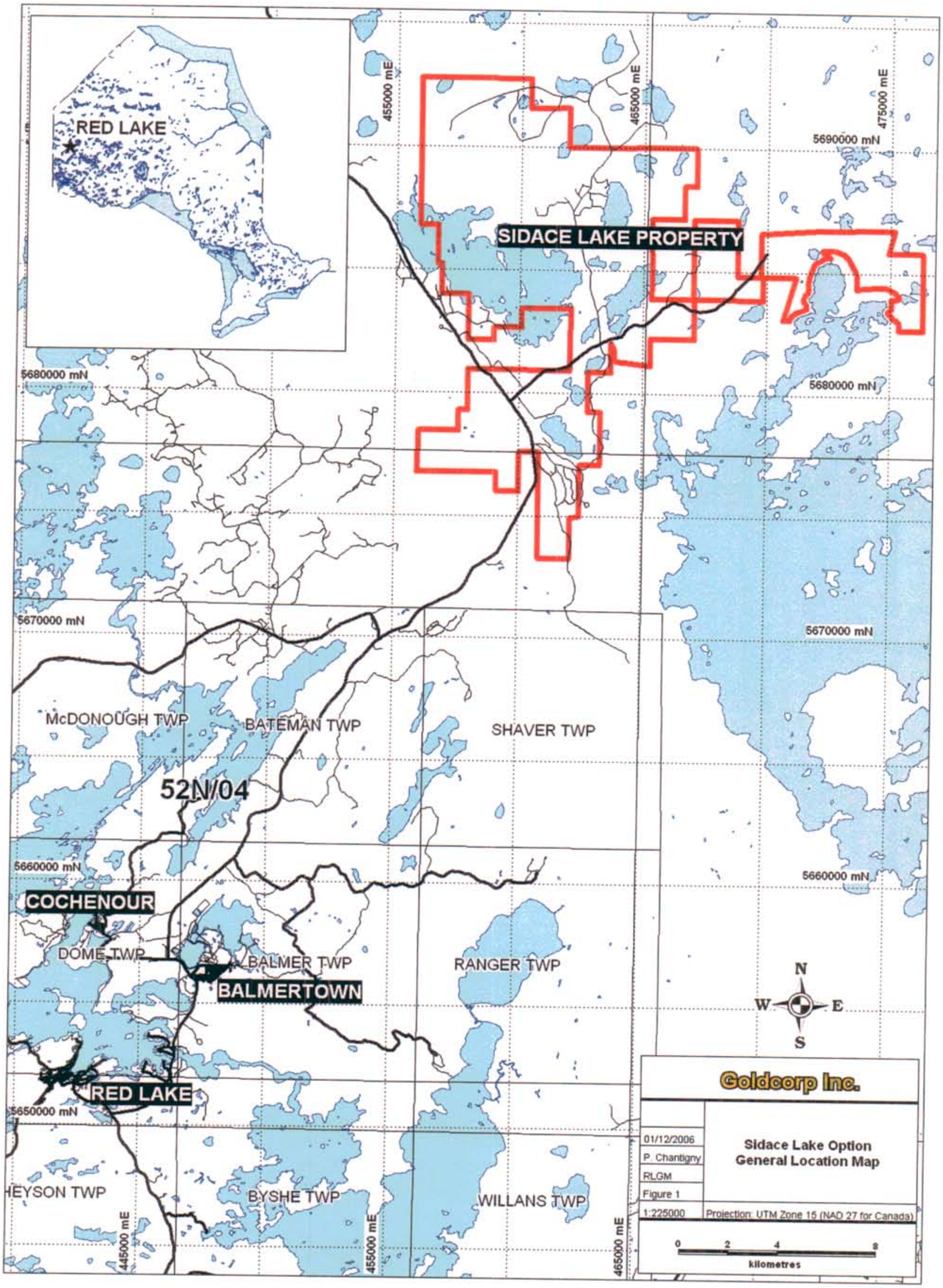
Northwestern Ontario. The general location of the property and area covered by the claims are illustrated in Figure 1.

Planet Exploration Inc. is the original vendor and presently holds 50% of the property with Goldcorp holding the remaining 50%; this at the time of the work program.

**Table 1 – List of Claims – January to December 2005**

| Township/Area | Claim Number | Recording Date | Status | Work Required |
|---|---|---|---|---|
| BLACK BEAR LAKE | 1210402 | 1996-Apr-17 | A | $ 4,800 |
| BLACK BEAR LAKE | 1210404 | 1996-Apr-17 | A | $ 6,400 |
| BLACK BEAR LAKE | 1248156 | 2003-Aug-27 | A | $ 1,200 |
| BLACK BEAR LAKE | 1248157 | 2003-Aug-27 | A | $ 400 |
| BLACK BEAR LAKE | 3004390 | 2003-Nov-21 | A | $ 400 |
| COLI LAKE | 1210049 | 1996-Apr-17 | A | $ 6,400 |
| COLI LAKE | 1210385 | 1996-Apr-17 | A | $ 4,800 |
| COLI LAKE | 1210388 | 1996-Apr-17 | A | $ 6,372 |
| COLI LAKE | 1210389 | 1996-Apr-17 | A | $ 6,321 |
| COLI LAKE | 1210390 | 1996-Apr-17 | A | $ 6,400 |
| COLI LAKE | 1210405 | 1996-Apr-17 | A | $ 6,400 |
| COLI LAKE | 1210406 | 1996-Apr-17 | A | $ 4,702 |
| COLI LAKE | 1210407 | 1996-Apr-17 | A | $ 4,800 |
| COLI LAKE | 1215801 | 1997-Feb-13 | A | $ 6,400 |
| COLI LAKE | 1217312 | 1998-Nov-26 | A | $ 4,627 |
| COLI LAKE | 1217313 | 1998-Nov-26 | A | $ 3,200 |
| COLI LAKE | 1234031 | 1998-Nov-26 | A | $ 6,400 |
| COLI LAKE | 3004391 | 2003-Nov-21 | A | $ 400 |
| COLI LAKE | 3005672 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3005673 | 2003-May-09 | A | $ 4,800 |
| COLI LAKE | 3005675 | 2003-May-09 | A | $ 4,800 |
| COLI LAKE | 3005678 | 2003-May-09 | A | $ 6,000 |
| COLI LAKE | 3005679 | 2003-May-09 | A | $ 1,200 |
| COLI LAKE | 3008158 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3008161 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3008162 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3008164 | 2003-May-09 | A | $ 4,800 |

| | | | | |
|---|---|---|---|---|
| COLI LAKE | 3008165 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3008166 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3008169 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 3008170 | 2003-May-09 | A | $ 6,400 |
| COLI LAKE | 1234180 | 2005-May-25 | A | $ 6,400 |
| COLI LAKE | 1248174 | 2005-May-25 | A | $ 4,800 |
| NUNGESSER LAKE | 1234181 | 2005-May-25 | A | $ 400 |
| NUNGESSER LAKE | 1248179 | 2005-May-25 | A | $ 6,400 |
| NUNGESSER LAKE | 1248180 | 2005-May-25 | A | $ 6,400 |
| NUNGESSER LAKE | 1234179 | 2005-Jun-02 | A | $ 6,400 |
| NUNGESSER LAKE | 1248178 | 2005-Jun-14 | A | $ 6,400 |
| NUNGESSER LAKE | 3005680 | 2003-May-09 | A | $ 1,600 |
| NUNGESSER LAKE | 3005684 | 2003-May-09 | A | $ 4,800 |
| SOBESKI LAKE | 1215800 | 1997-Feb-13 | A | $ 6,400 |
| SOBESKI LAKE | 1217161 | 1997-Feb-13 | A | $ 6,400 |
| SOBESKI LAKE | 1234032 | 1998-Nov-26 | A | $ 6,400 |
| SOBESKI LAKE | 1234033 | 1998-Nov-26 | A | $ 2,887 |
| SOBESKI LAKE | 1244550 | 2002-Apr-04 | A | $ 6,400 |
| SOBESKI LAKE | 1244551 | 2002-Apr-04 | A | $ 6,400 |
| SOBESKI LAKE | 3003410 | 2002-Sep-25 | A | $ 3,600 |
| SOBESKI LAKE | 3003411 | 2002-Sep-25 | A | $ 6,400 |
| SOBESKI LAKE | 3003412 | 2002-Sep-25 | A | $ 4,000 |
| SOBESKI LAKE | 3005674 | 2003-May-09 | A | $ 4,800 |
| SOBESKI LAKE | 3005676 | 2003-May-09 | A | $ 6,400 |
| SOBESKI LAKE | 3005677 | 2003-May-09 | A | $ 4,800 |
| SOBESKI LAKE | 3005681 | 2003-May-09 | A | $ 1,200 |
| SOBESKI LAKE | 3005726 | 2003-May-09 | A | $ 6,000 |
| BLACK BEAR LAKE | 1248148 | 2003-Feb-14 | A | $ 3,200 |
| BLACK BEAR LAKE | 1248149 | 2003-Feb-14 | A | $ 1,600 |
| BLACK BEAR LAKE | 1248155 | 2003-Aug-27 | A | $ 800 |
| SOBESKI LAKE | 1248166 | 2003-Nov-21 | A | $ 1,600 |
| SOBESKI LAKE | 1248167 | 2003-Nov-21 | A | $ 800 |
| SOBESKI LAKE | 1248168 | 2003-Nov-21 | A | $ 2,800 |
| SOBESKI LAKE | 3004386 | 2003-Nov-21 | A | $ 6,400 |
| SOBESKI LAKE | 3004387 | 2003-Nov-21 | A | $ 3,600 |
| SOBESKI LAKE | 3004388 | 2003-Nov-21 | A | $ 6,400 |
| SOBESKI LAKE | 3004389 | 2003-Nov-21 | A | $ 4,800 |



RED LAKE
SIDACE LAKE PROPERTY
455000 mE
465000 mE
475000 mE
5690000 mN
5680000 mN
5670000 mN
5660000 mN
5650000 mN
McDONOUGH TWP
BATEMAN TWP
SHAVER TWP
52N/04
COCHENOUR
DOME TWP
BALMER TWP
BALMERTOWN
RANGER TWP
RED LAKE
HEYSON TWP
BYSHE TWP
WILLANS TWP
445000 mE
N
W
E
S
Goldcorp Inc.
01/12/2006
P. Chantigny
RLGM
Figure 1
1:225000
Sidace Lake Option
General Location Map
Projection: UTM Zone 15 (NAD 27 for Canada)
0
2
4
8
kilometres

## 3. ACCESSIBILITY, PHYSIOGRAPHY, INFRASTRUCTURE

The Red Lake region of Northwestern Ontario lies approximately 150 kilometres to the north of the Trans Canada Highway and connects with it at Vermilion Bay by means of Highway #105. Airline service with major centers is also available. The municipality encompassing the towns of Red Lake, Balmertown, Cochenour and Madsen serve as supply and service centers to several producing gold mines in the area.

The property is accessible by means of an all weather road locally referred to as Nungesser Road. Numerous secondary gravel roads used in timber harvesting provide additional access to various parts of the property.

Archean bedrock exposure is limited in the property area due to the extensive cover by unconsolidated glacial derived tills and sediments. The major topographic feature is a northwest trending, 40 metre high ridge of sand, gravel and boulders that is part of the Trout Lake Moraine. Elsewhere, the topography is fairly gentle and vegetation typical for the Northern Boreal Forest. Much of the southwest portion of the property has been clear cut of its stands of hardwoods and softwoods within the past 10 years.

## 4. PROPERTY HISTORY OF EXPLORATION

There are no records of early prospecting in the area. This is no surprise as there is little bedrock exposure. Several trenches were found in the area situated to the south of Anderson Lake, but these would appear to be of more recent vintage connected to logging operations.

**1965-1970:** Cochenour Willans Gold mines and Selco conducted an airborne magnetic and EM survey over the East end of the Red Lake Belt in 1965. This was part of a base metal program referred in Cochenour files as the "Touchdown Syndicate". The airborne survey was followed up by ground geophysical surveys and diamond drilling. The northeast portion of this exploration work touched on the southwest corner of the Planet property under discussion (Cochenour office files).

**1978-79:** Dome Exploration (Canada) Ltd. carried out a base metal exploration program conducting an airborne magnetic and EM survey, followed up by ground surveys and diamond drilling of identified conductors. There are 17 diamond drill holes reported for a total of 6499 feet; all but two of these drill holes fall within the current property boundary (Assessment files).

**1996-98:** Corsair Exploration Inc. acquires the present property. Clarke-Eveleigh Consulting of Thunder Bay carried out a prospecting and sampling program (Clarke and Nelson, 1997). Overburden Drilling of Nepean Ontario complete a program of 27 reverse circulation drill holes for 662.1 metres (RLE-96-01 to 27) (Kenzie MacNeil, 1997).

In **1998**, Corsair options the property to Planet Exploration Inc. Work comprised of 52.4 kilometres of a ground magnetic survey and Phase I drilling program was carried out (Dadsen, 1999).

In **1999**, Planet Exploration Inc. carried out 3.2 kilometres of VLF-EM surveys and Phase II and III drill programs (Mann, 1999; two reports).

In **2002,** the property was held by Planet Exploration (42%) and Madalena Ventures Ltd. (58%) (Clarke, 2002). The Phase IV drill program was conducted in June and July of this year.

**January, 2003**, Goldcorp Inc enters into an option agreement with Planet Exploration for a 50:50 JV. Phase V of diamond drilling completed in February; 48 kilometres of ground magnetic and 38.3 kilometres of I.P. surveys were completed (Patrie, 2003, reports on IP and magnetics). An Airborne magnetometer survey was flown over the area in September 2003, under contract with Firefly Aviation of Calgary. Phase VI diamond drilling was completed in September and Phase VII commenced in December, 2003 and carried on into April, 2004. The drilling report to early April, 2004 was reported by Clarke and Dehn, 2004. The program also saw an MMI orientation survey and the start of regional mapping.

**2004** saw Goldcorp Inc take over as managers of the project in April; starting with drill hole RL-04-42. The Phase VII-b diamond drilling program comprising of 16 DDH's, totaling 6735 metres was completed. (see Pryslak et al, September, 2006)

Phase VIII-a was started in September, 2004 and completed in January 20, 2005; these 10 drill holes from RL-04-55 to RL-05-62B, totaled 3347.7

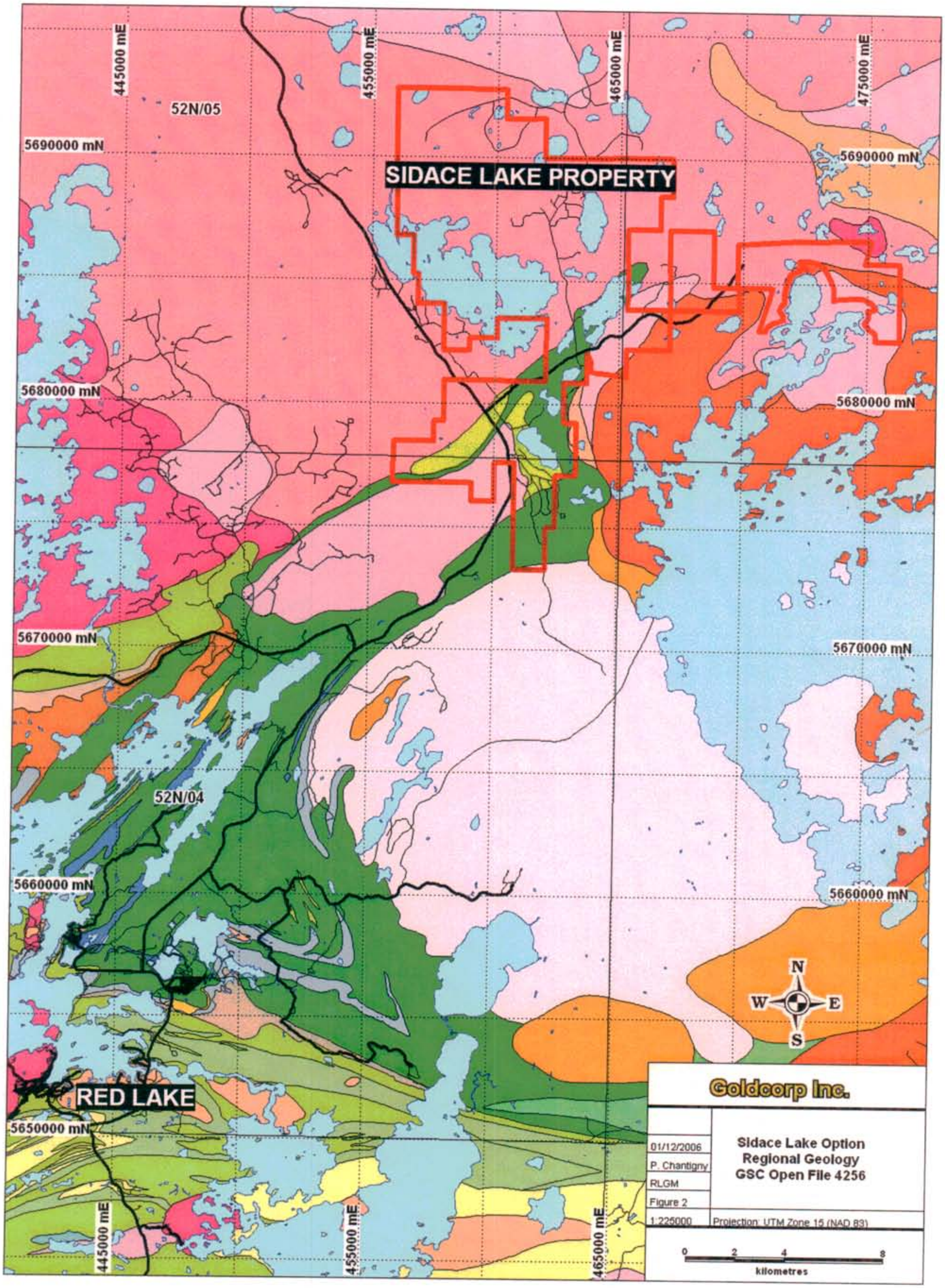
metres. There is currently no assessment nor internal report on this series of diamond drill holes.

**2005** saw the Goldcorp-Planet JV drill a total of 43 holes; the sequence from RL-05-63 to RL-05-105, for a total of 12,452 metres. This drilling is the subject of this report.

## 5. REGIONAL GEOLOGY

The main segment of the Red Lake Greenstone Belt has been extensively mapped, studied and explored by prospectors, companies, government based professions and university based academics. The endless list of publications and assessment files can be studied at the Resident Geologist's office in Red Lake. The latest synoptic geology map of the belt, supported by geochron data, is that by Sanborn-Barrie et al, 2004 (Figures 2 and 2A). The property is just off the northeast corner of this map sheet.

The Red Lake Greenstone Belt is Archean in age and is part of the Uchi Subprovince, Superior Province, Canadian Shield. It is quite typical of Archean greenstone belts containing various sequences of supracrustal volcanic and sedimentary rocks and syn-volcanic to late tectonic intrusives. Published geochron data shows that the volcanic history spans over a 260 Ma period, between 2992 Ma and 2732 Ma (Corfu and Wallace, 1986). The GSC has recognized nine separate assemblages and a number of Plutonic suites based on this geochronology and variations in the lithologies, supported by geochemical signatures (Sanborn-Barrie et al. 2001, 2004). Deformation prior to the deposition of the Confederation Assemblage was largely tilting and erosional, leading to a number of unconformities between the Assemblages. Sanborn-Barrie (2001) describes two later ductile structural events; D1 having a northeast trend in the eastern portion of the belt and a northwest trend in the west part of the belt and D2 as having a dominantly east-west trend. The eastern end of the greenstone belt displays a late fold event. These folds are chevron, Z-styled with amplitudes of 1-5 metres, locally to about 100 metres.


445000 mE
455000 mE
465000 mE
475000 mE
52N/05
5690000 mN
SIDACE LAKE PROPERTY
5680000 mN
5670000 mN
52N/04
5660000 mN
RED LAKE
5650000 mN
Goldcorp Inc.
01/12/2006
P. Chantigny
RLGM
Figure 2
1:225000
Sidace Lake Option
Regional Geology
GSC Open File 4256
Projection: UTM Zone 15 (NAD 83)
0 2 4 8
kilometres
N
W
E
S

#### EXPLANATION OF LEGEND CODE

This map uses codes that are to be read from right to left. An example is given below. Format of legend code from the RIGHT:

④ ②
Xbm59fv
③ ①

① The **lithology** code (fv) identifies the dominant rock type in map units. See lithology list to right. More detail on lithologic constituents is contained in the unit descriptors in the Legend.

② The **age** code (59) indicates the age of the unit, inferred from U-Pb zircon dates of individual samples. In areas with abundant geochronology, a unit can be assigned an age within a 5 million year interval (code numbers 63–76), whereas other units of less certain age may be constrained only to within 10 m.y. (26–62), 100 m.y. (10–15) or larger (1–7) age intervals. See age list (right) and corresponding range in Figure 4: Lithology-age chart.

③ The tectonostratigraphic **assemblage name** (bm) for supracrustal units or suite name for plutonic rocks identifies packages of stratigraphically or magmatically related lithologic units of similar age. See list of assemblages and suite names to right.

④ The **tectonic affinity** (X) describes the environment of deposition or crystallization of a map unit based on all available lithologic and geochemical information. See tectonic affinity list to right.

## LEGEND

### ARCHEAN (4000–2500 Ma) (Unsubdivided)

- **Ube2tn** — **Tonalite to granodiorite:** *medium-grained, variably foliated biotite-, hornblende-biotite tonalite, and associated rocks; cataclastic adjacent to Longlegged Lake–Pakwash Lake fault zone.*
- **Utn2tn** — **Tonalite to granodiorite:** *medium-grained, variably foliated hornblende- and biotite-hornblende tonalite, and associated rocks.*
- **Umu2gb** — *Gabbroic intrusive rocks (various ages) includes gabbro and gabbroic anorthosite exposed in western (Trout Bay) and eastern (Hoyles Bay, Balmer Lake) Red Lake.*
- **Umu2up** — *Ultramafic intrusive rocks of unknown age and affinity.*
- **Ugc2tg** — *Tonalite gneiss of unknown age and affinity.*

**Supracrustal rocks of unknown affinity**

- **Uus2co** — **Conglomerate:** *polymictic pebble and cobble conglomerate consisting of well-rounded volcanic and sedimentary clasts (80%) and granitoid and/or intrusive clasts (20%); local graded bedding, load casts and flame structures; interbedded wackes.*
- **Uus2md** — *Fine siliciclastic rocks±chert, i.e., overlying Trout Bay and Ball assemblages in western Red Lake.*
- **Uus2wk** — **Wacke:** *wacke, feldspathic wacke; near northwestern Shabu Lake occurs with lesser quartzite and quartzose wacke, locally cut by gabbro; quartzose wacke may be interbedded with conglomerate, marble, calc-silicate rocks and chert-magnetite iron-formation; occurs as narrow screens with migmatitic texture locally, in structural domes at Longlegged and Sydney lakes.*
- **Uus2ft** — **Felsic volcanic rocks:** *dacite to rhyolite, predominantly tuff and lapilli tuff.*
- **Uus2sv** — **Epiclastic rocks:** *wacke, volcaniclastic conglomerate, east of Papaonga Lake pluton and central Birch Lake.*
- **Uus2it** — **Intermediate volcanic rocks:** *andesite to dacite, predominantly tuff and lapilli tuff (i.e., Slate Lake area) with lesser flows (i.e., Pakwash Lake).*
- **Uus2mv** — **Mafic volcanic rocks:** *foliated, massive to pillowed basalt, amphibolite, and associated gabbroic rocks, locally plagioclase-phyric near Springpole and Pakwash lakes; lesser associated intermediate to felsic flows, tuff and wacke near Dixie Lake.*
- **Uus2am** — *Amphibolite.*
- **Uus2km** — *Ultramafic rocks of uncertain origin and unknown age, west of Red Lake.*

### NEOARCHEAN (2800–2500 Ma) Unsubdivided

- **Gak5sy** — **Springpole Lake Alkalic Volcanic Complex:** *carbonatite breccia dyke consisting of trachyte porphyry and trachyte breccia, syenite, minor fluorite-bearing carbonatite, and associated minette dykes.*
- **Ghn6gd** — **Quartz monzonite to granodiorite:** *variably foliated hornblende-bearing quartz monzonite, granodiorite, granite, locally leucocratic and quartz and/or K-feldspar porphyritic.*
- **Gbe6gr** — **Granite, granodiorite:** *massive to weakly foliated, lineated, fine- to coarse-grained monzogranite±quartz monzodiorite±tonalite and associated pegmatitic rocks, locally K-feldspar porphyritic.*
- **Gbe6gd** — **Quartz monzonite to granodiorite:** *variably foliated biotite quartz monzonite, granodiorite and granite; locally leucocratic and quartz and/or K-feldspar porphyritic; xenolithic south of Gullrock Lake.*
- **Kbe6tn** — **Tonalite to granodiorite:** *variably foliated biotite-tonalite to quartz diorite±granodiorite; coarse-grained, granular, white to grey with 10–30% biotite±hornblende.*
- **Khn6tn** — **Tonalite to granodiorite:** *variably foliated hornblende-tonalite to quartz diorite±granodiorite; coarse-grained, granular, white to grey with 10–30% hornblende±biotite.*

**Neoarchean supracrustal rocks of unknown affinity**

- **Uus6wk** — **Wacke:** *wacke, feldspathic wacke with lesser associated argillite, siltstone and minor conglomerate; possibly unconformable on mafic volcanic rocks southeast of Birch Lake.*
- **Uus12it** — *Intermediate pyroclastic rocks; dacitic tuff horizons in central Springpole Lake.*

### NEOARCHEAN (2800–2600 Ma)

- **Gsk11di** — **Diorite, quartz diorite:** *hornblende and biotite-hornblende diorite, syenodiorite±quartz diorite with inclusions of English River metasedimentary rocks locally (i.e. Pakwash pluton) and mafic volcanic rocks (i.e. eastern Bruce Lake pluton).*
- **Ghn11sy** — **Syenite:** *amphibole syenite, south of Slate Lake, possibly part of the intermediate to mafic sanukitoid suite that has intruded the Uchi-English River interface.*
- **Gmu6gb** — **Gabbroic rocks:** *generally undated gabbroic rocks intrusive into Confederation assemblage, including fine-grained tholeiitic dykes and sills intrusive into the Sundown Lake metasedimentary assemblage and coarse-grained, magnetite-bearing gabbro dated at ca. 2699 Ma at locality #57; includes Leg Lake mafic complex.*
- **Gbe11gr** — **Granite, granodiorite:** *massive to variably foliated biotite granite to granodiorite and associated pegmatitic rocks, known to be post-volcanic and syn- to post-orogenic.*
- **Gbe11gd** — **Granodiorite, quartz monzonite:** *massive to variably foliated biotite granodiorite to quartz monzodiorite and associated pegmatitic rocks, known to be post-volcanic and syn- to post-orogenic.*
- **Gbe11tn** — **Tonalite, granodiorite:** *massive to variably foliated biotite±hornblende tonalite to granodiorite, commonly xenolithic or containing biotite schlieren; locally leucocratic (trondhjemitic (CI<5); intrusive into English River metasedimentary assemblage (i.e. < 2.7 Ga); with associated diorite and quartz diorite phases (Bluffy Lake batholith); cataclastic within the Sydney Lake fault zone.*
- **Gsk6di** — **Diorite:** *diorite-quartz diorite-trondhjemite and associated pegmatite with elevated Mg and Cr consistent with sanukitoid affinity; mafic satellite phase of the 2698 Ma Bluffy Lake batholith (U-Pb #51).*
- **Gsk12gd** — *Monzodiorite-quartz monzonite-granodiorite of sanukitoid affinity whereby monzodiorite (minor) is hornblende- and biotite-phyric with high Mg#, Ni, $K_2O$, Ba, and Sr, and is enriched in LREE; granodiorite is moderately foliated and locally charged with felsic xenoliths; includes monzodiorite and granodiorite of the Faulkenham Lake stock, near Madsen and the Perrigo Lake pluton.*
- **Tbe12gr** — **Granite, granodiorite:** *variably foliated biotite granite to granodiorite±quartz monzonite and associated pegmatitic rocks, known to be post-volcanic and syn- to post-orogenic.*
- **Thn12gd** — **Granodiorite:** *variably foliated hornblende-bearing granodiorite-tonalite of the Berens River arc plutonic complex.*
- **Tbe12tn** — **Tonalite:** *massive to weakly foliated biotite-tonalite to trondhjemite±diorite typically associated with, or intrusive into, <2.745 Ga Confederation assemblage.*

**Migmatite ca. 2690 Ma**

- **Gms65gr** — **Peraluminous granite to granodiorite:** *homogeneous diatexite with ≥ 95% medium-grained to pegmatitic granitoid mobilizate, typically garnet and muscovite bearing; locally apatite and tourmaline bearing (i.e. southeast of Jubilee Lake); commonly contains inclusions and rafts of inhomogeneous diatexite; cataclastic within the Sydney Lake fault zone.*
- **Gms65gg** — *Inhomogeneous diatexite with 70–95% medium-grained to pegmatitic granitoid mobilizate, typically garnet and muscovite bearing, commonly contains inclusions and rafts of metatexite; cataclastic within the Sydney Lake fault zone.*

**English River assemblage >2696 Ma <2704 Ma**

- **Feg6sm** — **Metasedimentary migmatite:** *garnet-biotite-feldspar-quartz gneiss, generally metatexite with 10–70% interbanded granitoid mobilizate.*
- **Feg6if** — **Chert-magnetite ironstone:** *banded, thinly bedded to thickly laminated chert-magnetite ironstone, Bruce Lake where refolded chert-magnetite ironstone has been tectonically thickened, resulting in mineable reserves (past-producing Griffith Mine).*
- **Feg6wk** — **Fine-grained clastic rocks and siliclastics:** *biotite-quartz-plagioclase wacke (<10% granitic mobilizate) and associated chert-magnetite ironstone.*
- **Feg6co** — **Conglomerate:** *polymictic pebble conglomerate e.g., near Madsen (Red Lake) where fragmental rocks historically considered correlative with the Au-bearing Austin tuff contain detritus dated at 2.99 Ga, 2.92 Ga, 2.85 Ga, 2.45 Ga, 2.72 Ga with youngest detrital zircons at 2700 ± 6 Ma indicating late-orogenic (molassic) deposition.*

- - - - - - - - - - Inferred unconformity - - - - - - - - - -

**Post-volcanic plutonic rocks**

- **Gbe66gd** — **Granodiorite±monzogranite:** *massive to weakly foliated, relatively unaltered and unrecrystallized biotite granodiorite±monzogranite±quartz monzonite, commonly with megacrysts of K-feldspar and cut by pink granite pegmatite dykes; includes the main phase of the ca. 2697 Ma Cat Island pluton (U-Pb #48) at Ranger Lake.*
- **Ghn66gd** — **Granodiorite±monzogranite-diorite:** *massive to weakly foliated, relatively unaltered and unrecrystallized hornblende±biotite granodiorite±quartz monzonite, commonly with megacrysts of K-feldspar and commonly cut by pink granite pegmatite dykes; includes a 2699 ± 1 Ma marginal phase of the Cat Lake pluton (U-Pb #47) at Walsh Lake.*
- **Gsk67mz** — **Quartz monzonite-granodiorite:** *massive to weakly foliated amphibole-bearing quartz monzonite-granodiorite±quartz diorite±diorite, locally biotite porphyritic with elevated Mg#, Ni and enriched LREE reflecting sanukitoid affinity; includes main ca. 2700 Ma phase of the Okanse Lake stock (U-Pb #70) see also unit Gsk12gd.*
- **Gbe67gr** — **Granite-granodiorite-monzogranite-diorite:** *massive to weakly foliated, relatively unaltered and unrecrystallized biotite granite to granodiorite±monzogranite±quartz monzonite, commonly with megacrysts of K-feldspar and cut by pink granite pegmatite dykes. Includes main phase of the 2704 Ma Killala-Baird Batholith (U-Pb #11) and 2703 ± 2 Ma granite at Job Lake 15 km west of map sheet.*
- **Gbe69gd** — **Granodiorite-quartz monzonite:** *weakly foliated, equigranular to porphyritic biotite granodiorite-quartz monzonite, intrusive into deformed and locally mineralized strata; includes the ca. 2712 Ma Little Bear Lake granodiorite (U-Pb #62) and Shabumeni Lake stock (U-Pb #73) in the Birch-Uchi belt 2714 ± 4 Ma quartz-feldspar porphyry (U-Pb #44) that cuts gold mineralization at the Red Lake (formerly A.W. White) mine.*

**St. Joseph plutonic suite: synchronous with regional-scale $D_2$ strain**

- **Ghn70tn** — **Tonalite-granodiorite:** *variably foliated and recrystallized hornblende and biotite- hornblende tonalite±granodiorite, commonly with megacrysts of K-feldspar and cut by pink granite pegmatite dykes; may include the main phase of the Hammell Lake pluton (U-Pb #13).*
- **Gbe70gd** — **Granodiorite:** *variably foliated and recrystallized biotite granodiorite±monzogranite±quartz monzonite, commonly with megacrysts of K-feldspar; cut by pink granite pegmatite dykes and locally by NW-trending metadiabasic dykes (not shown); includes the central 2718.2 ± 1.1 Ma phase of the Dome stock (U-Pb #22), and may include an intrusion in Slate Bay (Red Lake).*
- **Khn71gr** — **Granodiorite:** *variably foliated and recrystallized biotite granodiorite±monzogranite±quartz monzonite with more dioritic marginal phases, including the 2720 +3/-2 Ma McKenzie Island stock (U-Pb #29) and 2720 +7/-5 Ma Abino granodiorite (U-Pb #36); locally with microcline megacrysts (e.g. near Olive Lake; U-Pb #1).*
- **Khn12di** — **Diorite:** *variably foliated and recrystallized diorite; includes locally augite- and hornblende-bearing mafic border phases to the ca. 2.72 Ga Dome and McKenzie Island stocks.*
- **Khn71gd** — **Granodiorite:** *foliated, medium- to coarse-grained biotite-hornblende granodiorite and biotite-hornblende quartz monzonite of the 2724.3 +1.8/-1.5 Ma Mainprize Lake batholith (U-Pb #72); commonly microcline megacrystic; local inclusions of amphibolite.*
- **Kbe72tn** — **Tonalite:** *fine- to medium-grained, equigranular, variably foliated, altered, and Au-mineralized tonalite of the 2725 ± 2.5 Ma Horseshoe Island stock (U-Pb #77).*

**St. Joseph Assemblage (Springpole Lake) ca. 2723 Ma**

- **Ksj71ft** — **Porphyritic tuff:** *porphyritic lapilli tuff (U-Pb #78).*

**Sundown Lake assemblage**

- **Ssf12co** — **Conglomerate:** *massive to poorly-bedded polymictic conglomerate containing pebble- to boulder-size clasts of volcanic and chemical sedimentary rocks, porphyries and vein quartz; associated with thickly bedded arenites; lenses of wacke-siltstone.*
- **Ssf12wk** — **Wacke:** *thickly laminated to medium-bedded, medium sand size lithic wacke with scours, graded bedding, and ripple crosslaminations; minor conglomeratic beds; deposited at <2732 Ma (U-Pb #65); cut by fine-grained basaltic dykes.*

- - - - - - - - - - Inferred unconformity - - - - - - - - - -

**Graves plutonic suite (Red Lake)**

- **Kmu72di** — **Diorite to quartz diorite:** *diorite±quartz diorite, gabbro, syenodiorite, commonly plagioclase porphyritic; includes the 2729 ± 1.5 Ma Red Crest stock (U-Pb #12) and marginal phases to the Douglas Lake pluton.*
- **Kbe73gr** — **Granite-granodiorite:** *variably foliated, equigranular medium-grained to K-feldspar megacrystic biotite- and less commonly hornblende-bearing granite and granodiorite±quartz monzonite, including the 2731 +3/-2 Ma Little Vermillion Lake batholith (U-Pb #27); calc-alkaline affinity.*
- **Kbe73tn** — **Tonalite:** *foliated to gneissic biotite-bearing tonalite±trondhjemite, including the 2734 ± 2 Ma Douglas Lake pluton (U-Pb #2); calc-alkaline affinity.*

**Graves assemblage (Red Lake) ca. 2733 Ma**

- **Kgr73it** — **Intermediate pyroclastic rocks:** *intermediate to felsic calc-alkaline pyroclastic rocks including, buff to grey weathering, 2732.8 +1.4/-1.2 Ma tuff (U-Pb #25), and biotite- and plagioclase-phyric lapilli tuff.*

**Huston assemblage > ca. 2733 Ma–< ca. 2743 Ma**

- **Fhu34wk** — **Wacke, siltstone, argillite:** *well-bedded, graded turbiditic wacke, siltstone±argillite, with marble±chert±sulphides and associated skarn, e.g. adjacent to plutons.*
- **Fhu34co** — **Conglomerate:** *polymictic conglomerate (U-Pb #17, #38); with immature to well-rounded volcanic, plutonic and sedimentary clasts that locally show evidence of intense hydrothermal alteration, likely prior to reconsolidation and metamorphism; possibly synorogenic with respect to $D_1$ in the Red Lake belt at ca. 2740–2735 Ma.*

—•—•—•—•—•—•— unconformity —•—•—•—•—•—•—

**Confederation plutonic suite**

- **Tcf12pr** — **Porphyritic rocks:** *light-weathering, feldspar- and quartz- (± blue quartz) porphyritic, intrusive/hypabyssal rocks with 20–30% phenocrysts, interpreted to be subvolcanic to the Confederation assemblage.*
- **Ycf75pr** — **Porphyritic rocks:** *light-weathering, feldspar- and quartz- (± blue quartz) porphyritic, intrusive/hypabyssal rocks with 20–30% phenocrysts; includes the 2742 +3/-2 Ma Brewis (Balmer Lake) porphyry (U-Pb #45).*
- **Zhn12di** — **Diorite-quartz dioritic rocks:** *with FIII-type REE profiles (high and flat) such as the Swain Lake stock, likely subvolcanic to the FIII-type Agnew sequence in the Birch-Uchi belt, and the tholeiitic Howey diorite, likely subvolcanic to the ca. 2.74 Ga Heyson sequence, Red Lake belt.*
- **Zbe75gd** — **Granodioritic porphyry:** *granophyric granodiorite to quartz-feldspar porphyry intrusions associated with basaltic to rhyolitic flows and pyroclastic rocks of the Confederation assemblage (Agnew FIII-type sequence); includes the 2741 +3/-2 Ma Found Lake stock (U-Pb #69) and the South Bay porphyry intrusion with associated Cu-Zn-Ag mineralization.*
- **Ycf36fp** — *Felsic dyke at Rahill Beach, Red Lake, interpreted age of 2757+9/-4 Ma (U-Pb #32).*
- **Tmu12gb** — **Gabbroic rocks:** *gabbro±gabbroic anorthosite rocks intrusive into, and possibly related to, the Confederation assemblage.*

**Confederation assemblage ca. 2745–2735 Ma**

- **Tcf12md** — **Siliciclastic sedimentary rocks:** *interbedded fine sand size feldspathic wacke, lithic wacke, and chert with lesser argillite and siltstone.*
- **Tcf12sv** — **Epiclastic rocks:** *epiclastic rocks of intermediate composition associated with the Confederation volcanic assemblage.*
- **Tcf12it** — **Intermediate volcanic rocks:** *predominantly intermediate pyroclastic rocks considered to be part of the Confederation assemblage.*
- **Tcf12mv** — **Mafic volcanic rocks:** *basaltic rocks considered part of the Confederation assemblage formed at a transitional continental margin setting.*
- **Tcf12am** — **Amphibolite:** *amphibolite-facies mafic volcanic rocks, locally pillowed east of Dixie Lake, considered part of the Confederation assemblage.*

**Earngey sequence (Birch-Uchi belt) ca. 2742–2735 Ma**

- **Ycf34mv** — **Mafic volcanic rocks:** *pillow basalt±fragmental rocks of the Wabenook and Neepewa Bay suites with minor interbedded intermediate volcanic rocks (e.g. 2741.7 +2.3/-2.2 Ma (Fox Bay andesite; U-Pb #75)).*
- **Ycf74it** — **Intermediate to felsic volcanic rocks:** *andesitic to dacite tuff dated at 2735 +4/-3 Ma (Webunk suite) (U-Pb #71); 2738.8 ± 2 Ma; rhyodacite pyroclastic breccia and lapilli tuff (U-Pb #68); dacite tuff and feldspar crystal tuff including 2739.1 ± 8 Ma. Shabumeni Lake formation (U-Pb #76) and associated quartz feldspar porphyry dykes (Jackson-Manion) dated at ca. 2739 Ma (U-Pb #63).*

**Agnew sequence (Birch-Uchi belt) ca. 2744 Ma**

- **Zcf35iv** — **Intermediate to felsic volcanic rocks:** *dacite flows with minor tuff, locally perlitic texture; tholeiitic (type FIII) affinity.*
- **Zcf75ft** — **Felsic volcanic rocks:** *rhyolitic flows (Keewatin Bay suite) and associated quartz feldspar porphyritic rocks dated at ca. 2744 Ma (U-Pb #66); tholeiitic (type FIII) affinity.*
- **Zcf35th** — **Mafic volcanic rocks:** *pillowed basalt and pillow breccia of dominantly tholeiitic affinity.*
- **Ycf35ca** — **Mafic volcanic rocks:** *calc-alkaline pillowed basalt flows, pillow breccia, and tuff of dominantly calc-alkaline affinity.*

**Knott sequence (Birch-Uchi belt) ca. 2745–2742 Ma**

- **Ycf75fv** — **Felsic volcanic rocks:** *including ignimbritic rhyolite flows dated at ca. 2742 Ma (U-Pb #60).*
- **Ycf35iv** — *Intermediate volcanic rocks of andesitic composition.*
- **Ycf35mv** — **Mafic volcanic rocks:** *massive to pillowed calc-alkaline.*
- **Ycf35th** — **Mafic volcanic rocks:** *lower massive to pillowed tholeiitic basalt; locally variolitic.*

**Heyson sequence (Red Lake) ca. 2739 Ma**

- **Ycf74iv** — **Intermediate volcanic rocks:** *andesitic to dacitic calc-alkaline flows, commonly plagioclase-phyric, possibly correlative with the Earngey sequence of the Birch-Uchi belt.*
- **Zcf74th** — **Mafic volcanic rocks:** *massive to pillowed tholeiitic basalt, locally plagioclase phyric.*
- **Zcf74fv** — **Felsic volcanic rocks:** *rhyolitic rocks of tholeiitic (type FIII) affinity (flat to LREE-enriched); consisting of rhyolitic flows that may be quartz-phyric and locally exhibit primary lobate structure; lesser crystal tuff (U-Pb #37); associated gabbro sills.*
- **Zcf74it** — **Intermediate volcanic rocks:** *massive and pyroclastic rocks of tholeiitic affinity, generally dacitic to andesitic flows, tuff, lapilli tuff and pyroclastic tuff; flows may be pillowed and plagioclase-phyric; commonly cut by quartz porphyry near Madsen.*

**McNeely sequence (Red Lake) ca. 2748–2742 Ma.**

- **Ycf35ca** — **Mafic volcanic rocks:** *plagioclase-phyric, massive to pillowed, calc-alkaline basalt±andesite; locally amygdaloidal.*
- **Ycf75it** — **Intermediate to felsic volcanic rocks:** *dacitic to rhyodacitic pyroclastic rocks and associated epiclastic rocks (U-Pb #10, #14, #16, #23, #28, #39), locally overlying basal conglomerate (unit Tus2co).*
- **Tus2co** — **Oligomictic conglomerate:** *unbedded, poorly sorted oligomictic conglomerate derived mainly from underlying Balmer assemblage rocks and variably dominated by chemical sedimentary clasts (Wolf Bay, Red Lake) or basaltic clasts (north central shore, Red Lake); minor lithic wacke and/or argillaceous beds; interpreted to mark an angular unconformity between Red Lake's Mesoarchean strata and the ca. 2745 Ma Confederation assemblage.*

—•—•—•—•—•—•— unconformity —•—•—•—•—•—•—

**Trout Lake plutonic suite ca. 2860–2808 Ma**

- **Zmu44gb** — **Gabbro:** *medium-grained gabbro dykes cutting the Balmer assemblage in the Birch-Uchi belt, dated at ca. 2832 Ma on Spot Lake (U-Pb #59).*
- **Ybe13tn** — **Tonalite-granodiorite:** *variably foliated tonalite to granodiorite±quartz diorite of the Trout Lake batholith (U-Pb #49, 52, 53, 55); local inclusions of amphibolite; possibly correlative with quartz gabbro dated at 2870 ± 15 Ma from the Red Lake belt (Red Lake Mine; U-Pb #43).*
- **Ygc13tg** — **Tonalite gneiss:** *heterogeneous, variably foliated, layered and commonly folded gneiss of tonalitic, granodioritic, and quartz dioritic composition, occurring as enclaves within the central and southeastern Trout Lake batholith (U-Pb #50); variably cut by concordant to discordant, dykes of tonalite±granodiorite.*

### MESOARCHEAN (3100–2800 Ma)

**Trout Bay assemblage (Red Lake) ca. 2855–2848 Ma**

- **Ntb13gb** — **Gabbroic rocks:** *locally plagioclase megacrystic gabbro and leucogabbro intrusive into lower tholeiitic basalt of the Trout Bay assemblage and characterized by depleted REE profiles similar to upper Trout Bay tholeiitic basalt sequence.*
- **Ntb13th** — **Mafic volcanic rocks:** *upper sequence of northeast-facing pillowed tholeiitic basalt flows.*
- **Ytb46it** — **Intermediate volcanic rocks:** *dacitic tuff (U-Pb #24, #33) and tuff breccia with associated epiclastic rocks and oxide facies ironstone within central Red Lake.*
- **Ytb46sv** — *Clastic and epiclastic rocks (U-Pb #3) with minor interbedded intermediate tuff dated at ca. 2854 Ma (U-Pb #5), overlain by a fragmental tuff unit containing intermediate to mafic volcanic and banded iron-formation clasts; minor siltstone, and pelite; and intruded by Trout Bay gabbro.*
- **Tth7th** — **Mafic volcanic rocks:** *lower sequence of northeast-facing pillowed tholeiitic basalt flows, possibly correlative with unit Znl7th.*

**Medicine Rock assemblage (Birch-Uchi belt) < ca. 2870 Ma**

- **Yus13wk** — **Wacke:** *interbedded hematitic iron-formation and grey brown siltstone exposed at interface between the Narrow Lake and ca. 2870 Ma Woman assemblages and containing detrital zircon of Balmer (ca. 2.99 Ga.) and Woman (2.87–2.88 Ga) age (U-Pb #61).*

———————— Inferred unconformity ————————

**Woman assemblage (Birch-Uchi belt) ca. 2870 Ma**

- **Ywo48fv** — **Felsic to intermediate volcanics:** *ignimbritic to tuffaceous rhyolitic and dacitic flows dated at ca. 2870 Ma (U-Pb #64); capped locally by 4 m thick stromatolitic marble.*
- **Ywo48mv** — **Mafic volcanic rocks:** *massive to pillowed tholeiitic and calc-alkaline basaltic flows, capped locally by 2 m thick marble.*

**Bruce Channel assemblage (Red Lake) ca. 2894 Ma**

- **Ybc50wk** — **Feldspathic wacke, siltstone, chert:** *wacke may be finely crosslaminated and capped by chert-magnetite ironstone; includes biotite schist and paragneiss occurring within the contact thermal aureole of the Cat Island pluton.*
- **Ybc50it** — **Felsic to intermediate pyroclastic rocks:** *felsic to intermediate tuff and lapilli tuff (U-Pb #30, #46).*

**Narrow Lake assemblage (Birch-Uchi belt) < ca. 2975 Ma >2870 Ma**

- **Znl7th** — **Basalt:** *tholeiitic, massive to pillowed basalt and associated medium-grained equigranular gabbro exposed east of Trout Lake batholith.*

**Slate Bay assemblage (Red Lake) <2903 Ma**

- **Ysl50md** — **Siltstone:** *mudstone-dominated facies at the entrance to Slate Bay; commonly andalusite-porphyroblastic.*
- **Ysl50qz** — **Quartz-rich clastic rocks:** *quartzose wacke, quartz arenite, quartz-rich grit to pebble conglomerate with dominant felsic volcanic clasts; commonly fuchsite-bearing (U-Pb #8, #26, #34).*

—•—•—•—•—•—•— unconformity —•—•—•—•—•—•—

**Ball plutonic suite**

- **Xbl52up** — **Ultramafic intrusive rocks:** *serpentinite, serpentinized peridotite, and rare pyroxenite, variably carbonatized, intrusive into the Ball assemblage; trace element data indicate affinity with Ball komatiite and komatiitic basalt.*

**Ball assemblage (Red Lake) <2925 Ma >2940 Ma**

- **Xbl52km** — **Upper ultramafic flows:** *massive to pillowed komatiite and basaltic komatiite flows.*
- **Ybl53fv** — **Upper felsic to intermediate volcanic rocks:** *felsic flows (type FI) intercalated with dacitic flows dated at 2925.4 +3.4/-2.9 Ma (U-Pb #7); white weathering, typically 3–15% quartz phenocrysts, locally spherulitic texture, locally plagioclase microphyric.*
- **Ybl54cb** — **Chert-marble:** *locally stromatolitic; generally transitional with, and/or capped by, chert-magnetite±sulphides; includes coarse-grained wollastonite- and/or diopside-bearing metamorphosed equivalents on northern Pipestone Bay.*
- **Ybl55ft** — **Middle felsic to intermediate volcanic rocks:** *rhyodacitic and rhyolitic flows and tuff with lesser dacitic to andesitic pyroclastic tuff and lapilli tuff; minor spherulitic dacite±siltstone; calc-alkaline affinity (type FI); includes 2940.1 +2.4/-1.7 Ma massive rhyolite flows (U-Pb #6).*
- **Xbl55mv** — **Middle mafic to ultramafic volcanic rocks:** *massive basalt and komatiitic basalt with minor associated spinifex-textured komatiite; includes some serpentinite and gabbro.*
- **Ybl14it** — **Intermediate calc-alkaline volcanic rocks:** *dacitic to lesser andesitic rocks dominated by pyroclastic tuff and lapilli tuff, with minor spherulitic dacite and chert-magnetite ironstone±siltstone; minor interlayered basalt flows.*
- **Ybl14ca** — **Lower basalt:** *massive to locally pillowed, calc-alkaline basalt.*

**Balmer Plutonic Suite**

- **Xbm59gb** — **Gabbro±diorite±leucogabbro:** *intrusive into Balmer assemblage, locally plagioclase phyric (i.e., south shore of central Red Lake).*
- **Xbm59up** — **Serpentinite, serpentinized peridotite:** *pyroxenite, typically actinolite-bearing, locally tremolite and talc schist; variably carbonatized; intrusive into, and geochemically related to, the ca. 2.99 Ga Balmer assemblage, possibly equivalent to the middle komatiite sequence.*

**Balmer assemblage (Red Lake and Birch-Uchi belts) ca. 2992–2964 Ma**

- **Tbm57fv** — **Rhyolite:** *upper rhyolite dated at 2964 +6/-1 (U-Pb #40) near Balmertown and possible tuff (felsite) east of Trout Lake batholith dated at ca. 2958.6 ± 1.7 Ma (U-Pb #56).*
- **Ybm59fv** — **Felsic volcanic rocks:** *thinly bedded to massive quartz and feldspar phyric tuff (ca. 2989 Ma) (Skinner porphyry, U-Pb #54) and associated volcaniclastic-epiclastic deposits.*
- **Ybm59mv** — **Intermediate to mafic volcanic rocks:** *massive basaltic andesite to andesite (Tims Creek) flows with minor dacite dated at ca. 2975 Ma at Spot Lake (U-Pb #58), underlain by minor pillowed tholeiitic basalt.*
- **Tbm7wk** — **Sedimentary rocks:** *thinly bedded lithic wacke and siltstone locally cut by gabbro dykes.*
- **Xbm59fv** — **Felsic to intermediate volcanic rocks:** *rhyolitic to dacitic flows, pyroclastic rocks, and associated epiclastic rocks dated at 2989±3 Ma (Campbell Gold Mine; U-Pb #41), ca. 2988 Ma (Coin Lake; U-Pb #21).*
- **Xbm59it** — **Dacitic volcanic rocks:** *generally pyroclastic including tuff, 2992 +20/-9 Ma lapilli tuff (U-Pb #35) and tuff breccia with clasts more felsic than matrix, locally garnet-bearing.*
- **Xbm59kb** — **Ultramafic volcanic rocks:** *komatiite±komatiitic basalt, locally with preserved spinifex texture, forming lower (Flat Lake, Russet Lake, Nungessor Road) and middle sequences (Post Narrows, Middle Narrows, Golden Arm).*
- **Xbm59th** — **Mafic volcanic rocks:** *tholeiitic basalt, commonly variolitic and pillowed; typically aphyric, sparsely vesicular; consisting of a lower sequence with $TiO_2$ >1.5% and flat to enriched LREE profiles, and middle and upper sequences with $TiO_2$ <1.5% and flat to depleted LREE profiles.*

OF 4256
Figure 2A

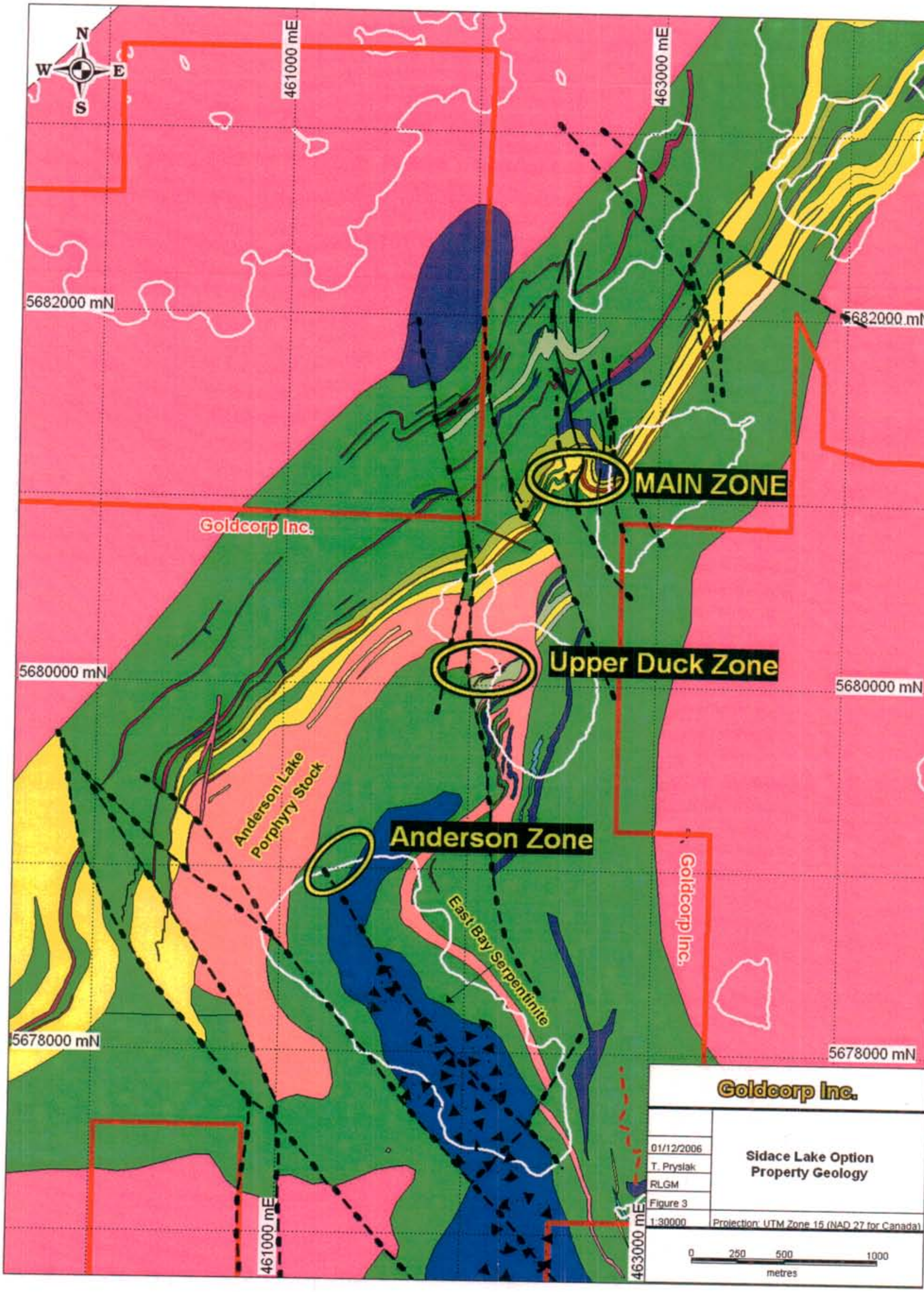
## 6. PROPERTY GEOLOGY

The property is located at the east end of the Red Lake Greenstone Belt and is situated between the Trout Lake Batholith to the east-southeast and the Little Vermilion Batholith to the northwest. It has a minimum width of 1.5 kilometres at the northeast end, in the Sidace Lake area and reaches over 6 kilometres in width in the Anderson Lake area. The Blackbear Stock is located in the southwest part of the property and splits the belt into two segments; these merge again near the north boundary of Shaver Township.

The northeast portion of the belt is poorly understood because of the extensive Quaternary glacial related deposits covering the bedrock. The airborne magnetic data serves as the first base to interpretation of the property geology, along with the sparse outcrops and the diamond drill holes completed since 1997. The property geology is presented as Figures 3 and 3A.

There are no published age dates for any of the supracrustal lithologies within the property limits. However, aeromagnetic interpretation suggests that the large magnetic high under Anderson Lake is likely to be the northeast extension of the East Bay Serpentinite, which intrudes the Balmer sequence of volcanics in Dome Township to the southwest. The basalts situated to the southeast of the Anderson Lake ultramafic are likely of Balmer age. A sedimentary horizon has been traced by drilling from the northeast end of Sidace Lake, southwesterly to the proximity of Nungesser Road. This horizon lies approximately 100 metres up section (north) from the Main Zone deposit and comprises of a heterolithic conglomerate, chert-sulphide IF and a discontinuous member of marble. Sanborn-Barrie et al (2004) show marble to be present within several Assemblages, namely the Slate Bay and the Huston; the former being Mesoarchean and the latter being Neoarchean in age. It is not certain which of these two members would correlate with the Sidace marble.

Mafic volcanics form approximately 70% of the supracrustal lithologies; komatiitic flows form about 5%; felsic volcanics and related porphyries form about 15%; clastic and chemical sediments, including marble, about 5% and mafic to ultramafic intrusives form the remainder. There are numerous small dykes of a broad spectrum of classes, including lamprophyres.



N
W
E
S
461000 mE
463000 mE
5682000 mN
5682000 mN
MAIN ZONE
Goldcorp Inc.
Upper Duck Zone
5680000 mN
5680000 mN
Anderson Lake Porphyry Stock
Anderson Zone
Goldcorp Inc.
East Bay Serpentinite
5678000 mN
5678000 mN
Goldcorp Inc.
01/12/2006
T. Pryslak
RLGM
Figure 3
1:30000
Sidace Lake Option
Property Geology
Projection: UTM Zone 15 (NAD 27 for Canada)
0
250
500
1000
metres
461000 mE
463000 mE

## Legend

| | |
|---|---|
| 1 | UNDIFF. MAFIC / UM VOLCANICS |
| 1g | MAFIC VOLCANICLASTICS |
| 1j | BANDED AMPHIBOLITE |
| 1k | KOMATIITES |
| 2 | UNDIFF. INTERMEDIATE VOLCANICS |
| 2g | INTERM VOLCANICLASTICS |
| 2t | ALUMINOUS ALTERED INTERM. VOLCANICS |
| 3 | UNDIFF. FELSIC VOLCANICS |
| 3c | TUFF, LAPILLI TUFF, LAPILLISTONE |
| 3t | ALUMINOUS ALTERED FELSIC VOLCANICS |
| 5b | OXIDE FACIES IRON FORMATION |
| 5d | SULPHIDE FACIES IRON FORMATION |
| 5m | MARBLE |
| 6 | MAFIC-ULTRAMAFIC INTRUSIVES |
| 6a | DIORITE |
| 6c | PERIDOTITE / TALC SCHIST |
| 6g | GABBRO |
| 7b | FELDSPAR PORPHYRY |
| 8 | FELSIC-INTERM PLUTONIC INTRUSIVES |
| 8b | GRANODIORITE, TRONDHJEMITE |
| 9a | QUARTZ SERICITE SCHIST @ SIDACE LK |
| 9c | SILICIFIED UNIT @ SIDACE LK |
| mag | Magnetite |
| QV | Quartz Vein |
| | Alteration |
| 5d | SULPHIDE FACIES IRON FORMATION |
| | fault |
| | vein |
| | axial trace |

Figure 3A

A calc-alkaline feldspar porphyry body extends from the north end of Anderson Lake, northeast toward the Main Zone gold deposit, a distance of four kilometers. This intrusion is called the Anderson Lake Porphyry Stock. It reaches a maximum width of one kilometer. The north contact with felsic volcanics is conformable, while the south contact is intrusive in nature. In some locales, such as in the vicinity of Upper Duck Lake or the footwall section of the Main Zone, the porphyry is indistinguishable from felsic volcanics. This is due to the intensity of alteration, either from an early hydrothermal event or a later deformational episode which results in the distruction of the feldspar phenocrysts and the development of sericite.

Four different alteration events have been observed in drill core:

**a:** aluminous, readily identified by the presence of andalusite, staurolite and garnet, in both felsic and mafic volcanics;

**b**: potassic, now expressed as either microcline, brown biotite or sericite;

**c:** carbonate, largely associated with the calc-silicate assemblage of diopside-garnet-quartz and minor pyrite, pyrrhotite or magnetite (iron-magnesium carbonate under amphibolite grade metamorphism). Veins are present in all lithologies and are on a one cm to one metre scale; and

**d:** silica-gold-arsenic alteration is associated with disrupted quartz veinlets within the quartz-sericite schist and microcline alteration unit at the Main Zone; as replacement zones in silicate-facies IF in the Upper Duck Zone and more regionally with the skarn/calc-silicate veins.

Metamorphism is at the lower amphibolite grade with little chlorite remaining. When it is seen in drill core, it appears to be largely retrograde from biotite or amphiboles. This lower amphibolite grade of metamorphism is well displayed by the komatiite flows seen within the mafic volcanic sections. They are in the order of one to fifteen metres thick; the core portion of the flows are grey from the talc-carbonate assemblage, while the contact intervals are bright green from pro-grade metamorphism to an assemblage comprised dominantly of actinolite.

A strong northeast trending foliation defines a deformation zone through the main section of the supracrustal rocks. These are deformed by a late Z-style chevron fold event. These folds plunge approximately 65 degrees to the northwest and are generally on a scale of 1 to 20 metres. The largest fold of this event is that at the Main Zone where the central limb has a minimum length of 50 metres. Early isoclinal folds were observed in a single outcrop but the lack of litho repetitions would suggest that the supracrustals are essentially a homoclinal, northwest facing sequence.

Various ages of faults are known to occur; early faults are largely annealed and difficult to identify in core; the late brittle faults are common and displacements up to 100 metres have been noted.

## 6a. MINERALIZATION

There are four styles of gold mineralization noted on the property. They are as follows:

1. Quartz veining associated with an intense potassic alteration zone. Gold is associated with minor pyrite, pyrrhotite, arsenopyrite, stibnite, moly and rarely realgar and orpiment. This mineral assemblage occurs within QSS and the microcline alteration unit, both being host to the quartz veining. e.g. the Main Zone;
2. Silicification associated with arsenopyrite within grunerite-magnetite I.F. e.g. the Upper Duck Zone;
3. Arsenopyrite, pyrite, pyrrhotite associated with quartz-diopside-veining and observed in all of the major lithologies on the property, excepting the granites e.g. the Skarn Zone, and
4. Shearing of ultramafic lithologies, particularly along the contacts with other supracrustals.

The gold mineralization at the Main Zone has many features and characteristics with the Hemlo deposits; a deformed porphyry system now expressed as quartz-sericite schist with disrupted quartz veinlets and associated molybdenite, arsenides, mercury and iron sulphides. The units on the structural footwall display very intense microcline alteration. The main gold-bearing horizon lies between this potassic alteration zone on the FW and a massive quartz unit, interpreted as a meta-chert, on the HW. The average widths are 5 to 15 metres along an unfolded length of 300 metres. An average grade for this zone is not available.

The Upper Duck Zone is hosted by an iron formation within garnetifferous mafic volcanics. The iron formation is comprised of magnetite, tremolite-actinolite (possibly grunerite). Gold values are associated with silicified sections containing arsenopyrite, pyrrhotite and pyrite. Locally, the I.F. units may contain veins of the diopside bearing assemblage, indicating a likely similar origin for the type 2 and type 3 gold deposits. The supracrustal lithologies in the Upper Duck area are highly injected by porphyry dykes that are correlative with the Anderson Lake Porphyry Stock.

Gold values in RL-04-40 (earlier report) are associated with skarn- type veins. The dominant calc-silicate mineral is diopside. Minor pyrite, pyrrhotite and arsenopyrite are generally present with these veins that are interpreted as amphibolite grade ferro-dolomite veins. The best assay from this locale was 15.6 g/t Au from a 1.85 metre interval.

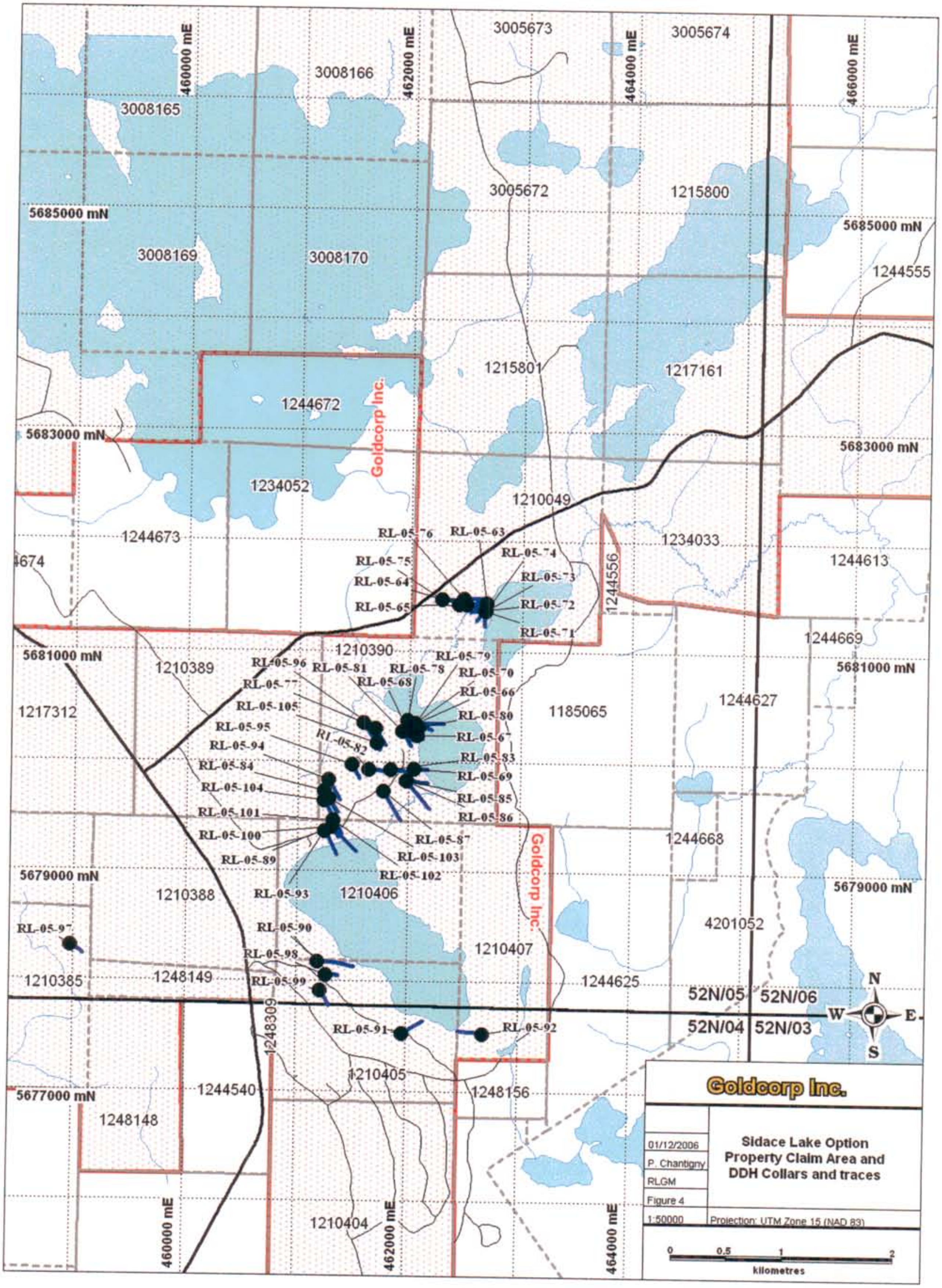
The fourth style of gold mineralization is associated with the ultramafics in the vicinity of Anderson Lake.

## 7. DIAMOND DRILLING PROGRAM

The Phase VIII-b diamond drill program commenced on January 23, 2005 with drill hole RL-05-63. The program continued to the completion of drill hole RL-05-97 on September 5, 2005. The 35 diamond drill holes total 10,770 metres. Extra funding was approved and the Phase IX program started on October 28 and finished on December 3, 2005. The 8 diamond drill hole program includes holes RL-05-98 to RL-05-105 for a total of 1788 metres. A summary of the diamond drilling phases carried out by Planet and the Planet-Goldcorp JV since inception of the project in 1997 is presented in Table 2. The location of each drill hole (Figure 4) and the accompanying statistics for each of the drill holes completed in Phases VIII-b and IX are summarized in Table 3a and 3b.

The drilling was contracted to Major Drilling Group International Inc. from their regional office at 180 Cree Crescent, Winnipeg, Manitoba, R3J 3W1.

Although there is a cut grid on the property, the drill holes were spotted in the field using a GPS with Zone 15, NAD 27 UTM co-ordinates. A compass was used for orienting the direction of the drill holes. Table 4 summarizes the distribution of the total metres drilled relative to the claims.



3005673
3005674
460000 mE
462000 mE
464000 mE
466000 mE
3008166
3008165
3005672
1215800
5685000 mN
3008169
3008170
1244555
1215801
1217161
1244672
Goldcorp Inc.
5683000 mN
1234052
1210049
1244673
4674
1234033
1244556
1244613
RL-05-76
RL-05-63
RL-05-74
RL-05-75
RL-05-73
RL-05-64
RL-05-72
RL-05-65
RL-05-71
1244669
5681000 mN
1210390
1210389
RL-05-96
RL-05-81
RL-05-79
RL-05-78
RL-05-70
RL-05-77
RL-05-68
RL-05-66
1217312
RL-05-105
RL-05-80
1185065
1244627
RL-05-95
RL-05-67
RL-05-82
RL-05-94
RL-05-83
RL-05-84
RL-05-69
RL-05-104
RL-05-85
RL-05-101
RL-05-86
RL-05-100
RL-05-87
RL-05-103
RL-05-89
RL-05-102
1244668
5679000 mN
1210388
RL-05-93
1210406
RL-05-97
RL-05-90
4201052
RL-05-98
1210407
1210385
1248149
RL-05-99
1244625
52N/05
52N/06
52N/04
52N/03
1248309
RL-05-91
RL-05-92
N
W
E
S
1210405
5677000 mN
1244540
1248156
1248148
1210404
Goldcorp Inc.
01/12/2006
P. Chantigny
RLGM
Figure 4
1:50000
Sidace Lake Option
Property Claim Area and
DDH Collars and traces
Projection: UTM Zone 15 (NAD 83)
0 0.5 1 2
kilometres

Bore hole surveys were contracted to Major Directional Services from Balmertown, Ontario. They used a Maxibor instrument to establish the drill hole paths. The final collar locations, azimuths and dips were established by K. Pye of Total Exploration Services from Timmins, Ontario using a DGPS system.

The core was delivered to the core shack located at the Cochenour mine site. The core from Phase VIII-b was logged by L.C. Chastko, P. Chantigny and A.P. Pryslak. Phase IX core was all logged by L.C. Chastko. The diamond drill supervision was under the direction of either Chastko or Pryslak.

Assaying of drill core samples for gold was contracted to Accurassay Laboratories of Thunder Bay. Quality control consisted of a pulp duplicate analysis for every 10$^{th}$ sample and one standard and blank for every 50 samples submitted. The certificates of analysis are appended to this report. The results are also presented in the drill logs and the sections. Samples with duplicate analyses are averaged in the drill log entries. Every 49$^{th}$ sample (samples ending in the digits -49 or -99) is a standard and every 50$^{th}$ sample (samples ending with digits of -50 or -00) represents a blank.

A limited amount of ICP geochemistry was carried out on the core samples that were prepared for gold analysis. Some of these were analysed by ALS Chemex in Vancouver and some were analysed by Accurassay Labs in Thunder Bay. There is no discussion of these results at this time.

**Table 2: Planet JV, Summary of diamond drilling phases, Oct./98 to Mar./06**

| PHASE | PERIOD | DDH No's | No. of DDH's | Metres | Comments/reports |
|---|---|---|---|---|---|
| Phase I | Oct-Nov/98 | 98-01 to 06 | 6 | 828 | Dadson, Jan.18/99 |
| Phase II | Feb-Mar/99 | 99-1 to 5 | 5 | 1443 | Mann, April 5/99 |
| Phase III | April-May/99 | 99-7, 8, 9, 11, 12, 20 | 6 | 1195 | Mann, Aug.10/99 |
| Phase IV | June-July/02 | RL-02-1 to 12 | 12 | 2202 | Clarke Exploration, internal report, logs filed for assessment |
| PhaseV | Dec/02 - Feb/03 | RL-02-14 to RL-03-24<br>99-12 ext. 185-300 | 11 | 2551 | no report; filed for assessment |
| | *January, 2003* | *RL-03-18* | | | *commencement of participation by Goldcorp* |
| Phase VI | June-Sept/03 | RL-03-25 to 36 and<br>99-12 ext. 300-681 | 12 | 6324.3 | Nelson/Dehn report; Feb/05 |
| Phase VII-a | Dec/03 - April/04 | RL-03-37 to RL-04-41 | 5 | 4647 | Nelson/Dehn report; Feb/05 |
| | *April, 2004* | | | | *Goldcorp takes over management* |
| Phase VII-b | April-May/04 | RL-04-42 to RL-04-54<br>SD-04-01, 02 extension | 16 | 6735 | Pryslak et al, Sept./2006 |
| Phase VIII-a | Sept/04 - Jan22/05 | RL-04-55 to RL-05-62B | 10 | 3347.7 | No report |
| Phase VIII-b | Jan.23/05 - Sept/05 | RL-04-63 to RL-05-97 | 35 | 10,771 | This report |
| Phase IX | Oct-Nov/05 | RL-05-98 to RL-05-105 | 8 | 1788 | This report |
| | **Oct/98- Nov./05** | **TOTAL:** | **126** | **41,832** | |

| TABLE 3a: Drill summary, Phase VIII-b | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| DDH No. | UTM:Zone 15 NAD 27 | Az | Dip | Casing-m | Depth-m | Month-05 | no. Au assays | no.QC | no.ICP |
| RL-05-63 | 462696-5681218 | 270 | -66 | 51.8 | 414 | Jan.-05 | 305 | 12 | 317 |
| RL-05-64 | 462449-5681200 | 90.6 | -55 | 31.5 | 297 | Feb.-05 | 175 | 8 | 280 |
| RL-05-65 | 462517-5681202 | 85.9 | -62 | 34 | 153 | Feb.-05 | 113 | 4 | 117 |
| RL-05-66 | 462073-5680122 | 146 | -50 | 16.3 | 169 | Feb.-05 | 168 | 8 | 352 |
| RL-05-67 | 462082-5680012 | 326 | -55 | 24.3 | 126 | Feb.-05 | 94 | 4 | 98 |
| RL-05-68 | 461996-5680067 | 150 | -52 | 26.8 | 171 | Feb.-05 | 140 | 4 | |
| RL-05-69 | 462062-5679707 | 91 | -52 | 12.7 | 195 | Feb.-05 | 129 | 6 | 135 |
| RL-05-70 | 462069-5680129 | 113 | -50 | 19.5 | 246 | Mar.-05 | 194 | 8 | |
| RL-05-71 | 462685-5681149 | 268 | -61 | 330 | 261 | Mar.-05 | 223 | 10 | |
| RL-05-72 | 462686-5681148 | 226 | -50 | 33 | 196.5 | Mar.-05 | 162 | 6 | |
| RL-05-73 | 462686-5681147 | 180 | -48 | 43 | 207 | Mar.-05 | 121 | 6 | |
| RL-05-74 | 462686-5681147 | 179 | -63 | 32 | 243 | Mar.-05 | 119 | 4 | |
| RL-05-75 | 462298-5681250 | 93 | -55 | 15.2 | 570 | Mar-Ap-05 | 421 | 18 | |
| RL-05-76 | 462490-5681250 | 90 | -65 | 27.3 | 528 | Apr.-05 | 382 | 16 | |
| RL-05-77 | 461602-5680127 | 146 | -50 | 13.5 | 399 | Apr.-05 | 385 | 16 | |
| RL-05-78 | 461996-5680157 | 146 | -60 | 12 | 348 | Apr.-05 | 263 | 10 | |
| RL-05-79 | 462068-5680124 | 90 | -45 | 16 | 351 | May.-05 | 277 | 12 | |
| RL-05-80 | 462098-5680081 | 146.6 | -55 | 19.6 | 165 | May.-05 | 145 | 6 | |
| RL-05-81 | 461915-5680110 | 148.2 | -50 | 23 | 225 | May.05 | 100 | 4 | |
| RL-05-82 | 461651-5679705 | 90.6 | -50 | 7 | 240 | May.05 | 140 | 6 | |
| RL-05-83 | 461850-5679701 | 90 | -50 | 27 | 249 | May.05 | 135 | 6 | |
| RL-05-84 | 461251-5679508 | 146 | -50 | 18 | 333 | May.05 | 303 | 12 | |
| RL-05-85 | 461997-5679598 | 95.6 | -50 | 16 | 282 | May.05 | 255 | 10 | |
| RL-05-86 | 461993-5679600 | 146.6 | -50 | 16.3 | 484.5 | Jun.05 | 403 | 18 | |
| RL-05-87 | 461786-5679503 | 146 | -50 | 33 | 462 | Jun.05 | 301 | 12 | |
| RL-05-88ab. | 461365-5679125 | 146 | -50 | 108 | 108 | Jun.05 | | | |
| RL-05-89 | 461320-5679175 | 128 | -55 | 94 | 558 | Jun-Jul.05 | 270 | 12 | |
| RL-05-90 | 461210-5677947 | 89.1 | -50 | 37 | 465 | Jul.05 | 247 | 10 | |
| RL-05-91 | 461976-5677298 | 58.4 | -55 | 115 | 393 | Jul.05 | 238 | 10 | |
| RL-05-92 | 462699-5677303 | 277.8 | -55 | 13 | 359 | Jul-Aug.05 | 247 | 10 | |
| RL-05-93 | 461262-5679140 | 150 | -55 | 40.4 | 417 | Aug.05 | 376 | 16 | |
| RL-05-94 | 461290-5679604 | 145 | -55 | 14.7 | 324 | Aug.05 | 317 | 12 | |
| RL-05-95 | 461499-5679751 | 147 | -50 | 7 | 243 | Aug.05 | 188 | 8 | |
| RL-05-96 | 461710-5680076 | 148 | -55 | 7.5 | 267 | Aug.05 | 260 | 12 | |
| RL-05-97 | 458991-5678082 | 119 | -65 | 40 | 321 | Sep.05 | 241 | 10 | |
| **TOTALS** | **35 DDHs** | | | **1375.4** | **10770** | | **7837** | **326** | **1299** |

| TABLE 3b: Drill summary, Phase IX | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **DDH No.** | **UTM:Zone 15 NAD 27** | **AZ.** | **Dip** | **Casing-m** | **Depth-m** | **Mon.05** | **no. Au assays** | **no.QC** | **no.ICP** |
| RL-05-98 | 461285-5677831 | 90 | -50 | 30 | 174 | Oct.05 | 43 | 10 | |
| RL-05-99 | 461235-5677690 | 146 | -50 | 52 | 252 | Oct.05 | 61 | 4 | |
| RL-05-100 | 461320-5679175 | 134 | -70 | 66 | 327 | Nov.05 | 216 | 8 | |
| RL-05-101ab. | 461335-5679235 | 134 | -55 | 90.5 | 114 | Nov.05 | 18 | 2 | |
| RL-05-102 | 461335-5679237 | 134 | -65 | 50.3 | 393 | Nov.05 | 329 | 12 | |
| RL-05-103 | 461297-5679439 | 146.6 | -50 | 25.6 | 225 | Nov.05 | 176 | 8 | |
| RL-05-104 | 461255-5679415 | 146.6 | -51 | 20 | 201 | Nov.05 | 93 | 6 | |
| RL-05-105 | 461720-5679945 | 146.6 | -51.6 | 8 | 102 | Nov.05 | 83 | 2 | |
| **TOTALS** | **8 DDHs** | | | **342.4** | **1788** | | **1019** | **52** | **0** |
| **TOTAL 3a+3b** | **43 DDHs** | | | **1717.8** | **12,558** | | **8856** | **378** | **1299** |

| TABLE 4: Claim-metres drilled distribution | | | | | | |
|---|---|---|---|---|---|---|
| **DDH no.** | **1210049** | **1210390** | **1210406** | **1210405** | **1210407** | **1210385** |
| RL-05-63 | 414 | | | | | |
| RL-05-64 | 297 | | | | | |
| RL-05-65 | 153 | | | | | |
| RL-05-66 | | 169 | | | | |
| RL-05-67 | | 126 | | | | |
| RL-05-68 | | 171 | | | | |
| RL-05-69 | | 195 | | | | |
| RL-05-70 | | 246 | | | | |
| RL-05-71 | 261 | | | | | |
| RL-05-72 | 197 | | | | | |
| RL-05-73 | 207 | | | | | |
| RL-05-74 | 243 | | | | | |
| RL-05-75 | 570 | | | | | |
| RL-05-76 | 528 | | | | | |
| RL-05-77 | | 399 | | | | |
| RL-05-78 | | 348 | | | | |
| RL-05-79 | | 351 | | | | |
| RL-05-80 | | 165 | | | | |
| RL-05-81 | | 225 | | | | |
| RL-05-82 | | 240 | | | | |
| RL-05-83 | | 249 | | | | |
| RL-05-84 | | 333 | | | | |
| RL-05-85 | | 282 | | | | |
| RL-05-86 | | 485 | | | | |
| RL-05-87 | | 462 | | | | |
| RL-05-88ab | | | 108 | | | |
| RL-05-89 | | | 558 | | | |
| RL-05-90 | | | | 465 | | |
| RL-05-91 | | | | 393 | | |
| RL-05-92 | | | | 13 | 346 | |
| RL-05-93 | | | 417 | | | |
| RL-05-94 | | 324 | | | | |
| RL-05-95 | | 243 | | | | |
| RL-05-96 | | 267 | | | | |
| RL-05-97 | | | | | | 321 |
| RL-05-98 | | | | 174 | | |
| RL-05-99 | | | | 252 | | |
| RL-05-100 | | | 327 | | | |
| RL-05-101 | | | 114 | | | |
| RL-05-102 | | | 393 | | | |
| RL-05-103 | | 225 | | | | |
| RL-05-104 | | 201 | | | | |
| RL-05-105 | | 102 | | | | |
| **TOTALS** | **2870** | **5808** | **1917** | **1297** | **346** | **321** |
| | | | | | | |
| | Total: all ddhs, 12,559 | | | | | |

## 8. DISCUSSION OF RESULTS

The drill holes are grouped for discussion purposes as follows; a. Main Zone; b. Upper Duck Zone; c. Upper Duck SW extension; d. Anderson Lake North UM targets; e. Anderson Lake South targets and; f. miscellaneous targets. The assay results are summarized as 1.0 g/t composites; this includes assays of >1.0 g/t Au with an internal maximum dilution of 3.0 metres. The main zone composites are in Table 5 and the non-main zone comps are in Table 6. A brief description of each of these targets is given in the section below along with general results. The details are in the drill logs and assays.

**a. Main Zone:** RL05-63, 64, 65, 71, 72, 73, 74, 75 and 76

The first seven of the nine drill holes listed above tested the Main Zone at depths of -100 to -200 metres below surface. Holes 75 and 76 tested the zone at -300 to -350 metres below surface.

Earlier drilling at an azimuth of 146° was properly oriented to intersect the North Limb Zone, but the intersections with the Main Zone were acute in nature. The main purpose of this drill program was to intersect the Main Zone near normal to its north to northwest strike. Deviation was not a serious problem with holes drilled from the east side (RL-05-63 and 71). However, a strong fabric in the hanging wall lithologies resulted in extreme deviation in the holes drilled from west to east, resulting in the Main Zone intersections being at acute angles to the core and often not penetrating the entire width of the zone (as in RL-05-75).

Geometrically, the Main Zone is a large Z-shaped mineralized body. The north limb trends at 50 degrees and dips 65 degrees NW. The east limit of this section is acute to the north limit of the middle limb or Main Zone. This section has a strike length of 200-300 metres and is arcuate in form without any definite break in trend between the middle and south limbs of the fold.

The hanging wall to the mineralization is a massive quartz unit with 3-5% disseminated to stringer pyrite-pyrrhotite. There are several bands of semi-massive, banded sulphides that would indicate that this unit was likely of exhalite origin. A band of quartz-sericite schist (QSS) lies below the massive silica unit, varying from 5 to 40 metres in thickness. A section of intense microcline alteration lies below and is complexly interfingered along the contact with the QSS.

Gold values are generally associated with quartz veining but also with minor amounts (1 to 3%) of disseminated sulphides. Dark grey quartz veinlets occur throughout the QSS and microcline alteration unit. The main section of gold mineralization extends from the massive quartz unit, down through the QSS and into the interfingered section of microcline and QSS. The QSS, microcline and quartz veins are all host to the sulphides which include pyrite, pyrrhotite, stibnite, moly, arsenopyrite and occasionally realgar and orpiment. Gold values extend down into the footwall lithologies for well over 100 metres, but for the most part, these appear to lack continuity.

A northeast-southwest axial plane cleavage has resulted in a strong crenulated fabric in the QSS, particularly in the Main Zone where the foliation-cleavage intersections are at a high angle. Most of the dark grey quartz veinlets are complexly folded as well. The veins near parallel to the cleavage remain as planer features.

Table 5 lists the 1.0g/t Au composites from the drill holes discussed in this sub-section. The intersections of the North Limb and Main Zones are identified. The miscellaneous intersections have not been named.

b. **Upper Duck Zone:** RL-05-66, 67, 68, 70, 78, 79, 80 and 81.

Diamond drill hole RL-04-61 was drilled in 2004 to test gold value intersections in RL-04-40 and 51(not part of this report).The drill hole was spotted north of a magnetic anomaly and drilled grid south. The magnetic feature was the response from a silicate IF with silicification, arsenopyrite and gold that assayed 7.64 g/t over a core length of 4.0 metres. This became known as the Upper Duck Zone. The drill holes listed above were part of the follow-up program to test the extent and tenor of the zone.

The gold mineralization of the Upper Duck Zone is hosted by magnetite-amphibole horizons that form a portion of a broader garnet-amphibole formation. Mafic to felsic volcanic lithologies form the dominant portion of the section. The main body of the Anderson Lake porphyry stock occurs immediately to the north of the zone and numerous porphyry dykes intrude the supracrustal sequence. In the preserved section, where the porphyry has not cut off a part of the volcanic-sedimentary section, two to five bands of the IF are represent. The gold-bearing units are generally mineralized with minor sulphides, including acicular arsenopyrite. The amphibole is usually brownish and is either actinolite, cummingtonite or grunerite.

**TABLE 5**
MAIN ZONE COMPS: 1.0gpt Au, max. 3.0m internal dilution

| HOLE-ID | FROM | TO | AU_GPT | LENGTH | Zone |
|---|---|---|---|---|---|
| RL-05-63 | 188 | 189 | 1.95 | 1 | |
| RL-05-63 | 278 | 279 | 1.66 | 1 | |
| RL-05-63 | 302 | 302.65 | 1.83 | 0.65 | |
| RL-05-63 | 306 | 326 | 3.2 | 20 | Main |
| RL-05-63 | 405 | 406 | 1.32 | 1 | |
| RL-05-64 | 102 | 103 | 1.07 | 1 | |
| RL-05-64 | 131 | 133 | 2.16 | 2 | North limb |
| RL-05-64 | 138 | 139 | 3.03 | 1 | |
| RL-05-64 | 164 | 177 | 3.9 | 13 | Main |
| RL-05-64 | 184 | 185 | 24.78 | 1 | 9C |
| RL-05-65 | 84 | 89 | 1.06 | 5 | North limb |
| RL-05-65 | 102 | 108 | 2.12 | 6 | Main |
| RL-05-71 | 68 | 69 | 2.13 | 1 | |
| RL-05-71 | 162 | 163 | 3.68 | 1 | |
| RL-05-71 | 169 | 174 | 3.74 | 5 | Main |
| RL-05-71 | 180 | 195 | 1.78 | 15 | FW_main: use 169-195=26@1.85 |
| RL-05-71 | 199 | 203 | 1.01 | 4 | |
| RL-05-71 | 223 | 224 | 5.79 | 1 | |
| RL-05-71 | 229 | 230 | 1.43 | 1 | |
| RL-05-72 | 109 | 110 | 1.18 | 1 | 9C; use 113-127=14@0.52 for Main |
| RL-05-72 | 142 | 143 | 1.94 | 1 | |
| RL-05-73 | 111.4 | 116 | 3.28 | 4.6 | |
| RL-05-73 | 120 | 121 | 10.92 | 1 | |
| RL-05-73 | 185 | 186 | 2.65 | 1 | |
| RL-05-73 | 192 | 193 | 1.25 | 1 | |
| RL-05-74 | 158 | 162 | 2 | 4 | Main |
| RL-05-74 | 173 | 174 | 2.31 | 1 | |
| RL-05-74 | 211 | 212 | 1.14 | 1 | |
| RL-05-74 | 228 | 229 | 1.08 | 1 | |
| RL-05-74 | 236 | 241 | 3.14 | 5 | |
| RL-05-75 | 183 | 184 | 3.32 | 1 | |
| RL-05-75 | 258 | 261 | 2.19 | 3 | North limb |
| RL-05-75 | 287 | 288 | 1.71 | 1 | |
| RL-05-75 | 292 | 293 | 1.62 | 1 | |
| RL-05-75 | 305 | 306 | 1.02 | 1 | |
| RL-05-75 | 317 | 318 | 1.26 | 1 | |
| RL-05-75 | 324 | 325 | 3.69 | 1 | |
| RL-05-75 | 335 | 336 | 4.16 | 1 | |
| RL-05-75 | 340 | 347 | 1.41 | 7 | Main, FW section |
| RL-05-75 | 355 | 370 | 1.03 | 15 | Main, FW section |
| RL-05-75 | 375 | 377 | 1.12 | 2 | Main, FW section |
| RL-05-75 | 395 | 396 | 2.44 | 1 | Main, FW section |
| RL-05-75 | 400 | 404 | 1.25 | 4 | Main, FW section |
| RL-05-75 | 437 | 441 | 0.9 | 4 | Main, FW section |
| RL-05-75 | 472 | 473 | 2.94 | 1 | Main, FW section |
| RL-05-75 | 480 | 481 | 1.02 | 1 | Main, FW section |
| RL-05-75 | 491 | 494 | 4.75 | 3 | Main, FW section |
| RL-05-75 | 520 | 521 | 1.06 | 1 | Main, FW section |
| RL-05-75 | 543 | 544 | 2.76 | 1 | Main, FW section |
| RL-05-76 | 165 | 166 | 1.35 | 1 | |
| RL-05-76 | 333 | 334 | 2.18 | 1 | |
| RL-05-76 | 353 | 354 | 1.13 | 1 | |
| RL-05-76 | 432.2 | 440 | 1.59 | 7.8 | main |
| RL-05-76 | 459 | 460 | 1.86 | 1 | |

**TABLE 6**
Non-Main Zone comps: 1.0 gpt Au    Max. 3.0m internal dilution

| HOLE-ID | FROM | TO | AU_GPT | LENGTH | ZONE |
|---|---|---|---|---|---|
| RL-05-66 | 93.2 | 93.7 | 2.05 | 0.5 | |
| RL-05-66 | 102 | 106.5 | 7.02 | 4.5 | Upper Duck-1 |
| RL-05-66 | 109.9 | 110.9 | 4.11 | 1 | |
| RL-05-66 | 127.5 | 128.8 | 2.89 | 1.3 | |
| RL-05-66 | 161 | 162 | 1.33 | 1 | |
| RL-05-67 | 62 | 63 | 1.52 | 1 | |
| RL-05-67 | 94.5 | 95 | 1.09 | 0.5 | |
| RL-05-67 | 100.5 | 104.5 | 15.18 | 4 | Upper Duck-1 |
| RL-05-68 | 36 | 37 | 59.15 | 1 | Upper Duck-1 |
| RL-05-68 | 99.3 | 99.8 | 1.05 | 0.5 | |
| RL-05-68 | 140 | 141 | 1.34 | 1 | |
| RL-05-69 | 116 | 118 | 1.33 | 2 | |
| RL-05-69 | 136 | 139 | 3.08 | 3 | |
| RL-05-69 | 150 | 151 | 1.16 | 1 | |
| RL-05-70 | 99 | 100 | 1.06 | 1 | |
| RL-05-70 | 106 | 107 | 1.05 | 1 | |
| RL-05-70 | 123 | 124 | 2.73 | 1 | |
| RL-05-70 | 133 | 141 | 3.01 | 8 | Upper Duck-1 |
| RL-05-70 | 146.5 | 153.5 | 1.59 | 7 | Upper Duck-2 |
| RL-05-77 | 110.1 | 111 | 1.51 | 0.9 | |
| RL-05-77 | 245 | 246 | 1.04 | 1 | |
| RL-05-77 | 249.7 | 251 | 37.08 | 1.3 | Upper Duck-1 |
| RL-05-77 | 343 | 343.5 | 2.74 | 0.5 | |
| RL-05-78 | 30 | 31 | 2.27 | 1 | |
| RL-05-78 | 51 | 52 | 2.94 | 1 | |
| RL-05-78 | 94 | 95 | 1.33 | 1 | |
| RL-05-78 | 157 | 158 | 16.75 | 1 | |
| RL-05-78 | 169 | 170 | 3.01 | 1 | Upper Duck-1 |
| RL-05-78 | 177 | 178 | 5.2 | 1 | |
| RL-05-78 | 183 | 184 | 1.28 | 1 | |
| RL-05-78 | 215 | 216 | 5.57 | 1 | Upper Duck-2? |
| RL-05-78 | 227 | 232 | 0.61 | 5 | |
| RL-05-79 | 174 | 175 | 1.88 | 1 | |
| RL-05-79 | 180 | 183.58 | 6.62 | 3.58 | Upper Duck-1 |
| RL-05-79 | 211 | 215 | 2 | 4 | Upper Duck-2 |
| RL-05-79 | 238 | 239 | 1.72 | 1 | |
| RL-05-80 | 47 | 50 | 2.84 | 3 | Upper Duck-1 |
| RL-05-80 | 58 | 63.85 | 2.01 | 5.85 | Upper Duck-2 |
| RL-05-80 | 70 | 71 | 1.05 | 1 | |
| RL-05-80 | 85 | 86 | 2.39 | 1 | |
| RL-05-80 | 91 | 92 | 3.1 | 1 | Upper Duck-3 |
| RL-05-80 | 96 | 97 | 4.54 | 1 | |
| RL-05-80 | 144 | 145 | 1.31 | 1 | |
| RL-05-81 | 27 | 28 | 2.44 | 1 | |
| RL-05-81 | 33 | 34 | 2.49 | 1 | |
| RL-05-81 | 39 | 40 | 1.85 | 1 | |
| RL-05-81 | 60 | 61 | 2.12 | 1 | |
| RL-05-81 | 83 | 84 | 1.25 | 1 | |
| RL-05-82 | 40 | 43 | 3.1 | 3 | |
| RL-05-82 | 64 | 65 | 1.12 | 1 | |

| | | | | | |
|---|---|---|---|---|---|
| RL-05-82 | 116.2 | 116.84 | 2.41 | 0.64 | |
| RL-05-82 | 157.7 | 158.2 | 9.28 | 0.5 | |
| RL-05-84 | 20.8 | 21.45 | 3.04 | 0.65 | |
| RL-05-84 | 37 | 38 | 1.78 | 1 | |
| RL-05-84 | 134 | 138 | 1.02 | 4 | |
| RL-05-84 | 156.5 | 158.5 | 4.51 | 2 | |
| RL-05-84 | 179 | 181 | 3.98 | 2 | |
| RL-05-84 | 211.48 | 213.65 | 1.34 | 2.17 | |
| RL-05-84 | 227 | 228 | 2.68 | 1 | |
| RL-05-84 | 264 | 265 | 3.04 | 1 | |
| RL-05-84 | 321 | 322 | 1.37 | 1 | |
| RL-05-85 | 260.7 | 261 | 1.94 | 0.3 | |
| RL-05-86 | 72 | 73 | 2.96 | 1 | |
| RL-05-86 | 325 | 326 | 13.03 | 1 | |
| RL-05-87 | 100 | 101 | 5.64 | 1 | |
| RL-05-89 | 110 | 111 | 1.61 | 1 | |
| RL-05-89 | 128 | 137 | 2.31 | 9 | Anderson zone |
| RL-05-89 | 154 | 157 | 2.02 | 3 | |
| RL-05-89 | 215 | 225 | 1.35 | 10 | Upper UM contact |
| RL-05-89 | 330 | 331 | 2.36 | 1 | |
| RL-05-89 | 427 | 428 | 1.07 | 1 | |
| RL-05-89 | 435 | 437 | 1.98 | 2 | Lower UM contact |
| RL-05-90 | 253 | 254 | 2.36 | 1 | |
| RL-05-93 | 48 | 49 | 11.62 | 1 | |
| RL-05-93 | 164 | 165 | 3.05 | 1 | |
| RL-05-93 | 256 | 257 | 4.76 | 1 | |
| RL-05-93 | 302 | 304 | 9.76 | 2 | |
| RL-05-93 | 315 | 318 | 1.62 | 3 | |
| RL-05-93 | 363 | 365 | 2.43 | 2 | |
| RL-05-94 | 56 | 58 | 1.73 | 2 | |
| RL-05-94 | 161 | 162 | 1.32 | 1 | |
| RL-05-94 | 273 | 274 | 2.06 | 1 | |
| RL-05-95 | 126 | 127 | 1.9 | 1 | |
| RL-05-95 | 177.6 | 178.6 | 1.86 | 1 | |
| RL-05-96 | 48 | 49 | 3.7 | 1 | |
| RL-05-96 | 219 | 220 | 1.35 | 1 | |
| RL-05-99 | 122.45 | 125 | 1.81 | 2.55 | |
| RL-05-100 | 126 | 127 | 4.46 | 1 | |
| RL-05-100 | 133 | 141 | 1.69 | 8 | Anderson zone |
| RL-05-100 | 270.4 | 271 | 2.57 | 0.6 | |
| RL-05-102 | 92 | 93 | 1.64 | 1 | |
| RL-05-102 | 166 | 167 | 1.72 | 1 | |
| RL-05-102 | 173 | 178 | 1.17 | 5 | Anderson zone |
| RL-05-102 | 182 | 183 | 3.21 | 1 | |
| RL-05-102 | 194 | 196 | 1.2 | 2 | |
| RL-05-102 | 252 | 254 | 11.27 | 2 | |
| RL-05-102 | 329 | 330 | 3.42 | 1 | |
| RL-05-102 | 336 | 338 | 1.32 | 2 | Upper UM contact |
| RL-05-103 | 72 | 72.5 | 1.47 | 0.5 | |
| RL-05-104 | 40 | 41 | 14.35 | 1 | |
| RL-05-104 | 54 | 55 | 2.38 | 1 | |
| RL-05-105 | 20 | 22.75 | 2.78 | 2.75 | |
| RL-05-105 | 29 | 30.45 | 2.84 | 1.45 | |
| RL-05-105 | 80 | 81 | 1.8 | 1 | |

The Z-style of folding that occurs at the Main Zone is also present at the Upper Duck Zone. This is demonstrated by the change in fabric to core axis angles from high to low. The individual drill holes are not discussed in this section. Table 6 lists the composites by zone and the reader can correlate these with the drill logs.

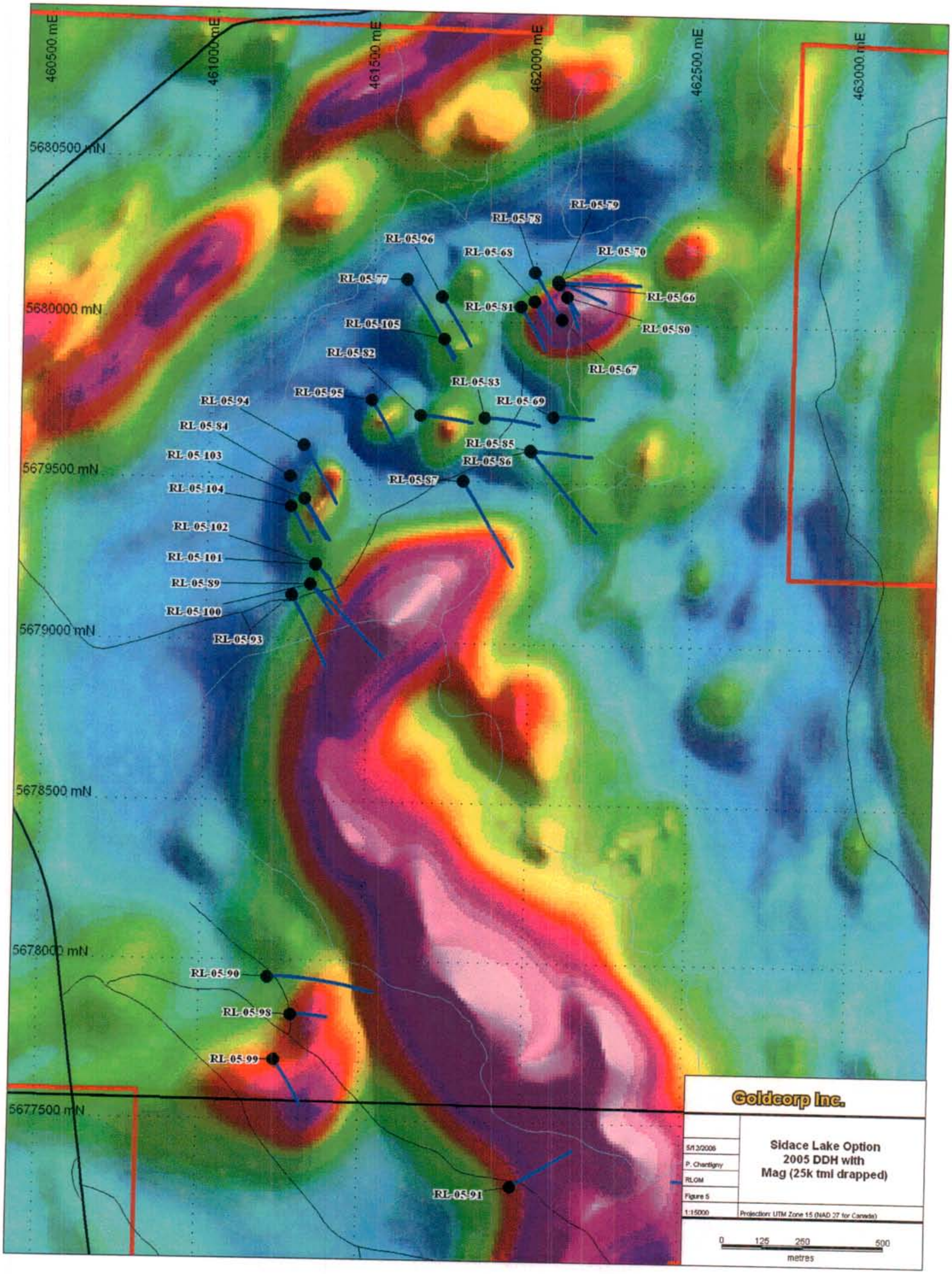
c. **Regional - Upper Duck trend, west and south:** RL-05-69, 77, 82, 83, 84, 85, 86, 94, 95, 96, 103, 104, 105.

These drill holes were targeting airborne magnetic anomalies located southwest and south of the Upper Duck Zone (see Figure 5). The north band of anomalies was first interpreted as being the contact between the porphyry stock to the north and volcanic lithologies to the south. The drill results show that this area is dominantly underlain by porphyry with only rafts of volcanics. The magnetic anomalies are the response to bands of silicate I.F., similar to those occurring at the Upper Duck Zone. These are generally silicified and mineralized with minor pyrrhotite, arsenopyrite and gold. Quartz-diopside skarn-type veins are common in both the supracrustal lithologies and the porphyry. Minor sulphides, including arsenopyrite, are common with these veins and multi-gram gold assays have been recorded.

There are no labeled zones of gold mineralization with this set of drill holes even though some of the earlier drill holes have been followed up by further drill holes. RL-05-84 intersected 3 bands of IF, which assayed 4.51 g/t Au over 2.0 metre, 3.98 g/t Au over 2.0 metres and 3.04 g/t Au over 1.0 metre. The DDH location plan shows that drill holes 94, 103 and 104 were follow-up to this discovery. The amount of porphyry intrusions in this area make the correlation of value intersections from hole to hole somewhat tenuous.

d. **Anderson Lake North Area:** RL-05-87, 88, 89, 93, 100, 101, 102.

RL-05-87 was drilled to test the nose of a large, prominent magnetic anomaly underlying Anderson Lake and interpreted as being the north extension of the East Bay Serpentinite. A broad section of anomalous gold values at around the 0.25 g/t range was encountered. RL-05-88 was spotted 1.0 kilometre to the west of drill hole 87, but abandoned in deep overburden. RL-05-89 was moved back 50 metres and was successfully put down; values in the upper and lower contacts of the ultramafic were 1.35 g/t Au over 10.0 metres and 1.98 g/t Au over 2.0 metres. The remaining holes, RL-05-93,


460500 mE
461000 mE
461500 mE
462000 mE
462500 mE
463000 mE
5680500 mN
5680000 mN
5679500 mN
5679000 mN
5678500 mN
5678000 mN
5677500 mN
RL-05-79
RL-05-78
RL-05-96
RL-05-68
RL-05-70
RL-05-77
RL-05-66
RL-05-81
RL-05-80
RL-05-105
RL-05-82
RL-05-67
RL-05-83
RL-05-95
RL-05-69
RL-05-94
RL-05-84
RL-05-85
RL-05-103
RL-05-86
RL-05-87
RL-05-104
RL-05-102
RL-05-101
RL-05-89
RL-05-100
RL-05-93
RL-05-90
RL-05-98
RL-05-99
RL-05-91
Goldcorp Inc.
5/12/2006
P. Chantigny
RLOM
Figure 5
1:15000
Sidace Lake Option
2005 DDH with
Mag (25k tmi drapped)
Projection: UTM Zone 15 (NAD 27 for Canada)
0
125
250
500
metres

100, 101 and 102 further tested the ultramafic section as well as a new zone in the HW of RL-05-89 which assayed 2.31 g/t Au over the 9 metre interval from 128 to 137 metres. This intersection was labeled as the Anderson Zone and is correlated with intersections in drill holes 100 and 102. RL-05-101 was abandoned due to an uncontrollable sand seam. Faulting and folding make the correlation of lithologies and other value zones from hole to hole very tenuous. The highlights are given in the composite assays listed in Table 6.

e. **Anderson Lake South Area:** RL-05-90, 91, 92, 98, 99

Drill holes 90, 98 and 99 are located on the west side of Anderson Lake and were testing magnetic anomalies that were interpreted as being a response to iron formations similar to those carrying gold mineralization at the Upper Duck Zone. All three drill holes intersected multiple bands of IF within a mafic volcanic sequence, intruded by swarms of porphyry dykes. Only one band of the IF units assayed for gold produced positive results; RL-05-99 assayed 1.81 g/t Au over an interval of 2.5 metres. Minor sulphides and diopside veining are noted with this band, no arsenopyrite was noted.

f. **Miscellaneous Target:** RL-05-97

This hole was drilled west of RL-04-46 with an intersection of 2.5 g/t Au over 3.85 metres on the sheared contact of a komatiitic flow. There are no significant assay values from this drill hole. There are several faults interpreted from the magnetics that maybe responsible for the displacement of the value zone in RL-04-46.

## 9. CONCLUSIONS AND RECOMMENDATIONS

Drilling on the Main Zone was largely in-fill in nature and to test if targeting could be achieved along east-west sections. Drill holes collared to the west are preferred as they intersect both the North Limb and the Main Zone. However, the deviation of these drill holes is quite extreme. The deviation of drill holes from the east is more predictable, but these holes are only able to test the main section of the zone and not the North Limb. Future drilling will have to be carefully planned for azimuth, dip and deviation, depending on the location of the target; further drilling on the Main and North Limb Zones is strongly recommended.

Drilling on the Upper Duck Zone met with modest success with a number of intersections indicating economic grade and width (e.g. RL-05-66, 7.02 opt Au over 4.5 m.). The regional phase of the program with the testing of magnetic anomalies to the west and south of the Upper Duck Zone also met with modest success. However, the drill results show that the volcanic-sedimentary lithologies are heavily invaded by the Anderson Lake Porphyry Stock and lack continuity both along strike and with depth. Further drilling on the Upper Duck Zone is warranted.

The large magnetic anomaly underlying Anderson Lake was proven to be sourced by an ultramafic intrusion, interpreted as part of the East Bay Serpentinite. The talcose contacts are weakly mineralized, assaying up to 2.0 g/t Au over several metres. A value of 9.76 g/t Au over 2.0 metres in RL-05-93 needs following up. This value sits in the core section of an ultramafic unit. Further testing of the ultramafic contact and magnetic low features is also warranted. It is cautioned that the overburden, at 60 to 100m in thickness is quite prohibitive and expensive to penetrate with standard drilling techniques.

A broad zone of low assays was obtained from drill holes along the north shore of Anderson Lake. The west end of this Anderson Zone is cut off by a fault and gabbroic intrusion. To the east the values become >1.0 g/t Au. No further work is recommended on this showing

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## STATEMENT OF QUALIFICATIONS

I, Anthony (Tony) P. Pryslak of 15 Hunterspoint Road, Winnipeg, Manitoba, certify that:

- I am the author of this report;
- I graduated with an M.Sc. in Geology from the University of Manitoba in 1971;
- I have been practicing my profession since the undergraduate days in the mid
- 1960s;
- I have been contracting my professional services to Goldcorp since 2003;
- I have had extensive experience in the Red Lake area, through mineral exploration and government based positions;
- I have supervised and logged core from this project.

December, 2006

A. P. Pryslak