Red Lake Gold Operation, Ontario, Canada NI 43-101 Technical Report

Effective Date: 15 January 2011

Qualified Persons:

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1.0 SUMMARY

Goldcorp Inc. staff Mr Stephane Blais, P.Eng., Mr Chris Osiowy, P.Geo. and Ian Glazier, P.Eng. prepared a Technical Report (the Report) for Goldcorp Inc. (Goldcorp) on the wholly-owned Red Lake gold operation (the Project), located in Ontario, Canada.

The operations comprise the former Campbell and Red Lake underground mines, now integrated as the Red Lake mining complex. The Project area includes the Cochenour Complex, which consists of the Bruce Channel and Western Discovery zones. The Project area also hosts a number of historic (1950s–1970s) mining areas.

1.1 Location and Access

The Red Lake mining operation is situated 180 km north of the town of Dryden, District of Kenora, northwestern Ontario. Mining activities are conducted in and about the municipality of Red Lake, which consists of six distinct communities, Red Lake, Balmertown, Cochenour, Madsen, McKenzie Island, and Starratt Olsen.

1.2 Project Setting and Infrastructure

Topography within the greater Red Lake region comprises irregular hills and discontinuous ridges created by glaciofluvial material and till. These are separated by depressions and hollows occupied by lakes, ponds and muskeg. Elevations are subdued, and rarely higher than 50 m.

The climate in the Red Lake area is typical of a northern continental boreal climate with warm summers and cold winters.

Mining operations are conducted year-round.

The Red Lake area is accessible by Highway 105, which joins the Trans Canada Highway at Vermilion Bay, 175 km south and 100 km east of Kenora, Ontario. Commercial air services operate to Red Lake from Thunder Bay and Winnipeg.

The mining operations are located near established power and road infrastructure in the Red Lake municipality. Potable water is supplied by the municipality, and paid for on a usage basis. Process water is taken from Balmer Lake and Sandy Bay. Hydro One supplies power to the operations.

Together with multiple shaft accesses to the underground workings, the Red Lake Gold Mines maintains administrative, technical, operations support, and processing facilities on the active sites. To maintain the required permanent workforce for operations and construction, Red Lake Gold Mines operates modern camp facilities for rotational personnel that do not live in and around the Red Lake area. There are currently no facilities other than for exploration support at Cochenour Complex.

1.3 Tenure, Surface Rights, and Royalties

The Red Lake Complex consists of 89 patented mineral claims covering 1,254 ha and the Campbell Complex consists of 77 patented mineral claims covering 1,084 ha. The Cochenour Complex area covers 1358.21 ha, and comprises 110 patented mineral rights, licences of occupation, lease mineral rights, and one staked claim.

As required under Ontario law, the Project has been legally surveyed for all the patented mining lands.

Goldcorp hold sufficient surface rights through the granted patented claims to support the mining operations and associated infrastructure.

Goldcorp is extremely active in the greater Red Lake area, and in addition to the wholly-owned Project holdings, has a number of joint ventures with third-parties which are at the exploration stage.

1.4 Permits

Goldcorp holds the appropriate permits under local, Provincial and Federal laws to allow exploration activity and mining operations. Additional permits would be required to support any re-development of the Cochenour Complex to cover operational aspects, waters, discharges, transport and access, power, and the environment.

1.5 Environmental

Environmental permits are required by various Canadian Federal, Provincial, and municipal agencies, and are in place for current Project operations. The Project environmental management system and environmental and social management plans were developed in accordance with the appropriate Canadian regulations. Waste rock and ore are routinely sampled for acid rock drainage (ARD) potential.

Tailings facilities were designed by third-party consultants. Annual geotechnical and facility inspections are conducted by these firms. In addition, engineering assessments and investigations to enhance tails storage strategies are performed as required.

Water treatment processes are in place for the Red Lake Gold mining operations and discharge areas to address the destruction of cyanide and metals in solution. All effluent discharges to the environment are in compliance with all applicable laws.

At the effective date of this Report, environmental liabilities are limited to those that would be expected to be associated with two operating gold mines where production is from underground sources, including roads, site infrastructure, and waste and tailings disposal facilities.

1.6 Closure Plans

Two closure plans exist for these operations: one for the Cochenour Complex, and one comprehensive plan that includes the Campbell Complex, Red Lake and Balmer Complexes. These documents have been created and/or updated by independent consultants Lorax Environmental Inc. (Lorax) and BGC Engineering Inc. on behalf of Goldcorp or predecessor companies. The closure plans review three closure scenarios: temporary suspension, inactivity, and final closure.

The latest Cochenour closure plan was developed and updated by Lorax and was submitted in July 2010 to update the status of the Cochenour site to “advanced exploration”. The plan was accepted and filed by the Ontario government in September 2010.

The filed closure plan for Campbell was prepared by BZ Environmental for Placer Dome, was submitted in April 2004, and accepted in 2006. The closure plan for Red Lake was prepared by Lorax, was submitted in March 2000, and accepted in June of that year. The Balmer Complex plan was submitted in 2003 and accepted in 2004. Closure plan amendments have been submitted for each of the Complexes in 2005 and 2009 but were withdrawn to cover changes made to the sites. A new, comprehensive plan that includes the Campbell, Red Lake and Balmer Complexes is under development.

1.7 Project History

Gold mineralization was discovered in the Red Lake area in 1926. Underground mining operations have been underway since the 1940s, and consist of a number of shafts constructed by a number of different mining companies accessing underground workings. Mineral tenure and operations were consolidated by Goldcorp during 2006–2008.

Production from the operating Red Lake Complex includes:

- Red Lake: 1948–2010: 10.3 Mt grading 26.05 g/t Au for 8,336,824 gold ounces;
- Campbell: 1946–2010: 20.3 Mt, grading 20.22 g/t Au, for 12,111,794 gold ounces.

Goldcorp also has exploration-stage activities that are based on the former Cochenour–Willans mine that operated from 1939–1971, the Golden Eagle mine that operated from 1934–1941, and the Gold Eagle Joint Venture which holds the Bruce Channel and Western Discovery Zone deposits. These collectively form Goldcorp's Cochenour Complex. Goldcorp has continued drilling the deposits so as to generate sufficient drill intercepts and establish geological and grade continuity to support mineral resource estimation.

1.8 Geology and Mineralization

The Project area, which is part of the Red Lake greenstone belt, is underlain mainly by tholeiitic basalt and locally by komatiitic basalt of the 2.99–2.96 Ga Balmer assemblage. The mine sequences include peridotitic komatiite, rhyolite and associated mafic intrusions. The steeply-plunging, south–southwest-folded Balmer assemblage package is unconformably overlain by felsic volcaniclastic rocks, and clastic and chemical sedimentary rocks of the 2.89 Ga Bruce Channel assemblage. Late-orogenic plutons stope up into the greenstone sequence.

Large-scale folding and steep fault systems dominate the eastern part of the Red Lake greenstone belt in the Project vicinity. In the area surrounding the Project, horizons of ultramafic rocks within the basalt-dominated stratigraphy created complex geometries through competency contrast during the mechanical interaction of folding. High-strain corridors characterized by pervasive foliation and cleavage development along mafic–ultramafic rock contacts can be clearly distinguished.

Within the Red Lake greenstone belt the regional metamorphic alteration is characterized by greenschist metamorphic mineral assemblages, but with amphibolite facies mineral assemblages in areas close to the major plutons. Hydrothermal alteration in the Red Lake greenstone belt is distributed in regional, zoned, alteration envelopes that show a spatial relationship to gold deposits. Distal alteration comprises calcite carbonatization and weak potassic alteration. More proximal to the gold deposits, ferroan-dolomite and potassic alteration develops. Silicification with associated gold and sulphide mineralization overprints the proximal alteration.

Gold deposits in the district have been classified into three main categories, mafic volcanic-hosted, felsic intrusive-hosted, and stratabound. The majority of the productive zones in the Red Lake Complex, including the Campbell and Red Lake mines, are of the mafic volcanic-hosted type and occur as vein systems within a lower mafic to komatiitic and ultramafic volcanic sequence.

Structures at the site exhibit three trends: conformable northwest, north–south and east–west. The conformable northwest-trending structures are most common and are sub-parallel to the foliation. The vein systems follow these structures. Complex vein arrays are those which also include the north–south and east–west components. The arrays are most common near high angle mafic–ultramafic rock contacts, and higher-grade mineralization developed in an environment where enhanced dilatency was sustained over a long period of time such that the vein geometry consists of conformable and complex vein arrays that are overprinted by replacement mineralization.

The ore veins are normally structurally controlled; averaging 1.5–1.8 m in width and extending over strike lengths ranging from 30–300 m. Sulphide replacement zones vary from 3–12 m in width and extend over a strike length of 120–180 m.

The mineralization within the Project is typical of Archean greenstone belt-hosted gold deposits.

1.9 Drilling and Sampling

Drilling completed at the Red Lake Complex between 1947 and 2010, including underground and surface core, comprises 55,513 drill holes (5,015,669 m). Drilling within the Cocheneur Complex area, completed in the period 1939–2010 consists of 948 underground and surface core drill holes (284,232 m).

Drill programs have been completed primarily by contract drill crew, supervised by geological staff of the Project operator at the time. Multiple drill contractors have been used over the 60 years of mine life to date.

Although the vein orientations are variable within the Project area, generally drill orientations were appropriate for the style and orientation of the mineralization in the area being drilled.

Since the merger of the Red Lake and Campbell operations, Goldcorp has developed a new lithological coding system that incorporates aspects of both previous logging systems. Logs record lithologies, fracture frequency and orientation, replacement zones, quartz vein styles and intensity, sulphide mineralization type and intensity, alteration type and intensity, rock quality designation (RQD), and structure type, frequency and intensity.

Drill collars are surveyed by mine personnel, using a differentially corrected global positioning system (DGPS) instrument.

Downhole surveys since 1995 at Red Lake have been conducted in a systematic manner with a Gyroscopic survey instrument (unaffected by magnetics) used for drill holes steeper than 70°, and a Reflex Maxibor survey instrument used for drill holes with flatter dips. Down hole surveys within the Campbell Complex are taken either with a Maxibor survey instrument at 3 m intervals or by an acid test/Tropari method every 30 m. More recently Reflex and Ranger electronic compass single-shot surveys tests are conducted every 30–50 m down the hole, especially for drill holes exceeding 150 m in length.

Core drill recoveries average 95%.

Sample collection and handling of core was done in accordance with industry standard practices, with procedures to limit sample losses and sampling biases. From 1999 onwards, sample lengths were standardized to 65 cm intervals, except where significant geological differences were present.

Muck samples are taken extensively during mining, and are collected from the majority of the ore blasts during silling and subsequent mining. Muck samples are used to provide a general guide and back-up information for day to day operation, while test holes are required to ascertain that no mineralization is missed in the walls of the stope. Test-hole sampling is used at the mines as a grade-control tool only.

Chip samples, used to support Mineral Resource and Mineral Reserve estimation, are taken either by a geologist or an experienced sampler. Samples are typically about 0.6 cm in length, to match drill core samples.

The sampling has been undertaken over a sufficient area to determine deposit limits, and the data collected adequately reflects deposit dimensions, true widths of mineralization, and the style of the deposits. The samples are representative of the mineralization, and respect the geology of the deposits.

Quality assurance and quality control (QA/QC) measures include submission of standard reference materials and blanks, and re-assay of a proportion of the samples.

All underground samples are sealed in tamper-proof bags which are transported in locked containers to surface, where check samples are added and the containers are locked again for delivery to the assay laboratory. Drill core sample security is maintained at Red Lake–Campbell through geological supervision of transport of the core from the underground/surface drill site, through to the logging facility and to the in-house assay laboratory. Chain-of-custody procedures consist of filling out sample submittal forms that are sent to the laboratory with sample shipments to make certain that all samples are received by the laboratory.

Entry of information into databases utilized a variety of techniques and procedures to check the integrity of the data entered. No errors have been noted with the Project databases that would affect Mineral Resource or Mineral Reserve estimation.

1.10 Sample Preparation and Analysis

Independent sample preparation and analytical laboratories used during the exploration, development and operational core drill programs on the Project from the 1990s to date include X-RAL Analytical Services (X-RAL–SGS; now part of SGS), Rouyn-Noranda, TSL Saskatoon Inc., ALS Chemex Ltd. (ALS Chemex), and SGS Mineral Services (SGS). The Campbell and Red Lake run-of-mine laboratories primarily performed day to day assays for mining operational purposes; however, exploration core has also been processed through the laboratories.

The sample preparation method typically consists of drying, pulverizing to 85% passing 75 µm, and splitting to generate a 30 g pulp for assay.

Standard fire assay (FA) procedures with a gravimetric or atomic absorption (AA) finish (depending on the anticipated grade of the sample) are carried out on all assays of Red Lake Complex core and production samples. Metallic screen assay methods are completed at X-RAL–SGS in Red Lake for samples with visible gold or for samples where fire assay results reported more than 20 oz Au/ton. Campbell Complex core and production samples are assayed using atomic absorption methods. If the assay is > 0.05 oz Au/ton on a core sample, a fire assay is done on the original sample and the reject is also assayed.

Bruce Channel and Western Discovery Zone samples were analyzed using FA-AA using 30 g aliquot. Samples that returned >10 g/t Au were re-assayed using FA with a gravimetric finish.

1.11 Data Verification

From time to time as part of its process control the Red Lake Complex undergoes an independent audit of its Mineral Resources. The most recent audit was performed in December 2005 by WGM Consultants.

Validation checks performed by operations personnel on data used to support estimation comprise checks on surveys, collar co-ordinates, lithology data, and assay data.

1.12 Metallurgical Testwork

Over the Project history, a significant number of metallurgical studies and accompanying laboratory-scale and/or pilot plant testwork have been completed. Studies included mineralogical studies, grindability and comminution testwork, bench and pilot plant flotation tests, thickener tests and a reagent optimization program.

Programs were sufficient to establish the optimal processing routes for the ores, were performed on mineralization that was typical of the deposits, and supported estimation of recovery factors for the various ore types.

Average life-of-mine (LOM) gold recoveries are 94.5% for the Red Lake Complex, and 97% for the Campbell Complex, giving an overall Project LOM recovery of 96.5%.

Testwork completed on a limited number of samples from the Cochenour Complex indicate that mineralization can be treated through the Campbell plant but the plant may have to be modified or expanded, dependant on how much each zone contributes to the mill feed, to handle the larger amount of sulphide content which could significantly tax the current autoclave and leaching circuits. A conservative estimate of 90% gold recovery was used for Mineral Resource estimation purposes.

1.13 Mineral Resource Estimates

Geological interpretations for the Red Lake Complex deposits are based on core and underground chip sample data. The building and naming of ore solids was influenced by geology interpretations; lithological units, structures, faults and mineralization. Ore solids were constructed as undiluted in-situ solids. A total of 32 ore zones were used for the 2010 Mineral Resource estimate. Resource models were prepared in commercially-available Vulcan software, using inverse distance weighting interpolation methods. For some zones at Red Lake, polygonal methods were used. Block models are defined by 2.4 m x 2.4 m x 2.4 m blocks with sub-blocks of 1.2 m x 1.2 m x 1.2 m as a minimum.

The Cocheneur Complex geological and block models were created using commercially-available Gemcom and MineSight software. Geological interpretations are based on core data. Five zones were used in estimation. Inverse distance to the power of three (ID3) was used for grade interpolation. The block model for the Cochenour Complex uses 3 m x 3 m x 3 m blocks, with no sub-blocks.

Data for the Red Lake Complex is composited on 30 cm to 60 cm intervals; composites which are less than 15 cm in length are discarded. Compositing at the Campbell Complex is reviewed on a zone by zone basis, with the composite length variable within each zone depending on location and sample type (chip or drill hole). Composites typically range in length from 45–60 cm. For the Cocheneur Complex, 3 m fixed-length composites were created within the mineralization solids. Assays were capped for outlier gold grades in all models.

Classification into Measured, Indicated, and Inferred categories was derived from a combination of distance from the nearest sample and the minimum number of drill holes used to derive the gold estimate in each block, or is based on a gold cut-off grade. The Measured classification required at least one or more mine openings.

Assessment of reasonable prospects of economic extraction for underground mineralization for the Red Lake Complex includes consideration of operating costs, mining widths, and cut-off grades. Mineral Resources are declared where the mineralization is able to support operating costs, and meets minimum grade and thickness requirements. The economic cut-off for mining purposes is approximately 0.25 oz Au/ton (8.5 g/t Au), which includes an allowance of 3 ft (1 m) of external dilution from the walls. Mining widths are mainly a function of the geometry of the ore body and mining method used. Considerations include dips, vein widths, vein lengths, depth, and equipment.

Mineral resources estimated at the Cocheneur Complex and Western Discovery Zone were considered to have reasonable prospects for economic extraction if the blocks had a grade above 4 g/t Au.

The Mineral Resources for the Red Lake operations are summarized in Table 1-1. Mineral Resources for the Cocheneur Complex are included as Table 1-2. Mineral Resources were estimated using a gold price of US$1,100/oz. Mineral Resources for the Red Lake and Cocheneur Complexes have an effective date of 31 December, 2010.

Mineral Resources for the Western Discovery Zone have an effective date of 4 November 2004. Mineral Resources are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves. Mineral Resources are exclusive of Mineral Reserves and include provision for dilution. Goldcorp cautions that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Table 1-1: Measured, Indicated and Inferred Mineral Resource Statement, Red Lake Operation, Effective Date 31 December 2010, Chris Osiowy, P.Geo.

Category	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Measured	1.61	17.35	0.90
Indicated	3.83	11.87	1.46
Measured + Indicated	*5.44*	*13.49*	*2.36*
Inferred	3.23	16.77	1.74

Table 1-2: Inferred Mineral Resource Statement, Cocheneur Complex, Effective Date 31 December 2010, Chris Osiowy, P.Geo.

Category	Zone	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Inferred	UMZ	4.58	9.87	1.45
Inferred	NW Inco	0.73	8.59	0.20
Inferred	EW Inco	0.37	20.80	0.25
Inferred	Footwall	1.55	12.24	0.61
Inferred	Main	0.008	10.38	0.002
Inferred	All Zones	7.30	10.80	2.53

Table 1-3: Inferred Mineral Resource Statement, Western Discovery Zone, Effective Date 30 November 2004, Chris Osiowy, P.Geo.

Category	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Inferred	0.31	13.15	0.13

Notes to Accompany Mineral Resource Tables

1. Mineral Resources are exclusive of mineral reserves;
2. Mineral Resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral Resources for the Red Lake and Cochenour Complex are reported to a gold price of US$1,100/oz;
4. Mineral Resources for the Red Lake Complex are reported using variable cut-off grades depending on the mineralization type and zone; Mineral Resources for the Cocheneur Complex are reported using a 4 g/t Au cut-off grade. Mineral resources for the Western Discovery Zone are reported using a 4 g/t Au cut-off grade;
5. Tonnages and contained ounces are rounded to the nearest 10,000 tonnes with the exception of the Main Zone, which is rounded to the nearest 1,000 t. Grades are rounded to two decimal places for Au;
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
7. Tonnage and grade measurements are in metric units. Contained gold ounces are reported as troy ounces.

1.14 Mineral Reserve Estimates

The Mineral Reserve estimate for the Project is based on Measured and Indicated Mineral Resources for the Red Lake Complex for which mining plans have been developed. No Mineral Reserves have been declared for either the Western Discovery Zone or the Cocheneur Complex.

The economic analysis used to define Mineral Reserves combines results from long-term and short-term planning to create ore blocks which are assessed with different mining methods to optimize the ore body extraction and revenue. Mining widths are mainly a function of the geometry of the ore body and mining method used. Considerations include dips, vein widths, vein lengths, depth, and equipment. The operations use 100% mine recovery for scheduling the life-of-mine (LOM) plan Mineral Reserves. Reconciliation data from complexes indicate that such recovery levels can be met due to a combination of the high-grade nature of the orebodies and the fact that there is mineralized material on the stope periphery that is not calculated in the Mineral Reserves, but which contributes to gold content.

Mineral Reserves are presented in Table 1-4, and have an effective date of 31 December 2010.

Table 1-4: Mineral Reserve Statement, Red Lake Operation, Effective Date 31 December 2010, Stephane Blais, P. Eng.

Category	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Proven	1.34	26.94	1.16
Probable	7.10	9.87	2.25
Proven + Probable	*8.44*	*12.58*	*3.42*

Notes to accompany Mineral Reserve Table

1. Mineral Reserves are estimated using a US$950/oz gold price and an economic function that includes variable operating costs and metallurgical recoveries;
2. Global cut off grade of 7.50 g/t Au (0.22 ounces per ton (opt) Au) and marginal cut off grade of 5.59 g/t Au (0.15 opt Au) used as economic indicators only;
3. Tonnages and contained ounces are rounded to the nearest 10,000 tonnes; grades are rounded to two decimal places for Au;
4. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
5. Tonnage and grade measurements are in metric units. Contained gold ounces are reported as troy ounces.

1.15 Mine Production and Plan

Mining operations are conducted by underground methods, from shaft complexes established at Red Lake and at Campbell. Production is currently approximately 750 t/d from the Red Lake Complex, and 1,850 t/d from the Campbell Complex.

Mining is carried out in the Red Lake Complex using predominantly underhand and overhand cut and fill techniques allowing maximum ore extraction and minimal dilution. Pillar recovery and longhole mining methods are also be utilized as required. The primary mining method at the Campbell Complex is longhole stoping followed by conventional overhand cut-and-fill. The longhole mining includes both longhole panel mining and longhole sill recovery.

The current mining fleet is a combination of conventional and mechanized mining equipment. Conventional equipment includes locomotives, muck machines, other rail mounted vehicles, and hand held percussive drills, The current mobile diesel equipment fleet consists of load haul dump units, underground haulage trucks, jumbo face drills, mine service and transport vehicles, and a variety of utility vehicles.

The ventilation system for Red Lake Complex is a push-pull design; at the Campbell Complex, air is drawn into the mine primarily by exhaust fans.

The current Project workforce is 1,361 personnel, of which 423 are contractors.

Based on the year-end 2010 Mineral Reserves, production will continue for approximately seven years, to 2018. However, Goldcorp notes that the operations have been producing for more than 60 years and have never had more than 8–10 years of Mineral Reserves. Goldcorp expects that with additional drilling, the known depth extensions of current ore zones are likely to support a longer mine-life than is indicated by the Mineral Reserves. There is upside for the Project if some or all of the Inferred Mineral Resources are able to be upgraded to higher-confidence mineral resource categories, and eventually to Mineral Reserves.

As part of day-to-day operations, Goldcorp will continue to undertake reviews of the mine plan and consideration of alternatives to and variations within the plan. Alternative scenarios and reviews may be based on ongoing or future mining considerations, evaluation of different potential input factors and assumptions, and corporate directives.

1.16 Waste Rock Facilities

Waste rock is stored in designated areas at both the Red Lake and Campbell Complexes. Due to the non acid generating potential of the waste rock, a large majority is used in on-site construction projects such as tailings dam raises. Significant portions of the waste are also expected to be used for reclamation following mine closure. There is sufficient space within the designated areas for the waste to be produced over the life-of-mine.

1.17 Tailings Storage Facilities

The tailings storage facilities at the Campbell and Red Lake Complexes are currently permitted for dam raises that will provide storage to 2016 and 2018 respectively.

Additional design and permitting will be completed to increase the storage capacity within the existing facilities beyond these dates. Geotechnical reviews are completed on annual basis, and assuming the current planned mining rate is not escalated and that current tailings discharge remains at a steady state, the present tailings facilities can be maintained for the current life of the Project.

1.18 Process

Unit operations in the Red Lake Complex processing plant include grinding, gravity concentrating, cyanidation, carbon-in-pulp (CIP), carbon elution and reactivation, electrowinning, bullion smelting/refining, cyanide destruction, flotation and concentrate handling.

At the Campbell Complex, conventional crushing and grinding is followed by gravity concentration to recover free milling gold. Refractory gold, finely disseminated in the arsenopyrite and pyrite matrix, is recovered by flotation followed by pressure oxidation, neutralization and carbon-in-leach (CIL).

Gold is refined on site at the Red Lake Complex.

1.19 Economic Analysis

The results of the economic analysis represent forward-looking information that are subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here.

Forward-looking statements in this section include, but are not limited to, statements with respect to the future price of gold and silver, the estimation of Mineral Reserves and Mineral Resources, the realization of Mineral Reserve estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new deposits, success of exploration activities, permitting time lines, currency exchange rate fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

Additional risk can come from actual results of current exploration activities; actual results of current reclamation activities; conclusions of economic evaluations; changes in Project parameters as plans continue to be refined, possible variations in ore reserves, grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes and other risks of the mining industry; and delays in obtaining governmental approvals.

To support declaration of Mineral Reserves, Goldcorp prepared an economic analysis to confirm that the economics based on the Mineral Reserves over a seven-year mine life could repay life-of-mine operating and capital costs. Inferred Mineral Resources above cut-off were considered "waste" in the evaluation. Results of this assessment indicated positive Project economics until the end of mine life, and supported Mineral Reserve declaration.

Due to the limited capital of $363 M required over the life-of-mine based on the current Mineral Reserves, versus the projected cashflow over the same period ($2,083 M), and the fact that the mines have been operating for over 60 years, no considerations of payback periods are appropriate.

The results of a sensitivity analysis demonstrate that the Project's financial outcome is most sensitive to variations in the gold grade and gold price. The next most sensitive parameter is operating costs. Capital costs have a lesser influence on cash flows.

1.20 Exploration Potential

Significant additional exploration potential remains in the Project area. In the vicinity of the mining operations at Red Lake–Campbell, this includes near-surface mineralization that is developed under Balmertown town site, and down-dip extents of the R, Red Lake FW, Far East, and HGZ zones.

The Cochenour Complex remains prospective within the upper Main and Footwall zones, the Western Discovery Zone, and within the McKenzie Red Lake mine area at depth.

Goldcorp is currently developing a high-speed underground tramway between the Red Lake operations and the Cochenour Complex. This tramway, approximately 5 km long, will double as an exploration drilling platform along its length, and provide previously unparalleled access to the Red Lake trend.

1.21 Conclusions

In the opinion of the QPs, the Project that is outlined in this Report has met its objectives. Mineral Resources and Mineral Reserves have been estimated for the Project, mines have been constructed, mining and milling operations are performing as expected, and reconciliation between mine production and the mineral resource model is acceptable. This indicates the data supporting the Mineral Resource and Mineral Reserve estimates were appropriately collected, evaluated and estimated, and the original Project objective of identifying mineralization that could support mining operations has been achieved.

1.22 Recommendations

The total estimated cost of the recommendations is approximately $67 M. Recommendations include exploration and infill drilling, mine planning, updates to mineral resource estimates, engineering, and environmental studies.

2.0 INTRODUCTION

Goldcorp Inc. staff Stephane Blais, P.Eng., Chris Osiowy P.Geo. and Ian Glazier, P.Eng. prepared a Technical Report (the Report) for Goldcorp Inc. (Goldcorp) on the wholly-owned Red Lake gold operation, (the Project), located in Ontario, Canada (Figure 2-1).

This Report presents updated Mineral Resources and Mineral Reserves for the Project. Goldcorp will be using the Report in support of disclosure and filing requirements with the Canadian Securities Regulators.

The operating entity for the Project is a Goldcorp subsidiary, Red Lake Gold Mines Limited. For the purposes of this report, "Goldcorp" is used to refer interchangeably to the parent and subsidiary companies.

Measurement units used in this Report are both metric and imperial. Currency is expressed in US dollars unless stated otherwise.

The exchange rate as of the Report effective date was approximately US$1 equal to CAN$1. Mineral Reserves assumed an exchange rate of US$1 equal to CAN$1.10; for Mineral Resources, the assumed exchange rate was US$1 equal to CAN$1.05.

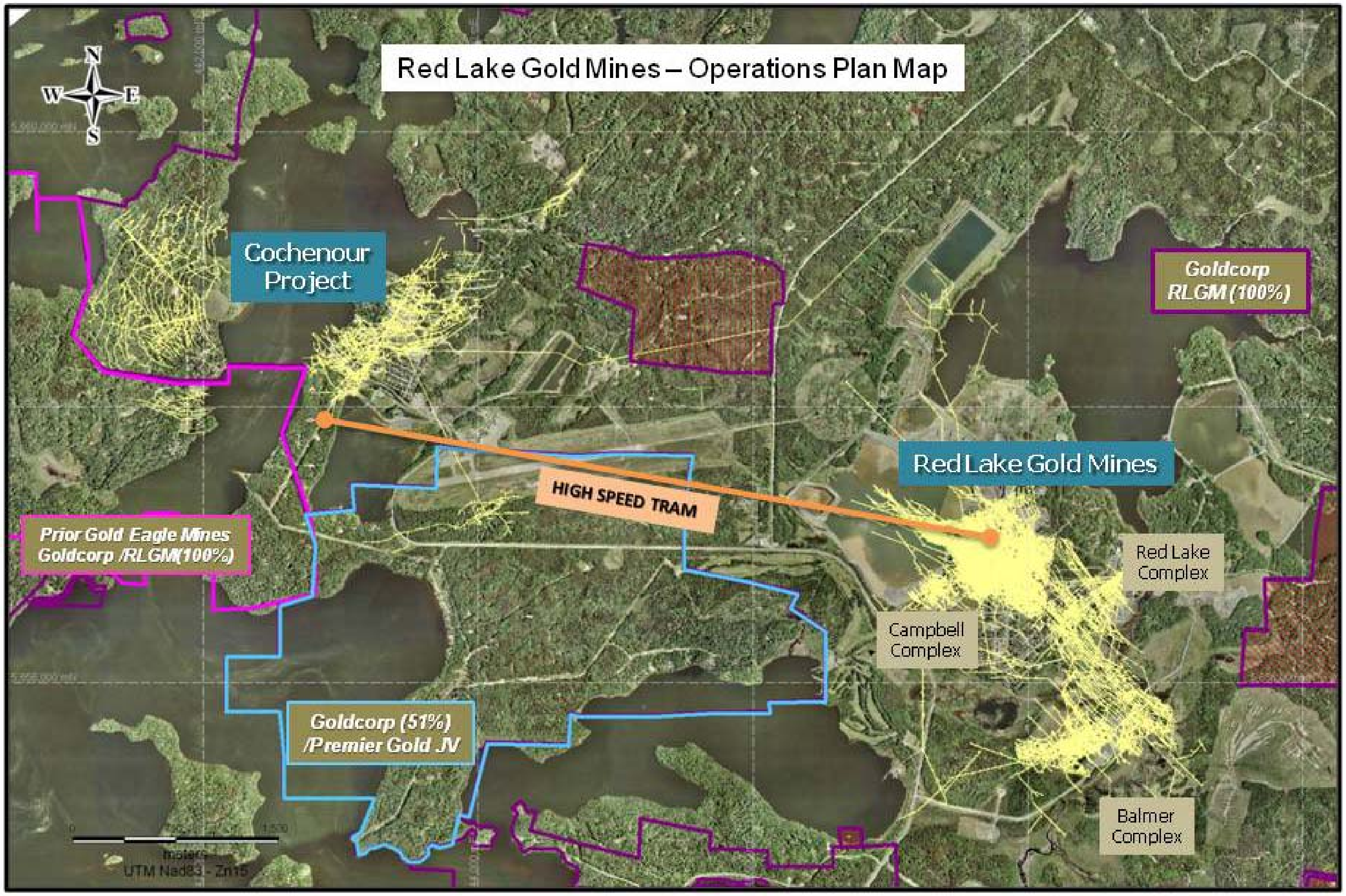
2.1 Qualified Persons

Stephane Blais, P.Eng., Chief Engineer, Goldcorp Canada Ltd., Chris Osiowy P.Geo., Chief Mine Geologist, Goldcorp Canada Ltd. and Ian Glazier, P.Eng., Mill Manager, Goldcorp Canada Ltd. serve as the qualified persons for this Report as defined in National Instrument 43-101, *Standards of Disclosure for Mineral Projects*, and in compliance with Form 43-101F1.

The QPs are employees of Goldcorp, are based at the Red Lake mine complex, and work at the Project operations; this familiarity with the Project constitutes the personal inspection requirement for each QP.

As part of this report, and in addition to day-to-day operations, supplementary background data were reviewed and new studies were completed pertinent to each QP´s specific area of expertise. The QPs also sourced specialist input from other disciplines, including legal, process, geology, geotechnical, hydrological, metallurgy and financial, to support the preparation of the Report, and know the persons who performed this work. The QPs have sufficient experience in supervising personnel from different disciplines to be confident that the results of the work performed are acceptable to support declaration of Mineral Reserves.

Figure 2-1: Project Location Map



Note: tram line shown in figure is under construction.

2.2 Effective Dates

Several effective dates (cut-off dates for the information prepared) are appropriate for information included in this Technical Report.

- The effective date for the Mineral Resources and Mineral Reserves is December 31, 2010;
- The economic analysis supporting Mineral Reserve declaration has an effective date of January 15, 2011.

The Report effective date is therefore taken to be that of the financial analysis, and is January 15, 2011.

There were no material changes to the scientific and technical information available on the Project between the effective date and the signature date of the Report.

2.3 Information Sources

Information in this report is based on work conducted by Goldcorp geologists, engineers and metallurgists as well as third-party consultants retained by Goldcorp. These personnel provided input information to the QPs.

Information used to support this Report is also derived from previous technical reports on the property, from the appropriate scientific and technical disciplines for the sub-sections under review in the Report, and from the reports and documents listed in the References section.

2.4 Previous Technical Reports

Goldcorp has previously filed the following technical report on the Project:

Crick, D., Blais, S., and Stechisen, A., 2006: The Red Lake Gold Mines Property, Red Lake Mining Division, Northern Ontario: unpublished technical report prepared for Goldcorp Inc., effective date November 17, 2006

Gold Eagle Mines Ltd., now a subsidiary of Goldcorp, and its predecessor companies Exall Resources and Southern Star, filed the following reports on the Gold Eagle area, now part of the Project:

Lewis, W.J., 2006: Technical Report on the Gold Mineralization Found in the Bruce Channel Zone and in the Western Discovery Zone Gold Eagle Mine Property, Red Lake, Ontario NTS 52 N/4: unpublished technical report prepared by Micon International Ltd for the Southern Star Resources Inc. and Exall Resources Limited Gold Eagle Joint Venture, effective date 27 October 2006;

Lewis, W.J., 2006: Technical Report on the Gold Mineralization Found in the Bruce Channel Zone and in the Western Discovery Zone Gold Eagle Mine Property, Red Lake, Ontario NTS 52 N/4: unpublished technical report prepared by Micon International Ltd for the Southern Star Resources Inc. and Exall Resources Limited Gold Eagle Joint Venture, effective date 16 April 2006;

Pressacco, R., 2005, Technical Report on the Resource Estimate of the Gold Mineralization Found on the Western Discovery Zone of the Gold Eagle Mine Property, Red Lake, Ontario, NTS 52 N/4, Micon International Limited, April 2005;

Pressacco, R., 2004: Technical Report on the Resource Estimate of the Gold Mineralization Found on the Western Discovery Zone of the Gold Eagle Mine Property, Red Lake, Ontario NTS 52 N/4: unpublished technical report prepared by Micon International Ltd for the Southern Star Resources Inc. and Exall Resources Limited Gold Eagle Joint Venture, effective date 30 November, 2004;

Cargill, D.G., and Gow, N.N., 2002: Report on the Gold Eagle Mine Property Red Lake Area Northwestern Ontario, Canada (52N4): unpublished technical report prepared by Cargill Consulting Geologists Limited for Southern Star Resources Inc., effective date 13 December 2002.

2.5 Technical Report Sections and Required Items under NI 43-101

Goldcorp has followed Instruction 6 of the Form 43–101 Technical Report in compilation of this Technical Report. Instruction 6 notes:

“The technical report for development properties and production properties may summarize the information required in the items of this Form, except for Item 25, provided that the summary includes the material information necessary to understand the project at its current stage of development or production.”

Table 2-2 relates the sections as shown in the contents page of this Technical Report to the Prescribed Items Contents Page of NI 43-101.

Table 2-1: Contents Page Headings in Relation to NI 43-101 Prescribed Items—Contents

NI 43-101 Item Number	NI 43-101 Heading	Report Section Number	Report Section Heading
Item 1	Title Page		Cover page of Report
Item 2	Table of Contents		Table of contents
Item 3	Summary	Section 1	Summary
Item 4	Introduction	Section 2	Introduction
Item 5	Reliance on Other Experts	Section 3	Reliance on Other Experts
Item 6	Property Description and Location	Section 4	Property Description and Location
Item 7	Accessibility, Climate, Local Resources, Infrastructure and Physiography	Section 5	Accessibility, Climate, Local Resources, Infrastructure and Physiography
Item 8	History	Section 6	History
Item 9	Geological Setting	Section 7	Geological Setting
Item 10	Deposit Types	Section 8	Deposit Types
Item 11	Mineralization	Section 9	Mineralization
Item 12	Exploration	Section 10	Exploration
Item 13	Drilling	Section 11	Drilling
Item 14	Sampling Method and Approach	Section 12	Sampling Method and Approach
Item 15	Sample Preparation, Analyses and Security	Section 13	Sample Preparation, Analyses and Security
Item 16	Data Verification	Section 14	Data Verification
Item 17	Adjacent Properties	Section 15	Adjacent Properties
Item 18:	Mineral Processing and Metallurgical Testing	Section 16	Mineral Processing and Metallurgical Testing
Item 19	Mineral Resource and Mineral Reserve Estimates	Section 17	Mineral Resource and Mineral Reserve Estimates
Item 20	Other Relevant Data and Information	Section 19	Other Relevant Data and Information
Item 21	Interpretation and Conclusions	Section 20	Interpretation and Conclusions
Item 22	Recommendations	Section 21	Recommendations
Item 23	References	Section 22	References
Item 24	Date and Signature Page	Section 23	Date and Signature Page
Item 25	Additional Requirements for Technical Reports on Development Properties and Production Properties	Section 18	Additional Requirements for Technical Reports on Development Properties and Production Properties
Item 26	Illustrations		Incorporated in Report under appropriate section number

3.0 RELIANCE ON OTHER EXPERTS

This section is not relevant to the Report as expert opinion was sourced from Goldcorp experts in the appropriate field as required.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Red Lake mining operation is situated 180 km north of the town of Dryden, District of Kenora, northwestern Ontario. The Red Lake mine is at approximately latitude 51° 05' 58" and longitude 93° 43'21"W, UTM (NAD 27) co-ordinates 5653000N and 445400E, Zone 15, about 120 km east of the Ontario/Manitoba provincial border.

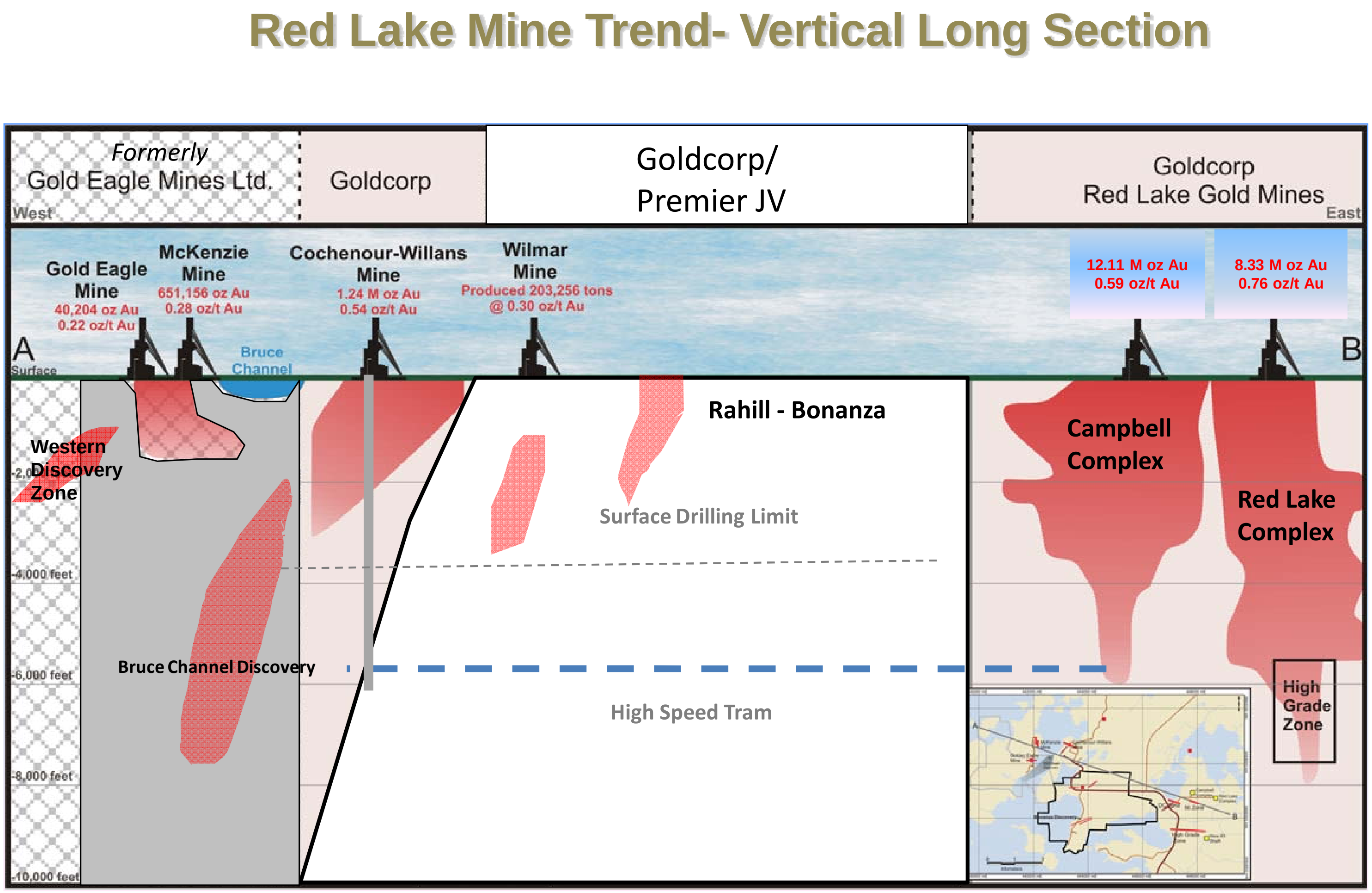
Mining activities are conducted in and about the municipality of Red Lake (population 4,500), which consists of six distinct communities, Red Lake, Balmertown, Cochenour, Madsen, McKenzie Island, and Starratt Olsen.

The operations comprise the former Campbell and Red Lake underground mines, which are now integrated and operated as a single entity by Red Lake Gold Mines, a Goldcorp subsidiary. For the purposes of this Report, the shafts and mill at Red Lake are collectively termed the Red Lake Complex; those at Campbell are termed the Campbell Complex. The combined mine area can also be referred to as the greater Red Lake–Campbell Complex.

The Cocheneur Complex covers mineralization discovered at the Western Discovery Zone deposit and the former Cochenour–Willans mine (Figure 4-1). It also includes the former Eagle Mines Joint Venture property (see Section 4.2); host to the Bruce Channel deposit and the former Gold Eagle mine.

There are also numerous closed mines, operated during the 1950s–1970s, such as the Balmer Complex, within the Project boundaries.

Figure 4-1: Schematic Cross-section Showing Operation, Shaft and Deposit Locations



Note: Section represents approximately 8 km from left to right. High-speed tram shown on section is conceptual. Production figures shown against Gold Eagle, Mackenzie, Cochenour–Willans and Wilmar mines are historic; production from these sources was predominantly in the period 1950–1970. Tonnage and grade figures shown for Red Lake and Campbell are life-of-mine production figures, and not indicative of current Mineral Resources or Mineral Reserves.

4.2 Tenure History

The Red Lake area was initially prospected during the 1870s, with limited success. However, in 1926, the area was the scene of the last great Canadian gold rush of historic times. Mining operations that were established during the boom included Cochenour/Willans, Madsen, Howey Bay, Mckenzie Red Lake, and Hasaga.

Underground mining operations commenced at the Campbell mine in 1949. The initial operator, Campbell Red Lake Mines, which was incorporated in 1944, became a wholly-owned subsidiary of Dome Mines Limited. Dome Mines Limited, Placer Development Limited, and Campbell Red Lake Mines Limited merge to create Placer Dome Inc. (Placer Dome) in 1987. Dickenson Red Lake Mines Limited was incorporated in 1945, and mining of the Dickenson deposit commenced in 1946. In 1949, the company was renamed New Dickenson Mines Ltd, and in 1960, it merged with Lake Cinch Mines to form Dickenson Mines Ltd. Dickenson Mines Ltd. and Robin Red Lake Mines Ltd. amalgamated in 1978. In 1982, the Dickenson operation was renamed the Arthur W. White mine, and in 1989, Goldcorp obtained ownership of the operation. In 2006, Goldcorp purchased the Campbell mine from Barrick Gold Corp., which had acquired Placer Dome the same year, and now holds 100% interest in the operations.

Red Lake Gold Mines, an Ontario partnership, was formed on April 2, 2007 between Goldcorp Canada as to a 28% interest and Goldcorp Inc. as to a 72% interest for the principal purpose of operating and developing the combined operations of the Red Lake Complex and the Campbell Complex.

On 25 September 2008, Goldcorp acquired 100% of Gold Eagle Mines Ltd., which held the Bruce Channel deposit and adjacent ground. The Cochenour (Bruce Channel) deposit was transferred to the Red Lake Gold Mines partnership.

4.3 Property and Title in Ontario

4.3.1 Mineral Title

The Mining Lands Section administers patented, leased, and licensed mining lands across the Province

- A patent means a grant from the Crown in fee simple, also referred to as freehold patents. The patent cannot be terminated by the Ministry of Northern Development, Mines and Forestry, except for voluntary surrender or non-payment of mining lands taxes. Patents can be patent mineral rights only, patent surface rights only or patent mineral rights and surface rights;

- Unpatented mining claims are parcels of Crown land staked in accordance with the Mining Act. Claim holders have the exclusive right to explore for minerals and have a right to acquire a mining lease for the purpose of mining. The claim holder has a right to transfer or sell an interest in the mining claim;
- A mining rights patent may include the surface rights or both the surface and mining rights and may be held by one or more individuals or corporations. A patent (or lease) is required in order to produce a mineral product for sale. Mining patents were issued under the Mining Act in the past and are no longer a common method of acquiring mineral tenure;
- Other Crown patents may include mining rights. Typically, any land granted before 1913 conveys mineral rights ownership;
- Freehold patented mining lands are lands originally granted for mining purposes, or mining rights that were severed from the surface rights after their original grant. Patented mining lands are liable to mining land tax. Lands are taxable, if they are being used for mining purposes, no matter what legislation they were granted under;
- Under the Mining Act, a lease (or patent) is required in order to produce a mineral product for sale. Leases are now issued for 21 year terms, but leases for 10 year terms still exist. Leases have associated work commitments and fees. Ten-year leases are renewable in perpetuity for periods of 10 years, providing the renewal application is lodged 90 days before expiry of the lease. A 21-year lease may be renewed provided that the lessee can prove that the mining lease(s) is being used for mining purposes and meets(s) one of the following criteria, and application for renewal is made prior to the expiry date of the lease:
  - exploration and/or development work has been or is currently being performed on the lease, during the term of the lease; or
  - the lease is part of a larger contiguous mining land holding which, during the term of the lease, has been or is currently being explored and/or developed; or
  - the lessee will demonstrate a commitment to perform future exploration and development work (e.g. work contracts, option agreements, etc.) and will provide a certified statement(s) of expenditure after three years; or
  - a mineral deposit has been located which has the potential of being worked under favourable economic conditions; or
  - actual production (mining) and/or ongoing development work is being carried out with the intention of leading to production.
- Rent is applied to all mining leases;

- Mining "licenses of occupation" were historically issued for lands primarily under water to permit the mining of minerals under the beds of water bodies. On rare occasions the licence could also include portions of dry land. Licences are often associated with portions of patented mining claims overlying adjacent land. An individual or company may hold a patented mining claim and also hold a mining licence of occupation for the water portion of the same mining claim. There is no requirement to renew an MLO; the licences are issued in perpetuity. While MLOs have not been issued in Ontario since about 1964, a number remain valid, and they continue to be administered under section 41 of the Mining Act. All MLOs are liable to an annual flat rental fee on a per hectare basis.

4.3.2 Surface Rights

A holder of a mining lease may be allowed to lease available surface rights within or outside of the mining lease for the purpose of mining or exploration of the mining rights. Some mining projects may require the acquisition of Crown lands under the Public Lands Act administered by the Ministry of Natural Resources. These circumstances are usually related to the acquisition or some form of land tenure to accommodate access or infrastructure such as roads, power lines, pipelines and other facilities. Where surface rights are held by parties other than the mining company, a legal agreement with the owners must be concluded.

4.3.3 Environmental

Development of a mineral project can require a variety of environmental permits and approvals depending on the size and type of project, facilities being constructed, location and other factors. Small exploration projects will trigger few actual approvals; however, many environmental regulations and standards will apply whether there is a specific approval to be issued or not. Larger-scale projects and mine construction projects will require approval prior to being able to commence a particular activity. Key areas that need to be considered are:

- Water: Section 34 of the Ontario Water Resources Act requires anyone taking more than a total of 50,000 litres of water in a day (50 m^3, 10,000 gallons per day), to obtain a permit. The trigger for the permit is in respect to the capacity of the water-taking equipment, not the actual amount of water taken or transferred. Water-taking permits apply to both surface and groundwater. Examples include taking water for drinking water, irrigation, dust control, ice road development, process water, underground and open pit dewatering, diamond drilling, cooling and diversions. Fire protection systems are generally excluded. Discharging Industrial Wastewater (Industrial Sewage Works): An industrial sewage works for a mine or advanced exploration program may include mine water treatment systems, settling ponds, storm water collection and treatment systems, mill process water treatment and discharge, tailings (processed ore) facilities, coolant water or other water treatment and management systems. Certificates of Approval are required for industrial sewage systems that release or discharge, store or transport contaminants to ground and surface water. Proponents of these types of activities are required to apply for and obtain a Certificate of Approval prior to any construction of the facility. Discharging more the 50,000 L/d will also trigger the Clean Water Regulations under the Ontario Environmental Protection Act (also known as the Municipal/Industrial Strategy for Abatement (MISA) Regulations). The federal government also has effluent and reporting standards that apply to metal mines. As part of the Metal Mining Effluent Regulations (MMER) under the Fisheries Act, mines subject to the MMER are required to conduct effluent characterization, toxicity testing and water quality monitoring as well as meet limits for the discharge of deleterious substances. These regulations are enforced by Environment Canada;

- Septic Systems (Domestic Sewage): Sewage systems capable of handling more than 10,000 L/d of domestic sewage (or any sewage works that discharges to surface water) require a Certificate of Approval from the Ministry of the Environment (MOE) under the Ontario Water Resources Act;
- Operation of a Treatment Plant for Human/Domestic Sewage: Any human/domestic sewage plant that discharges to surface water require the operator to be licensed (Ontario Water Resources Act, O.Reg. 129/04 (Licensing of Sewage Works Operators). Smaller septic systems (less than 10,000 L/d capacity) contained within the same property (lot) are regulated by the Ontario Building Code. Approvals of these systems may be made by the chief building official if the municipality is in southern Ontario, or by Health Units or Conservation Authorities in Northern Ontario;
- Drinking Water (Potable Water): Provincial Drinking water regulations under the Safe Drinking Water Act apply to potable water supplies of capacity greater that 2.9 L/s. The Act also requires certification of water system operators and analysts and testing services;
- Well Drilling and Abandonment: Water well construction and abandonment is regulated by the Ontario Water Resources Act, Reg. 903;
- Air Emissions: Approval is also required for the ongoing operation of any equipment that may discharge a contaminant, including noise and vibration, to the atmosphere. Most industrial processes or modifications to industrial processes and equipment require the submission of an application for a Certificate of Approval. Some examples of mining activities requiring approvals include diesel

generators, welding exhaust, heating plants, underground ventilation, incinerators, smelters and air filtration and bagging plants, and surface crushers.

4.3.4 Closure Plans

For all new advanced exploration or mining projects a certified Closure Plan is required prior to development. Once filed an operator is legally required to operate according to the Closure Plan.

Schedule 1 of Mine Rehabilitation Code of Ontario in Ontario Regulation 240/00 sets out the standards for closure. Schedule 2 of this regulation details the required format and content of a closure plan:

- Closure Plans must be certified according to Section 12 of Ontario Regulation 240/00, which includes both corporate certification that the Closure Plan meets all requirements of the Act and a technical certification that the Closure Plan meets all applicable technical requirements;
- A Financial Assurance is a financial guarantee in an approved form, provided with Closure Plans and held in trust by the government on behalf of the proponent. The Financial Assurance will be returned on evidence that the rehabilitation work guaranteed by financial assurance has been performed in accordance with the Closure Plan and to the ministry's satisfaction;
- A Closure Plan must provide details of and certify that the proponent has carried out reasonable and good faith consultation with the appropriate representatives of all First Nation communities affected by the project;
- A proponent must take all reasonable steps to progressively rehabilitate a site whether closure has commenced or a Closure Plan has been filed. A report must be filed to the Director of Mine Rehabilitation within 60 days of completing the work. A proponent subject to a Closure Plan must file a Notice of Material Changes if the project alterations or additions have a material effect on the adequacy of the Closure Plan;
- A proponent may file or the director may at any time order amendments to a certified Closure Plan including the amount of financial assurance;
- Mining or advanced exploration projects operating under a Closure Plan must file a Notice of Project Status when commencing any one of the three stages of mine closure (temporary suspension, state of inactivity, or closed-out) or making any change in the stage of closure reached;
- A proponent, subject to a Closure Plan, must prepare and update annually mine plans, which must include a surface site plan as required in the closure plan and

plans and sections showing all mine workings. These plans must be submitted to the Director of Mine Rehabilitation on request and be made available for inspection;

- If the project is placed in a state of inactivity or is closed out, the proponent shall promptly revise the plans to the date of inactivity or close out and submit them to the appropriate office of the resident geologist of the ministry. All rehabilitation work done under the Mining Act is protected from harmful disturbance or alteration without ministerial permission.

4.4 Mineral Tenure

The Red Lake Complex consists of 89 patented mineral claims covering 1,254 ha and the Campbell Complex consists of 77 patented mineral claims covering 1,084 ha. Claims are held in the name of either Goldcorp Inc., or Goldcorp Canada Ltd, or jointly by the two companies.

The Cochenour Complex, including the Golden Eagle property, covers 1,358.21 ha, and comprises 110 patented mineral rights, licences of occupation, lease mineral rights, and one staked claim. The tenure is jointly held in the names of Goldcorp Inc. (72%), Goldcorp Canada (28%) or, in the case of 72 of the claims, held in the name of Gold Eagle Mines Ltd. (100%).

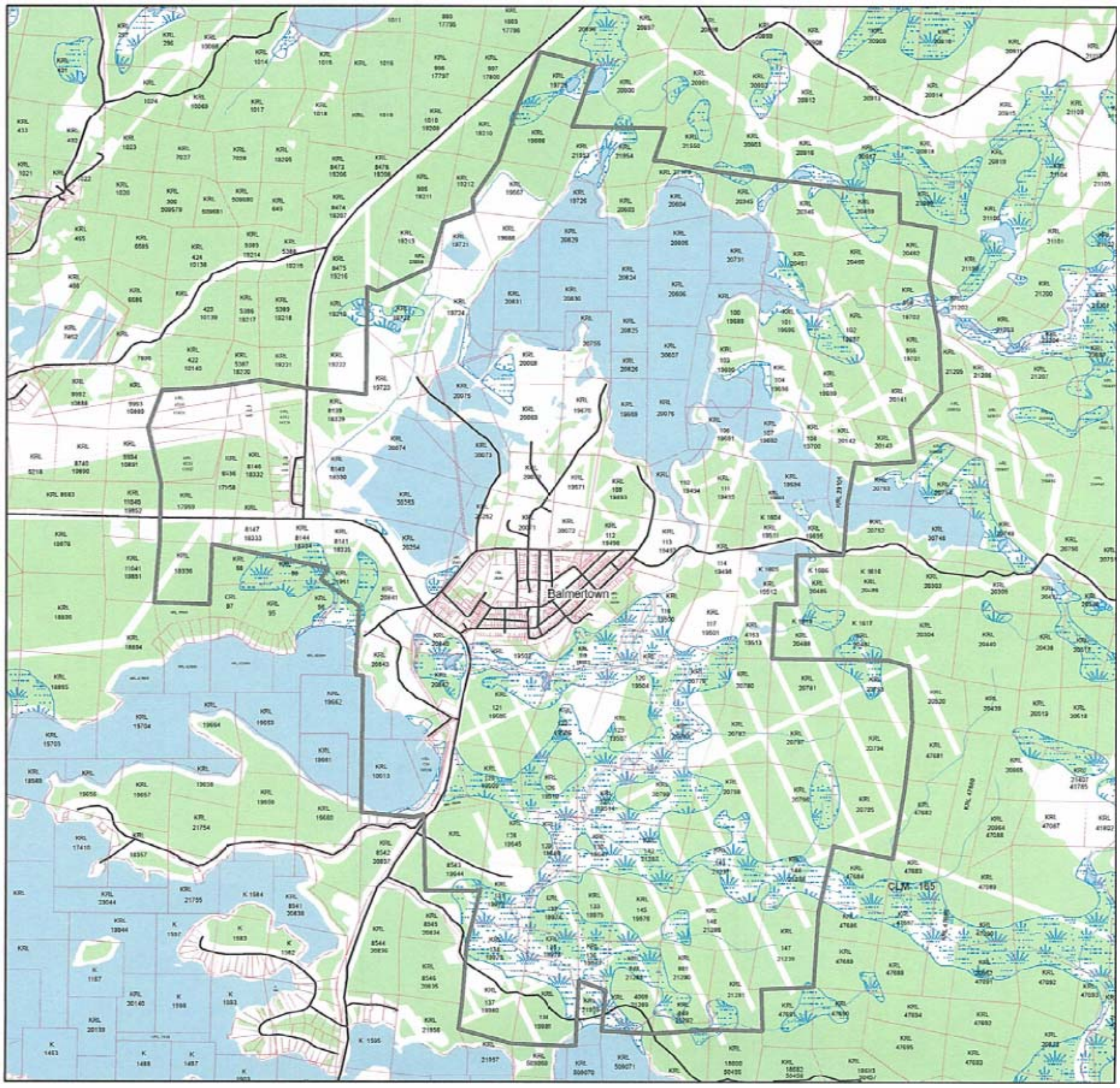
Claim boundaries are shown in Figure 4-1 (Red Lake–Campbell Complex and Figure 4-2 (Cochenour Complex). Claim details are included in Appendix A (Red Lake–Campbell Complex) and Appendix B (Cochenour Complex).

As required under Ontario law, patented mining lands have been surveyed.

Required fees and duties have been paid to the appropriate regulatory authorities, and the claims are in good standing.

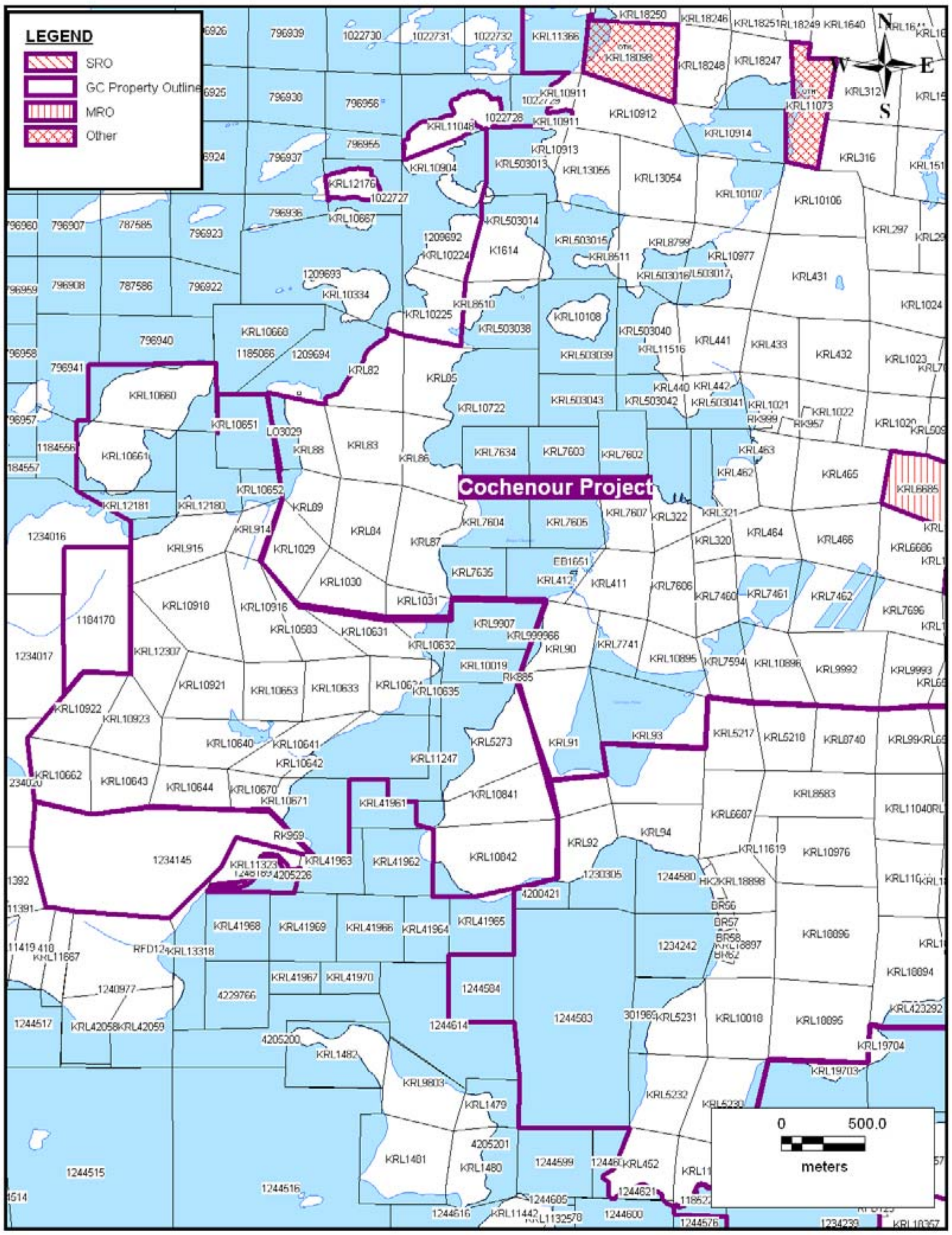
Goldcorp is extremely active in the greater Red Lake area, and in addition to the wholly-owned Project holdings, has a number of joint ventures with third-parties which are at the exploration stage. The Rahill–Bonanza Joint Venture between Goldcorp (51% and operator) and Premier Gold Mines Limited (Premier; 49%), and shown in Figure 4-1 as the Goldcorp–Premier JV, is considered to be stand-alone and not part of the Project. There is a technical report on the property filed by Premier on March 2010 on Sedar. There is an inferred mineral resource on the property, which is not considered to be relevant to the Red Lake Project at this time.

Figure 4-1: Claim Location Map, Red Lake and Campbell Complexes



Note: Map scale approx 1:40,000; north is to top of plan.

Figure 4-2: Claim Location Map, Cochenour Complex



4.5 Surface Rights

Goldcorp hold sufficient surface rights through the granted patented claims to support the Red Lake–Campbell mining operations, and associated infrastructure. There are sufficient surface rights held in the Cochenour Complex area to support any proposed re-development.

4.6 Royalties

There are no royalties payable on the Project for the current operations. There are royalties payable should production occur from the Cochenour Complex; the royalty percentages and the entity to which the royalties are payable are shown in Appendix B against the mineral tenure to which they apply.

4.7 Permits

Goldcorp holds the appropriate permits under local, Provincial, and Federal laws to allow current exploration activity and mining operations.

Permit amendments are routinely applied for and obtained to accurately reflect ongoing operational needs of the mining facilities.

Environmental permits are required by various Federal, Provincial, and municipal agencies, and are in place for Project operations. Red Lake Gold Mines maintains a list of active environmental permits covering operation of the Campbell, Red Lake and Balmer Complexes. No new permits are currently required, but existing permit amendments are required from time to time, and in 2011, applications for amendments may be made for tailings management area upgrades (i.e. dam raises), and air/noise permit amendments.

The Project environmental management system and environmental and social management plans were developed in accordance with the appropriate Canadian regulations.

Arsenic remains a focus in most environmental programs for all Project operations. Arsenopyrite is a main element in the local geology, contained in ore and waste rock and requires specific management in environmental programs.

Waste rock and ore are routinely sampled for acid rock drainage (ARD) potential as per the internal programs for ARD and metal leaching. Since there are no significant ARD issues related to the waste and ore from the Red Lake, Campbell, and Balmer Complexes, waste rock materials can be used for construction purposes.

Active tailings facilities for the Project were designed by third-party consultants. Annual geotechnical and facility inspections are conducted by these firms. In addition, engineering assessments and investigations to enhance tails storage strategies are performed as required.

Water treatment processes are in place at both milling/tailings facilities to address the destruction of cyanide and metals in solution. Both the Campbell and Red Lake operations utilize passive wetland treatment technologies to assist with the reduction of ammonia from mining and milling processes. All effluent discharges to the environment are in compliance with all applicable laws.

Long-term development of site-specific water quality objectives for closure, the Campbell Complex West Dam groundwater program, and the long term stabilization of underground arsenic storage facilities continue to be the focus of ongoing research and closure planning.

At the effective date of this Report, Goldcorp is satisfied that all environmental liabilities are identified in the existing closure plans for the operations. Environmental liabilities are limited to those that would be expected to be associated with gold mines that have been operating for about 60 years, and where production is from underground sources, including roads, site infrastructure, and waste and tailings disposal facilities.

4.8 Closure Considerations

Two closure plans exist for these operations: one for the Cochenour Complex, and one comprehensive plan that includes the Campbell Complex, Red Lake and Balmer Complexes. These documents have been created and/or updated by independent consultants Lorax Environmental Inc. (Lorax) and BGC Engineering Inc. (BGC) on behalf of Goldcorp or predecessor companies. The closure plans review three closure scenarios: temporary suspension, inactivity, and final closure.

The latest Cochenour Complex closure plan was developed and updated by Lorax and was submitted to the appropriate authorities in July 2010 to update the status of the Cochenour Complex to “advanced exploration”. The plan was accepted and filed by the Ontario government in September 2010.

The filed closure plan for the Campbell Complex was prepared by BZ Environmental for Placer Dome, was submitted in April 2004, and accepted in 2006. The closure plan for Red Lake was prepared by Lorax, was submitted in March 2000, and accepted in June of that year. The Balmer Complex closure plan was submitted in 2003 and accepted in 2004.

Closure plan amendments were submitted for each of the Complexes in 2005 and 2009 but were withdrawn to cover changes made to the sites. Currently a new consolidated closure plan that includes the Campbell, Red Lake and Balmer Complexes is under development and on current plans, is expected to be submitted in 2011. Lorax and BGC are completing this assessment and the combined plan is designed to address all identified short- and long-term environmental concerns for the Red Lake Complex facilities.

Long-term development of site-specific water quality objectives for closure, the Campbell Complex West Dam groundwater program and the long-term stabilization of underground arsenic storage facilities, continue to be the focus of ongoing research and closure planning. The closure plans outline the use of current best-available technology to decommission, reclaim and restore the mine sites to states that are as close to pre-development condition as it is technically feasible. Goldcorp personnel, and external consultants contracted by Goldcorp regularly review the closure plans to ensure that the plans incorporate the most up-to-date scientific assessments, and provide standardized approaches to potential issue management and financial assurance.

Reclamation activities are ongoing processes that run concurrently with production activities at the operations. Progressive reclamation initiatives include activities such as re-vegetating select areas or completing shaft/raise capping on sites that are inactive.

As sites progressively reach final closure, additional activities can include:

- Decommissioning of process plant and mine site;
- Characterization studies;
- Demolition of site infrastructure;
- Sealing mine access points;
- Mine site re-contour and re-vegetate;
- Tailings stabilization.

The post-closure environmental and long-term monitoring program for the Project is planned to last a minimum of 20 years. Closure bonds are established with the Ontario government and exist as a line of credit with Goldcorp Inc. The Goldcorp Vancouver office assumes the responsibility for ensuring these funds are available.

4.9 Sustainability Considerations

Red Lake Gold Mines operates under Goldcorp's sustainability policy, which commits the operation to a defined standard of environmental stewardship. Sustainability is an important issue for every department. This involves protecting human health, reducing the impact of mining on the ecosystem(s), and returning the site to a state compatible with a healthy environment. Red Lake Gold Mines has developed a series of management programs for environmental activities, tailings management and occupational health and safety that enable the company to reach its commitments.

4.10 Socio-Economics

The mining complexes are situated on the edges of the Red Lake district communities which make them a part of the community landscapes. Given these proximities, operational and environmental considerations are paramount, as are Goldcorp's commitments to social, cultural, and community support. Goldcorp currently has representation on various local organizations such as the local municipal planning boards, hospital boards, economic development board, and maintains an open dialogue with the community.

4.11 Comment on Section 4

In the opinion of the QPs, the information discussed in this section supports the declaration of Mineral Resources and Mineral Reserves, based on the following:

- The Project is wholly-owned by Goldcorp;
- Information provided by Goldcorp legal experts supports that the mining tenure held is valid and is sufficient to support declaration of Mineral Resources and Mineral Reserves;
- Goldcorp holds sufficient surface rights in the Project area to support the mining operations, including access and power line easements;
- Goldcorp holds the appropriate permits under local, provincial and Federal laws to allow current mining operations. Any new developments or expansions would require additional permits;
- Annual environmental compliance reports have been lodged;
- The appropriate environmental permits have been granted for Project operation by the relevant Federal, provincial, and municipal authorities;

- At the effective date of this Report, environmental liabilities are identified and discussed in the existing closure plans for the Project operations;
- Goldcorp is not aware of any significant environmental, social or permitting issues that would prevent continued exploitation of the Project deposits under the current mine plan.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Red Lake area is accessible by Highway 105, which joins the Trans Canada Highway at Vermilion Bay, 175 km south and 100 km east of Kenora, Ontario.

Commercial air services operate to Red Lake from Thunder Bay and Winnipeg.

5.2 Climate

The climate in the Red Lake area is typical of a northern continental boreal climate with warm summers and cold winters. Temperature range from 18–25°C in July, to minus 20–35°C in January. Annual precipitation is 650 mm, with snow generally on the ground from about November to March.

Mining operations are conducted year-round.

5.3 Local Resources and Infrastructure

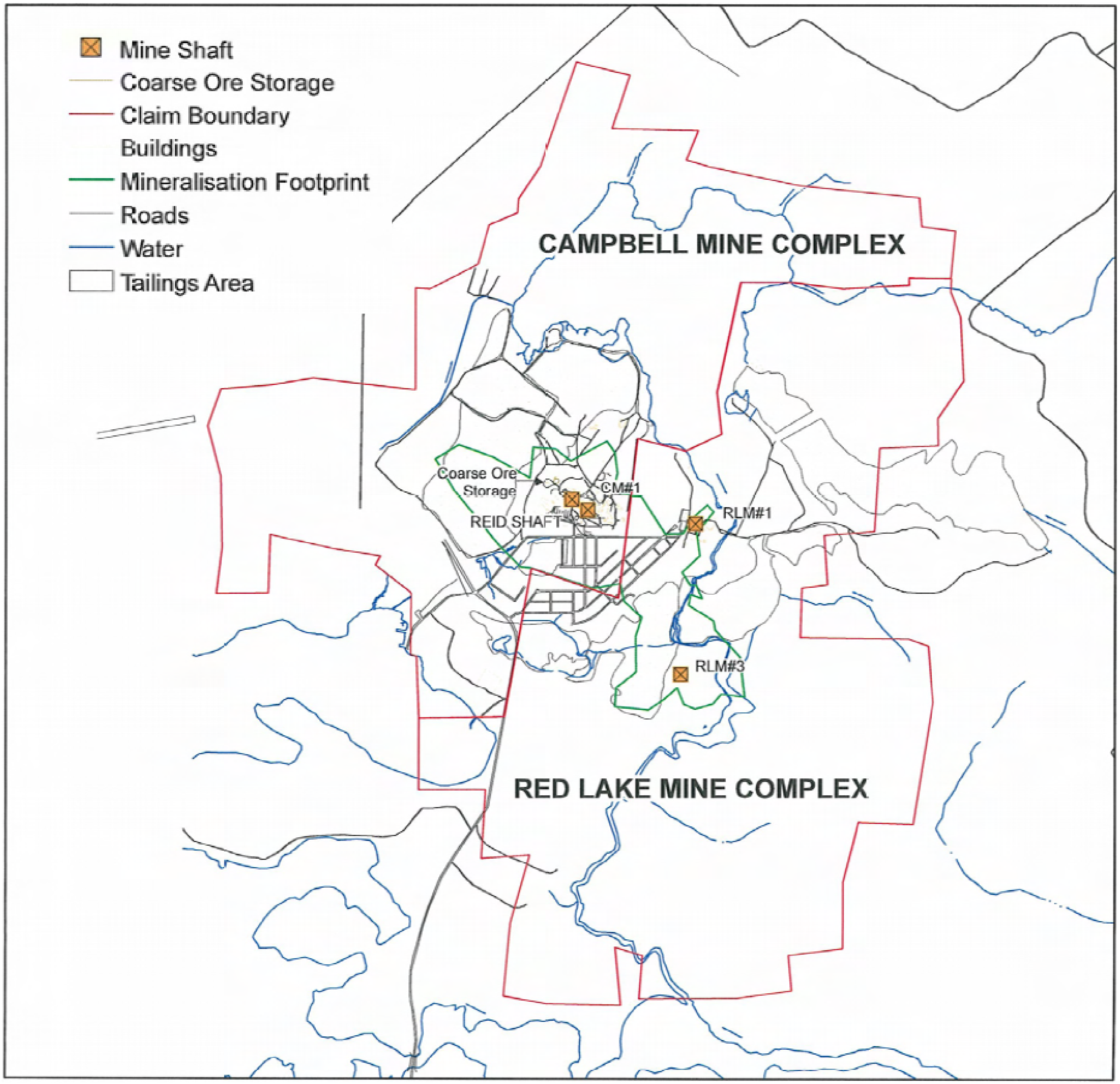
The mining operations are located near established power and road infrastructure in the Red Lake municipality. The Town of Red Lake is an administrative, transportation, communication, and supply centre for this region of northwestern Ontario. Local businesses offer most goods and services required for mineral exploration and development. Additional supplies can be sourced as needed from Thunder Bay, or from larger Provincial centres such as Winnipeg and Toronto.

Together with multiple shaft accesses to the underground workings, the Red Lake Gold Mines maintains administrative, technical, operations support, and processing facilities on the active sites. Figure 5-1 shows the location of the tailings facility, the four main shafts, the coarse ore stockpile and the building infrastructure in the Red Lake Complex, together with the outline of the mineralization projected to surface.

To support the required permanent workforce for operations and construction, Red Lake Gold Mines operates modern camp facilities for rotational personnel that do not live in and around the Red Lake area.

Potable water is supplied by the municipality, and paid for on a usage basis. Process water is taken from Balmer Lake and Sandy Bay.

Figure 5-1: Existing Red Lake and Campbell Complex Infrastructure in Relation to Near-Mine Claim Boundary Map



Note: Map covers an area of approximately 4 km north–south, and 3 km east-west; map north is to top of plan.

Power is supplied to the Red Lake area through the Hydro One transmission network via a radial line that taps into the 230kV grid at the Dryden transformer station where it is stepped down to 115 kV, the line continues up to the Ear Fall transformer station and finally terminates at the Red Lake transformer station. Currently the Red Lake–Campbell operations have transformation capability of 60 MW, 42 MW of capacity is available from the existing network; Goldcorp is finalizing a 115 kV line tap project that will tap into the power supply line from Ear Falls to utilize the remaining available capacity from the grid.

Diesel-powered generators provide emergency power in the event of a main electrical disruption. The generators are intended as temporary power source to allow the mine site to maintain basic services until Hydro One services are restored.

Site communications include satellite service, voice over internet protocols (VoIP for telephones) and Internet protocols (for regular computer business). Communication is enabled throughout most active mine headings by leaky feeder radio. Telephone service is provided in all shaft and refuge stations. Underground fibre optics networks are also utilized to transfer data from remote sensors and video feed from required areas.

5.4 Physiography

Topography within the greater Red Lake region comprises irregular hills and discontinuous ridges created by glaciofluvial material and till. These are separated by depressions and hollows occupied by lakes, ponds and muskeg. Much of the Red Lake region is still untouched and is accessible only by air or canoe. The water level of Red Lake lies at 354 m above sea level; typically elevations are subdued, with hills rising only about 50 m above lake level.

Vegetation comprises black spruce, fir, larch (tamarack) and pine in the poorer-drained areas, and poplar, birch, willow, alder and mountain ash, with a variety of shrubs in swampy areas.

Bedrock outcrops are scattered and consist of less than 5% of the surface area. Soil in the vicinity of the Red Lake and Campbell mines is characterized by a 30–50 cm layer of topsoil overlying compact sand with traces of clay, gravel and scattered cobbles and boulders. Low-lying areas contain silty clay sediments that were deposited in glacial lakes.

5.5 Comment on Section 5

In the opinion of the QPs, the availability of power, water, communications facilities and an existing workforce supports declaration of Mineral Resources and Mineral Reserves. Mining operations are conducted year-round.

6.0 HISTORY

The first recorded prospecting in the Red Lake district was carried out by the Northwestern Ontario Exploration Company in 1887, but gold was not discovered in the district until 1922.

6.1 Red Lake Complex

Red Lake was first staked during the Red Lake Gold Rush in 1926. In 1944, the property was re-staked and Dickenson Red Lake Mines Limited was incorporated. Production mining began in 1948 at a rate of 113 t/d and increased to 454 t/d in the 1970s. In the early 1980s, the mill capacity was increased to 907 t/d and long-hole stoping was introduced. The change in mining method resulted in a severe drop in production grade. Cut-and-fill mining was subsequently re-introduced and production increased to approximately 907 t/d by 1993–1994.

An exploration core drilling program initiated in 1995 within the lower levels of the mine resulted in the discovery of a cluster of high-grade gold veins between the 30 and 39 levels of the mine (the High Grade Zone). Between June 1996 and late 1999, operations were suspended due to a strike. Mine staff and outside contractors maintained essential services and supported the exploration program on the property. In September 1998, the feasibility of mining the High Grade Zone through a combination of existing mine infrastructure, new development and a new processing facility was assessed, with mining commencing in early 2000.

The #3 shaft was developed from January 2004 to January 2007 to a depth of 1,925 m. Ventilation systems were upgraded in the period 2008–2009.

Since the beginning of operations in 1948 until the end of 2010, 10.3 Mt grading 26.71 g/t Au has been treated, producing 8,331,845 gold ounces.

6.2 Campbell Complex

The Campbell claims were staked in 1926. Subsequently, there was a period of claim cancellations and re-staking of the area. In the 1940s, George and Colin Campbell re-staked the area, Campbell Red Lake Mines was incorporated, and Dome Mines purchased an option that eventually resulted in Dome Mines acquiring a 57% ownership interest in the Campbell Red Lake Mines company.

In 1946, after additional exploration had been carried out, a four-compartment shaft with four levels was sunk to a depth of 182 m. Mill construction began in 1948 and the mill went into operation the following year, reaching a capacity of 272 t/d. The shaft was deepened to 655 m in the 1950s, to exploit a high-grade zone discovered on the 14th level of the mine.

Following the merger between Campbell, Dome, and Placer in the 1980s, an autoclave was installed at Campbell, replacing the existing roaster, the mill flotation circuit was upgraded, a paste-fill plant constructed, an underground decline developed, and the Reid Shaft was commissioned.

Since the beginning of operations in 1946 until the end of 2010, 20.4 Mt grading 19.78 g/t Au has been mined, producing 12,113,448 gold ounces.

6.3 Cochenour Complex

The earliest known exploration on the Cochenour–Willans property was in 1925. The original claims were staked in 1926–1927 by W.M Cochenour, D. Willans and H.G. Young and in 1928 the Cochenour–Willans syndicate was formed. Cochenour–Willans Gold Mines Ltd. was incorporated in 1936 and production began in 1939 at a rate of 136–181 t/d. Operations ran for 32 years, from 1939–1971. In that time, about 2.1 Mt grading 18.44 g/t Au was processed with approximately 1.24 Moz Au recovered.

Underground mine workings extended down to the 670 m (2200 ft) level. The No. 1 shaft bottoms at 792 m and the Wilmar Winze was sunk from the 1300 Level to 645 m.

A flotation circuit and smelting plant was constructed in 1940 and a roaster was added in 1947 to treat arsenical ore.

The property was expanded through exercise of an option on the Marcus Mines Ltd. ground holding in 1951 and the Martin–McNeely Mines Ltd. tenure package in 1958. Two exploration drives were completed by 1963 to the Marcus and Wilmar (Martin McNeely) properties, from the 396 m (1,300 ft) Level, 4,572 m northeast and 1,676 m southeast respectively.

With the discovery at Wilmar of several gold-bearing lenses, an internal shaft was sunk from the 396 m Level to the 625 m level with five stations developed at 45 m intervals. The Cochenour–Willans Mine operated at a loss after 1967, largely due to dilution of grade in the talcose ore at depth and the fixed gold price. Production from the Wilmar mine between 1967 and 1971 comprised about 190,510 t at a grade of 10.28 g/t Au.

Between mine closure in 1971 and 1991, the operations had a number of owners, including Camflo Mines, Wilanour Resources, Esso Minerals Canada (Esso) and Inco

Gold Inc. (Inco). During this period work completed comprised drilling in support of exploration.

In 1997, Goldcorp Inc. purchased a 100% interest in Cochenour–Willans Mine area. Goldcorp completed trenching, grab sampling and compilation work between 1998 and 2002. The mine was allowed to flood in 2003. Surface drilling was undertaken from 2002 to 2009, consisting of 94 surface drill holes including wedges, totalling 66,968 m. Following dewatering in 2010, renewed access to the underground Cochenour–Willans workings allowed completion of 49 underground drill holes (20,558 m), together with 17 surface drill holes (including wedges) totalling 13,881 m.

6.3.1 Gold Eagle Property (Bruce Channel and Western Discovery Zone)

The Gold Eagle property, now part of the Cochenour Complex, was originally staked in 1926 and re-staked in 1932. From 1932 to 1934, there was a period of surface exploration. In 1934, a shaft was collared and completed to 160 m, with lateral work on four levels. The mill was brought into production in 1937. In 1938, an internal winze was sunk from the 152 m level to the 223 m level and in 1939 deepened to 305 m. Underground exploration failed to locate additional ore and the mine was closed in 1941. Production appears to have been approximately 184,160 t hoisted and 147,870 t milled for a recovered grade of 7.65 g/t Au (Horwood, 1940).

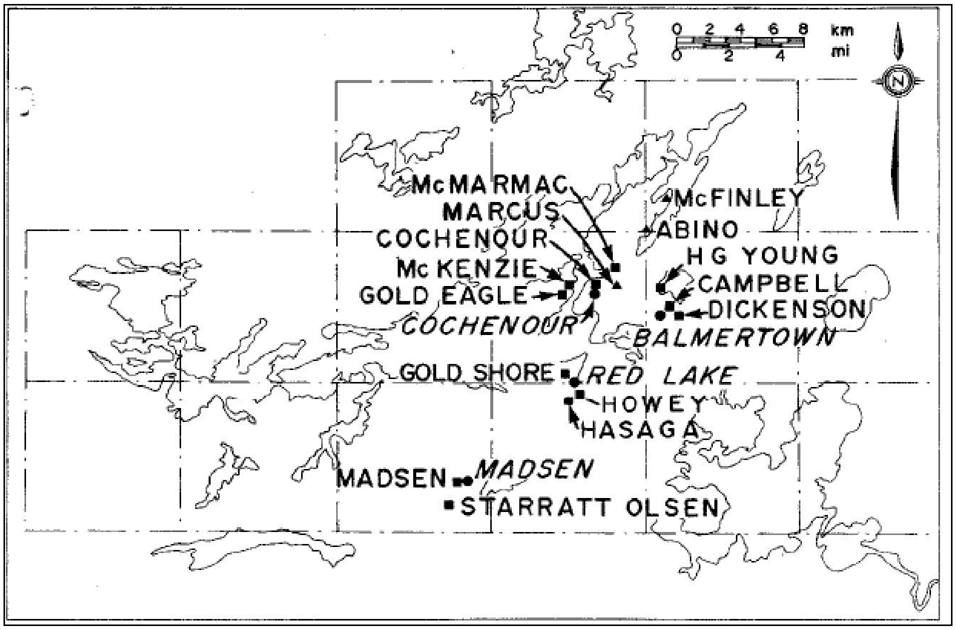
From 1940–1959, mineralization was tested with a number of diamond drill programs, and, in 1959, the small Gold Eagle South Zone was discovered.

The Gold Eagle Joint Venture between Exall Resources Ltd. and Southern Star Resources Inc. commenced modern exploration activity in 2003. Work comprised the establishment of a surface grid, geophysical surveying consisting of spectral induced polarization, resistivity, magnetometer, and very low frequency electromagnetic (VLF-EM) surveys, soil sampling, geological mapping and prospecting over geophysical anomalies, and core drilling. This led to the discovery of the Bruce Channel and Western Discovery Zone deposits in 2004. A mineral resource estimate was prepared for the Western Discovery Zone in 2004. Gold Eagle Mines was created in 2006; the company was purchased by Goldcorp in late 2008. Since acquisition, Goldcorp has performed core drilling and mineral resource estimation.

6.4 Historic Mining Operations in the Area

The Red Lake trend was a prolific past producer; former mining operations that Goldcorp now holds in the Project area include the HG Young, Abino Mines, McMarmac and McKenzie Red Lake deposits (Figure 6-1).

Figure 6-1: Location Map Showing Past and Present Producers,



Note: Figure from Pirie (1982). Mines are indicated as squares and triangles. Not all these former workings are held by Goldcorp.

Production to 1980 from mines on the Red Lake trend is summarized in Table 6-1; this table includes production from mines that are not held by Goldcorp.

Table 6-1: Past Production to 1980 (from Pirie, 1982)

Mine	Grams Gold Produced	Average Gold Grade (g/t Au)
Annco	1,676,383	unknown
Cochenour–Willans	35,397,149	15.77
Gold Eagle	1,250,344	7.54
Hasaga	6,789,424	4.80
Howey	13,111,542	3.09
McKenzie	20,250,952	9.26
McMarmac	1,407,151	9.94
Madsen	75,156,540	9.94
Gold Shore	656,210	8.23
Starratt Olsen	5,100,089	6.17
Wilmar	1,623,344	unknown
H.G. Young	1,718,088	unknown

None of the other Goldcorp-owned operations contain mineralization that is considered to be currently economic, or have declared Mineral Resources or Mineral Reserves; however, there is considered to be significant exploration potential remaining at depth under these historic workings.

7.0 GEOLOGICAL SETTING

7.1 Project Setting

The Red Lake greenstone belt is situated in the western portion of the Uchi Subprovince. It consists of a series of eastward-trending belts of volcanic and sedimentary rocks and syn-volcanic intrusive rocks that span a time period of approximately 300 million years. The belt is defined by an east–northeast-oriented, bow tie-shaped anticline that is approximately 40 km x 20 km in extent.

7.1.1 Lithologies

Principal geological units within the greenstone belt include:

- Balmer assemblage: 2.99–2.96 Ga, predominantly tholeiitic and komatiitic mafic to ultramafic volcanic rocks, comprises about 50% of the greenstone belt;
- Ball assemblage: 2.94-2.92 Ga, intermediate to felsic calc-alkaline flows and pyroclastic rocks;
- Slate Bay assemblage: <2.92 Ga, conglomerates, grits, and sandstones;
- Bruce Channel assemblage: 2.89 Ga, calc-alkaline dacitic to rhyodacitic pyroclastic rocks overlain by clastic sediments and chert-magnetite iron formation;
- Trout Bay assemblage: 2.85 Ga, predominantly mafic tholeiitic extrusive rocks;
- Houston assemblage: 2.74 Ga, laterally extensive polymictic conglomerate, marks an angular unconformity;
- Confederation assemblage: 2.75–2.73 Ga, dominantly calc-alkalic felsic volcanic rocks;
- Graves assemblage: 2.73 Ga, a calc-alkaline sequence consisting of andesitic to dacitic pyroclastic rocks and synvolcanic diorite and tonalite;
- English River assemblage: 2.70 Ga, pebble conglomerate.

An extensive system of thick mafic–ultramafic sills with chemical affinities to upper basalts in the Trout Lake assemblage intrudes the older supracrustal rocks. This intrusive activity appears to coincide with the emplacement of the 2.86–2.81 Ga Trout Lake Batholith. Plutonic rocks within the Confederation assemblage consist of felsic dykes and small porphyry intrusions. Tonalitic to granodioritic intrusions dated at 2.73 Ga are widely distributed throughout the Graves assemblage. The Graves assemblage intrusions were followed by a 2.72 Ga event represented by the gold deposit-hosting McKenzie Island and Dome stocks and the Abino granodiorite. The youngest plutonic event (2.70 Ga) is represented by the Killala–Baird batholith, and various dykes.

The Project area is underlain mainly by tholeiitic basalt and locally by komatiitic basalt of the Balmer assemblage (Figure 7-1). The mine sequences include peridotitic komatiite, rhyolite, and associated mafic intrusions of the Balmer assemblage. The steeply-plunging, south–southwest-folded package is unconformably overlain by felsic volcaniclastic rocks, and clastic and chemical sedimentary rocks of the Bruce Channel assemblage, defining an enveloping syncline–anticline couplet based on younging directions. The synform hinge is located on the north side of the Campbell Complex, east of the HG Young shaft underneath Balmer Lake and the anticlinal hinge is located in the south–central portion of the former party-wall boundary between the Campbell and Red Lake mines.

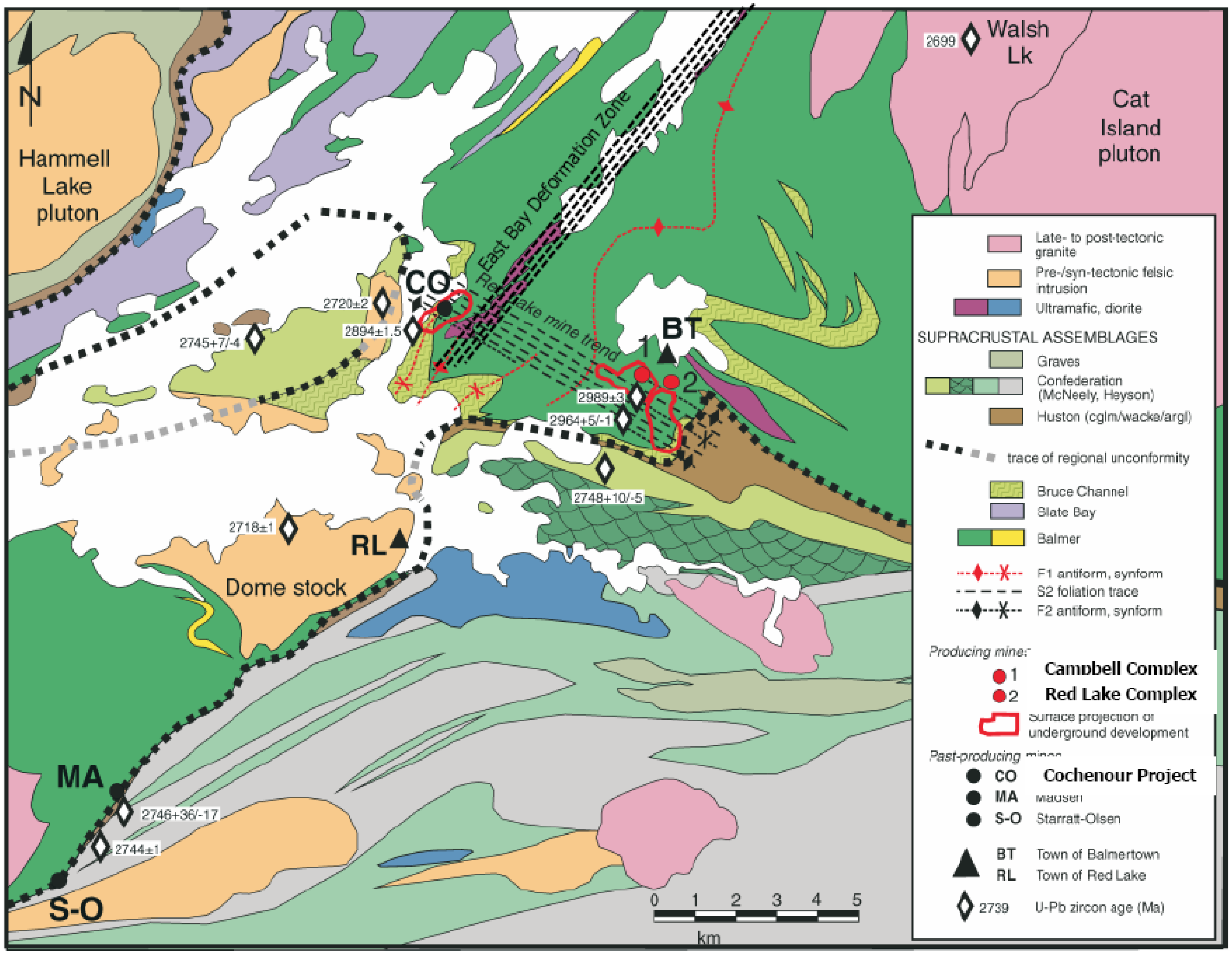
7.1.2 Structure

The Red Lake greenstone belt displays evidence of two major episodes of deformation, interpreted to be closely linked with extensive hydrothermal activity and gold mineralization. The first phase involved recumbent folding of the Balmer assemblage prior to the onset of the Ball assemblage volcanism.

The main stage of penetrative deformation, comprising the second deformation phase, post-dates deposition of the Confederation assemblage. The first major fabric forming event (D1) resulted in the formation of northerly-trending, south-plunging F1 folds and associated lineation fabrics. Superimposed on D1 structures are east to northeast-trending D2 structures in the western and central parts of the belt and southeast-trending folds (F2) and fabrics that plunge 45–65° to the southwest in the eastern part of the belt.

Large-scale folding and steep fault systems dominate the eastern part of the Red Lake greenstone belt in the Project vicinity. Northeast-trending synclines and anticlines occur northeast of McKenzie Island west of East Bay. On the eastern side of East Bay, a major fold with a northwest trending fold axis occurs in Bateman and Balmer Townships. In the area surrounding the Project, horizons of ultramafic rocks within the basalt-dominated stratigraphy created complex geometries through competency contrast during the mechanical interaction of folding. High-strain corridors characterized by pervasive foliation and cleavage development along mafic–ultramafic rock contacts can be clearly distinguished.

Figure 7-1: Project Geology Map



Note: Geological map of the Red Lake trend modified from Sanborn-Barrie et al, 2001 and Goldcorp geological data after Dubé et al, 2003.

Quartz–carbonate veining and alteration developed in the Project area around mafic–ultramafic rock contacts, particularly fold hinges and in the vicinity of small and large displacement fault/shear zones. Continued shortening and foliation development caused rotation of conjugate shear zones towards parallelism with F2 fold axial surface orientations, producing strong deformation and strain partitioning. Further shortening resulted in strong near-vertical extension and locally the development of reverse faults.

Auriferous, siliceous, sulphidic alteration and quartz veining, overprinting earlier quartz–carbonate veins, began to develop in the Project area at this stage, apparently after the bulk of strain and displacements on major fault systems. Minor strike slip movements on fault systems, reflecting at least local changes in the orientation of stress axes, contributed to the dilation and replacement, particularly in ultramafic/mafic rock-defined fold hinge zones abutting fault systems.

7.1.3 Alteration

Within the Red Lake greenstone belt the regional metamorphic alteration is characterized by greenschist metamorphic mineral assemblages, but with amphibolite facies mineral assemblages in areas close to the major plutons.

Hydrothermal alteration in the Red Lake greenstone belt is distributed in regional, zoned, alteration envelopes that show a spatial relationship to gold deposits. Distal alteration comprises calcite carbonatization and weak potassic alteration. More proximal to the gold deposits, ferroan-dolomite and potassic alteration develops. Silicification with associated gold and sulphide mineralization overprints the proximal alteration, forming extension and fault-fill quartz veins and breccias, and infilling primary volcanic features such as vesicles and interpillow spaces.

7.1.4 Mineralization

Gold deposits in the district have been classified into three main categories, mafic volcanic-hosted, felsic intrusive-hosted, and stratabound. The majority of the productive zones in the Red Lake camp, including the Campbell and Red Lake mines, are of the mafic volcanic-hosted type and occur as vein systems within a lower mafic to komatiitic and ultramafic volcanic sequence.

The gold-bearing zones of the Red Lake and Campbell Complexes occur on the eastern flank of a D2, high strain corridor, known locally as the Cochenour–Gullrock Lake deformation zone or Red Lake trend. These units are sub-parallel to a regional foliation that strikes from 100° to 120° azimuth, dipping southwest from 65° to 80°.

At broad scales, the Red Lake trend appears to be hosted by a steeply-plunging, reclined, F2 fold system with a south–southwest-dipping axial surface, which is outlined by the Bruce Channel contact to the north, south, and east, and is cored by the Balmer mafic–ultramafic assemblage. This fold system has undergone significant modification by a system of steeply-to-moderately southwest dipping fault zones which are interpreted to have developed during D2 deformation, a northeast–southwest-oriented shortening.

The D2 event, comprising progressive northeast–southwest shortening, resulted in the dismemberment of the F2 folds along axial planar shear structures, displacing the steeply-plunging, parasitic, mafic–ultramafic fold hinges into discrete litho-structural domains.

7.2 Red Lake–Campbell Complex

The Red Lake–Campbell Complex has approximate deposit dimensions of 2.2 km north–south, 3.2 km east–west, and remains open down-dip. Mine workings extend to 2,027 m depth (46 Level), with the deepest drill intercept currently around 2,600 m depth.

The Red Lake–Campbell Complex is underlain mainly by Balmer assemblage tholeiitic basalt and locally by komatiitic basalt of the Balmer assemblage, with lesser peridotitic komatiite, rhyolite and associated mafic intrusions. These rocks have been folded and are now steeply-plunging to the south–southwest. Unconformably overlying the Balmer assemblage are felsic volcaniclastic, clastic and chemical sedimentary rocks of the Bruce Channel assemblage, defining an enveloping syncline–anticline couplet based on younging directions, with the synform hinge located on the north side of the Campbell Complex, east of the HG Young shaft underneath Balmer Lake, and the anticlinal hinge in the south–central portion of the former Red Lake–Campbell mine boundary.

Several large, sill-like intrusions, ultramafic to intermediate in composition, are present in the sequence. The major mineralized zones, although hosted in basalt, are associated with a central ultramafic unit, which is a highly carbonatized and altered unit, believed to be either volcanic or plutonic in origin. This unit varies considerably from "rhyolite" breccia to talc-chlorite schist, to carbonatized andalusite-rich metasomatized rock and is characterized by intense shearing and alteration. Associated with the ultramafic is a dioritic (quartz–gabbro) unit, distinguished by the presence of blue quartz-eyes.

The volcanic and sedimentary rocks and ore zones have been intruded post-mineralization by quartz–feldspar porphyries (QFP), meta-diabase, peridotite–

serpentinite and lamprophyres. The lamprophyre dykes occur in a conjugate set with a south–southeast trend dipping at 55–65º to the west–southwest, and a south trend dipping 20–40º to the west.

The mineralised system is a wedge-shaped zone above about the 27 Level of the mine, which widens upwards and is constrained by bounding fault structures on the northeast and southwest flanks. This wedge is defined by steeply south-dipping and south to south–southwest-plunging litho-structural packages of ultramafic and rhyolitic bodies, enveloped mainly by metabasalts. These bodies outline dismembered folds which also plunge steeply to the south and south–southwest. Fold hinges are preserved between a series of steeply south-dipping and north- to west–northwest-striking fault zones. Separating the detached folds, these major curviplanar fault/shear zones developed in fold limb positions and are approximately axial plane parallel. Most major fault zones tend to steepen in dip upwards, although some faults such as the West Drift Fault, are more shallowly dipping and less curviplanar.

Hydrothermal alteration within the Red Lake–Campbell Complex can be subdivided into three main phases:

- Early-stage alteration subdivided into:
    - carbonatization and pervasive biotite (potassic) alteration;
    - silicification and aluminosilicate-bearing alteration;
- Main-stage vein phase of barren dolomite to ankerite, cockade breccias and sheeted veinlet zones with chloritic alteration;
- Mineralization phase with quartz–sericite ± cordierite alteration and a late episode of veinlet controlled biotite ± tourmaline alteration.

In general, there are three types of mineralization zones encountered within the Red Lake–Campbell Complex: vein-type ore, disseminated sulphide ore, and replacement ore. Structures at the site exhibit three trends: conformable northwest, north–south and east–west. The conformable northwest-trending structures are most common and are sub-parallel to the foliation. The vein systems follow these structures. Complex vein arrays are those which also include the north–south and east–west components. The arrays are most common near high angle mafic–ultramafic rock contacts. The High Grade Zone (HGZ) occurs in such an environment where enhanced dilatency developed and was sustained over a long period of time such that the vein geometry consists of conformable and complex vein arrays that are overprinted by replacement mineralization.

The ore veins are normally structurally controlled; averaging 1.5–1.8 m in width and extending over strike lengths ranging from 30–300 m. Sulphide replacement zones vary from 3–12 m in width and extend over a strike length of 120–180 m.

Figure 7-2 presents a cross-section through the Red Lake-Campbell Complex, showing existing workings and exploration targets.

7.3 Cochenour Complex

The Cochenour Complex (including the former Cochenour–Willans mine, the Western Discovery Zone, and Bruce Channel deposit) lies at the intersection of northeast striking D1 deformation (East Bay Deformation Zone) and younger, northwest-striking D2 deformation—Cochenour-Gullrock Deformation Zone (Figure 7-3).

The complex is underlain by complexly folded, intensely altered, massive and pillowed, mafic and ultramafic volcanic rocks and peridotite intrusions of the Balmer assemblage. Stratigraphy in the mine area strikes east to northeast as defined by interflow strata comprised of banded chert, argillite, siltstone, and iron formations.

The Cochenour Complex appears folded about a southwest-trending antiform, plunging to the southwest at 50º. The Cochenour–Willans mine and Bruce Channel deposit are located along the western limb of the antiform in the hanging wall of the East Bay serpentinite.

A series of massive, rhyolite domes occurs along the west, northwestern flank of the former Cochenour mine. The massive rhyolite units occur at the base of the Bruce Channel assemblage; a succession of clastic sediments, polymict conglomerates and iron formation. The metasediments define a faulted north–south contact dipping steeply to the west at approximately 70º, underneath the McKenzie channel of Red Lake. The Bruce Channel assemblage rests unconformably upon the Balmer Assemblage. The south limb of the antiform is defined by west- to west–northwest-trending Bruce Channel metasedimentary rocks.

The southwest-trending East Bay serpentinite succession, 1,000 m thick, appears to intrude along the axial plane of the anticline, and pinches out rapidly, appearing to interfinger with basaltic volcanic rocks while plunging to the southwest. The faulted termination of the East Bay serpentinite is interpreted to have some empirical relationship to the occurrence of the Cochenour–Willans and Bruce Channel deposit at this lithostructural anomaly. The flanks of the serpentinite are altered to talc–carbonate schist, while the thicker core of the package is relatively massive competent serpentinite.

Figure 7-2: Schematic Cross-Section, Red Lake–Campbell Complexes

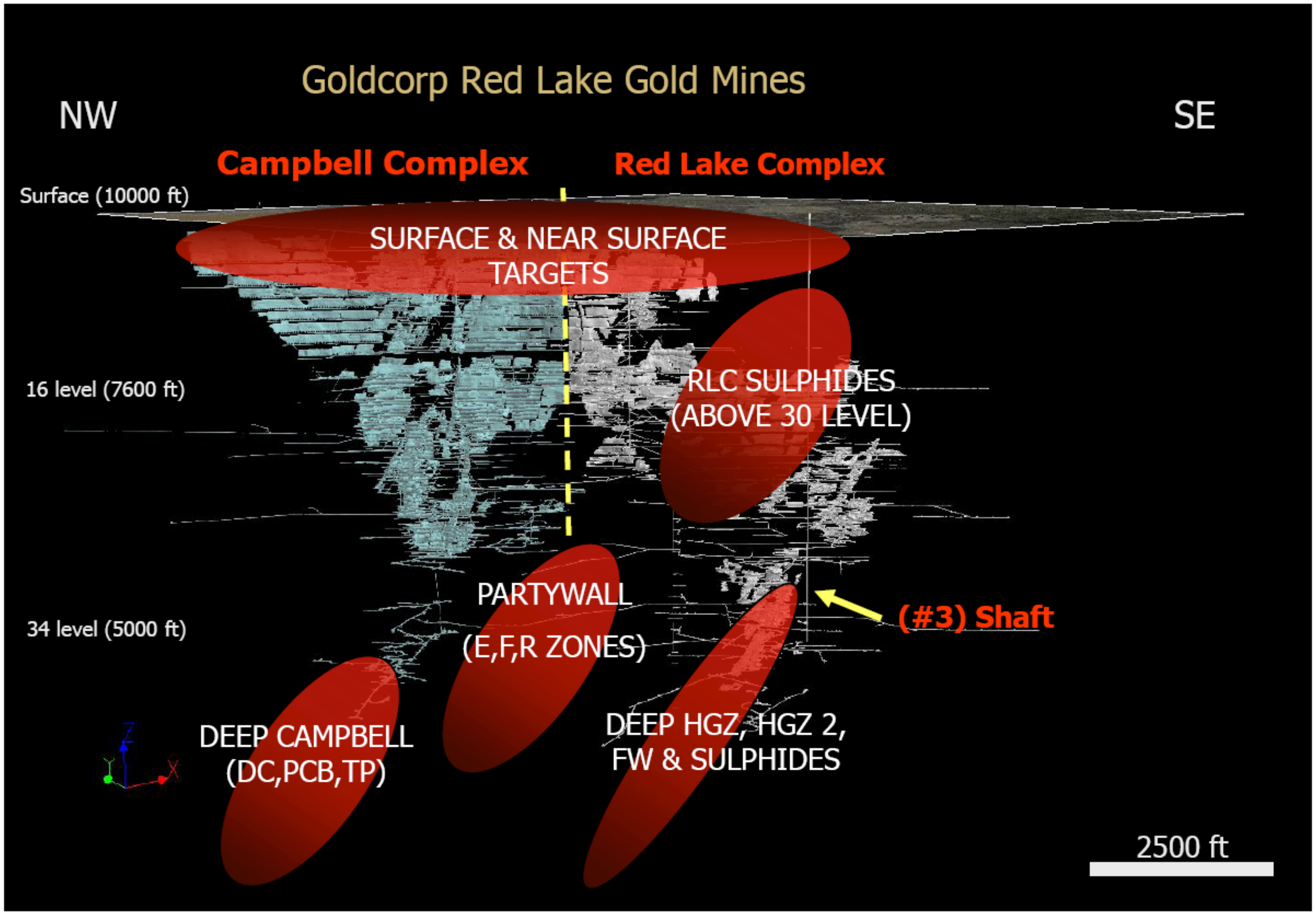
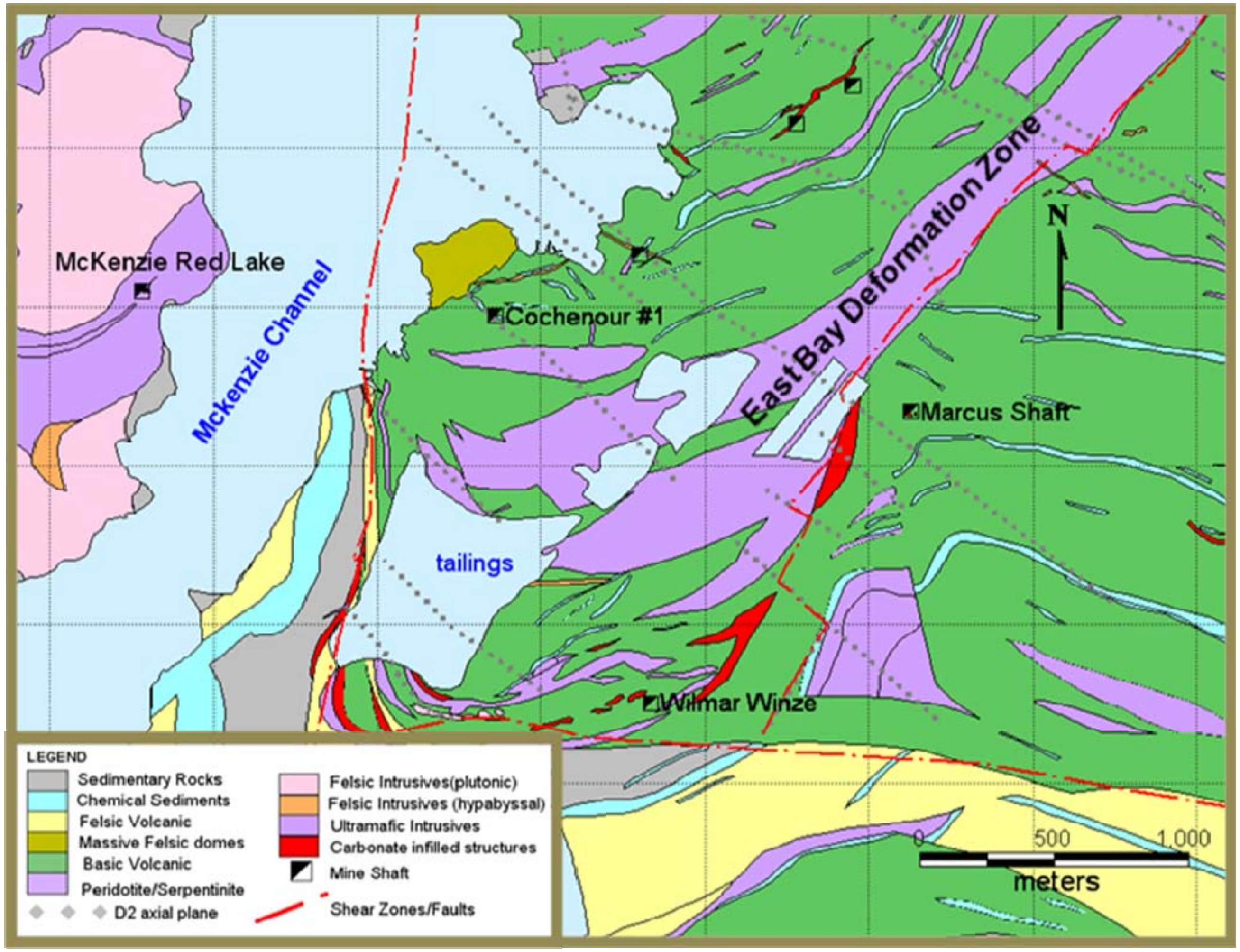


Figure 7-3: Geology Map, Cochenour Complex



The southeast contact, dipping steeply to the north is a sheared structure known as the East Bay triangle fault zone, which is carbonate in-filled and mineralized. The fault zone splays southwards away from the ultramafic contact in the area bracketing the Wilmar mineralization (refer to Figure 7-3) at the former Wilmar mine.

In proximity to the Cochenour–Willans mine, a north finger of the northwest contact of the East Bay serpentinite appears dragged from west-trending into a northwest orientation.

This curvilinear surface has been interpreted as a thrust assemblage, the controlling structure and mixed lithological assemblages being host to the mineralized zones. The “Cochenour Thrust” is parallel to the D2 orientation in the northwest quadrant of the mine area, approximately coincident with the ultramafic contact, and is intruded by lamprophyre and felsic dykes. The thrust appears to control mineralization preferentially in the footwall, within highly silicified mafic volcanic rocks and interflow strata although the mineralized zones locally pierce into the talcose-altered ultramafic rocks.

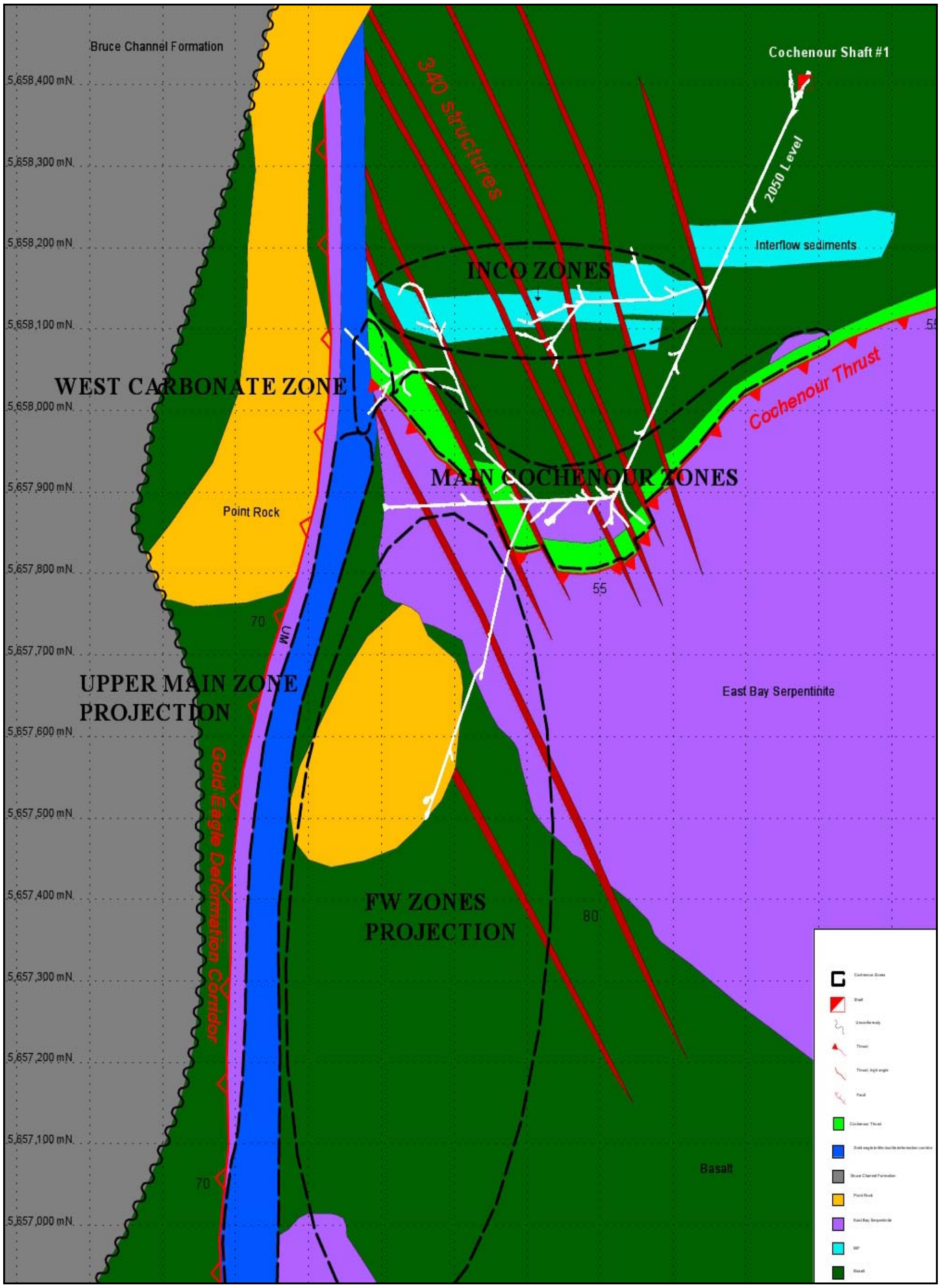
The northwest nose of the ultramafic body and mafic hosted interflow stratum appear drag faulted about a roughly north–south structure, coincidental with the Bruce Channel deposit Upper Main Zone structure (Figure 7-4). The location of the Upper Main Zone suggests it is the down-plunge extension of the West Carbonate Zone below the 2050 Level of the Cochenour–Willans mine (Figure 7-5).

7.3.1 Bruce Channel

The Bruce Channel deposit over its considerable vertical extent is characterized by several styles of mineralization including highly sheared quartz–carbonate veins, quartz–actinolite veins, veinlet swarms defining the Upper Main Zone, and “grey sulphide” replacement breccias zones associated with interflow strata. The host mafic volcanic rocks are highly silicified, biotitic, and locally impregnated by open space calcite fracture-filling.

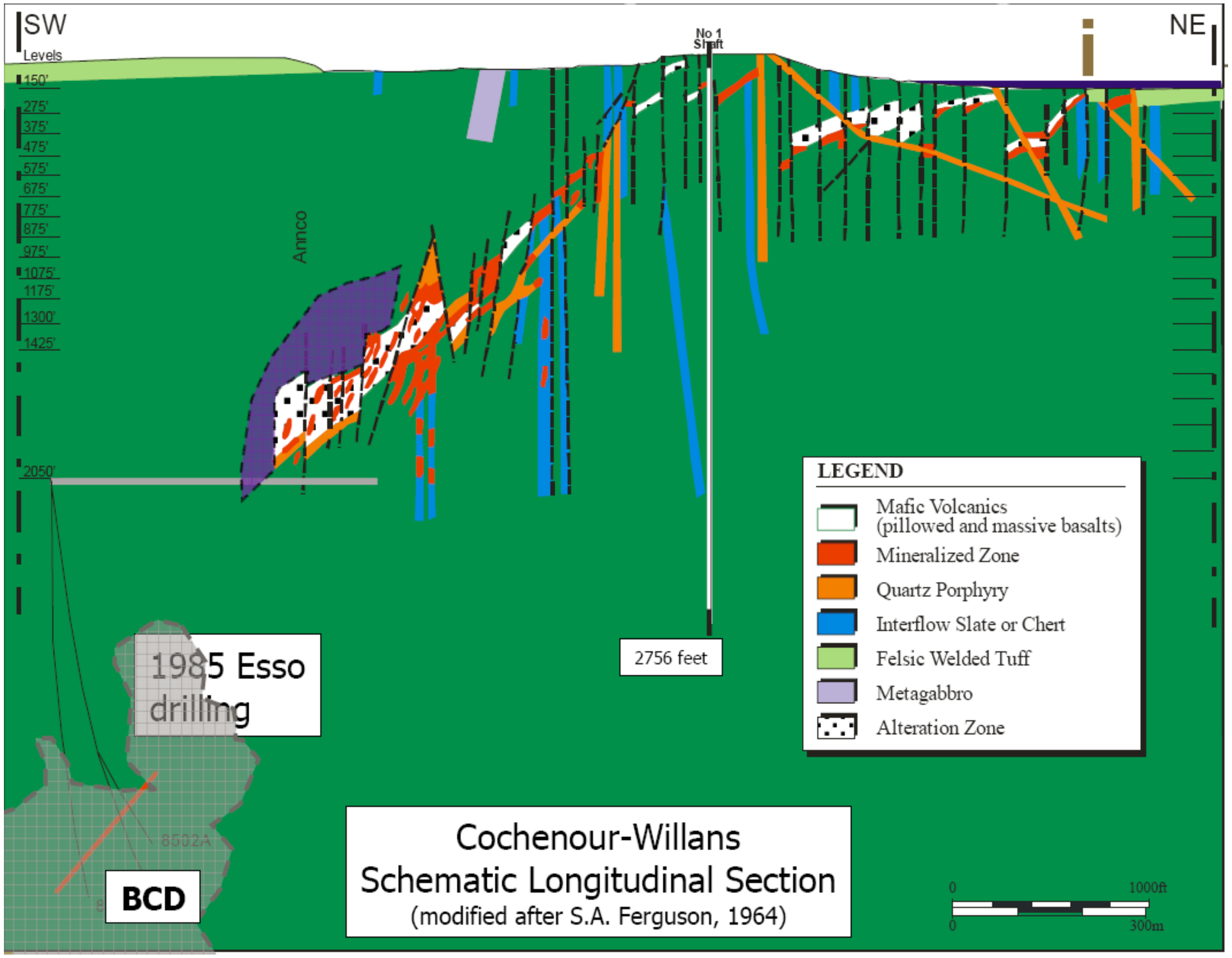
The Bruce Channel deposit structure is north–south-trending and dips to the west at 65–70º in close proximity to the faulted unconformity with Bruce Channel assemblage rocks. The intersection of the Cochenour thrust with the Bruce Channel deposit structure defines a shallow plunge to the south, with mineralization apparently confined to the footwall of the thrust. A series of parallel, fault-hosted, north–south-trending carbonate vein structures in the footwall to the Bruce Channel deposit, West Carbonate and Main Zones at the Cochenour Complex are mineralized especially where they intersect the interflow strata.

Figure 7-4: Schematic Plan View, Cochenour Complex, Showing Mineralized Zones at Depth



Note: Grid squares on plan are 100 m x 100 m.

Figure 7-5: Schematic Cross-Section, Cochenour Complex, showing Location of Upper Main Zone (UMZ)



Note: BCD = Bruce Channel discovery area

The unconformity and Bruce Channel assemblage rocks are intruded by the McKenzie Stock, which is a zoned intrusion of intermediate to felsic composition. The contact is roughly subvertical along the eastern shoreline of Mckenzie Island with the Mckenzie Channel (refer to Figure 7-3).

Biotitic alteration is the most common and pervasive metasomatic modification noted in the lithologies of the Cochenour Project area, and is frequently used as an exploration indicator for the outer limits of the deposit. More localized zones of carbonate alteration commonly associated with coincident silicification are significant in terms of gold mineralization. Project geologists have noted that intense carbonate alteration appears to be a defining parameter for much of the gold mineralization.

Sulphide mineralization characterized by pyrrhotite and pyrite is commonly found throughout and is invariably present in sections containing or surrounding gold mineralization. Arsenopyrite mineralization occurs frequently within and around the gold zones and a strong association has been documented between extensive zones of fine-grained acicular (felted) arsenopyrite and gold mineralization. Less common sulphides also indicative of the presence of gold include chalcopyrite, galena and sphalerite.

Gold mineralization is primarily subject to structural as opposed to lithological controls and the mineralization is not restricted to any one lithotype but occurs in several lithologies once favourable structural conditions for deposition have been established.

The gold mineralization west of the past-producing Gold Eagle Mine, which was described by Gold Eagle mines as the Western Discovery Zone, lies within the southern part of the McKenzie Stock and is partly hosted within the intrusion and partly in a large inclusion of metasedimentary rocks. Gold mineralization is hosted in quartz veins and veinlet swarms, predominantly east–west trending, flat dipping to the south.

7.4 Comments on Section 7

In the opinion of the QPs, knowledge of the deposit settings, lithologies, and structural and alteration controls on mineralization is sufficient to support Mineral Resource and Mineral Reserve estimation and to support mine planning.

8.0 DEPOSIT TYPES

The mineralization within the Project can be classified as typical of Archean greenstone belt-hosted gold deposits.

The majority of the mineralization in these types of deposits is intimately associated with quartz ± carbonate (calcite, ankerite, or siderite) veins with persistent sericite–carbonate alteration haloes in highly deformed, Archean host rocks that have been regionally metamorphosed to lower or middle greenschist facies. The host rocks are highly-altered, supracrustal rocks; most commonly tholeiitic basalts, komatiites or their volcaniclastic or subvolcanic equivalents. Mineralization also occurs in felsic volcanic rocks, porphyries, greywackes and conglomerates.

Examples of this type of deposit in Canada include the Porcupine gold deposits in Ontario, the mined-out Kerr Addison deposit in the Kirkland Lake camp within Ontario, the Sigma mine in Quebec, and the Con and Giant Yellowknife mines of the Northwest Territories.

Significant international examples are hosted in the Western Australian Yilgarn Craton, the Zimbabwean Craton, the Amazonian Craton, southern India, and the west African Birimian belts. Specific mines include the Geita and Bulyanhulu mines in Tanzania, operations such as Kanowna Belle, Bronzewing and Plutonic in the Yilgarn Craton, Australia; and the Kolar and Hutti mines in southern India.

8.1 Comment on Section 8

The Project deposits are considered by the QPs to be examples of Archean greenstone belt-hosted gold deposits based on the following:

- Occur in a deformed greenstone belt;
- Hosted in tholeiitic basalts and ultramafic komatiitic flows intruded by intermediate to felsic porphyry intrusions;
- Metamorphism is greenschist to locally amphibolite-facies;
- Mineralization is spatially associated with fluvio-alluvial conglomerate;
- Associated with iron–carbonate alteration;
- Hosted by moderately to steeply dipping, compressional brittle-ductile shear zones and faults with locally associated shallow-dipping extensional veins and hydrothermal breccias;

- Veins are characterized by simple to complex networks of gold-bearing, laminated quartz–carbonate fault-fill veins;
- Gold is largely confined to the quartz–carbonate vein network but may also be present in significant amounts within iron-rich sulphidized wall-rock selvages or within silicified and arsenopyrite-rich replacement zones.

9.0 MINERALIZATION

A discussion of the mineralization styles and related depth, width (thickness), orientation and continuity is presented for the Red Lake deposits in Section 7. The discussion in this section of the Report relates to the mineralization type, character, and mineralogy of the deposits.

9.1 Mineralization Styles

Gold mineralization zones in the Balmer assemblage of the Red Lake trend can be broadly subdivided into two morphological groups, planar to curviplanar zones and plunging zones.

9.1.1 Planar to Curviplanar Zones

These have strike lengths and dip extents of a three hundred meters, but comparatively narrow widths. These zones mainly dip moderately to steeply (65 to 85° dips) south and strike west–northwest to north–northwest mainly sub-parallel to the main (S_2) foliation.

Two distinct styles of planar/curviplanar zones are recognized:

- Quartz–carbonate vein systems (e.g. 'A' and 'F' zones) comprising relatively continuous vein sets of locally variable thickness, enveloped by foliated hosts typically showing strong carbonate-biotite alteration. Mineralized quartz–carbonate vein systems are commonly best developed in metabasaltic rocks, but also occur in dioritic, rhyolitic and ultramafic hosts. The auriferous mineralization is less continuous than its quartz–carbonate vein envelopes, and ranges from low to high grade, the latter consistently occurring in southwest-plunging shoots. Elevated gold grades are associated with quartz-rich infill in re-opened veins, forming lenticular zones sub-parallel to vein margins, as well as infilling brecciated veins and filling high angle fracture zones. Silica replacements of carbonate are also common and exhibit varying proportions of arsenopyrite, pyrite, pyrrhotite, and visible gold. Minor stibnite has been noted in widely scattered locations and a handful of drill holes. Quartz–carbonate gold mineralization is typically non-refractory;
- "Sulphidic", replacement-dominated mineralization zones (e.g. TP and M & M zones) occur in sulphide-, quartz- and silicate (biotite ± amphibole) + magnetite assemblages. These assemblages over-print carbonate-altered metabasaltic host rocks and less commonly metasedimentary rocks, and typically exhibit fewer carbonate and siliceous veins than other styles. Although described as 'sulphide

ores' such mineralization typically contains 0.5–4% sulphide by volume, mainly pyrrhotite and pyrite (+ arsenopyrite). Sulphide-rich mineralization is commonly of low to moderate grades (10–15 g/t Au) and refractory in character, but may occur over substantial widths (3 m), strike lengths, and depth extents.

9.1.2 Plunging Zones

These zones have roughly isotropic to northwest-elongate footprints up to 30 m across and 150 m in length, with pipe-like to linear geometries, which may extend for as much as 1,000 m (Campbell G zone) or as in the case of the Campbell L zone, 300 m down-plunge. Zones consist of geometrically complex arrays of sulphidic pod-replacement and siliceous vein mineralization, which overprint carbonate–quartz vein networks and carbonate alteration.

Plunging mineralized zones are preferentially hosted by metabasaltic rocks, although some smaller bodies occur in ultramafic rocks. All are spatially associated with mafic–ultramafic rock contacts and are localised in relatively steeply-plunging hinge zones/noses of dismembered folds, where these abut major fault/shear zones. Plunging ore zones may "tail off" into planar mineralized zones, which may contain some magnetite.

Plunging ore zones may exhibit large tonnages of medium-grade, low-cost mineable material (e.g. G zone) and also very high grades (e.g. High Grade Zone). Much of the ore is non-refractory, high grades being associated with strong silicification, arsenopyrite development and quartz veining. These higher grade, plunging, equant zones have involved more intense siliceous, arsenopyrite-rich replacement and higher degrees of dilation relative to lower-grade examples and planar-mineralised zones.

9.1.3 Meta-sediments

Gold mineralization has also been identified as being hosted in Bruce Channel metasedimentary rocks. In some examples this mineralization is spatially associated with graphitic rocks and in others with sulphidized iron formations.

9.2 Red Lake Complex

The HGZ consists of quartz-carbonate veins and breccia structures and arsenopyrite replacement mineralization within altered basalts and altered ultramafic rocks. The alteration consists of chlorite, biotite, silica, carbonatization and minor actinolite. The mineralization is characterized by consistent distribution of both coarse and fine flecks of native gold, fine acicular arsenopyrite, and pyrrhotite. Accessory mineralization includes chalcopyrite and sphalerite. Stibnite has been noted in a very small number drill holes.

The HGZ is comprised of several distinct lenses including the Main, East–West, FW, HW5, HWA, and HW7 zones. Below 37 Level, the HW5, HWA and HW7 are the most prominent HGZ lenses. Geometries are complex, and may be oriented north–south, northwest–southeast, or east–west. The HGZ exhibits an average strike length of approximately 60 m, and extends for at least 1 km, from 30 Level to 49 Level.

Mining since 2000 has focused primarily below 30 Level. About 75% of the remaining mineralization above 23 Level is situated in the No. 1 shaft area; this area was the focus of historical mining from 1948 to 1996. The majority of the mined-out mineralization consisted of quartz–carbonate vein structures. Near-surface, the majority of the vein structures occurred in close proximity to the Campbell Fault system.

The E Zone, which consists of replacement-style disseminated-sulphide mineralization, occurs in proximity to the former boundary between the Red Lake and Campbell Complexes between approximately the 17 Level and 30 Level. The F Zone vein is developed in the hanging wall. The Footwall (FW) and Far East zones occur on the eastern portions of the mine area and are two of the more recently found (<10 years old) mineral discoveries within the mine area. Both have limited mine workings exposing mineralization and have largely been defined by diamond drilling. Farther to the east the PLM Zone, potentially the up-plunge extension of the FW Zones and the Far East Zone, remains largely untested in the No. 2 shaft area.

The FW sulphide zones contain disseminated gold-bearing pyrrhotite and pyrite mineralization found in combination with replacement-type ore. The replacement nomenclature refers to areas that have been permeated or flooded with gold-bearing silica (± sulphide). Mineralogically, the replacement zones can be quite variable. Between the 30 and 40 Levels, the FW sulphide lenses consist of the ESC-3J, SC-ESC, and the ESC-HW zones.

The Far East zone consists of several lenses of northwest-striking, steeply southwest-dipping sulphide mineralization consisting of pyrite, pyrrhotite, sphalerite and gold, currently being developed on 16 Level. An exploration drift has been proposed from 21 Level at the Red Lake Complex to follow up on down-plunge values intersected from 16 Level drilling.

Significant results were returned in drilling from the 36 Level drift in the area of the former "partywall". An exploration drift was driven to provide a better intersection angle for follow-up drilling, and part of the R zone structure has been exploited, with development underway.

The zone consists of steeply southwest-dipping replacement pyrite and arsenopyrite mineralization hosted in basalts and ultramafic units and vein-type mineralization containing arsenopyrite, pyrite, pyrrhotite and gold located in the footwall of ultramafic units. The lenses and pipes vary from 15–30 m in length and 0.6–3 m in width.

Vein-style mineralization is dominant in the upper levels at the northwest end of the mine. With depth, vein dips become shallower and change in mineralogy from quartz–carbonate–arsenopyrite–pyrite to quartz–carbonate–pyrrhotite–arsenopyrite assemblages. There is potential for additional mineralization to be identified within such sulphide-type zones and for the discovery of further zones.

9.3 Campbell Complex

The main mineralized zones at the Campbell Complex are the A, A1, AU, F, F2, L, NL, G, P, DC, TP, MM and N zones. The A, F, F2, 56, DC, TP and MM zones occur along a northwest–southeast foliation, and dip to the southwest at 70–80º. The G, L, P, and NL zones are found along the contact of the central ultramafic unit and basalt units.

The A and A1 Zones are a foliation-parallel type vein system which varies from 0.3–1 m wide and consists of quartz and quartz–carbonate material with pyrite, pyrrhotite, arsenopyrite, and gold. The zone is approximately 460 m long and extends from surface to the 26 Level and is located on the hanging wall side of the central ultramafic rock unit, south of the shaft. The A1 Zone is a splay of the A Zone on the hanging wall side with similar mineralization and is 230 m long and extends from the 13–21 Levels. The A Zone corresponds to the Red Lake Complex ESC Zone.

The AU Zone is a foliation-oblique, near-vertical, pipe-like, vein and replacement style mineralised system plunging to the southwest, which varies from 0.3–3 m in width. It consists of quartz lenses and pipes containing pyrite, pyrrhotite, arsenopyrite, gold, sphalerite, stibnite and fuchsite. This type of zone varies in length from 3–75 m. The AU Zone is located south of the No. 1 shaft.

The B Zone is a foliation parallel-type vein system averaging 1.5 m wide that extends for 275 m in length on the central levels between the L Zone and the G Zone and vertically from the surface to the 24 Level. The B Zone consists of quartz and quartz–carbonate material with pyrite, pyrrhotite, sphalerite, cinnabar, fine arsenopyrite and gold. The B Zone is located on the footwall (FW) of the central ultramafic between the L and G Zones and north of the No. 1 shaft.

The DC Zone comprises multiple stacked vein structures and localized high grade 3–6 m podiform structures. The structure essentially consists of quartz–carbonate veins with arsenopyrite replacement mineralization. The alteration minerals consist of chlorite, biotite, silica, carbonatization, and minor actinolite. The DCE Zone potential strike extension corresponds to the HGZW of the Red Lake Complex along the former Red Lake–Campbell mine boundary.

The F Zone is a foliation parallel-type vein system which varies from 0.3–1 m wide and is approximately 300 m in length and extends from surface to the 19 Level. The zone consists mainly of quartz with lesser amounts of quartz–carbonate and is mineralized with pyrite, pyrrhotite, sphalerite, stibnite, fuchsite, and gold. It is located west of both shafts and south of the G Zone. It is bounded by rhyolite to the west and intersects the central ultramafic unit in the east.

The F2 Zone is a foliation parallel-type vein system which varies from 0.3–1 m wide. It is approximately 180 m in length and extends from the 2 Level to below the 27 Level. The zone consists mainly of quartz and quartz carbonate and contains pyrite, pyrrhotite, sphalerite, stibnite, fuchsite, and gold. It is located west of the No. 1 Shaft and south of the G Zone near the hanging wall of the rhyolite and west of the A Zone along strike. The zone is cut off by major faults on the west end and intersects the central ultramafic unit on the east end.

The G Zone is a foliation oblique-type vein system approximately 150 m long and varies from 3–21 m in width. This zone extends from surface to 22 Level and although the structure continues at depth the vein is currently considered to be sub-economic at depth. The zone consists of quartz and quartz–carbonate with silicified replacement sections overprinting the carbonates and contains pyrite and pyrrhotite, arsenopyrite, sphalerite, stibnite, fuchsite, and gold. The G Zone is located north of both shafts at the contact of the basalt (andesite) and a nose in the north (ultramafic) unit.

The H Zone is a series of foliation-parallel veins which vary from 0.3–1 m wide and are approximately 430 m in length. This zone extends from the 3 Level to the 10 Level and is open at depth. The zone consists mainly of quartz with lesser amounts of quartz carbonate and is mineralized with pyrite, pyrrhotite, arsenopyrite, and gold. The H Zone is located west of the G Zone and north of the Reid Shaft.

The L Zone is a complex series of foliation-parallel to foliation-oblique veins situated along a fold in the central komatiite–mafic rock contact, varying in length from 15–45 m and striking northwest. The main L Zone vein is approximately 90 m in length and varies in width from 0.3–35 m, and extends from surface to the 22 Level. Additional veins vary in length from 15–45 m and are as much as 3 m wide. The zone consists of quartz and quartz–carbonate veins with silicified replacement sections overprinting the carbonates and contains pyrite, pyrrhotite, arsenopyrite, sphalerite, stibnite, fuchsite, and gold. This zone is located east of the No. 1 Shaft and most resembles a complex stringer/stockwork zone. The North L Zone is a foliation-parallel vein structure similar to the A zone, 0.3–1 m in width and 60–90 m in strike length, extending from surface to 22 Level, below which the gold grade becomes currently non-economic.

The MM Zone is a sulphidic replacement-dominated mineralization zone with a sulphide, quartz and silicate (biotite ± amphibole) + magnetite assemblage mainly over-printing carbonate-altered metabasaltic hosts and less commonly in metasedimentary rocks. It typically exhibits fewer carbonate and siliceous veins than other styles.

The N Zone is a foliation-parallel vein in basaltic rock and foliation-oblique vein in ultramafic rock, and varies from 1.5–6 m in width, and from 30–75 m in length. The zone is located west of the shaft between the L and P Zones and extends from the 14 Level to the 27 Level. This zone is similar to the AU zone.

The O Zone is a foliation-parallel vein system which varies from 0.3–1.5 m wide and is approximately 105 m long. The zone is located north of the shaft and the G zone and is developed on the 11 and 12 Levels. The zone consists mainly of quartz–carbonate and contains pyrite, pyrrhotite, arsenopyrite, and gold.

The P Zone is a combination of foliation-parallel and foliation-oblique veins approximately 140 m long, which vary in width from 0.3–20 m, extending from the 18 Level to the 27 Level. The zone has three main veins radiating west from the basalt–ultramafic rock contact. It is situated west of the shaft, south of the G Zone and west of a nose in the central ultramafic rock unit. The zone consists of quartz and quartz–carbonate with silicified replacement sections overprinting the carbonates and contains pyrite, pyrrhotite, arsenopyrite, sphalerite, stibnite, fuchsite, and gold.

The TP Zone and PCB Zone are characterized by intense silicification, arsenopyrite, pyrite and/or pyrrhotite, and base metal sulphide mineralization ranging from <5% total sulphides to semi-massive sulphides. These replacement-type mineralised zones extend about 305 m into the footwall of the 56, 56-1 vein structures, and the DC Zone to depth.

The 56 and 56-1 zones are both horizontally and vertically extensive, striking for approximately 600 m and extending vertically for 550 m. The 56 zone is a basalt-hosted quartz–carbonate vein and is typically between 0.6–1.3 m wide. Auriferous mineralization may be present where strong silicification and sulphide mineralization (pyrite and pyrrhotite) occur with the vein.

The 56-1 auriferous structure (hanging wall to the 56 vein) is hosted in both basalt and komatiite lithologies. Within the basalt, the structure may consist of one or more narrow mineralized veins, commonly 0.15–0.3 m wide. The structures are generally auriferous, with both grade and width decreasing away from the basalt–komatiite contact. Ore-grade mineralization is typically found proximal to the contact or within the komatiite unit. Within the komatiite, gold mineralization is found where strong carbonate and biotite alteration, and abundant veining are present. Mineralization is associated with strong silica replacement and sulphide mineralization (predominantly arsenopyrite). Visible gold is common. Vein widths are commonly from 0.6–1.3 m wide, although widths of 1.8–2.3 m can be reached.

9.4 Cochenour Complex

Styles and hosts of gold mineralization within the Cochenour Project area are varied. In the Cochenour–Willans mine proper, four styles of mineralization were identified:

- Main Sedimentary facies (MSF);
- North South Veins;
- Chert
- Main Zone.

Although gold mineralization is found in a variety of lithologies, the key to significant gold mineralization has been the presence of intense silicification or veining (quartz and/or carbonate).

The MSF and Chert styles are hosted by east–west-trending, near-vertical metasedimentary units (argillites/cherts). In the vicinity of the 2050 Level the lithological units have been traced and modeled from 120 m to 280 m along strike and 500 m in vertical extent. Widths may range to as much as 7.6 m wide but generally average 2.5 m to 5.0 m wide. Pyrrhotite is found disseminated in the host rock and reach as much as 25%, with lesser pyrite disseminated and as fracture fills. Locally acicular arsenopyrite may be present, to as much as 30%. Gold mineralization within these zones is commonly associated with the arsenopyrite, but is also found within fractures. When the metasedimentary units are crosscut by north–south-trending veins, very high-grade gold mineralization is commonly observed.

The north–south quartz–carbonate veins are near vertical, and in the lower portion of the mine are oriented at a strike of 340º to 360º. Typically the veins are hosted within basalt units and formed within or adjacent shear zones that are 2 m to 10 m wide. The veining is typically in basalts but also crosscut the east–west-trending metasedimentary units, with potential for very high-grade gold mineralization at and proximal to the intersection of the two. Typical widths range from 1.6 m to 4.0 m, and in the 2050L have been modeled for approximately 500 m vertically and m 150 along strike. The quartz–carbonate veins may be crosscut by later gold-bearing quartz veins with pyrrhotite and arsenopyrite. Minor amounts of pyrite, sphalerite and chalcopyrite may also be present.

For the purposes of this Report, the Inco Zone refers to the Chert, MSF and North South Vein styles (zones) of gold mineralization. For mineral resource estimation purposes, the Inco Zone was subdivided into EW Inco (MSF/Chert style) and NW Inco (crosscutting north–south structures).

The fourth vein style (Main Zone) is found at or proximal to the contact of the East Bay serpentinite with basalts. North–south structures are found crosscutting this contact, with gold mineralization found preferentially in quartz–carbonate veining at these intersections. Past work has indicated mineralized zones to be about 3–6 m wide, exploited by stopes that were 10 m wide, and 15 m to 60 m long. The maximum dip extent reported was 200 m. The Main Zone and West Carbonate zone are similar in mineralization style and setting.

The Gold Eagle Deformation Corridor (GEDC) is located to the west of the Cochenour mine workings. The deformation zone, which is approximately 50–100m wide, is a north–south-trending shear (Gold Eagle Shear or GES), dipping to the west at 65–70º in close proximity to the faulted unconformity with Bruce Channel assemblage rocks. The intersection of the Cochenour Thrust with the GES defines a shallow plunge to the south–southwest, with gold mineralization discovered to date in this area confined to the footwall of the thrust and the GES.

Gold mineralization associated with the Upper Main Zone (UMZ) is located parallel to and partially within the deformation corridor and/or immediately in the footwall. Over its considerable vertical (+1500 m) and horizontal strike (+800 m) extent, the UMZ is characterized by several styles of mineralization. Mineralization styles include:

- Quartz–actinolite flooding and/or large brecciated quartz carbonate vein(s);
- Strongly brecciated mafic volcanics with quartz-carbonate veining with biotite and carbonate alteration;
- Strongly brecciated intermixed iron formation and mafic volcanics with quartz actinolite veining ± arsenopyrite.

Pyrrhotite and pyrite may also be present and are more abundant within the metasedimentary units (cherts, banded iron formation and argillite). The UMZ mineralization is typically 2–5 m wide, but is also commonly present as a series of stacked or multiple mineralized structures (i.e. three to seven variably-spaced mineralized structures).

Mineralized zones designated as "Footwall Zone" are named so due to their location footwall or east of the Upper Main Zone and beneath the Cochenour Thrust. These zones are typically found east of a section of barren basalt footwall to the Upper Main zone, and are similar trending (azimuth of 340º to 360º) to the north–south structures observed in the lower mine workings. Although there are variations to the Footwall zone mineralization it can be divided into three main groups:

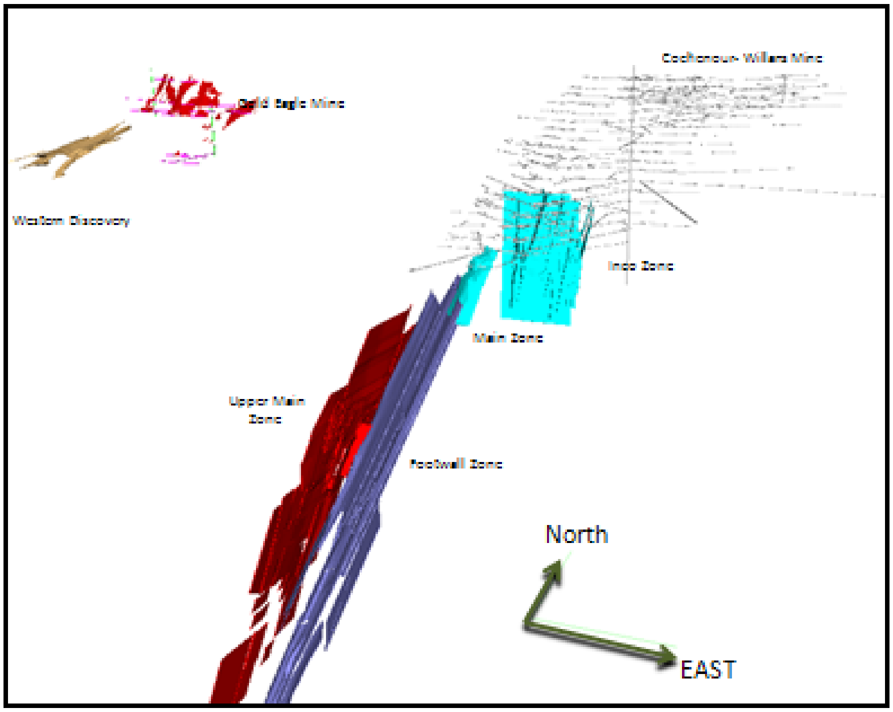
- Fault related;
- Banded iron-formation related;
- Vein related.

The fault-related mineralization varies from discrete shear(s) to >1 m-wide isolated shears to carbonate breccias zones, which range from brecciated carbonate veins hosted in basalts to iron carbonates infilling fault breccias. The banded iron-formation is considered in many cases to be the western extension of the metasedimentary units associated with the Inco Zone. The north–south structures are typically found crossing the basalts and broader and higher gold mineralization zones develop where the structures cross through the iron formation. As the footwall zone structures approach the UMZ and cut the iron formation units, limited drilling data suggest that sulphide mineralization (mainly pyrrhotite) and quartz ± carbonate veining and associated gold mineralization increases. Additional drilling is required to investigate this observation.

Larger mineralized structures are associated with the brecciated style of mineralization. Combined, the Footwall zone mineralized structures have been traced for approximately 1,800 m vertically, and 750 m along strike. Similar to the UMZ, multiple or stacked structures are common (see Figure 9-1).

Narrow isolated veins/veinlets of quartz ± actinolite are found within the basalt and footwall to the UMZ. These can develop proximal to the UMZ or hundreds of metres away. Commonly narrow, these veins have been shown to carry considerable gold mineralization, with bonanza grades of as much as 6,360 g/t Au over 0.2 m.

Figure 9-1: Cochenour Project – Zone Model



Note: Figure horizontal scale is approximately 3 km from left to right

9.4.1 Western Discovery Zone

The Western Discovery Zone is located approximately 500 m west of the past-producing Gold Eagle Mine shaft and bears similarities to gold mineralization seen at the Gold Eagle Mine. Horwood (1940) reported two vein systems.

- The Gold Eagle vein: maximum of 0.8 m in thickness, commonly part of a wider vein zone up to 1.2 m wide;
- No. 1 Shearing: veining with minor sulphides (pyrite, pyrrhotite), and overall sulphides more abundant in well-fractured veining. Lesser chalcopyrite, galena also present together with free gold.

Orientation of the structures are generally at 115$^{o°}$/52$^{o°}$S and are found within a granodiorite stock and greywacke pendants.

Gold-hosting structures at Western Discovery are interpreted to occur as a series of sub-parallel, quartz-rich veinlets and tension veins that are developed in intrusive rocks of the McKenzie granodiorite stock. The colour of the quartz veinlets/veins varies from predominantly milky white to locally dark grey, and cross-cutting textural relationships in some of the larger veins suggest that the different colours of quartz represent different episodes of veining. Within the veining, pyrite is the main sulphide ranging from 1–5% in both the veins and wall rock. Lesser pyrrhotite, chalcopyrite, galena and molybdenite have also been noted. Visible gold is commonly observed hosted by the quartz veinlets. The zone consists of three to four horizons of sub-horizontal veins ranging from 1 cm to 1.5 m in thickness. Overall, the vein zones are oriented at 240–250º/15ºS.

During 2003–2004, approximately 25,000 m of drilling was completed at the Western Discovery Zone by Gold Eagle Mines. Goldcorp completed 9,218 m of drilling during 2009–2010 both to verify and investigate possible expansion of the Western Discovery Zone. Gold mineralization has been traced in the east–west direction for approximately 490 m, in the north–south direction for approximately 370 m, and over an elevation of approximately 230 m (refer to Figure 9-1).

9.5 Comment on Section 9

In the opinion of the QPs, the mineralization style and setting of the Red Lake and Cocheneur Complex deposits is sufficiently well understood to support Mineral Resource estimation.

10.0 EXPLORATION

Exploration has been undertaken by Goldcorp, its precursor companies (e.g. gold exploration by Placer Dome), or by contractors (e.g. geophysical surveys).

Exploration activities on the Project have included regional and detail geological and structural mapping, rock, silt and soil sampling, trenching, RC and diamond drilling, airborne geophysical surveys, ground IP geophysical surveys, mineralization characterization studies and metallurgical testing of samples. Petrographic studies and density measurements on the different lithologies have also been carried out.

10.1 Grids and Surveys

Since Goldcorp's acquisition of multiple properties in the Red lake area, a new grid has been introduced to encompass all properties into one large localized grid that is currently identified as the RLGM or Mine Grid. The grid is based on UTM NAD 83/TRANS Zone 15N coordinates and was surveyed using Leica 1205 global positioning system (GPS) units with "Glonass". The grid is also referenced to both Provincial and Federal survey monuments in the area using static surveys of each control point.

10.2 Geological Mapping

Regional and detailed geological mapping was completed by company and Geological Survey of Canada personnel in a number of phases. Map scales varied from regional (1:25,000) to prospect scale (1:120). Map results were used to elucidate regional lithological relationships, alteration and mineralization, and, in prospect-scale work, to identify areas of quartz veining, alteration, silicification and sulphide outcrop that warranted additional work.

Underground mapping of backs, walls and faces of drifts and stopes is performed at one inch = 20 feet or one inch = 30 feet scales on a regular basis.

10.3 Geochemistry

Soil, channel, adit, underground, grab and rock sampling were used to evaluate mineralization potential and generate targets for diamond drilling. Geochemical data have been superseded by production data at Red Lake–Campbell and drill programs at Bruce Channel, Western Discovery Zone, and Cochenour–Willans.

10.4 Geophysical Surveys

Airborne and ground geophysical surveys were used to vector into mineralization and generate targets for exploration drill programs.

10.5 Drilling

Drilling completed on the Project is discussed in Section 11 of the Report.

10.6 Bulk Density

Bulk density data collected to date on the Project are discussed in Section 12 of this Report.

10.7 Geotechnical and Hydrology

Initial geotechnical and hydrological studies were completed during the 1940s and 1950s, as part of mine development. More detailed studies were completed by independent consultants to support mine expansion assessments. Work included geotechnical assessment of infrastructure locations, groundwater exploration, hydrogeological studies, drainage assessments, and water and contaminant studies.

The geotechnical models are reasonably established, and are based on drill data, rock mass classification, and stability modeling carried out during the mining operations. The hydrological model is also based on a combination of drill data and operational experience.

Specialist geotechnical and hydrological staff are employed on the Project, and monitor these areas on a day-to-day basis. Support continues to be provided on an as-needs basis by external consulting firms.

10.8 Other Studies

Since the 1940s, a significant number of structural, petrology, mineralogy, lithogeochemical, and research studies have been completed on the Red Lake greenstone belt.

Goldcorp has initiated a research affiliation via a research program with the University of British Columbia Mineral Deposits Research Unit that has been operational since 2006. Through this program, post-graduate research students are assigned specific research directives to better understand the litho-structural controls on gold mineralization at the mine sites and apply observations from these research programs to support regional exploration in the Red Lake district.

The initial years of research were directed at establishing the hydrothermal footprint to the Red Lake Gold Mines using surface and underground mapping and sampling, core logging and sampling along two composite drill sections at the Campbell and Red Lake Complexes. Petrographic, mineralogical and geochemical sampling were undertaken in an effort to document the lithology, structure, and hydrothermal alteration, in an effort to identify practical mineralogical and geochemical exploration parameters for diamond drill targeting.

As part of the program, one or two graduate students undertake economic geology theses in an effort to advance the understanding of the complex geological setting of Archean lode gold mineralization in the Red Lake district.

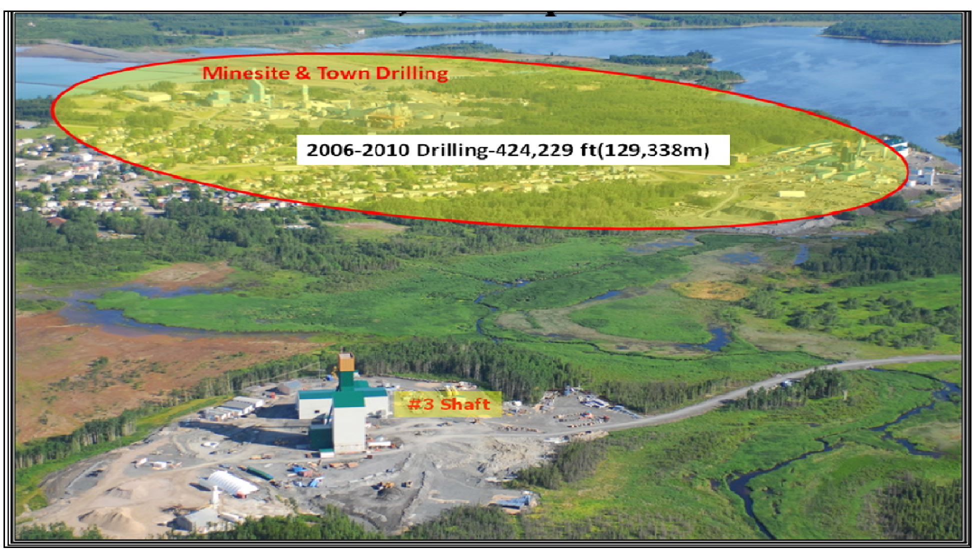
10.9 Exploration Potential

10.9.1 Red Lake–Campbell Complex

There is considerable remaining exploration potential in the vicinity of the current mining operations.

Surface drilling to test the upper mine levels comprised 129,338 m between 2006 and the end of 2010 (Figure 10-1).

Figure 10-1: Balmer Township Prospect



Note figure horizontal scale is approximately 2 km from left to right.

Drills are testing near-surface mineralization that is developed under the Balmertown town site. As a part of this drilling some high-grade intersections were encountered in the upper five mining levels of the Red Lake complex. Some of these structures were known to exist as they were developed and mined in the early years of the Red Lake Complex operations.

With access gradually being gained to upper levels of the Red Lake mine after many years of no mining activity, exploration will test extensions of known zones and follow up on recent surface drill hole intercepts. Additional surface drilling is also planned.

R Zone

Significant results were returned in drilling from the 36 level drift (the R zone)". Since these original intercepts, an exploration drift was driven to provide a better intersection angle for follow-up drilling, and part of the structure has been exploited. The zone is open in several directions and mine planning is underway to establish a deeper drill horizon for additional drill testing. Figure 10-2 provides inclined and cross sectional views of the R zone.

Far East

The Red Lake Complex drilling and development which occurred on 16 Level in what is now called the Far East zone resulted in numerous high-grade gold results along with wider lower-grade intervals (Figure 10-3). Definition drilling is currently underway. An exploration drift has been proposed to follow up on the values intersected from 16 Level deeper down at the Red Lake Complex with an exploration drift from 21 Level.

Red Lake FW Zone

Additional infill and exploration drilling has been performed in the FW zone. The zone is currently accessed from new development on the 41 Level. Results from this work have shown that this zone is open both to the east and at depth. A new exploration drift has been driven on 44 Level to further explore the FW and nearby sulphide zones (Figure 10-4).

Figure 10-2: R Zone (Inclined & Cross-Sectional Views)

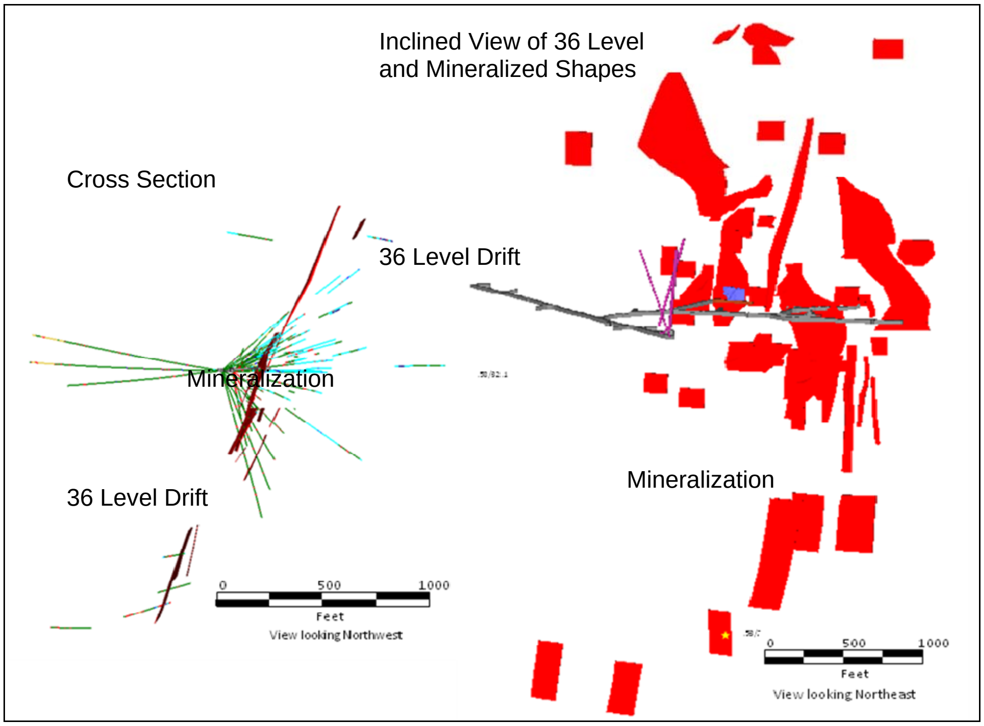
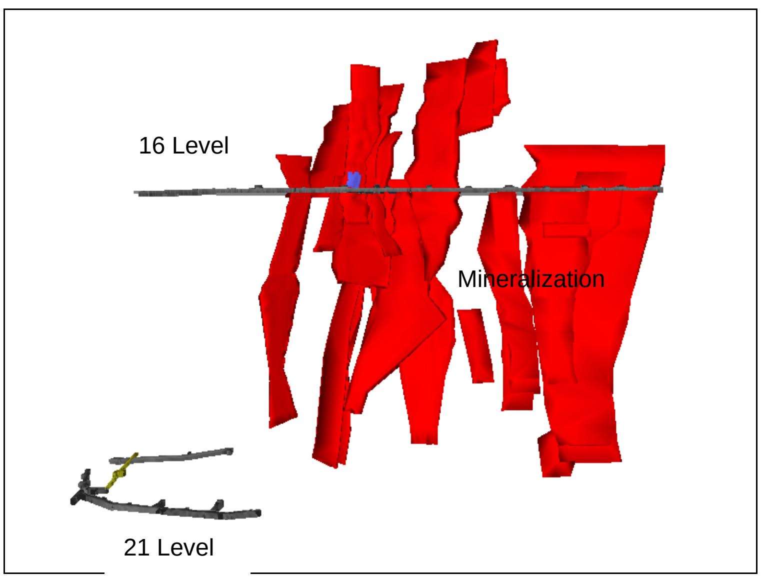
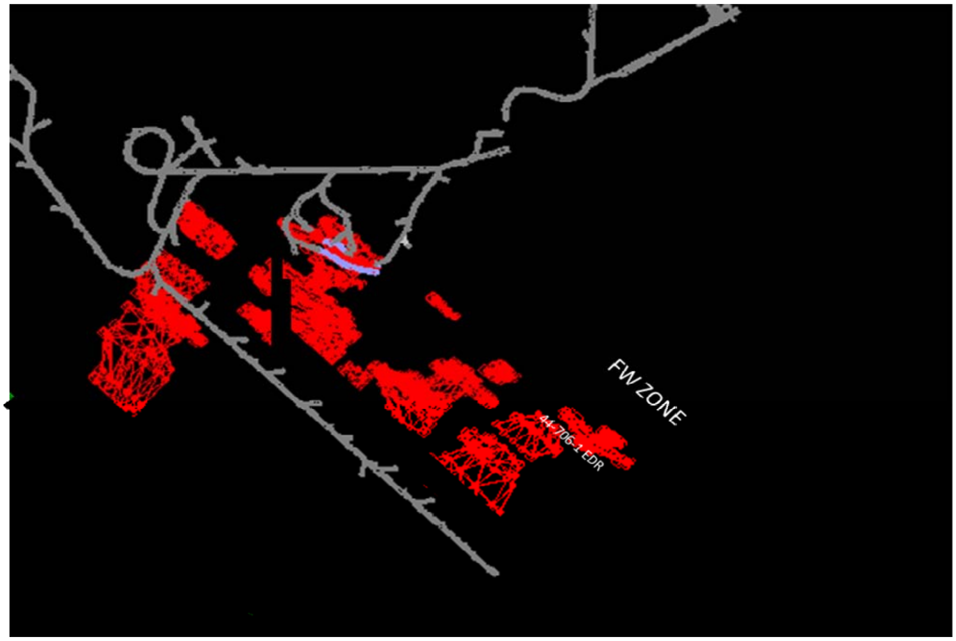


Figure 10-3: Far East Zone (Cross-Sectional View)



Note: Plan scale is approximately 300 m in the horizontal direction

Figure 10-4: Schematic Section showing Footwall Zone and Nearby Sulphide Zones

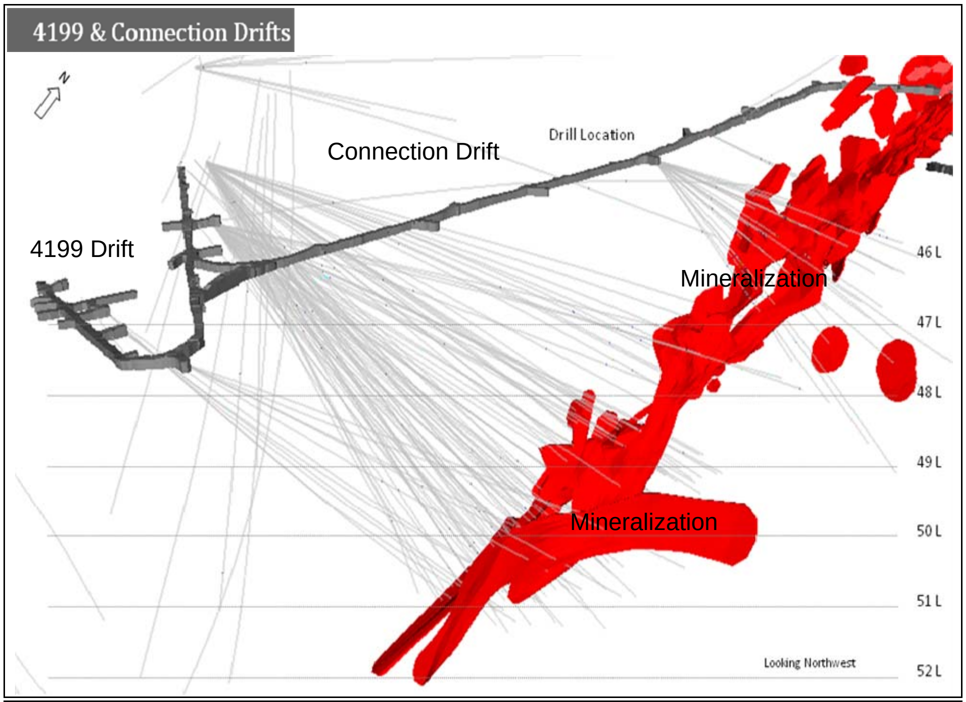


Note: Plan scale is approximately 900m in the horizontal direction.

Red Lake High Grade Zone

Drilling continues on the deep extents of the High Grade Zone. In mid-2008, directional drilling was reinitiated from 37 Level to target the deeper mineralization within the HGZ from 47 Level and below. In 2009 the 4499 Drift was completed enabling exploration drilling to proceed targeting deep High Grade Zone utilizing standard core drilling methods. This drift is being extended to provide drill exploration platforms to test the HGZ at depth. The zone remains open at depth with potential for new sulphide discoveries within several hundred meters. The HGZ drill program is ongoing and has resulted in numerous high-grade gold intersections from the 4199 exploration drift. During 2010 a connection drift was driven to provide additional drill platforms, as shown in Figure 10-5.

Figure 10-5: 4199 Exploration Drift & Connection Drifts, HGZ



Note: Plan is approximately 300 m across, and 200 m high

10.9.2 Cochenour Complex

Exploration opportunities within the Cochenour Complex include:

- Drill testing within the known Upper Main and Footwall zone extents to identify additional mineralization that may potentially support mineral resource estimation;
- Drill testing of the extensions of the same zones along strike to the north and south;
- Drill testing to potentially expand the Western Discovery Zone mineralization;
- Continue to drill test beneath the past-producing McKenzie Red Lake Mine.

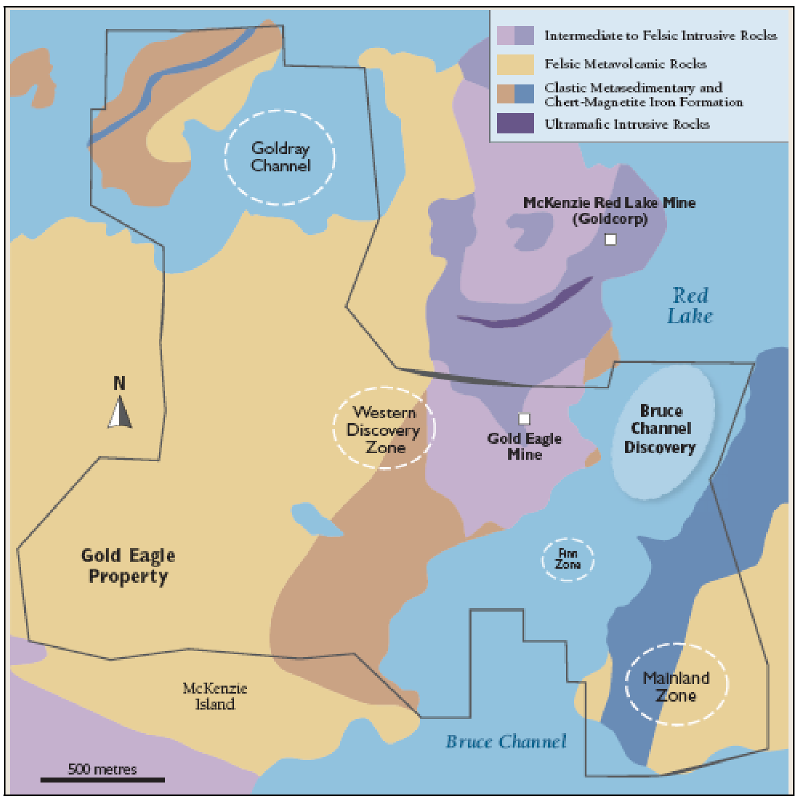
The planned 2011 deep directional drilling project will provide better intersection angles through the Upper Main Zone, a broader transect through the Footwall zone mineralization, target existing areas of limited drill coverage, and will potentially expand the known northern and southern strike extents of the zones

10.9.3 Additional Prospects

Goldcorp is currently developing a high-speed underground tramway between the Red Lake operations and the Cochenour Complex. This tramway, approximately 5 km long, will double as an exploration drilling platform along its length, and provide previously unparalleled access to the Red Lake trend. During development, drill cut-outs, at approximately 122 m intervals, will be included as part of the tram and will provide future exploration access from Red Lake Gold Mines to Cochenour.

Prior to acquisition by Goldcorp, Gold Eagle Mines had identified an additional three prospects in the Cochenour Complex area (Figure 10-5).

Figure 10-5: Exploration Targets, Former Gold Eagle Mine Area



The Finn Zone prospect comprises gold mineralization and carbonate alteration zones within Balmer assemblage host rocks that appear to have affinities with the structures and mineralization identified to date within the Bruce Channel deposit. The prospect was tested by four drill holes, and has not been drilled since 2007.

The Goldray Channel prospect was drilled by four core holes to test for possible extensions of structures hosting gold mineralization at the past-producing McKenzie Red Lake Mine, where they potentially transect more favourably-prepared volcanic stratigraphy west of the McKenzie Island Stock. Encouraging geology was found during this exploratory drilling, with drill holes encountering altered, sheared, and brecciated mafic volcanic rocks. No drilling has occurred in this area since 2007.

The Mainland Zone prospect is underlain by felsic volcanic and sedimentary rocks of the Bruce Channel formation, in contact with the Balmer assemblage to the east of the Gold Eagle area. The prospect is a conceptual exploration target where an interpreted southwest-plunging antiformal fold hinge zone in the Balmer assemblage could host gold mineralization at depth.

10.10 Comment on Section 10

The exploration programs completed to date are appropriate to the style of the deposits and prospects within the Project. The structural, age dating and petrographic research work support the genetic and affinity interpretations for the Project.

11.0 DRILLING

A significant amount of drill data has been collected over the 60+ year Project history. Drill data are summarized in Table 11-1 by operator and year for the Red Lake Complex and Table 11-2 for the Cochenour Complex. Drill locations for the Red Lake/ Campbell, Bruce Channel/Western Discovery Zone deposits are included as Figures 11-1 and 11-2 respectively.

11.1 Drill Contractors

Multiple contractors have been used over the Project life. Contractors used for the Red Lake Complex in the period from start of mining to present are documented in Table 11-3. For the Cochenour Complex contractors used are summarized in Table 11-4.

11.2 Surface Drill Methods

Surface drill methods typically employed core drilling methods.

At the Red Lake Mine drill core for surface drilling is typically NQ (47.6 mm diameter) in size. Occasionally, surface core holes are reduced from NQ size to BQ (36.4 mm) if difficult drilling conditions are encountered. Underground core holes are typically NQ2 (1.99" diameter), BQ (36.5 mm) and AQTK (30.5 mm) sizes. The larger diameter core is primarily used in exploration programs where drill density is sparse and drill holes are normally >300 m in length.

Underground definition and delineation drilling is AQTK wire-line (30.4 mm diameter) core. Exploration drilling is usually BQ or NQ size core. Underground delineation drill spacing is based upon an approximate 3–15 m interval spacing with more detailed drilling in select areas.

Drilling performed at the Western Discovery Zone and Bruce Channel deposit was completed using primarily NQ size drill coring with a minor amount of BQ size drill coring.

Any break in the core made during removal from the barrel was marked with a "colour line". When breakage of the core was required to fill the box, edged tools and accurate measure of pieces to complete the channels was the common practice to minimize core destruction. The end of every run was marked with a wooden tick and the final depth of the run.

Table 11-1: Red Lake Complex Core Drill Hole Summary Table (includes Red Lake and Campbell)

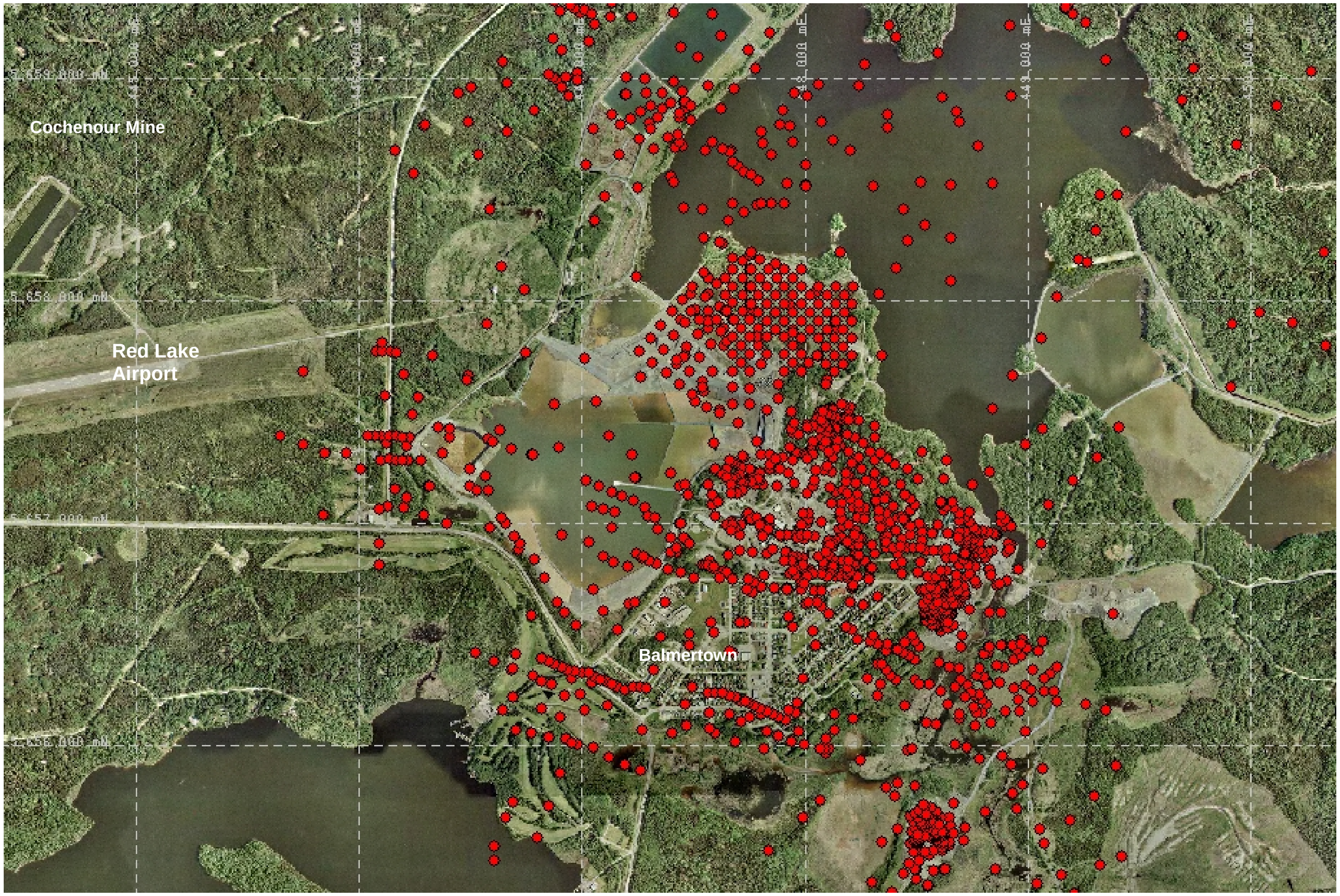
Year	Project Operator	Deposit or Prospect	Surface Core Metreage (m)	Number of Surface holes	Underground Core Metreage (m)	Number of Underground holes	Total Drill Holes	Total Metreage (m)
1947–2006	Campbell Mine, Dome Mines Group, Placer Dome	Campbell Mine	190,532	984	1,615,717	24,898	25,882	1,806,249
2006–2010	Goldcorp	Campbell Mine	140,102	409	456,899	4,204	4,613	597,001
1947–2006	Dickenson Mines Ltd and Goldcorp	Red Lake Mine	143,872	595	1,639,896	21,732	22,327	1,783,768
2006–2010	Goldcorp	Red Lake Mine	Included in Campbell stats	Included in Campbell stats	354,145	2,691	2,691	354,145
1947–2010 Total Mine	Goldcorp(and Previous operators)	Campbell & Red Lake Mine Complexes	474,506	1988	4,066,657	53,525	55,513	4,541,163

Note: Engineering technical holes, drain holes, geotechnical and surface environmental holes are not included in above table

Table 11-2: Cochenour Complex Core Drill Hole Summary Table

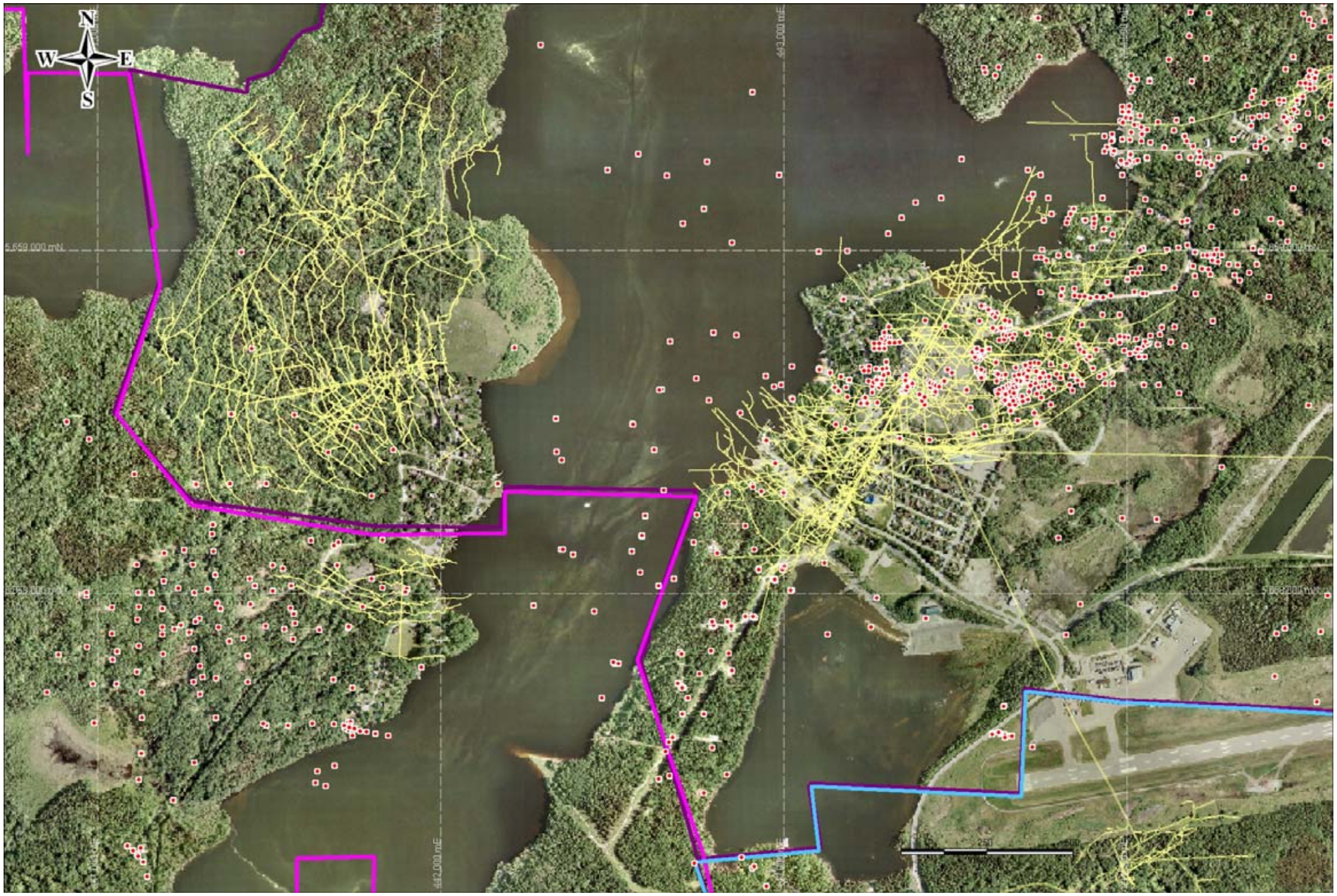
Year	Project Operator	Deposit or Prospect	Surface Core Metreage (m)	Number of Surface holes	Underground Core Metreage (m)	Number of Underground holes	Total Drill Holes	Total Metreage (m)
1939-1971	Cochenour–Willans Mine	Cochenour	unknown		10648	442309	10648(+)	442309
1984	Esso	Cochenour	none		27	9214	27	9214
1988-1991	Inco	Cochenour	45	11100	301	30630	346	41730
2003-2008	Gold Eagle Mines	Western Discovery – Bruce Channel	495	182442			495	182442
1997-2008	Goldcorp	Cochenour	64	41628			64	41628
2009-2010	Goldcorp	Cochenour-UMZ / Footwall	48	26,292	49	20557		
2009-2010	Goldcorp	Western Discovery	16	9218			16	9218

Figure 11-1: Red Lake Deposit Drill Hole Location Map



Note: figure superimposed on air photo base. North is to top of plan. Grid lines on photo are 1 km x 1 km

Figure 11-2: Cochenour Project Surface Drill Hole Location Map



Note: figure superimposed on air photo base. North is to top of plan. Grid lines on photo are 1 km x 1 km

Table 11-3: Summary, Contractors used in Drill Programs Red Lake Complex

Drill Contractor	Dates Used	Location
Campbell Complex		
Boart Longyear(and predecessor Morisette Diamond Drilling)	1947–present day	Underground since Campbell started work underground, on various surface campaigns since 2001(Major campaigns in 2007, 2010)
Hy Tech Drilling	2009	Surface drilling for 3–4 months
Red Lake Complex		
Unknown	1947–mid 70's	Underground drilling
Hermco Drilling	Mid 70's–early 90's	Underground drilling
Boart Longyear(and predecessor Morissette Diamond Drilling)	Early 90's-1996	Underground drilling
Boart Longyear	1996–2001	Surface drilling
Major Drilling(and predecessor Forage Domenic Drilling)	2001–2006	Surface drilling
Major Drilling(and predecessor Forage Domenic Drilling)	1996–2006	Underground drilling
Boart Longyear	2006–2010	Underground drilling
Campbell /Red Lake Surface		
Boart Longyear, minor drilling with Hy Tech Ltd & Chibougamau Drilling in 2009, 2010	2006–2010	Surface Drilling

Table 11-4: Summary, Contractors used in Drill Programs, Cochenour Complex

Drill Contractor	Dates Used	Drill Method
Unknown	1939–1971	Underground / Surface
Boart Longyear, Hytech Ltd., Layne Christensen	1997–present	Surface
Boart Longyear	2010	Underground
Chibougamau Drilling	2003–present	Surface

Core was transferred to wooden core boxes, marked with "up" and "down" signs on the edges of the boxes using indelible pen. The drill hole number, box number and starting depth for the box was written before its use, whilst end depth were recorded upon completion. All information was marked with indelible pen on the front side of the box and also on the cover.

Core is transferred from the drill rig to company core shacks located on the Cochenour or Red Lake Gold Mines mine sites. Surface and underground core is logged at the Cochenour Mine or Campbell complex core facilities. Transport of exploration core boxes to the core shed was done by personnel from the company that was managing the drill program, or the drilling supervisor.

Core is received at the core shack by company personnel and organized for placement in core racks prior to logging by geology staff.

11.3 Geological Logging

Over the years various lithological descriptions have been developed for each of the complexes and these have continued to develop and change. Since the merger of the Red Lake and Campbell operations, Goldcorp has developed a new lithological coding system that incorporates aspects of both previous logging systems. Logs record assays, lithologies, veining and replacement zones, vein styles and percentage amounts over sampled interval lengths and intensity, sulphide mineralization type and intensity, alteration type and intensity, faults and fracture frequency and orientation , rock quality designation (RQD), and structure type, frequency and intensity.

Upon arrival at the core facility, drill core is marked up by a geologist and then geologically logged into the computer system utilizing a customized commercially available software program.

All drill core is logged using computer codes for the various rock types, mineralization, alteration characteristics and structural/geotechnical data. The shear structures containing the various mineralized zones are logged in detail to establish the zone width and most appropriate sampling interval.

Select drill holes are photographed and digital files are stored on hard disc.

11.4 Collar Surveys

The collars of all drill holes are surveyed by transit for location, bearing and dip and tied into the mine grid. The mine grid relationship to the conventional map grid is discussed in Section 10.1. The same grid is used for all of the mine complexes.

The global positioning system (GPS) equipment used is Topcon's Hyper, dual constellation, real time kinematic system (RTK), which is a differentially corrected global positioning system (DGPS). This system is a two-piece GPS ensemble capable of measuring within millimetres the distance to the orbiting GPS satellites and consists of a base unit (stationary) and a rover unit (mobile).

The base unit is established over known survey control stations and transmits satellite corrections to a rover unit. The rover GPS antenna is located on the top of the survey pole established at Reid Shaft head-frame. By receiving the base GPS correctional signal, the rover unit is capable of 10 mm and 15 mm relative accuracy from the base in the horizontal and vertical directions respectively. The GPS unit is regularly checked for calibration.

11.5 Down-hole Surveys

Down-hole surveys since 1995 at Red Lake have been conducted in a systematic manner with a Gyroscopic survey instrument (unaffected by magnetics) used for drill holes steeper than 70°, and a Reflex Maxibor survey instrument used for drill holes with flatter dips. Site specifications require down-hole surveys at 30 m intervals or less. In the earlier stages of the mining operation, Sperry Sun multi-shot, Icefield multi-shot, Light-Log and Tropari instruments were also used, but the Gyro and Maxibor units have replaced this instrumentation.

Downhole surveys at the Campbell Complex have utilized Reflex and Ranger electronic compass single-shot surveys tests. Most of the drill holes greater than 120 m are surveyed using the Maxibor method. Prior to that, Pajari test instruments were used, which provided azimuth and dip orientations. Sperry Sun multi-shot instruments were used on deep (> 300 m holes) for a period from the early 1980s to the late 1990s. Pre-1980 and into the 1990s, drill hole inclination was derived using “acid tests”. This type of testing has been replaced by Reflex surveys.

Down-hole surveying on both complexes (since 2006) utilizes a combination of testing equipment that can include Reflex, Maxibor and north-seeking gyro, depending on the depth of the drill holes.

The QPs note that due to the age of the operation, and the time span of drilling on the Project, there are a few drill holes where there is doubt about the intercept location. However, statistical tests of the drill results performed to date indicate that any location errors in drill holes that support estimation of Mineral Resources or Mineral Reserves are not material. Mining to-date has not encountered any problems with mis-located drill intercepts and ore outlines conform well to the outlines.

Goldcorp continues to re-survey holes that appear to have location or downhole problems; however, the deviation in the drill holes is generally small and predictable.

11.6 Recoveries

Core quality is very high in both the Red Lake and Cochenour Complexes, with core recovery on average >95% on all core sizes. There are no areas where poor recovery is consistently encountered.

11.7 Drill Spacing

Currently, exploration drill data spacing for the Red Lake Complex range from 45 m to 100 m. In development and stope areas, underground drilling infills this spacing to approximately 7.5–15 m x 7.5–15 m. Intercept spacing is variable due to the irregular location of drill sites and the complex distribution of the mineralized zones.

In the Western Discovery Zone and Bruce Channel deposit areas, the exploration programs are currently delineating the mineralization on a drill spacing of approximately 100 m x 100 m.

Example drill intercepts for the deposits are summarized in Table 11-5, and are illustrative of nature of the mineralization. The example drill holes display the ranges of gold grades and mineralization thicknesses that can be encountered in the Project area.

Table 11-5: Drill Hole Intercept Summary Table

Deposit	Hole ID	From (m)	To (m)	Drill Intercept Interval (m)	Gold Grade (Au g/t)
High Grade Zone(HGZ)	D43088	349.39	349.69	0.30	80.08
		349.69	350.06	0.37	429.15
		350.06	350.61	0.55	5.38
		350.61	351.22	0.61	27.16
		351.22	351.83	0.61	20.68
		351.83	352.44	0.23	7.85
FW	45L154	233.93	234.57	0.64	1.51
		234.57	235.00	0.43	26.40
		235.00	235.49	0.49	1.47
		235.49	235.88	0.40	36.96
		235.88	236.22	0.34	1.37
Far East	16L1394	21.71	22.04	0.34	0.03
		22.04	22.29	0.24	9.98
		22.29	23.11	0.82	1.03
		23.11	23.54	0.43	62.50
		23.54	23.72	0.18	0.03
		23.72	24.09	0.37	7.30
		24.09	24.39	0.30	0.03
Surface	DS865	509.15	510.67	1.52	0.03
		510.67	512.20	1.52	0.69
		512.2	513.72	1.52	0.17
		513.72	515.24	1.52	0.31
		515.24	516.77	1.52	1.03
		516.77	518.29	1.52	0.27
		518.29	519.82	1.52	1.09
		519.82	521.34	1.52	2.06

Deposit	Hole ID	From (m)	To (m)	Drill Intercept Interval (m)	Gold Grade (Au g/t)
		521.34	522.87	1.52	3.39
		522.87	524.39	1.52	6.00
		524.39	525.91	1.52	4.83
		525.91	527.44	1.52	3.09
		527.44	528.96	1.52	2.13
		528.96	530.49	1.52	0.03
Cochenour -	20L5003	24.24	24.8	0.56	82.13
Underground		58.5	60	1.50	49.33
		64.1	70.65	6.55	27.89
		86.35	88	1.65	5.45
		104	109	5.00	4.01
		136.13	136.38	0.25	13.51
		140.9	141.5	0.60	99.54
		212	213.87	1.87	3.95
		220.4	220.9	0.50	4.56
		224	225	1.00	8.27
		280.35	281	0.65	4.09
	20L5004	22	23.85	1.85	5.63
		34	35.5	1.50	30.47
		53.75	58.5	4.75	2.37
		74	74.6	0.60	3.08
		78	79	1.00	3.75
		82.65	83.1	0.45	6.23
		103.7	105.7	2.00	4.15
		137	138	1.00	3.13
		188.5	188.9	0.40	5.26
		197.26	198.15	0.89	5.14
		205.4	207.25	1.85	3.95
		263.15	267.5	4.35	1.83
		272	273	1.00	19.15
		278.45	279.2	0.75	4.56
		329	330	1.00	42.72
		339.75	341.5	1.75	11.06
		348	350	2.00	106.51
	20L5021	160	166	6.00	4.62
		566	567	1.00	3.56
		823	824	1.00	3.17
		828	844	16.00	33.22
		852	854	2.00	4.74
		860	862	2.00	3.88
		873	875	2.00	3.24
		880	881	1.00	5.72
		890	891	1.00	4.86

Deposit	Hole ID	From (m)	To (m)	Drill Intercept Interval (m)	Gold Grade (Au g/t)
		902	912	10.00	9.55
	20L5025	122	123	1.00	18.17
		140	141	1.00	3.88
		146	147	1.00	5.48
		154	155	1.00	11.30
		160	161	1.00	8.49
		181	182	1.00	46.67
		205	206	1.00	15.85
		239	240	1.00	15.43
Cochenour - Surface	CW10112A	784	785	1.00	48.73
		954	955	1.00	75.97
		1063	1064	1.00	5.54
		1151	1152	1.00	5.99
		1161	1163.1	2.10	3.59
		1170	1173	3.00	8.08
		1298	1299	1.00	6.32
		1317	1318	1.00	3.86
	CW10112B	1068	1071	3.00	6.77
		1169	1170	1.00	4.09
		1177.5	1182	4.50	40.29
		1190	1192	2.00	8.67
		1261	1262	1.00	4.30
		1307	1311	4.00	2.15
		1315	1316	1.00	5.06
Cochenour - McKenzie Red Lake Area	CW10114	580	581	1.00	4.03
		680.5	681	0.50	8.14
		1540	1541	1.00	4.46
		1676	1679	3.00	17.70
Cochenour - Western Discovery	WD10009	638	639	1.00	57.67
	WD10009	671	671.5	0.50	5.53
	WD10015	168.5	169	0.50	4.31
	WD10015	338.2	338.7	0.50	77.18
	WD10015	449.8	450.3	0.50	6.03

Note: Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths.

11.8 Comment on Section 11

In the opinion of the QPs, the quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration and infill drill programs are sufficient to support Mineral Resource estimation as follows:

- Core logging meets industry standards for gold exploration;
- Collar surveys have been performed using industry-standard instrumentation;
- Down-hole surveys were performed using industry-standard instrumentation. A number of different instruments have been used over the life of the mines. Information from mining activities indicates no material errors are resulting from any mis-located drill data;
- Recovery data from core drill programs are acceptable to allow reliable sample data for estimation purposes;
- Depending on the dip of the drill hole, and the dip of the mineralization, drill intercept widths are typically greater than true widths;
- Drill orientations are generally appropriate for the mineralization style, and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit areas;
- Drill hole intercepts as summarized in Table 11-5 appropriately reflect the nature of the gold mineralization, and include areas of higher-grade intervals in low-grade drill intercepts;
- No factors were identified with the data collection from the drill programs that could materially affect estimation accuracy or reliability (see also Sections 12 and 14).

12.0 SAMPLING METHOD AND APPROACH

12.1 Geochemical Sampling

Geochemical samples were collected during early-stage exploration on the Project and are superseded by drill and production data.

12.2 Core Sampling

Until July 1998, all identified mineralized structures at the Red Lake Complex were sampled by taking half core that was split using a diamond saw. Geologists marked the core split using a lumber crayon optimizing the mark on the core to bisect the ellipse of the suspected mineralised structure equally. The remaining half core was saved for future reference, part of which was used for metallurgical testing. All exploration drill core is still split at the core facility and half of it is stored in the core library on site. However, since production recommenced at Red Lake in 2000, all detailed infill (definition) drilling holes are sent as whole core for assaying. Whole core is often submitted where a deposit contains coarse gold.

Until 1999, sample lengths at the Campbell Complex were typically in the 0.6–1.0 m range, and usually shorter in the higher grade sections. Low-grade rock and waste were typically sampled over 0.6–1.5 m lengths, averaging 0.67 m, while very high-grade sections were sampled over 15 cm to 60 cm intervals for BQ and NQ core, and 0.90 m for smaller AQ/AQTK core, except where significant geological differences were present, these normally being narrow, high-grade occurrences. Campbell Complex core was split using a mechanical splitting machine until approximately 1988–89. After that point a core-cutting diamond blade saw was used. Presently a high percentage of core sent out for assaying is whole core. A certain amount of core is cut and retained. This core in recent years has been from select deep high grade zone drilling and surface drilling.

Core was (and is being) split in both complexes in such a way that host rock, veins/mineralization that are visible are, and were, oriented to give as best as possible equal halves. Pre-1990s core was typically smaller in diameter that present day NQ core, and not as much was retained.

A variety of core that was drilled from various locations from surface and underground from Campbell and Red Lake Complexes is stored on surface at the sites. Two examples of this are core from High Grade Zone drilling and selected surface reference holes from 2008, 2010 drilling that was completed under the Balmer town site. Historical core from pre-town site drilling in the 1940s and1950s no longer exists.

12.3 Production Sampling

Muck and chip sampling is performed on a blast by blast basis by the production geology team, while muck sampling is done by the miner during the mucking process. Muck samples are used to provide a general guide and back-up information for day to day operation, while test holes are required to ascertain that no mineralization is missed in the walls of the stope.

12.3.1 Chip Sampling

All chip samples are taken either by a geologist or an experienced sampler. A weighted-average grade is determined for each blast based on the assay results of those samples influencing the grade of the volume blasted. These samples are most often collected at the mid-lift elevation. Occasionally, wall samples are also used to determine grade when the geometry of the vein dictated this usage. The volume used to calculate the blast grade is the estimated volume preceding the face.

Although sampling guidelines are such that geologic boundaries are to be respected, the minimum sampling chip recommended is 0.15 m. Where possible, 0.6 m channel chips are preferentially taken, in an effort to duplicate the optimized drill sample interval of 0.6 m. Production chip samples typically weigh about 1 kg.

Samples along the chip sample string bracketing the mineralized structures are carefully taken to assist in the modeling of mineralized structures. Computerized modeling is facilitated by snapping to the grading selvage in contact with waste when the geologist is wire-framing a three-dimensional solid interpretation of the of an ore lens.

12.3.2 Muck Sampling

Muck samples are taken extensively during mining, and are collected from the majority of the ore blasts during silling and subsequent mining. On average, at both complexes one muck sample is taken for every 20 tons of ore. At the Campbell Complex muck samples are used for reconciliation whereas at the Red Lake Complex chip samples are the predominant assay type used in reconciliation.

12.3.3 Test-hole Sampling

Test-hole sampling is used at the mines as a grade control tool only. Generally, test holes are 2.4 m long and three samples are collected from each. Test-hole results are used only to identify economic mineralization in the walls of drifts and stopes and are not used to estimate grade. This information may result in further extraction, as required, to recover additionally-defined mineralization.

12.4 Quality Assurance and Quality Control

The quality assurance and quality control (QA/QC) programs for the Project are discussed in Section 13.

12.5 Specific Gravity Determinations

12.5.1 Red Lake Complex

Historically a specific gravity (SG) of 2.91 (11.0 ft^3 per short ton (st) has been used at the Red Lake Complex.

In 1999, specific gravity determinations were made for 130 ore intercept composites from the HGZ. ALS Chemex Laboratories Ltd. (ALS Chemex) of Mississauga used the pyncnometer method for these determinations. The bulk of the specific gravity measurements range between 2.85 and 3.25, depending on the grade.

The average specific gravity of the composites is 2.98 which is the specific gravity used to estimate mineral resources for the HGZ.

12.5.2 Cochenour Project

During completion of the resource estimation on the Cochenour Complex, a specific gravity of 2.91 was used for all zones except the Western Discovery Zone. Selection of the value was based on a number of reviews, including

- Past work by Inco Exploration Technical Services which utilized tonnage factors of 10.8 ft^3/st to 11.2 ft^3/st
- Subsequent review by Strathcona Minerals electing to use 11 ft^3/st (SG = 2.91) for mineralization and waste.

During 2010, Goldcorp completed specific gravities on 20 samples from the Cochenour Complex. Values ranged from 2.68 to 3.51, with an average of all samples returning 2.98. The range of SG values is similar to the range returned from the 1999 HGZ program at the Red Lake Complex.

Based on the historic and more recent work a decision was made to use 2.91 for estimation purposes.

12.5.3 Western Discovery Zone

For the Western Discovery Zone a specific gravity of 2.7 was selected for the mineral resource estimation purposes based on examination of lithologies, alteration and mineralization observed in the drill core (Pressacco, 2004).

12.6 Comment on Section 12

A description of the geology and mineralization of the deposit, which includes lithologies, geological controls and widths of mineralized zones, is included in Section 7 and Section 9.

A description of the sampling methods, location, type, nature, and spacing of samples collected on the Project is included in Section 10 and Section 12.

A description of the drilling programs, including sampling and recovery factors, are included in Section 11 and Section 12. All collection, splitting, and bagging of core samples were carried out by company personnel, with the company and personnel varying depending on the date of the drill program. No factors were identified with the drilling programs that could affect the reliability of the sample data used for Mineral Resource estimation.

Figures 11-1 and 11-2 in Section 11, which show drill hole collar locations, indicate that the sizes of the sampled areas are representative of the distribution and orientation of the mineralization.

Table 11-5 shows that drill hole assay intervals include areas of non-mineralized and very low grade mineralization, and confirm that sampling is representative of the gold grades in the Red Lake and Cochenour Complexes, reflecting areas of higher and lower gold grades. Figure 10-2 and Figure 10-5 show the orientations typical of underground drilling, where a fan of drill holes are completed from a single drill platform to intersect the mineralization.

In the opinion of the QPs, the sampling methods are acceptable, meet industry-standard practice, and are acceptable for Mineral Resource and Mineral Reserve estimation and mine planning purposes, based on the following:

- Sample data used in estimation include core and underground samples;
- Data are collected following industry-standard sampling protocols;

- Sample collection and handling of core was undertaken in accordance with industry standard practices, with procedures to limit potential sample losses and sampling biases;
- Sample collection from underground typically consists of muck and chip sampling. Collection and handling procedures are in accordance with industry standard practices, with procedures to limit potential sample losses and sampling biases;
- Core data are verified against the chip and muck samples;
- Sampling of drill core is typically restricted to a maximum of 1 m, and typically averages 60 cm. Where sampling is over narrower intervals this is guided by geology (i.e. lithological contacts, mineralization, veining);
- Production sample intervals are taken so as to mimic the core sampling, and are typically also 60 cm in length;
- A standardized specific gravity value of 1.91 is used for the Cocheneur and Red Lake Complex deposits. This value is primarily based on mining experience gained from the deposits, with support from a selection of pyncnometer measurements on HGZ material at the Red Lake Complex in 1999, and measurements on 20 samples from the Cochenour deposit in 2010.

13.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

From Project inception to date, Project staff of the operator at the time were responsible for the following:

- Sample collection;
- Core splitting;
- Preparation of samples for submission to the analytical laboratory;
- Sample storage;
- Sample security.

Project staff have also been responsible for Red Lake–Campbell Complex run-of mine assaying during the period 1949 to present, which was performed in the mine site laboratories.

13.1 Analytical Laboratories

Table 13-1 summarizes the laboratories used for the Project. Due to laboratory acquisitions and mergers, only the current name for the laboratory group is displayed in the table, not the name of the laboratory at the time the work was performed.

Table 13-1: Laboratory Summary Table

Laboratory	Year From	Year To	Sample Types Analysed	2008 (%)	2009 (%)	2010 (%)	Three-year total (%)
Red Lake and Campbell Complexes							
Accurassay	2008	Present	Currently using for all surface core and some exploration	29.6	18.3	32.8	27.3
Actlabs	2009	Present	Currently sending a portion of exploration samples		4.1	0.2	1.3
ALS Chemex	1996	2008	Exploration and surface samples	10.9			3.8
Campbell Laboratory	1949	Present	Campbell Complex mine production samples and most definition	26.9	42	46.5	38.3
Goldcorp	1949	1996	mine production samples and all core				
SGS	1996	Present	Red Lake Complex mine production samples and some exploration and definition samples	32.7	35.6	20.6	29.3
TSL	2000	2005	Exploration samples				
Western Discovery Zone and Bruce Channel							
SGS	2004	2006	Exploration samples				
ALS Chemex	2004	2006	Check assays				
Accurassay	2004	2006	Check assays				
Cochenour							
Accurassay	2006	present	Exploration and surface samples				
Actlabs	2006	present	Exploration and surface samples				

ALS Chemex	2006	present	Exploration and surface samples

The Campbell and Red Lake run-of-mine laboratories primarily performed day to day assays for mining operational purposes; however, exploration core has also been processed through the laboratories. Neither laboratory has held ISO accreditation.

All remaining laboratories used for Project analytical data have held ISO certifications since 2001; it is not known what certification was held prior to that date.

SGS became an ISO/IEC:17025 accredited laboratory in 2005. Accurassay was accredited to ISO/IEC 17025 in 2002. ALS Chemex and Actlabs both currently hold ISO17025 accreditations.

From 2000–2010, the in-house laboratory at the Campbell Complex has typically processed definition core and performed day to day assays. Exploration core for the Campbell Complex has been processed by offsite laboratories since 2002–2003.

Samples prior to 1995 were fire-assayed by Goldcorp's onsite laboratory at the Red Lake Complex and make up the majority of the data included in the Sulphide Zones. Late in 1999, the primary assaying contract for exploration drill core was awarded to X-RAL in Rouyn Noranda. At the re-commencement of production from the Red Lake Complex in July 2000, X-RAL–SGS established a gold assaying facility in Red Lake that handled definition drill core and production assaying analytical services. Exploration drill core is also currently analyzed at the X-RAL–SGS Red Lake mine laboratory. When there are too many samples, the analytical work may be sent out either to SGS (Rouyn Noranda), TSL (Saskatoon) or ALS Chemex (Thunder Bay or Mississauga). In 2008, some samples were sent to Accurassay in Thunder Bay. In 2009, approximately 10,000 samples were shipped to Actlabs.

Samples from drill programs completed on the Bruce Channel, Western Discovery, and Gold Eagle areas by Southern Star and Exall in the period 2004–2006 used the SGS Laboratory in Red Lake for preparation and analysis. Check samples, consisting of 500 coarse rejects, were analysed by Accurassay and ALS Chemex, both located in Thunder Bay.

Samples from the drill programs completed by Goldcorp at the Cochenour Complex were submitted primarily to Accurassay in Thunder Bay. Actlabs and ALS Chemex acted as check laboratories.

13.2 Sample Preparation

Sample preparation for exploration and run-of-mine samples consists of drying as required, crushing, and selection of a sub-split which is then pulverized to produce a pulp sample sufficient for analytical purposes. Table 13-2 summarizes the preparation methods for the main laboratories used.

Production samples and drill core are kept separate in the mine site laboratories to reduce the risk of contamination.

13.3 Sample Analysis

Samples are typically analyzed using fire assay (FA) with a gravimetric or atomic absorption (AA) finish, depending on the anticipated grade of the sample. Table 13-3 summarizes the analytical methods used by the main laboratories.

In 2010, selected exploration drill core samples were submitted for inductively-coupled plasma (ICP) analysis as well as the regular FAAA/GRAV analysis.

A certain percentage of the Project samples were also selected for pulp metallic analysis.

13.4 Quality Assurance and Quality Control

Current Project protocol is to have at least 5% of the total sample volume submitted for assay as quality assurance/quality control (QA/QC) samples. One blank or standard reference material (SRM) sample is inserted each 20–25 samples. A geologist specifies whether a blank or SRM is to be used, together with the required SRM grade range. The Project currently utilizes six SRMs, which cover low, medium and high-gold grade ranges, and three types of blanks.

When a QA/QC sample fails, a re-run of the batch may be requested. At times, ten samples before the QA/QC sample and ten samples after the QA/QC are sent for re-runs. Once assays are imported into the database, qualified geologists review the assay values and may also request reruns of specific samples if the result is not what was estimated.

Check samples have been added to the QA/QC program. Samples were selected from the laboratories and sent to a different laboratory for further analysis. In the past it was deemed unnecessary to undertake this step, due to the coarse gold in the HGZ and the resulting probability of high variability assays.

Table 13-2: Preparation Procedures

Laboratory	Procedure
Red Lake Complex run-of-mine laboratory	100% of dry samples are crushed to 75% passing 2 mm with a preparation duplicate every 20th sample. Crushed sample is split to 250 g with visual inspection and compressed air cleaned, with coarse blank between samples if any contaminates are visible. The samples are then pulverized to 85% passing 75 µm with a silica sand wash between samples
Campbell Complex run-of-mine laboratory	Dry samples are crushed to –6.35 mm by the jaw crushers and split through the riffle splitter into two parts (rerun and reject +100 g minimum). The sample is pulverised to -100 mesh and placed with the tag in a mixing can on the sample tray. Pulverisers are cleaned with air between samples to eliminate contamination between samples. Visible gold samples are crushed and the whole sample is pulverised in a TM ring pulverizer, then submitted for fire assay
SGS Red Lake	Samples were passed through a jaw crusher where the core was reduced to -10 mesh and a 250 g aliquot selected by means of a Jones Splitter. The coarse reject was retained for reference. The jaw crusher was air blown clean after every sample. The resulting riffle sample was then pulverized to a nominal -200 mesh using a bowl pulverizer that was cleaned using silica sands every second sample and was air blown clean after every sample. A screen analysis was conducted on the jaw crusher and bowl pulverizer products at the beginning and end of each shift.
Accurassay	Samples were passed through a jaw crusher where the core was reduced to -10 mesh and a 250 g aliquot selected by means of a Jones Splitter. The coarse reject was retained for reference. The jaw crusher was air blown clean after every sample. The resulting riffle sample was then pulverized to a nominal -200 mesh using a bowl pulverizer that was cleaned using silica sands every second sample and was air blown clean after every sample. A screen analysis was conducted on the jaw crusher and bowl pulverizer products at the beginning and end of each shift.

Table 13-3: Analytical Methods

Laboratory	Procedure
Red Lake Complex run-of-mine laboratory	Fire assay on a 30 g pulp with a gravimetric or atomic absorption (AA) finish. Metallic screen assay methods are completed at X-RAL–SGS in Red Lake for samples with visible gold or for samples where fire assay results reported more than 20 oz Au/ton.
Campbell Complex run-of-mine laboratory	Pulps are assayed by atomic absorption on a 5 g sample. If the assay is > 0.05 oz/ton on a core sample, a fire assay is done on the original sample and the reject is also assayed.
SGS Red Lake	Samples were assayed for the most part using a fire assay fusion with the gold content being determined by AA using a 30 g sample. Those samples found to contain greater than 10 g/t gold (the upper detection limit for the SGS FA-AA technique) were subjected to re-assaying using a fire assay fusion with the gold contents being determined by a gravimetric finish (FA-GV). Samples containing visible gold were assayed using the pulp-and-metallic method. The entire coarse fraction from the screen was assayed for its gold content using a FA-GV procedure. Three 30 gram aliquots were selected from the -180 mesh fraction and assayed for their gold content using a FA-GV procedure. The weighted-average gold grade from these four samples was subsequently reported.
Accurassay	All samples are analyzed using FA-AA using 30 g aliquot. Samples that returned >10 g/t Au were re-assayed using FA with a gravimetric finish.). Samples containing visible gold were assayed using the pulp-and-metallic method. The pulp-metallic method increases the sub-sample size to 1,000 g and collects the free gold within the system using a 150 mesh sieve. The sub-sample is pulverized to ~90% -150 mesh and subsequently sieved through a 150-mesh screen. The entire +150 metallic portion is assayed along with two duplicate sub-samples of the -150 pulp portion. Results are reported as a weighted average of gold in the entire sample.

The Red Lake Complex laboratory uses the following internal laboratory QA/QC procedure:

Each tray of 24 samples will contain the 21 company samples, blanks or standards and 1 lab blank, 1 reference standard and 1 duplicate. Copper is also added to 4 samples to ensure the trays do not get turned around during the handling process

The Campbell Complex laboratory QA/QC procedure is:

Each tray has a quartz blank, a duplicate assay and two quality control standards. If either the blank sample assays >0.01 oz/t, or the standard sample assays are outside ±10% of the certified mean, the entire sample tray is re-assayed.

The QA/QC for the Cochenour drill programs, including those for Bruce Channel and Western Discovery Zone relied upon the laboratory internal controls; no pre-laboratory QA/QC samples were employed. In 2010, submission of SRM and blank materials was instigated. Check samples were submitted to check laboratories during the Exall/Southern Ventures programs (2004–2006); these data indicated that no biases were evident in the original sampling and assaying. Since the beginning of 2010, 3–5% of the Cochenour Complex pulps generated from the primary laboratory are sent to another laboratory to verify analytical accuracy.

13.5 Databases

13.5.1 Red Lake Complex

Currently, geological data are stored on a SQL 2005 acQuire® database and accessed through the same geological software interface, as well as through the commercially-available modelling software Datamine®.

Assays are received electronically from the laboratories and imported directly into the database on a per-batch basis.

Drill hole collar and down hole survey data are reported electronically and imported directly into the database. The Reflex survey tool data are manually entered into the database. In all cases, a copy of the surveys is distributed to the geologist responsible for the program, and to the geology database technician.

Data are verified on entry to the database by means of in-built program triggers and validations within the mining/geological software. Checks are performed on surveys, collar co-ordinates, lithology data, and assay data. If any data errors are found they are investigated thoroughly and changed in the database only when the change is proven to be the correct data. A senior geologist always reviews and agrees with the data before any change is made.

Paper records are kept for all assay and QA/QC data, geological logging and bulk density information, downhole and collar coordinate surveys. All paper records are filed by drill hole for quick location and retrieval of any information desired. Assays, downhole surveys, and collar surveys are stored in the same file as the geological logging information. In addition, sample preparation and laboratory assay protocols from the laboratories are monitored and kept on file.

13.5.2 Cochenour Complex

In 2009–2010 the original Gold Eagle data was digitally re-coded and validated by Goldcorp staff for merging into the Cochenour Complex geological dataset for use in Mineral Resource estimation.

The majority of the Cochenour–Willans surface and underground mine drill holes were entered digitally by Inco into their proprietary BORIS system during the period 1988–1990. On purchase of the Cochenour–Willans assets, Goldcorp compiled/converted/translated and validated this data into a MS-Access®–Gemcom® based system.

With the onset of the 2002 drilling the Cochenour Complex has used two digital logging systems; a Logger-based system (in-house MS Access®/Gemcom®) and, since 2008, an acQuire® logging package. In 2007 the existing Cochenour and regional area drill hole data were imported into the acQuire® system.

Drill hole collar data are currently entered by the logging geologist along with any Reflex type downhole surveys. All other downhole surveys are entered electronically into the system via software routines.

13.6 Sample Security

Drill core sample security is maintained at the Red Lake–Campbell Complex and the Cochenour Complex through supervision of transport of the core from the underground/surface drill or sample site, through to the logging facility and to the in-house or external assay laboratories.

Chain-of-custody procedures consist of filling out sample submittal forms that are sent to the laboratory with sample shipments to make certain that all samples are received by the laboratory

13.7 Sample Storage

Assay pulps and crushed reject material are returned to the geology department, and stored on site.

Drill core is stored in wooden core boxes on steel racks in the buildings adjacent to the core logging and cutting facilities. The core boxes are racked in numerical sequence by drill hole number and depth.

The pulps and rejects from the pre-2009 drill programs conducted by Exall/Southern Ventures were kept in box crates and transported to the Cochenour site once Goldcorp acquired the property.

Prior to 2009, pulps and rejects were shipped back to the Cochenour site and then disposed of on an as-needed basis. Since 2009, rejects are stored at the laboratory site for 90 days, and then are disposed of. Pulps are stored for a period of six months offsite and then disposed.

13.8 Comment on Section 13

The QPs are of the opinion that the quality of the gold analytical data are sufficiently reliable (also see discussion in Section 14) to support Mineral Resource and Mineral Reserve estimation and that sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards as follows:

- Drill sampling has been adequately spaced to first define, then infill, gold anomalies to produce prospect-scale and deposit-scale drill data. Drill hole spacing varies with depth. Drill hole spacing in exploration areas of the Red Lake–Campbell Complex is approximately 45 m to 100 m. In development and stope areas, underground drilling infills this spacing to approximately 7.5–15 m x 7.5–15 m. Drill hole spacing typically increases with depth as the available mining levels and number of holes decrease, drill holes deviate apart, and is more widely-spaced on the edges of the deposits;
- Sample preparation for samples that support Mineral Resource and Mineral Reserve estimation has followed a similar procedure since 2006 when Goldcorp became overall Project operator, and has been essentially similar to the post-2006 preparation procedure since 2001. The preparation procedure is in line with industry-standard methods for gold deposits that have coarse, visible, gold and a high nugget effect;

- Core drill and underground samples were analysed by a combination of independent laboratories and the Red Lake and Campbell Complex run-of-mine laboratories, using industry-standard methods for gold analysis. In general, exploration and infill core programs were analysed by independent laboratories using industry-standard methods for gold analysis from 2001. Earlier drill programs were analysed by the run-of-mine laboratories. Current run-of-mine sampling is performed by the mine laboratory, which is operated independently of Goldcorp;
- There is limited information available on the QA/QC employed for the earlier drill programs; however, sufficient programs of reanalysis have been performed that the data can be accepted for use in estimation;
- Typically, Goldcorp drill programs since 2006 on the Red Lake and Campbell Complexes included insertion of blank and SRM samples. The QA/QC program results do not indicate any problems with the analytical programs, therefore the gold analyses from the core and underground sampling are suitable for inclusion in Mineral Resource estimation;
- QA/QC data for the Cochenour Complex have relied on the laboratory internal QA/QC controls. No evidence of analytical bias is evident from this work. In 2010, a conventional SRM/blank QA/QC program was instituted;
- Data that were collected were subject to validation, using in-built program triggers that automatically checked data on upload to the database. Data are also verified against the original hard copy monthly reports, as well as in other software packages;
- Verification is performed on all digitally-collected data on upload to the main database, and includes checks on surveys, collar co-ordinates, lithology data, and assay data. The checks are appropriate, and consistent with industry standards;
- Sample security has relied upon the fact that the samples were always attended or locked in the on-site sample preparation facility;
- Chain-of-custody procedures consist of filling out sample submittal forms that are sent to the laboratory with sample shipments to make certain that all samples are received by the laboratory;
- Current sample storage procedures and storage areas are consistent with industry standards.

14.0 DATA VERIFICATION

14.1 Laboratory Inspections

Goldcorp personnel regularly conduct mini-audits of the laboratories used. With the daily importing of digital assay certificates, data entry personnel identify and resolve problems as necessary including reruns of the batches. Yearly and quarterly QA/QC statistics with charts are created for a standard review of each laboratory. These programs have indicated no concerns with analytical quality.

Visits to the various laboratories to conduct a “mini-audit” are also part of the QAQC program. During the visit, employees are observed to ensure that laboratory policies and procedures are being followed. Equipment is also inspected to ensure they are maintained, in good working order and any issues (i.e.: cracks in riffle splitters, dents/cracks in the crusher or pulverizer pans, excessive dust etc.) are brought to the attention of the appropriate laboratory manager.

14.2 QA/QC Verification

Daily QA/QC is undertaken to ensure the assays being imported into the database are correct. Mine and exploration geologists are required to review the assays and approve or reject them if deemed necessary. Charts and data are examined and reruns are requested where necessary.

Bi-weekly reports hi-lighting differences between the estimated grade of samples logged and the actual result are sent to each geologist. This report gives the geologists another opportunity to review the assays pertaining to their drill program or production sampling, ensure they are acceptable, approve or reject and if needed, request reruns from the appropriate laboratory.

Monthly reports, which outline any studies that have been conducted, charts, graphs, recommendations and results as well as quarterly reports are compiled on the QAQC of all the laboratories used by the Project. These reports include charts and graphs of QA/QC samples and laboratory duplicates, explanation of samples which failed QA/QC and identification of problems and their resolution.

Assay data undergo a QAQC check upon database import which identifies possible errors to investigate. Hard-copy assay certificates are also compared with the electronic file issued by the laboratory to ensure the correct results are reported in both hard-copy and digital records.

14.3 Project Audits

A number of data verification programs and audits have been performed over the Project history, primarily in support of technical reports.

14.3.1 Micon Technical Reports, 2004, 2006

Micon staff reviewed available data in support of technical reports prepared in 2004 and 2006 for Exall/Southern Ventures (Pressacco, 2004; Lewis 2006a, 2006b).

2004

The 2004 report (Pressacco, 2004) reviewed check assays, comprising about 9% of the then database on the Western Discovery Zone. Micon concluded that both the ALS Chemex and Accurassay laboratories reported gold values greater than those values reported by SGS, indicating SGS assay data were slightly conservative for those gold values below 3 g/t Au. Micon observed:

Micon has reviewed the sample collection, sample preparation, security, and analytical procedures that were followed during the 2004 diamond drilling program at the Western Discovery Zone. It concludes that the procedures followed conform to the highest of industry standards currently in effect and that these procedures are adequate to ensure a representative determination of the gold contents of any intervals of veining or alteration that were observed in the drill core.

Micon took seven independent samples from half drill core from the Western Discovery Zone and submitted these for analysis to the ALS Chemex facility in Mississauga. On review of the results, Micon stated:

Micon is satisfied that its check samples have confirmed the presence of gold in the selected samples of drill core in approximately the same range as originally determined by SGS Minerals Services.

In preparation for the 2004 Mineral Resource estimate, Micon reviewed the core from a small number of drill holes to confirm the accuracy of the lithologies, alteration, and mineralization noted in the drill logs, to confirm the accuracy of any structural features noted in the drill logs, and to confirm the accuracy of the samples taken for assay. No major discrepancies were found during this exercise. Micon was satisfied that the Gold Eagle JV personnel demonstrated a good understanding of the lithological, alteration, mineralization, and structural settings of the property.

In addition, a total of 10 drill hole logs were selected for review, comprising approximately 30% of the number of drill holes that were contained in the property database for the Western Discovery Zone. The collar information, down hole survey information, lithology and assay information contained in the logs for each of these drill holes were compared to that which was entered in the database. A number of differences were noted between the information contained in the drill logs and that contained in the database; however, Micon concluded that these differences would not have a material impact upon the accuracy of the 2004 mineral resource estimate.

2006

Micon reviewed the data available from the existing drill programs (Lewis 2006a, 2006b), concluding:

Micon has reviewed the sample collection, sample preparation, security, and analytical procedures that were followed during the 2005 diamond drilling program on the Bruce Channel Zone. It concludes that the procedures followed conform to the highest of industry standards currently in effect and that these procedures are adequate to ensure a representative determination of the gold contents of any intervals of veining or alteration that were observed in the drill core.

Micon collected a total of seven samples of quarter-sawn drill core from selected intervals of five drill holes. These samples were selected so as to provide a representation of a range of gold grades and typical mineralization styles encountered in the 2005 drilling program at the Bruce Channel Zone. Conclusions were that:

Micon is satisfied that its check samples have confirmed the presence of gold in the selected samples of drill core in approximately the same range as originally determined by SGS Minerals Services.

14.3.2 External Audits

An external audit was performed in 2005, and again in 2007 by Watts, Griffis, and McOuat (WGM). The audits included:

- Reviewing and spot validating the database supplied by the Goldcorp mine staff;
- Checking zone interpretations, solid models and digitized boundaries on cross sections and level plans;
- Reviewing statistical analyses of the main zones to corroborate cutting/capping parameters;

- Spot checking of zone identification, composite grades and horizontal width calculations and transfer of this information into appropriate polygons for grade and tonnage estimation (where polygonal methods were employed);
- Checking zone calculations and totals completed outside of software (in 2005 and 2007, all final tabulations were performed using MSExcel® spreadsheets);
- Verifying classification and reporting of Mineral Resources and Mineral Reserves.

WGM did not verify information from drill logs or assay certificates, generate any new data or interpretations or perform an independent sampling program. WGM reviewed the QA/QC program and the logging and sampling/assaying procedures and concluded at the time of each audit that the database was in good order and that the procedures were to industry standards.

14.3.3 Internal Audits and Validation Checks

Validation checks are performed by operations personnel on data used to support estimation comprise checks on surveys, collar co-ordinates, lithology data, and assay data.

The database that supports Mineral Resource and Mineral Reserve estimation is validated using quality control routines in the acQuire® software program to check for gaps, overlaps and duplicate entries. The data then runs through a final check when the logging is performed and the data is set for approval. Datamine® is used as a final check to verify the location and accuracy of chip samples and drill holes.

Where errors are noted, the geologists fix the problem, prior to the database being used for estimation purposes.

14.4 Comment on Section 14

The process of data verification for the Project has been performed by external consultancies and Goldcorp personnel. Goldcorp considers that a reasonable level of verification has been completed, and that no material issues would have been left unidentified from the programs undertaken.

The QP, who relies upon this work, has reviewed the appropriate reports, and is of the opinion that the data verification programs undertaken on the data collected from the Project adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in Mineral Resource and Mineral Reserve estimation, and in mine planning:

- No sample biases were identified from the QA/QC programs undertaken;
- Sample data collected adequately reflect deposit dimensions, true widths of mineralization, and the style of the deposit;
- External reviews of the database have been undertaken in support of acquisitions, support of feasibility-level studies, and in support of technical reports, producing independent assessments of the database quality. No significant problems with the database, sampling protocols, flowsheets, check analysis program, or data storage were noted;
- Drill data are typically verified prior to Mineral Resource and Mineral Reserve estimation by running a software program check.

15.0 ADJACENT PROPERTIES

There are no adjacent properties that relevant to the Report.

16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

16.1 Metallurgical Testwork

16.1.1 Red Lake–Campbell Complex

Over the Project history, a significant number of metallurgical studies and accompanying laboratory-scale and/or pilot plant testwork have been completed. Studies included mineralogical studies, grindability and comminution testwork, bench and pilot plant flotation tests, thickener tests, reagent testwork,

Programs were sufficient to establish the optimal processing routes for the Red Lake–Campbell ores, were performed on mineralization that was typical of the deposits, and supported estimation of recovery factors for the various ore types.

16.1.2 Cochenour Complex

To date, metallurgical testing on limited numbers of samples indicates three main mineralization types:

- Upper Main;
- Grey (Low Sulphide);
- Grey (High Sulphide) zones.

Tests indicate that all three mineralization types can all be treated in the current Campbell process plant but the plant may have to be modified or expanded, depending on how much each zone contributes to the mill feed, to handle the larger amount of sulphide content which could significantly tax the current autoclave and leaching circuits.

Overall recovery of gold varied between 93% and 96% (Table 16-1) and for the purpose of Mineral Resource estimation a conservative estimate of 90% gold recovery was used.

Table 16-1: Cochenour Bruce Channel Test Data – Campbell Circuit Comparison

Parameter	Unit	Upper Main Zone	Grey Zone Low Sulphide	Grey Zone High Sulphide	Campbell Process Plant (typical values)
Head grade: Au	g/t Au	13.9	8.3	8.6	13
Sulphur	%	0.86	2.31	4.03	0.8
Gravity recovery	%	40	22	16	44
Flotation concentrate	g/t Au	228	45	24	140–180
Sulphur assay	%	10.9	13.1	14.1	12–16
Overall Laboratory Recovery	**%**	**93.6**	**94.2**	**97.5**	**95–96**

Testing indicated:

- Sulphur, and hence gold, recovery to a flotation concentrate will be more difficult with Upper Main Zone mineralized material due to more complex mineral associations;
- Upper Main Zone mineralized material will be more abrasive than the other mineralized material types due to the appreciably higher quartz content.

The Bond work index determinations showed that the Bruce Channel mineralization hardness can be described as moderate to moderately soft. Therefore the mineralized material should be readily processed in the existing grinding circuit at Campbell.

Relatively poor leach-only recoveries indicated that a refractory ore treatment process (autoclave) is required to achieve reasonable overall gold recovery.

The much higher sulphur and arsenic grades within the Cochenour Complex mineralization will result in significantly higher concentrate production levels, up to twice as much as the current Campbell Complex levels. There are a number of processing options that could be considered including:

- Alternative refractory ore treatment options such as ultra-fine grinding prior to intensive cyanidation;
- Expansion of the current autoclave;
- Off-site sale/processing of concentrate.

Additional metallurgical testing is required to:

- Establish the relative proportions of each mineralization type and the rate at which these mineralized materials would be mined;

- Investigate the variability within each mineralization type, especially with respect to sulphide sulphur content and Au:S ratio;
- Optimise the sulphur oxidation versus gold recovery relationship including the effects of concentrate P80 of the autoclave feed;
- Investigate alternative refractory mineralization treatment options, especially ultra-fine grinding with intensive cyanide leaching, as lower capital cost alternatives to accommodate likely peaks in the sulphur delivery schedule.

16.2 Red Lake Processing Complex

The original Red Lake mill was built in 1948, but was dismantled in early 2000, making way for a completely new mill. The new process facilities consist of three separate plants: the crushing plant; processing plant; and paste fill plant. Commercial production from the facilities began on January 1, 2001.

The crushing plant is a two-stage process which reduces underground ore from about 30 cm to 1 cm. Underground ore from a coarse ore bin is fed to a jaw crusher and sizing screen. Screen oversize is crushed in a cone crusher and screen undersize is conveyed into a fine ore bin as plant feed material.

Unit operations in the processing plant include grinding, gravity concentrating, cyanidation, carbon-in-pulp, carbon elution and reactivation, electrowinning, bullion smelting/refining, cyanide destruction, flotation, and concentrate handling. Three types of gold occur in the Red Lake Mine ore requiring these various unit operations.

Coarse gold is recovered from the ore via the gravity concentrating circuit. A portion of the ground slurry from the ball mill is fed to two Knelson concentrators which produce a gravity concentrate that is upgraded on a Diester table to a concentration of approximately 75% gold, and directly smelted into bullion. Bullion is then shipped to a refinery for later sale into the spot market.

There is an additional Knelson concentrator operating from a portion of the verti-mill product. The verti-mill was installed in 2007 to increase the grinding capacity of the mill. During 2010, the gravity circuit recovered 51% (265,641 ounces) of the gold from the processing plant feed.

Finer-grained gold is dissolved in the cyanidation or leach circuit in which sodium cyanide is introduced to the process stream. The leach circuit consists of four tanks each overflowing from one to the next. In the leach tanks the gold is dissolved from a solid state into solution. Gold is removed from solution and onto granular carbon particles in the carbon-in-pulp (CIP) tanks. Values from the carbon are removed in the carbon strip plant, in which a high-grade gold-bearing solution (loaded eluate) is generated. This loaded eluate, or pregnant solution, reports to two electrowinning cells where, under an applied voltage and current density, gold precipitates out of solution and back into its solid state as "cathode sludge". This sludge is also directly smelted into bullion for subsequent shipment to the refinery.

During 2010, 41% (220,228 ounces) of the gold contained in the processing plant feed was recovered in the cyanidation circuit.

The pulp discharging from the CIP circuit is pumped to the detox or Inco SO_2 circuit for cyanide destruction. The circuit consists of two tanks with mechanical agitation where air, copper sulphate and sulphur dioxide are added to rapidly oxidize the cyanide and convert it to a non-toxic cyanate that hydrolyses to ammonia.

The refractory component of the ore is gold that is extremely fine and locked in arsenopyrite and pyrite minerals (sulphides). During 2010, 6% (29,100 ounces) of the gold in the processing plant feed was contained in the sulphide concentrate. Conventional milling methods are not capable of recovering this type of gold. The Red Lake Complex processing plant employs a typical sulphide flotation circuit generating a bulk sulphide concentrate. This concentrate is pumped as a slurry to the Campbell Complex for processing in the autoclave.

The process stream (tailings) reports to the paste fill plant where most of the water is removed and the pulp is stored in a large stock tank. This material is either discharged to the tailings management area or sent underground for use as backfill. The paste fill plant is a semi-batch process, which implies that all aspects of the plant are continuous with the exception of the discharge of paste to the underground distribution system. In the paste fill plant a tailings filter cake is generated, binder (cement and fly ash) and water is added and mixing occurs. Once the proper consistency is achieved, the paste is discharged underground to flow by gravity to mined-out areas.

Figure 16-1 presents a schematic illustration of the Red Lake Complex process circuit.

16.2.1 Red Lake Mill Performance

During 2001 and 2002 improvements were made in the flotation circuit to increase the plant recovery to the 97% range. This was achieved in 2003, and has been maintained since. Figures 16-2 and 16-3 display the annual variation in feed ounces and recoveries from 2001–2009.

Figure 16-1: Red Lake Complex Flowsheet

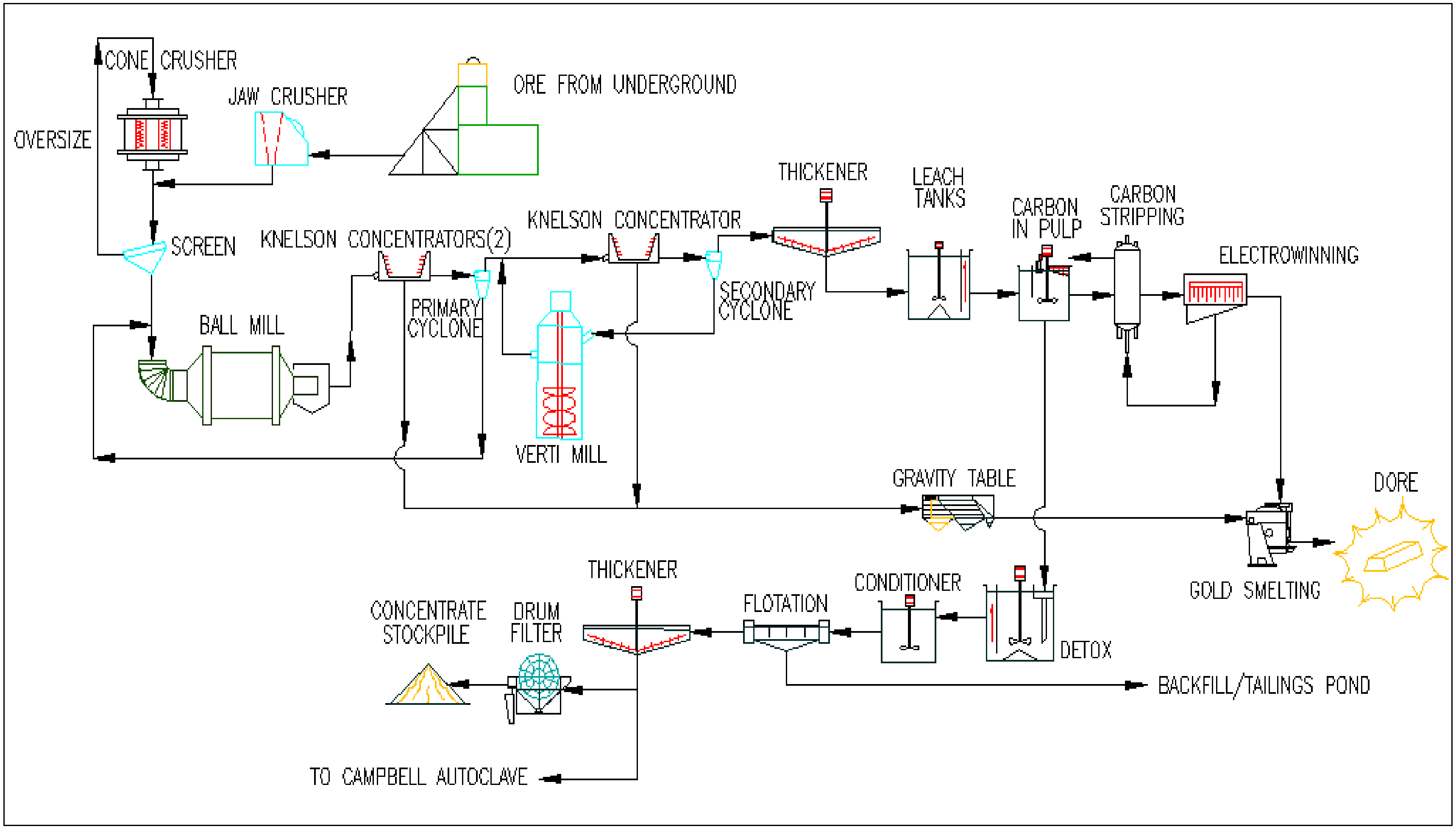


Figure 16-2: Red Lake Annual RLC Feed Ounces

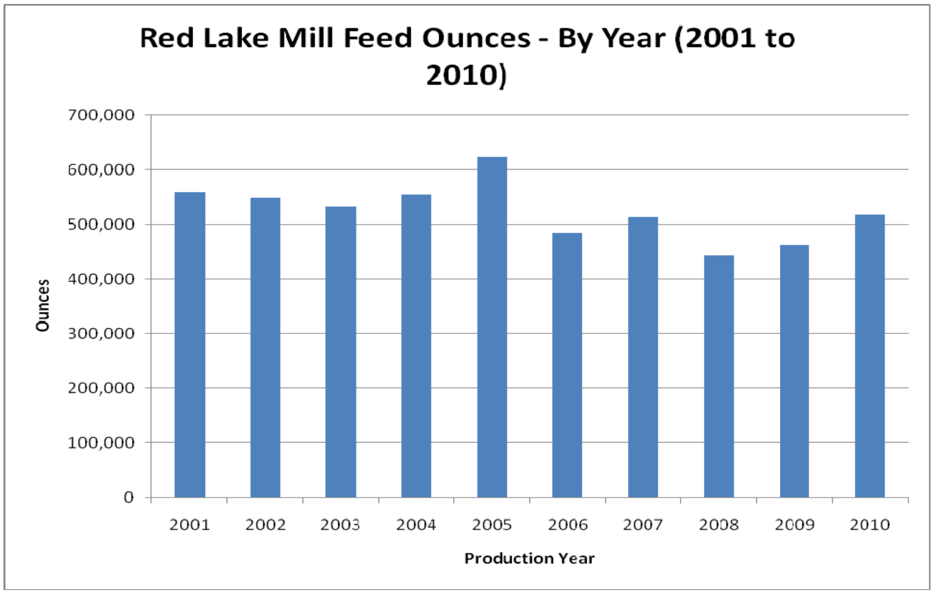
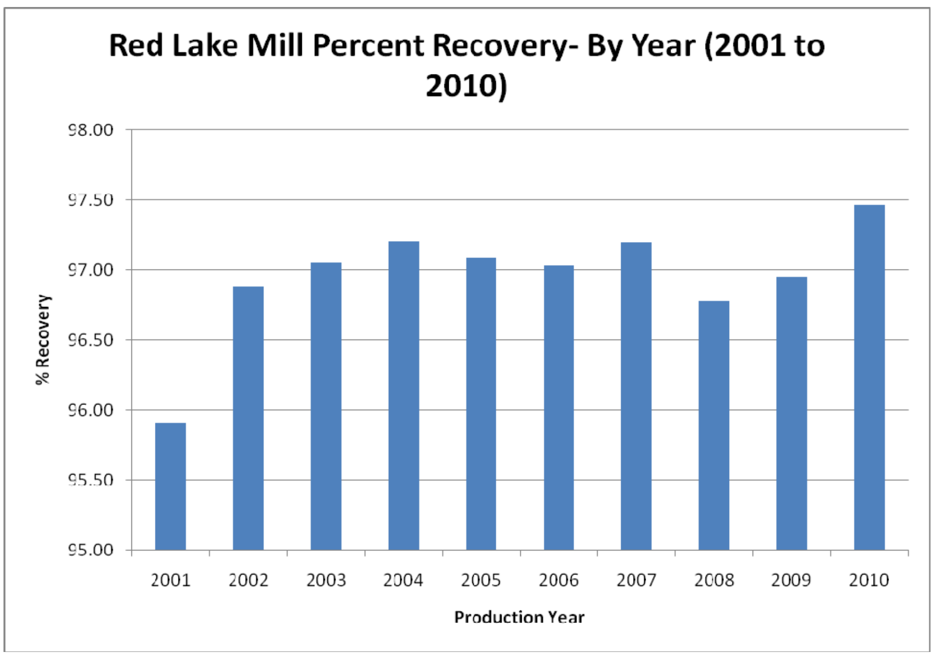


Figure 16-3: Annual Red Lake Complex Recovery Rates



At monthly peaks, the mill produced over 70,000 gold ounces which would equate to a production rate of approximately 850,000 ounces on an annualized basis. Normal recoveries of gold were achieved during those months. Such production numbers require a very high grade supply to the mill (>103 g/t or >3.0 oz/t) and are not achievable on a sustainable basis with the current Mineral Reserves and mine plan.

The Red Lake Complex mill was originally designed to process no more than 700 t/d. Levels of over 750 t/d have been achieved with no noticeable effect on gold recovery. However, at levels above 800 t/d, negative impacts were observed, consisting of a coarser grind and a resultant lower gold recovery. In 2007, an expansion to the mill was completed, which consisted of a reclaim facility to receive ore from the #3 Shaft, a new verti-mill, and upgrades to mill pumps and tanks. As a result, plant capacity is currently 1,250 t/d.

16.3 Campbell Complex

The Campbell Complex mill was designed to treat free-milling and refractory gold ore at a rate of 360 t/d in 1949. The throughput has been gradually increased over the years to the current 1,800 t/d.

Figure 16-4 shows the simplified mill flow sheet. Conventional crushing and grinding is followed by gravity concentration to recover free milling gold. Refractory gold, finely disseminated in the arsenopyrite and pyrite matrix, is recovered by flotation followed by pressure oxidation, neutralization and carbon-in-leach (CIL). This stream joins the non-refractory flotation tails and is recovered by cyanidation/CIP processing.

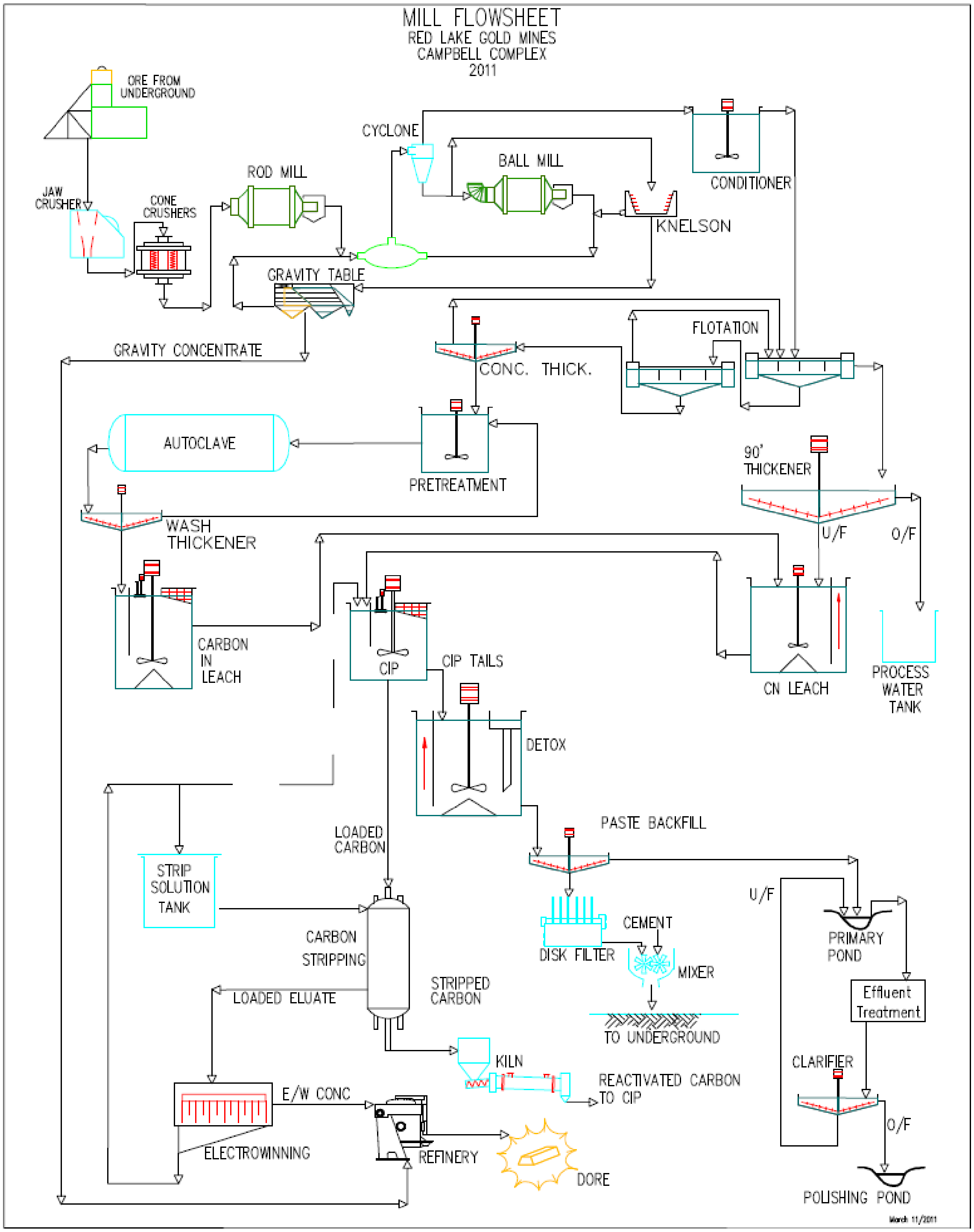
16.3.1 Crushing

The ore is hoisted from the Reid Shaft to a 1,500 t coarse ore bin. From there, it is transferred to a 250 t coarse ore bin located in the Campbell Mine head frame. The crushing plant consists of two Ross feeders, jaw crusher, standard cone crusher, short head cone crusher, Tyler double deck screen, variable speed short feeder belt, and six conveyors.

A 19 mm product is produced in three stages of crushing at an average rate of 140 t/hr. A jaw and standard cone crusher operates in open circuit and a short head cone crusher operates in closed circuit with an 18 mm vibrating screen. The closed side setting of the standard and short head cone crusher is approximately 19 mm and 15 mm, respectively.

Fine ore is conveyed to the mill by inclined conveyor discharging, via a conveyor, to a 3,100 t fine ore bin.

Figure 16-4: Campbell Lake Complex Flowsheet



16.3.2 Grinding and Gravity Circuit

Grinding is achieved in a two-stage rod/ball mill circuit. The ore from the fine ore bin is fed to the rod mill via two slot feeders and a conveyor. The grinding circuit consists of a 2.74 m x 3.8 m rod mill and 3.8 m x 4.7 m ball mill discharging, through trommel screens, into a common primary pump box. The slurry is pumped to a cyclo-pac with the cyclone overflow and underflow reporting to the flotation and ball mill, respectively. Two cyclones, one feeding each Knelson concentrator, are mounted on independent underflow boxes away from the cyclo-pac. These boxes are equipped with a concentrator feed inlet and an overflow return line to the primary pump box. The concentrator cyclones are fed from the cyclo-pac distribution manifold and the overflow returning to the cyclo-pac overflow launder.

The grinding circuit produces flotation feed with an average p80 size of 65 μm (84% passing 200 mesh) and pulp density of 35% solids by weight.

Shaking table concentration is carried out on the Knelson concentrate. The final gravity concentrate assaying 72–75% gold by weight is refined into bullion.

16.3.3 Flotation Circuit

The cyclone overflow is pumped to a conditioner tank. The slurry reports to a seven cell bank of Denver DR-500 rougher/scavenger cells. Concentrate reports to a four cell bank of Denver DR-100 cleaner cells. Cleaner tails are recycled back to the DR-500 cells and the final concentrate assays approximately 15% sulphur and is pumped to a 9 m concentrate thickener. The overflow from the concentrate thickener is recycled to the conditioner. The flotation tailing is transferred to a 27 m diameter thickener with the underflow sent to the flotation tails leaching circuit and the overflow to the process water tank. The reagents are stage added to the conditioner and junction box. A Courier 30XP on-stream analyzer is used to monitor and control the flotation performance.

16.3.4 Pressure Oxidation Circuit

The pressure oxidation circuit that replaced the roaster circuit in July 1991 was designed to treat 71 t/d of flotation concentrate or approximately 12.7 t/d of sulphide sulphur. Carbonate destruction prior to pressure oxidation improves the oxygen utilization in the autoclave. The thickened flotation concentrate (at 55% solids) is contacted with acidic solution (recycled first counter-current decant (CCD) wash thickener overflow) in the pre-treatment circuit consisting of six pre-treatment tanks with a total retention time of six hours. The recycled acid is generated by the oxidation of sulphides and reacts with the carbonates in the concentrate, evolving carbon dioxide. Fresh acid, 93% concentration by weight, can be added as required to maintain a discharge pH of not higher than 3.0.

The pre-treated slurry is transferred to an 11 m thickener with the overflow reporting to the waste treatment circuit. The underflow is mixed with recycled 1st wash thickener underflow before being pumped to the autoclave. The recycling of solids provides a heat sink for the exothermic heat of oxidation to assist in temperature control and prevents the agglomeration of elemental sulphur. Pressure oxidation is carried out in a five-compartment autoclave, the first large compartment having two agitators.

The slurry within the autoclave cascades from compartment to compartment. The level is controlled in the last compartment by regulating slurry discharge to an atmospheric pressure brick lined flash tower through a ceramic choke. Flashing of steam reduces the slurry temperature to about 100^{o}C. The slurry flows by gravity into a seal tank into which second wash thickener overflow is added to control the slurry temperature to 75^{o}C. The slurry is then pumped to a two-stage CCD wash circuit. The overflow from the first wash thickener is recycled to the pre-treatment circuit. The underflow is split, with a portion being recycled to the autoclave feed and the reminder pumped to the second wash thickener for washing with fresh water. The second wash underflow is neutralized with lime and transferred to an oxide carbon in leach circuit.

Cyanidation and carbon adsorption of the oxidised concentrate takes place in two CIL tanks with a retention time of 48 hrs each. The slurry is in contact with carbon at a concentration of 35 g/L. The leaching and carbon adsorption are not completed in this single stage circuit therefore the tails of the second CIL tank is combined with the flotation leach and CIP circuit.

16.3.5 Flotation Tails Leaching and Carbon-In-Pulp Circuit

Thickened flotation tailing (50% solids) is leached for 20–28 hrs. The leached slurry, a combination of oxide and flotation tails, is pumped into a train of six CIP tanks; each has a slurry retention time of 50 min. Carbon is transferred from the CIP #1 tank to the CIL tank to increase the carbon grade to approximately 9,000 g/t. Acid washing is performed using 5% by weight hydrochloric acid on every second batch of stripped carbon. The loaded carbon is stripped using 40 bed volumes of 1% caustic solution and 0.1% cyanide at 140^{o}C and 480 kPa. The stripped solution is pumped to the electrowinning cell for gold plating. The barren solution is recycled to the strip solution tank.

16.3.6 Cyanide Destruction

CIP tails flow to a cyanide destruction circuit, consisting of two mechanically agitated tanks where oxygen, copper sulphate, and sulphur dioxide are added to rapidly oxidize the cyanide and convert it to a non-toxic cyanate that hydrolyses to ammonia.

16.3.7 Paste Fill and Waste Treatment Circuit

After cyanide destruction, slurry is sent directly to the paste thickener. From there, it is pumped to two disc filters and mixed with cement and fly-ash to form a paste. The paste is pumped underground via a high-pressure piston pump. Any material which is not used to make the paste combines with acidic overflow from the pre-treatment thickener in the waste treatment circuit, which consists of a series of four agitated tanks. Lime is added to control the final discharge pH that is set at 8.5 to 9.0. At this pH, the formerly complexed metals precipitate out along with the other dissolved metals as hydroxides. The final tailings discharge to the main tailings pond.

16.3.8 Effluent Treatment Circuit

The effluent treatment circuit consists of two reaction tanks, a clarifier feed tank and hopper (double-V) clarifier. Between May and December each year, decant from the main tailings pond is pumped back to the mill for cyanide destruction and metals precipitation. Cyanide destruction is accomplished using the Inco SO_2/Air process in agitated and aerated tanks. Cyanide is destroyed in tank #1 at a pH of 9.0 and metals, primarily copper and nickel, are precipitated in tank #2 at a pH that varies from 9.5 to 11.0.

The treated solution is then transferred to a hopper clarifier with the overflow reporting to the settling pond. The sludge recovered from the bottom of the cone is partly recycled to the clarifier feed tank and the remaining material is sent to the waste treatment circuit.

16.3.9 Polishing Pond and Wetland

The polishing pond, commissioned in November 1995, consists of a 400,000 m^3 settling pond and 730,000 m^3 holding pond. A centre dyke separates these ponds. At a feed rate of 15,000 m^3 per day, the ponds have a retention time of 75 days. The hopper clarifier overflow discharges into the settling pond where the residual ultra-fine precipitates (complexed hydroxides) are settled before progressing to the holding pond. The pond is operated on a seasonal basis. During the warmer months, the water level is allowed to rise to the operating level at which time the discharge rate from the polishing pond is matched to the inflows to the pond. Natural degradation in the holding pond improves the quality of the water.

Since 2001, the discharge of the polishing pond is directed to a series of cells that are heavily vegetated with cattails. The water residence time is approximately two to three days in the wetland. The effluent quality is further improved with an 85% reduction in ammonia and 50% reduction in copper concentrations. The effluent meets all acute toxicity tests for rainbow trout and daphnia magna.

16.3.10 Campbell Mill Performance

Figures 16-5 and 16-6 show the annual variation in feed ounces and recoveries for the period 2001–2009 for the Campbell mill.

Figure 16-5: Campbell Complex Annual Feed (Ounces)

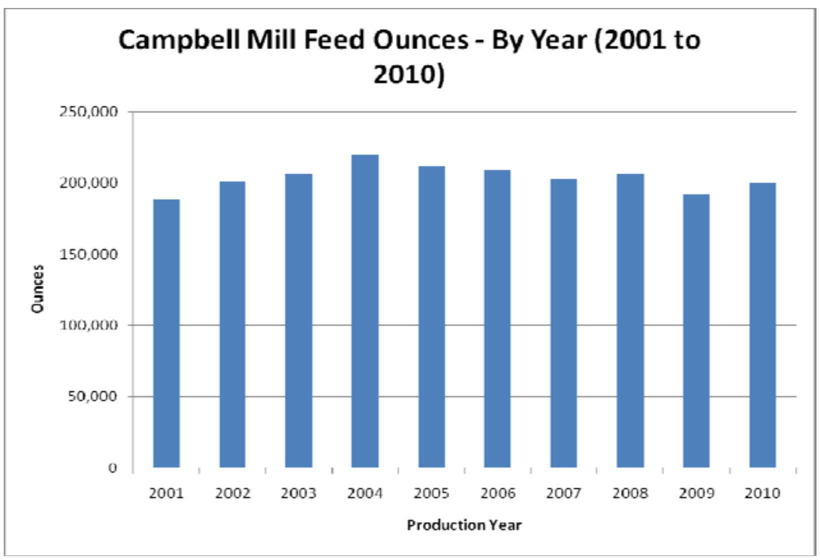
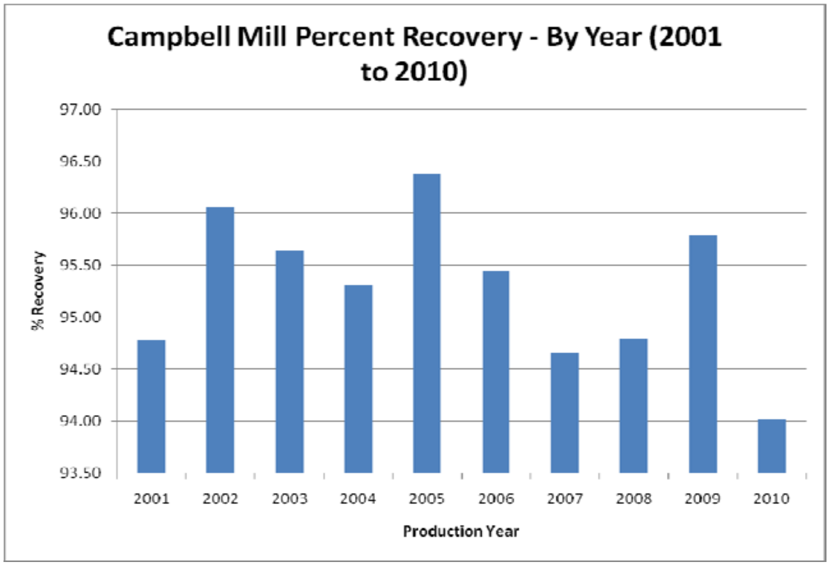


Figure 16-6: Campbell Complex Annual Recovery Rates



16.4 Recoveries

Mill capacities, with accompanying life-of-mine average recoveries are:

- Campbell Complex: 1,678T/d (1,850 t/d), 94.5% recovery;
- Red Lake Complex: 1,134 T/d (1,250 t/d), 97.0% recovery;
- Operation as a whole: 2,812 T/d (3,100 t/d), 96.5% recovery.

Depending on metallurgical type, average life-of-mine gold recoveries can range from 95.8% to 97.4% for the Red Lake Complex and from 94.0% to 96.4% for the Campbell Complex.

16.5 Comment on Section 16

In the opinion of the QP, the metallurgical test work conducted to date supports the declaration of Mineral Resources and Mineral Reserves based on the following:

- Recovery factors for the Red Lake Complex have been confirmed from production data;
- The metallurgical testwork completed on the Red Lake Complex has been appropriate to establish the optimal processing routes for the gold ores;
- Tests were performed on samples that were representative of the mineralization;

- Recovery factors are appropriate to the mineralization types and selected process routes;
- Recovery factors have been confirmed from production data;
- Ore hardness, reagent consumptions and process conditions are appropriately determined to establish process operating costs;
- The process routes use conventional technology;
- Regent consumption and process conditions were appropriately determined to establish process operating costs; these costs have been confirmed from production data, and are refined to suit actual operating conditions;
- Testwork on a limited number of samples from the Cochenour Complex indicate that the Campbell mill can be used to treat the mineralization types, and that a gold recovery of about 93% may be achieved.
- Additional testwork and trade-off studies are recommended for the Cochenour Complex deposits.

17.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

Mineral Resource estimates were prepared under the direction of Chris Osiowy, P. Geo, who is the Qualified Person (QP) for the Mineral Resource statements. Mineral Reserve estimates were prepared under the direction of Stephane Blais, P. Eng, which is the Qualified Person for the Mineral Reserves. Both QPs are Goldcorp employees, based at the Red Lake Gold Mines.

17.1 Mineral Resource Estimation

17.1.1 Databases

The Red Lake Complex drill hole database contains over 50,000 collar location records with related tables for down hole surveys, lithology, mineralogy, alteration, structure, raw gold assays and various composite gold assay tables. The database for interpretation contains records for grade and stope outlines that represent approximately 12,700 drill hole samples or mined-out areas. The interpretation polygons in the database have a three-dimensional (3D) location and contain information such as zone and drill hole identifiers, cut and uncut composite zone gold grades, horizontal widths and areas. The chip sample database contains over 140,000 records and has related location, geological, assay and other pertinent information.

Information on the Western Discovery Zone database is from Pressacco (2004):

The database was constructed in MS Access format using the Surpac version 5.0-J software package that contained 33 diamond drill holes (Pressacco, 2004). The survey table contained a total of 5,718 down-hole survey records and the assay table contained a total of 2,884 assay records.

17.1.2 Estimation Methodology

Red Lake Complex

Ore solids (wireframes) representing the mineralization envelopes (ore structures) were constructed in 3-D, utilizing both plan and section views during the creation process. The building and naming of ore solids are influenced by geology interpretations; lithological units, structures, faults and mineralization. Ore solids are constructed as undiluted in-situ solids.

Mineralized intercepts inside the different wireframes were selected from the drill hole database. Where appropriate, chip samples were also used.

Basic statistics are reviewed using a statistical software called Supervisor, reports of raw assays for each zone, histograms, probability plots, are saved by zone.

Basic statistics on normalized data are performed; histograms, probability plots and tables of metal loss content are evaluated in order to define the final grade caps to high-grade composites.

A total of 130 sub-zones were included in the Mineral Resource estimate for 2010. This total changes from year to year as new zones are discovered or as larger zones are split into smaller sub-zones as Goldcorp gets a better understanding of the geometry of the zones from mining and/or additional drilling.

The basic statistics for the assay intervals indicate the unique nature of the mineralization, with approximately 38% of the assays above 1 oz Au/ton (34.29 g/t Au). The population has a log normal distribution.

Cochenour Complex

The 2010 resource model was prepared using solids provided by RLGM staff. The solids were typically modeled at 2–3 m widths horizontally across strike (2 m minimum), and grouped into five zones, UMZ, NW Inco, EW Inco, Main, and Footwall.

Western Discovery Zone

Information on the Western Discovery Zone model is from Pressacco (2004). Six cross sections at a nominal 75 m spacing were developed, using a geochemical halo cut-off of 100 ppb Au. Outlines of the halos were digitized and three-dimensional solids created. Geochemically-anomalous gold values were defined along a distance of 490 m in an east–west direction, a distance of 370 m in a north–south direction, and along a height of 230 m.

17.1.3 Block Models

Block models for the Red Lake–Campbell Complex are defined by 2.4 m x 2.4 m x 2.4 m blocks with sub-blocks of 1.2 m x 1.2 m x 1.2 m as a minimum. An inverse distance squared algorithm was used for estimating block models in the High Grade Zone and some of the zones in the Campbell area. In addition, zones where no mining activity is taking place were estimated by inverse distance weighting.

The block model for the Cochenour Complex uses 3 m x 3 m x 3 m blocks, with no sub-blocks.

A centroid block model framework was created for the Western Discovery Zone with 37,215 blocks whose dimensions measured 15 m long x 15 m wide x 1 m thickness (Pressacco, 2004).

17.1.4 Grade Capping

Grade caps were selected for the Red Lake–Campbell Complex after examination of the assay data, and were influenced by mine reconciliation. Typically, the mean plus three standard deviations was used for most sub-zones within the Red Lake Complex HGZ.

A light capping (or top-cutting) was applied prior to compositing to all of the Cochenour Complex assays (except the Western Discovery Zone) to mitigate the effect of outliers. Assays were capped at 200 g/t Au.

Outlier samples at the Western Discovery Zone were capped at 70 g/t Au.

17.1.5 Compositing

Before cutting the high-grade assay values, the Red Lake Complex data are normalized to equal lengths. The length depends on the approximate average sample length within the mineralised zones, and is typically in the range of 1–2 ft (30–60 cm) per sample. Samples below 50% of the total length are excluded.

Compositing at the Campbell Complex is reviewed on a zone by zone basis, with the composite length variable within each zone and sample type (chip or drill hole). The composite interval is chosen to be approximately equal to the mean length or sample interval representing the largest cumulative length of the sampling. Composites typically range from 1.5–2 ft (45–60 cm).

Compositing at the Cochenour Complex was performed after grade top-cutting. Three-meter fixed-length composites were created within the mineralization solids.

Micon selected a length of 0.5 m as an appropriate composite length for the mineralization found at the Western Discovery Zone (Pressacco, 2004).

17.1.6 Estimation

Mineral resources for the Red Lake–Campbell Complex were historically estimated using polygonal methods. Since 2007 Goldcorp has undertaken to upgrade the estimation method to a more generally-accepted industry standard of 3-D block modelling techniques. For the year-end 2010 Mineral Resource estimate, more than

98% of the zones were estimated from block models. One hundred percent of the Mineral Reserves are based on block models for the 2010 estimate.

Inverse distance to the power of three (ID3) using anisotropic distance was used for grade estimation at the Cochenour Complex (excluding the Western Discovery Zone). For comparison purposes, interpolation was performed using both capped and uncapped composites. The final results are using capped composites. Hard contacts were used between zones (i.e., only composites that are within the zone are used to interpolate the blocks within that zone). Interpolation was performed in three passes, starting with a small search ellipse, and using a larger search ellipse in subsequent passes, but interpolating only blocks that have not been interpolated in previous passes.

The interpolation method for the Western Discovery Zone was inverse distance squared (ID2) weighting method for those blocks contained within the domain shells of the Western Discovery Zone, using composited drill hole data contained within those domains (Pressacco, 2004).

17.1.7 Search Ellipsoids

Search ellipsoids were defined for each of the Red Lake–Campbell Complex zones. In the HGZ, a minimum of three composites, and a maximum of 12 were used to inform blocks during the estimation process.

For the Cochenour Complex, estimation was performed in three passes, with differing numbers of samples required to inform each block. For Pass 1, a maximum of eight, and minimum of five samples were required, for Passes 2 and three, the minimum was one, and maximum was six and four respectively. All passes could have no more than two samples from any one drill hole.

Estimation at the Western Discovery Zone allowed a minimum of one, and maximum of five samples to inform a block.

17.1.8 Validation

Validation of each of the block models indicated that the models were suitable to support estimation.

17.1.9 Classification

Red Lake–Campbell Complex

Classification of the Red Lake–Campbell Complex Mineral Resources comprises:

- Measured Mineral Resources (Proven Reserves) require at least one or more mine openings to confirm continuity, usually with supporting diamond drill hole information. A Measured Mineral Resource block is projected halfway to the next data point or a maximum of 25 ft (7.6 m) above or below a drift and/or stope, on the basis of chip sampling plus diamond drill results where available.
- Indicated Mineral Resources (Probable Reserves consist of an additional projection of 25 ft (7.6 m) beyond the limits of the Measured Mineral Resources, but are more commonly based on diamond drilling. An Indicated Mineral Resource should show geological continuity and may be based on single blocks surrounded by an additional 25 ft (7.6 m) projection in all directions for the Inferred category.

The bulk of the Mineral Resources are drilled at a regular grid spacing of 7.6 m x 7.6 m. Irregularly-spaced drill holes may be grouped and averaged into less regularly-shaped blocks where necessary. Complex zones which are highly irregular are estimated by plan outlines and the calculated tonnage per vertical foot method is applied.

Inferred Mineral Resources have been estimated in various parts of the mine based on sparse drilling or projections beyond the Indicated Mineral Resource limits by an additional 7.6 m.

For the HGZ and surrounding areas, a longer search ellipse down the dip of the ore than the strike (greater continuity) was used to classify the Measured Mineral Resources, with a minimum of three samples and two different drill holes required to classify a block. Indicated Mineral Resources are classified on twice the size of the search ellipse and require a minimum of three samples. Inferred Mineral Resources are classified on three times the size of the ellipse and minimum of three samples inside the ellipse.

Cochenour Complex

Inferred Mineral Resources at the Cochenour Complex (excluding the Western Discovery Zone) were defined as all blocks with interpolated gold values that contained at least one composite of the same domain as the block within a 75 m x 55 m x 15 m ellipsoid.

Western Discovery Zone

Inferred Mineral Resources at the Western Discovery Zone were defined as those blocks that met a minimum cut-off grade of 4 g/t Au and were included within the respective three-dimensional domain outlines.

17.1.10 Dilution

Significant sources of dilution within the Red Lake-Campbell Complex are attributed to the following:

- Unexpected irregularities in complex ore geometry;
- Mining very narrow High Grade veins;
- Mining flatter (low-angle) "north–south" oriented structures;
- Failure of structure-parallel dykes.

Higher internal dilution is being encountered in many zones, owing to the nature of the ore geometry. This was addressed in the 2002 Mineral Reserve estimate by increasing the minimum mining width to 7 ft (2.1 m). This higher minimum mining width was retained for the 2010 Mineral Reserve estimate.

17.1.11 Assessment of Reasonable Prospects of Economic Extraction

Reasonable prospects of economic extraction for underground mineralization at Red Lake-Campbell include consideration of operating costs, mining widths, and cut-off grades. Mineral Resources are declared where the mineralization meets minimum grade and thickness requirements. Cut-off grades used are summarized in Table 17-1.

Table 17-1: Cut-off Grades

Cut off grades	oz/t Au	g/t Au
Site, global	0. 0.198	6.1
Incremental mining	0. 0.104	3.2

For the Cochenour Complex and Western Discovery Zone, blocks which were above a gold cut-off grade of 4 g/t Au were considered to display reasonable prospects of economic extraction.

17.1.12 Mineral Resource Statement

The Mineral Resources for the Red Lake Complex are summarized in Table 17-2; Mineral Resources for the Cochenour Complex are included as Table 17-3; and Mineral Resources for the Western Discovery Zone are included as Table 17-4.

Mineral Resources were estimated using a resource gold price of US$1,100/oz and are reported at various cut-off grades that are dependent on mineralization zone.

Mineral Resources for the Red Lake and Cocheneur Complexes have an effective date of 31 December, 2010. Mineral Resources for the Western Discovery Zone have an effective date of 4 November 2004.

Mineral Resources are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves. Mineral Resources are exclusive of Mineral Reserves and include provision for dilution. Goldcorp cautions that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Table 17-2: Measured, Indicated and Inferred Mineral Resource Statement, Red Lake Operation, Effective Date 31 December 2010, Chris Osiowy, P.Geo.

Category	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Measured	1.61	17.35	0.90
Indicated	3.83	11.87	1.46
Measured + Indicated	*5.44*	*13.49*	*2.36*
Inferred	3.23	16.77	1.74

Table 17-3: Inferred Mineral Resource Statement, Cocheneur Complex, Effective Date 31 December 2010, Chris Osiowy, P.Geo.

Category	Zone	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Inferred	UMZ	4.58	9.87	1.45
Inferred	NW Inco	0.73	8.59	0.20
Inferred	EW Inco	0.37	20.80	0.25
Inferred	Footwall	1.55	12.24	0.61
Inferred	Main	0.008	10.38	0.002
Inferred	All Zones	7.30	10.80	2.53

Table 17-4: Inferred Mineral Resource Statement, Western Discovery Zone, Effective Date 30 November 2004, Chris Osiowy, P.Geo.

Category	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Inferred	0.31	13.15	0.13

Notes to Accompany Mineral Resource Tables

1. Mineral resources are exclusive of mineral reserves;
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral resources for the Red Lake and Cochenour Complex are reported to a gold price of US$1,100/oz;
4. Mineral resources for the Red Lake Complex are reported using variable cut-off grades depending on the mineralization type and zone; Mineral Resources for the Cocheneur Complex are reported using a 4 g/t Au cut-off grade. Mineral resources for the Western Discovery Zone are reported using a 4 g/t Au cut-off grade;
5. Tonnages and contained ounces are rounded to the nearest 10,000 tonnes with the exception of the Main Zone, which is rounded to the nearest 1,000 t. Grades are rounded to two decimal places for Au;
6. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
7. Tonnage and grade measurements are in metric units. Contained gold ounces are reported as troy ounces.

17.2 Mineral Reserves – Red Lake Gold Mines

The Mineral Reserve estimate is based on Measured and Indicated Mineral Resources at the Red Lake–Campbell Complex for which mining plans have been developed.

17.2.1 Considerations for Definition of Mineral Reserves

The economic analysis used to define Mineral Reserves combines results from long-term and short-term planning. Toward the end of a reporting year, the geology team issues block models that are used by the engineering group to build the long-term plan and support Mineral Reserve estimation. The work consists of analyzing the block model and historic information to create ore blocks which will then be assessed with different mining methods to optimize the ore body extraction and revenue.

The exercise creates mining blocks which have costs associated to them. The compilation of all costs versus revenues and classification of economic and non-economic blocks allows mine personnel to define the most appropriate mining method and establish the mining plan through sequencing of the various blocks. The economical blocks become Mineral Reserves. As development is completed, new geological data is compiled and analyzed to finalize the short-term mine plan and confirm the extraction decision. Figure 17-1 illustrates an example of a reserve stope design.

Mining Widths

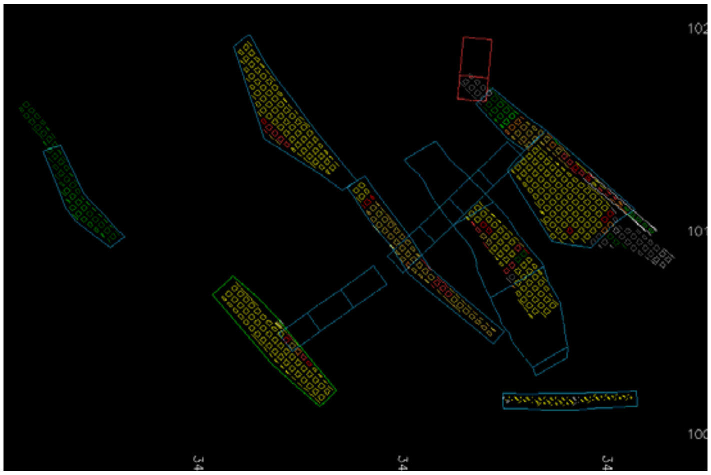
Mining widths are mainly a function of the geometry of the ore body and mining method used. Considerations include dips, vein widths, vein lengths, depth, and equipment. Mining widths by zone are summarized in Table 17-5.

For the HGZ, the driving factor is the 45º dip, which, when combined with the extreme grade variability, requires a very selective mining method. For the cut-and-fill method, mining widths are usually in the range of 3.6 m to 6 m. For the weaker sections of the ore body, long-hole mining methods can be applied and allow minimum widths of 2.1 m.

The Sulphide Zone has a relatively higher dip and a very good grade consistency, which allows mining to reach a typical minimum mining width of 3 m using long-hole mining methods.

The Footwall Zone, the Campbell Complex and the upper Red Lake Complex typically have inconsistent, narrower veins, and steeper dips leading to mining widths of about 1.8–2.4 m, using long-hole mining methods.

Figure 17-1: Reserve Stope Design (Plan View)



Note: Figure is approximately 100 m across in the horizontal direction.

Table 17-5: Typical Minimum Mining Widths by Mining Zones

	Minimum Mining Widths	
	Metric	Imperial
HGZ	3.6 m	12 ft
Campbell	1.8 m	6 ft
FWZ	2.4 m	8 ft
Sulphides	3.0 m	9 ft
Upper Red Lake	1.8 m	6 ft

Mining Extraction and Ore Losses

The operations use 100% mine recovery for scheduling the life-of-mine plan Mineral Reserves. Reconciliation data indicate that such recovery levels can be met due to a combination of the high-grade nature of the orebodies and the fact that there is mineralized material on the stope periphery that is not calculated in the Mineral Reserves, but which contributes to gold content.

17.2.2 Mineral Reserve Statement

Mineral Reserves are reported using a gold price of US$950/oz. All decisions for inclusion or exclusion of reserves are based on a detailed assessment of costs versus revenues. A global cut off grade of 7.50 g/t Au (0.22 oz/t) and marginal cut off grade of 5.59 g/t Au (0.15 oz/t) were employed as an indication of economics only.

Mineral Reserves also incorporate considerations for minimum mining width.

Mineral Reserves for the Red Lake operation included only mineralization classified as Measured and Indicated Mineral Resources and are presented in Table 17-4. Mineral Reserves have an effective date of December 31, 2010.

Table 17-6: Mineral Reserve Statement, Effective Date 31 December, 2010, Stephane Blais, P.Eng.

Category	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (Moz Au)
Proven	2.08	16.54	1.11
Probable	7.86	11.92	3.01
Proven + Probable	*9.94*	*12.89*	*4.12*

Notes to accompany Mineral Reserve Table
1. Mineral reserves are estimated using a US$950/oz gold price and an economic function that includes variable operating costs and metallurgical recoveries;
2. Global cut off grade of 7.50 g/t Au (0.22 ounces per ton (opt) Au) and marginal cut off grade of 5.59 g/t Au (0.15 opt Au) used as economic indicators only;
3. Tonnages and ounces are rounded to the nearest 10,000 tonnes, grades are rounded to two decimal places for Au;
4. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
5. Tonnage and grade measurements are in metric units. Contained gold ounces are reported as troy ounces.

17.3 Comment on Section 17

The QPs are of the opinion that the Mineral Resources and Mineral Reserves for the Project, which have been estimated using core drill data and underground chip sampling, have been performed to industry best practices, and conforms to the requirements of CIM (2010).

The Mineral Resources are acceptable to support declaration of Mineral Reserves.

Mineral Reserves by definition have taken into account environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors and constraints, as discussed in Section 4 and Section 18 of this Report. The Mineral Reserves are acceptable to support mine planning.

Areas of uncertainty that may materially impact the Mineral Resource and Mineral Reserve estimates include:

- Commodity price and exchange rate assumptions used;
- Rock mechanics (geotechnical) constraints;
- Constant underground access to all working areas.

18.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORT ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

18.1 Underground Mining Operations

Currently, the underground operations consist of a single underground operating mine (comprising the Red Lake and Campbell Complexes) and an advanced underground exploration project (Cochenour Complex). As part of the sustainability objective of Red Lake Gold Mines, the operating entity, many critical capital projects are underway at the primary operating complexes to aid in the advancement of the Cochenour Complex development and to support current mining operations, including:

- The Red Lake Cochenour Drift, currently being driven 5 km from the Red Lake/Campbell Complex to the Cochenour Complex, this will access the lower portion of the Cochenour deposit and provide the haulage way for mineralization from the Cochenour Complex to the mill at the Campbell Complex;
- The Cochenour Shaft deepening project, where the existing Cochenour shaft will be widened and deepened to provide an upper access to the Cochenour deposits;
- The Red Lake 42 Level Borehole Hoist is also being designed to provide ore and waste material handling from 47 Level and below to reduce haulage costs to the bottom of #3 Shaft.

Production projections for 2011 are for 2,631 t, from which 51% will be provided by the Red Lake Complex and the remaining 49% from Campbell Complex. Figures 18-1, 18-2 and 18-3 show the key shaft infrastructure and mineralized zones to be exploited.

18.1.1 Red Lake Complex

The Red Lake Complex is serviced by three shafts. Table 18-1 indicates the current status of the shaft accesses at the Red Lake Complex.

The historic Red Lake Complex head frame is set over the #1 Shaft which extends to a depth of 1,023 m and serves the mine from 1 Level to 23 Level (the Upper Mine area). The Lower Red Lake mine is accessed from the #3 Shaft. Since #3 Shaft completion, #2 Shaft is on care and maintenance.

Figure 18-1: Existing Red Lake Complex Underground Accesses and Mineralized Zones

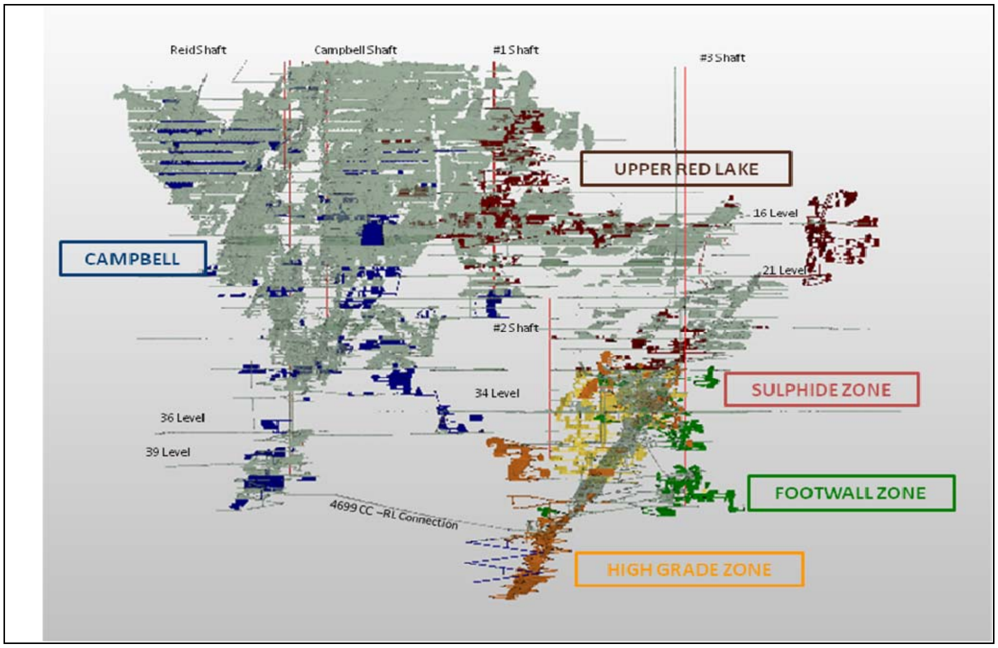


Figure 18-2: Upper Red Lake Mine

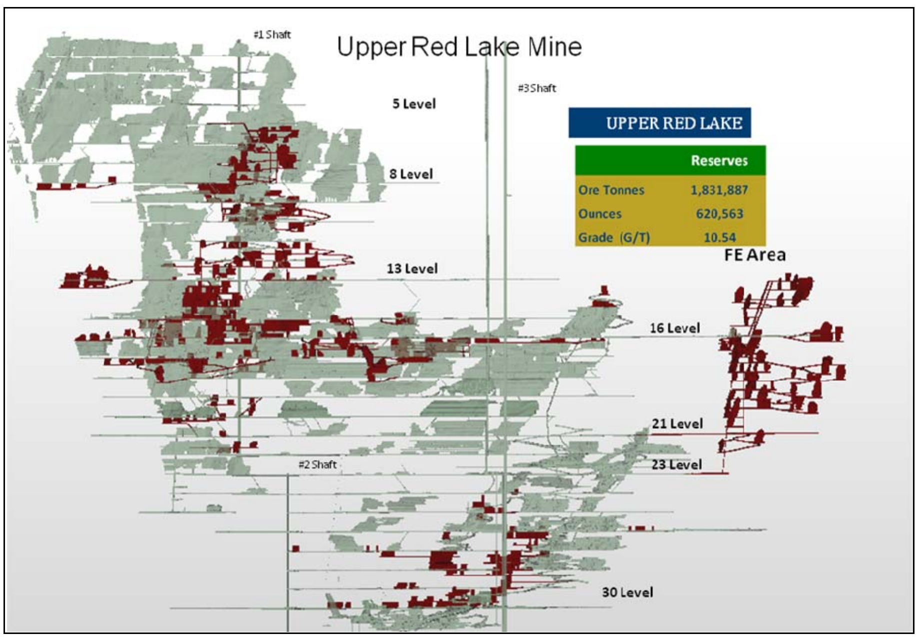


Figure 18-3: Lower Red Lake Mine

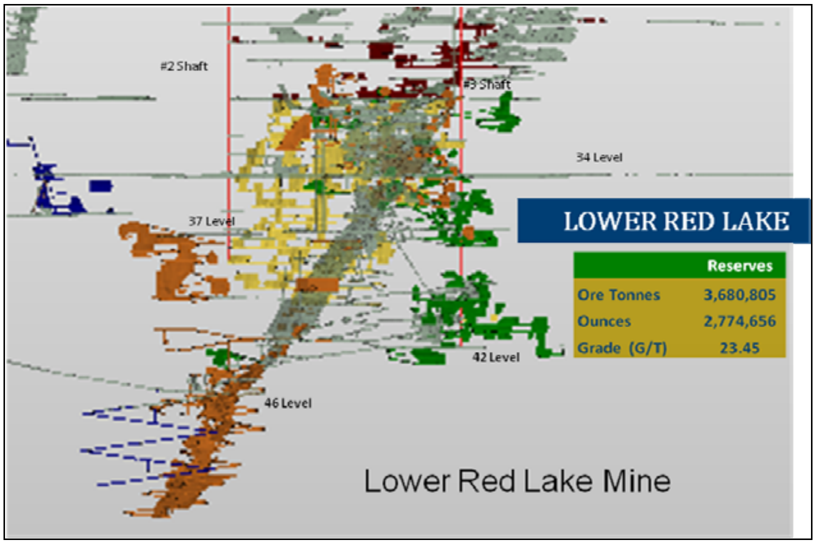


Table 18-1: Red Lake Complex Shafts and Activity Status

Shaft	Size	Type	Collar Location	Depth (m)	Connecting Levels	Uses	Hoisting Capacity (tonnes/day)
RLC #1	2 x 6.7 m x 2.4 m	Rectangular compartment	Surface	1,094	Red Lake 1–23	Upper Red Lake access and Hoisting	1,160
RLC #2 (internal winze)	6.7 m x 2.4 m	Rectangular compartment	23 Level	1,737	Red Lake 23–27	Care and Maintenance	1,160
RLC #3	6.4 m	Circular	Surface	1,924	Red Lake 16, 23, 30, 34, 37–1, 42, 42LP	Lower Red Lake access and hoisting	4,082

All levels above 23 are track access with shaft stations connecting to #1 Shaft at all levels. Below 23 Level, a combination of ramp, trackless access, and track haulage ways to the mine exist. From 30 Level onwards, primary access to the Red Lake Complex mining horizons and haulage ways is via ramp. However, track excavations exist on primary haulage elevations at 30, 34, 37 and 42 Levels, with station connections to #3 Shaft at these levels as well.

Mining is carried out using a combination of long hole and mechanized underhand or overhand cut-and-fill techniques (Table 18-2), which allow maximum ore extraction while generating minimal dilution. Stope sequencing is carefully analyzed and adapted to surrounding conditions to alleviate seismic activity induced by mining. Stope sequencing is based on an amalgamation of elastic/plastic stress modelling, seismic system data analysis and underground observations.

Table 18-2: Red Lake Complex – Tons and Ounce Distribution by Mining Method

RLC Mining Method Distribution	Tonnes	Ounces
Longhole	64%	29%
Cut and Fill	22%	64%
Development	14%	7%

Once mining blocks or lifts are completed, waste rock fill, paste fill, or a combination of both, is employed to fill the open excavation. This process also assists in reducing the amount of seismic activity created by large open excavations.

The seismic system for the mine consists of about two hundred macro and/or micro seismic sensors dispersed through the mine, providing 25–50 ft accuracy in event localization.

Broken muck is dumped into passes located near the ore zones by trucks and load haul dump (LHD) equipment. Broken rock above 42 Level is carried to the shaft by passes. Broken rock below and on 42 Level is carried to the shaft by LHD units or trucks. All skipping at the Red Lake Complex is accomplished through #3 Shaft.

In 2011, the main HGZ will produce approximately 517 t/d with an average grade of 58 g/t Au. The high-grade mineralization and complex geometry of the ore lenses require operating under tight geological and grade control.

Conventional percussive drills, longhole drills, and "jumbo" drilling rigs are used for drilling ore and waste. Mucking machines and trains, LHD units ranging in size from 1 yd^3 to 4.0 yd^3 capacity (ore width determines the size of the LHD units used for mucking stopes), with 16 t or 30 t haulage trucks, are used to move the broken rock.

The current mobile diesel equipment fleet consists of load haul dump units, underground haulage trucks, jumbo face drills, mine service and transport vehicles, and a variety of utility vehicles. As mining progresses deeper, the equipment fleet will change accordingly. Capital has been budgeted for equipment additions, replacements and rebuilds. In addition to the mobile fleet, other equipment used includes: ventilation fans, pumps, rock-breakers, rail mounted vehicles, and other service and utility equipment.

Blasting is carried out twice a day when all workers are out of the mine, and is initiated by an electrical central blasting system. On-shift blasting is heavily restricted, and only permitted with proper guarding procedures in place.

Various combinations of static and dynamic ground support systems are employed underground, depending on the requirements of the heading being driven as well as the rock mechanic properties of the surrounding rock.

The ventilation system is a push-pull design, with intake and exhaust fans on surface, and booster fans underground delivering approximately 18 410 m^3/min (650 kcfm) of fresh air. Due to the long development history of the mine, it does not have a direct and dedicated intake and exhaust route to and from the current production areas. Many drifts, raises, and ramps, plus the three shafts, make up the main ventilation circuit. Auxiliary fans of varying sizes bring the fresh air from the main ventilation circuit to the working faces.

18.1.2 Campbell Complex

Shaft sinking began in 1946 with production commencing in 1949 at a rate of 300 t/d, from seven levels at 45 m spacing. Since then, the Campbell shaft has been deepened four times and the four-compartment shaft was completed to below 27 Level, a depth of 1,316 m below surface. There are currently 27 levels at 45 m vertical intervals, with an average of 6 km of development per level.

In 1999, the Reid Shaft was built to open up access to the deep underground zones including the DC Zone. The Reid Shaft is located 150 m west of the Campbell Shaft, and extends to a depth of 1,819 m. In 2003 development began on the DC, or Deep Campbell zone.

Figure 18-4 illustrates the Campbell mine excavations and mineralized zones.

Access to the underground operations are achieved through the Campbell Shaft with access to all levels from 1–27 and the Reid Shaft with access to Levels 7, 17, 27, 30, 33, 36, 39 and 40 loading pocket. Below 39 Level, a decline is the primary access for all personnel, equipment and materials. Table 18-3 details the current status of the shaft accesses at the Campbell Complex.

Above 27 Level, a combination of mechanized, rubber-tired diesel equipment and conventional track haulage is used in mining. Full track haulage facilities exist on all 27 levels. Below 27 Level, all mining is mechanized to provide greater flexibility and productivity. Ramp access (-15%) is provided from 27 to 33 Levels and from 36 to 41 Levels.

Figure 18-4: Existing Campbell Complex Underground Accesses and Mineralized Zones

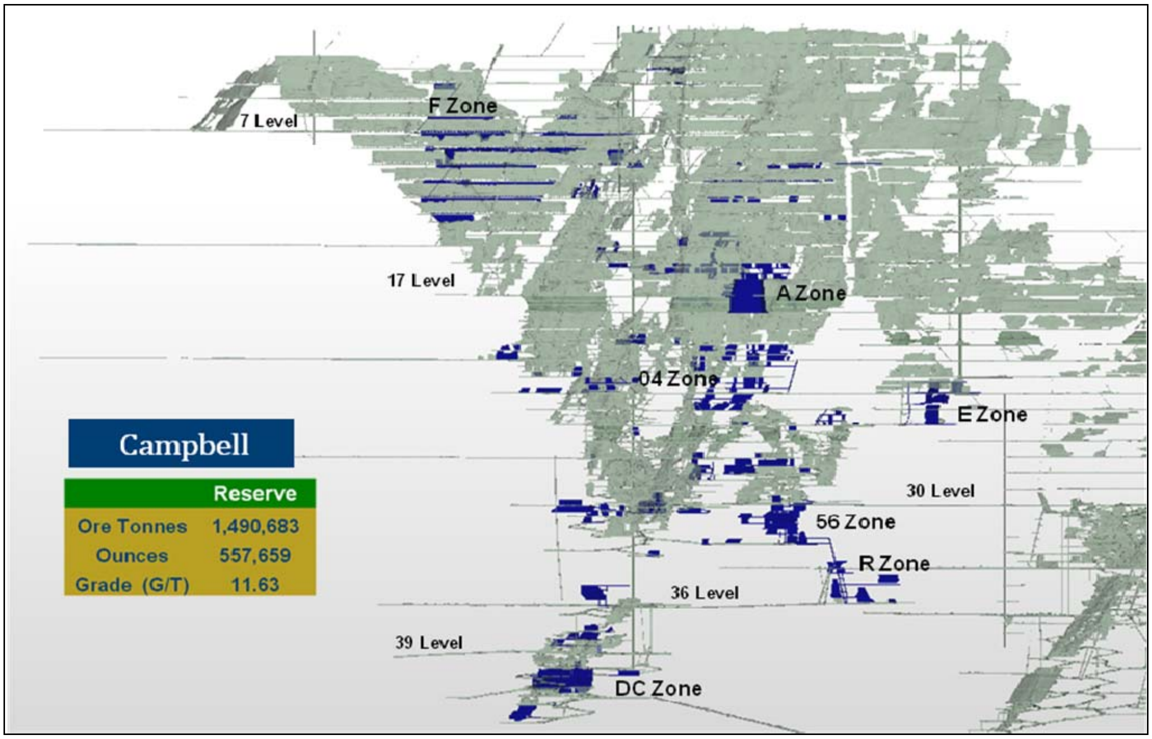


Table 18-3: Campbell Complex Shafts and Activity Status

Shaft	Size	Type	Collar Location	Depth (m)	Connecting Levels	Uses	Hoisting Capacity (tonnes/day)
Campbell Shaft	6.7 m x 2.4 m	Rectangular Compartment	Surface	1,316	Campbell 1-27	Above 27 L Campbell Access	NA
Reid Shaft	6.1 m	Circular	Surface	1,818	Campbell 7, 17, 27, 30, 33, 36, 39, 40LP	Campbell access and Hoisting	2,812

The dominant mining method at the Campbell Complex is longhole (95% of tons and oz). Remaining ore is provided by conventional overhand cut-and-fill and development ore. The longhole mining includes both longhole panel mining and longhole sill recovery. Sill recovery in mined out (shrinkage) areas is done from footwall access drifts to minimize worker exposure to highly stressed areas within the ore zone.

Longhole panel mining is performed on 15 m sublevel intervals with typical widths of 2.4 m to 6 m and typical strike lengths from 15 m to 21 m. Larger stopes may be mined transversely through the use of draw points on 15 m intervals. Mechanised cut-and-fill is used over conventional long hole where the dip of the ore is less than 55°, especially in areas where the dilution is high and orebodies are narrow or discontinuous. Cut-and-fill headings are mined approximately 9 ft high at widths ranging from 2.4 m – 9^+ m depending on the ore zone. When long hole is the chosen method, block spans are minimized, blast size is kept small and paste fill is placed as soon as possible after each block is mined out.

Ore is crushed underground, hoisted to the surface via the Reid Shaft, and then re-crushed to below 10 mm size.

The current mining fleet is a combination of conventional and mechanized mining equipment. The fleet consists of locomotives, muck machines, cavos, jacklegs, stopers, long-toms, single and twin boom jumbos, scissor lifts, maintenance/service vehicles, grader, forklift, 1 yd^3 to 4 yd^3 LHD units, and 16 t haul trucks.

Fixed equipment and facilities are also typical for the planned mine layout and include primary ventilation fans, mine air heaters, dewatering pumps, explosive magazines, maintenance shops, fuelling stations and personnel refuge stations.

The Campbell ventilation system has three circuits and each is primarily independent of the others. The upper circuit supplies Levels 27 and surface, the middle circuit supplies Levels 27 to 33 and the bottom circuit supplies below 33 Level. Air is drawn into the mine primarily by exhaust fans. The system has two intake fans on surface with one intake underground booster fan and four surface exhaust fans with seven exhaust underground booster fans.

18.2 Production Plan

The production plan in Table 18-4 is based on seven years of production, to 2018. The horizontal development is planned for both the Red Lake and Campbell Complexes at 14 m/kt of ore with an additional 1 m/kt of vertical development.

Table 18-4: Production Plan 2011–2018

RLGM Production Profile

	2,011	2,012	2,013	2,014	2,015	2,016	2,017	2,018	TOTAL
Ore (K Tonnes)	1,026	1,026	1,026	1,026	1,026	1,026	844	-	7,003
Recovery (%)	96.5%	96.5%	96.5%	96.5%	96.5%	94.5%	94.0%		95.9%
Head Grade (G/T)	20.83	20.51	20.42	20.39	18.54	11.29	9.46	-	17.56
Oz Produced (K Oz)	664	654	651	650	591	352	242	-	3,806
Horizontal Development (Km)	16.3	16.3	16.3	16.3	16.3	16.3	-	-	98.0
Vertical Development (Km)	1.2	1.2	1.2	1.2	1.2	1.2	-	-	7.0

On the basis of Mineral Reserves only, the life-of-mine production plan is based on seven years of production, to 2018 and reflects five years of production at an annual rate of approximately 650,000 oz/year, followed by two additional years of lower production rates.

Within the five-year time period other relevant production measures include:

- Annual ore tones processed: 1.026 Mt (2,810 t/d);
- Annual average recovery: 96.5%;
- Annual average Head Grade: 19–21 g/t;
- Total Horizontal Development: 16.3 km/a;
- Total Vertical Development: 1.2 km/a.

At this point in time, the Cochenour Complex does not have defined Mineral Reserves and is therefore not included in the life-of-mine production plan.

As any typical underground mine, the quantification of Mineral Reserves is limited by the ability to define ore zones in advance of mining. Red Lake for example has been a producing operation for more than 60 years and has never had more than 8-10 years of mineral reserves at any time throughout that period.

Deliberate efforts to install exploration drifts in strategic locations of the mines have allowed for the routine exploration of various orebodies as the mine progresses. Goldcorp considers that with additional drilling, and taking into the known depth extensions and offsets of current ore zones, there is good potential that the mine life can be extended beyond that shown in Table 18-4.

As part of day-to-day operations, Goldcorp will continue to undertake reviews of the mine plan and consideration of alternatives to and variations within the presented mine plan. Alternative scenarios and reviews can be based on ongoing or future mining considerations, evaluation of different potential input factors, assumptions and corporate directives.

18.3 Production Reconciliation

On a monthly basis, the total mined (broken) tonnage is calculated from excavated volumes. Total ounces are reported from the mill, adjusted for inventory in ore passes, bins, surface stockpile and material remaining in the stopes. Ounces are assigned to the various stopes where mining occurred, based on information gathered during the month. For cut-and-fill and development material, every blast in ore has five random muck samples taken, and the face/walls are chip sampled. For longhole stopes, the sampling frequency is one sample every 20 tons. This assay information is summarized for each blast/block and used as a guide in assigning ounces back to the blocks.

18.4 Geotechnical Considerations

Strength and deformational testing have been carried out over the years at both operations. The Red Lake Mine Basalt and Altered Ultramafic rock types have a wide range of uniaxial compressive strengths (UCS). For geotechnical modelling purposes, a UCS of 180 MPa is used.

Lithology changes, such fault structures and dykes, are believed to play an important role in stress distribution in both mining complexes. In general, the basalts are competent and bursting tends to concentrate around these contacts.

Most ground problems or potential instabilities are related to unravelling ground conditions caused by localised microseismic activity associated with pre-existing structures and flat, stress induced structures. Reportable falls of ground and rock bursts have averaged about 3–6 incidents a year since 2000.

18.5 Hydrological Considerations

Both underground complexes maintain independent mine dewatering system with primary sump locations and pumping stations established on key levels at the respective mining complexes. Groundwater and operations (drill) water from the various sublevels, report to the mine drainage systems via air powered diaphragm pumps, drainage boreholes, or in the case of a ramp, a small submersible pump.

The average total discharge of mine water to surface both complexes is approximately 3000 m^3/day (sample data collected between January 1, 2009 and December 31, 2010). Discharge volumes typically vary due to seasonal changes, most notably in the spring during the snow melt.

In the case of the Campbell Complex, mine water discharge reports to the Campbell mill process water tank and when the tank is full, the overflow reports to mine tails. Conversely, Red Lake Complex mine discharge water is pumped to tails. Water from the secondary pond (tailing management area) is reclaimed for process water in the paste plant and mill.

18.6 Waste Dumps

Waste rock is stored in designated areas at both the Red Lake and Campbell Complexes. The waste pads are located in a historic tailings area east of the site at the Red Lake Complex and on the northeast side of the main tailings pond at the Campbell Complex. Due to the non-acid generating potential of the waste rock, a large majority is used in on-site construction projects such as tailings dam raises. Significant portions of the waste are also expected to be used for reclamation following mine closure.

Overall there is not an operational concern for available storage of waste rock from the underground operations.

18.7 Tailings Facility

The tailings storage facilities at the Campbell and Red Lake Complexes are currently permitted for dam raises that will provide storage to 2016 and 2018 respectively. Additional design and permitting will be completed to increase the storage capacity within the existing facilities beyond these dates.

Geotechnical reviews are completed on annual basis, and assuming the current planned mining rate is not escalated and that current tailings discharge remains at a steady state, the present tailings facilities can be maintained for the currently envisaged life of Project.

18.8 Infrastructure Considerations

Project infrastructure is discussed in Section 5.3.

18.9 Workforce

As of December 31, 2010, the workforce is 938 company personnel. An additional 423 persons are on contract. Based on the current mine plan, no changes in average workforce numbers are expected.

18.10 Environmental Considerations

The environmental plans and closure plans for the Project are discussed in Sections 4.7 and 4.8 respectively.

18.11 Markets

Goldcorp has an operative refining agreement with Johnson Matthey for refining of doré produced from the Red Lake–Campbell Complex.

Goldcorp's bullion is sold on the spot market, by marketing experts retained in-house by Goldcorp. The terms contained within the sales contracts are typical and consistent with standard industry practice, and are similar to contracts for the supply of doré elsewhere in the world.

18.12 Taxation

The Project is subject to Federal and Provincial taxes. The 2011 Federal Income Tax rate is 16.5%, and the Ontario Provincial Tax rate is 11.5%, effective 1 July 2011. The Federal Corporate Income Tax rate, as of 2012, will be 15%. The Ontario Provincial Tax rate will be 10%, effective 1 July, 2013. Ontario mining operations are also subject to a Provincial mining tax, levied at a rate of 10% on taxable profit in excess of $500,000.

The financial analysis is based on a pre-tax model. There are no royalties payable on the current Mineral Reserves for the Project.

18.13 Capital Costs

Capital costs incurred prior to December 2010 are accounted for in the financial model through depreciation.

For the current life-of-mine financial model, capital costs are based on operating experience gained in from current operations, 2011 budget data, and quotes received from manufacturers during 2010. Capital cost estimates include funding for infrastructure, mobile equipment replacement, development, drilling, and permitting as well as miscellaneous expenditures required to maintain production. Infrastructure requirements are incorporated in the estimates as appropriate. Mobile equipment is scheduled for replacement when operating hours reach threshold limits. Sustaining capital costs reflect current price trends.

Exploration expenditure has not been included in the financial forecasts. Exploration drilling will be carried out in the future with this expenditure targeting additional mineralization that may be able to be converted to Mineral Resources. As a result, such expenditure has not been included in the financial model as the expenditure does not relate to the current mining reserve and project being considered.

Costs are summarized in Table 18-5, and include both development and sustaining capital.

Table 18-5: Development and Sustaining Capital Costs (US$M)

2011	2012	2013	2014	2015	2016	2017	2018	Total
57.8	59.2	63.2	63.1	60.1	57.2	2	0	363

18.14 Operating Costs

Operating costs for the financial model were developed by Goldcorp, based on 2011 budget and 2010 actual costs, factored as appropriate. Operating cost breakdowns shown in Table 18-6. Similar costs ($221/t) were used to establish Mineral Reserves and ore cut-offs. The variance (-6%) is due to changes in foreign exchange rates assumptions between the time the Mineral Reserves were estimated, and the budgets were prepared.

Table 18-6: Operating Costs

Operating	$ US/Tonne	$ US/oz
Definition Drilling	5	7
Development	64	98
Mining	89	137
Millling	34	53
General and Admin	44	67
Total	235	363

The financial model has a 2% built in annual escalation rate for the development and operating costs. Allocated mining costs include mining, engineering, and geology. General and administrative costs include surface/plant, administration, environmental, and inventory.

The QPs note that the grades of the deposits allow Goldcorp to deliver a high mill head grade and to be a very low-cost gold producer on a per ounce basis. High unit costs per tonne are due to:

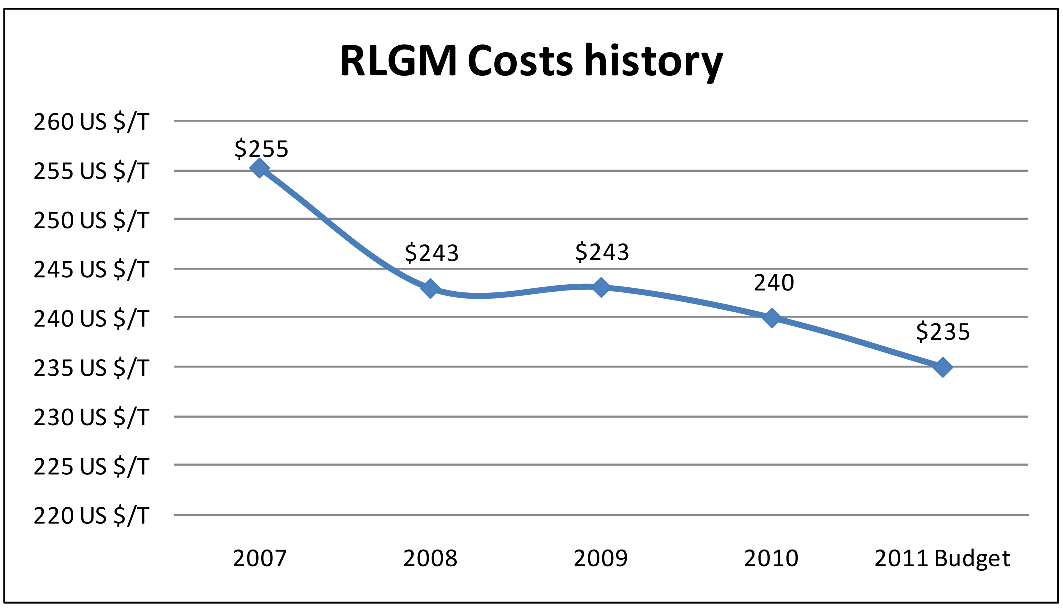
- The selective mining method used in the high-grade areas (cut and fill);
- Seismicity considerations and ground support required for deep underground mining;
- The remnant mining occurring at Campbell and into Upper Red Lake;
- Geometry of ore bodies, which comprise narrow veins, low dipping;
- The remoteness of the operation.

The integration of the Red Lake and Campbell operations in 2006–2007 resulted in a cost reduction of 5% from 2007 to 2008. In 2009, costs stabilized to the same level as 2008. The years 2007–2009 were primarily transition years as development, core drilling and stope preparation were accelerated to achieve the Goldcorp "fill-the-mill" initiative.

As a result of this work, the mining operations are currently able to supply ore at 94% of the mill capacity. This contrasts with an ore supply prior to 2009 of approximately 66–75% of the mill capacity.

Goldcorp expects that in 2011 unit costs will fall by an additional 2% from the 2010 operating costs, as the "fill-the-"mill strategy takes effect (Figure 18-5). The decision process for each block is driven by economical analysis of costs versus revenues. Cut-off grade is used as a guideline for the operations, instead of a driving factor. The site cut-off grade is defined as the break-even grade required to cover cash costs. The economic cut-off for mining purposes is approximately 6.8 g/t Au. Incremental cut off grades have been established at 4.7 g/t Au.

Figure 18-5: Operating Cost History and Projections 2006–2011 (US$/t)



18.15 Economic Analysis to Support Mineral Reserves

The results of the economic analysis represent forward-looking information that are subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here.

Forward-looking statements in this section include, but are not limited to, statements with respect to the future price of gold and silver, the estimation of Mineral Reserves, the realization of Mineral Reserve estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new deposits, success of exploration activities, permitting time lines, currency exchange rate fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

Additional risk can come from actual results of current exploration activities; actual results of current reclamation activities; conclusions of economic evaluations; changes in Project parameters as plans continue to be refined, possible variations in ore reserves, grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes and other risks of the mining industry; and delays in obtaining governmental approvals.

To support declaration of Mineral Reserves, Goldcorp prepared an economic analysis to confirm that the economics based on the Mineral Reserves over a seven-year mine life could repay life-of-mine operating and capital costs. Results of this assessment indicated positive Project economics until the end of mine life, and supported Mineral Reserve declaration.

Due to the limited capital of $363 M required over the life-of-mine based on the current Mineral Reserves, versus the projected cashflow over the same period ($2,083 M), and the fact that the mines have been operating for over 60 years, no considerations of payback periods are appropriate.

Inferred Mineral Resources above cut-off were considered “waste” in the evaluation. The QPs note that there is some upside for the Project if some or all of the Inferred Mineral Resources are able to be upgraded to higher-confidence mineral resource categories, and eventually to Mineral Reserves.

18.15.1 Sensitivity Analysis

Sensitivity analysis was performed on the cash cost, free cash flow and pre-tax net present value (NPV). A variation of ±10% was applied independently to each of the following parameters:

- Gold grade;
- Gold price;
- Operating costs;

- Capital costs.

Sensitivities are shown in Table 18-7. The results of this analysis demonstrate that the Project's financial outcome is most sensitive to variations in the gold grade and gold price. The next most sensitive parameter is operating costs. Capital costs have a lesser influence on cash flows. Since the financial model was based in US dollars, no foreign exchange rate sensitivities were performed.

Table 18-7: Sensitivity Analysis

		Change increments +10%			
	Base Case	Head Grade	Gold Price	Operating Costs	Capital Costs
Cash cost ($/oz)	459	-42	0	46	0
Free Cash Flow ($M)	2083	425	401	-175	-132
Pre-tax NPV@5% ($M)	1,824	361	345	-144	-107
		Change increments -10%			
	Base Case	**Head Grade**	**Gold Price**	**Operating Costs**	**Capital Costs**
Cash cost ($/oz)		51	0	-46	0
Free Cash Flow ($M)		-425	401	175	96
Pre-tax NPV@5% ($M)		-361	345	144	79

19.0 OTHER RELEVANT DATA AND INFORMATION

Tailings are not considered in the financial plan for the Project. This material represents an upside to the Project, since tailings material can be processed through the existing mills when the Red Lake–Campbell Complex ores are depleted.

As noted in Section 18-1, a 5 km drift is underway to link the Campbell Complex and Cochenour Complex, and will provide high-speed tramway haulage for the mineralization mined at Cochenour that is planned to be treated at the Campbell mill. The tramway will double as an exploration drilling platform along its length, and provide previously unparalleled access to the Red Lake trend.

Shaft widening and deepening is planned for the Cochenour shaft, to provide access to the upper levels of the Cochenour deposit.

Studies are planned to assess potential mining methods for near-surface mineralization identified under the Balmertown town site.

20.0 INTERPRETATION AND CONCLUSIONS

The QPs, as author of this Report, have reviewed the data for the Project and are of the opinion that:

- Mineral tenure held by Goldcorp in the areas for which Mineral Resources and Mineral Reserves are estimated is valid;
- Goldcorp holds sufficient surface rights to support mining operations over the underground planned life-of-mine that was developed based on the year-end 2010 Mineral Reserves;
- Permits held by Goldcorp for the Project are sufficient to ensure that mining activities within the Project are conducted within the regulatory framework required by the Canadian municipal, Provincial and Federal Governments and that Mineral Resources and Mineral Reserves can be declared;
- Additional permits will be required to support development activities such as recommencement of mining at the Cochenour Complex;
- Goldcorp has sufficiently addressed the environmental impact of the Red Lake Complex operation, and subsequent closure and remediation requirements that Mineral Resources and Mineral Reserves can be declared, and that the mine plan is appropriate and achievable. Closure provisions are appropriately considered in the mine plan;
- Additional environmental studies will be required to support any planned re-development of the Cochenour Complex;
- The existing infrastructure, availability of staff, the existing power, water, and communications facilities, the methods whereby goods are transported to the mine, and any planned modifications or supporting studies are sufficiently well-established, or the requirements to establish such, are well understood by Goldcorp, and can support the declaration of Mineral Resources and Mineral Reserves and the current mine plan;
- The geological understanding of the settings, lithologies, and structural and alteration controls on mineralization in the Red Lake and Campbell Complexes is sufficient to support estimation of Mineral Resources and Mineral Reserves. The geological knowledge of the area is also considered sufficiently acceptable to reliably inform mine planning;
- Additional data are being collected to support potential upgrades in confidence categories for Mineral Resources estimated for the West Discovery Zone and Bruce Channel deposits;

- The mineralization style and setting is well understood within the Red Lake and Campbell Complexes and can support declaration of Mineral Resources and Mineral Reserves. The understanding of the Cochenour Complex deposits can support Mineral Resource estimation;
- The exploration programs completed to date are appropriate to the style of the deposits identified within the Project. The research work supports Goldcorp's genetic and affinity interpretations for the deposits;
- Additional exploration using these methods and interpretations has a likelihood of generating additional exploration success. The quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration, delineation, underground, and grade control drill programs, and from underground sampling are sufficient to support Mineral Resource estimation. Data available support Mineral Reserve estimation for the Red Lake–Campbell Complex;
- Sampling methods are acceptable, meet industry-standard practice, and are acceptable for Mineral Resource estimation. Data collected for the Red Lake–Campbell Complex are also suitable to support Mineral Reserve estimation and for mine planning purposes;
- The quality of the gold analytical data is reliable;
- Sample preparation, analysis, and security are generally performed in accordance with exploration best practices and industry standards.
- Data verification programs undertaken on the data collected from the Red Lake and Campbell Complexes acceptably support the geological interpretations and the database quality, and therefore support the use of the data in Mineral Resource and Mineral Reserve estimation, and in mine planning. Data is appropriately verified for use in Mineral Resource estimation for the Cochenour Complex;
- Metallurgical testwork completed on the Red Lake and Campbell Complexes has been appropriate to establish the optimal processing routes, and was performed using samples that are typical of the mineralization styles found within the Project;
- Recovery factors estimated have, following over 60 years of production, been confirmed. As a result, the recovery factors are considered appropriate to support Mineral Resource and Mineral Reserve estimation, and mine planning;
- Mill process recovery factors are based on at least 60 years of production data, and are considered appropriate to support Mineral Resource and Mineral Reserve estimation, and mine planning;

- Ore hardness, reagent consumptions and process conditions are based on production data, and are appropriate to the process operating cost assumptions;
- There is sufficient tailings storage remaining for the current life-of-mine;
- Initial testwork performed on the Cochenour Complex indicate acceptable average recoveries of about 90%, and that mineralization can be treated through the Campbell mill. Additional testwork and studies are required to support more detailed evaluation of the mineralization to assess whether plant modifications are required;
- Mineral Resources and Mineral Reserves for the Project, which have been estimated using underground chip samples and core drill data, have been performed to industry best practices, and conform to the requirements of CIM (2010). The Mineral Reserves are acceptable to support mine planning;
- The underground mine plans are appropriately developed to maximize mining efficiencies, based on the current knowledge of geotechnical, hydrological, mining and processing information on the Project;
- Production forecasts are achievable with the current equipment and plant, replacements have been acceptably scheduled;
- There is some upside for the Project if the Inferred Mineral Resources that are identified within the LOM underground production plan can be upgraded to higher confidence Mineral Resource categories;
- The predicted mine life of seven years is achievable based on the projected annual production rate and the Mineral Reserves estimated;
- Goldcorp currently expects that operations will continue beyond the current mine plan. Both operations have been producing for more than 60 years and have never had more than 8–10 years of Mineral Reserves. Goldcorp is confident that with additional drilling, the known depth extensions of current ore zones can support a longer mine-life than is shown by the reported Mineral Reserves.
- The terms contained within the doré sales contracts are typical and consistent with standard industry practice, and are similar to contracts for the supply of doré elsewhere in the world;
- Bullion sales are typical of such market sales;
- Taxation considerations are limited to a review of the major applicable taxes for a project in Ontario. Economic analysis performed with a pre-tax finance model;
- Capital cost and operating cost estimates are appropriate for the economic circumstances existing at the time they were supplied;

- Reviews of the environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors and constraints for the Project support the declaration of Mineral Reserves using the set of assumptions outlined;
- The economic analysis shows that the Project economics are positive for the sets of assumptions considered;
- The Project's financial outcome is most sensitive to variations in gold price and gold grades.

In the opinion of the QPs, the Project that is outlined in this Report has met its objectives. Mineral Resources and Mineral Reserves have been estimated for the Project, mines and supporting infrastructure were constructed, and upgraded as required, mining and milling operations are performing as expected, and reconciliation between mine production and the mineral resource model is acceptable. This indicates the data supporting the Mineral Resource and Mineral Reserve estimates were appropriately collected, evaluated and estimated, and the original Project objective of identifying mineralization that could support mining operations has been achieved.

Ongoing work has identified significant exploration potential within the Project area, and studies are planned and underway to assess the potential for developing additional mining areas.

21.0 RECOMMENDATIONS

The following work programs are recommended for the Project. The total estimated cost of the recommendations is approximately $67 M.

21.1 Red Lake–Campbell Complex

Recommendations that specifically pertain to the Red Lake–Campbell Complex are:

- Develop a plan to provide hoisting capability at depth from 42 Level to 49 Level ($300,000);
- Continue to perform mine exploration at the current budget rate of $20 M per annum to identify additional exploration that can potentially support estimation of Mineral Resources, support upgrade of lower-confidence to higher-confidence Mineral Resource categories, and eventual conversion to Mineral Reserves.

21.2 Cochenour Complex

The following first-phase work program recommendations that specifically pertain to the Cochenour Complex are:

- Update and re-estimate the 2004 Western Discovery zone Mineral Resource estimate (depending on whether performed by Goldcorp staff or an external consultancy, this could range from $100,000 to $200,000);
- Develop an underground diamond drilling platform to support definition drilling of the Cochenour deposit ($2 M);
- Undertake additional drilling in the Cocheneur Complex to support potential upgrade in Mineral Resource confidence categories (200 core holes, at an average 700 m per drill hole, at an average cost of $300/m, including assay costs, for a total $42 M);
- Perform environmental studies ($2 M). The environmental studies may overlap with the second work program.

Once the drill data are to hand, a second phase of work is proposed for the Cochenour Complex, comprising:

- Re-estimate of Mineral Resources for the Complex based on the additional drill data ($200,000);
- Develop a preliminary mine throughput plan based on those re-estimated Mineral Resources ($200,000);

- Undertake basic engineering design based on the preliminary mine plan and re-estimated Mineral Resources ($5 M).

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22.1.2 Glossary

Term	Definition
acid rock drainage/ acid mine drainage	Characterized by low pH, high sulphate, and high iron and other metal species.
adit	A passageway or opening driven horizontally into the side of a hill generally for the purpose of exploring or otherwise opening a mineral deposit. An adit is open to the atmosphere at one end, a tunnel at both ends.
adjacent property	A property in which the issuer does not have an interest; has a boundary reasonably proximate to the property being reported on; and has geological characteristics similar to those of the property being reported on
advanced property	A property for which the potential economic viability of its mineral resources is supported by a preliminary economic assessment, or the economic viability of its mineral reserves is supported by a prefeasibility study or a feasibility study.
alluvium	Unconsolidated terrestrial sediment composed of sorted or unsorted sand, gravel, and clay that has been deposited by water.
ANFO	A free-running explosive used in mine blasting made of 94% prilled aluminium nitrate and 6% No. 3 fuel oil.
aquifer	A geologic formation capable of transmitting significant quantities of groundwater under normal hydraulic gradients.
autogenous grinding	The process of grinding in a rotating mill which uses as a grinding medium large pieces or pebbles of the ore being ground, instead of conventional steel balls or rods.
azimuth	The direction of one object from another, usually expressed as an angle in degrees relative to true north. Azimuths are usually measured in the clockwise direction, thus an azimuth of 90 degrees indicates that the second object is due east of the first.
background concentration	Naturally-occurring concentrations of compounds of environmental concern
ball mill	A piece of milling equipment used to grind ore into small particles. It is a cylindrical shaped steel container filled with steel balls into which crushed ore is fed. The ball mill is rotated causing the balls themselves to cascade, which in turn grinds the ore.
beneficiation	Physical treatment of crude ore to improve its quality for some specific purpose. Also called mineral processing.
bullion	Unrefined gold and/or silver mixtures that have been melted and cast into a bar

Term	Definition
	or ingot.
carbon-in-column (CIC)	A method of recovering gold and silver from pregnant solution from the heap leaching process by adsorption of the precious metals onto fine carbon suspended by up-flow of solution through a tank.
carbon-in-leach (CIL)	A method of recovering gold and silver from fine ground ore by simultaneous dissolution and adsorption of the precious metals onto fine carbon in an agitated tank of ore solids/solution slurry. The carbon flows counter currently to the head of the leaching circuit.
carbon-in-pulp (CIP)	A method of recovering gold and silver from fine ground ore by adsorption of the precious metals onto fine carbon in an agitated tank of ore solids/solution slurry. This recovery step in the process follows the leaching process which is done in similarly agitated tanks, but without contained carbon.
comminution/crushing/grinding	Crushing and/or grinding of ore by impact and abrasion. Usually, the word "crushing" is used for dry methods and "grinding" for wet methods. Also, "crushing" usually denotes reducing the size of coarse rock while "grinding" usually refers to the reduction of the fine sizes.
concentrate	The concentrate is the valuable product from mineral processing, as opposed to the tailing, which contains the waste minerals. The concentrate represents a smaller volume than the original ore
critical path	Sequence of activities through a project network from start to finish, the sum of whose durations determines the overall project duration. Note: there may be more than one such path. (The path through a series of activities, taking into account interdependencies, in which the late completion of activities will have an impact on the project end date or delay a key milestone.)
crosscut	A horizontal opening driven across the course of a vein or structure, or in general across the strike of the rock formation; a connection from a shaft to an ore structure.
crown pillar.	An ore pillar at the top of an open stope left for wall support and protection from wall sloughing above
cut and fill stoping	If it is undesirable to leave broken ore in the stope during mining operations (as in shrinkage stoping), the lower portion of the stope can be filled with waste rock and/or mill tailings. In this case, ore is removed as soon as it has been broken from overhead, and the stope filled with waste to within a few feet of the mining surface. This method eliminates or reduces the waste disposal problem associated with mining as well as preventing collapse of the ground at the surface.
cut-off grade	A grade level below which the material is not "ore" and considered to be uneconomical to mine and process. The minimum grade of ore used to establish reserves.
cyanidation	A method of extracting gold or silver by dissolving it in a weak solution of sodium cyanide.
data verification	The process of confirming that data has been generated with proper procedures, has been accurately transcribed from the original source and is suitable to be used for mineral resource and mineral reserve estimation
decline	A sloping underground opening for machine access from level to level or from the surface. Also called a ramp.
density	The mass per unit volume of a substance, commonly expressed in grams/ cubic centimetre.
depletion	The decrease in quantity of ore in a deposit or property resulting from extraction or production.
development	Often refers to the construction of a new mine or; Is the underground work carried out for the purpose of reaching and opening up a mineral deposit. It includes shaft sinking, cross-cutting, drifting and raising.
development property	a property that is being prepared for mineral production or a material expansion of current production, and for which economic viability has been demonstrated by a pre-feasibility or feasibility study.
dilution	Waste of low-grade rock which is unavoidably removed along with the ore in the mining process.
disclosure	Any oral statement or written disclosure made by or on behalf of an issuer and intended to be, or reasonably likely to be, made available to the public in a jurisdiction of Canada, whether or not filed under securities legislation, but does

Term	Definition
	not include written disclosure that is made available to the public only by reason of having been filed with a government or agency of government pursuant to a requirement of law other than securities legislation.
discounted cash flow (DCF)	Concept of relating future cash inflows and outflows over the life of a project or operation to a common base value thereby allowing more validity to comparison of projects with different durations and rates of cash flow.
drift	A horizontal mining passage underground. A drift usually follows the ore vein, as distinguished from a crosscut, which intersects it.
easement	Areas of land owned by the property owner, but in which other parties, such as utility companies, may have limited rights granted for a specific purpose.
effective date	With reference to a technical report, the date of the most recent scientific or technical information included in the technical report.
encumbrance	an interest or partial right in real property which diminished the value of ownership, but does not prevent the transfer of ownership. Mortgages, taxes and judgements are encumbrances known as liens. Restrictions, easements, and reservations are also encumbrances, although not liens.
feasibility study	a comprehensive study of a mineral deposit in which all geological, engineering, legal, operating, economic, social, environmental, and other relevant factors are considered in sufficient detail that it could reasonably serve as the basis for a final decision by a financial institution to finance the development of the deposit for mineral production.
flotation	Separation of minerals based on the interfacial chemistry of the mineral particles in solution. Reagents are added to the ore slurry to render the surface of selected minerals hydrophobic. Air bubbles are introduced to which the hydrophobic minerals attach. The selected minerals are levitated to the top of the flotation machine by their attachment to the bubbles and into a froth product, called the "flotation concentrate." If this froth carries more than one mineral as a designated main constituent, it is called a "bulk float". If it is selective to one constituent of the ore, where more than one will be floated, it is a "differential" float.
flowsheet	The sequence of operations, step by step, by which ore is treated in a milling, concentration, or smelting process.
footwall	The wall or rock on the underside of a vein or ore structure.
free milling	Ores of gold or silver from which the precious metals can be recovered by concentrating methods without resort to roasting or chemical treatment.
gangue	The fraction of ore rejected as tailing in a separating process. It is usually the valueless portion, but may have some secondary commercial use
geosyncline	A major downwarp in the Earth's crust, usually more than 1000 kilometres in length, in which sediments accumulate to thicknesses of many kilometres. The sediments may eventually be deformed and metamorphosed during a mountain-building episode.
hanging wall	The wall or rock on the upper or top side of a vein or ore deposit.
heap leaching	A process whereby valuable metals, usually gold and silver, are leached from a heap or pad of crushed ore by leaching solutions percolating down through the heap and collected from a sloping, impermeable liner below the pad.
Indicated Mineral Resource	An ‘Indicated Mineral Resource’ is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.
Inferred Mineral Resource	An ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

Term	Definition
internal rate of return (IRR)	The rate of return at which the Net Present Value of a project is zero; the rate at which the present value of cash inflows is equal to the present value of the cash outflows.
IP	Geophysical method, induced polarization; used to directly detect scattered primary sulphide mineralization. Most metal sulphides produce IP effects, e.g. chalcopyrite, bornite, chalcocite, pyrite, pyrrhotite
liberation	Freeing, by comminution, of particles of specific mineral from their interlock with other constituents of the ore.
life of mine (LOM)	Number of years that the operation is planning to mine and treat ore, and is taken from the current mine plan based on the current evaluation of ore reserves.
lithogeochemistry	The chemistry of rocks within the lithosphere, such as rock, lake, stream, and soil sediments
Measured Mineral Resource	A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.
merger	A voluntary combination of two or more companies whereby both stocks are merged into one.
mill	Includes any ore mill, sampling works, concentration, and any crushing, grinding, or screening plant used at, and in connection with, an excavation or mine.
Mineral Reserve	A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.
Mineral Resource	A Mineral Resource is a concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.
mining claim	A description by boundaries of real property in which metal ore and/or minerals may be located.
net present value (NPV)	The present value of the difference between the future cash flows associated with a project and the investment required for acquiring the project. Aggregate of future net cash flows discounted back to a common base date, usually the present. NPV is an indicator of how much value an investment or project adds to a company.
net smelter return royalty (NSR)	A defined percentage of the gross revenue from a resource extraction operation, less a proportionate share of transportation, insurance, and processing costs.
open pit	A mine that is entirely on the surface. Also referred to as open-cut or open-cast mine.
open stope	In competent rock, it is possible to remove all of a moderate sized ore body, resulting in an opening of considerable size. Such large, irregularly-shaped openings are called stopes. The mining of large inclined ore bodies often requires leaving horizontal pillars across the stope at intervals in order to prevent collapse of the walls.
ounce (oz) (troy)	Used in imperial statistics. A kilogram is equal to 32.1507 ounces. A troy ounce is equal to 31.1035 grams.
overburden	Material of any nature, consolidated or unconsolidated, that overlies a deposit of ore that is to be mined.

Term	Definition
pebble mill	A grinding mill similar in construction and action as a ball mill, but in which the charge is made up of hard pebbles in place of the more conventional steel balls
petrography	Branch of geology that deals with the description and classification of rocks.
plant	A group of buildings, and especially to their contained equipment , in which a process or function is carried out; on a mine it will include warehouses, hoisting equipment, compressors, repair shops, offices, mill or concentrator.
portal.	The surface entrance to a tunnel or adit
preliminary economic assessment	a study, other than a pre-feasibility or feasibility study, that includes an economic analysis of the potential viability of mineral resources
preliminary feasibility study, pre-feasibility study	A comprehensive study of the viability of a mineral project that has advanced to a stage where the mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, has been established and an effective method of mineral processing has been determined, and includes a financial analysis based on reasonable assumptions of technical, engineering, legal, operating, economic, social, and environmental factors and the evaluation of other relevant factors which are sufficient for a qualified person, acting reasonably, to determine if all or part of the mineral resource may be classified as a mineral reserve
Probable Mineral Reserve	A ‘Probable Mineral Reserve’ is the economically mineable part of an Indicated and, in some circumstances, a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.
Proven Mineral Reserve	A ‘Proven Mineral Reserve’ is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.
raise	A vertical or inclined underground working that has been excavated from the bottom upward
reclamation	The restoration of a site after mining or exploration activity is completed.
refining	A high temperature process in which impure metal is reacted with flux to reduce the impurities. The metal is collected in a molten layer and the impurities in a slag layer. Refining results in the production of a marketable material.
resistivity	Observation of electric fields caused by current introduced into the ground as a means of studying earth resistivity in geophysical exploration. Resistivity is the property of a material that resists the flow of electrical current
right-of-way	A parcel of land granted by deed or easement for construction and maintenance according to a designated use. This may include highways, streets, canals, ditches, or other uses
rod mill	A rotating cylindrical mill which employs steel rods as a grinding medium.
room and pillar	This method is suitable for level deposits that are fairly uniform in thickness. It consists of excavating drifts (horizontal passages) in a rectilinear pattern so that evenly spaced pillars are left to support the overlying material. A fairly large portion of the ore (40–50%) must be left in place. Sometimes the remaining ore is recovered by removing or shaving the pillars as the mine is vacated, allowing the overhead to collapse or making future collapse more likely
royalty	An amount of money paid at regular intervals by the lessee or operator of an exploration or mining property to the owner of the ground. Generally based on a specific amount per tonne or a percentage of the total production or profits. Also, the fee paid for the right to use a patented process.
run-of-mine	A term used to describe ore of average grade for the deposit.
semi-autogenous grinding (SAG)	A method of grinding rock into fine powder whereby the grinding media consists of larger chunks of rocks and steel balls.
shaft	An excavation of limited area compared with its depth, made for finding or mining ore or coal, raising ore, rock or water, hoisting and lowering men and materials, or ventilating underground workings.
shaft	A vertical or inclined excavation for the purpose of opening and servicing a mine. It is usually equipped with a hoist at the top, which lowers and raises a

Term	Definition
	conveyance for handling men and material
shrinkage stoping	In this method, mining is carried out from the bottom of an inclined or vertical ore body upwards, as in open stoping. However, most of the broken ore is allowed to remain in the stope in order both to support the stope walls and to provide a working platform for the overhead mining operations. Ore is withdrawn from chutes in the bottom of the stope in order to maintain the correct amount of open space for working. When mining is completed in a particular stope, the remaining ore is withdrawn, and the walls are allowed to collapse.
specific gravity	The weight of a substance compared with the weight of an equal volume of pure water at 4°C.
stope	An excavation in a mine, other than development workings, made for the purpose of extracting ore.
strike length	The horizontal distance along the long axis of a structural surface, rock unit, mineral deposit or geochemical anomaly.
strip ratio	The ratio of waste tons to ore tons mined calculated as total tonnes mined less ore tonnes mined divided by ore tonnes mined.
sublevel caving	In this method, relatively small blocks of ore within a vertical or steeply sloping vein are undercut within a stope and allowed to settle and break up. The broken ore is then scraped into raises and dropped into mine cars.
supergene	Mineral enrichment produced by the chemical remobilisation of metals in an oxidised or transitional environment.
tailings	Material rejected from a mill after the recoverable valuable minerals have been extracted.
tunnel	A horizontal underground passage that is open at both ends; the term is loosely applied in many cases to an adit, which is open at only one end
wacke	A sandstone that consists of a mixed variety of angular and unsorted (or poorly sorted) mineral and rock fragments within an abundant matrix of clay and fine silt.
XYZ coordinates	A grouping of three numbers which designate the position of a point in relation to a common reference frame. In common usage, the X and Y coordinate fix the horizontal position of the point, and Z refers to the elevation

22.1.3 Abbreviations

Abbreviation	Definition
®	registered name
AA	atomic absorption spectroscopy
ANC	acid-neutralizing capacity
ANP	acid-neutralizing potential
ARD	acid-rock drainage
AuAA	cyanide-soluble gold
AuEq	gold equivalent
AuFA	fire assay
AuPR	preg-rob gold
AuSF	screen fire assay
AusIMM	Australasian Institute of Mining and Metallurgy
BFA	bench face angle
BLEG	bulk leach extractable gold
BLM	US Bureau of Land Management
C.P.G.	Certified Professional Geologist
Capex	capital expenditure
CIL	carbon-in-leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CN_{wad}	acid-dissociable cyanide
CRM	certified reference material
CST	cleaner scavenger tailings
CTOT	carbon total

Abbreviation	Definition
Cu Eq	copper equivalent
CuCN	cyanide-soluble copper
E	east
EIS	Environmental Impact Statement
EOM	end of month
EOY	end of year
g/dmt	grams per dry metric tonne
GPS	global positioning system
GSM	Groupe Spécial Mobile
H	horizontal
HPGR	high pressure grinding rolls
ICP	inductively-couple plasma
ICP-MS	inductively-coupled plasma mass spectrometry
ICP-OES	inductively-coupled plasma optical emission spectrometry
ID	inverse distance interpolation; number after indicates the power, eg ID6 indicates inverse distance to the 6^{th} power.
JCR	joint condition rating
KV	kriging variance
L–G	Lerchs–Grossmann
LOA	length overall
LOM	life-of-mine

Abbreviation	Definition
LSK	large-scale kinetic
MIK	multiple-indicator kriging
MWMS	mine water management system
MWMT	meteoric water mobility testing
N	north
NAG	net acid generation/net acid generating
NAPP	net acid-producing potential
NI 43-101	Canadian National Instrument 43-101 “Standards of Disclosure for Mineral Projects”
NN	nearest-neighbor/ nearest neighbour
NNP	net neutralizing potential
NSR	net smelter return
NW	northwest
OK	ordinary kriging
Opex	operating expenditure
P.Eng. or P.E.	Professional Engineer
P.Geol or P.Geo	Professional Geologist
PAG	potentially acid-generating
PLI	point load index
PoO	Plan of Operations
PSI	yield strength
QA/QC	quality assurance and quality control
QLT	quick leach test
QP	Qualified Person
RAB	rotary air blast
RC	reverse circulation

Abbreviation	Definition
RMR	rock mass rating
ROM	run-of-mine
RPL	Environmental Monitoring Plan
RQD	rock quality designation
S	south
SAG	semi-autogenous grind
SE	southeast
SEIS	Supplemental Environmental Impact Statement
SG	specific gravity
SMU	selective mining unit
SRM	standard reference material
SS	sulfide sulfur
ST	scavenger tailings
STOT	sulfur total
SX-EW	solvent extraction–electrowin
TF	tonnage factor
Topo	topography
UC	uniform conditioning
UHF	ultra-high frequency
USGS	United States Geological Survey
V	vertical
VHF	very high frequency
W	west
XRD	X-ray diffraction
XRF	X-ray fluorescence

22.1.4 Chemical Symbols

Symbol	Element/Chemical
Ag	silver
Al	aluminum
As	arsenic
Au	gold
B	boron
Ba	barium
Be	beryllium
Bi	bismuth
C	carbon
Ca	calcium
$CaCO_3$	calcium carbonate
CaO	calcium oxide
$CaSO_4•2H_2O$	calcium sulfide dehydrate
Cd	cadmium
Ce	cerium
Cl	chlorine
CN	cyanide
CO	carbon monoxide
Co	cobalt
Cr	chromium
Cs	cesium
Cu	copper
Fe	iron
FeOx	iron oxides
Ga	gallium
Ge	germanium
H	hydrogen

Symbol	Element/Chemical
Hf	hafnium
Hg	mercury
In	indium
K	potassium
La	lanthium
Li	lithium
Mg	magnesium
Mn	manganese
$Mn(OH)_2$	manganous hydroxide
MnO_2	manganese dioxide
Mo	molybdenum
N	nitrogen
Na	sodium
Nb	niobium
NH_3	ammonia
Ni	nickel
NOx	nitrogen oxide compounds
O_2	oxygen
P	phosphorus
Pb	lead
Pd	palladium
Pt	platinum
Rb	rubidium
Re	rhenium
S	sulfur
Sb	antimony
Sc	scandium

Symbol	Element/Chemical
Se	selenium
Sn	tin
SO_2	sulfur dioxide
Sr	strontium
Ta	tantalum
Te	tellurium
Th	thorium
Ti	titanium

Symbol	Element/Chemical
Tl	thallium
U	uranium
V	vanadium
W	tungsten
Y	yttrium
Zn	zinc
Zr	zirconium

23.0 DATE AND SIGNATURE PAGE

The effective date of this Technical Report, entitled "Goldcorp Inc., Red Lake Gold Operation, Ontario, Canada, NI 43-101 Technical Report" is 15 January 2011.

"signed and sealed"

Stephane Blais, P.Eng. 14 March 2011

"signed and sealed"

Chris Osiowy, P.Geo. 14 March 2011

"signed and sealed"

Ian Glazier, P.Eng. 14 March 2011

APPENDIX A
MINERAL TENURE RED LAKE–CAMPBELL COMPLEX

Holder Company	Mining Division	Land Registry Office	Township	Tenure Number		# Units	Hectares	Tenure Type
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19689	1	7.77	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19690	1	10.522	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19691	1	9.712	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19692	1	12.586	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19696	1	17.725	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19697	1	21.732	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19698	1	17.847	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19699	1	16.875	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19700	1	9.591	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19701	1	15.783	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19702	1	11.331	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20141	1	19.304	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20142	1	7.39	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20143	1	10.445	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	23105	1	7.062	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19493	1	13.929	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19494	1	21.375	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19495	1	16.77	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19496	1	3.313	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19496	1	0.089	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19496	1	15.249	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19496	1	0.038	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19496	1	0.083	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19497	1	23.055	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19497	1	0.08	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19498	1	12.137	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	0.038	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	0.046	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	15.512	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	0.046	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	0.089	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	0.089	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	0.038	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19499	1	7.286	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19500	1	18.365	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19500	1	0.038	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19501	1	14.977	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19502	1	18.001	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19502	1	14.01	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19503	1	17.685	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19503	1	0.089	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19504	1	18.454	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19505	1	33.832	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19506	1	23.188	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19507	1	21.125	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19508	1	12.829	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19509	1	16.956	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19510	1	16.349	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19511	1	15.014	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19512	1	15.095	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19513	1	11.845	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19514	1	14.083	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20779	1	16.859	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20780	1	12.165	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20781	1	21.23	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20782	1	16.993	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20783	1	21.295	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20793	1	21.537	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20794	1	24.196	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20795	1	25.082	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20796	1	25.366	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20797	1	19.898	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20798	1	27.219	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	20799	1	19.069	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19643	1	7.535	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19644	1	26.305	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19645	1	14.164	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19646	1	12.222	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19647	1	12.829	Patented MR & SR

Holder Company	Mining Division	Land Registry Office	Township	Tenure Number		# Units	Hectares	Tenure Type
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19973	1	16.592	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19974	1	15.459	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19975	1	12.141	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19976	1	15.783	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19977	1	7.365	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19978	1	12.262	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19979	1	14.002	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19980	1	21.165	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	19981	1	21.893	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21286	1	25.091	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21287	1	17.806	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21288	1	13.112	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21289	1	11.129	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21290	1	13.921	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21291	1	19.983	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21292	1	11.21	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21237	1	28.692	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21238	1	20.72	Patented MR & SR
Goldcorp Inc.	Red Lake	Kenora	Balmer	KRL	21239	1	24.767	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	CLM	304	1	0.72	Patented MR & SR
Goldcorp Canada Ltd..	Red Lake	Kenora	Balmer	KRL	10867-LO	1	14.75	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	10871-LO	1	6.3	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	10919-LO	1	11.77	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	11122-LO	1	4.15	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	11123-LO	1	6.13	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	11124-LO	1	5.67	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19666	1	15.76	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19667	1	18.54	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19668	1	11.43	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19669	1	18.78	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19670	1	18.07	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19671	1	10.57	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19721	1	11.95	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19722	1	25.71	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19723	1	16.65	Patented MR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19724	1	25.88	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19725	1	18.19	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	19726	1	6.99	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20068	1	22.6	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20069	1	22.28	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20070	1	10.79	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20071	1	16.09	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20072	1	10.87	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20073	1	20.63	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20074	1	20.33	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20075	1	19.89	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20076	1	16.33	Patented MR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20252	1	11.73	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20253	1	29.72	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20254	1	23.55	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20255	1	12.49	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20256	1	22.09	Patented MR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20345	1	19.02	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20346	1	18.5	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20459	1	13.48	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20460	1	18.77	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20461	1	17.07	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20462	1	11.34	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20603	1	11.7	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20604	1	8.43	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20605-LO	1	15.88	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20606-LO	1	16.6	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20607-LO	1	12.74	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20731	1	0.73	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20755	1	4.21	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20824-LO	1	11.91	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20825-LO	1	13.55	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20826-LO	1	5.01	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20829-LO	1	20.19	Lic. of Occupation

Holder Company	Mining Division	Land Registry Office	Township	Tenure Number		# Units	Hectares	Tenure Type
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20830-LO	1	16.99	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20831-LO	1	13.55	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	21953	1	9.03	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	21954	1	16.86	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	23059	1	1.02	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	27179	1	4.07	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	17956	1	16.19	Patented MR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	17957	1	18.86	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	17958	1	12.99	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	17959	1	16.72	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18327	1	9.46	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18328	1	13.35	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18329	1	17.07	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18330	1	15.5	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18331	1	14.69	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18332	1	8.51	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18333	1	12.23	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18334	1	14.95	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18335	1	12.16	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Dome	KRL	18336	1	17.48	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	10805-LO	1	3.39	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	10806-LO	1	6.62	Lic. of Occupation
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20840	1	14.29	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20841	1	25.03	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20842	1	25.1	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer	KRL	20843	1	14	Patented MR & SR
Goldcorp Canada Ltd.	Red Lake	Kenora	Balmer/Dome	KRL	21961	1	7.77	Patented MR & SR

APPENDIX B
MINERAL TENURE COCHENOUR COMPLEX

Recorded Owner	Mining Division	Land Registry Office	Township Name	Tenure Number		Pat#/Lic /Lease	Parcel	Tenure Type	Size (Ha)	Royalties
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	503038	108337	993DPL	Lease MR	14.35	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	503039	108338	994DPL	Lease MR	19.41	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	503040	108339	995DPL	Lease MR	11.38	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	503041	108340	996DPL	Lease MR	7.36	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	503042	108341	997DPL	Lease MR	9.22	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	503043	108342	998DPL	Lease MR	13.93	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	8510	8358	445, 6557	Patented MR & SR	6.03	3% NSR to Avitel Enterprises Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	83	8001	207	Patented MR & SR	18.09	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	84	8002	208	Patented MR & SR	18.21	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	85	8003	209	Patented MR & SR	15.50	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	86	8004	210	Patented MR & SR	17.04	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	87	8005	211	Patented MR & SR	22.42	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	88-LO	3029		Lic. of Occupation	4.58	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	88	8006	212	Patented MR & SR	7.97	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	89-LO	3029		Lic. of Occupation	2.00	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	89	8007	213	Patented MR & SR	7.97	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	90	8370, 113562	450, 5075, 5373, 6328	Patented MR & SR	12.59	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	91	8371	451, 4388, 4395, 5178	Patented MR & SR	24.48	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	93	8378	455, 4389, 4395, 5376	Patented MR & SR	41.80	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	320	8120	282, 6963, 7502	Patented MR & SR	4.65	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	321-LO	2868		Lic. of Occupation	5.83	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	321	8121	283, 6963, 7502	Patented MR & SR	3.60	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	322-LO	2869		Lic. of Occupation	10.04	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	322	8122	284, 6963, 6328, 7502	Patented MR & SR	8.22	n/a

Recorded Owner	Mining Division	Land Registry Office	Township Name	Tenure Number		Pat#/Lic /Lease	Parcel	Tenure Type	Size (Ha)	Royalties
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	411	8123	285, 3700, 4667, 6135, 7502	Patented MR & SR	14.12	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	412-LO	2870		Lic. of Occupation	13.23	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	412	8124	286, 6135, 7502, 7765	Patented MR & SR	1.25	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	432	107063	536LKP	Lease MR & SR	17.93	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	433	107063	536LKP	Lease MR & SR	13.03	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	440	107063	536LKP	Lease MR & SR	1.30	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	441	107063	536LKP	Lease MR & SR	15.74	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	442	107063	536LKP	Lease MR & SR	4.65	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	462	9181	1056, 5270, 5714, 5724, 6963, 7502	Patented MR & SR	11.09	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	463	9182	1057, 5270, 5714, 5724, 6963, 7502	Patented MR & SR	10.81	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	464	9183	1058, 7502	Patented MR & SR	9.67	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	465	9184	1059, 6963, 7502	Patented MR & SR	20.44	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	466	9185	1060, 7502	Patented MR & SR	16.84	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	1021	107064	535LKP	Lease MR	10.40	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	1022	107064	535LKP	Lease MR	13.71	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	1029	8179	325	Patented MR & SR	13.50	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	1030	8180	326	Patented MR & SR	13.44	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	1031	8237	372	Patented MR & SR	5.99	1% NSR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	5217	8372	5377	Patented SR	12.70	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	5218	8373	5377	Patented SR	13.05	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7460	9006	939, 4667, 6517, 6963, 7502	Patented MR & SR	10.24	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7461	9007	940, 7502	Patented MR & SR	14.81	n/a

Recorded Owner	Mining Division	Land Registry Office	Township Name	Tenure Number		Pat#/Lic /Lease	Parcel	Tenure Type	Size (Ha)	Royalties
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7462	9008	941, 7502	Patented MR & SR	16.55	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7594	8365	447, 4667, 5375, 5376	Patented MR & SR	10.89	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7602-LO	2916		Lic. of Occupation	12.63	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7603-LO	2917		Lic. of Occupation	16.19	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7604-LO	2918		Lic. of Occupation	12.91	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7605-LO	2919		Lic. of Occupation	13.84	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7606	8181	327, 4667, 6963, 7502	Patented MR & SR	12.71	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7607	8182	328, 7502	Patented MR & SR	11.29	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7634-LO	2920		Lic. of Occupation	15.94	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7635-LO	2921		Lic. of Occupation	10.08	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	7741	8365A	3696, 5373, 5374	Patented MR & SR	9.79	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	8583	8356	5377	Patented SR	14.57	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	8740	8784	5377	Patented SR	14.18	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	9992	8785	780, 5377, 5378	Patented MR & SR	20.66	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	10108	107063	536LKP	Lease MR & SR	6.68	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	10722-LO	3471		Lic. of Occupation	30.19	1% NR to Royal Gold Inc.
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	10895	8788	5373, 5374	Patented MR & SR	12.75	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	10896	8789	784, 5375, 5376, 6020	Patented MR & SR	14.41	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome	KRL	11516	107063	536LKP	Lease MR & SR	7.28	n/a
Goldcorp Inc. (72%), Goldcorp Canada Ltd. (28%)	Red Lake	Kenora	Dome		999966			Unpatented	16.00	n/a
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	914	8145	299	Patented MR & SR	6.77	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	915-LO	2897		Lic. of Occupation	1.78	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	915	8147	300	Patented MR & SR	16.45	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	5273-LO	3814		Lic. of Occupation	15.90	

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Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	5273	8801	796	Patented MR & SR	15.71	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	9907-LO	3508		Lic. of Occupation	16.48	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10019-LO	3791		Lic. of Occupation	10.05	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10583	8987	925	Patented MR & SR	9.15	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10631	8988	926	Patented MR & SR	10.98	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10632	8989	927	Patented MR & SR	5.20	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10633	9044	967	Patented MR & SR	13.43	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10634	9045	968	Patented MR & SR	12.61	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10635-LO	10036		Lic. of Occupation	2.11	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10640	9046	969	Patented MR & SR	17.96	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10641	9047	970	Patented MR & SR	11.91	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10642-LO	10037		Lic. of Occupation	21.48	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10642	9048	971	Patented MR & SR	2.06	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10643	8990	928	Patented MR & SR	11.45	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10644	8991	929	Patented MR & SR	10.79	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10651-LO	10035		Lic. of Occupation	16.81	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10652-LO	10034		Lic. of Occupation	4.99	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10653	9059	977	Patented MR & SR	12.40	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10660-LO	10039		Lic. of Occupation	6.92	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10660	9060	978	Patented MR & SR	20.83	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10661-LO	10040		Lic. of Occupation	7.86	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10661	9061	979	Patented MR & SR	14.41	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10662	9062	980	Patented MR & SR	13.78	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10670	9063	981	Patented MR & SR	6.05	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10671-LO	10046		Lic. of Occupation	13.56	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10671	9064	982	Patented MR & SR	4.24	

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Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10841-LO	3813		Lic. of Occupation	2.51	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10841	8802	797	Patented MR & SR	15.67	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10842-LO	3812		Lic. of Occupation	4.61	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10842	8803	798	Patented MR & SR	26.13	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10916	8992	930	Patented MR & SR	17.48	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10918	9560	1261	Patented MR & SR	24.69	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10921	9561	1262	Patented MR & SR	15.70	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10922	9562	1263	Patented MR & SR	14.85	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	10923	9563	1264	Patented MR & SR	12.65	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	11247-LO	10047		Lic. of Occupation	6.76	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	12180-LO	10038		Lic. of Occupation	13.93	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	12180	9065	983	Patented MR & SR	2.99	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	12181-LO	10091		Lic. of Occupation	6.87	
Gold Eagle Mines Ltd. (100%)	Red Lake	Kenora	Dome	KRL	12307	9564	1265	Patented MR & SR	15.10	