Los Filos Gold Operation
Guerrero State, Mexico
NI 43-101 Technical Report

Prepared by:

Maryse Belanger, P.Geo.

Prepared for:

Goldcorp Inc.

Effective date:

31 December 2012

CERTIFICATE OF QUALIFIED PERSON

I, Maryse Belanger, P.Geo., as an author of this report entitled "Los Filos Gold Operation Guerrero State, Mexico NI 43-101 Technical Report" that has an effective date of December 31, 2012 prepared for Goldcorp Inc. (the "Issuer") do hereby certify that:

1. I am Senior Vice President Technical Services, Goldcorp Inc., located at 666 Burrard St., Suite 3400, Vancouver, British Columbia, Canada, V6C 2X8.

2. This certificate applies to the technical report "Los Filos Gold Operation Guerrero State, Mexico NI 43-101 Technical Report" that has an effective date of December 31, 2012 (the "Technical Report").

3. I graduated with a Bachelor of Science degree (BSc) in Earth Sciences from the Université du Québec à Chicoutimi in 1985. I studied Geostatistics at the Centre de Géostatistique in Fontainbleau, France in 1986.

4. I have worked as a geologist for a total of 25 years. I am a member in good standing of the Association of Professional Geoscientists of Ontario (APGO) with Registration No. 0125.

5. I am familiar with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("NI 43-101") and by reason of education, experience and professional registration I fulfill the requirements of a "qualified person" as defined in NI 43-101.

6. I visited the Los Filos Mine on March 24–25, 2012, November 29–30, 2011 and March 15–16, 2011.

7. I am responsible for all of the sections of the Technical Report.

8. I am not an independent qualified person as described in section 1.5 of NI 43-101, as I am an employee of the Issuer.

9. I have no prior involvement with the property.

10. I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101.

11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 26th day of February, 2013

"signed and sealed"

Maryse Belanger, P. Geo.,
Senior Vice President Technical Services,
Goldcorp Inc

CONTENTS

TABLES

FIGURES

1.0 SUMMARY

Goldcorp Inc. (Goldcorp) has prepared a Technical Report (the Report) for the wholly-owned Los Filos gold operation, (the Project), located in the Nukay district of Guerrero State, in Mexico. The Report presents an update on the Los Filos mining operations, including updated Mineral Resources and Mineral Reserves. Goldcorp will be using the Report to support disclosure and filing requirements with the Canadian Securities Regulators.

1.1 Project Setting, Location and Access

The mining operations lie within the southern part of the Morelos National Mineral Reserve that is known as Morelos Sur.

From Mexico City, the Project can be accessed via Highway 95, a major paved highway, by turning off at the town of Mezcala onto a dirt road that leads to the Project site. Driving time to site from Mexico City is approximately three hours. The Project area is served by a network of local roads.

A private airstrip services the mine site, with flights to the site boarded at the Cuernavaca Airport, 25 minutes flying time from the mine.

The Project is located in a tropical arid zone. Average annual temperature ranges are approximately 18–22ºC. Average annual precipitation is 590 mm. The predominant wind direction throughout most of the year is north–northwest.

The Project area is characterized by large limestone mountains divided by wide valleys. The slopes of the hills vary from very flat (5–10%) to steep slopes (50%). Valley slopes are covered with hardwood forest while the valley bottoms are generally farmed. The maximum elevation in the Project area, at 1,820 masl, is the summit of El Bermejal hill. The valley of Carrizalillo lies at an altitude of 1,000–1,100 masl.

The mining operations are located near established power and road infrastructure at Mezcala, and near centers of supply of materials and workers in the communities of Chilpancingo, Iguala, and Cuernavaca. Currently, 1,226 persons are employed on site. Power is supplied through the local utility service, Comision Federal de Electricidad. Process and potable water for the Project is sourced from a large well and filtration gallery on the Rio Balsas located 1.5 km west of Mezcala. Site communications include satellite service, using voice over internet protocols (VoIP for telephones) and Internet protocols (for regular computer business). Pit operations use two-way radio communications.

Mining operations are conducted year-round.

1.2 Mineral Tenure, Surface Rights, and Royalties

The Project consists of 20 exploitation concessions totalling 4,622 ha located within the municipality of Eduardo Neri, Guerrero, Mexico. All exploitation concessions have a term of 50 years. Tenure is held in the name of indirectly wholly-owned subsidiaries of Goldcorp, Minas de San Luis S.A. de C.V. and Minera Nukay S.A. de C.V.

As per Mexican requirements for grant of tenure, the concessions comprising the Project have been surveyed on the ground by a licensed surveyor. All appropriate payments have been made to the relevant authorities, and the licences are in good standing.

Goldcorp has secured a total of 3,920 ha of surface rights, and currently holds all the surface rights required for Project operations including pits, process and ancillary facilities, roads, services and a buffer area securing future growth and potential exploration targets. Surface rights have been secured by either acquisition of private and public land or by entering into temporary occupation agreements with surrounding communities.

No royalties are payable to any entity. Current Mexican legislation does not require government royalty payments.

1.3 Environment, Permits, and Social Licence

Goldcorp complies with Mexican Federal, State and Municipal environmental laws and regulations. The Los Filos mine currently holds all of the environmental and operating permits that are required for operations.

Public consultation and community assistance and development programs are ongoing. Implementation of sustainable development initiatives for the communities of Carrizalillo, Mezcala and Mazapa commenced in 2007.

1.4 Closure Considerations

A closure and reclamation plan has been prepared for the mine site. The cost for this plan was calculated based on the standard reclamation cost estimator (SRCE) model which is based on Nevada state regulations. The closure cost spending schedule has been updated for the current mine life, and reflects the anticipated expenditures prior to closure, during decommissioning and during the post-closure monitoring and maintenance period. Current closure costs are estimated at $21.9 M.

1.5 Geology and Mineralization

The deposits in the Los Filos Project area are considered to be typical of intrusion-related gold–silver skarn deposits.

In the Los Filos area, mineralization is associated with two Tertiary diorite to granodiorite stocks that were emplaced in Cretaceous carbonate rocks of the Morelos Formation, forming metasomatic halos at their contacts. Mineralization within the El Bermejal area is related to emplacement of a Tertiary granodiorite stock emplaced in Cretaceous carbonate and argillic rocks of the Morelos Formation. At the 4P deposit, which comprises the El Grande, Aguita, Zona 70, and Crestón Rojo zones, mineralization is related to granodioritic plutons intruding the Morelos Formation carbonates and can be present in both exoskarn and the granodiorite. Skarn formation along the contact zones between the carbonate sediments of the Morelos Formation and the diorites and granodiorites of the East and West stocks controls the mineralization at Los Filos underground (Nukay). At the Guadalupe deposit, mineralization is primarily hosted in skarn.

Mineralization is either hosted by or spatially associated with marble formed during contact metamorphism of the carbonates. Massive magnetite, hematite, goethite and jasperoidal silica, with minor associated pyrite, pyrrhotite, chalcopyrite and native gold typically occur in the veins and metasomatic replacement bodies that developed at the contacts between the carbonates and intrusive rocks.

Alteration associated with mineralization is extremely varied and ranges from high temperature metasomatic to lower temperature epithermal alteration.

1.6 Exploration

Much of the early exploration and mining activity in the area was focused on the neighbouring Nukay claim prior to the discovery of the Los Filos deposit in 1995. The El Bermejal deposit was identified in 1989. Goldcorp acquired title to the Project area through a series of corporate acquisitions and ground consolidations.

Exploration activities completed in the period 1984 to date include geological mapping, geochemical sampling, geophysical surveys, reverse circulation (RC) and core drilling, underground, metallurgical, geotechnical and hydrological drilling, development studies, and permitting activities.

The Nukay mine initially commenced production in 1938, and has been an intermittent producer since. The current Goldcorp Los Filos underground operations which include the Nukay zone recommenced in 1984. The underground operations have been integrated with the Los Filos open pit operations, which commenced production from the Los Filos and El Bermejal deposits in 2007.

1.7 Drilling

Drill programs have been completed primarily by contract drilling crews, supervised by Geology staff from the Project operator at the time. The current drill database contains 2,694 drill holes (553,081 m), of which 1,476 (322,290 m) are core holes, and the remaining 1,218 holes (230,821) are reverse circulation (RC).

RC drilling was conducted using down-hole hammers and tricone bits, both dry and with water injection. Some RC drilling was performed as pre-collars for core drill holes. Sample recoveries were not routinely recorded for RC holes.

Diamond drilling typically recovered HQ size core (63.5 mm diameter) from surface, then was reduced to NQ size core (47.6 mm) where ground conditions warranted. Following drilling methods tests, face-discharge bits were used for all drilling. In general, core recoveries were good, averaging around 90%. Metallurgical holes were typically drilled using PQ size core (85 mm). Core recoveries averaged over 90%.

Although the vein and skarn 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.

Drill spacing across the deposits that have Mineral Resources estimated is at about 25 m x 25 m in areas with close-spaced drilling, widening to about 35 m x 35 m in the areas that are less well drilled. Drill spacing is wider again in the areas outside the conceptual pit outlines used to constrain Mineral Resources. Within the area of underground operations and Mineral Reserves, drill spacing is typically about 25 m x 25 m; outside operational areas, the spacing typically increases to approximately 25 m x 50 m.

Logging of RC drill cuttings and core utilized standard logging procedures that recorded lithological, mineralogical and geotechnical data. Drill collars are surveyed by mine personnel, using total station instruments. Historic drill holes were picked up as collars could be located. Initial downhole surveys were performed using acid etching; since 2003, a Reflex downhole survey instrument has been used, with surveys generally at 50 m intervals downhole.

Sample collection and handling of RC drill cuttings and core was done in accordance with industry standard practices, with procedures to limit sample losses and sampling biases. RC samples are typically 1.52 m (5 ft). Core is sampled so as to identify lithological changes, and typically does not exceed 1.5 m lengths. Splitting was done using a tile saw or Rockman saw when solid, or by hand with a knife or spatula when soft. Hydrasplit manual hydraulic splitters have also been used.

The sampling has been done over a sufficiently large 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 have been undertaken since about 2000. QA/QC includes submission of standard reference materials and blanks, and re-assay of a proportion of the samples.

Sample security was not generally practiced at the Los Filos Project during the drilling programs, due to the remote nature of the site. Sample security relied upon the fact that the samples were always attended or locked in the on-site sample dispatch facility.

Entry of information into databases utilized a variety of techniques and procedures to check the integrity of the data entered. The databases are acceptable to support Mineral Resource and Mineral Reserve estimation.

1.8 Sample Preparation and Analysis

Sample preparation and analytical laboratories used during the exploration and delineation drilling programs on the Project include Bondar Clegg, Skyline and ALS Chemex. Bondar Clegg and Skyline were acquired in the early 2000s by ALS Chemex. ALS Chemex holds ISO 17025 accreditations for selected analytical methods.

The sample preparation method from 2000–2003 comprised crushing to 75% passing 10 mesh, then pulverizing to a minimum of 95% passing 150 mesh. In 2003, the pulverization changed to a minimum of 85% passing 200 mesh.

For the period 2000 to 2003, samples were assayed for gold using fire assay. Samples with values exceeding 10,000 ppb Au were re-analyzed by fire assay and gravimetric finish and results were reported in g/t. If requested, the laboratory performed inductively coupled plasma emission spectroscopy (ICP) analyses on 0.5 g samples of pulverized pulps.

Since 2003, gold assays are run using a one assay-ton (30 g) charge, with atomic absorption finish. Assays exceeding 10 g/t Au were re-analyzed using fire assay with gravimetric finish. Copper and silver assays were performed using a 1 g charge, aqua regia digestion and atomic absorption analysis. Silver values exceeding 100 g/t Ag were reanalyzed using a one-ton fire assay with gravimetric finish.

Approximately 2.5% of the splits from the exploration core samples were routinely re-assayed to confirm initial results and, if the check assays were at variance with the original assay, a second split sample was assayed.

Goldcorp's quality control and data verification procedures incorporated a system of repeat assaying and blanks. One in 20 samples sent to the laboratory were identified for repeat analysis. Goldcorp introduced a blank sample immediately after the repeat sample, in other words every batch consists of 22 samples. The blank material was limestone sourced from the local river, several kilometres away from the Project area.

1.9 Data Verification

A number of check assay programs have been conducted on legacy (historic) drill samples, in 1998, 2000, and 2001. In general the programs found no particular bias, and a good correlation was noted between the original assays and the check assays.

A number of RC holes on Los Filos have been twinned with diamond drill holes. Checks on the twin data were performed in 2002 and 2003; results indicated a reasonable agreement in picking out the mineralized zone with differences in average grades explained by nugget effect in two samples taken several metres apart in most cases.

Database verification was performed in 2002, 2003, and 2006 in support of technical report preparation. No significant errors were noted.

International Mining Consultants (IMC), a third-party independent consulting firm, performed the open pit Mineral Resource and Mineral Reserve estimates. Since 2008, IMC have reviewed the procedures used by geology to handle, log, and prepare samples for shipment and the QA/QC programs in place. In IMC's opinion, the current procedures are very good and there are no significant issues that would preclude the use of data in Mineral Resource and Mineral Reserve estimation.

NCL Limited (NCL), a third-party independent consulting firm, performed the underground Mineral Resource and Mineral Reserve estimates. During 2012, NCL undertook a review of the QAQC data available for the Los Filos underground. No significant issues that would preclude the use of data in Mineral Resource and Mineral Reserve estimation were identified from the review.

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

The results of the various reviews indicate that the assay and geological databases are suitable to support the Mineral Resource and Mineral Reserve estimates.

1.10 Metallurgical Testwork

Metallurgical testwork performed in support of process development included bottle roll and leach tests, ore variability tests, characterization of ore physical parameters, work and abrasion index tests, and permeability tests. Programs were sufficient to establish the optimal processing routes for oxide and sulphide ores, were performed on mineralization that was typical of the deposits, and supported estimation of recovery factors, assuming heap leaching, for the various ore types.

The design process is a heap leach operation that treats higher-grade crush–leach material from the underground and Los Filos open pits, and run-of-mine (ROM) ore from the Los Filos and Bermejal open pits.

Three metallurgical recovery estimates are used in the life-of-mine (LOM) plans for the heap leach facilities:

- Crush–leach ore: 72%;
- Los Filos pit ore: 55%;
- El Bermejal pit ore: 59.6%.

Silver recoveries are assumed as 5% for all ore types.

1.11 Mineral Resource Estimate

Mineral Resource models and estimates for the Los Filos/4P and El Bermejal/Guadalupe deposits were prepared by Mr Michael Hester, a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM), Vice President, International Mining Consultants (IMC), with the support of Goldcorp staff. Mineral Resource estimates and models for the Los Filos underground deposits were prepared by Mr Luis Oviedo, Consultant Partner, NCL Limited (NCL), who is a Registered Member of the Chilean Mining Commission (RM CMC). Ms Maryse Belanger, P.Geo., Senior Vice President Technical Services with Goldcorp, reviewed the estimates and is the Qualified Person (QP) for the estimates.

Three dimensional solid wire-frames were created for lithologies and oxidation states, by deposit. Where applicable, structural models were also produced. A grade capping strategy was used for gold and silver to restrict the impact of outlier grades on the estimates. Density values were assigned within the models by domain, oxide code, and lithology.

Interpolation methods used inverse distance weighting to a specified power or ordinary kriging, using octant search ellipses that were based on variogram data. Interpolation was based on a number of passes that used pre-set minimum and maximum composite numbers.

Resource classification categories were based on a combination of consideration of the kriging variance and the number of drill holes intersecting a model block.

Reasonable prospects of economic extraction for Mineral Resources amenable to open pit mining methods was assumed geological and grade continuity within the confines of a Lerchs–Grossmann pit shell. The mineralization within the pit shells that satisfies these requirements equates to a minimum cut-off grade of 0.2 g/t Au being used to constrain the Mineral Resources.

Mineral resources potentially amenable to underground mining methods were considered to have reasonable prospects of economic extraction when the block grade was above 2.94 g/t Au.

1.12 Mineral Resource Statement

Mineral Resources have an effective date of December 31, 2012 and are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves. Mineral Resources were estimated using a gold price of US$1,500/oz and a silver price of US$27/oz. Mineral Resources are exclusive of Mineral Reserves and do not include dilution. Goldcorp cautions that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Mineral Resources are summarized in Table 1-1 for those amenable to open pit mining methods, and in Table 1-2 for Mineral Resources amenable to underground mining methods. Total Mineral Resources for the Project are included as Table 1-3.

Mineral Resources for the Project, which have been estimated using channel, core and RC drill data, appropriately consider relevant modifying factors, have been estimated using industry best practices, and conform to the requirements of CIM (2010).

Table 1-1: Los Filos Gold Operation Total Mineral Resources Potentially Amenable to Open Pit Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	8,688	0.84	7.6	235	2,121
Indicated	60,594	0.83	6.5	1,632	12,810
Subtotal Measured and Indicated	*69,622*	*0.83*	*6.7*	*1,867*	*1,431*
Inferred	236,971	0.79	6.0	6,027	45,358

Notes to Accompany Mineral Resource Table for Mineral Resources Amenable to Open Pit Mining Methods

1. Mineral resources are exclusive of mineral reserves and do not include dilution;
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral resource estimates were prepared by Mr M. Hester, F.AusIMM, an employee of International Mining Consultants, and reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimate;
4. Mineral resources are reported to a gold price of US$1,500/oz and a silver price of US$27/oz;
5. Mineral resources are defined with Lerchs-Grossman pit shells that use variable mining and recovery estimates depending on the geometallurgical domain and whether mineralization is projected to report to crush–leach or is considered typical run-of-mine for processing requirements;
6. Mineral resources are reported to variable gold cut-off grades of 0.2 g/t Au for mineralization from El Bermejal and Guadalupe, and 0.22 g/t Au to 0.5 g/t Au for mineralization from Los Filos, 4P, and Aguita;
7. Tonnages are rounded to the nearest 1,000 tonnes, grades are rounded to two decimal places for Au, grades for Ag are rounded to one decimal place; rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. Tonnage and grade measurements are in metric units. Gold and silver contained ounces are reported as troy ounces.

Table 1-2: Los Filos Total Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	941	11.64	16.5	352	499
Indicated	454	9.06	37.1	132	542
Total Measured and Indicated	*4*	10.80	23.2	*484*	*1,041*
Inferred	2,209	6.53	15.7	465	1,112

Notes to Accompany Mineral Resource Table for Mineral Resources Amenable to Underground Mining Methods

1. Mineral resources are exclusive of mineral reserves and do not include dilution;
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral resource estimates were prepared by Mr Luis Oviedo, RM CMC, an NCL employee and reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimate;
4. Mineral resources are reported to a gold price of US$1,500/oz and a silver price of US$27/oz;
5. Mineral resources definition uses a mining cost of $97.99, process cost of $2.415, process recovery of 72%, and a refining cost of $3.26/oz;
6. Mineral resources are reported to a gold cut-off grade of 2.94 g/t Au;
7. Tonnages are rounded to the nearest 1,000 tonnes, grades are rounded to two decimal places for Au, grades for Ag are rounded to one decimal place; rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. Tonnage and grade measurements are in metric units. Gold and silver contained ounces are reported as troy ounces.

Table 1-3: Los Filos Gold Operation Total Mineral Resources, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	9,609	1.90	8.5	587	2,620
Indicated	61,408	0.89	6.8	1,764	13,351
Total Measured and Indicated	*70,016*	1.03	7.0	*2,351*	*15,972*
Inferred	239,180	0.84	6.0	6,490	46,470

Notes to Accompany Mineral Resource Table

1. Mineral resources are exclusive of mineral reserves and do not include dilution;
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral resource estimates potentially amenable to open pit mining methods were prepared by Mr M. Hester, F.AusIMM, an employee of International Mining Consultants. Mineral resource estimates potentially amenable to underground mining methods were prepared by Mr Luis Oviedo, RM CMC, an NCL employee. Estimates were reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimate;
4. Mineral resources are reported to a gold price of US$1,500/oz and a silver price of US$27/oz;
5. Mineral resources potentially amenable to open pit mining methods use a mining cost of $97.99, process cost of $2.415, process recovery of 72%, and a refining cost of $3.26/oz. Mineral resources potentially amenable to underground mining use a mining cost of $97.99, process cost of $2.415, process recovery of 72%, and a refining cost of $3.26/oz;
6. Mineral resources potentially amenable to open pit mining methods are reported to variable gold cut-off grades of 0.2 g/t Au for mineralization from El Bermejal and Guadalupe, and 0.22 g/t Au to 0.5 g/t Au for mineralization from Los Filos, 4P, and Aguita. Mineral resources potentially amenable to underground mining are reported to a gold cut-off grade of 2.94 g/t Au;
7. Tonnages are rounded to the nearest 1,000 tonnes, grades are rounded to two decimal places for Au, grades for Ag are rounded to one decimal place; rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. Tonnage and grade measurements are in metric units. Gold and silver contained ounces are reported as troy ounces.

Factors which may affect the geological models, the conceptual pit shells, or the underground mining assumptions, and therefore the Mineral Resource estimates include:

- Gold and silver price assumptions;
- Changes in interpretations of lithological or geometallurgical domains;
- Changes in interpretations of structural boundaries;
- Pit slope angles and geotechnical assumptions supporting underground stope designs;
- Changes to the assumptions used to generate the gold cut-off grades for resource declaration;
- Changes to the search orientations, search ellipse ranges, and numbers of octants used for grade estimation;

- Changes to the classification criteria used to classify resource blocks at Los Filos;
- The mining operation encounters more fresh sulphide material during mining operations than has been accounted for in the block models. This material, although it may have potentially economic gold grades, would be sent to waste rather than process.

1.13 Stockpiles

There are currently no stockpiles included in either the Mineral Resource or the Mineral Reserve estimates.

1.14 Mineral Reserve Estimate

Mineral Reserves were estimated using metal prices of US$1,350/oz gold and US$24/oz silver. Mineral Reserves are based on material that has been classified as Measured and Indicated Mineral Resources. Open pit Mineral Reserves were estimated by Mr Michael Hester, F.AusIMM, of IMC. Underground Mineral Reserves were estimated by Mr Carlos Guzman, F.AusIMM and RM CMC, an employee of NCL. Estimates were reviewed by Ms Maryse Belanger, P.Geo., who is the QP for the estimates.

Mining, processing and general and administrative (G&A) costs were estimated based on actual production costs and 2013 budget estimates. These costs resulted for open pit Mineral Reserves of a cut-off grade of 0.2 g/t Au for ROM ore, and 0.5 g/t Au for crush–leach ore. Underground Mineral Reserves are reported at a cut-off grade of 3.6 g/t Au, and mineralization must have a minimum horizontal continuity of 10 m and mining width of 1 m. No allocation (0%) was made for dilution within the open pit Mineral Reserve estimate. In the underground estimate, approximately 10% dilution (0.85 m) is added. Dilution was assigned an overall average gold grade of 1 g/t Au and 5 g/t Ag.

Mining recovery assumptions were assigned to the stope sizes, depending on stope width. Once estimated, the Mineral Reserves were trimmed to remove areas of current workings.

1.15 Mineral Reserve Statement

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.

Mineral Reserves for the Project included only mineralization classified as Measured and Indicated Mineral Resources and are presented in Table 1-4 for the open pit mineralization and in Table 1-5 for the underground. Total Mineral Reserves are summarized in Table 1-6. Mineral Reserves are estimated using a US$1,350/oz gold price, a US$24/oz silver price and an economic function that includes variable operating costs and mining and metallurgical recoveries. The effective date for the Mineral Reserves is December 31, 2012.

Mineral Reserves for the Project, which have been estimated using channel, core and RC drill data, appropriately consider modifying factors, have been estimated using industry best practices, and conform to the requirements of CIM (2010).

Factors which may affect the Mineral Reserve estimates include:

- Metal prices;
- Mining and metallurgical recovery assumptions;
- Presence of unexpected quantities of sulphide minerals encountered in the open pits that may require the mineralization being sent to waste rather than to the heap leach;
- Geotechnical characteristics of the rock mass and effectiveness of the underground dilution assumptions;

Table 1-4: Mineral Reserve Statement, Los Filos Project Open Pits Total, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	71,433	0.84	5.0	1,933.1	11,522
Stockpile(s)	—	—	—	—	—
Probable	222,592	0.68	5.5	4,860.6	39,019
Total Proven and Probable	*294,025*	*0.72*	*5.3*	*6,793.7*	*50,541*

Notes to Accompany Open Pit Mineral Reserve Table:

1. Mineral Reserves were estimated by Mr Michael Hester, F.AusIMM, an IMC employee and reviewed by Ms Maryse Belanger, who is the Qualified Person for the estimate;
2. Mineral Reserves are contained within Measured and Indicated pit designs, and supported by a mine plan, featuring variable throughput rates depending on the pit being mined, variable metallurgical recoveries depending on geometallurgical domain, and cut-off optimization;
3. Mineralization reported for Los Filos includes the mineralization within the planned 4P pit extension; Mineralization reported for El Bermejal includes the mineralization within the planned Guadalupe pit extension;
4. Metal price assumptions were $1350 for Au, $24/oz for Ag;
5. The Los Filos crush-leach ore is based on an operational 0.5 g/t Au cut-off grade, ROM ore is based on a variable 0.22 to 0.5 g/t Au operational cut-off grade that is determined by lithology. The El Bermejal Mineral Reserve is based on a 0.2 g/t Au operational ROM cut-off grade;
6. Process gold recoveries vary from 64–77% for crush-leach ore and from 49–59% for ROM ore at Los Filos; recoveries at El Bermejal vary from 53–73%. A 5% silver recovery is assumed from all geometallurgical domains;
7. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces

Table 1-5: Mineral Reserve Statement, Los Filos Project Underground Total, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	1,179	8.37	21.14	317	802
Probable	1,507	6.51	24.61	315	1,193
Total Proven and Probable	2,686	7.32	23.10	632	1,995

Notes to Accompany Underground Mineral Reserve Table:

1. Mineral Reserves were estimated by Mr Carlos Guzman, FAusIMM and RM CMC, an NCL employee and reviewed by Ms Maryse Belanger, P.Geo, who is the Qualified Person for the estimate;
2. Mineral Reserves are contained within stope designs that have a minimum horizontal continuity of 10 m, and minimum mining width of 1 m, and supported by a mine plan that features variable stope thicknesses depending on zone; and cut-off optimization;
3. Metal price assumptions were $1,350 for Au, $24/oz for Ag;
4. Mineral Reserves are reported based on a cut-off grade of 3.64 g/t Au;
5. Dilution is assigned an average grade of 1 g/t Au and 5 g/t Ag and assumed to be 0.85 m thickness on average;
6. Mining recovery is variable, based on stope width and can range from 75–100%;
7. Process gold recoveries are estimated at 72%. A 5% silver recovery is assumed from all zones;
8. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
9. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces.

Table 1-6: Mineral Reserve Statement, Total Los Filos Operation, Effective Date 31 December 2012, M. Belanger, P.Geo

Classification	Tonnes	Au Grade	Ag Grade	Au Contained Ounces	Ag Contained Ounces
	(kt)	(g/t)	(g/t)	(koz)	(koz)
Proven	72,613	0.96	5.3	2,251	12,324
Probable	224,099	0.72	5.6	5,176	40,212
Total Proven and Probable	296,712	0.78	5.5	7,427	52,535

Notes to Accompany Mineral Reserve Table:

1. Mineral Reserves amenable to open pit mining were estimated by Mr Michael Hester, F.AusIMM, an IMC employee. Mineral Reserves amenable to underground mining were estimated by Mr Carlos Guzman, FAusIMM and RM CMC, an NCL employee. Estimates were reviewed by Ms Maryse Belanger, P.Geo, who is the Qualified Person for the estimate;
2. Mineral Reserves amenable to open pit mining are contained within Measured and Indicated pit designs, and supported by a mine plan, featuring variable throughput rates depending on the pit being mined, variable metallurgical recoveries depending on geometallurgical domain, and cut-off optimization.
3. Mineral Reserves amenable to underground mining are contained within stope designs that have a minimum horizontal continuity of 10 m, and minimum mining width of 1 m, and supported by a mine plan that features variable stope thicknesses depending on zone; and cut-off optimization;
4. Metal price assumptions were $1,350 for Au, $24/oz for Ag;
5. The Los Filos crush-leach ore is based on an operational 0.5 g/t Au cut-off grade, ROM ore is based on a variable 0.22 to 0.5 g/t Au operational cut-off grade that is determined by lithology. The El Bermejal Mineral Reserve is based on a 0.2 g/t Au operational ROM cut-off grade
6. Mineral Reserves amenable to underground mining are reported based on a cut-off grade of 3.64 g/t Au;
7. Dilution in Mineral Reserves amenable to underground mining is assigned an average grade of 1 g/t Au and 5 g/t Ag and assumed to be 0.85 m thickness on average;
8. Mining recovery in Mineral Reserves amenable to underground mining is variable, based on stope width and can range from 75–100%;
9. Process gold recoveries for Mineral Reserves amenable to open pit mining vary from 64–77% for crush-leach ore and from 49–59% for ROM ore at Los Filos; recoveries at El Bermejal vary from 53–73%. A 5% silver recovery is assumed from all geometallurgical domains
10. Process gold recoveries for Mineral Reserves amenable to underground mining are estimated at 72%. A 5% silver recovery is assumed from all zones;
11. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
12. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces.

- Ability of the mining operation to meet the planned annual throughput rate assumptions for the process plant;
- Capital and operating cost estimates.

1.16 Open Pit Mine Plan

Mining commenced in 2007, with the first gold pour the same year. Two open pits, Los Filos and Bermejal, are currently in operation. Production is scheduled in three eight-hour shifts per day, seven days per week. Equipment is owner-operated, and mining is based on conventional truck-and-shovel operations. All open pit ore and waste requires blasting. Mineralization from the open pits is trucked to either the run-of-mine heap leach pad or to the crusher. Average daily production in 2012 was 199,420 t.

All future mining phases are currently planned to use the same pit configurations and the same equipment as is currently in use. The current infrastructure is sufficient to support mining operations.

The current life-of-mine (LOM) plan assumes production from open pit sources until 2031. The production rate will be 24.0 Mt/a for the first six years and 15.5 Mt/a for the remaining years of a 20 year mine life.

The mine plan currently contains future production that is attributed to Inferred Mineral Resources. These Inferred blocks were set to waste for the purposes of Mineral Reserve declaration. While there is reasonable expectation that some or all of the Inferred Mineral Resources can be upgraded and classified as higher-confidence Mineral Resources with additional exploration and blast hole drilling programs, Goldcorp cautions that some or all of this Inferred mineralization may not be able to be converted to higher-confidence Mineral Resource categories or eventually to Mineral Reserves.

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

1.17 Underground Mine Plan

Underground mining recommenced in 1996. Production is from two main areas and about 18 separate ore zones using a cut-and-fill mining method. Production is scheduled from three daily shifts, seven days per week. Equipment is owner-operated, and mining is based on conventional jumbo–load-haul-dump–tramming operations. All ore and waste requires blasting. Ore from the underground mine is trammed to the surface and then trucked to the stockpile of the crusher at Los Filos. Average daily production in 2012 was 1,033 t.

The current life-of-mine (LOM) plan assumes production from underground until 2021, a nine-year underground mine life.

Current infrastructure is sufficient to support mining operations.

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

1.18 Waste Rock Facilities

Four waste rock storage facilities are in use; two at Los Filos, and two at El Bermejal. In-pit backfill is contemplated toward the end of the mine life. The facilities have a combined LOM planned storage capacity of 900 Mt for the waste dumps and 300 Mt for pit infill.

1.19 Process

Mineralization from both the underground and open pit operations is classified as either low-grade or high-grade ore:

- If high-grade, material is sent to a crushing system, consisting of a primary and secondary crusher, and reduced to a particle size of 80% passing minus ¾" (19 mm). Material is then sent to the heap leach pad via overland conveyor/stacking.
- If low-grade, material is sent straight to the leach pad as run-of-mine (ROM) ore.

Currently, there is one leach pad in operation which is divided in two sections, one for the crush ore and the other for ROM ore. A second pad, which is under construction, is planned to be operational in October, 2013.

The leachate is sent to a carbon adsorption–desorption–recovery (ADR) plant, where a gold enriched liquor is obtained and sent to electrowinning cells to recover a sludge containing gold, silver and some impurities. This step is followed by smelting to recover the gold–silver as doré.

1.20 Infrastructure

Infrastructure required to support mining activities is sufficient for the current LOM. A second leach pad is under construction and scheduled for completion in October 2013.

1.21 Markets

Goldcorp has an operative refining agreement with Johnson Matthey for refining of doré produced from the mine. 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. Part of the silver production is forward-sold to Silver Wheaton.

1.22 Capital and Operating Costs

Based on the current mine plan, LOM capital costs are estimated at $1,120 M, or an average of $53 M per year. The estimate includes capital costs, sustaining capital costs, capitalized exploration, and development and stripping costs. For the current life-of-mine (LOM) financials, which are the 2013 business plan for the mine, capital costs are based on operating experience and quotes received from manufacturers during 2012. Sustaining capital costs reflect current price trends.

LOM operating cost projections total $12.10/t processed. This figure includes $7.10/t mining costs, $2.80/t in processing costs, $2.20/t general and administrative costs, and $0.10/t in treatment charges and refining charges.

1.23 Financial Analysis

The results of the economic analysis represent forward-looking information that is 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 are made based upon certain assumptions and other important factors that could cause the actual results, performances or achievements to be materially different from future results, performances or achievements expressed or implied by such statements. Such statements and information are based on numerous assumptions regarding present and future business strategies and the environment in which we will operate in the future, including the price of gold, anticipated costs and ability to achieve goals.

Certain important factors that could cause actual results, performances or achievements to differ materially from those in the forward-looking statements include, among others, gold price volatility, discrepancies between actual and estimated production, Mineral Reserves and resources and metallurgical recoveries, mining operational and development risks, litigation risks, regulatory restrictions (including environmental regulatory restrictions and liability), activities by governmental authorities (including changes in taxation), currency fluctuations, the speculative nature of gold exploration, the global economic climate, dilution, share price volatility, competition, loss of key employees, additional funding requirements and defective title to mineral claims or property.

To support the statement of Mineral Reserves, Goldcorp prepared an economic analysis to confirm that the economics based on the Mineral Reserves could repay life-of-mine operating and capital costs. The Project was evaluated on an after-tax, project stand-alone, 100% equity-financed basis using a 5% discount rate, and all costs prior to 31 December 2012 were treated as sunk costs. Results of this assessment indicated positive Project economics until the end of mine life, and supported Mineral Reserve declaration.

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 the least influence on cash flows.

1.24 Exploration Potential

Exploration potential in the near-term remains the potential for extensions to mineralization currently mined in the Los Filos and El Bermejal open pits. Additional Project exploration potential remains around the Los Filos intrusive body, within the zones defined in the 4P deposit, and in the El Bermejal–Guadalupe corridor, in particular in the vicinity of the southern extension to the El Bermejal intrusion.

1.25 Conclusions

In the opinion of the QP, the Project that is outlined in this Report has met its objectives. Mineral Resources and Mineral Reserves have been estimated for the Project, a mine has been constructed, mining and processing 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. Based on the Mineral Reserves declared in this Report, the mine life will extend to 2031.

1.26 Recommendations

An infill and exploration drilling program is recommended, which will encompass about 31,185 m of drilling at a total program cost of about $9 M, assuming drilling costs of $155/m.

2.0 INTRODUCTION

2.1 Terms of Reference

Goldcorp Inc. (Goldcorp) has prepared a Technical Report (the Report) for the wholly-owned Los Filos gold operation, (the Project), located in the Nukay district of Guerrero State, in Mexico (Figure 2-1).

This Report presents an update on the Los Filos mining operations, including updated Mineral Resources and Mineral Reserves. Goldcorp will be using the Report to support disclosure and filing requirements with the Canadian Securities Regulators.

The operations consist of two open pit mines, Los Filos and Bermejal, that share common process and ancillary facilities, and an underground mine. The open pit portion is wholly-owned by Desarrollos Mineros San Luis S.A. de C.V. a Mexican company indirectly wholly-owned by Goldcorp

All measurement units used in this Report are metric, and currency is expressed in US dollars unless stated otherwise.

The exchange rate as of the Report effective date was approximately $US1 equal to 12.85 Mexican pesos.

2.2 Qualified Persons

Ms Maryse Belanger, P.Geo., Senior Vice President Technical Services with Goldcorp, serves as the Qualified Person (QP) for this Technical Report as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1.

2.3 Site Visits and Scope of Personal Inspection

Ms Belanger's most recent site visits were from March 24–25, 2012, November 29–30 2011 and March 15–16, 2011.

During the 2012 site visit, Ms Belanger inspected core and surface outcrops, drill platforms and sample cutting and logging areas; discussed geology and mineralization with Project staff; reviewed geological interpretations with staff; and visited the mining operations. Surface facilities including the operating open pits, waste rock facilities, and heap leach pad, were examined, and discussions were held with the relevant Goldcorp staff regarding the mine plan and modifying factors.

Figure 2-1: Project Location Plan

Note: Figure prepared by Goldcorp, 2010.

During the 2011 site visit, Ms Belanger inspected the operating underground workings and visited the key surface infrastructure.

Since Ms Belanger's last site visit, Goldcorp has commenced construction of a second leach pad; all other infrastructure and mining activities are as inspected, within the bounds of expected mining depletion of the pits and underground workings that occurs during normal mining activities.

2.4 Effective Dates

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

- Close-out date for databases supporting Mineral Resource and Mineral Reserve estimates: 31 October 2012;
- Mineral Resources amenable to open pit mining methods estimate: 31 December 2012;
- Mineral Resources amenable to underground mining methods estimate: 31 December 2012;
- Mineral Reserve estimates: 31 December 2012;

- Date of financial analysis to support Mineral Reserve estimate: 31 December 2012.

The Report effective date is therefore taken to be 31 December, 2013. There were no material changes to the information on the Project between the effective date and the signature date of the Report.

2.5 Information Sources and References

Information used to support this Report was derived from previous technical reports on the property, and from the reports and documents listed in the References section. Ms Belanger also sourced input from Goldcorp, NCL, and IMC staff as appropriate.

2.6 Previous Technical Reports

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

Barton, P.J., Ross, A.F., Hester, M.G., Kappes, D.W., and Lupo, J.F., 2006: Technical Report NI 43-101F1 Los Filos Project, Mexico: unpublished technical report prepared by Snowden Mining Industry Consultants for Goldcorp Inc., effective date 31 March, 2006.

Snowden Mining Industry Consultants, 2004: Technical Report, Los Filos Project: unpublished technical report prepared by Snowden Mining Industry Consultants for Goldcorp Inc., effective date November 2004.

Goldcorp's subsidiary, Wheaton River Minerals, filed the following Project technical report:

Micon International Limited, 2003: Report on the Los Filos Gold Deposit Guerrero, Mexico: unpublished technical report prepared by Micon Consultants for Wheaton River Minerals, effective date September 2003.

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

The project is located in Los Filos mining district of central Guerrero State at latitude 17°53’06” and longitude 99°41’37”, UTM 427,700N, 1,977,600E.

The mining operations lie within the southern part of the Morelos National Mineral Reserve (Morelos Sur).

4.1 Property and Title in Mexico

Article 27 of the Mexican Constitution provides that the Mexican Nation has direct ownership of mineral deposits within the national territory, which cannot be transferred. The use and exploitation of such national resources by private parties is only permitted if concessions are granted by the Federal Executive Branch, through its corresponding government agencies. Such concessions are subject to applicable laws and regulations, and these must be complied with; non-compliance can result in cancelled concessions.

Government agencies may create national Mining Reserves over deposits that are considered essential to the Nation’s future. Once incorporated into national mining reserves, the deposits are not subject to mining concessions or allotments, unless such zones are cancelled from the mining reserves through a decree issued by the Federal Executive. Such decrees can enable the Ministry of Economy to declare the zone as “free land” that can then be granted under a mining concession, or call for a bid to grant one or more mining concessions over such deposits.

4.1.1 Mineral Property Title

Mexican Mining Law was promulgated in 1992, and amended in 1996 and 2005; current Mining Regulations were published in 1999. A number of Government agencies have responsibility for enforcing mining laws.

Mining concessions may only be granted to Mexican companies and nationals or “ejidos”, agrarian communities, communes, and Indigenous communities. Foreign companies can hold mining concessions through Mexican-domiciled companies.

Mining concessions are granted over “free land”. Free land means any land within the Mexican Nation, except for the following:

- Land covered by existing or pending mining concessions and allotments;
- Zones incorporated into mineral reserves;

- Land covered by mining concessions granted through a bidding process, or alternatively, land covered by mining lots from which no concessions would be granted due to the cancellation of the bidding process.

There is no difference in Mexico between an exploration concession and a mining concession. All concessions run for a term of 50 years, with the term commencing on the date recorded in the Registry maintained by the Public Registry of Mining. A second 50-year term can be granted if the applicant has abided by all appropriate regulations, and makes the application within five years prior to the expiration date.

Mining concession boundaries in Mexico are defined by referencing position relative to a legally-surveyed principal post. To stake a concession, a principal monument must be erected, painted and photographed by a registered mining expert and then applied to be registered before the relevant mining district office. Once accepted, an official surveyor must be contracted to provide a survey to locate the concession whereby the official survey is reviewed and taken into consideration. Once the relevant mining district office prepares a proposal of the mining concession title, such draft is sent to the Mining Division (Dirección General de Minas) and upon its issuance, the concession title is registered before the Public Registry of Mining (Registro Público de Minería).

Mining concessions confer rights with respect to all mineral substances as listed in the Registry document. The holder must commence exploration or exploitation within 90 days of the Registry date.

Mining concessions give the holder the right to mine within the concession boundary, sell the mining product, dispose of waste material generated by mining activities within the lease boundary, and have access easements. Concessions can be transferred between companies, and can be consolidated.

The main obligations which arise from a mining concession, and which must be kept current to avoid its cancellation, are performance of assessment work, payment of mining taxes (technically called “duties”) and compliance with environmental laws.

The Regulations establish minimum amounts that must be spent; minimum expenditures may be substituted by sales of minerals from the mine for an equivalent amount. A report must be filed in May of each year that details the work undertaken during the previous calendar year.

Mining duties must be paid in advance in January and July of each year, and are determined on an annual basis under the Mexican Federal Rights Law. Duties are based on the surface area of the concession, and the number of years that have elapsed since the mining concession was issued.

Concessions are maintained on an annual basis by payment of appropriate fees, as determined by the Ministry of Economy each year. Holders must also supply the relevant Governmental department with reports on activities, including annual checking reports that are due May of each year.

4.1.2 Surface Rights Title

While a mining concession gives its holder the right to carry out mining work in the area covered by the concession and take ownership of any minerals found, it does not automatically grant any surface access rights. Such rights must be negotiated separately with the owner of the surface land. If no agreement can be reached with the surface owner (typically for the purchase or lease of the surface land), the Mining Law grants the concessionaire the right to apply to the General Mining Bureau for the expropriation or temporary occupation of the land, which will be granted to the extent that the land is indispensable for the development of the mining project. Compensation is set through an appraisal carried out by the federal government's National Goods' Appraisal Commission.

Consideration, payable on a one-time basis for expropriation and on a yearly basis for temporary occupation, is set based on an appraisal of the affected land. Typically, a verbal authorisation with no consideration is granted for prospecting and sample gathering. A simple letter agreement or contract will be used for drilling, trenching, basic road building and similar more advanced exploration activities, with a small monetary consideration and/or the obligation to fix a road or fence, build an earth dam, paint the local town church or school, etc. Building and operating a mine requires a more formal agreement.

In practice many surface rights are granted through selective land purchases and temporary occupation agreements.

4.2.1 Environmental Regulations

The Mexican Federal Government department responsible for environmental matters is the Secretary of the Environment, Natural Resources and Fisheries (SEMARNAT), which has four sub-departments:

- National Institute of Ecology (INE): responsible for planning, research and development, conservation of national protection areas and promulgation of environmental standards and regulations;

- Federal Prosecutor for the Protection of the Environment (PROFEPA): responsible for enforcement, public participation and environmental education;
- National Water Commission (CAN): responsible for assessing fees related to waste water discharges;
- Federal delegation or state agencies of SEMARNAT, known as COEDE.

SEMARNAT and its sub-departments, in conjunction with decentralized Offices, are responsible for supervision and oversight of four main areas:

- Preservation and sustainable development of ecosystems and biological diversity;
- Pollution prevention and control;
- Hydrological resources integral management;
- Climate change.

Mexico's environmental protection system is based on the General Law of Ecological Equilibrium and the Protection of the Environment (LGEEPA). Under LGEEPA, numerous regulations and standards for environmental impact assessment, air and water pollution, solid and hazardous waste management and noise have been issued.

Environmental laws require the filing and approval of an environmental impact statement (MIA) for all exploitation work, and for exploration work that does not fall within the threshold of a standard issued by the Federal Government for mining exploration. Environmental permitting for exploitation, absent any strong local opposition to the project, can be usually achieved in less than one year.

Mining companies must obtain a federal environmental licence (Integrated Environmental Licence or LAU), which sets out the acceptable limits for air emissions, hazardous waste and water impacts, as well as the environmental impact and risk of the proposed operation.

4.2.2 Taxation and Royalties

Mexico has been a party to the North American Free Trade Agreement (NAFTA) since 1994 and thus has a tax and trade regime comparable to the USA and Canada. It operates under western-style legal and accounting systems, with a contemporary taxation system and no mining royalties.

The income tax rate applicable to corporations and individuals (the highest) in Mexico was increased from 28% to 30% as of January 1, 2010. Originally the rate would be applied only during 2010, 2011 and 2012. In 2013 the rate would be reduced to 29%, and further reduced to 28% in 2014. In the recent tax reform for 2013, it was confirmed that the rate will continue at 30% for 2013.

4.2 Mineral Tenure

The project consists of 20 exploitation and exploration application concessions totalling 4,622 ha located within the municipality of Eduardo Neri, Guerrero, Mexico (Figure 4-1 and Table 4-1). Concessions were granted for 50 year durations; however, the expiry dates vary depending on the date of grant of the concession. All concessions are held in the name of Desarollos Mineros San Luis, SA de CV, an indirectly wholly-owned Goldcorp subsidiary. Figure 4-2 presents the tenure broken down by major grouping within the Goldcorp holdings at Los Filos.

Duty payments for 2012 were made as were payments due January 2013. Duty amounts under Mexican Federal Rights Law are updated on an annual basis.

As per Mexican requirements for grant of tenure, the concessions comprising the Project have been surveyed on the ground by a licensed surveyor.

4.3 Surface Rights

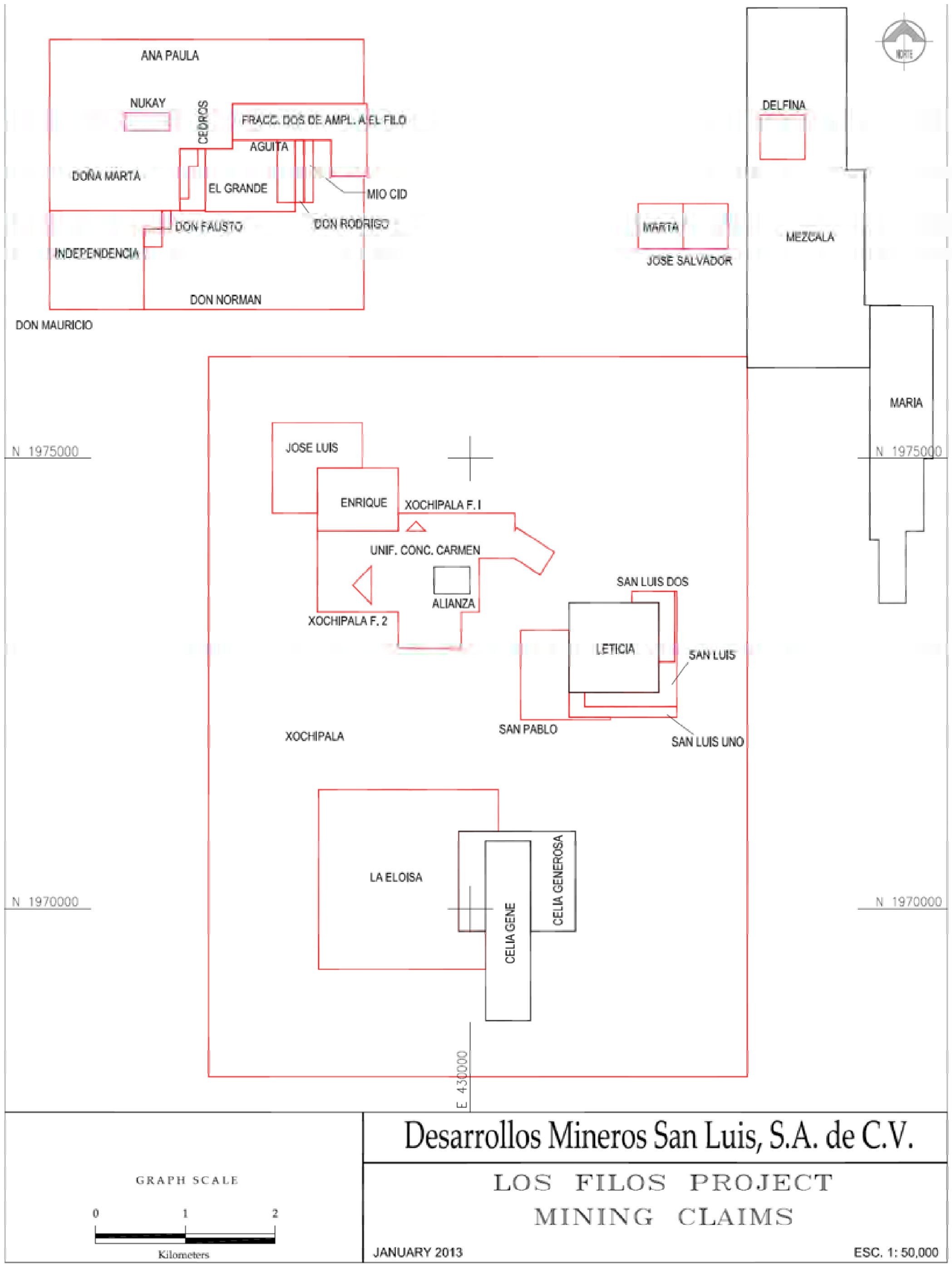
Goldcorp has secured a total of 3,920 ha to cover surface rights required for the Los Filos operations including the area of both pits, process and ancillary facilities areas, roads, services and a buffer area secured to allow for any future growth and potential exploration targets.

Surface rights have been secured by either acquisition of private and public land or by entering into temporary occupation agreements with surrounding communities. Agreement payments are made on an annual basis, with the annual payment amount linked to the Mexican consumer price index. Agreements are typically 20 to 30 years in duration. Currently Temporary Occupation agreements are re-negotiated every five years, the next period of negotiations will be in 2014.

All of the land agreements, either acquisition or temporary occupation, have been sanctioned by the pertaining State or Federal agencies. All titles and contracts are on file at Los Filos site and at Goldcorp's Mexican corporate office.

The existence in Mexico of a communal form of agrarian land ownership called "ejidos" and "comunidades agrarias" can present special problems for surface land use. Ejidos are communal farms where individuals have surface rights to specific plots of land, but most land-use decisions must be made by the members of the ejido as a whole. Ejidos and comunidades together cover about one-half of the Mexican territory; the other half remaining is legally defined as “Pequeña Propiedad” (private property).

Figure 4-1: Project Tenure Map

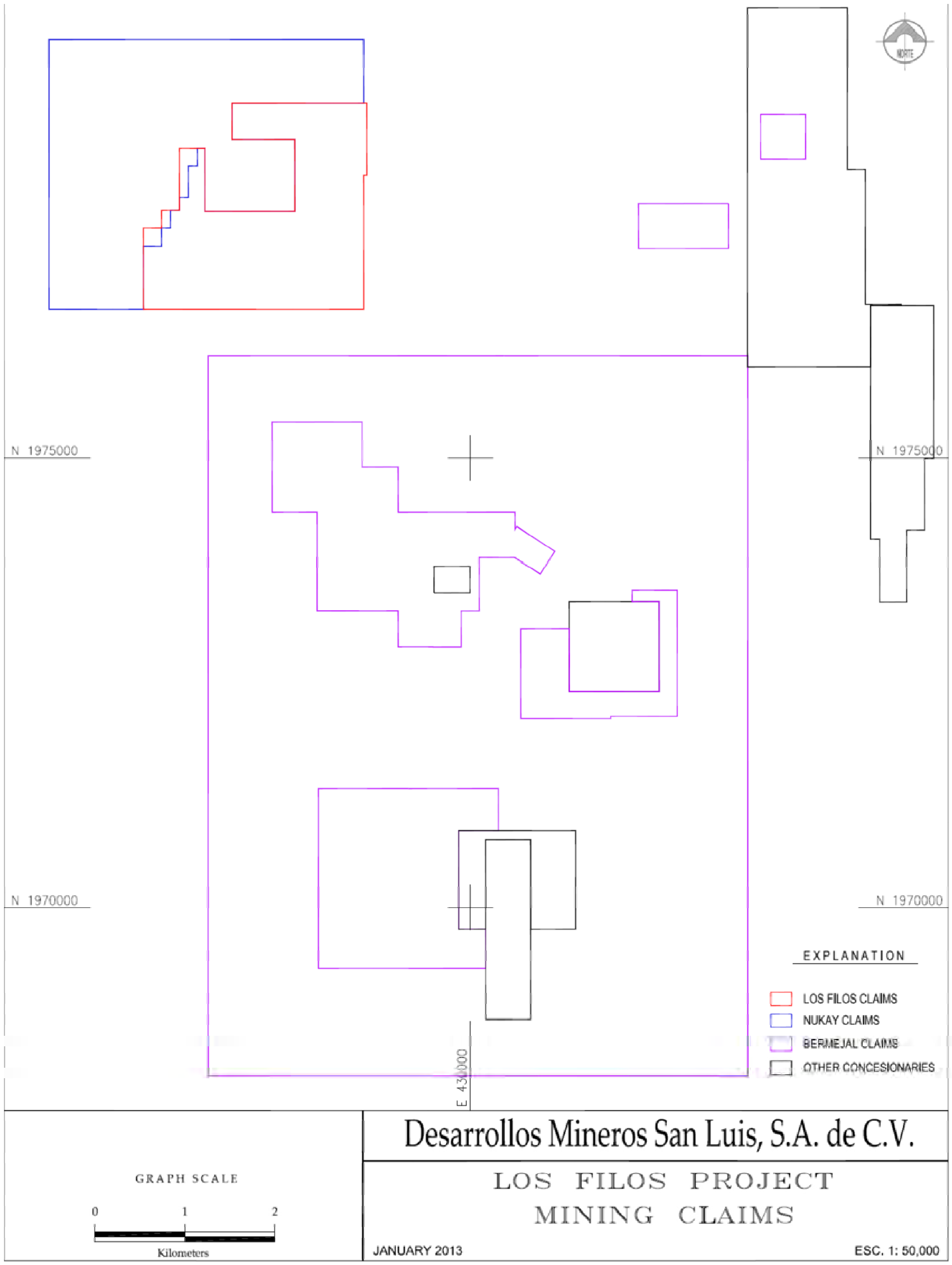


Note: Figure prepared by Goldcorp, 2013. Tenure marked with red outline is held by Goldcorp; tenure marked with black outline is held by third-parties.

Table 4-1: Project Tenure Summary

Concession			Validity		Area (ha)	Recording Parameter			Holder Name
Name	Title	Type	From	To		Num	Colt	Vol	
Nukay	171533	Exploitation	20-10-1982	19-10-2032	10.0000	473	119	228	Desarollos Mineros San Luis, SA de CV
Fracc. 2 de Ampl. a El Filo	171534	Exploitation	20-10-1982	19-10-2032	76.0000	474	119	228	Desarollos Mineros San Luis, SA de CV
Unificación Concepción Carmen	172677	Exploitation	28-06-1984	27-06-2034	223.2924	297	75	231	Desarollos Mineros San Luis, SA de CV
Enrique	187015	Exploitation	29-05-1990	28-05-2040	63.0000	615	155	256	Desarollos Mineros San Luis, SA de CV
Mio Cid	204067	Exploitation	13-10-1989	12-10-2039	7.0000	7	4	293	Desarollos Mineros San Luis, SA de CV
Don Mauricio	204068	Exploitation	13-10-1989	12-10-2039	119.5117	8	4	293	Desarollos Mineros San Luis, SA de CV
Don Rodrigo	204069	Exploitation	13-10-1989	12-10-2039	7.0000	9	5	293	Desarollos Mineros San Luis, SA de CV
Ana Paula	204137	Exploitation	13-10-1989	12-10-2039	440.3905	77	39	293	Desarollos Mineros San Luis, SA de CV
La Eloisa	208816	Exploitation	14-12-1998	13-12-2048	345.4090	76	38	306	Desarollos Mineros San Luis, SA de CV
Cedros	213075	Exploitation	31-10-1989	30-10-2039	12.0059	15	8	318	Desarollos Mineros San Luis, SA de CV
Doña Marta	213076	Exploitation	13-10-1989	12-10-2039	7.5000	16	8	318	Desarollos Mineros San Luis, SA de CV
Don Norman	213077	Exploitation	13-10-1989	12-10-2039	290.2459	17	9	318	Desarollos Mineros San Luis, SA de CV
Independencia	213078	Exploitation	13-10-1989	12-10-2039	4.0000	18	9	318	Desarollos Mineros San Luis, SA de CV
Don Fausto	213079	Exploitation	13-10-1989	12-10-2039	2.0000	19	10	318	Desarollos Mineros San Luis, SA de CV
San Luis Dos	216106	Exploitation	08-04-2002	07-04-2052	17.4382	166	83	326	Desarollos Mineros San Luis, SA de CV
Xochipala Fracc. I	216166	Exploitation	12-04-2002	11-04-2052	1.1098	226	113	326	Desarollos Mineros San Luis, SA de CV
Xochipala Fracc. II	216167	Exploitation	12-04-2002	11-04-2052	4.3749	227	114	326	Desarollos Mineros San Luis, SA de CV
San Luis Uno	216168	Exploitation	12-04-2002	11-04-2052	17.0356	228	118	326	Desarollos Mineros San Luis, SA de CV
Xochipala	217850	Exploitation	23-08-2002	22-08-2052	4,013.5851	110	55	331	Desarollos Mineros San Luis, SA de CV
San Pablo	219804	Exploitation	11-04-2003	10-04-2053	55.1771	264	132	336	Desarollos Mineros San Luis, SA de CV
San Luis	220241	Exploitation	25-06-2003	24-06-2053	24.9904	341	171	337	Desarollos Mineros San Luis, SA de CV
Delfina	236761	Exploitation	27-08-2010	26-08-2060	25.0000	301	151	383	Desarollos Mineros San Luis, SA de CV
Marta	236762	Exploitation	27-08-2010	26-08-2060	25.0000	302	151	383	Desarollos Mineros San Luis, SA de CV
Jose Salvador	237117	Exploitation	29-10-2010	28-10-2060	25.0000	297	149	384	Desarollos Mineros San Luis, SA de CV
Jose Luis	237118	Exploitation	29-10-2010	28-10-2060	75.0000	298	149	384	Desarollos Mineros San Luis, SA de CV
El Grande	237119	Exploitation	29-10-2010	28-10-2060	63.0000	299	150	384	Desarollos Mineros San Luis, SA de CV
Agüita	237120	Exploitation	29-10-2010	28-10-2060	14.0000	300	150	384	Desarollos Mineros San Luis, SA de CV

Figure 4-2: Goldcorp Tenure in the Los Filos Project by Claims Group



Note: Figure prepared by Goldcorp, 2013

Table 4-2: Surface Rights Los Filos Open Pit Area

No.	Lot Name	Registration Number	Title	Duration From	Duration To	Concession Type	Area Ha
1	Fracc. 2 de Ampl. a El Filo	033/02101	171534	20-10-82	19-10-32	2	76.0000
2	Mio Cid	5/2.4/195	204067	13-10-89	12-10-39	2	7.0000
3	Don Rodrigo	5/2.4/195	204069	13-10-89	12-10-39	2	7.0000
4	El Grande	9/6/00123	237119	29-10-10	28-10-60	2	63.0000
5	Cedros	5/2.4/00426	213075	31-10-89	30-10-39	2	12.0059
6	Don Norman	5/2.4/00427	213077	13-10-89	12-10-39	2	290.2459
Total area covered							**455.2518**

Table 4-3: Surface Rights Los Filos Underground Area

No.	Lot Name	Registration Number	Title	Duration From	Duration To	Concession Type	Area Ha
1	Nukay	672	171533	20-10-82	19-10-32	2	10.0000
2	Don Mauricio	5/2.4/195	204068	13-10-89	12-10-39	2	119.5117
3	Ana Paula	5/2.4/190	204137	13-10-89	12-10-39	2	440.3905
4	Agüita	9/6/00124	237120	29-10-10	28-10-60	2	14.0000
5	Doña Marta	5/2.4/00426	213076	13-10-89	12-10-39	2	7.5000
6	Independencia	5/2.4/00427	213078	13-10-89	12-10-39	2	4.0000
7	Don Fausto	5/2.4/00427	213079	13-10-89	12-10-39	2	2.0000
Total area covered							**597.402**

Table 4-4: Surface Rights El Bermejal Area

No.	Lot Name	Registration Number	Title	Duration From	Duration To	Concession Type	Area Ha
1	Unificación Concepción Carmen	321.42/1086	172677	28-06-84	27-06-34	2	223.2924
2	Enrique	033/00615	187015	29-05-90	28-05-40	2	63.0000
3	La Eloisa	5/1.3/288	208816	14-12-98	13-12-48		345.4090
4	San Luis Dos	5/1.3/00597	216106	08-04-02	07-04-52	2	17.4382
5	Xochipala Fracc. I	5/1.3/00593	216166	12-04-02	11-04-52	2	1.1098
6	Xochipala Fracc. II	5/1.3/00594	216167	12-04-02	11-04-52	2	4.3749
7	San Luis Uno	5/1.3/00596	216168	12-04-02	11-04-52	2	17.0356
8	Xochipala	5/1.3/00592	217850	23-08-02	22-08-52	2	4013.585 1
9	San Pablo	033/09417	219804	11-04-03	10-04-53	1	55.1771
10	San Luis	5/1.3/00595	220241	25-06-03	24-06-53	2	24.9904
11	Delfina	9/6/00121	236761	29-10-10	28-10-60	2	25.0000
12	Marta	9/6/00122	236762	29-10-10	28-10-60	2	25.0000
13	José Salvador	9/6/0119	237117	29-10-10	28-10-60	2	25.0000
14	José Luis	9/6/00129	237118	29-10-10	28-10-60	2	75.0000
Total area covered							**597.402**

Both property types exist in the Los Filos areas: private property and “propiedad social” (ejidos and comunidades). Goldcorp has entered into Temporary Occupation Agreements with the appropriate ejidos and comunidades, and has made and selective private property purchases to ensure continuation of mining activities.

4.4 Royalties and Encumbrances

No royalties are payable on the Project.

4.5 Agreements

Goldcorp holds 100% of the Project. Property agreements are discussed in Section 4.3.

4.6 Permits

Permit requirements for the Project are discussed in Section 20.

4.7 Environmental Liabilities

Goldcorp has estimated site rehabilitation and closure costs at $20.9 M. Bonding requirements under Mexican regulatory requirements have been met. Current environmental liabilities are those normally associated with active underground and open pit mining operations feeding a heap leach facility.

4.8 Social License

Social conditions in the Project area are discussed in Section 20.

4.9 Significant Risk Factors

There are no currently known significant risk factors from permitting, social and environmental sources. Additional details are provided in Section 20.

4.10 Comments on Property Description and Location

In the opinion of the QP, 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 "Desarrollos Mineros San Luis SA de CV" (Luismin), a Mexican company indirectly wholly-owned by Goldcorp, and by "Compañía Minera Nukay" (Minera Nukay), a Mexican company that is also indirectly 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, State and Federal laws to allow mining operations;
- The Project's LAU is based on an approved environmental impact assessment, an environmental risk study, and a land use change authorization;
- Annual land usage and environmental compliance reports have been lodged;
- The appropriate environmental permits have been granted for Project operation by the relevant Mexican Federal, State and Municipal authorities;
- At the effective date of this Report, environmental liabilities are limited to those that would be expected to be associated with an operating gold mine where production occurs from open pit and underground sources, including roads, site infrastructure, and heap leach, waste dumps and disposal facilities;
- Goldcorp is not aware of any significant environmental, social or permitting issues that would prevent continued exploitation of the Mine deposits;
- Site closure costs are appropriately funded by allocating a percentage of sales revenue;
- To the extent known, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Accessibility

The mine site is located in Guerrero State, Eduardo Neri Municipality. The mine is accessible from Highway 95, a major paved highway between Mexico City and Acapulco. At the town of Mezcala (km 172), a former paved community road leads to Los Filos operation. Driving time to site from Mexico City is approximately three hours.

The Los Filos mining operation currently has a private landing strip within the site. Flights take off from Cuernavaca Airport, and the flight time from Cuernavaca is approximately 25 minutes.

5.2 Climate

Topographic variations result in different climate types at the Project, as follows:

- Very hot semi-dry: is the prevailing climate at the site. The average annual temperature ranges from a high of 22 °C to a low of 18 °C;
- Hot sub-humid: is the second most predominant climate at the site. The average annual temperature ranges between 22°C and 26°C;
- Semi-hot sub-humid: this climate type also exists at the site. The average annual temperature ranges from 18 °C to 22 °C, with a temperature during the coldest month higher than 18 °C.

The average annual precipitation is 590 mm. The months with the most rainfall are June through August. Very little precipitation (less than 5% of the average annual rainfall) occurs between November and April. However, the Project area can be affected by tropical storms and hurricanes which can result in short-term, high precipitation events.

The predominant wind direction throughout most of the year is from the north–northwest.

Mining operations are conducted year-round.

5.3 Local Resources and Infrastructure

The mining operations are located near established power and road infrastructure at Mezcala, and near centers of supply of materials and people from the communities of Mezcala, Carrizalillo and Mazapa.

Additional infrastructure information, including a site layout plan, is contained in Section 18 of the Report.

5.4 Physiography

The Project area is characterized by large limestone mountains divided by wide valleys. The slopes of the hills vary from very flat (5–10%) to steep slopes (50%). Valley slopes are covered with hardwood forest while the valley bottoms are generally farmed.

The maximum elevation in the Project area, at 1,820 masl, is the summit of Bermejal hill. The valley of Carrizalillo lies at an altitude of 1,000–1,100 masl.

A total of 255 plant species were identified in the vicinity of the Project area. Three species are protected under Mexican Standard, NOM-059-SEMARNAT-2001. These species are all located outside of the mining disturbance areas and have not been impacted by the Project. Five plant species of commercial interest were identified in the project area. Fires in the project area are common and have reduced the diversity of the vegetation. The current mining and construction activities have also resulted in clearing of vegetation.

A total of 103 fauna species were identified in the region, most of which were birds. The Project area lies on a migratory route for two bird species (*la paloma de ala blanca* and *la huilota*).

5.5 Sufficiency of Surface Rights

Goldcorp holds sufficient surface rights in the Project area to support the mining operations envisaged in the life-of-mine (LOM) plan, including access and power line easements.

5.6 Comments on Accessibility, Climate, Local Resources, Infrastructure, and Physiography

In the opinion of the QP, the availability of power, water, communications facilities and an existing workforce supports declaration of Mineral Resources and Mineral

Reserves. Goldcorp has obtained sufficient surface rights to support Project operations. Mining activities take place on a year-round basis.

6.0 HISTORY

Much of the early exploration and mining activity in the area was focused on the neighbouring Nukay claim prior to the discovery of the Los Filos Mine in 1995. The Nukay mine is one of the earliest operations in the area, with first underground production in the period 1938–1940; however, there are no production records from this period. Minera Guadalupe S.A. de C.V. (Minera Guadalupe) was the operator. Underground operations reopened in 1946, and continued until 1961 producing about 0.5 Mt at 18 g/t Au. A third period of exploitation occurred from open pits commencing in 1984. There is no production record from this period.

The Los Filos area was only subject to sporadic prospecting through the twentieth century until Teck Corporation (Teck) became interested in the Nukay property in 1993 and completed an agreement (the Nukay Agreement) with Minera Miral S.A. de C.V. which was in the process of buying out the then owners of Minera Nukay, the holders of the Nukay licence.

Minera Nuteck S.A. de C.V. (Minera Nuteck) was formed by Teck and Miranda Mining Development Corporation and conducted regional exploration and a drilling campaign around the Nukay operations, focusing on the potential for mineralized skarns around the targets. The discovery hole for the Los Filos deposit was drilled in August 1995.

Work in 1996 focused on the delineation of the Los Filos and Pedregal prospects; these were subsequently recognized as the one continuous deposit. In 1997, delineation drilling at Los Filos continued, and a first mineral resource estimate was performed. Teck undertook mineral resource estimate updates, preliminary mining studies, and metallurgical test work in the period between 1998 and 2002.

In November 2003, Goldcorp gained 100% ownership of Los Filos through the purchase of Miranda Mining Development Corporation (Miranda) and associated agreements with Teck. In 2004, additional delineation, drilling, geotechnical and environmental studies and metallurgical test work were conducted to support feasibility-level studies on the mineralization. Mineral Reserves were declared.

The Nukay mine was also acquired, and in 2008, the Nukay Mine was integrated with the Los Filos operations as the Los Filos underground mine.

The El Bermejal deposit was initially overlooked due to low gold grades at surface and the negative results from diamond drilling by Draco and the Mineral Resources Council (Consejo de Recursos Minerales, currently: Mexican Geological Survey). Little attention was paid to this area until 1986 when geologists from Industrias Peñoles S.A. de C.V. (Peñoles) sampled jasperoids within an extensive oxidation zone on top of

Cerro Bermejal. Gold values were outlined in association with the oxide zone and jasperoids. In 1988, geophysicists recognized strong magnetic and induced polarization anomalies and in 1989, Peñoles started a detailed exploration program for bulk mineable gold deposits. Peñoles completed a mineral resource estimate and pre-feasibility study in 1994 that envisaged a 13,000 t/d open pit and heap leaching operation.

During 2003, Wheaton River Minerals Ltd. evaluated the El Bermejal deposit and conducted a due diligence review of the project. Subsequently, a number of pits and adits were excavated to obtain bulk samples for validation of the local grade estimates and to provide representative material for metallurgical test work.

On March 22, 2005, Luismin acquired the El Bermejal gold deposit from Minera El Bermejal, S. de R.L. de C.V., a joint venture between Peñoles and Newmont Mining Corporation (Newmont).

Due diligence metallurgical studies on the El Bermejal mineralization for heap leach amenability were initiated and additional diamond core drilling conducted to support mineral resource and mineral reserve estimates, and to support open pit mining studies. In 2005, further metallurgical, geotechnical, and engineering studies were undertaken resulting in the integration of El Bermejal and Los Filos into one comprehensive proposed mining operation.

Feasibility level studies into the Los Filos, El Bermejal open pits and the Los Filos underground were completed between 2005 and 2007. The current mining operations configuration commenced in 2007.

Production figures from the time of Goldcorp acquisition to date are included in Section 16.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Los Filos and El Bermejal deposits are located in the Mezcala district in southern Mexico. They lie near the centre of a large, circular-shaped feature known as the Morelos–Guerrero Basin. The roughly circular basin is occupied by a thick sequence of Mesozoic platform carbonate rocks successively comprising the Morelos, Cuautla, and Mezcala Formations, and has been intruded by a number of early Tertiary-age granitoid bodies. The basin is underlain by Precambrian and Palaeozoic basement rocks.

The Morelos Formation comprises fossiliferous medium- to thickly-bedded finely-crystalline limestones and dolomites. The lower contact is not exposed within the Project, but from available PEMEX drill data, the Morelos Formation has a thickness of at least 1,570 m near the community of Mezcala (M3 Mexicana, 2008).

The Cuautla Formation transitionally overlies the Morelos Formation. It comprises a succession of thin- to medium-bedded silty limestones and sandstones with argillaceous partings and minor shale intercalations.

The Mezcala Formation in turn transitionally overlies the Cuautla Formation and consists of a platform to flysch-like succession of interbedded sandstones, siltstones, and lesser shales which have been extensively altered to hornfels near intrusive contacts.

The Cretaceous sedimentary rocks and granitoid intrusions are unconformably overlain by a sequence of intermediate volcanic rocks and alluvial sedimentary rocks (red sandstones and conglomerates) which partially cover the region.

The Mesozoic succession was folded into broad north–south-trending paired anticlines and synclines as a result of east-vergent compression during Laramide time (80–45 Ma). The Project area lies at the transition between belts of overthrust rocks to the west and more broadly-folded rocks to the east.

Regional structures include sets of northeast- and northwest-trending strike faults and fractures which cut both the carbonate sequence and the intrusive rocks. The distribution of intrusive bodies in northwest-trending belts is thought to reflect the control on their emplacement by northwest-trending faults (de la Garza et. al. 1996).

Regional mineralization styles comprise skarn-hosted and epithermal precious metal deposits and volcanogenic massive sulphide deposits. In Guerrero, these occur as two adjacent arcuate belts, with the gold belt lying to the east and on the concave margin of the massive sulphide belt. Both belts are approximately 30 km wide and over 100 km long, from northwest to southeast.

Figure 7-1 shows the major lithological units and ground holdings in the Guerrero area.

Garnet skarn predominates at the base of the deposits with traces of SiO_2 grading upward to chlorite and epidote plus abundant SiO_2 towards the top. Sericite is abundant, but is restricted to the apexes of the stocks. Skarn formation occurred in three stages, with late hydrothermal veining overprinting the sequence:

- Stage 1 Prograde Skarn: consists of garnet–pyroxene endoskarn with lesser quantities of exoskarn forming an envelope around the stock;
- Stage 2 Retrograde Skarn: extensive chlorite–epidote, tremolite–actinolite and phlogopite–serpentine assemblages with lesser talc, muscovite and sericite predominate in the upper 400 m of the stock. This halo can be as much as 170 m wide within the intrusion.
- Stage 3 Late Skarn: skarn consists of garnet veins that cut through both first stage prograde and later retrograde skarn.
- Stage 4 Late Veining: consists of two successive gold-bearing stages of silica, as well as phlogopite and amphibole veins. Earlier quartz–pyrite–hematite veins were followed by quartz–pyrite, opal–chalcedonic quartz veins and SiO_2 flooding along structures as well as within the intrusive matrix.

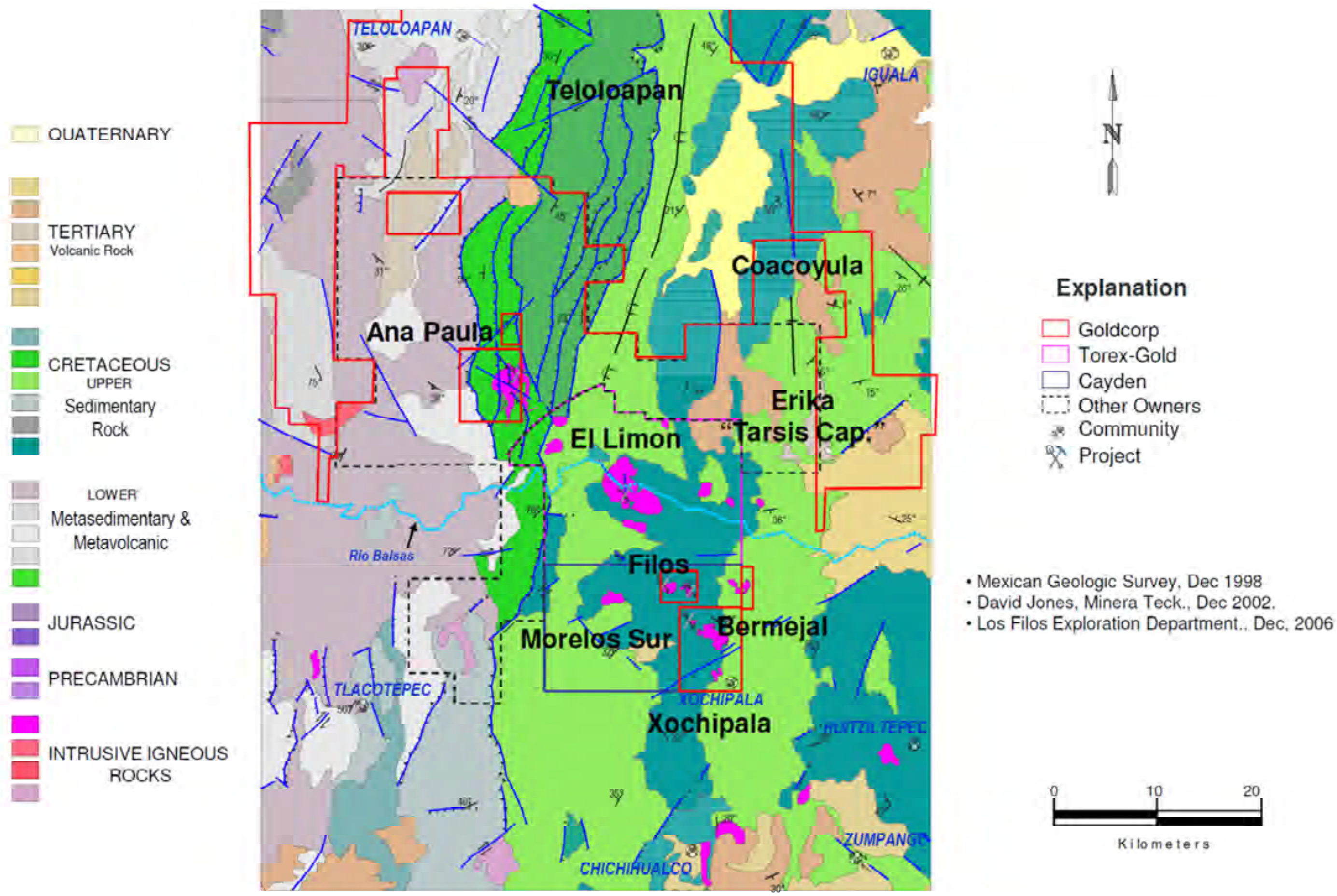
Pervasive jasperoids typically occur associated with the late veining stage, replacing skarn and intrusive rocks and forming a silica cap.

7.2 Deposits

The major deposits and zones within the Los Filos Project are illustrated in Figure 7-2.

The Los Filos deposit includes the mineralization mined in the Los Filos/4P open pit, and the mineralization mined by underground in the Los Filos Norte and Sud underground workings that were formerly known as the Nukay deposit. The underground workings currently incorporate a number of zones, including Independencia–Subida, Diegos, Nukay, Conchita, and Peninsula (also known as Peninsular). The open pit includes the Los Filos and 4P sectors. The 4P sector is further subdivided into the Aguita, El Grande, Zona 70, and Creston Rojo zones.

Figure 7-1: Regional Geology Plan



Note: Figure prepared Goldcorp, 2012.

Figure 7-2: Deposit Location Plan

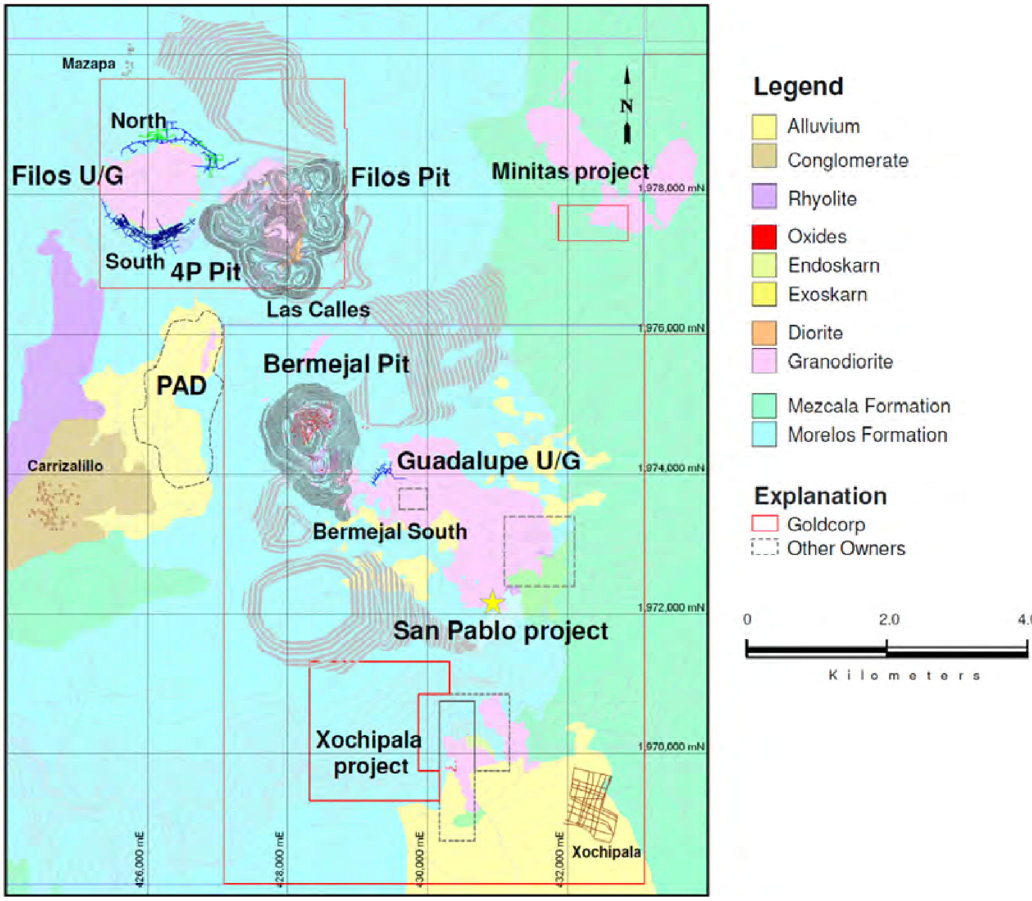


Figure prepared Goldcorp, 2011.

The El Bermejal deposit includes mineralization mined in the Bermejal North and South sectors, and the Guadalupe deposit. A former underground operation exploited part of the Guadalupe deposit.

7.2.1 Los Filos–4P

Los Filos

Lithologies

In the Los Filos area, mineralization is associated with two dioritic to granodioritic composition stocks that were emplaced in carbonate rocks of the Morelos Formation. The stocks, known as East and West, are early Tertiary in age. Intrusion resulted in development of high-temperature calc-silicate and oxide metasomatic alteration (skarn) assemblages that were followed by distinct meso- to epithermal alteration. Hematite and magnetite are typical skarn minerals, but diopside which is more usually recognized in skarn assemblages, is not present. The Los Filos (Nukay) deposit formed along the north, east and southern margins of the East stock that geological evidence and argon dating have indicated is slightly older than the West stock.

The differing morphology of the East and West stocks is interpreted to reflect different structural controls during emplacement. The exposure of the West stock is roughly circular and about 1.3 km in diameter. The East stock is elongate in a north–south direction and is about 1.4 km long and 0.5 km to 0.7 km wide in the south but in the north, a western lobe extends for 1 km in a west–southwest to east–northeast direction.

The deposit is hosted primarily by a diorite sill that dips between 20° and 50° to the east away from the East stock. The diorite was emplaced into a large, moderately-dipping, active structure that parallels bedding in the marble. The sill has a sigmoidal shape that starts out roughly flat at the stock, extends east at a moderate dip for about 200 m, then thins and flattens out again at depth.

Contained within the sill are thin, discontinuous slabs of marble that dip with the sill, which are interpreted to be structurally-bounded slivers of wall rock that were caught up in the diorite during emplacement. In the south–central portion of the deposit there is a semi-circular gap in the sill, with core holes drilled in the gap showing only marble to depths of 250 m or more.

On the western edge of the sill, the diorite grades into granodiorite of the main intrusion. Erosion has exposed the upper portions of the sill along with some of the contained marble xenoliths.

Beneath the diorite sill, moderately east-dipping stubby bodies and fingers of granodiorite project into the carbonate wall rocks away from the East stock, forming a lower sill that generally parallels the dip of the upper diorite sill. Over much of the deposit area, a thin sliver of marble lies between the upper diorite sill and the lower granodiorite sill. The lower-sill intrusive bodies extend, at most, halfway across the drilled cross-sections. These intrusive projections become less pronounced with depth, and the stock becomes essentially vertical a few hundred meters below the sill.

In the north–central portion of the deposit, several of the eastern-most core holes encountered thicknesses of several hundred meters or more of granodiorite both beneath the diorite sill and above it.

Extensive karst formation has resulted in formation of numerous caverns and sinkholes. Typically, a mantle of caliche up to 10 m thick has developed on the carbonate rocks at surface.

Alteration

Alteration associated with mineralization is extremely varied and ranges from high-temperature metasomatic to lower temperature epithermal alteration. The most characteristic and prevalent alteration types, however, are hosted by both beta-quartz (quartz-enriched) granodiorite and diorite sill rocks, and include:

- Orthoclase mantling, flooding and veining;
- Quartz flooding and veining;
- Calcite veining;
- Sericite–illite–smectite–kaolinite alteration;
- Sulphide mineralization, consisting of pyrite, chalcopyrite, arsenopyrite, bismuth minerals, and tetradymite;
- Hypogene iron oxides, including hematite–specularite, and goethite.

Alteration affects both skarn and non-skarn rocks and the intensity typically reflects the degree of fracturing of the host rock.

Metal Zonation

There is a distinct mineralogical zonation across the Los Filos deposit:

- Quartz veining is relatively dominant within or adjacent to beta-quartz granodiorites, i.e., the “proximal” part of the mineralized system;

- A transition zone in which quartz veining decreases sharply, while sulphide and calcite-quartz veining increases;
- Calcite veining is dominant towards the far edges of the diorite sill, i.e., the “distal” part of the system;
- Gold grades peak in the transition zone and coincide with the dominance of pure sulphide veins.

Exoskarn alteration around the West stock is dominated by relict pods and subsequently altered zones of massive magnetite. The higher-grade gold values found in these iron skarn deposits, as in the Nukay, Subida, and Aguita zones, are interpreted to result from late stage alteration overprinting the pre-existing skarn body.

Mineralization

The East stock diorite sill hosts approximately 75% of the mineralization at the Los Filos deposit. Mineralization is structurally controlled by breccias and quartz–hematite–gold (± calcite) veins that occur relatively late in the paragenetic sequence, and probably represent the last stage of hydrothermal activity in the deposit. The veins dip at moderate to steep angles (50–80º), while the breccias dip more moderately (30–40º). Both veins and breccias are developed preferentially within the intrusive rocks and their contacts with marble, although they may also occur in marble. The veins typically occur in clusters with spacings of 5–50 cm. The breccias tend to occur as isolated or bifurcating structures.

7.2.2 4P

The 4P portion of the greater Los Filos deposit comprises the El Grande, Aguita, Zona 70, and Crestón Rojo zones.

Mineralization is hosted within Cretaceous-aged medium-bedded to massive fossiliferous limestone of the Morelos Formation. The carbonates were intruded by granodioritic plutons and related dioritic stocks and dike bodies, resulting in the formation of marble within the calcareous rocks and local development of calc-silicate endoskarn in the intrusive rocks. Pods of calc-silicate and iron-rich exoskarn in the marble formed along contacts. Two main outcrops of intrusive rock, termed the East and West stocks, are of particular exploration interest.

El Grande

The El Grande zone is situated in the northwest part of the East stock where numerous northeast-trending inliers of carbonates lie in a complex relationship with the intrusive rocks. A series of sections oriented northwest–southeast, and a perpendicular set oriented southwest–northeast have been constructed, and interpretation of the lithologies on section indicates show a series of stacked carbonate slabs that dip between 10° and 30° to the northwest, likely following the doming and intrusion-related low-angle structures that project away from the main borders of the stock. The carbonate inliers have been encountered in the upper portions of drill holes, with the lower parts of the same drill holes encountering only massive intrusive rocks. Zones of beta-quartz granodiorite occur within the lower, massive intrusive rocks, but not in the upper, mineralized, inter-slab intrusive bodies.

Alteration is similar to the other East stock deposits. The carbonate slabs show variable alteration from clean marble to pyroxene and magnetite replaced exoskarn, both with no oxidation and retrograde altered, with zones of later flooding by jasperoidal silica. Oxidized sericite-clay-silica-K-feldspar-sulphide-hematite alteration of the intrusive is strong and pervasive and likely follows the northwest-dipping, low-angle structures.

Gold mineralization occurs in both the intrusive and the variably altered carbonate slabs. The Au zones tend to be thin and erratic, and do not appear to correlate well from hole to hole along lithologic contacts, although the mineralization may be following low-angle structures that cross cut the wall rock slabs.

Aguita

The Aguita lies along the east side of the West stock, where a thin band of iron-skarn has formed along the north–south contact between the intrusion and marble. The mineralization extent is about 200 m along strike.

Zona 70

Zona 70, which lies to the northwest of Crestón Rojo, and south of La Conchita, has been combined with Crestón Rojo for the purposes of resource estimation. The Zona 70 mineralization lies on the highest ridge on the claim block, dubbed “Mag Ridge”. Mineralization at Zona 70 occurs beneath the marble cap rock within a linear, northwest-trending ridge-like cupola of granodiorite that breaches the surface in a small, elliptical outcrop at the TNP095 drill site. Zones of beta-quartz granodiorite were noted in drilling, and likely occur along south-dipping, low-angle structures.

Mineralization is associated with a late-retrograde event characterized by K-feldspar–sericite–clay–silica–sulphide–hematite alteration that overprints the retrograde-altered skarn suite. Significant Au values are present only in the highly oxidized material. Although Au values can be present in the beta-quartz granodiorite zones, usually in quartz–calcite–hematite breccia zones along structures, the grades tend to be low compared to the adjacent, strongly-altered normal granodiorite. The higher Au zones appear to be preferentially developed above the beta-quartz granodiorite zones, as is seen in Los Filos. Higher Au values are typically found in zones of stronger clay–sericite alteration. Gold is also found in the thin bands of exoskarn that follow the contact, particularly in zones showing strong late-retrograde alteration to massive iron-oxides with the introduction of significant haematitic jasperoidal silica.

Crestón Rojo

Granodiorite extends beneath the marble cap to the south and southwest away from the East stock and under the marble that covers the area. The intrusive rocks dip from 5° to 20° in the south along an undulating upper contact. In the northwestern area, the intrusion terminates abruptly with the edge of the intrusive mass plunging up to 100 m vertically. The intrusion is tightly constrained, as drill holes have intersected primarily intrusive rocks as close as 30 m from holes that intersected all marble. The lower intrusive contact bends back flat to the north for 50 m beneath the intrusive sill before extending vertically again, forming a small, north-trending embayment beneath the main intrusive body.

To the southeast, the intrusive persists beneath 50 m to 200 m of marble capping beyond the limits of the drilling. In the very southern portion of the zone, the intrusion divides into several stacked, shallow-dipping sills ranging from 20 to 50 m in thickness that appear to represent a feathering of the intrusive body away from the main stock. Elsewhere the intrusion is suggestive of a sill; however, drilling of up to 200 m of intrusive rocks in many of the holes failed to intercept a lower contact, except in places near the southeastern portion of the East stock where the intrusion is clearly resolved into several stacked sills, and in the southeastern part of the zone.

Skarn alteration of the marble is developed along most of the intrusive contacts and ranges from 10 to 30 m in thickness. Virtually all of the skarn consisted of massive magnetite replacement that has subsequently been oxidized to massive iron-oxide, and much has been replaced by later jasperoidal silica.

Gold mineralization is found both in the exoskarn and in the granodiorite, and is associated with the clay–sericite–silica–K-feldspar–sulphide–hematite alteration typical of mineralization in the East stock intrusive rocks. Mineralization occurs as scattered, erratic zones with no clear continuity along lithologic projections. It is likely that the mineralization follows south-dipping, low angle structures that are not readily evident in the drilling.

Illustrations

Figure 7-3 is a surface geology plan that shows the outline of the greater Mineral Reserve pit that encompasses the Los Filos, 4P and Aguita zones. Figure 7-4 and Figure 7-5 are lithological cross-sections through the currently-mined Los Filos open pit, developed on the Los Filos deposit. Figure 7-6 and Figure 7-7 are cross-sections through the 4P portion of the deposit.

Figure 7-8 shows the area of the Los Filos underground mine, with the workings projected to the geological surface. Figure 7-9 is a cross-section through the mineralization exploited by the Los Filos underground workings.

7.2.3 El Bermejal–Guadalupe Deposit

The El Bermejal deposit consists of the operating El Bermejal open pit, and planned extensions to that open pit to the southeast to incorporate the Guadalupe deposit. Historic underground workings exist in the Guadalupe area.

El Bermejal

Lithology

Deposit geology consists of calcareous and argillaceous rocks of Cretaceous age that are intruded by granodiorite stocks of Tertiary age, forming metasomatic halos at their contacts. Tertiary volcanic rocks partly cover the area. Iron–gold mineralization is best developed at the granodiorite–limestone contacts and also within endoskarn.

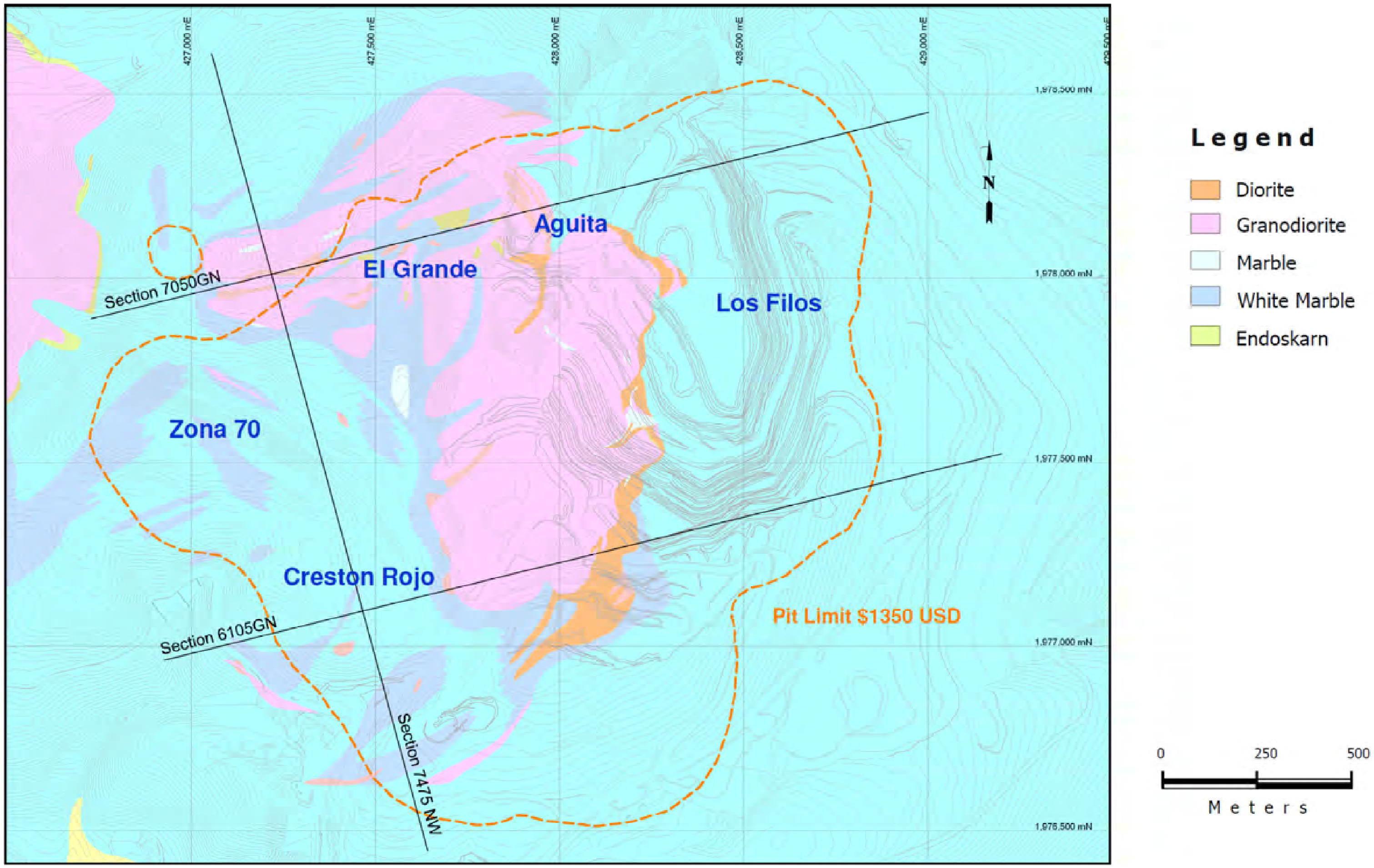
Alteration

Endoskarn shows incipient garnetization and marmorization that decreases outwards. Major pulses of gold and quartz mineralization occurred later, accompanied by strong retrograde alteration. The retrograde alteration stage destroyed the prograde calc-silicate mineral phases, resulting in chlorite, epidote and other hydrosilicate minerals. Secondary enrichment of gold and to a lesser extent copper within the oxidation zone is common.

Mineralization

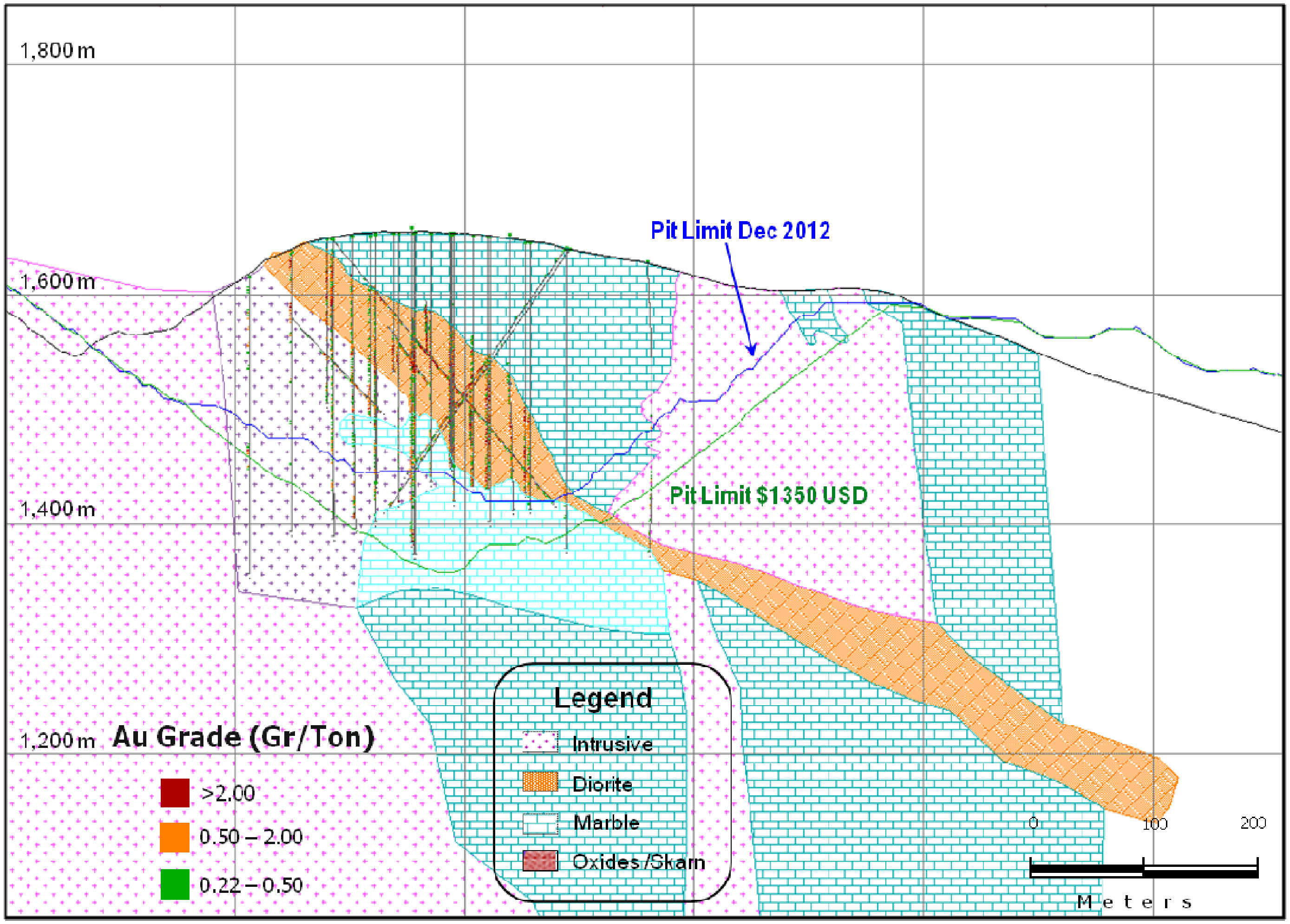
The major mineralized bodies at El Bermejal consist of iron–gold skarn with minor amounts of Cu and Ag at the intrusive–limestone contact. Mineralized bodies also occur within endoskarn and are disseminated within the hydrothermally-altered intrusive rocks.

Figure 7-3: Los Filos Deposit Geology Map



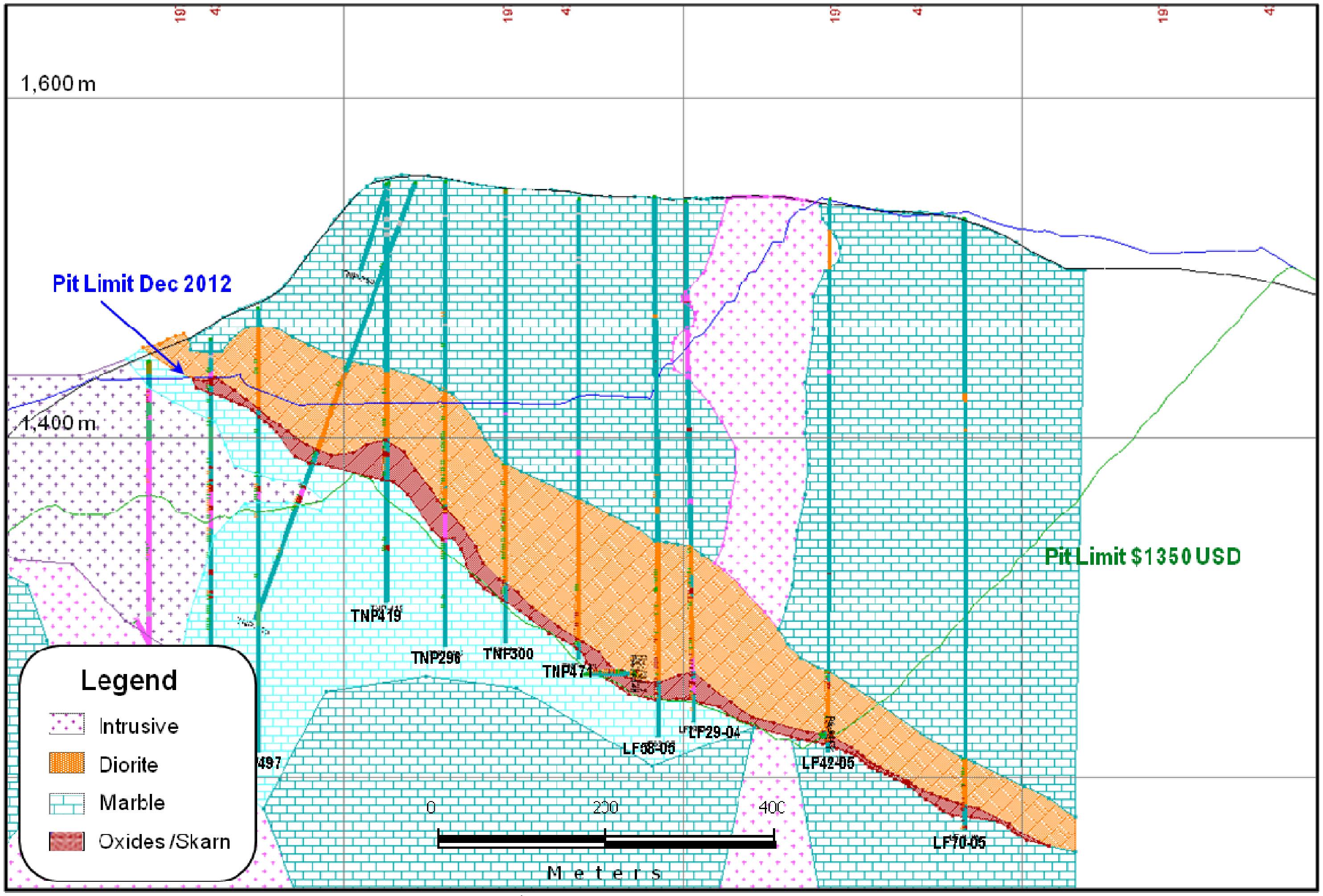
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-4: Lithological Cross Section, Los Filos Deposit



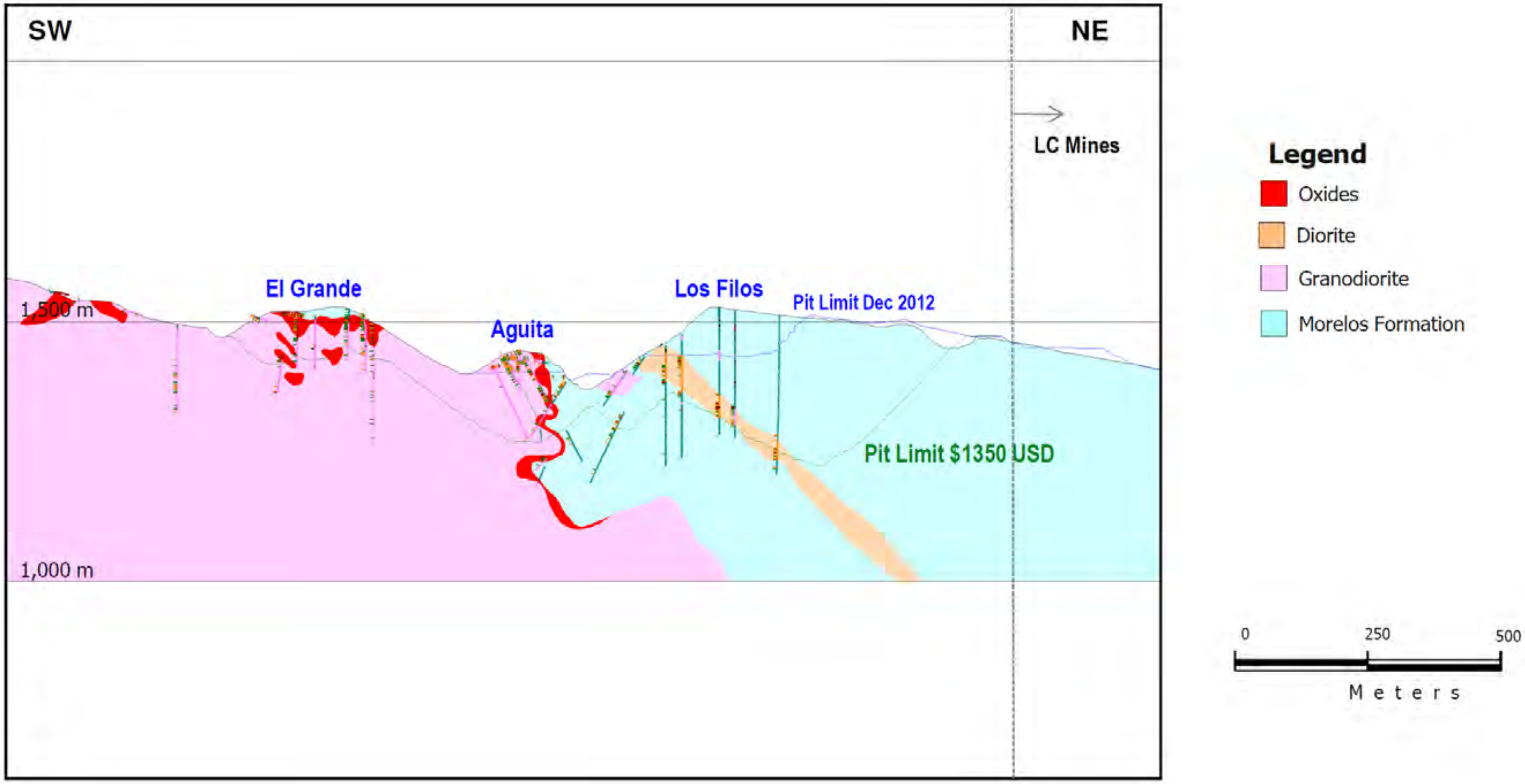
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-5: Schematic Geological Cross Section, Los Filos Deposit



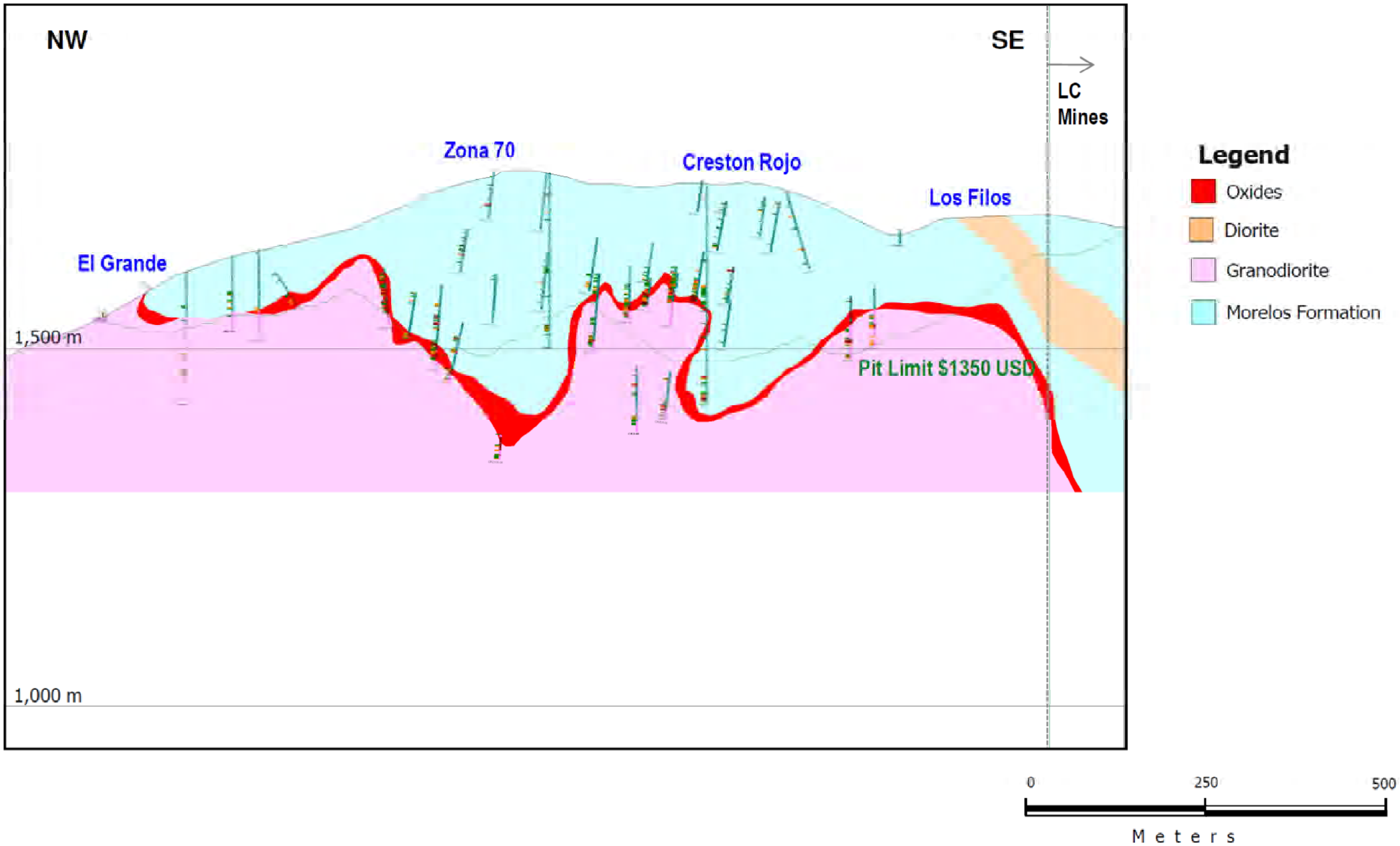
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-6: Schematic Geological Cross-Section 7050 N, 4P Deposit



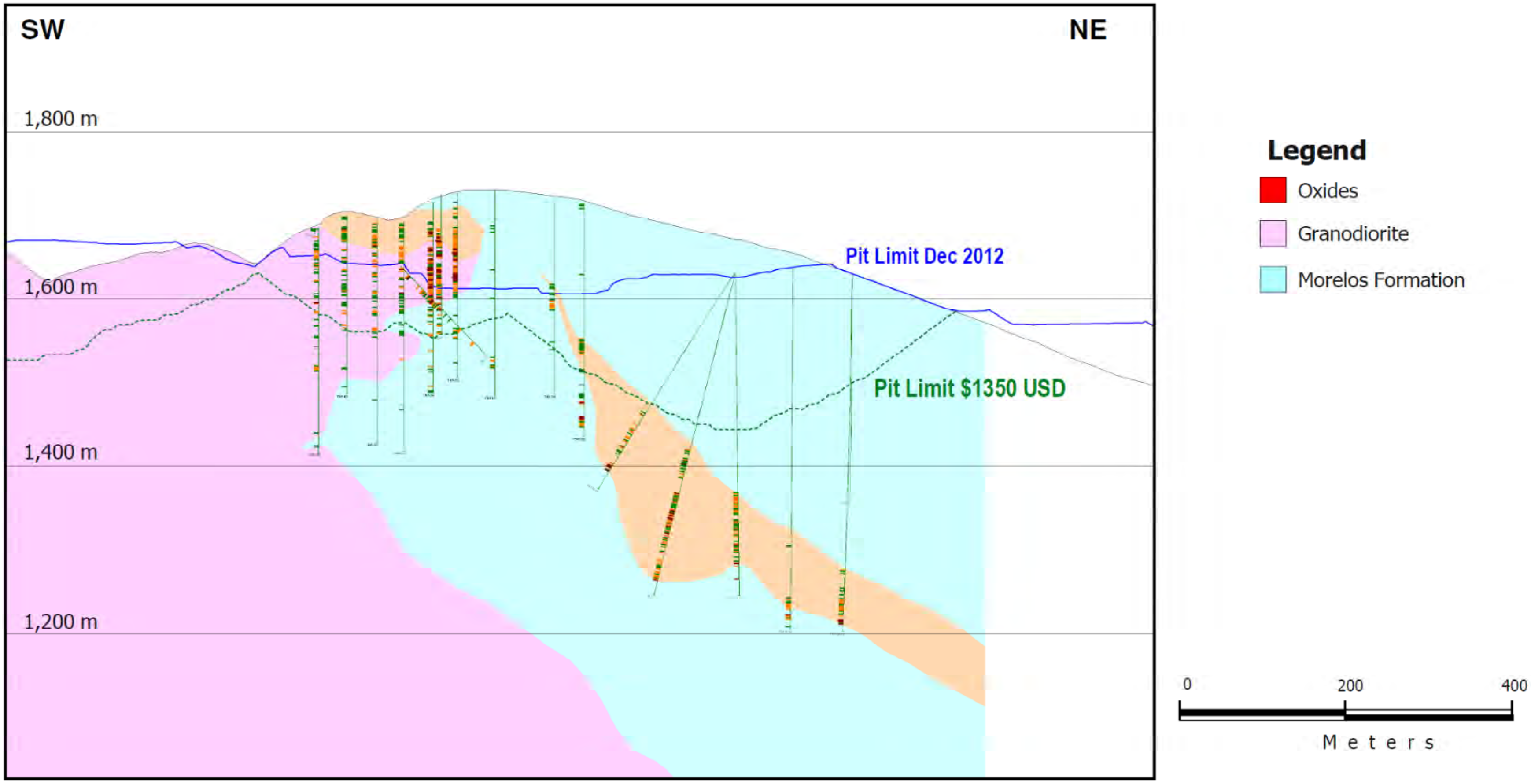
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-7: Schematic Geological Cross-Section 7475 NW, 4P Deposit



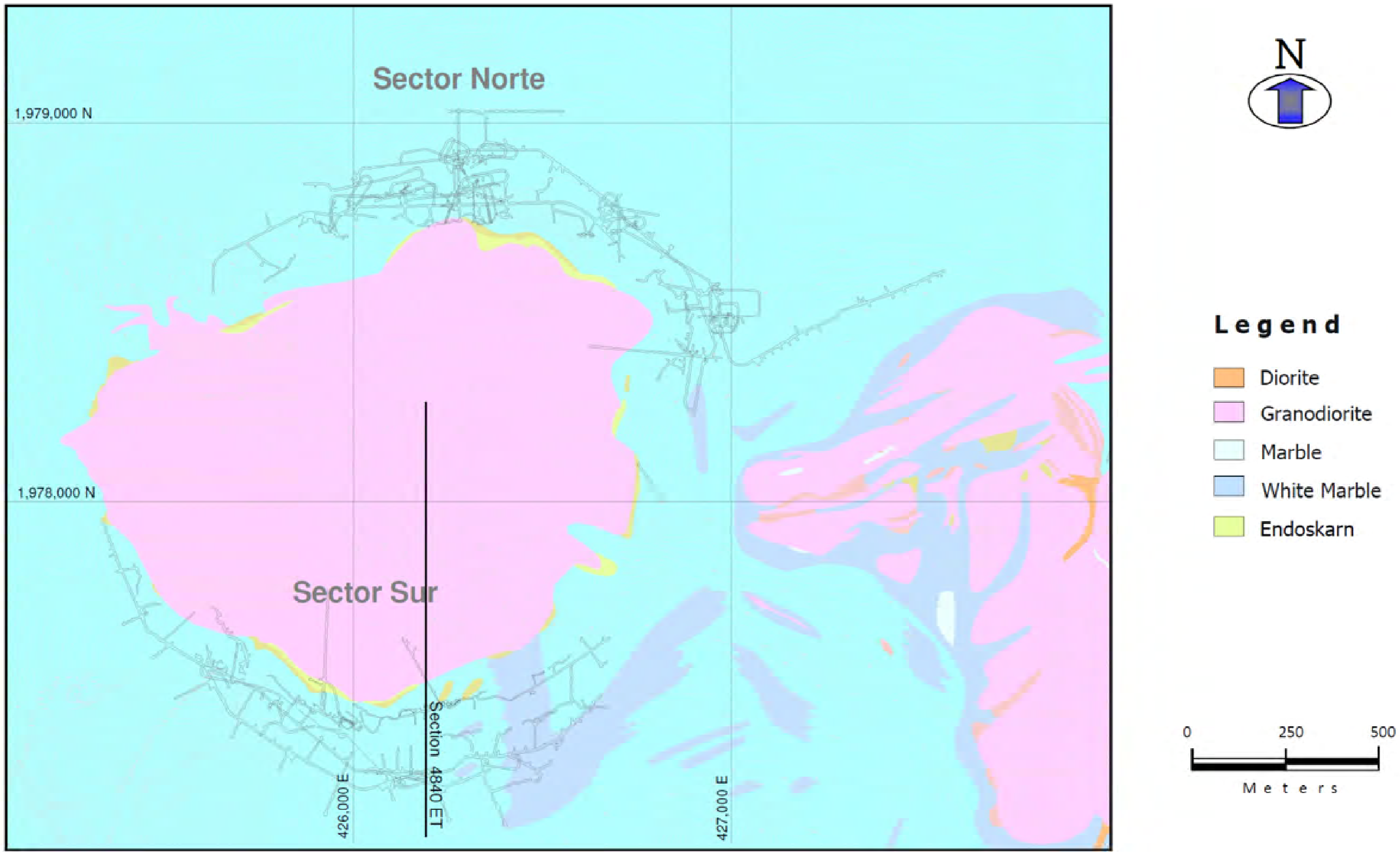
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-8: Schematic Geological Cross-Section 6105



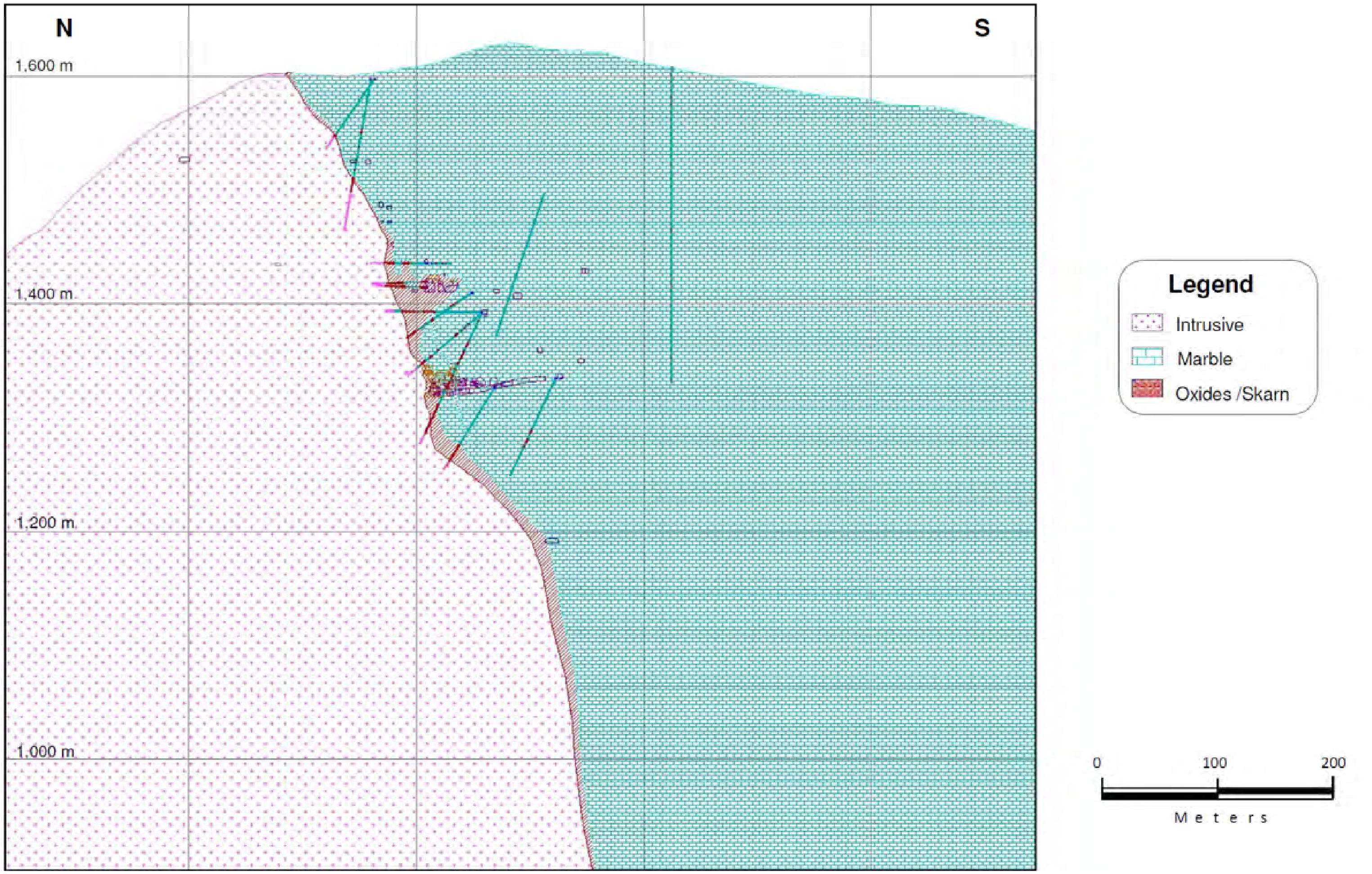
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-9: Geological Plan, Los Filos Underground



Note: Figure prepared by Goldcorp, 2012. Sector Sur = Los Filos Underground South Zone; Sector Norte: Los Filos Underground North Zone. Underground workings, current as of 31 December 2012, are shown projected to surface.

Figure 7-10: Geological Cross-Section, Los Filos Underground (Section 4840 East)



Note: Figure prepared by Goldcorp, 2012.

Surface drilling defined four mineralized bodies around the Bermejal stocks, the Anomalia, BD-3, Tajo-Mez and Contacto Norte zones. With the exception of the Anomalia zone that dips at 30–40° to the southeast, the zones have almost vertical dips. Quartz, iron oxides, high-grade Au veins, stockwork and disseminated mineralization are locally important. The quartz–iron oxide and high-grade gold veins are hosted by both limestones and intrusive rocks. Stockworks and disseminated mineralization are restricted to the intrusion. Examples of high-grade veins can be found at the San Miguel and Guadalupe areas.

At El Bermejal, all zones are predominantly oxide. At depths of more than 250 m, oxidation is pervasive and continuous while minor sulphides occur locally. Sulphides are also found towards the core of Cerro El Bermejal. Although most gold is associated with massive iron oxide bodies at the intrusive–limestone contact, there is also gold hosted within structures, quartz veins and the pyroxene skarn zone.

Mineralization is distributed around the granodiorite stock, both at the limestone contact and within the intrusion. The extent of limestone replacement is minor compared to that of endoskarn. Thickness of the zones varies from 10–150 m with an average of 80 m. Mineralization extends continuously all around the apophysis of the intrusion which is approximately 600 m in diameter. The shape of the deposit mimics a shell around the dome shape of the intrusion. Important structural controls that strike north–south and east–west, account for bends and widening of the zones at the Tajo-Mez and Contacto Norte areas.

The mineralogy of the contact zones is predominantly iron oxides with Au, in association with lesser quantities of Cu, Pb, Zn and As occurring in carbonates and oxides as well as sulphides. Primary minerals are hematite, magnetite and jasper with lesser amounts of pyrite, chalcopyrite, arsenopyrite, sphalerite, galena, pyrrhotite and marcasite as accessory minerals. Gold occurs as elemental gold or argentian gold in concentrations of 0.3 g/t to 50–60 g/t Au. About 80% of the gold is associated with hematite and magnetite and the remainder is within quartz and sulphides (arsenopyrite, chalcopyrite and pyrite).

Sieve analysis of hundreds of samples coupled with electron microscopy show that most gold is microscopic (92% is less than 100 µm, and 8% is less than 150 µm in size). Quartz and calcite, with minor siderite and phlogopite, plus traces of fluorite and orthoclase occur roughly contemporaneously with primary ore. Anhydrite and gypsum commonly fill vugs within the oxide ores. Secondary oxides are abundant and include plumbojarosite, hematite, goethite, limonite, arsenolite, azurite, malachite, chalcocite and Cu arsenides with minor amounts of minium, cerussite, and zincite. Calcium and magnesium silicates are abundant and include chlorite, epidote, serpentine, tremolite, actinolite and talc.

Guadalupe Zone

The Guadalupe zone is situated adjacent to the southeast wall of the current El Bermejal pit.

Mineralization comprises iron–gold skarn with minor amounts of Cu and Ag developed along the intrusion-limestone contact. Mineralization also occurs within exoskarn and can form disseminations within the hydrothermally-altered intrusive rocks.

The quartz–iron oxide and high-grade gold veins are hosted by both limestones and intrusive rocks. Stockworks and disseminated mineralization are restricted to the intrusion.

At depths of more than 250 m, oxidation is pervasive and continuous while minor sulphides occur locally. Sulphides are also found towards the core of Cerro El Bermejal. Although most gold is associated with massive iron oxide bodies at the intrusive-limestone contact, there is also gold within structures, quartz veins and the pyroxene skarn zone.

Illustrations

Figure 7-11 shows the surface geology of the El Bermejal–Guadalupe area with the final outline of the Mineral Reserve pit discussed in Section 15 of this Report, and the outline of the current underground workings projected to surface.

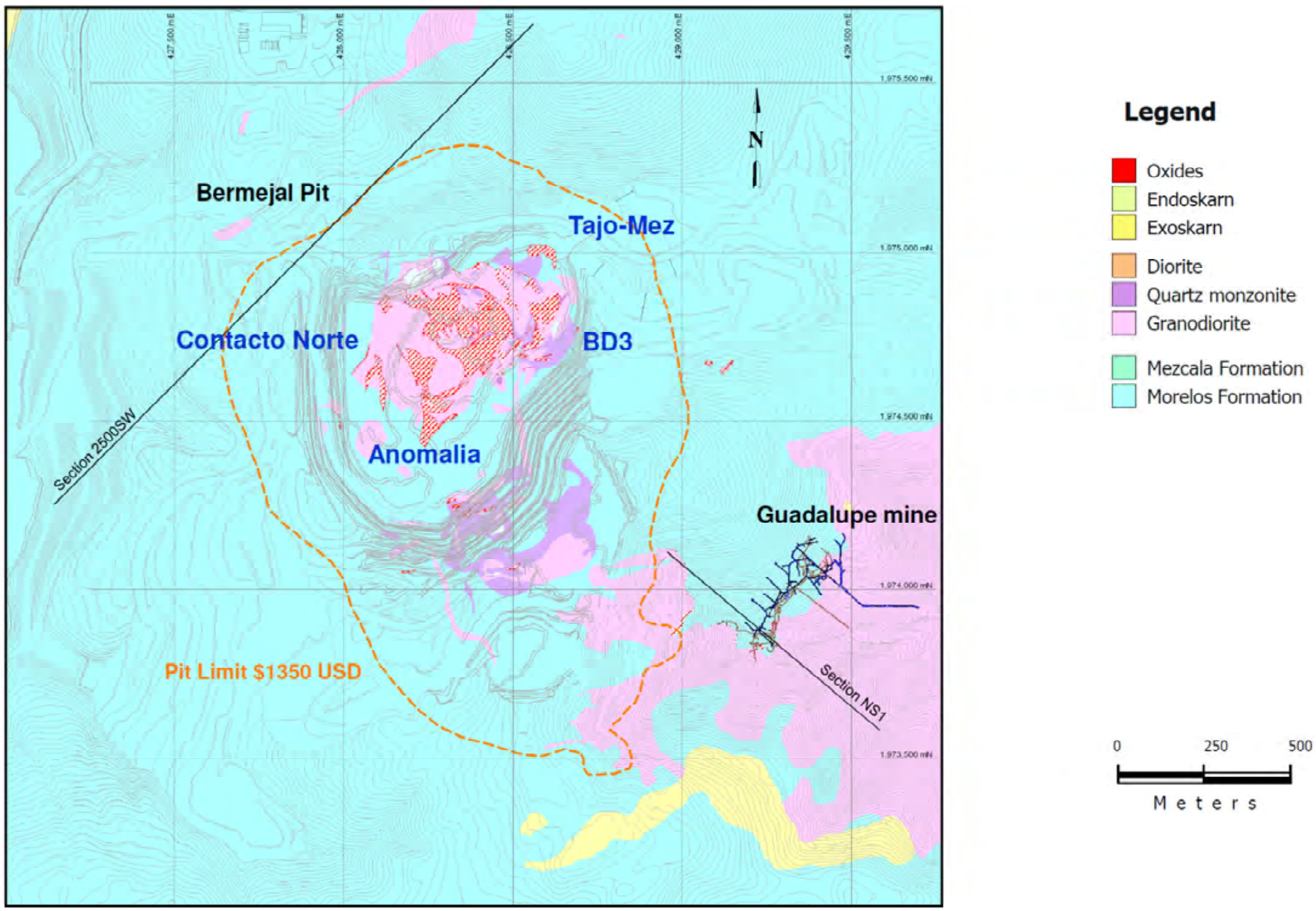
Figure 17-12 and Figure 7-13 are schematic cross-sections through the El Bermejal (Contact Norte) and Guadalupe zones; Figure 7-14 is a cross-section through the area exploited by underground operations at Guadalupe.

7.3 Prospects/Exploration Targets

7.3.1 San Pablo

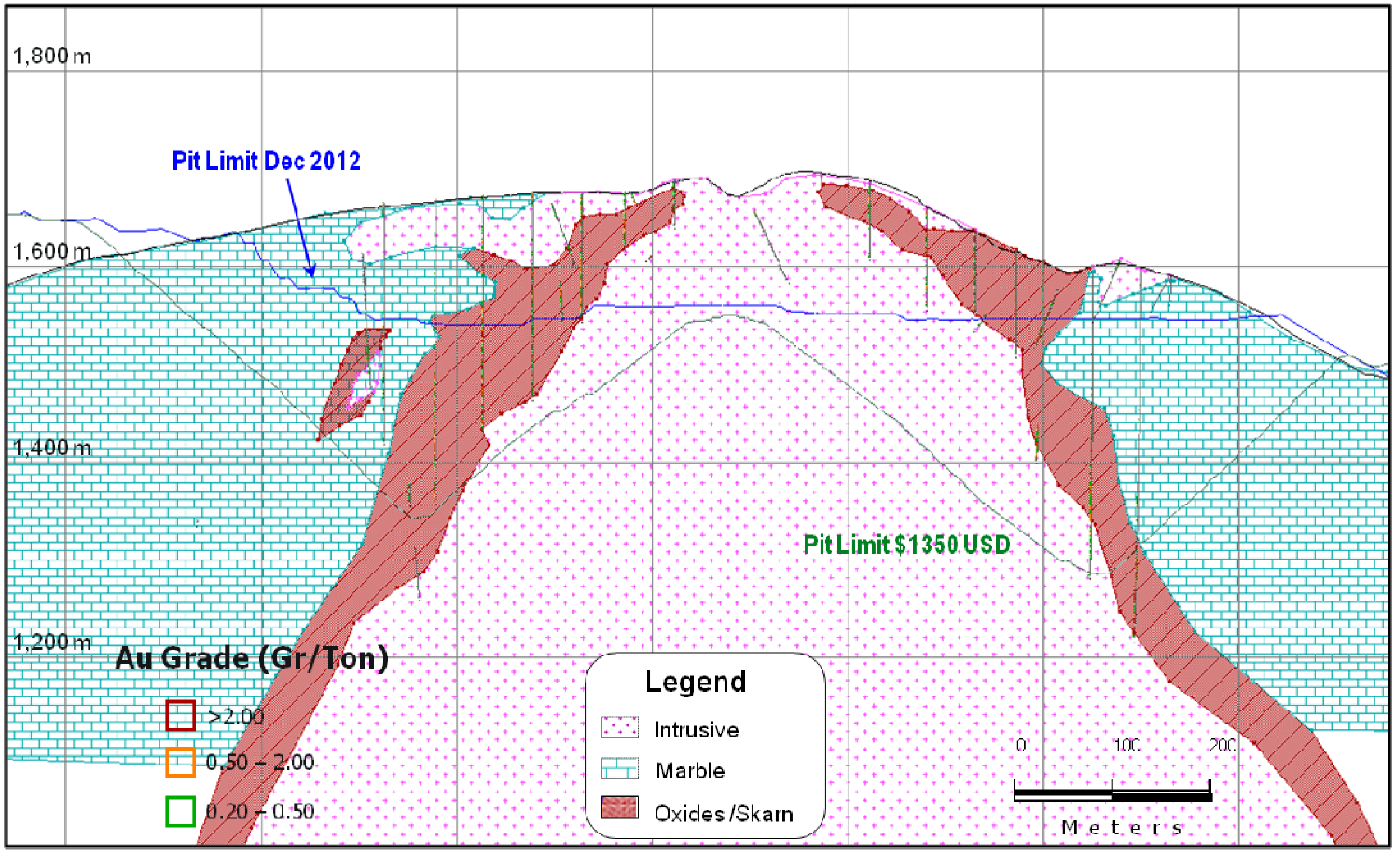
Gold mineralization at San Pablo is related to the emplacement of a Tertiary granodioritic stock into limestones and shales of the Morelos and Mezcala Formations, producing marble, skarns, and hornfelsing along the rock contacts. Mineralization consists of iron oxides with elevated gold values, and has been exploited in old workings at the San Jeronimo mine. Figure 7-15 shows the surface geology in the San Pablo area. Figure 7-16 is a cross-section showing the typical orientation of drill holes planned to be completed into the prospect.

Figure 7-11: Geological Map, Bermejal Deposit



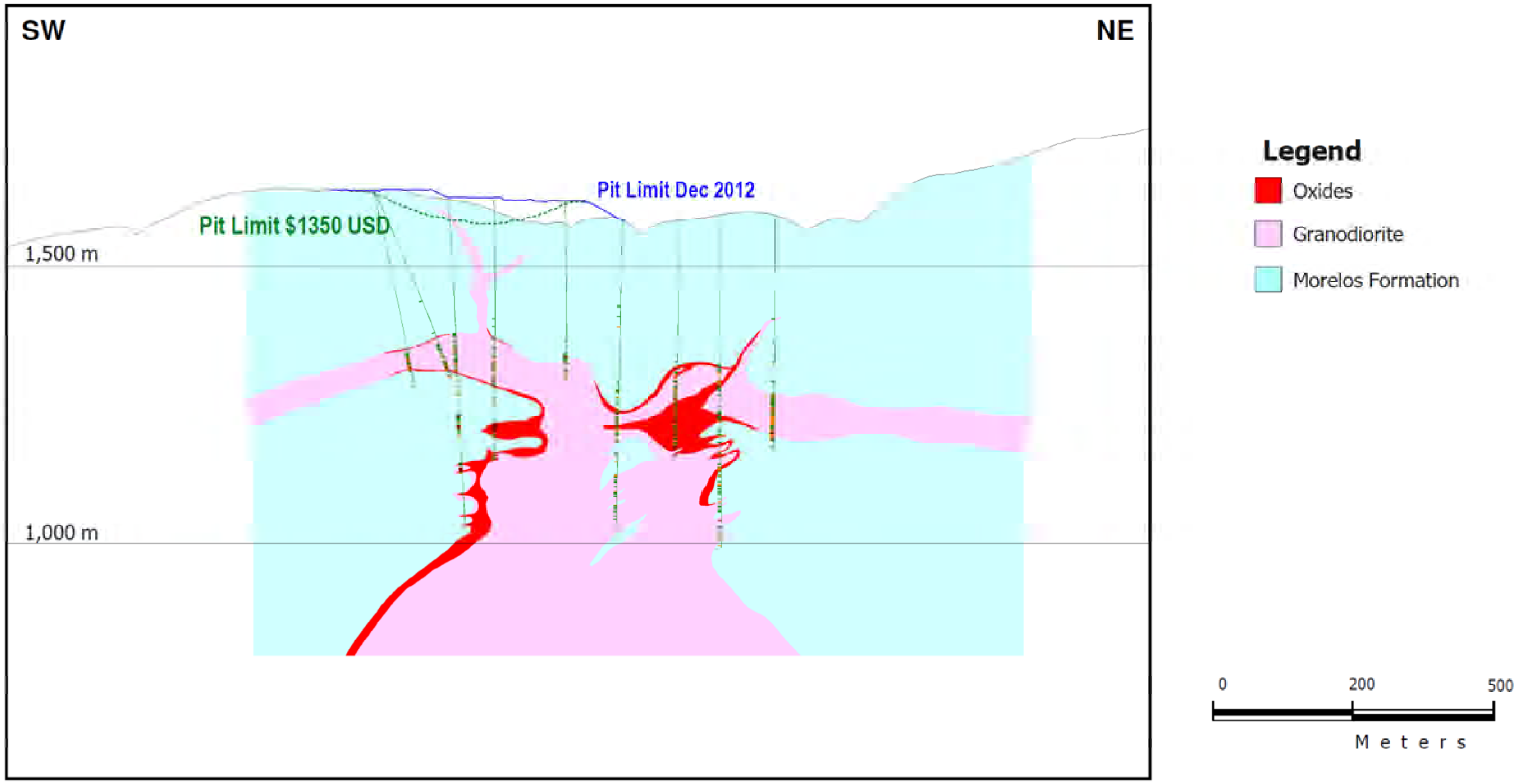
Note: Figure prepared by Goldcorp, 2012. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-12: Mineralization – El Bermejal



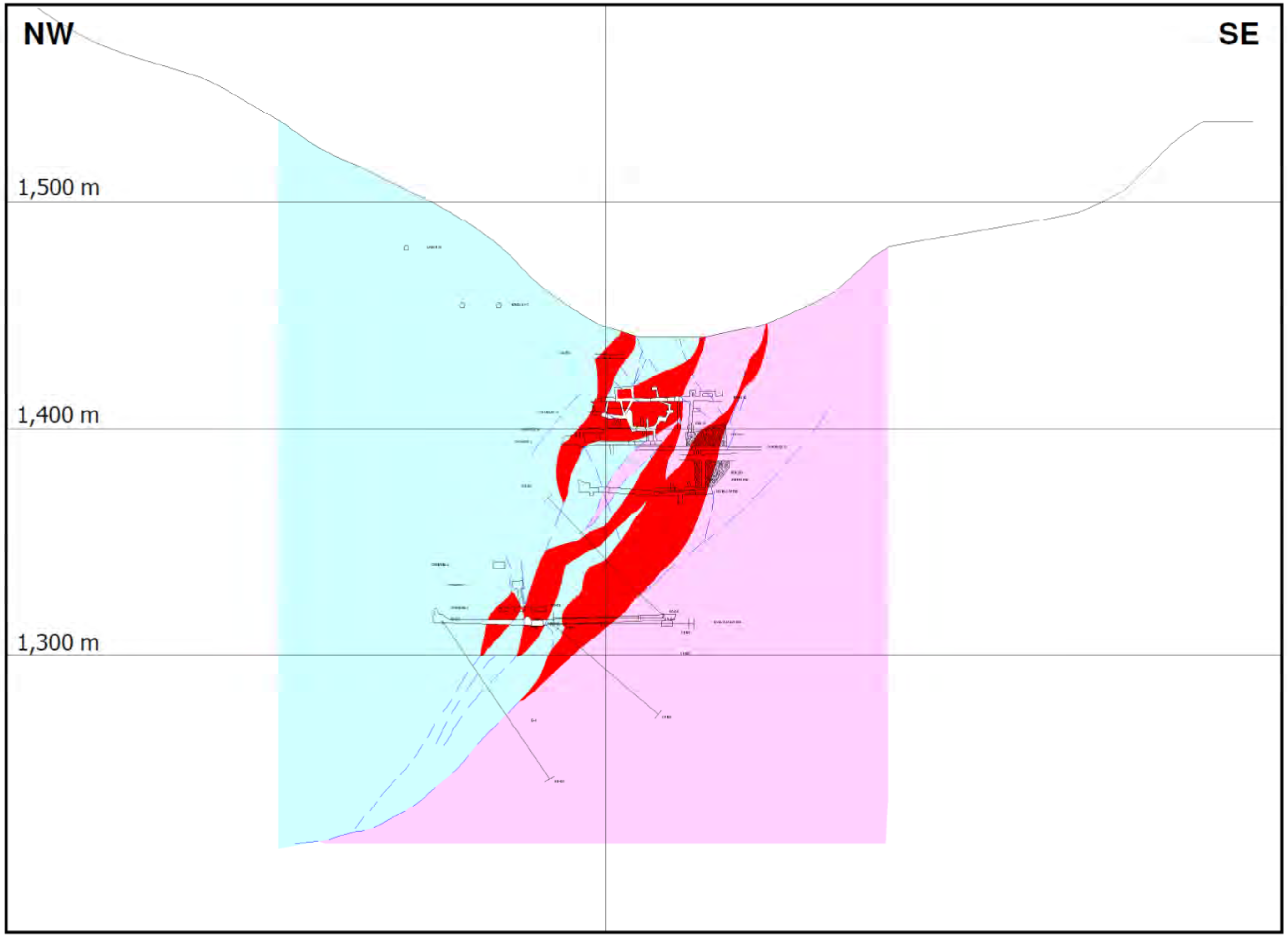
Note: Figure prepared by Goldcorp, 2012. Pit limit shown is that of the December 31 2012 Mineral Reserve estimate.

Figure 7-13: Schematic Geological Cross Section, El Bermejal Deposit, Section 2500 SW



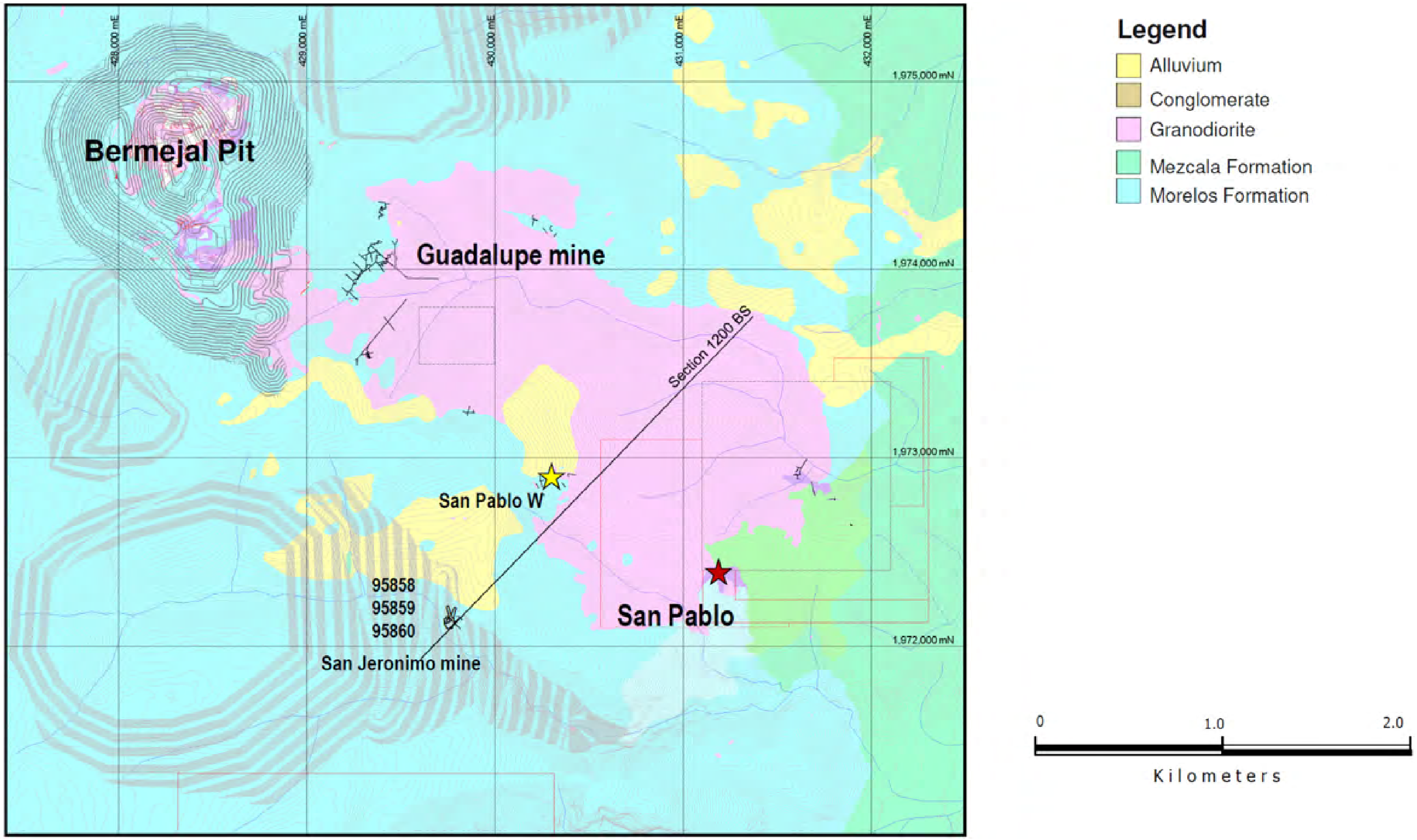
Note: Figure prepared by Goldcorp, 2013. Pit limit shown at $1350 USD is that of the Mineral Reserve estimate in Section 15 of this Report and current as of 31 December 2012.

Figure 7-14: Schematic Geological Cross Section, Guadalupe Underground, Section 2500 SW



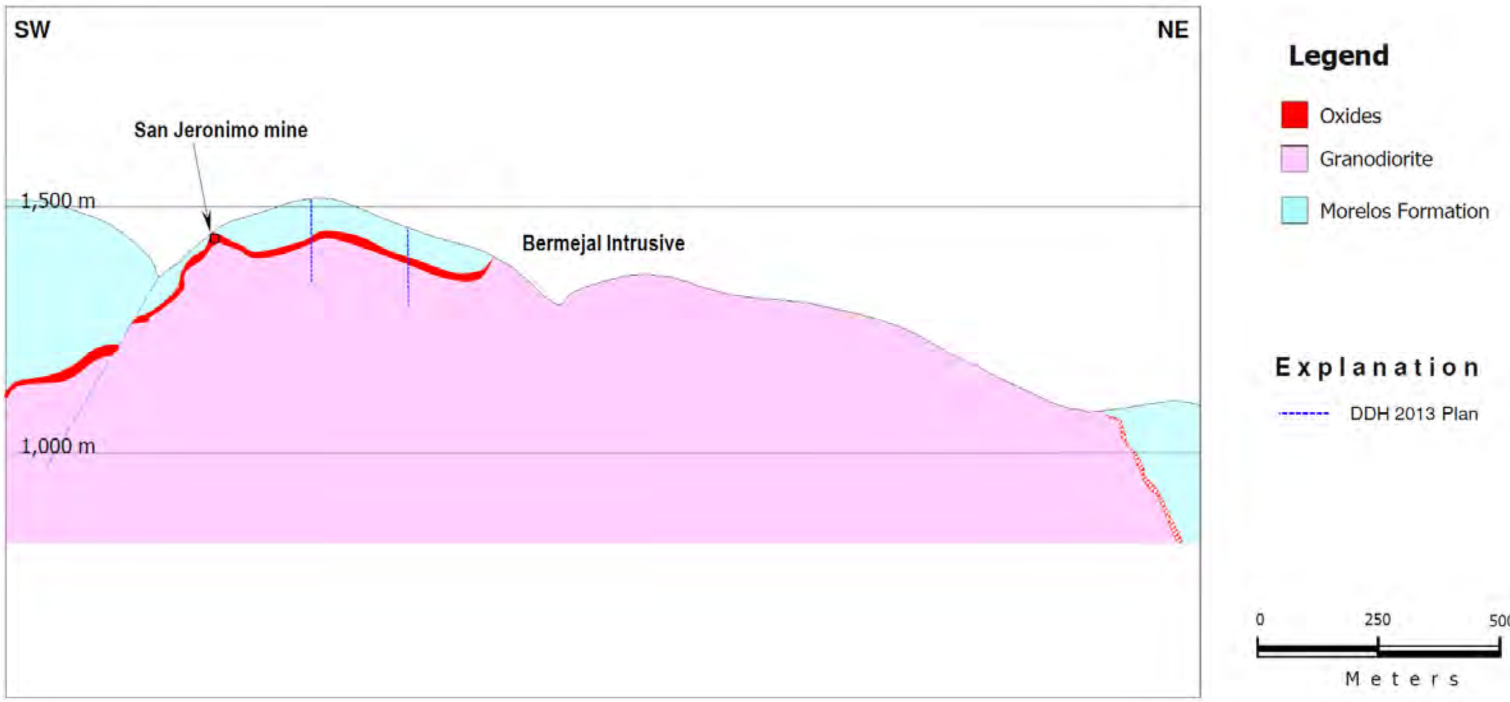
Note: Figure prepared by Goldcorp, 2013. Mine plan projections shown current as of 31 December 2012

Figure 7-15: Geology Plan, San Pablo



Note: Figure prepared by Goldcorp, 2013

Figure 7-16: San Pablo Cross Section



Note: Figure prepared by Goldcorp, 2013. Drill hole traces shown on plan are traces of exploration core holes proposed to be drilled in 2013–2014.

7.4 Comments on Geological Setting and Mineralization

In the opinion of the QP, knowledge of the Los Filos and El Bermejal deposit settings, lithologies, and structural and alteration controls on mineralization, together with the mineralization style and setting of the deposits are sufficient to support Mineral Resource and Mineral Reserve estimation and to support mine planning.

The San Pablo prospect is at an earlier stage of exploration, and the lithologies, structural, and alteration controls on mineralization are currently insufficiently understood to support estimation of Mineral Resources.

8.0 DEPOSIT TYPES

Mineralization identified within the Project to date is considered to be typical of intrusion-related gold–silver skarn deposits.

Gold skarns typically form in orogenic belts at convergent plate margins are related to plutonism associated with the development of oceanic island arcs or back arcs (Ray, 1998).

Skarns develop in sedimentary carbonate rocks, calcareous clastic rocks, volcaniclastic rocks or (rarely) volcanic flows. They are commonly related to high to intermediate-level stocks, sills, and dykes of gabbro, diorite, quartz diorite, or granodiorite composition. Skarns are classified as calcic or magnesian types; the calcic subtype is further subdivided into pyroxene, epidote, or garnet-rich members. These contrasting mineral assemblages reflect differences in the host rock lithologies as well as the oxidation and sulphidation conditions in which the skarns developed (Ray, 1998):

- Pyroxene-rich Au skarns typically contain a sulphide mineral assemblage comprising native gold ± pyrrhotite ± arsenopyrite ± chalcopyrite ± tellurides ± bismuthinite ± cobaltite ± native bismuth ± pyrite ± sphalerite ± maldonite. They generally have a high sulphide content and high pyrrhotite:pyrite ratios. Mineral and metal zoning is common in the skarn envelope. Extensive exoskarns form, generally with high pyroxene:garnet ratios. Prograde minerals include diopsidic to hedenbergitic clinopyroxene, K-feldspar, Fe-rich biotite, low Mn grandite (grossular–andradite) garnet, wollastonite, and vesuvianite. Other less common minerals include rutile, axinite, and sphene. Late or retrograde minerals include epidote, chlorite, clinozoisite, vesuvianite, scapolite, tremolite–actinolite, sericite, and prehnite.
- Garnet-rich Au skarns can contain native gold ± chalcopyrite ± pyrite ± arsenopyrite ± sphalerite ± magnetite ± hematite ± pyrrhotite ± galena ± tellurides ± bismuthinite. They generally have a low to moderate sulphide content and low pyrrhotite:pyrite ratios. The garnet-rich Au skarns typically develop an extensive exoskarn, generally with low pyroxene:garnet ratios. Prograde minerals include low Mn grandite garnet, K-feldspar, wollastonite, diopsidic clinopyroxene, epidote, vesuvianite, sphene, and apatite. Late or retrograde minerals include epidote, chlorite, clinozoisite, vesuvianite, tremolite-actinolite, sericite, dolomite, siderite and prehnite.
- Epidote-rich Au skarns often contain native gold ± chalcopyrite ± pyrite ± arsenopyrite ± hematite ± magnetite ± pyrrhotite ± galena ± sphalerite ± tellurides. They generally have a moderate to high sulphide content with low pyrrhotite:pyrite

ratios. Abundant epidote and lesser chlorite, tremolite-actinolite, quartz, K-feldspar, garnet, vesuvianite, biotite, clinopyroxene, and late carbonate form in the exoskarn.

Mineralization frequently displays strong stratigraphic and structural controls. Deposits can form along sill–dyke intersections, sill–fault contacts, bedding–fault intersections, fold axes, and permeable faults or tension zones. In the pyroxene-rich and epidote-rich types, mineralization commonly develops in the more distal portions of the alteration envelopes. In some districts, specific assemblages of reduced, Fe-rich intrusions can be spatially related to Au-skarn mineralization. Mineralization in the garnet-rich Au skarns tends to lie more proximal to the intrusions.

Deposits range from irregular lenses and veins to tabular or stratiform ore bodies with lengths ranging up to many hundreds of metres. Mineral and metal zoning is common in the skarn envelope. Gold is frequently present as micrometer-sized inclusions in sulphides, or at sulphide grain boundaries. Mineralization in pyroxene-rich and garnet-rich skarns tends to have low Cu:Au (<2000:1), Zn:Au (<100:1) and Ag/Au (<1:1) ratios.

8.1 Comment on Deposit Types

The deposits of the Project area are considered to be examples of calcic-type skarns. All of the deposits are genetically related to porphyritic diorites, tonalites and granodiorites, and the hydrothermal system that accompanied intrusive emplacement.

Mineralization is either hosted by, or spatially associated with, marble formed during contact metamorphism of the carbonates. Massive magnetite, hematite, goethite and jasperoidal silica, with minor associated pyrite, pyrrhotite, chalcopyrite and native gold typically occur in the veins and metasomatic replacement bodies that developed at the contacts between the platform carbonates and intrusive rocks.

In the opinion of the QP, a skarn deposit type is an appropriate model for the Project and for development of Mineral Resource and Mineral Reserve estimates and is an appropriate model to use in guiding exploration programs.

9.0 EXPLORATION

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

Exploration activities on the Project have included regional and detail mapping, rock, silt and soil sampling, trenching, RC and diamond drilling, 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.

A summary of the work programs completed up to the Report effective date are summarized in Table 9-1.

9.1 Grids and Surveys

The coordinate system used for all data collection and surveying is the Universal Transverse Mercator (UTM) system NAD 27 Zone 14N.

The topographic base map for Minera Nuteck was originally developed in 1999 by Eagle Mapping Group of Vancouver, Canada using photogrammetric methods and based on 1:16,000 scale aerial photography. Ground control surveys were undertaken by Walcott and Associates. The contours are spaced at 2 m intervals and the base map scale is 1:2,000. In 2004 the topographic coverage was expanded by Eagle Mapping Group at the request of Luismin to support infrastructure planning.

Control points include official stations of the National Geodesic Net determined by the National Agency of Statistics, Geography and Information (INEGI). The grid coordinate system for survey control is UTM Net 27.

Control points are distributed throughout the Project area and were taken as the basis to establish the project topography and more specifically drill hole collar locations. Collars were surveyed in UTM coordinates using a Sokia Set 610 total station with 60 inch accuracy. Earlier collar surveys were validated by Luismin's survey crew based on previous triangulation survey land marks developed by contractor Mr. Juan Herrera and double-checked with land marks from the survey developed by Eagle Mapping.

Table 9-1: Exploration Summary Table

Year	Operator	Work Undertaken
1938	Minera Guadalupe	Minera Guadalupe S.A. de C.V. purchased the Nukay deposit
1938–1940	Minera Guadalupe	Between 1938 and 1940 development of the underground mine occurred but no production was reported during this period.
1946–1961	Minera Guadalupe	Resumed development and commenced production after building a 100 t/day cyanide agitation leach plant at the village of Mazapa, some distance north of the mine site. Production during a 15-year period is reported to be about 500,000 t at 18 g/t Au
1983–1985	Minera Nukay	Open pit mining of the Nukay deposit began in January 1984 with waste removal and mining from the upper benches. The mine was developed on 5 m benches with front-end loaders and trucks. Ore was processed at a government-owned flotation plant near Mezcala.
1986	Peñoles	Jasperoid sampling at Bermejal identifies anomalous gold mineralization
1987–2001	Minera Nukay	Nukay mill, a 100 t/d cyanide leach Merrill-Crowe operation, was built near Mezcala. The plant was expanded to 350 t/d in 1994 and was expanded again in 1997 to 400 t/d. Production from the La Aguita open pit mine commenced in May 1995. Underground development of the Subida mine began in August 1995; ore production commenced in August 1996. Development of the Independencia deposit was initiated in 2001
1988	Peñoles	Magnetic and induced polarization (I.P.) surveys at Bermejal
1991–1993	Peñoles	A total of 35,000 m drilled; Anomalia and BD-3 ore bodies discovered at Bermejal
1993	Teck	Due diligence program; Nukay pit mapped, outlying prospects examined and 1,970 m of RC drilling in 19 holes. Mineral resource estimate.
1994	Teck	District-wide geologic mapping and sampling, litho-geochemical and magnetometer surveys, detailed prospect evaluations and a total of 14,511 m of RC drilling in 84 holes.
1994	Peñoles	Pre-feasibility study completed on Bermejal
1995	Teck	District-wide geologic mapping, grid litho-geochemical sampling, time-domain electromagnetic (TEM) survey, road-cut mapping and sampling and the drilling of 19,128 m in 90 holes.
1996	Teck	Exploration and delineation of the Los Filos and Pedregal prospects. 156 RC rotary and 44 core holes completed at approximate spacing of 35 m on a grid 1,200 m long and 350 m wide. Geological mapping, sampling, density measurements and metallurgical testing. 7 drill holes at Crestón Rojo and 9 holes at El Grande prospect; four holes drilled on other areas of the project.
1997	Teck	Delineation drilling on the Los Filos deposit, for a total of 29,219 m in 133 RC holes on a 35 m drilling grid area of 1,400 m by 400 m; metallurgical bottle-roll tests and column tests on low- and medium-grade core samples; preliminary geotechnical assessment. Additional drilling of Crestón Rojo (9 holes), Zona 70, also known as Mag Ridge, (14 holes), Peninsular Ridge (3 holes) and El Grande (4 holes), Independencia (6 holes). Completion of scoping level study on Los Filos, mineral resource estimate prepared.
1998	Teck	13 exploration holes for a total of 3,190 m at Los Filos. Pre-feasibility level assessment, updated mineral resource estimate prepared for Los Filos.
1999	Minera Nuteck	Metallurgical testwork, environmental studies, sediment control study, aerial photography over the Los Filos site
1999	Wheaton River Minerals	Mineral resource estimate on Bermejal
2000	Minera Nuteck	Geological modelling, a 37-hole, 7,105-metre confirmatory drilling program, a study on the structural geology, further metallurgical test work, environmental permitting studies and a review of capital cost estimates
2001	Minera Nuteck	Geological reinterpretation, relogging of core, geological modelling
2003–2006	Wheaton River Minerals	81 diamond drill holes, geotechnical and metallurgical test work, feasibility-level studies at Los Filos. Detailed review of the Bermejal deposit resource evaluation data made available by Minera El Bermejal during option-to-purchase negotiations; bulk sampling for metallurgical test work; 36 diamond drill holes drilled.

Year	Operator	Work Undertaken
2006	Minera Nukay	15,000 m drilled to explore underground targets at the Nukay Mine. Two main targets were tested, ore bodies related to the geological contact (skarn-gold) and ore bodies related to the strong fracture system into the limestone close to the intrusive (chimney). Exploration confirmed the extension of the skarn-gold bodies at Nukay, Subida–Independencia, Arroyo Hondo and Aguita areas
2006–2007	Wheaton River Minerals/Goldcorp	Mine construction and permitting activities. First gold pour mid-2007.
2007	Goldcorp	Regional and local geophysical survey was performed to provide information that may be useful in identifying new drilling targets. The survey identified various magnetic anomalies related to iron-skarn bodies along the Guerrero Gold Belt. A 100 m x 25 m grid was used for local survey and geologic mapping. 40 diamond drill holes were drilled at the 4P project (Creston Rojo, Zona 70, Conchita and El Grande prospects) for a total of 7,918 m
2008	Goldcorp	107 infill drill holes (26,693 m) at 4P, comprising 53 core holes (20,687 m) and 54 RC holes (6,006 m)
2009	Goldcorp	238 core holes (34,762 m) drilled in the Southern Bermejal area, as infill, and to extend known underground mineralized zones
2010	Goldcorp	207 infill and extension drill holes (44,513 m) completed in the Los Filos south underground sector and at El Bermejal Norte.
2011	Goldcorp	187 infill and extension drill holes (51,079 m) primarily at the Los Filos south underground sector and at El Bermejal Norte.
2012	Goldcorp	164 infill and extension drill holes (51,592 m). Drilling at Bermejal was completed at a 100 x 100 m spacing to support Mineral Resource estimates. Drilling at Los Filos was in support of upgrade classifications to Mineral Resource and Mineral Reserve categories.

9.2 Geological Mapping

Regional and detailed geological mapping was completed in a number of phases. Map scales varied from regional (1:25,000) to prospect scale (1:1,000). These are generic scales and need verification. Map results were used to identify areas of quartz veining, alteration, silicification and sulphide outcrop that warranted additional work.

The open pits are mapped as operations allow, at a scale of 1:1,000. Underground mapping is typically performed at 1:250 scale.

9.3 Geochemical Sampling

Soil, channel, pit, adit, underground, grab and rock sampling were used to evaluate mineralization potential and generate targets for reverse circulation (RC) and core drilling. Overall, there are 6,906 surface channel samples and 39,007 underground channel samples, which are stored in the Project database as proxy drill holes.

Surface geochemical data have been superseded by the drill programs, and production data.

9.4 Geophysics

Two ground magnetic geophysical surveys were completed in 2007, over the Los Filos-Nukay zone, and over the Minitas area. Both surveys used 100 m station spacing. The ground geophysical surveys were used to vector into mineralization and generate targets for drill programs.

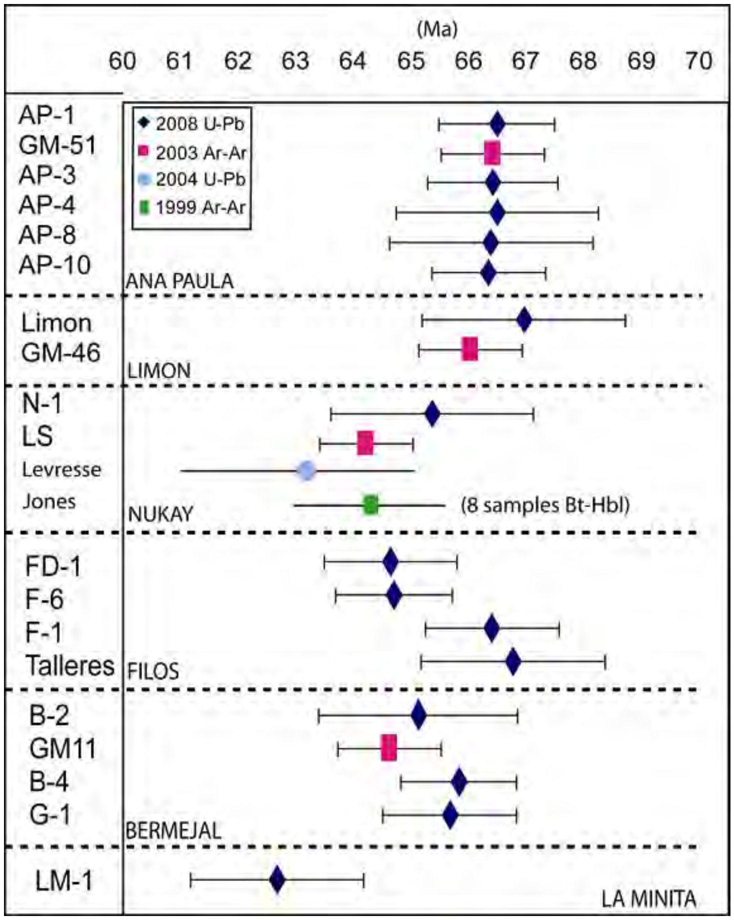
9.5 Petrology, Mineralogy, and Research Studies

Age dating, petrography, mineralogical studies, aerial photography, and Quick Bird imagery have been completed.

Age dating studies were performed at the University of Arizona on selected rock samples from Nukay, Los Filos and El Bermejal. Resulting age dates are as indicated in Figure 9-1.

Petrographic studies were completed over a four-year period by Dr. Sidney A. Williams, and a total of 491 outcrop samples have been examined. Individual sample reports and responses to specific questions were received from Dr. Williams for each batch of samples, including descriptions, relevant photomicrographs and in some cases microprobe analyses.

Figure 9-1: Results, Age Dating Studies



Note: Figure prepared by Goldcorp, after University of Phoenix data. The Ana Paula, Limon and La Minita data are from deposits that are not held by Goldcorp.

Additional petrographic studies were performed by Petroanalisis in Mexico during 2010, to establish vein paragenesis. A total of 23 samples were sent to Universidad Michoacana de San Nicolás de Hidalgo for petrographic and mineralogical study in 2012.

X-ray studies performed by the University of Arizona in 1995 indicated that the primary clay mineral is smectite, with associated illite/montmorillonite, and kaolinite in strongly oxidized samples.

Data from these specialist studies were used to refine geological and mineralogical descriptions and interpretations.

The aerial photography and Quickbird images were used to help vector into areas of alteration and exploration potential.

9.6 Geotechnical and Hydrological Studies

Initial geotechnical studies were completed during the 1990s, and comprised core logging and desktop and site assessments of sub-surface conditions in the immediate vicinity of the mineralization at Los Filos and El Bermejal. Hydrological studies were completed in the same time period, to provide baseline data collection. More detailed studies were completed by independent consultants to support feasibility-level assessments. Work included geotechnical assessment of infrastructure locations such as the proposed plant, waste dump and tailings sites, 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 feasibility studies. The hydrological model is based on drill data.

Specialized 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.

Additional information on the geotechnical and hydrogeological setting of the Project is included in Sections 16 and 18.

9.7 Metallurgical Studies

Metallurgical testwork data and studies undertaken are discussed in Section 13.

9.8 Exploration Potential

Potential remains in the immediate vicinity of the Los Filos and El Bermejal open pits to identify additional mineralization that may support resource estimation. The corridor from the El Bermejal south area to the Guadalupe deposit is particularly prospective.

Regionally, additional targets include the San Pablo deposit.

9.9 Comments on Exploration

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 supports the genetic and affinity interpretations.

10.0 DRILLING

Surface and underground drilling completed over the Los Filos Project area by Goldcorp from 2003 to 31 December 2012 is summarized in Table 10-1. Drilling has been completed at the Los Filos, 4P, El Bermejal, Guadalupe, and Los Filos underground deposits and the Xochipala prospect.

Drilling by other parties prior to 2003 was summarized in Table 9-1.

Collar location plans for the drill holes completed over the entire Project area are as indicated in Figure 11-1. Figure 11-2 is a detail map showing the drilling completed in the area of the Los Filos open pit and the 4P deposit. Figure 11-3 shows the drilling in the area of the Los Filos (Nukay) underground mine. Figure 11-4 illustrates the drill locations for drilling at El Bermejal and Figure 11-5 the drilling at Guadalupe.

Table 10-1 and Figure 10-1 include drill information on the Xochipala prospect that was current as at 31 December 2012. The 28-hole (6,859.95 m) drill program was completed by Goldcorp during a two-year option agreement held with the prospect owners; Goldcorp has since decided not to proceed with the option.

10.1 Drill Methods

No information is available for drill contractors or rig types used prior to 1995.

RC drilling at Los Filos after late-1995 was accomplished by Layne de Mexico, using truck-mounted drills. The main phase of core drilling in 1996 was carried out by Britton Hermanos de Mexico (Britton Brothers). Drill companies used for the 2005–2009 programs were Major Drilling de Mexico, S.A de C.V. and Construcción, Arrendamiento de Maquinaria y Mineria S.A de C.V. Rigs included Longyear 38s and URD 200s.

Table 10-1: Drill Hole Summary Table, Goldcorp Drilling, 2003–31 December 2012

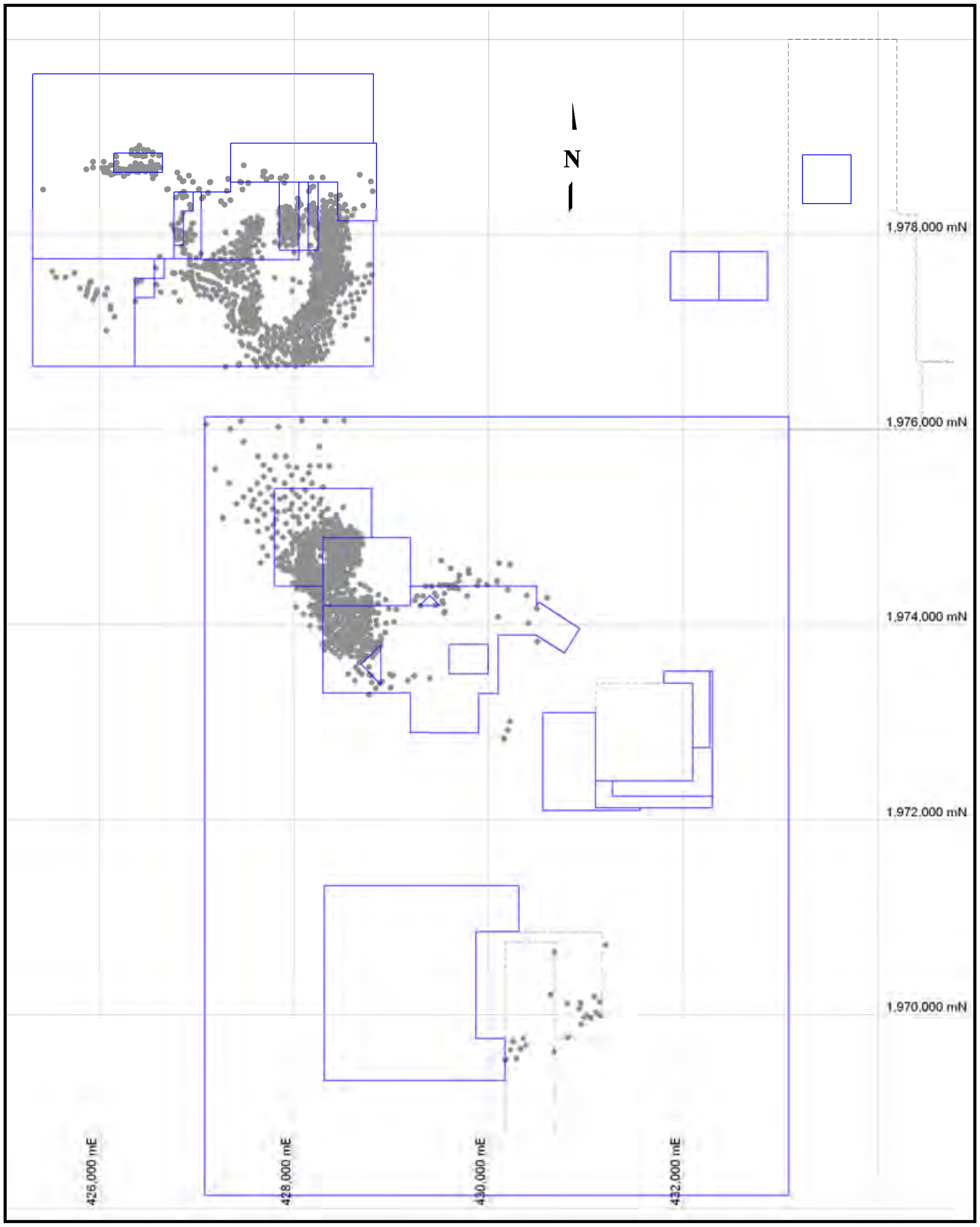
Year	RC		Core		Total	
	Number Holes	Meters	Number Holes	Meters	Number Holes	Meters
2003	927	180,394	50	10,386	977	190,780
2004	237	44,421	72	17,171	309	61,562
2005	0	0	170	46,195	170	46,195
2006	0	0	139	25,718	139	25,718
2007	0	0	161	20,187	161	20,187
2008	54	6,006	88	20,687	142	26,693
2009	0	0	238	34,762	238	34,762
2010	0	0	207	44,513	207	44,513
2011	0	0	187	51,079	187	51,079
2012	0	0	164	51,592	164	51,592
	1,218	*230,821*	*1,476*	*322,290*	*2,694*	*553,081*

Note: Table includes underground and surface drilling.

Drilling has been completed at the Los Filos, 4P, El Bermejal, Guadalupe, Los Filos underground deposits.

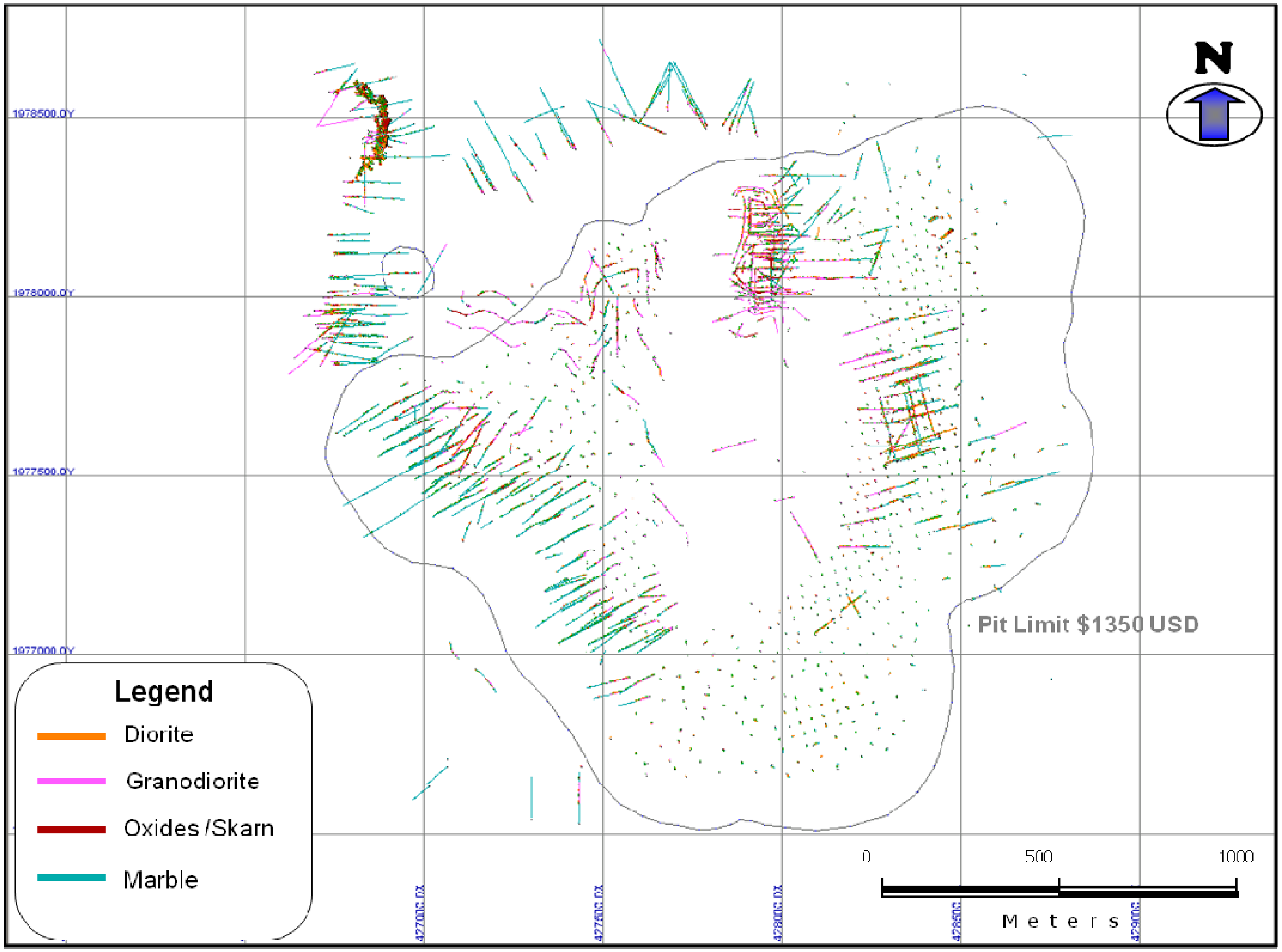
In the drill table total, 28 drill holes were completed at the Xochipala prospect during a two-year option agreement held with the prospect owners. Sixteen of these holes (3,541.2 m) were drilled in 2011, and an additional 12 holes (3,318.75 m) in 2012. Goldcorp has, since 31 December 2012, decided not to proceed with the option.

Figure 10-1: Project Drill Hole Location Map



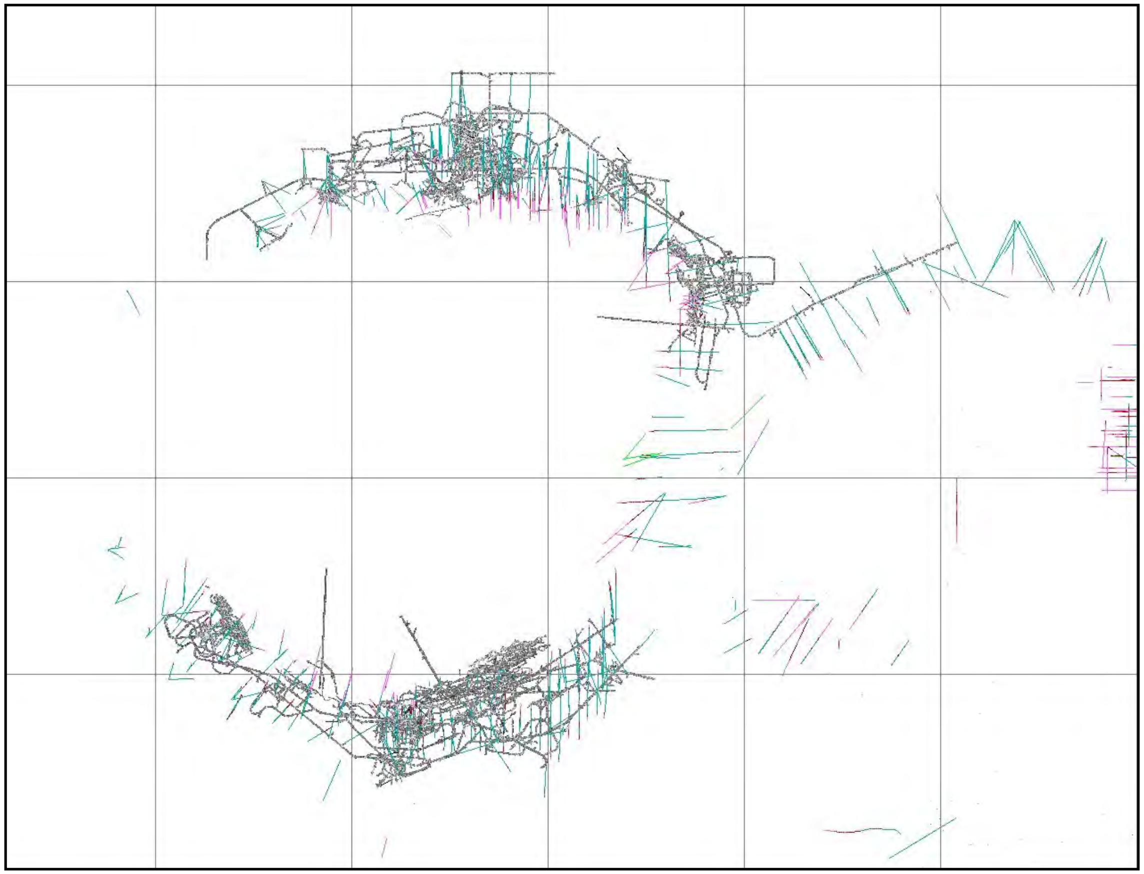
Note: Figure prepared by Goldcorp, 2013. Drill collars shown on plan include RC and core drilling. A total of 28 drill holes were completed at the Xochipala prospect during a two-year option agreement held with the prospect owners; Goldcorp has since decided not to proceed with the option.

Figure 10-2: Los Filos and 4P Deposit Drill Hole Location Map



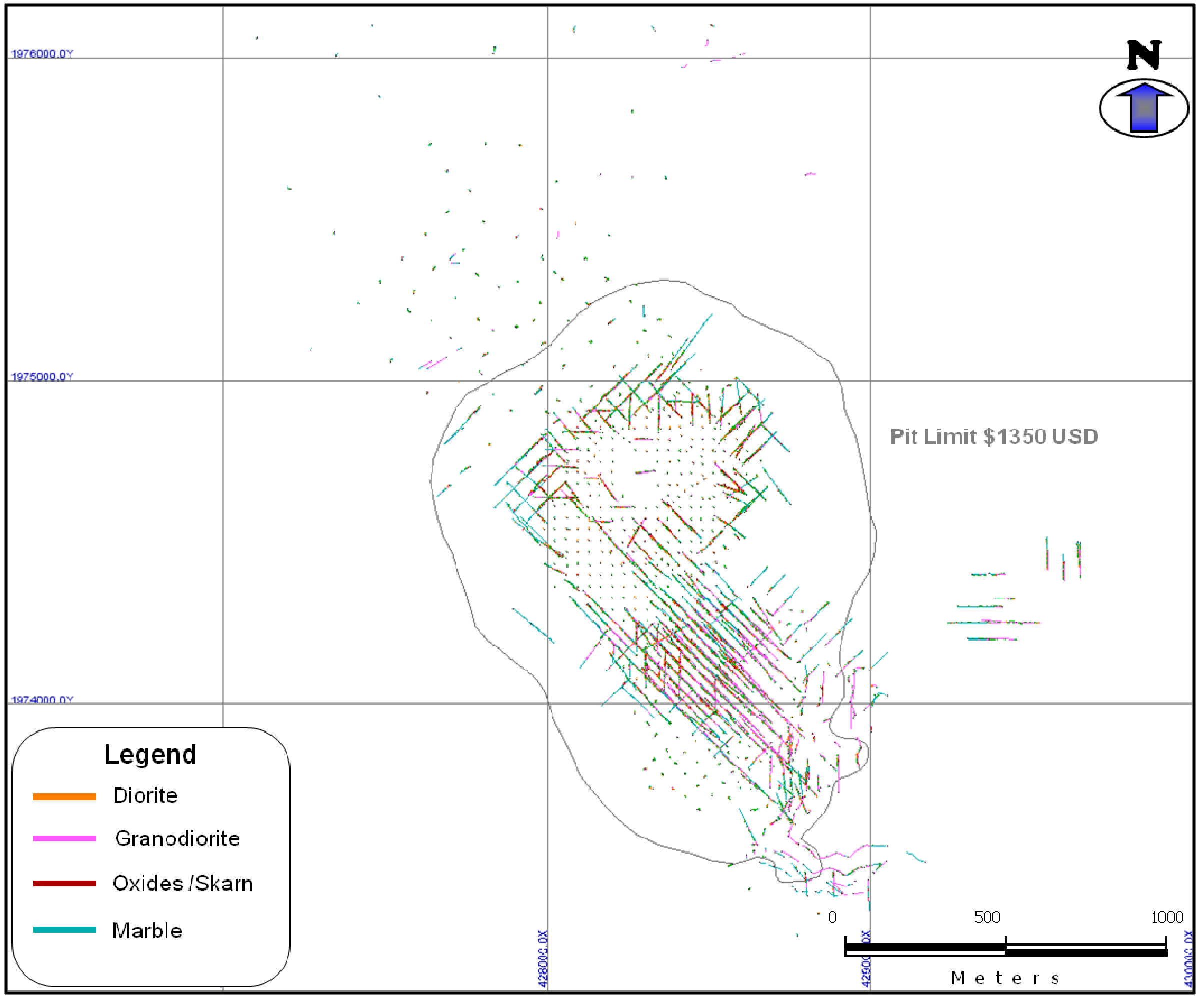
Note: Figure prepared by Goldcorp, 2012. Pit outline is that of the 31 December 2012 Mineral Reserve pit.

Figure 10-3: Nukay Deposit Drill Hole Location Map.



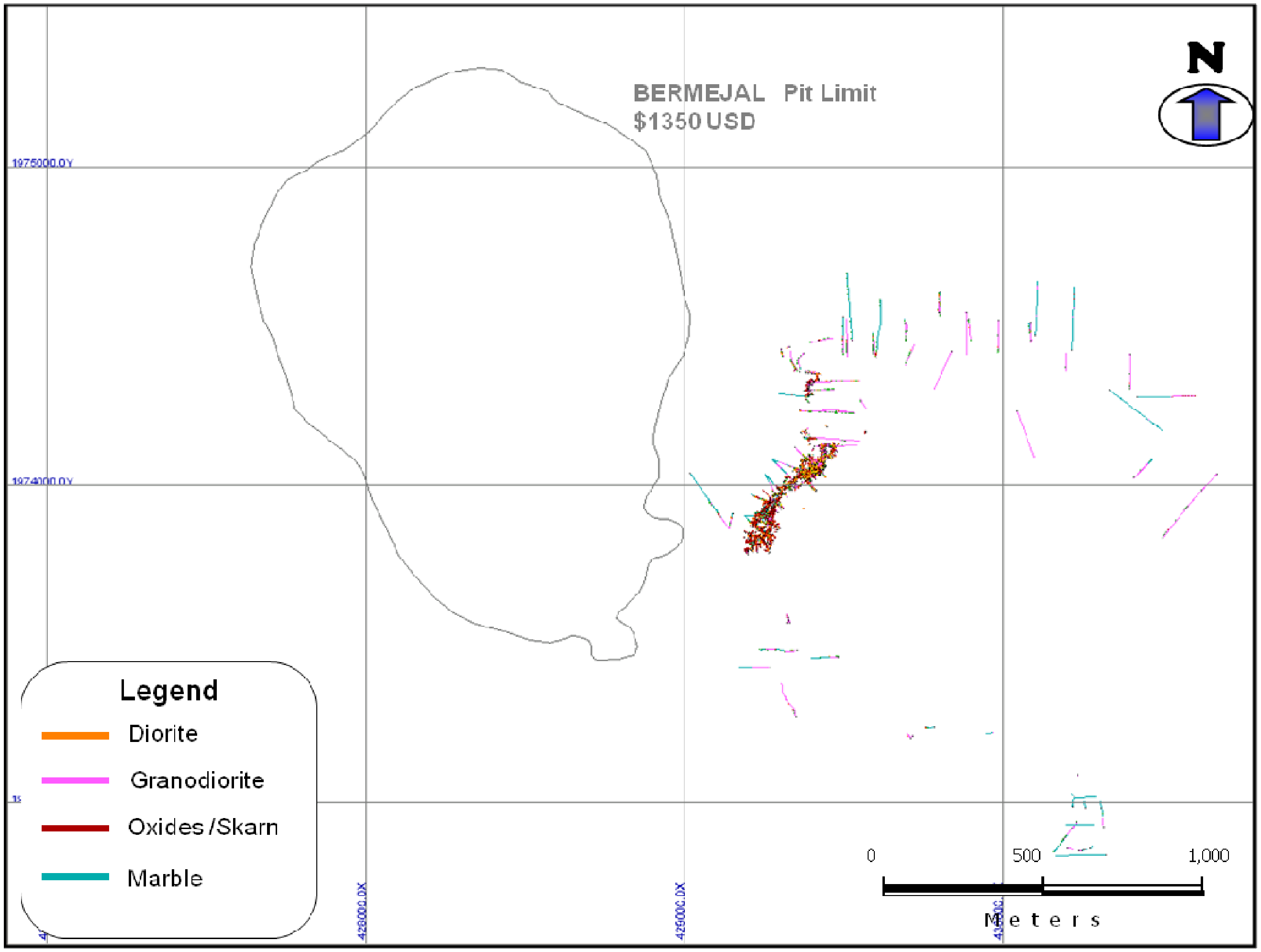
Note: Figure prepared by Goldcorp, 2012.

Figure 10-4: El Bermejal Deposit Drill Hole Location Map



Note: Figure prepared by Goldcorp, 2012. Pit outline is that of the 31 December 2012 Mineral Reserve pit.

Figure 10-5: Guadalupe Deposit Drill Hole Location Map



Note: Figure prepared by Goldcorp, 2012. Pit outline is that of the 31 December 2012 Mineral Reserve pit.

In addition, the following companies and rigs have been employed on the Project:

- 2006: Canrock Drilling; Longyear LY38 drill rig;
- 2007–2008: Advaiser Drilling; rig types not recorded;
- 2007; 2011–2012: Servicios Interlab de México; rig types not recorded;
- 2007–2012: Servicios Drilling; Longyear LY44, LF90 drill rigs;
- 2008: Layne de México; RC drilling; ITRH 100 drill rig;
- 2011–2012: Maza Drilling; Valdor drill rig;
- 2012: Energold; rig types not recorded.

RC drilling was conducted using down-hole hammers and tricone bits, both dry and with water injection. Ground water is generally absent in the marble, but minor water flow is typically present in the underlying intrusive rocks. Water flow was rarely high enough to impact the drilling, although water had to be injected to improve sample quality.

Experimentation with various drilling techniques over the durations of the exploration programs led to the development of a rigorous drilling protocol in order to optimize sample quality. The rods used were 10 ft or 20 ft (3 m or 6 m) in length, and samples of the drill cuttings were collected at intervals of 5 ft (1.52 m). Penetration rates averaged 60 m per day per drill, with an average hole depth of approximately 230 m. Some RC drilling was performed as pre-collars for core drill holes. Sample recoveries were not routinely recorded for RC holes.

Surface core drilling typically recovered HQ size core (63.5 mm diameter) from surface, then was reduced to NQ size core (47.6 mm) where ground conditions warranted. Following drilling methods tests, face-discharge bits were used for all drilling. In general, core recoveries were good, averaging around 90%. Metallurgical holes were typically drilled using PQ size core (85 mm).

Drill diameters for the underground operations are either NTW (56 mm) or HQ size, depending on the rig that is used.

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.

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

Initially, the core was transported 13 km to a core shack in Mezcala; however, since construction of the core shack on site was completed in mid-2006, all core has been processed on site.

Transport of core boxes to the core shed was done by personnel from the company that was managing the drill program, or the drilling supervisor. Core handling logs were completed that included details for all persons involved in any step during the logging and sampling procedures.

10.2 Geological Logging

Logging of RC drill cuttings and core has utilized standard logging procedures since Project inception. Initial logging utilized paper forms, with data hand-entered into a database from the logging form. Current logs are completed using computer tablets, with data uploaded directly into an acQuire database.

Logs currently record lithologies, skarn type, fracture frequency and orientation, oxidation, sulphide mineralization type and intensity, and alteration type and intensity. Until 2001, the logging descriptions were based on alteration terminology, which led to difficulties with actual lithological identification. In 2001, Minera Nuteck completed a thorough, field-based, geological re-interpretation, which led to reclogging of all available drill core using lithologies, with alteration as a descriptor. Goldcorp personnel have maintained the logging scheme so that a consistent set of primary lithological records exists for the Project.

Rock quality designations (RQD) and recovery percentages were also recorded. RQD measurements are taken by measuring the sections of core greater than 10 cm that were not fractured over lengths of 5 m; and rock hardness measurements are recorded on a scale of 0–5 with 0 being very soft and 5 being very hard. All discontinuities are classified by type and thickness and discontinuity orientations were recorded as 0–30º, 30–60º, and 60–90º.

Core is photographed and video recorded from collar to toe; these digital files are stored on hard disc.

10.3 Collar Surveys

Three exploration grids initially covered the Los Filos deposit: the Mexican State Grid (UTM), the Nuteck grid, and the Los Filos grid. The Nuteck grid orientation was coincident with the UTM grid, and all Nuteck drill hole survey coordinates were initially recorded using the local Nuteck grid system. The Los Filos grid is rotated 15º to the west of the Nuteck grid.

In 2001, all drill hole coordinates from the 2000 drill campaign were re-surveyed by Teck. Based on this work, a global modification of 60.5 m to all drill hole elevations was made.

Current drill collars are based on a topographic survey in UTM coordinates using a Sokia Set 610 total station with 60” accuracy. Earlier collar surveys were validated by Goldcorp survey crews based on previous triangulation survey land marks developed by contractor Mr. Juan Herrera and double checked with land marks from the survey developed by Eagle Mapping (refer also to Section 10.1).

10.4 Downhole Surveys

All pre-2003 holes were surveyed using the hydrofluoric acid test tube etch method. Angle holes were surveyed every 65.62 m (200 ft) and vertical holes were tested once at the end of hole. Limited down-hole surveying was undertaken with a computerized gyroscopic probe at intervals of 15.24 m (50 ft). However, none of the core holes remained open and only 67 RC rotary holes could be partially surveyed due to closure and collapse.

The post-2003 core drill holes were surveyed ‘down hole’ at 50 m intervals using a Reflex EZ-Shot instrument. Each measurement also recorded magnetic intensity and temperature.

10.5 Deposit Drilling

Drill spacing across the deposits that have Mineral Resources estimated is at about 35 m x 35 m in areas with close-spaced drilling, widening to about 70 m x 70 m in the areas that are less well drilled. Drill spacing is wider again in the areas outside the conceptual pit outlines used to constrain Mineral Resources.

Drill hole orientations range from 0° to 225°. Dips range between 65° and 90°, and are typically 90º. Hole depths range from 0 m to 600 m and average 350 m.

The relationship between true widths, drill intercepts, lithologies and gold grades for drill hole intervals in drill holes is shown on the cross-sections included in Section 7 (refer to Figures 7-4 to 7-8, Figure 7-10 and Figures 7-13 to 7-14). Drill holes contain oxide and sulphide intersections and areas of higher-grade in lower-grade intervals.

10.6 Underground Drilling

Underground drilling is performed by Goldcorp personnel. Initial drill spacings are 25 m x 50 m, and tighten to a final spacing of 25 m x 25 m. Platform drilling is typically undertaken at a 5 m x 5 m spacing. Drill hole lengths vary from about 40 m to as much as 350 m, but typically average about 200 m in length. In the South zone of the underground operations, the drill azimuth is usually at 180º, whereas in the North zone, azimuths are commonly 0°/360°. Dips vary depending on the target mineralization, from 0° to 90°.

10.7 Blast hole Drilling

Los Filos Mine currently operates 10 drills that drill a 6 ¾ inch hole diameter. Blast holes are typically spaced at 5 m x 6 m in ore zones, and are 6 m deep.

10.8 Comment on Section 11

In the opinion of the QP, 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 and Mineral Reserve estimation as follows:

- Core logging performed by Goldcorp staff meets industry standards for gold and silver exploration;
- Collar surveys since 2003 have been performed using industry-standard instrumentation;
- Down hole surveys performed after 2003 were performed using industry-standard instrumentation;
- Recovery data from Goldcorp core drill programs is acceptable;
- Geotechnical logging of drill core meets industry standards for planned open pit and underground operations;
- Drilling is normally perpendicular to the strike of the mineralization. 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 orientations are shown in the example cross-sections in Section 7, and can be considered to appropriately test the mineralization. The sections display typical drill hole orientations for the deposits, show summary assay values using colour ranges for assay intervals that include areas of no mineralization and very low grade mineralization, and outline areas where higher-grade intercepts can be identified within lower-grade sections. The sections confirm that sampling is representative of the gold and silver grades in the deposits, reflecting areas of higher and lower grades;
- No factors were identified with the data collection from the drill programs that could affect Mineral Resource or Mineral Reserve estimation.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

From Project inception by Goldcorp to date, Project staff were responsible for the following:

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

Project staff are also been responsible for run-of mine assaying, which is performed in the mine site laboratory.

11.1 Sampling Methods

11.1.1 Geochemical Sampling

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

11.1.2 RC Sampling

RC drill cuttings from drill holes at the Los Filos deposit were sampled at intervals of 1.52 m (5 ft). The material was split at the drill into several portions of 12 kg or less. Of these, a 300 g "assay split" was shipped to the assay laboratory, either ALS Chemex in Guadalajara, and the "second split" was stored on the property.

A handful of rock chips from each Los Filos sample interval was collected and logged by experienced onsite geologists. Data from the drill logs were entered digitally into ASCII files for computer processing.

RC drill cuttings of drill holes completed at the El Bermejal deposit were sampled dry at intervals of 2 m. All cuttings were caught in high-resistance plastic bags, previously marked, and weighed to determine the drill hole recovery. The bags were then transferred to the camp and then riffle split in three cycles until a 10 kg sample was obtained. The split sample was then bagged and tagged and sent to the sample preparation laboratory at San Luis Potosi (Bondar Clegg) or at Hermosillo (Skyline).

The remainder of the RC sample was saved in high-resistance bags and stored on site.

When the El Bermejal RC drilling required the introduction of water, the following sampling method was undertaken. All material was passed through a cyclone and this permitted 10% of the suspended solids to be recovered. Suspended solids and fluid were stored in pre-labelled micropore bags that allowed the samples to dry. Once dry, the material was weighed, tagged, and sent to the laboratory for analysis.

11.1.3 Core Sampling

The mineralized intervals of core that was drilled prior to 2003 were friable and easily damaged by moving. Logging was completed at the drill site prior to splitting. Splitting of the core was supervised by the geologist who logged the core in order to ensure sample integrity. Splitting was achieved using a tile saw when solid, or by hand with a knife when soft. Samples were typically shorter than 1.5 m.

Core samples for exploration and infill drill programs conducted after 2003 were cut with 220 volt Rockman saws or split with Hydrasplit manual hydraulic splitters, taking lithological contacts into account, as determined by the geologist.

PQ core was cut into three sections: with 75% assigned for metallurgical testing, 12.5% for assaying and 12.5% was stored in the core box in the core shack. NQ core was also cut in three sections but only 50% was sent for metallurgical testing, 25% for assaying and 25% was stored.

Cut samples were bagged and numbered in polyethylene bags. Groups of 20 sample bags were placed in larger bags and labelled with the name and address of the laboratory, and the number and series of samples that were contained within the bag. When approximately 400 samples had been accumulated, a truck was sent from ALS Chemex's laboratory to the Project to transport the samples to the ALS Chemex Guadalajara sample preparation laboratory, approximately 800 km from Los Filos.

Diamond drill core extracted was either cut in half longitudinally with a rock diamond saw, or in the case of friable material was sampled by spatula. The sampling intervals respected geological boundaries. Samples were typically shorter than 1.5 m.

11.2 Density Determinations

Density determinations were measured from representative core by Minera Nuteck and Luismin personnel using standard industry techniques. The water immersion method using impervious coverings and wax coating was used to exclude water from any core voids. There are a total of 2,416 density measurements in the Project database for Los Filos, and an additional 4,594 measurements for El Bermejal, and 2,287 measurements for 4P. In addition, there are 15 measurements for Nukay with the water immersion method and four measurements from Guadalupe with the water immersion method. Table 11-1 summarizes the density data collected.

11.3 Analytical and Test Laboratories

Sample preparation and analytical laboratories used during the exploration programs on the Project include ALS Chemex, Bondar Clegg (absorbed into ALS Chemex in 2001), and Skyline (now also part of ALS Chemex).

ALS Chemex was responsible for sample preparation throughout the exploration and infill drilling phases through its non-accredited sample preparation facilities in Guadalajara and Hermosillo, Mexico. All samples from 1995 onwards were dispatched to the Vancouver laboratory facility for analysis, which, at the time the early work was performed, was ISO-9000 accredited for analysis; the laboratory is currently ISO-17025 certified for selected analytical techniques. ALS Chemex is independent of Goldcorp.

The onsite mine laboratory is operated by SGS Laboratories and is independent of Goldcorp.

The SGS laboratory in Durango, Mexico, was the Project check laboratory in 2012. The laboratory has held ISO-17025 certifications for selected analytical methods since 2009. The laboratory is also independent of Goldcorp.

11.4 Sample Preparation and Analysis

11.4.1 Pre-1995

Due to the remote location, and lack of infrastructure, early-stage exploration samples were trucked north from the Project site to the Chemex laboratory in Tucson, Arizona, a three-day trip.

In 1993, samples were prepared on-site using a riffle splitter to produce 250 g splits that were then dispatched to Chemex assay laboratory in Sparks, Nevada, for additional sample preparation and analysis.

In early 1994, Bondar Clegg, trading as Inchcape Testing Services, opened a sample preparation facility in San Luis Potosi, Mexico. Exploration samples were trucked to this facility for the first nine holes of the 1994 drill program.

Table 11-1: Density Summary Table

Deposit	Number of Determinations	Minimum Value (t/m^3)	Maximum Value (t/m^3)	Average Value (t/m^3)	Median Value (t/m^3)
Los Filos	2,416	1.15	4.16	2.48	2.50
Bermejal	4,594	1.22	4.61	2.56	2.54
4P	2,287	2.07	4.50	2.90	2.91
Guadalupe	4	3.36	4.25	3.69	
Nukay	15	2.31	3.83	3.03	

Following sample preparation, 250 g sample splits were sent to the Chemex laboratory in Vancouver, BC, Canada for analysis. After the first nine drill holes, samples were sent to the Chemex laboratory in Tucson, Arizona for preparation. In late 1994, Bondar Clegg initiated a sample pickup service from the Project, and the San Luis Potosi facility was again used for sample preparation. However, during review of analytical data, poor sample preparation procedures, including incomplete pulverization and sample contamination, again led to the discontinuation of use of the San Luis Potosi facility.

Second splits for all samples originally assayed by Bondar Clegg in 1994 were submitted to Chemex Vancouver for check assays. The Bondar Clegg values were not used in estimation and were replaced by the Chemex results.

11.4.2 1995 to Current

From 1995, all samples were prepared by Chemex at a new facility established in Guadalajara, Mexico and were assayed at the Chemex Vancouver laboratory. Samples of drill cuttings and drill core for programs prior to 2003 were prepared and assayed by standard procedures at ALS Chemex.

The procedure consisted of:

- Samples were weighed and dried at 150° for about 8 hours;
- Samples were crushed to a minimum of 75% passing 10 mesh;
- Crushed samples were split to provide a 300 g or 1,000 g representative cut;
- Samples were then pulverized to a minimum of 95% passing 150 mesh;
- Pulverized samples were bagged and shipped to Vancouver B.C.;
- 30 g of the pulverized samples were fire-assayed for gold.

For drill programs post 2003, the sample preparation performed by ALS Chemex was modified slightly from the pre-2003 procedure, in that:

- Crushed samples were split to provide a 250 g representative cut;
- Samples were then pulverized to a minimum of 85% passing 200 mesh.

The same procedures used by Goldcorp and documented above were also used in the Silver Wheaton and Minera Nuteck programs.

If requested, the laboratory performed inductively coupled plasma emission spectroscopy (ICP) analyses on 0.5 g samples of pulverized pulps.

All drill samples were routinely assayed for Au and Cu. Following the discovery of the Los Filos deposit, the sample pulps for the Los Filos drill holes were resubmitted for Ag analysis. All subsequent Project drill samples have been assayed for Au, Cu, and Ag.

Gold assays were run using a one assay-ton (30 g) charge, with an atomic absorption (AA) finish. Assays exceeding 10 g/t Au were re-analyzed using fire assay with gravimetric finish. Copper and silver assays were performed using a 1 g charge, aqua regia digestion and atomic absorption analysis. Silver values exceeding 100 g/t Ag were reanalyzed using a one-ton fire assay with gravimetric finish.

Approximately 2.5% of the splits from the exploration core samples were routinely re-assayed to confirm initial results and, if the check assays were at variance with the original assay, a second split sample was assayed.

11.5 Quality Assurance and Quality Control

There is no information in existing documentation that confirms whether blanks and standard reference materials (standards) were included in the Los Filos samples submitted for assay prior to 2000. There is, however, sufficient documentation that shows that comprehensive check-assaying campaigns were undertaken at several intervals whereby splits from samples were routinely re-assayed to confirm initial results, commonly through a separate analytical laboratory.

There are limited data on quality control done for the El Bermejal deposit prior to the Luismin purchase in 2005; however, internal Peñoles documents in 1997 do confirm there was a quality control process in place for the main laboratory.

Blanks and standards were introduced in sampling programs by Minera Nuteck and have been in place since 2000.

Goldcorp’s quality control and data verification procedures incorporated a system of repeat assaying and blanks. One in 20 samples sent to the laboratory were identified for repeat analysis. Goldcorp introduced a blank sample immediately after the repeat sample, in other words every batch consists of 22 samples. The blank material was limestone sourced from the local river, several kilometres distant from the Project area.

11.6 Databases

Data were initially recorded on Excel spreadsheets, but have been transferred into an acQuire database. Assay data are currently uploaded digitally. Geological and geotechnical logs are manually typed into the database. Survey data are uploaded from the survey instruments or manually typed into the database.

Data are verified by the database manager or designated personnel. Data are regularly backed up.

11.7 Sample Security

Sample security was not generally practiced at Los Filos during the drilling programs, due to the remote nature of the site. Sample security relied upon the fact that the samples were always attended or locked at the sample dispatch facility. Sample collection and transportation have always been undertaken by company or laboratory personnel using company vehicles.

Drill samples were picked up at site by ALS Chemex, prepared to a pulp in Guadalajara, Mexico, and sent by ALS Chemex via air to the ALS Chemex analytical laboratory in Vancouver, Canada.

Chain of custody procedures consisted of filling out sample submittal forms that were sent to the laboratory with sample shipments to make certain that all samples were received by the laboratory.

Assay pulps and crushed reject material are returned by ALS Chemex to Goldcorp's core shack at the Los Filos Mine for storage. Weathering has deteriorated the integrity of individual pulps from earlier drill programs. Some pulps are stored at the Teck storage facility in Iguala.

Drill core is stored in wooden-plastic 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.

Coarse rejects in plastic bags are stored in cardboard boxes on steel racks in a separate locked building. The coarse reject boxes are labelled and stored by sample number.

11.8 Comments on Sample Preparation, Analyses and Security

A description of the geology and mineralization of the deposit, which includes lithology, geological controls and widths of mineralized zones, is given 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 RC and core samples were carried out by either Minera Nukay, Minera Nuteck, Wheaton River, Luismin, or Goldcorp personnel, depending on the date of the drill program. No factors were identified with the drilling programs that could affect Mineral Resource or Mineral Reserve estimation.

Figures in Section 10, which show drill hole collar locations, indicate that the sizes of the sampled areas are representative of the distribution and orientation of the mineralization.

Figures in Section 7 show approximate drill hole collar traces in relation to the orientation of the mineralization. The figures also show drill hole assay intervals include areas of non-mineralized and very low grade mineralization, and confirm that sampling is representative of the gold, silver, and copper grades in the deposits, reflecting areas of higher and lower grades.

Data validation of the drilling and sampling program is discussed in Section 14, and includes review of database audit results.

Drill sample representivity, widths and grades are validated by twin and infill drilling as discussed in Section 12.

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

- Geochemical sampling covered sufficient area and was adequately spaced to generate first-order geochemical anomalies, and thus was representative of first-pass exploration sampling.
- Drill sampling has been adequately spaced to first define, then infill, gold and copper anomalies to produce prospect-scale and deposit-scale drill data. Drill hole spacing varies with depth. Drill hole spacing in shallow oxide mineralization is

approximately 150 m. Average drill hole spacing in the core of the deposits is about 50 m. Drill hole spacing increases with depth as the number of holes decrease and holes deviate apart. Average spacing at the base of the ultimate reserve pits is about 25 and 35 m;

- Data are collected following industry standard sampling protocols;
- Sample collection and handling of RC drill cuttings and core was undertaken in accordance with industry standard practices, with procedures to limit potential sample losses and sampling biases;
- Sample intervals in core and RC drilling, comprising maximum of 1.5 m and 1.52 m intervals respectively, are considered to be adequately representative of the true thicknesses of mineralization. Not all drill material may be sampled depending on location and alteration.
- Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure since 2003. The preparation procedure is in line with industry-standard methods for gold deposits;
- Exploration and infill core and RC programs were analysed by independent laboratories using industry-standard methods for gold, silver, and copper analysis. Current run-of-mine sampling is performed by the mine laboratory, which is staffed by Goldcorp personnel;
- Gravity determination procedures are consistent with industry-standard procedures;
- There are sufficient acceptable specific gravity determinations to support the specific gravity values utilized in waste and oxide and sulphide mineralization tonnage interpolations.
- 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, drill programs included insertion of blank, duplicate and SGM samples. The QA/QC program results do not indicate any problems with the analytical programs, therefore the gold, silver, and copper analyses from the core drilling are suitable for inclusion in Mineral Resource and Mineral Reserve estimation;
- Data that were collected were subject to validation, using in-built program triggers that automatically checked data on upload to the database;
- 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.

12.0 DATA VERIFICATION

12.1 Assay Verification

Check assaying on samples from the Los Filos deposit prior to 1998 was accomplished in three main batches. Firstly, a batch of original pulps prepared by ALS Chemex from the assay split was re-analyzed at Cone Geochemical Laboratories. The check assays have typically compared very well with the original assays. Secondly, new sets of pulps were prepared from the rejects of selected assay splits and analyzed by ALS Chemex to check the quality of the original 300 g pulps and test the laboratory's sample preparation procedure.

Instances of poor correlation and an indication of bias were noted. A follow-up study performed by Minera Nukay showed that a better reproducibility could be achieved on 1 kg pulps. As a result, starting with TNP193, all samples were analyzed using larger pulps. In addition, all diorite/granodiorite samples from previous holes were reanalysed with the new, large-pulp method and re-assays integrated into the data set.

A third batch included second sample splits to check the quality of the sample splitting procedures at the drills. Although a significant dispersion was noted by Minera Nukay, overall the second splits averaged only 2% lower than the original assays. In summary, no particular bias, and a good correlation were found between the original assays and the check assays.

In the 2000 Los Filos drill campaign, a limited quality control was undertaken. At the end of each drill hole four blank and two standard samples were inserted. Three types of standards were used. The first group (14 samples) represented reject RC samples from previous drill programs. The whole reject was sent, without splitting. The second group (44 samples) was prepared in-house. A large, 120 kg, sample was crushed, and nine sub-samples sent to three different laboratories for analysis. The average value from the laboratories was used as a standard assay value for the material. The third group (two samples) represented commercial standards bought from Prolab.

In 2001, an additional check assaying program was undertaken on Los Filos samples. A total of 417 original ALS Chemex pulps from old RC drill holes, and 226 field re-splits from new RC drill holes were re-analyzed by Bondar Clegg. Minera Nukay concluded that the Bondar Clegg pulp re-assays from old RC holes were very similar to the assays from the original pulps, and that assays from the re-splits also compared well with the original assays.

Two types of re-assay samples for the El Bermejal deposit were undertaken at regular intervals at Bondar Clegg, during the preparation stage and at the last sampling stage of the laboratory analysis. At the preparation stage, a 300 g duplicate was taken at a frequency of 1:40. At the analytical stage, a 60 g repeat sample from the 300 g pulp was taken at a frequency of 1:12. There is no record of quality control provided by Skyline laboratory.

12.2 Database Validation

Entry of information into databases utilized a variety of techniques and procedures to check the integrity of the data entered.

Nowak (2002) verified a portion of the assay drill hole database and collar coordinates against source information. Approximately 38% of the whole assay database was verified, for a total 23,946 of 62,941 assays. Attention was paid to assays from the central high-grade area of the Los Filos deposit, which would provide a significant portion of the ore for initial mining. Errors identified were minor, and accounted for <1% of the database. A total of 370 out of 456 drill collars were checked; errors were noted with the locations of seven holes, and the database accordingly modified.

During 2003, Micon completed a database review in support of technical report preparation. No significant errors were noted in the database.

Wheaton River Minerals undertook a due diligence review of the El Bermejal deposit and Minera El Bermejal's data during 2003. The review was performed by a team of employees and external consultants. No significant issues were identified in the review.

Snowden (2006) reviewed the Los Filos geological and assay databases supplied by Luismin's geological department in 2004 and cross-checked these with data sourced from Micon's 2003 report and work conducted for Wheaton River Minerals in 2003. Any inconsistencies were investigated and resolved. Geological interpretations and data developed by Luismin were reviewed by Snowden as new data became available during 2004 and 2005.

Other data verification work performed by Snowden during 2004 and 2005 included:

- Detailed review of 5% of the geological logs provided by Luismin;
- Examination of assay certificates and cross-check against the database supplied by Luismin;
- Verification of extreme values;
- Four visits to site to review aspects of the drill program and reviews with the geological department;

- Review of the quality control procedures;
- Routine validation of the database to check for inconsistencies such as inconsistent hole lengths, missing intervals, zero length intervals and out-of-sequence records.

Snowden visited the Bermejal site from 27 September to 2 October 2005 and reviewed the geological interpretations, cross-checked assay certificates with the database, and inspected core from the 2005 Luismin core drilling program. The location of a number of Luismin drill hole collars were verified.

Database checks comprised:

- Routine validation of the database to check for inconsistencies such as inconsistent hole lengths, missing intervals, zero length intervals and out-of-sequence records;
- Reconciliation of the drill hole layout with respect to earlier maps;
- Check on the reasonableness of the geological interpretations;
- Comparison of the assay statistics with those provided from the Wheaton River 2003 study, as a cross-check.

12.3 Twin Holes

A number of RC holes in Los Filos have been twinned with core drill holes. Nowak (2002) reviewed the twin data available in 2002, and concluded:

- Differences exist between core and RC assays;
- At lower elevations, below 1500 elevation (site elevation), estimates from core composites are on average lower, and at higher elevations higher, than the estimates from RC assays;
- Overall, grade estimates from core composites can be 10% higher than from RC composites.

Micon (2003) reviewed 15 sets of twinned RC-core holes, concluding that only two twins out of 15 indicated the possibility of down-hole contamination. The remainder of the twin sets show good agreement in picking out the mineralized zone with differences in average grades explained by nugget effect in two samples taken several metres apart in most cases.

Micon (2003) also compared 1,769 core assays to the nearest RC value from the twinned holes. The core samples had a higher mean value of 1.2 g/t Au, compared to

0.98 g/t Au in RC holes. Scatter plots did not indicate any bias with pairs clustering around the equal value line; however, there was poor agreement overall as shown by a high degree of scatter, and a low correlation co-efficient.

12.4 Goldcorp Data Checks

Validation checks performed by operations personnel on data used to support estimation comprise checks on surveys, collar co-ordinates, lithology data, and assay data. No significant errors or omissions were identified with the database following these checks.

12.5 IMC Data Checks

IMC have been involved in estimation of the open pit Mineral Resources and Mineral Reserves since 2008. IMC have reviewed the procedures used by geology to handle, log, and prepare samples for shipment and the QA/QC programs in place. In IMC's opinion, the current procedures are very good and there are no significant issues that would preclude the use of data in Mineral Resource and Mineral Reserve estimation.

12.6 NCL Data Checks

In support of Mineral Resource estimates, NCL in 2012 undertook a review of the QAQC data available for the Los Filos underground.

Blank material is derived from a barren limestone bench within the Los Filos pit. A total of 310 blank samples were reviewed, with 18 samples (6%) found to be outside acceptable standard deviation limits. The issue may be due to a combination of elevated gold values in the blank material such that the blank actually contains low-grade mineralization, and cross-contamination in the laboratory. During 2013, Goldcorp informed NCL that a new source of blank material will be used, and the gold analytical method is planned to be changed to AA, which has a much lower detection limit than previously used.

Seven analytical standards are used by Goldcorp for the Los Filos underground drilling. Two are high-grade gold standards, two are medium-grade gold standards, and the remaining three are low-grade gold standards. NCL noted that one of the high-grade standards is routinely marked by the laboratory as >10 g/t Au (in 21 of 33 analytical instances), as the grade is over the normal limits for routine analysis. This detracts from the usefulness of this standard as a QAQC tool.

Goldcorp typically reviews all standards that are more than two standard deviations from the accepted value, and requires re-assay of those batches where the standard value is three or more standard deviations from the accepted value. NCL's review indicated that 5.8% of the standard analyses are more than two standard deviations from the accepted value. This could be due to either the standards not being sufficiently homogenized, or poor laboratory precision, or a combination of both. NCL has recommended that:

- Where the laboratory returns grades of >10 g/t Au, the analysis should be re-run to provide an actual value
- Standards used should be reviewed to assess reproducibility of the standard assay value and confirm homogeneity of the sample
- A standard procedure should be implemented for samples which fall outside acceptable ranges to ensure the analytical batches are monitored as programs are ongoing, and not at the end of a program, and that sample batches are resubmitted and rechecked in a reasonable timeframe.

Goldcorp submits quarter-core duplicate samples on a regular basis. Analysis of the results by Goldcorp staff indicated that within the confines of duplicates with coarse-grained gold, analytical results were acceptable up to grades of 30 g/t Au. Above this value, the precision and repeatability were erratic.

Following the QAQC checks, NCL accepted the analytical data as able to support Mineral Resource estimation with no modifications.

12.7 Comment on Data Verification

The process of data verification for the Project has been performed by external consultant firms 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 are 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, in support of technical reports, and in support of

Mineral Resource and Mineral Reserve estimates, producing independent assessments of the database quality. No significant problems with the database, sampling protocols, flow sheets, 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.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Metallurgical Testwork

A summary of the metallurgical testwork completed to date by laboratory and deposit is provided in Table 13-1.

A number of ore and mineralization types have been defined for metallurgical testwork purposes, and are summarized in Table 13-2.

13.1.1 Los Filos Testwork

Kappes Cassiday and Associates (1997 to 1998)

During 1997–1998, bottle roll and small column cyanidation testwork was performed by Kappes Cassiday and Associates (KCA) on core that was primarily derived from the centre of the Los Filos deposit. The column tests were generally run in duplicate on 1.5 to 2.0 kg samples of minus 12 mm core rejects of material from single holes. Gold recovery and reagent consumption were determined. After the initial tests were run, larger composites of the various ore types were prepared and tests were again run.

KCA also performed initial testwork to determine the agglomeration parameters needed for the heap leach pad for the Los Filos ore. KCA recommended that the heap height be low, and that high cement additions were warranted for the Type Ia and Type Ib ores.

McClelland Laboratories Inc (1998)

McClelland prepared metallurgical composites from core from 19 core holes at the Los Filos deposit, from argillized endoskarn (Ea), endoskarn (En), argillized granodiorite (Ga), granodiorite (Gd), and marble (Mb) rock types. Low-grade, medium-grade and high-grade composites were created.

Direct agitated cyanidation bottle roll tests were conducted on the composites at various sizes to provide information on the amenability of the mineralization to cyanidation and to determine metallurgical similarities and feed size sensitivity. Column percolation leach tests were conducted on a low-grade master composite at a 19 mm feed size, and on a medium-grade master composite at 12.5 mm and 6.3 mm feed sizes to determine amenability to simulated heap leaching conditions. Results indicated no strong correlations between ore type or grade and gold recovery. The argillized endoskarn composites, which had the highest cyanide-soluble copper grades, had the highest reagent consumption.

Table 13-1: Metallurgical Test Work Summary Table

Year	Deposit/Area	Laboratory	Test Work Performed
Unknown	Bermejal	Unknown	Peñoles ran a significant number of cyanidation leach tests on Bermejal drill hole core and surface samples; decreasing calculated gold recoveries with increasing crush sizes were noted for North Surface Anomalia, BD3, and Tajo Mez samples; increasing calculated gold recoveries with increasing crush size were noted for North Core BD3 and Contacto Tajo samples; calculated recoveries for South Core Banco I and II show increasing gold recoveries with increasing crush size.
Unknown	Bermejal	Knight-Piésold	Compacted permeability tests to determine agglomeration parameters for Bermejal
1993	Nukay	Lakefield	Bottle-rolls; -150 mesh
1994	Aguita	Lakefield	Bottle-rolls; -150 mesh
1995	Zona 70	Lakefield	Bottle-rolls; -150 mesh
1995	Crestón Rojo/Los Filos	McClelland	Bottle-rolls; -¼ in, -200 mesh
1996-1997	Los Filos	McClelland	Bottle-rolls; -¼ in, -¾ in, -200 mesh; column tests; -¾ in,
1997–1998	Los Filos	Kappes Cassiday	Column tests; -12.5 mm, -6.3 mm, -25.4 mm
1998	Los Filos	McClelland	Bottle roll/column test comparison
1998	Los Filos	Kappes Cassiday	Column tests; -1.70 mm; bottle-rolls -0.150 mm
1999	Los Filos	Kappes Cassiday	Column tests -12.5 mm; Surface material and drill core comparison tests -0.15 mm
2004	Los Filos	McClelland	Ore physical characteristics Ore work and abrasion index tests; ore is considered moderately abrasive; crushing work index is relatively low, but the ball mill work index is about average; Ore variability testing; samples were generally amenable to direct agitated cyanidation treatment at the 1.7 mm (10 mesh) and 75 µ (200 mesh) feed sizes; gold recoveries generally were significantly higher at the 75 µm feed size; cyanide consumptions were low; lime requirements were moderate, except for the high copper composites; reagent requirements tended to be significantly higher for the high copper composites; Grind size sensitivity tests for milling/cyanidation; Gravity concentration tests; gravity recovery was not recommended; Column testing; composites evaluated were amenable to simulated heap leach cyanidation treatment, gold recovery rates were fairly rapid, cyanide consumptions were moderate and lime or cement requirements were moderate to high
2005–2006	Bermejal	Kappes Cassiday	Bottle roll tests; Column leach tests Compacted permeability tests Recovery and reagent consumption estimates

Year	Deposit/Area	Laboratory	Test Work Performed
			Estimated production cyanide consumption Estimated production lime consumption
2009	Nukay and Los Filos high grade ore.	Kappes Cassiday	Bottle roll tests; Column leach tests Compacted permeability tests Recovery and reagent consumption estimates Agglomeration and percolation tests
2011-2012	4P project	Kappes Cassidy	Environmental tests Bottle roll tests; Column leach tests Recovery and reagent consumption estimation

Table 13-2: Ore Type Summary

Deposit	Metallurgical Domain or Mineralization Type	Comment
Los Filos	Ia	diorite or granodiorite dike or Ex1 protolith; any intrusion or endoskarn with >30% clay; Ex1 with >10% clay
	Ib	diorite or granodiorite dike or Ex1 protolith; any intrusion with ≤30% clay; endoskarn (En) with >10% but ≤30% clay; Ex1 with <10% clay
	II	Morelos Fm carbonate protolith; any carbonate rock without significant skarn alteration
	III	diorite or granodiorite dike or granodiorite dike protolith; En with <10% clay
	IV	Morelos Fm carbonate protolith; any Ex2, Ex3 or Jasperoid
Bermejal	Oxid	Oxide
	Gran	Intrusive
	Carb	Carbonate
	Hf	Hornfels
4P	Oxid	Oxide
	Carb	Limestone
	Gran	Granodiorite
Nukay	Oxid	Oxide - Mixed or mineralized Limestone or Granodiorite mineralization types are not significant.
Guadalupe	Oxid	Oxide
		The Mixed classification is not applicable at Guadalupe
	Sulf	Sulphide

Notes: Ex1 = low oxide content Exoskarn material; Ex2: medium oxide content Exoskarn material; Ex3 = high oxide content Exoskarn material; En = Endoskarn.

Gold recovery, recovery rate, and reagent consumption requirements were tested via bottle rolls on five low-grade and five medium-grade composites at an 80% minus 19 mm feed size. Findings were:

- The low-grade composites were amenable to direct agitated cyanidation treatment. Gold recoveries in 120 hours of leaching ranged from 58.2% to 71.8% and averaged 65.8%. Gold recovery rates were moderate to fairly rapid. Cyanide consumptions were low. Lime requirements were moderate to high;
- The Ea, Gd and Mb medium-grade composites were amenable to direct agitated cyanidation treatment. Respective gold recoveries in 120 hours of leaching were 61.3%, 60.3% and 58.5%. Gold recoveries achieved from the En and Ga medium-grade composites were lower at 47.7% and 43.9% respectively. Gold recovery rates were fairly slow. Cyanide consumptions were low. Lime requirements were low for all composites except for the Ea composite.

Feed size sensitivity tests were performed on the five medium-grade composites at an 80% minus 75 µm feed size. All five composites were amenable to direct agitated cyanidation treatment. Gold recoveries achieved in 72 hours of leaching ranged from 83.0% to 90.7%. These recoveries represent an average improvement of 33% over gold recoveries achieved from the same composites at the 19 mm feed size. Gold recovery rates were fairly rapid for all composites except the Ea and En composites, which had slow recovery rates. Reagent requirements generally were similar to those obtained at the 19 mm feed size.

A medium-grade master composite was bottle-roll tested at 80% minus 19 mm, 80% minus 75 µm and 80% minus 45 µm sizes to confirm feed size sensitivities. While gold recovery improved from 63.1% at the 19 mm feed size to 90.2% at the 75 µm feed size, the 45 µm feed size did not show any significant gold recovery improvements.

The bottle-leached residue from the medium grade master composite 75 µm feed was subjected to a nitric acid preleach/cyanidation bottle roll test, which indicated that approximately 80% of the residual gold values were associated with nitric acid oxidizable constituents, probably sulphides. The remaining 20% of the residual gold values were concluded to be locked in silica.

The four high-grade composites were tested by bottle roll tests at a 80% minus 75 µm feed size to determine amenability to milling/cyanidation treatment. The En, Ga and Gd high grade composites were amenable to agitated cyanidation treatment. Gold recoveries achieved from the respective high-grade composites were 80.7%, 81.8% and 77.4% in 72 hours of leaching. Gold recovery rates were moderate. Cyanide consumptions were low. Lime requirements were high. The high-grade argillized endoskarn (Ea) composite was not amenable to direct agitated cyanidation treatment at the 75 µm feed size. Gold recovery achieved in 72 hours of leaching was only 21.7% and the gold recovery rate was slow. Reagent requirements were high. Analysis of bottle test pregnant solutions showed that the Ea composite contained a significantly higher quantity of cyanide soluble copper than any of the other composites evaluated.

Carbon-in-leach (CIL) cyanidation bottle roll tests were conducted on the high-grade En and master composites at an 80% minus 75 µm feed size to determine if gold recoveries could be increased by adding activated carbon during leaching. Gold recoveries achieved were 14.8% and 4.2% higher, for the En and master composites respectively, than achieved by direct cyanidation.

Column percolation leach tests were conducted on the low-grade master composite at an 80% minus 19 mm feed size using solution cyanide strengths of 0.50 and 0.25 g NaCN/L of solution to determine precious metal recovery, recovery rate, reagent requirements, and sensitivity to NaCN concentration under simulated heap leach conditions. The low-grade master core composite was amenable to heap leach cyanidation treatment. Gold recoveries achieved using 0.50 and 0.25 g NaCN/L were 63.2% and 68.3% in 72 days of leaching and washing, respectively. Recovery rates were fairly rapid. Cyanide consumptions obtained were low. The cement added during agglomeration pre-treatment was sufficient to maintain protective alkalinity during leaching.

The medium-grade master composite was tested using column percolation leach tests at 80% minus 12.5 mm and 6.3 mm feed sizes to determine precious metal recovery, recovery rate, reagent requirement and feed size sensitivity under simulated heap leach conditions. The composite was amenable to heap leach cyanidation treatment at both feed sizes. Gold recoveries achieved from the 12.5 mm and 6.3 mm feeds were nearly the same at 77.4% and 75.3%, respectively in 96 days of leaching and washing. Recovery rates were rapid; however, gold extraction was progressing at a very slow rate from both feeds when leaching was terminated. The cyanide consumption was considered to be in error as the rate of application solution was double what was intended. The cement added during agglomeration pre-treatment was sufficient to maintain protective alkalinity during leaching.

McClelland Laboratories Inc (2004–2005)

The testwork program on samples from Los Filos comprised bottle roll, column, and agglomeration testing in support of determining the processing characteristics by ore type, gold grade, copper grade and elevation in the deposit in support of process design and economic analysis. Additional tests were undertaken to determine ore physical characteristics and variability of the mineralization.

Testwork completed had the following outcomes.

The crushing work index was relatively low, but the ball mill work index was about average. The ore was considered moderately abrasive.

Los Filos samples were generally amenable to direct agitated cyanidation treatment at the 1.7 mm and 75 µm feed sizes. Gold recoveries generally were significantly higher at the 75 µm feed size.

Gold recovery was significantly lower for composites that contained copper at levels greater than 3 g Cu/kg; much of the high-grade material was found to have elevated copper values. Repeat tests on these composites with increased cyanide concentration indicated that the gold was recoverable if the cyanide addition was increased.

All of the Los Filos ore types, except for the Exoskarn ore, were not particularly sensitive to crush size with respect to gold recovery, recovery rate or reagent requirements. Gold recovery from the Exoskarn composite increased significantly with decreasing crush size. Overall, indicated optimum crush size for the medium-grade composites was 80% -19 mm.

An optimum grind size of 80% -212 µm was noted for the Los Filos high-grade ore.

The Los Filos high grade (gravity test) composites responded moderately well to concentration using centrifugally enhanced (Knelson concentrator) gravity methods

All of the Los Filos composites evaluated were amenable to simulated heap leach cyanidation treatment. Gold recovery rates were fairly rapid. Cyanide consumptions were moderate and lime or cement requirements were moderate to high.

Kappes Cassiday and Associates (2009)

Composites

A total of 92 drums of mineralized material, sourced from the Los Filos underground deposit, were composited into high-grade, low-grade and waste composites. Samples making up the Nukay high-grade composite were sourced from the Nukay West, La Conchita, La Subida and San Andres zones. Los Filos material was used for the Los Filos high-grade and low-grade composites.

Metallurgical test work completed on the Nukay and Los Filos material included head analyses, milled bottle roll leach test work, percolation test work, compacted permeability test work and column leach test work.

Column leach tests were conducted in duplicate on the Nukay high-grade composite material that had been stage crushed to 100% minus 50 mm, 100% minus 25 mm and 100% minus 12.5 mm. Similarly, column leach tests were conducted in duplicate on the Los Filos high-grade sample material that was stage crushed to 100% minus 50 mm, 100% minus 25 mm and 100% minus 12.5 mm.

Head Analyses

Head analyses for gold, silver and copper were completed on each of the four individual Nukay high-grade samples, the barren (Esteril) sample and the Los Filos low-grade sample. The high-grade sample average assays ranged between 3.60 and 9.40 g/t Au, 3.4–10.7 g/t Ag, and 355–2850 ppm Cu. The low-grade composite grades averaged 0.48 g/t Au, 2.5 g/t Ag and 141 ppm Cu.

In addition to gold and silver analyses, one of the pulverized portions from the Nukay high-grade composite and the Los Filos high-grade sample were also assayed semiquantitatively by means of an ICAP-OES for an additional series of elements and for whole rock analyses. The samples were assayed by quantitative methods for total carbon, total sulphur (sulphur speciation) and mercury. A cyanide soluble copper shake test was also conducted on the pulverized head material for each separate sample.

The multi-element analyses indicated that the Nukay high-grade composite material and the Los Filos high-grade sample material were high in arsenic (0.31% and 0.19%, respectively), lead (0.06% and 0.05%, respectively) and zinc (0.12% and 0.07%, respectively). The Nukay high-grade composite had a total copper of 0.19%.

Bottle Roll Tests

The bottle roll leach test work was completed in several series. A series of time of grind versus size tests were completed on 1,000 g portions of minus 1.70 mm crushed material for the Nukay high-grade samples, the Nukay high-grade composite and the Los Filos high-grade sample.

The minus 1.70 mm crushed material was milled in KCA's laboratory-scale rod mills for 10, 20, 40 and 60 mins. The milled material was wet screened at 0.6, 0.3, 0.15, 0.075 and 0.038 mm, dried and the dry weights were reported. Based upon the screen analyses, a graph was developed that showed the time required to reach various grind sizes from the starting feed size of minus 1.70 mm. The milled material was then utilized in either 10 hour or 24 hour cyanide bottle roll leach tests with 2.0 g/L or 0.25 g/L sodium cyanide. Results included:

- 10 hour leach tests with 2.0 g/L sodium cyanide, all grind sizes:
  - Extraction rates for the various grind sizes for the Nukay high-grade composite ranged from 83–92% Au, from the most coarse to the finest grind. Silver extraction ranged from 30–65%, with the highest extraction in the 0.15 mm grind fraction. Cyanide consumption ranged from 1.10 to 1.68 kg/t NaCN;
  - For the Los Filos high-grade composite, extraction rates ranged from 76 to 94% Au and 11–23% Ag. Cyanide consumption was between 0.42 and 0.61 kg/t NaCN. Higher cyanide consumptions were noted in the coarser grind sizes;
- 24 hour leach tests with 0.25 g/L sodium cyanide on 0.075 mm material:
  - Extraction rates for the Nukay high-grade composite was 34% Au and 10% Ag. Cyanide consumption was 1.01 kg/t NaCN;

- For the Los Filos high-grade composite, extraction rates were 94% Au and 10% Ag. Cyanide consumption was 0.20 g/t NaCN.

After completion of the leach period, the slurry was filtered, washed and the final tailings were screened into several size fractions and assayed for gold, silver and copper.

Analyses of the filter cake portion were then used as tailings assays for the bottle roll leach tests and head assays for the pulp agglomeration column leach tests. The remaining wet filtered material for each sample and grind size were combined a utilized for pulp agglomeration test work.

Agglomeration Testwork

Preliminary agglomeration testwork was completed on the Nukay high-grade composite material and the Los Filos high-grade sample material stage crushed to minus 50 mm, minus 25 mm and minus 12.5 mm.

The minus 50 mm crushed material was agglomerated with the addition of 0, 4, 7.5 and 10 kg of Portland Type II cement per metric tonne of dry material. Both the minus 25 mm crushed material and the minus 12.5 mm crushed material were agglomerated with the addition of 0, 7.5, 10 and 15 kg of Portland Type II cement per metric tonne of dry material.

During the percolation test the pH of the effluent solution was measured. The percolations tests utilizing the non agglomerated (no cement addition) material for both the Nukay high-grade composite and the Los Filos high-grade sample stage crushed to minus 50 mm, minus 25 mm and minus 12.5 mm exhibited low effluent pH values ranging from 8.3 to 9.6.

Based upon the results of these agglomeration tests the Nukay high-grade composite material and the Los Filos high-grade sample material stage crushed to 50 mm was agglomerated with the equivalent of 4 kg of Portland Type II Cement per tonne of material prior to being loaded into columns. The Nukay high-grade composite material and the Los Filos high-grade sample material stage crushed to 25 mm and 12.5 mm were agglomerated with the equivalent of 7.5 kg of Portland Type II Cement per tonne of material prior to being loaded into columns.

Compacted Permeability Testwork

Compacted permeability test work was completed on a preliminary pulp agglomerated material. A 40 kg portion of the Los Filos low-grade material stage crushed to minus 50 mm and blended with a 4 kg portion of pulverized Nukay high-grade composite and

Los Filos high-grade sample material was agglomerated with 7.5 kg/t cement. The pulp agglomerated material was then utilized for compacted permeability test work with compaction loading simulating equivalent heap heights of 60 and 80 m of overall heap height.

Compacted permeability test work was also completed on the Nukay high-grade composite material stage crushed to minus 25 mm and minus 12.5 mm and on the Los Filos high-grade sample material stage crushed to minus 25 mm and minus 12.5 mm. The purpose of the test work completed was to examine the permeability of the Nukay high-grade composite material and the Los Filos high-grade sample material under varying conditions. The variables examined were particle size (minus 25 and 12.5 mm), agglomeration cement levels (0, 4 and 7.5 kg/t cement) and compaction loading simulating an equivalent heap height of 80 m of overall heap height.

Compacted permeability test work was also completed on the Los Filos low-grade material stage crushed to 100% minus 50 mm at agglomeration cement levels of 0 and 4 kg/t cement at a simulated equivalent heap height of 80 m. For this series of tests, the Nukay high-grade composite material stage crushed to minus 12.5 mm with no cement addition failed at an equivalent heap height of 80 m. The remaining compacted permeability tests passed.

Column Leach Testwork

A total of 16 separate column leach tests were completed on the Nukay high-grade composite material and Los Filos high-grade sample material. Column leach tests were conducted in duplicate on the Nukay high-grade composite material stage crushed to 100% minus 50 mm, 100% minus 25 mm and 100% minus 12.5 mm. Similarly, column leach tests were conducted in duplicate on the Los Filos high-grade sample material stage crushed to 100% minus 50 mm, 100% minus 25 mm and 100% minus 12.5 mm.

Results included:

- Nukay high-grade composite: 75–85% Au extracted at a cyanide consumption of 1.38–1.60 kg/t NaCN over a 143–168 day period. Cement addition ranged from 4–7.5 kg/t;
- Los Filos high-grade sample: 82–85% Au extracted at a cyanide consumption of between 0.67 and 0.83 kg/t NaCN over a 145–167 day period. Cement addition ranged from 4–7.5 kg/t.

A series of four pulp agglomerated column leach tests were completed on milled and partially leached portions of the Nukay high-grade composite and the Los Filos high-grade sample material. Material from each sample was milled to a target grind size of 0.30 mm and 0.075 mm and utilized for a 10 hour bottle roll leach test. The tailings from the bottle roll leach tests were then agglomerated with portions of the barren rock material stage crushed to 100% minus 50 mm. The ratio of pulp to barren rock material was 1:10.

Results included:

- Nukay high-grade composite, pulp agglomerated: 38–50% Au extraction; cyanide consumption of 7.33 kg/t NaCN; leach time of 118–140 days; cement addition of 4 kg/t;
- Los Filos high-grade sample, pulp agglomerated: 34–56% Au extraction; cyanide consumption of 7.05–7.48 kg/t NaCN; leach time of 118–140 days; cement addition of 4 kg/t.

Following the column leach test work four of the column tests were utilized for detoxification test work. Detoxification test work was conducted on one of the Los Filos high-grade sample column leach tests utilizing material crushed to minus 50 mm, one of the Nukay high-grade composite column leach tests utilizing material crushed to minus 50 mm and the pulp agglomerated columns leach tests utilized partially leach material for each sample milled to a target grind size of 0.075 mm.

Column leaching of the pulp agglomerated Nukay high-grade material (milled to 0.30 mm and 0.075 mm) provided an additional recovery of 9% and 4% for a total recovery of 91% and 93%, respectively. Column leaching of the pulp agglomerated Los Filos high-grade material (milled to 0.30 mm and 0.075 mm) provided an additional recovery of 9% and 3% for a total recovery of 93% for both column tests.

The difference between the gold extracted onto carbon and the total residual solubilised gold remaining in the agitated leach residue utilized for each pulp agglomerated column test was determined. The analysis indicated that in both the pulp agglomerated column leach tests utilizing the coarser milled material (target grind size of 0.30 mm) for both the Nukay high-grade composite material and the Los Filos high-grade sample material that additional leaching of the material occurred. Conversely, the pulp agglomerated column tests utilizing pulp material milled to the finer grind size (target grind size of 0.075 mm) for both the Nukay high-grade composite material and the Los Filos high-grade sample material did not indicate additional leaching and, in fact, exhibited poor efficiency in recovery of the solubilised gold.

Environmental Testwork

The final barren solution from each of the 16 separate cyanide column leach tests completed utilizing the Nukay and Los Filos material was sampled and submitted for a Profile II analysis, total cyanide analysis and weak acid dissociable (WAD) cyanide analysis. Final WAD values ranged from 0.032 to 0.197 mg/L.

Four of the 16 column leach tests were selected for copper catalyzed peroxide detoxification testing. Detoxification testing was conducted on the Nukay high-grade composite column material and the Los Filos high-grade sample column material, (100% minus 50 mm), and the Nukay high-grade and the Los Filos high-grade pulp agglomerated column tests (milled to a target grind size of 80% passing 0.075 mm, partially leached in an agitated leach test and then agglomerated onto minus 50 mm barren rock material).

The final barren solution, (post cyanide leaching) and the final rinse solution, (post detoxification), were analyzed for a Profile II metals analysis, total cyanide and WAD cyanide. A portion of the final rinsed column tailings material was submitted for meteoric water mobility testing.

13.1.2 El Bermejal Testwork

Peñoles

Peñoles ran a significant number of cyanidation leach tests on Bermejal drill hole core and surface samples, but did not characterize the samples by rock type. Surface samples showed a slight reduction in gold recovery with increasing crush size; generally core samples showed an increase in gold recovery with increasing crush size.

Kappes Cassiday and Associates (2004–2005)

Bottle roll and column leach tests were conducted to determine the processing characteristics by clay content, gold grade, and copper grade. Column leach tests on as-received bulk samples and on crushed splits from the bulk samples from several different declines were conducted.

Results were:

- Samples with high clay contents had very low permeabilities;
- Gold recoveries from the ROM column leach tests averaged 51% gold recovery at 92 days of leaching. Silver recoveries were very low in all ROM tests and averaged

5% at 92 days. Sodium cyanide consumptions were fairly consistent. There was no apparent relationship between total Cu levels and cyanide consumptions;

- Gold recoveries from the crushed ore column leach tests averaged 62% gold recovery at 123 days of leaching. Silver recoveries were very low in all crushed ore tests and averaged 8%. Sodium cyanide consumptions were fairly consistent, and there was also no apparent relationship between total Cu levels and cyanide consumptions.

13.1.3 4P

Kappes Cassiday and Associates (2013)

Kappes, Cassiday and Associates undertook metallurgical testwork on mineralization supplied from the Aguita, El Grande, Creston Rojo, Zona 70 and Filos Sur zones. A total of 55 200-litre drums of drill core material were composited into 39 metallurgical composites based on pit name, material type (intrusive, oxide or carbonate) and grade range (low, medium or high). Portions from each composite were then prepared for head analyses, head screen analyses with assays by size fraction, bottle roll leach testing, agglomeration testing and column leach testing.

Head Analyses

Gold content was determined using standard fire assay methods with flame atomic absorption spectrophotometric (FAAS) finish. Silver content was determined using wet chemistry methods (four-acid digestion) with FAAS finish.

Head analyses for carbon and sulphur were conducted utilizing a LECO CS 400 unit. In addition to total carbon and sulphur analyses, speciation for organic and inorganic carbon and speciation for sulphide and sulfate sulphur were conducted.

Head analyses for mercury were conducted utilizing cold vapour/atomic absorption methods. Total copper analyses were conducted utilizing inductively coupled argon plasma/optical emission spectrophotometer (ICAP-OES) as well as by FAAS methods.

Semi-quantitative analyses were conducted by means of an ICAP-OES for a series of individual elements and whole rock constituents (lithium metaborate fusion/ICAP)

A cyanide shake test was also conducted on a portion of pulverized head material from each composite.

Portions of material from each sample were utilized for head screen analyses with assays by size fraction. The material apportioned for the head screen from each composite was dry screened at 25, 19, 12.5, 9.5, 6.3, 3.35, 1.70 and 0.212 mm. Each size fraction was crushed to a nominal size of 1.70 mm, as necessary. From each size fraction two portions were then split out and individually pulverized to the target size of 80% passing 0.075 mm. The pulverized portions were then assayed using standard fire assaying methods for gold with FAAS finish and wet chemistry methods for silver.

Bottle Roll Leach Testwork

Bottle roll leach testing was conducted on a portion of material from each composite. An additional bottle roll test was conducted on select samples from the Creston Rojo, Zona 70 and Filos Sur pits for comparison purposes.

For each bottle roll test, a 1,000 g portion of head material was ring and puck pulverized to a target size of 80% passing 0.075 mm. The pulverized material was then slurried with 1,500 mL of tap water and utilized for leach testing. From the dry tailings, duplicate portions were split out and assayed for residual gold and silver content. Each leach test was run for a period of 96 hours with solution sampling for pH, dissolved oxygen, NaCN, Au, Ag and Cu performed at 2, 4, 8, and 24 hours with sampling every 24 hours thereafter. Sodium cyanide was added and maintained at 1.0 grams per litre of solution. The pH of the solution was maintained at 11.0 with the addition of hydrated lime $Ca(OH)_2$.

Results included:

- Aguita: Intrusive composite extraction values from 75–92% Au, 52–82% Ag, cyanide consumption from 0.60–1.03 kg/t NaCN; oxide composite extraction values from 83–96% Au, 52–59% Ag, cyanide consumption from 0.09 to 3.12 kg/t NaCN; carbonate composite extraction values from 80–91% Au, 49–54% Ag, cyanide consumption from 0.84–2.23 kg/t NaCN;
- El Grande: Intrusive composite extraction values from 95–96% Au, 29–57% Ag, cyanide consumption from 0.20–0.38 kg/t NaCN; oxide composite extraction values from 82–95% Au, 46–52% Ag, cyanide consumption from 0.30–3.56 kg/t NaCN; carbonate composite extraction values from 79–88% Au, 39–52% Ag, cyanide consumption from 0.11–1.43 kg/t NaCN;
- Creston Rojo: Intrusive composite extraction values from 81–97% Au, 29–40% Ag, cyanide consumption from 0.19–0.26 kg/t NaCN; oxide composite extraction values from 63–88% Au, 36–42% Ag, cyanide consumption from 0.98–2.15 kg/t NaCN; carbonate composite extraction values from 79–94% Au, 41–76% Ag, and cyanide consumption from 0.13–2.95 kg/t NaCN;
- Zona 70: Intrusive composite extraction values from 82–95% Au, 59–68% Ag, cyanide consumption from 0.18–2.78 kg/t NaCN; oxide composite extraction

values from 88–94% Au, 18–45% Ag, cyanide consumption from 0.17–0.79 kg/t NaCN; carbonate composite extraction values from 69–95% Au, 44–80% Ag, and cyanide consumption from 0.46–1.58 kg/t NaCN;

- Filos Sur: Intrusive composite extraction values from 39–88% Au, 56–71% Ag, cyanide consumption from 0.24–2.34 kg/t NaCN.

Agglomeration Testing

Preliminary agglomeration test work was conducted on portions of material from each composite. Each test was conducted utilizing 2 kilogram portions of material crushed to the size of 100% passing 25 mm and agglomerated with a target of 0, 2, 6 and 10 kg/t cement. Several tests failed the criteria put forth by KCA due to solution ponding when no cement was added. Additional tests failed due to high slump at the target addition of 2 kg/t cement.

Column Leach Tests

An individual column leach test was conducted on a portion of material from each composite for a total of 39 column leach tests. Each column test was conducted in a 152 mm inside diameter column, utilizing material crushed to the size of 100% passing 25 mm and blended with cement as necessary. Tests were conducted utilizing a sodium cyanide solution and ran for periods of 60 to 105 days.

Results included:

- Aguita: Intrusive composite extraction values from 48–82% Au, 9–40% Ag, cyanide consumption from 0.64–1.07 kg/t NaCN; oxide composite extraction values from 63–87% Au, 5–25% Ag, cyanide consumption from 0.49 to 1.53 kg/t NaCN; carbonate composite extraction values from 59–73% Au, 10–20% Ag, cyanide consumption from 0.26–0.83 kg/t NaCN;
- El Grande: Intrusive composite extraction values from 80–95% Au, 7–36% Ag, cyanide consumption from 0.62–1.25 kg/t NaCN; oxide composite extraction values from 19–73% Au, 3–14% Ag, cyanide consumption from 0.66–1.95 kg/t NaCN; carbonate composite extraction values from 33–57% Au, 6–21% Ag, cyanide consumption from 0.39–1.64 kg/t NaCN;
- Creston Rojo: Intrusive composite extraction values from 73–89% Au, 30–52% Ag, cyanide consumption from 0.67–1.33 kg/t NaCN; oxide composite extraction values from 57–74% Au, 14–19% Ag, cyanide consumption from 0.98–1.57 kg/t NaCN; carbonate composite extraction values from 62–80% Au, 13–36% Ag, and cyanide consumption from 0.70–1.72 kg/t NaCN;

- Zona 70: Intrusive composite extraction values from 40–75% Au, 11–33% Ag, cyanide consumption from 0.78–1.54 kg/t NaCN; oxide composite extraction values from 39–89% Au, 2–15% Ag, cyanide consumption from 0.62–0.83 kg/t NaCN; carbonate composite extraction values from 44–71% Au, 8–35% Ag, and cyanide consumption from 0.17–0.62 kg/t NaCN;
- Filos Sur: Intrusive composite extraction values from 31–73% Au, 37–52% Ag, cyanide consumption from 0.51–1.28 kg/t NaCN.

13.1.4 Guadalupe

Testwork results for the El Bermejal deposit are used for the Guadalupe zone.

13.2 Recovery Estimates

Initial recovery estimates during feasibility-level assessments have been replaced with estimates based on production data. Currently, the gold recoveries by ore type are:

- Crush ore: 72%;
- Los Filos open pit mineralization: 55%;
- Bermejal open pit mineralization: 59.6%.

The silver recoveries for the Project are assumed to be 5% for all ore types.

13.3 Metallurgical Variability

Samples selected for testing were representative of the various types and styles of mineralization within the different deposits. Samples were selected from a range of depths within the deposits. Sufficient samples were taken so that tests were performed on sufficient sample mass.

13.4 Deleterious Elements

Metallurgical recoveries can be adversely affected by the presence of sulphides in the material sent to the leach pads. Clay content is carefully monitored as clay can also be deleterious in the crusher, and on the heap. Copper values are also examined as copper can be deleterious for process recovery.

13.5 Comments on Mineral Processing and Metallurgical Testing

In the opinion of the QP, the metallurgical test work data supports the declaration of Mineral Resources and Mineral Reserves:

- The metallurgical test work completed on the Project has been appropriate to establish the optimal processing routes for proper process operation;
- Tests were performed on samples that were representative for each deposit and mineralogy;
- Recovery factors estimated for the heap leach are based on appropriate metallurgical testwork and confirmed with production data. Depending on metallurgical type, average life-of-mine gold recoveries average 72% for crushed ore and 55% to 59.6% for ROM ore;
- Recovery factors are appropriate to the mineralization types, oxidation states, and selected process routes;
- Reagent consumption and process conditions were appropriately determined to establish process operating costs; these costs have been confirmed from production data, and are optimized to suit daily operating conditions.

14.0 MINERAL RESOURCE ESTIMATES

Mineral Resource models and estimates for the Los Filos/4P and El Bermejal/Guadalupe deposits were prepared by Mr Michael Hester, FAusIMM, Vice President, IMC, with the support of Goldcorp staff. The Mineral Resource estimates have an effective date of December 31, 2012.

Mineral Resource estimates and models for the Los Filos underground deposits were prepared by Mr Luis Oviedo, Consultant Partner, NCL, who is a Registered Member of the Chilean Mining Commission (RM CMC).

14.1 Key Assumptions/Basis of Estimate

14.1.1 Los Filos–4P

The model is based on 8 m x 8 m x 6 m high blocks. The model is rotated; the y-axis is rotated 15º counterclockwise to align the model with the original Los Filos geological grid.

Estimation is based on 269,216 m of drilling and 167,051 sample intervals, mostly about 1.5 m intervals. The database is constructed as 1,997 drill holes, but there is a significant amount of channel sample data, both surface and underground, that has been structured to look like drill holes for database purposes. Channel samples have been primarily taken in an area of underground mining to the north of 4P.

The drill hole database includes a logged mineralization-type code, known informally as the Jones code (Table 14-1). The units form the deposit geometallurgical domains.

The Jones code was assigned to the block model based on the drill hole composite data:

- Carbonate rocks (limestone or marble) were either assigned as type II or type IV (exoskarn). In the model the carbonate blocks were assigned either type II or type IV based on a nearest neighbour estimation. Only composites designated as carbonate were used for this estimation. Carbonate composites with type code Ia, Ib, or III were considered as mis-classified and not used for rock type assignment;
- Granodiorite and diorite rock types were assigned type Ia, Ib, or III (endoskarn) based on a nearest neighbour estimation. Granodiorite and diorite rock types with types II and IV were considered mis-classified and not used for the assignment;
- Oxide rock types in the 4P area were assigned types Ia, Ib, or IV based on a nearest neighbour estimation.

Table 14-1: Los Filos Geometallurgical Domain Types

Geometallurgical Domain Type	Description
Ia	Intrusive, endoskarned intrusive and exoskarn, strongly altered (clay-rich) and strongly sheared.
Ib	Intrusive, moderately altered and moderately sheared.
II	Mineralized marble, relatively hard and weakly broken.
III	"Fresh" endoskarn, hard and weakly sheared or broken.
IV	Exoskarn varieties and jasperoid.

14.1.2 El Bermejal–Guadalupe

The model is based on 8 m x 8 m x 6 m high blocks. The model is rotated; the y-axis is rotated 45º counterclockwise to align the model with the original geological grid.

Data used to support the estimate consisted of:

- 401 core holes comprising 114,074 m and 71,422 sampled intervals;
- 459 RC holes consisting of 38,618 sampled intervals and 81,922 m of drilling;
- 1,558 channel samples, comprising 9,866 m and 6,007 sampled intervals.

IMC was also provided with updated geologic interpretations for four basic lithological types: carbonate, intrusive, oxide, and sulphide. IMC back-assigned the geological variable from the updated solids to the drill hole database.

14.1.3 Los Filos Underground

The database for estimation of Mineral Resources amenable to underground operations was closed as of 30 September 2012. The database contains core and RC drill holes, and channel sampling data. On database review, some RC holes were removed from estimation support as more reliable core data were available in close proximity.

Outlines of the existing underground workings were provided by Goldcorp to NCL as modelled solids as of 30 November 2012.

The block size used in the estimation is 9 m x 9 m x 3 m.

14.2 Geological Models

Three dimensional solid wire-frames were created for lithologies and oxidation states by deposit.

For modelling purposes, IMC treated the 4P and Los Filos areas as part of the one large model. In the Los Filos area, the lithological domains defined were:

- Oxide (oxide is generally a thin zone on the boundary of intrusive and carbonate).
- Fresh carbonate;
- Altered carbonate;
- Fresh granodiorite;
- Altered granodiorite.

In general the carbonate and granodiorite below the diorite intrusive are typically altered; however, they are typically fresh above the diorite intrusive. .

In the 4P area, the same lithological units were used as at Los Filos. The oxide rock type is draped over the west flank of the granodiorite intrusion and is overlain by carbonate.

Structural zones were incorporated into the model based on the orientation of the diorite unit for Los Filos. A total of 15 zones are defined, four at Los Filos and the remaining 11 at 4P (Figure 14-1).

A single oxide ore type was used for the Los Filos underground (Nukay) area. The remaining rock types (mixed or mineralized limestone or granodiorite) are not considered significant in modelling terms.

14.2.1 El Bermejal–Guadalupe

IMC treated the El Bermejal and Guadalupe areas as part of the one large model. Geological controls for the resource model consist of:

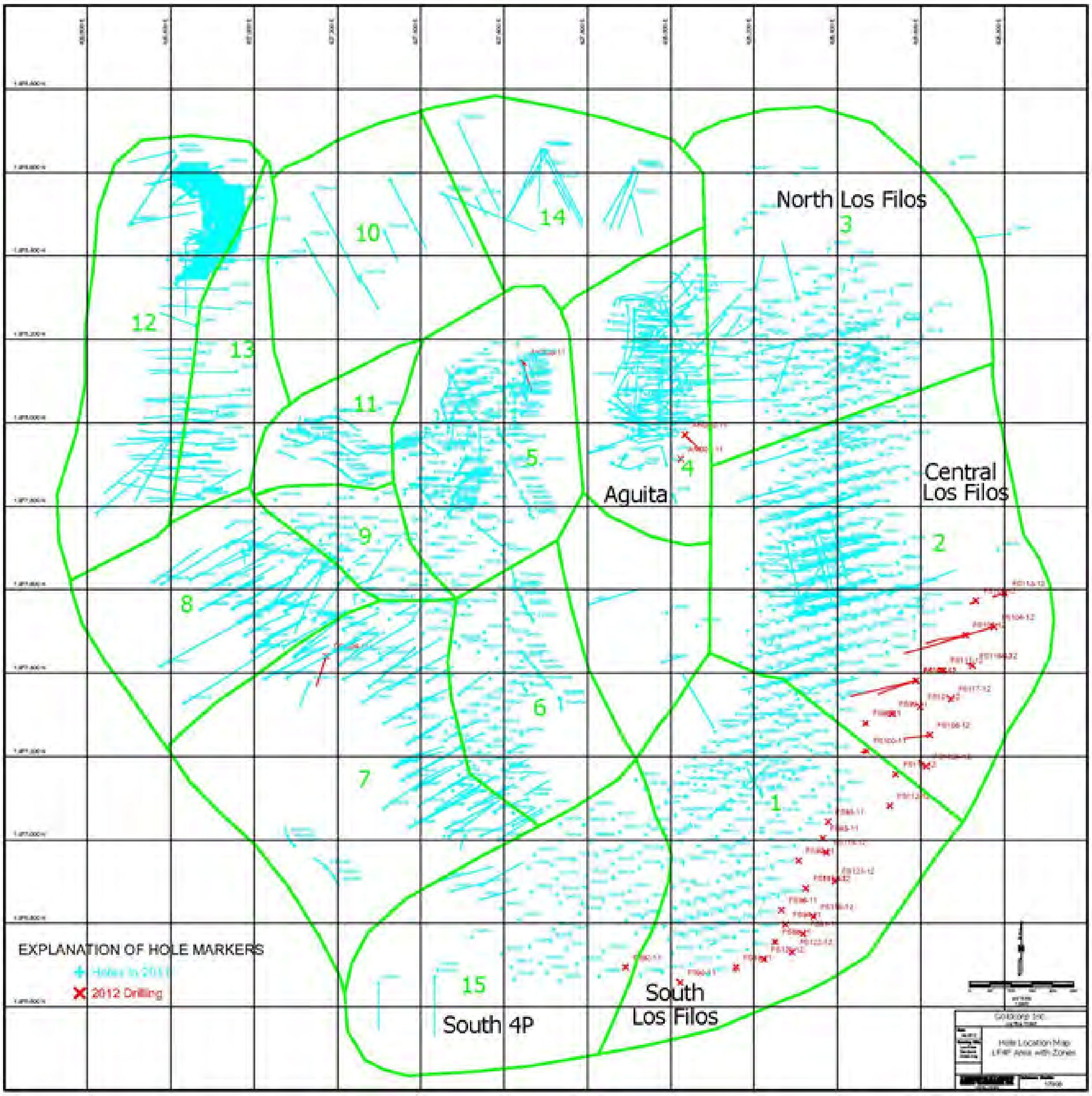
- Structural zones: Developed by IMC based on a review of lithology on cross sections and contours of top of oxide and top of the intrusion. Structural zone 1 is the South Bermejal area. Structural zones 2 through 6 make up the North Bermejal area, and were based on changes to the orientation of the top of intrusive and the oxide zone. Zones 7, 8, and 9 are in the Guadalupe area and are based on changes in the orientation (strike) of the oxide zone. Structural zones 10 through 13 were developed to capture variations in the dip of the intrusive sills in the northern extension area to North Bermejal. Zones are illustrated in Figure 14-2.

- Lithological domains: Modelled rock types consist of carbonate rocks, intrusive rocks, intrusive sills, oxides, small lenses of fresh sulphides, Guadalupe mixed oxides/sulphides, and fill material.

14.2.2 Los Filos Underground

The geological model for the Los Filos underground were generally based on 35 m spaced drill sectional interpretations, with infill sections at closer spacings as required.

Figure 14-1: Modelling Domains, Los Filos and 4P



Note: Figure prepared by IMC, January 2013.

Five model zones were outlined:

- Conchita;
- Independencia–La Subida;
- Diegos;
- Nukay;
- Peninsula.

The layout of the final geological models by zone are indicated in Figure 14-3. Models were created in commercially-available GEMS software and verified using Leapfrog software. During the Leapfrog review some areas were noted that in future model updates, would benefit from revisions to the interpretations to ensure that the geological models snapped to the geological logging.

14.3 Composites

Raw assays were composited prior to estimation to place the assay data on near constant support.

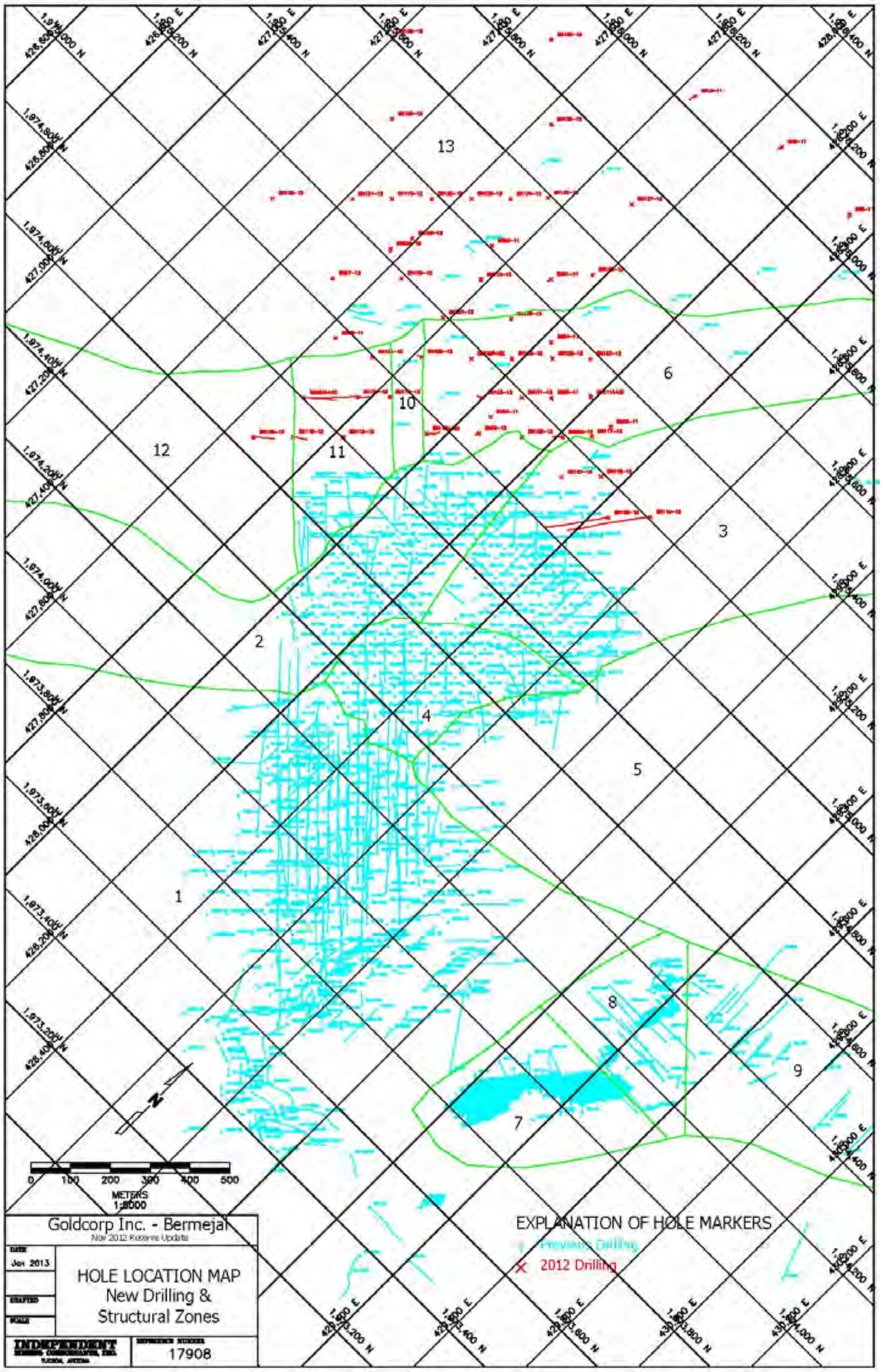
14.3.1 Los Filos–4P

The Los Filos data were composited to nominal 6 m geologic composites. Compositing respected the rock type (oxide, intrusive, carbonate, or sulphide), and did not cross rock type boundaries. A run of assays of the same rock type were composited into equal length intervals as close as possible to 6 m.

For example, a 26 m run of assays of a particular rock type in a hole would be composited into four composites of 6.5 m each, while a 28 m run would be composited into five composites of 5.6 m each. Gold, silver, and total copper assays were composited for modeling purposes.

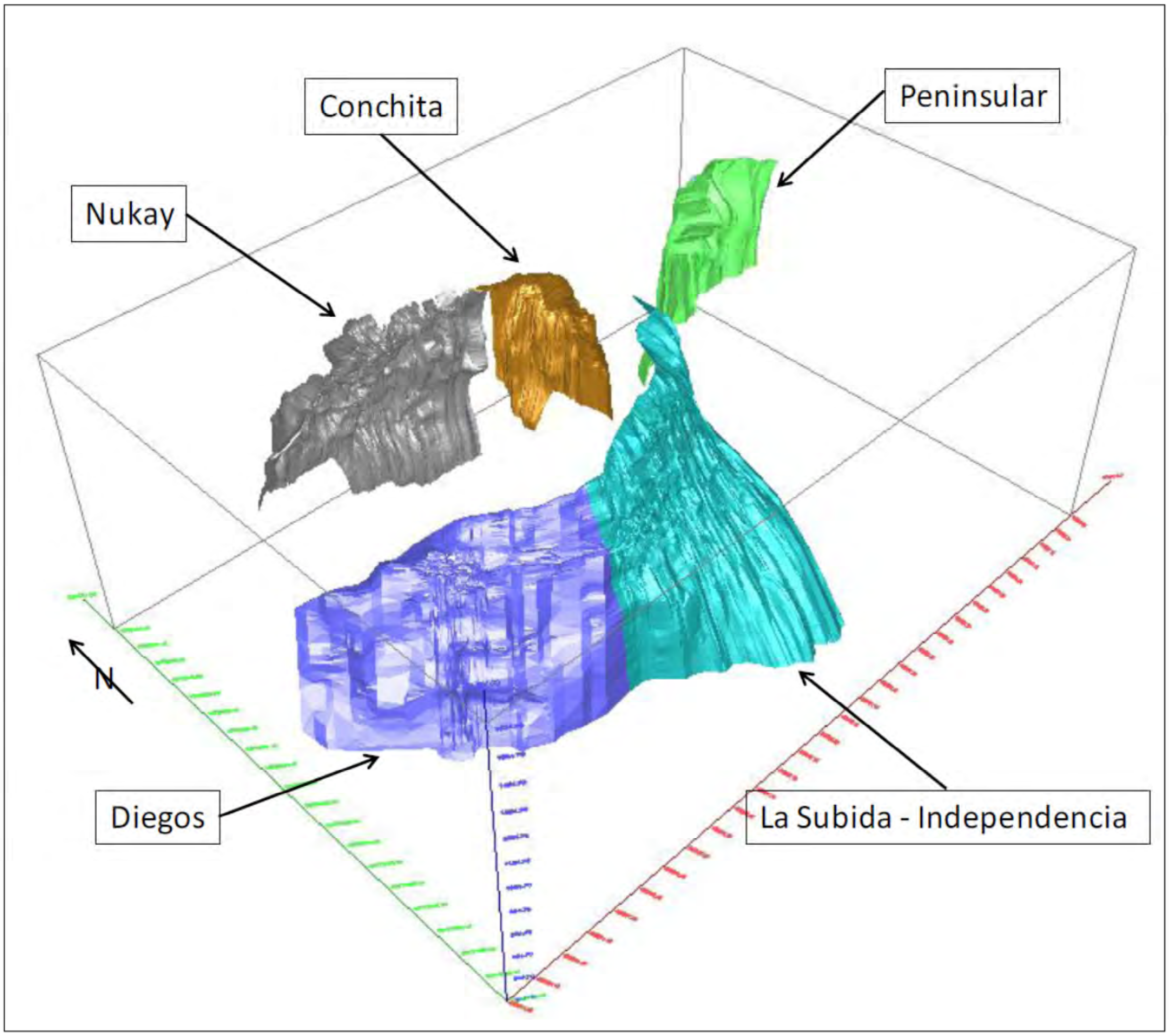
The rock type variable used to control compositing was a “smoothed” or back assigned rock type, i.e. sample intervals were assigned the rock type of the model block they were located in. Gold, silver and copper assays were composited. Together with the rock type, the metallurgical code (Jones code), or mineralization type, was also composited.

Figure 14-2: Structural Domains, El Bermejal



Note: Figure prepared IMC Consultants, January 2013.

Figure 14-3: Model Zones, Los Filos Underground



Note: Figure prepared by NCL, 2012.

14.3.2 El Bermejal–Guadalupe

El Bermejal data were also composited to nominal 6 m geologic composites. After compositing, 95% of the composites were between 5.5 m and 6.5 m in length.

14.3.3 Los Filos Underground

From 2009, all underground samples have been composited to 1 m lengths. Composites that are less than 50 cm in length are discarded.

14.4 Density Assignment

Density values in the block models were assigned by domain, oxide code, and lithology using a script.

14.4.1 Los Filos–4P

Density values used in the Los Filos modelling are summarized in Table 14-2.

For 4P, IMC was provided with the following bulk densities by rock type:

- Limestone/marble 2.67 t/m^3;
- Oxide 2.60 t/m^3;
- Granodiorite 2.45 t/m^3.

14.4.2 El Bermejal–Guadalupe

Density assignments by lithology for the El Bermejal sector are as outlined in Table 14-3. The bulk density of fill material was estimated by IMC at 2 t/m^3.

In the Guadalupe sector, oxide material was assigned a density of 3.44 t/m^3; and mixed and sulphide was assigned a bulk density of 3.94 t/m^3. These parameters were provided to IMC by Goldcorp personnel.

14.4.3 Los Filos Underground

The density values used in the block model for the underground estimates are summarized in Table 14-4.

Additional density measurements are planned during 2013 to confirm the density value used for the Peninsula zone.

14.5 Grade Capping/Outlier Restrictions

Grade capping was used to restrict outlier values. Caps were applied after examination of the data using log-probability plots. In some zones, in addition to the grade caps, restricted search radii were applied to some of the higher-grade composites.

14.5.1 Los Filos–4P

Within the Los Filos zone of the combined Los Filos–4P model, the cap grades were generally restricted to the upper six to 10 or so composites in each zone/rock type domain and generally corresponded to breaks in the distribution.

Table 14-2: Density Assignments, Los Filos

Geometallurgical Domain	Density (t/m^3)
Ia	2.35
Ib	2.35
II	2.55
III	2.35
IV	2.55

Table 14-3: Density Assignments, El Bermejal–Guadalupe

Rock Type	Zone North Bulk Density (t/m^3)	South Bulk Density (t/m^3)	Guadalupe Bulk Density (t/m^3)
Fill	2.00	2.00	2.00
Carbonate	2.52	2.52	2.52
Oxide	2.67	2.31	3.44
Mixed	N.A.	N.A.	3.94
Sulphide	2.72	2.69	3.94
Intrusive	2.36	2.29	2.29
Intrusive Sill	2.36	N.A.	N.A.

Note: NA = not applicable

Table 14-4: Density Assignments, Los Filos Underground

Zone	Density (t/m^3)
Conchita	2.77
Diegos	3.23
Subida	3.23
Peninsula	3.00
Nukay	3.33

Cap grades were:

- Diorite: caps range from 12 g/t Au in Zone 1, 32 g/t Au in Zone 2, and 10 g/t Au in Zone 3;
- Granodiorite: 8 g/t Au in Zone 1, 10 g/t Au in Zone 2, and 6 g/t Au in Zone 3;
- Carbonate: 4 g/t Au in Zone 1, 5 g/t Au in Zone 2, and 6 g/t Au in Zone 3.

In the 4P area of the combined Los Filos–4P model, caps were:

- Oxide: 12 g/t Au for Zones 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15;

- Granodiorite: 4 g/t Au for Zones 5, 6, 7, 8, 9, 11, 12, 13, and 15; 5 g/t Au for Zones 10 and 14;
- Carbonate: 4 g/t Au for Zones 5, 6, 7, 8, 9, 11, 12, 13, and 15; 5 g/t Au for Zones 10 and 14.

In the Aguita area of the combined Los Filos–4P model, the caps were applied at 13 g/t Au for all composites in the granodiorite and carbonate domains.

Search radius restrictions were also applied within the combined Los Filos–4P model to further restrict the effect of the higher-grade composites as follows:

- For most zones, composites greater than 8 g/t Au were only allowed to extend for 25 m beyond the intercept:
- For Los Filos Zone 1, 10 g/t Au composites were only allowed to extend for 25 m along strike and 12.5 m down dip
- For Los Filos Zone 2, 20 g/t Au composites were only allowed to extend for 25 m along strike and 12.5 m down dip.

Silver cap grades were applied to the Los Filos model by zone and by lithology. Diorite was capped at 30 g/t Ag in Zones 1 and 3, and 35 g/t Ag in Zone 2. For granodiorite, silver was capped at 200 g/t Ag in Zone 1, 90 g/t Ag in Zone 2, and 15 g/t Ag in Zone 3. Silver in the carbonate zone was capped at 30 g/t Ag for Zones 1 and 2, and 15 g/t Ag for Zone 3.

Silver values in the 4P Zones 5, 6, 7, 8, 9, 11, 12, 13, and 15 were capped at 75 g/t Ag. Within Zones 10 and 14, silver grades were capped at 35 g/t. In the Aguita zone, the grade cap was 55 g/t Ag.

In addition to these caps, composites with silver grades exceeding 50 g/t Ag were restricted to a 25 m search in the primary direction.

There was one additional restriction for grade estimations for Aguita and 4P, where there are a significant number of drill holes with un-sampled intervals. The intervals are usually in the upper portions of the marble rock type. IMC added an additional categorical variable to the drill hole database (“informed”) and set it to 1 if there was a gold assay and 0 if not. The 1s and 0s were estimated with the same parameters as the gold grade estimations to develop a value between 0 and 1 that is interpreted as the portion of the block that was informed by an assay. If this value was less than 0.5 the block was not estimated for gold, silver, or copper.

14.5.2 El Bermejal–Guadalupe

The cap grades were generally restricted to the upper six to 10 or so composites in each zone/rock type domain and generally corresponded to breaks in the distribution.

A cap grade of 12 g/t Au was applied to all composites such that composites with gold grades above 12 g/t Au were capped at 12 g/t Au. In addition, composites that had a gold grade above 10 g/t Au were restricted to a search radius of 28 m.

Composite silver grades were capped at 150 g/t Ag. Composites with a silver grade exceeding 40 g/t Ag were restricted to a 16 m search distance.

As with Aguita and 4P, at El Bermejal, there are a significant number of drill holes with un-sampled intervals in the upper carbonate. IMC added an additional categorical variable to the drill hole database ("informed") and set it to 1 if there was a gold assay and 0 if not. The 1s and 0s were estimated with the same parameters as the gold grade estimations to develop a value between 0 and 1 that is interpreted as the portion of the block that was informed by an assay. If this value was less than 0.5 the block was not estimated for gold, silver, or copper.

14.5.3 Los Filos Underground

Grade caps were applied separately to the northern Los Filos underground zones (Nukay, Peninsula and Conchita) and the southern Los Filos underground zones (Diego and Subida/Independencia). Caps were applied as follows:

- Diego: Grades above 5.32 g/t Au and 8.55 g/t Ag were capped at those values;
- Peninsula: Grades above 2.05 g/t Au and 6.75 g/t Ag were capped those values;
- Subida: Grades above 7.75 g/t Au and 25.41 g/t Ag were capped those values;
- Conchita: Grades above 5.40 g/t Au and 17.39 g/t Ag were capped those values;
- Nukay (West): Grades above 6.46 g/t Au and 9.61 g/t Ag were capped those values.

14.6 Variography

Omni directional variograms and correlograms were developed for gold, silver, and copper for each deposit to determine grade continuity of these elements.

14.7 Estimation/Interpolation Methods

Table 14-4 summarizes the interpolation methods, search radii, and grade caps by domain for the Los Filos–4P model. Table 14-5 summarizes the same parameters for the El Bermejal–Guadalupe model. Table 14-6 summarizes the Los Filos underground parameters.

14.7.1 Los Filos–4P

An inverse distance with a power weight of four (ID4) was used for model interpolation at Los Filos, whereas for 4P and Aguita, inverse distance with a power weight of three (ID3) was used.

All rock type boundaries were treated as hard boundaries for estimation. Structural boundaries at Los Filos were also considered to be hard. For 4P, the structural boundaries were not treated as hard boundaries, but were used to control the orientation of the composite searches.

Table 14-5: Summary, Search Parameters and Grade Caps, Los Filos–4P Resource Model

Zone	Rock	Rotation Angles (Note 1)			Search Radii (Meters)			No. of Composites			ID Power	Gold Cap Grade	Gold Restricted Search		Silver Cap Grade	Silver Restricted Search	
		Theta (Azimuth)	Phi	Psi (Dip)	Major	Minor	Tertiary	Max	Min				Grade	Search		Grade	Search
1-South LF	Diorite/Oxide	50	0	60 SE	100	50	12	8	2	2	4	12 g/t	10 g/t		30 g/t		
1-South LF	Granodiorite	50	0	60 SE	100	50	12	8	2	2	4	8 g/t		25x12.5	200 g/t	50 g/t	
1-South LF	Carbonate	50	0	60 SE	100	50	12	8	2	2	4	4 g/t	m		30 g/t		25x12.5
2-Central LF	Diorite/Oxide	0	0	35 E	100	50	12	8	2	2	4	32 g/t	20 g/t		35 g/t		
2-Central LF	Granodiorite	0	0	35 E	100	50	12	8	2	2	4	10 g/t		25x12.5	90 g/t	50 g/t	
2-Central LF	Carbonate	0	0	35 E	100	50	12	8	2	2	4	5 g/t	m		30 g/t		25x12.5
3-North LF	Diorite/Oxide	-55	0	37 NE	100	50	12	8	2	2	4	10 g/t	8 g/t		30 g/t		
3-North LF	Granodiorite	-55	0	37 NE	100	50	12	8	2	2	4	6 g/t		25x12.5	15 g/t		
3-North LF	Carbonate	-55	0	37 NE	100	50	12	8	2	2	4	6 g/t	m		15 g/t		
4-Agita	Granodiorite	0	0	0	40	40	40	8	2	2	3	13 g/t	8 g/t	25m	55 g/t	50 g/t	25m
4-Agita	Carbonate	0	0	0	40	40	40	8	2	2	3	13 g/t	8 g/t	25m	55 g/t	50 g/t	25m
5-4P	Oxide	-30	0	0	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
5-4P	Granodiorite	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
5-4P	Carbonate	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
6-4P	Oxide	-30	0	0	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
6-4P	Granodiorite	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
6-4P	Carbonate	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
7-4P	Oxide	-30	0	-30 SW	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
7-4P	Granodiorite	-30	0	-30 SW	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
7-4P	Carbonate	-30	0	-30 SW	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
8-4P	Oxide	-30	0	-45 SW	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
8-4P	Granodiorite	-30	0	-45 SW	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
8-4P	Carbonate	-30	0	-45 SW	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
9-4P	Oxide	-30	0	0	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
9-4P	Granodiorite	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
9-4P	Carbonate	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
10-4P	Oxide	60	0	90	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	35 g/t		
10-4P	Granodiorite	60	0	90	100	50	12	8	2	2	3	5 g/t			35 g/t		
10-4P	Carbonate	60	0	90	100	50	12	8	2	2	3	5 g/t			35 g/t		
11-4P	Oxide	-30	0	0	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
11-4P	Granodiorite	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
11-4P	Carbonate	-30	0	0	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
12-4P	Oxide	5	0	70 E	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
12-4P	Granodiorite	5	0	70 E	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
12-4P	Carbonate	5	0	70 E	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
13-4P	Oxide	5	0	-55 W	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
13-4P	Granodiorite	5	0	-55 W	100	50	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
13-4P	Carbonate	5	0	-55 W	100	50	12	8	2	2	3	4 g/t			75 g/t		25x12.5
14-4P	Oxide	90	0	90	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	35 g/t		
14-4P	Granodiorite	90	0	90	100	50	12	8	2	2	3	5 g/t			35 g/t		
14-4P	Carbonate	90	0	90	100	50	12	8	2	2	3	5 g/t			35 g/t		
15-4P	Oxide	0	0	0	100	100	50	8	2	2	3	12 g/t	8 g/t	25m	75 g/t	50 g/t	25m
15-4P	Granodiorite	0	0	0	70	70	12	8	2	2	3	4 g/t			75 g/t	50 g/t	
15-4P	Carbonate	0	0	0	70	70	12	8	2	2	3	4 g/t			75 g/t		25x12.5

Table 14-6: Summary, Search Parameters and Grade Caps, El Bermejal–Guadalupe Resource Model

Table 2. Grade Estimation Parameters for Gold and Silver - Bermejal

		Rotation Angles (Note 1)			Search Radii (Meters)			No. of Composites			ID	Gold Cap	Gold Restricted Search		Silver Cap	Silver Restricted Search	
Zone	Rock	Theta (Azimuth)	Phi	Psi (Dip)	Major	Minor	Tertiary	Max	Min	Max/Hole	Power	Grade	Grade	Search	Grade	Grade	Search
1	All	90	0	62 S	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
2	All	-45	0	-53 SW	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
3	All	75	0	-65 NW	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
4	All	45	0	45 SE	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
5	All	0	0	60 E	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
6	All	-45	30	0	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
7	All	45	0	90	75	75	25	8	1	2	3	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
8	All	90	0	90	75	75	25	8	1	2	3	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
9	All	0	0	90	75	75	25	8	1	2	3	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
10	All	0	0	0	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
11	All	-45	-25	0	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
12	All	0	0	0	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m
13	All	0	0	0	75	75	25	8	1	2	6	12 g/t	10 g/t	28m	150 g/t	40 g/t	16m

Note 1 IMC Convention for Rotation Angles. Same as GSLIB convention except sign of Psi is opposite
- theta rotation of y (north) axis clockwise to principal direction in horizontal plane
- phi dip of principal axis, negative is down
- psi rotation around principal axis, clockwise is negative. Perspective is outside system looking toward origin (GSLIB is inside system)

Note 2 Zones 7, 8, and 9 are Guadalupe

Table 14-7: Summary, Search Parameters and Grade Caps, Los Filos Underground Model

	Number of Composites		Discretization	Number of Octants Measured	Number of Octants Indicated	Number of Octants Inferred	Maximum Samples per Octant all Classifications	Search Radius X direction			Search Radius Y direction			Search Radius Z direction			Au Cap	Ag Cap
	Min	Max						Measured	Indicated	Inferred	Measured	Indicated	Inferred	Measured	Indicated	Inferred	(g/t Au)	(g/t Ag)
Diego	3	24	3 x 3 x 1	3	3	1	8	27	54	81	27	54	81	35	70	105	5.32	8.55
Subida	3	24	3 x 3 x 1	3	3	1	8	17.5	35	52.5	17.5	35	52.5	35	70	105	7.75	25.41
Conchita/Peninsula	3	24	3 x 3 x 1	3	3	1	8	20	40	60	20	40	60	35	70	105	5.4/2.05	17.39/6.75
Nukay	3	24	3 x 3 x 1	3	3	1	8	25	50	75	24.5	49	73.5	35	70	105	6.46	9.61

In general, the search radii for the estimations were 100 m along strike, 50 m down dip, and 12 m in the tertiary direction. A maximum of eight and a minimum of two composites were required to estimate a grade. A maximum of two composites per drill hole were allowed.

Due to the narrow nature of the 4P oxides and also due to abrupt orientation changes over short distances, the search radii were opened up to 100 m x 100 m x 50 m in the oxides to fill in the blocks.

Aguita only had two defined rock types, carbonate and granodiorite. A spherical search radius of 40 m was used for both rock types. It was difficult to define a preferred orientation of the mineralization in Aguita as the mineralization in Zone 15 is relatively flat lying, and a 70 m circular search was used for both granodiorite and carbonate. This circular search radius provides approximately the same search area as the 100 m along strike, 50 m down dip searches.

The interpolation methods, search radii, numbers of composites used, and boundary constraints between domains were the same for silver estimation as those employed for the gold estimate.

An estimation of block copper grades was also performed, as copper represents a potential contaminant element that can potentially affect processing costs. The search radii and power weighting used were the same as for gold and silver. Copper grades were not capped, and nor was a restricted search radius used.

14.7.2 El Bermejal

Gold grade estimation for the El Bermejal zone was based on inverse distance interpolation with a power weight of six (ID6).

The rock type boundaries (oxide, intrusive, and carbonate) were treated as hard boundaries for estimation with one exception. In the northwest of the deposit, the oxides and granodiorite sills were combined for estimation purposes. In this area, the oxides are generally interpreted as a thin zone at the top and base of the sills, and therefore, it is difficult to interpolate grades for the blocks using only the oxide composites. This material is currently predominantly classified as Inferred.

The structural boundaries were not used as hard boundaries, but were used to control the orientation of the search ellipse. The search radius for the estimation was 75 m along strike, 75 m down dip, and 25 m in the tertiary direction.

A maximum of six and a minimum of one composite were required to estimate a block grade. A maximum of two composites per drill hole were allowed. A cap grade of 12 g/t gold was applied to the composites; composites above 12 g/t Au were capped at 12 g/t Au. In addition, composites with gold grades above 10 g/t Au were restricted to within a search radius of 28 m.

The estimation of block silver grades was similar to that used to estimate the gold grades. ID4 was used to weight the composites. Rock type and structural zone constraints were the same as for gold, as were the search distances and orientations.

Inverse distance squared (ID2) interpolation was used for copper estimation with the same composite search parameters as were used for gold and silver. Composites were not capped.

14.7.3 Guadalupe

The Guadalupe estimation for gold within Zones 7, 8, and 9 was performed in a similar manner to that undertaken for El Bermejal, using ID3 interpolation. Search radii were limited to 50 m along strike, 50 m down dip and 25 m in the tertiary direction.

The estimation of block silver grades was similar to that used to estimate the gold grades. ID3 was used to weight the composites. Rock type and structural zone constraints were the same as for gold, as were the search distances and orientations.

Inverse distance squared (ID2) interpolation was used for copper estimation with the same composite search parameters as were used for gold and silver. Composites were not capped.

14.7.4 Los Filos Underground

Ordinary kriging (OK) was used for interpolation. Grades were populated in three steps, using the ranges, numbers of composites, and octants that were outlined in Table 14-7.

14.8 Resource Classification

14.8.1 Los Filos and 4P

A kriging run using the gold grades was performed whereby the number of drill holes in a block and the kriging variance (standard deviation) are calculated to support resource classification. For the estimate, the variogram was normalized to a sill of 1. A maximum of eight composites and a minimum of one composite, with a maximum of one composite per hole were used in the krige runs. The number of holes and standard deviation were stored in the model.

The estimates were then reviewed to provide the block classifications as follows:

- All blocks that had a kriged gold grade were automatically assigned a confidence category of Inferred;
- Blocks were upgraded from Inferred to Indicated if they met one of the following criteria:
  - blocks were estimated with four or more drill holes;
  - blocks were estimated with three holes and with a kriged standard deviation of less than 0.8;
  - blocks were estimated with two holes and a kriged standard deviation less than 0.7;
  - blocks were estimated with one hole and a kriged standard deviation less than 0.6;
- Blocks with a kriged standard deviation less than 0.4 and estimated with two or more holes were upgraded to the Measured category.

Figure 14-4 is a probability plot that shows the relationship of the resource classification assignment to the kriging standard deviation and the number of drill holes informing a block.

14.8.2 El Bermejal and Guadalupe

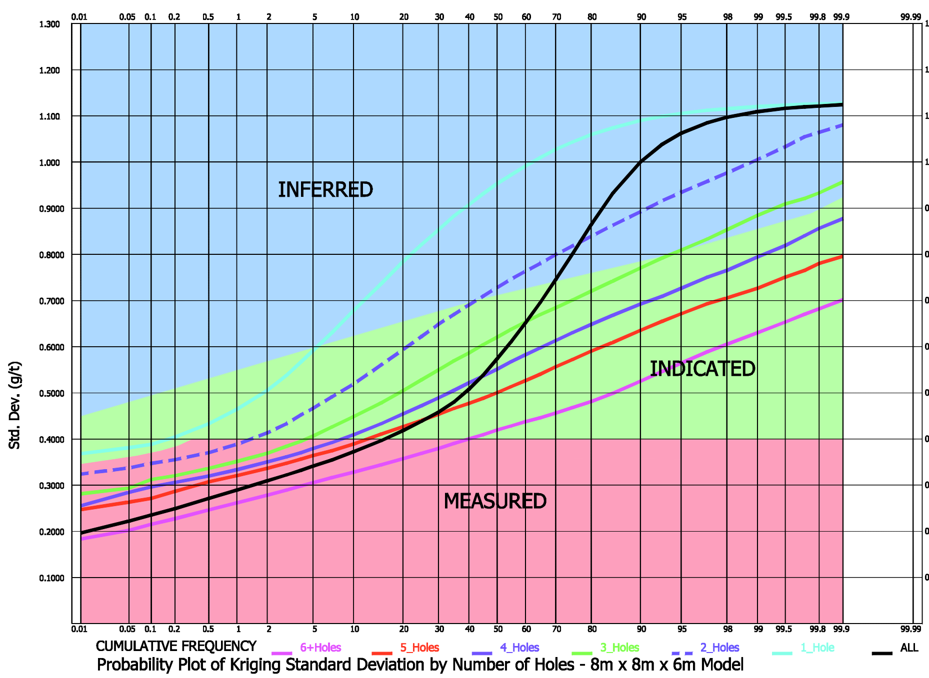
Estimation of confidence categories was also based on a combination of the number of drill holes informing a block and the kriging standard deviation. In a similar manner to that employed for Los Filos, the variogram was normalized to a sill of 1. A maximum of eight composites and a minimum of one composite, with a maximum of one composite per hole were used in the krige runs.

The estimates were then reviewed to provide the block classifications as follows:

- All blocks that had a kriged gold grade were automatically assigned a confidence category of Inferred;
- Blocks were upgraded from Inferred to Indicated if they met one of the following criteria:

- blocks were estimated with five or more drill holes;
- blocks were estimated with four holes and a kriged standard deviation of less than 0.9;
- blocks were estimated with three holes and a kriged standard deviation of less than 0.8;

Figure 14-4: Los Filos–4P Resource Classification based on Probability Plot of the Kriging Standard Deviation versus Drill Hole Numbers within a Block



Note: Figure prepared by IMC, 2013

- blocks were estimated with two holes and a kriged standard deviation of less than 0.7;
- blocks were estimated with one hole and a kriged standard deviation of less than 0.6;

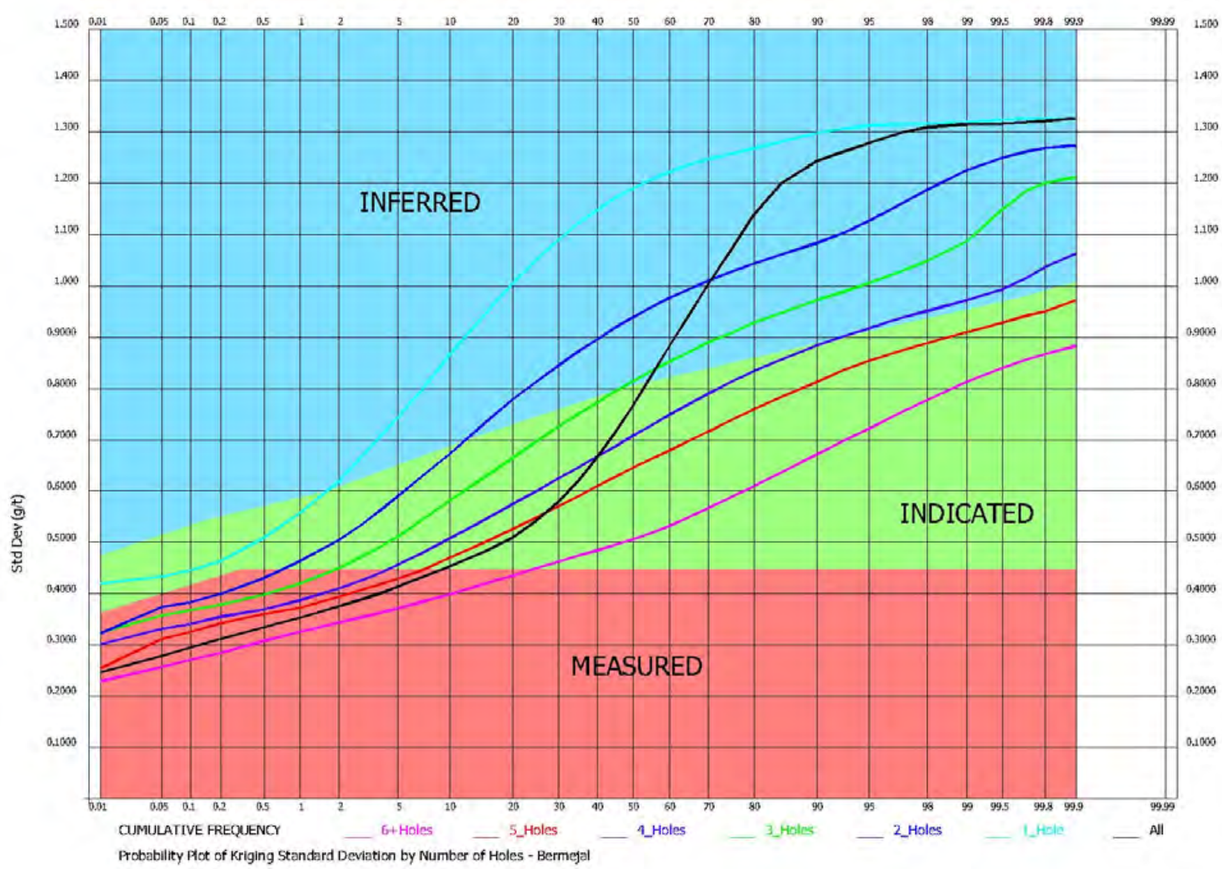
- Blocks with a kriged standard deviation less than 0.45 and estimated with two or more holes were upgraded to the Measured category.

Figure 14-5 is a probability plot that shows the relationship of the resource classification assignment to the kriging standard deviation and the number of drill holes informing a block.

14.8.3 Los Filos Underground

Confidence categories were based on the kriging pass used to inform the block. Measured Mineral Resources were assigned if the block was within half of the search radius; Indicated Mineral Resources were classified if the block fell within the search radius, and Inferred Mineral Resources were assigned if the block fell within 1.5 times the search radius (refer to Table 14-7 for the search radii distances).

Figure 14-5: El Bermejal–Guadalupe Resource Classification based on Probability Plot of the Kriging Standard Deviation versus Drill Hole Numbers within a Block



Note: Figure prepared by IMC, 2013

14.9 Block Model Validation

For the open pit models, IMC inspected block confidence classifications on screen and the classifications were considered reasonable, and the block models could support Mineral Resource estimation.

NCL reviewed block models for the underground models in three ways:

- A comparison of kriged composite values against the declustered composites was performed. For blocks classified as Measured, the comparison was excellent; Inferred composites had less correlation as the Inferred classification was assigned to areas where there is limited drill density. No overall bias was observed;
- Model swaths were inspected in the x, y, and z directions, comparing the model values against the declustered assay values. No overall bias was observed;
- Onscreen inspection of the block values against the composites was performed. In general, the comparison showed a good correspondence.

NCL concluded the block models were acceptable to support Mineral Resource estimation.

14.10 Reasonable Prospects of Economic Extraction

14.10.1 Open Pit Mining Methods

Mineral Resources that could potentially be extracted using open pit mining methods were assessed for reasonable prospects of economic extraction by confining the mineralization within Whittle optimized pit shells.

The mining, processing, and G&A costs were developed by Goldcorp personnel and are based on budget 2013 estimates. Recovery estimates by rock type are the same as was used for the Feasibility Study. Slope angles for Bermejal are based on work by Call & Nicholas Inc. (CNI) of Tucson, Arizona. The waste:mineralization ratio at Los Filos is 4.3:1. Mineralized material that displays geological and grade continuity, and which falls within a pit shell constructed using these parameters is likely to support economic extraction. Pit shell constraints for Los Filos and 4P are included as Table 14-8.

The mineralization within the pit shells that satisfies these requirements equates to a cut-off grade of 0.5 g/t Au for crush–leach material and 0.22 to 0.5 g/t Au for ROM material at Los Filos and 4P.

Considerations for the pit shells used for Guadalupe and El Bermejal are shown in Table 14-9. The mining, processing, and G&A costs were developed by Goldcorp personnel and are based on budget 2013 estimates. Recovery estimates by rock type are the same as was used for the Feasibility Study. The intrusive sills are a new estimation domain type. IMC used 55% for the ROM recovery for the sills, similar to Los Filos ROM recovery for moderately altered intrusive mineralization. Sulphide material is not considered suitable as ROM material and was not assigned a recovery. The mixed oxide/sulphide mineralization at Guadalupe was not assigned a recovery. Guadalupe oxide mineralization was assigned a 73% recovery, the same as applied to the Bermejal oxide material. Slope angles for El Bermejal are based on work by CNI.

The waste:mineralization ratio at El Bermejal is 4.2:1.

Mineralized material that displays geological and grade continuity, and which falls within a pit shell constructed using these parameters is likely to support economic extraction. The mineralization within the pit shells that satisfies these requirements equates to a cut-off grade of 0.2 g/t Au at El Bermejal and Guadalupe.

14.10.2 Underground Mining Methods

Mineral Resources that could be extracted using underground mining methods were assessed for reasonable prospects of economic extraction by constraining mineralization to a minimum 10 m strike length and 1 m mining thickness.

Parameters used in the estimate are summarized in Table 14-10. The break-even cut-off grade for Mineral Resources amenable to underground mining methods was established using the equation:

Cut-off grade = operating cost - the selling cost x recovery

For underground mining, the breakeven cut-off grade was determined at 2.94 g/t Au.

The solids models of current workings were then stamped over the block model, and any mined blocks removed from the estimate.

14.11 Mineral Resource Statement

Mineral Resources are classified in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves.

Mineral Resources have an effective date of December 31, 2012, and the QP for the estimates is Ms Maryse Belanger, P.Geo. Goldcorp cautions that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Mineral Resource estimates for the deposits considered potentially amenable to open pit mining are summarized in Table 14-11. Table 14-12 and Table 14-13 present the Mineral Resource estimate potentially amenable to open pit mining methods by deposit. In these three tables the Mineral Resources are reported inclusive of Mineral Reserves. Table 14-14 summarizes the Mineral Resources potentially amenable to open pit mining methods reported by Goldcorp in regulatory disclosures, which are on the basis of Mineral Resources exclusive of Mineral Reserves.

Mineral Resource estimates for the deposits considered potentially amenable to underground mining are summarized in Table 14-15. Table 14-16 to Table 14-20 present the Mineral Resource estimate potentially amenable to underground mining methods by deposit. Mineral Resources are reported exclusive of Mineral Reserves in these tables.

Table 14-8: Assumptions Used in LG Shell to Constrain Los Filos and 4P Mineral Resource Estimates

Item	Area	Units	Crush-Leach			Run-of-Mine			Waste
			Ia	Ib	II, III, IV	Ia	Ib	II, III, IV	
Commodity Prices	Gold	US$/oz	1,500	1,500	1,500	1,500	1,500	1,500	—
	Silver	US$/oz	27	27	27	27	27	27	—
Mining Cost Per Tonne		US$/t mined	1.610	1.610	1.610	1.888	1.888	1.888	1.375
Process Costs	Base Processing Cost	US$/t processed	4.462	4.462	4.462	2.047	2.047	2.047	—
	Sustaining Capital	US$/t processed	0.323	0.323	0.323	0.323	0.323	0.323	—
	Total Process Cost	US$/t mineralization processed	4.785	4.785	4.785	2.370	2.370	2.370	—
	G&A Cost	US$/t mineralization processed	1.673	1.673	1.673	1.673	1.673	1.673	—
Recovery	Gold	%	77.0	72.0	64.0	59.0	55.0	49.0	—
	Silver	%	5	5	5	5	5	5	—
Refining	Gold	US$	3.26	3.26	3.26	3.26	3.26	3.26	—
	Silver	US$	0	0	0	0	0	0	—
Calculated Gold Cut-off Grades	Breakeven	g/t	0.22	0.23	0.26	0.21	0.22	0.25	—
	Internal	g/t	0.18	0.19	0.22	0.16	0.17	0.19	
	Crush-Leach/ROM Balancing Cut-off	g/t	0.25	0.26	0.30	—	—	—	—
Operational Gold Cut-off Grades		g/t	0.5	0.5	0.5	0.22	0.22	0.22	—

Table 14-9: Assumptions Used in LG Shell to Constrain El Bermejal and Guadalupe Mineral Resource Estimates

Item	Area	Units	Oxide	Intrusive Sills	Intrusive	Carbonate	Waste
Commodity Prices	Gold	US$/oz	1,500	1,500	1,500	1,500	—
	Silver	US$/oz	27	27	27	27	—
Mining Cost Per Tonne		US$/t mined	1.239	1.239	1.239	1.239	1.498
Process Costs	Base Processing Cost	US$/t processed	2.047	2.047	2.047	2.047	—
	Sustaining Capital	US$/t processed	0.323	0.323	0.323	0.323	—
	Total Process Cost	US$/t mineralization processed	2.370	2.370	2.370	2.370	—
	G&A Cost	US$/t mineralization processed	1.673	1.673	1.673	1.673	—
Recovery	Gold	%	73.0	55.0	50.0	53.0	—
	Silver	%	5	5	5	5	—
Refining	Gold	US$	3.26	3.26	3.26	3.26	—
	Silver	US$	0	0	0	0	—
Calculated Gold Cut-off Grades	Breakeven	g/t	0.15	0.20	0.22	0.21	—
	Internal	g/t	0.11	0.14	0.16	0.15	—
Operational Gold Cut-off Grades		g/t	0.2	0.2	0.2	0.2	—

Table 14-10: Assumptions Used in LG Shell to Constrain Los Filos Underground Mineral Resource Estimates

Item	Area	Units	
Commodity Prices	Gold Mineral Resources	US$/oz	1,500
	Silver Mineral Resources	US$/oz	27
	Gold Mineral Reserves	US$/oz	1,350
	Silver Mineral Reserves	US$/oz	24
Mining Cost Per Tonne	Includes general and administrative	US$/t mined	97.99
Process Costs	Includes crushing	US$/t processed	2.415
Recovery	Gold	%	72
	Silver	%	5
Dilution	Not used in mineral resource estimation	%	10
Refining cost		$/oz	3.26

Table 14-11: Los Filos Gold Operation Mineral Resources Potentially Amenable to Open Pit Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	80,806	0.85	5.3	2,207	13,798
Indicated	286,519	0.72	5.7	6,588	52,332
Subtotal Measured and Indicated	*367,325*	*0.74*	*5.6*	*8,796*	*66,131*
Inferred	239,008	0.79	5.9	6,079	45,633

Table 14-12: Los Filos Deposit Mineral Resources Potentially Amenable to Open Pit Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	63,179	0.88	4.6	1,783	9,327
Indicated	138,214	0.68	4.6	3,012	20,528
Total Measured and Indicated	*201,393*	*0.74*	*4.6*	*4,796*	*29,856*
Inferred	40,359	0.75	5.2	976	6,737

Table 14-13: El Bermejal Deposit Mineral Resources Potentially Amenable to Open Pit Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	17,627	0.75	7.9	424	4,471
Indicated	148,305	0.75	6.7	3,576	31,804
Total Measured and Indicated	165,932	0.75	6.8	4,000	36,275
Inferred	198,649	0.80	6.1	5,103	38,896

Table 14-14: Los Filos Gold Operation Total Mineral Resources Potentially Amenable to Open Pit Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	8,668	0.84	7.6	235	2,121
Indicated	60,954	0.83	6.5	1,632	12,810
Total Measured and Indicated	69,622	0.83	6.7	1,867	14,931
Inferred	236,971	0.79	6.0	6,027	45,358

Notes to Accompany Mineral Resource Tables for Mineral Resources Amenable to Open Pit Mining Methods

1. Mineral resources in Table 14-11, Table 14-12 and Table 14-13 are inclusive of mineral reserves and do not include dilution;
2. Mineral resources in Table 14-14 are exclusive of mineral reserves and do not include dilution;
3. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
4. Mineral resource estimates were prepared by Mr M. Hester, F.AusIMM, an employee of International Mining Consultants, and reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimate;
5. Mineral resource estimates for the Los Filos deposit include the Los Filos, 4P, and Aguita zones; mineral resource estimates for the El Bermejal deposit include the Guadalupe zone;
6. Mineral resources are reported to a gold price of US$1,500/oz and a silver price of US$27/oz;
7. Mineral resources are defined with Lerchs-Grossman pit shells that use variable mining and recovery estimates depending on the geometallurgical domain and whether mineralization is projected to report to crush–leach or is considered typical run-of-mine for processing requirements;
8. Mineral resources are reported to variable gold cut-off grades of 0.2 g/t Au for mineralization from El Bermejal and Guadalupe, and 0.22 g/t Au to 0.5 g/t Au for mineralization from Los Filos, 4P, and Aguita;
9. Tonnages are rounded to the nearest 1,000 tonnes, grades are rounded to two decimal places for Au, grades for Ag are rounded to one decimal place; rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
10. Tonnage and grade measurements are in metric units. Gold and silver contained ounces are reported as troy ounces.

Table 14-15: Los Filos Total Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	941	11.64	16.5	352	499
Indicated	454	9.06	37.1	132	541
Total Measured and Indicated	*1,394*	10.80	23.2	*484*	*1*
Inferred	2,209	6.53	15.7	464	1,112

Table 14-16: Nukay Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	203	12.50	30.15	82	197
Indicated	242	10.14	59.29	79	461
Total Measured and Indicated	*445*	*11.25*	*45.99*	*161*	*658*
Inferred	606	7.01	24.91	137	485

Table 14-17: Conchitas Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	67	11.98	20.96	25	45
Indicated	33	7.57	17.43	8	18
Measured + Indicated	*100*	*10.26*	*19.60*	*33*	*63*
Inferred	33	7.90	18.58	9	20

Table 14-18: Diegos Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	144	10.16	6.79	47	32
Indicated	145	7.83	2.07	36	10
Measured + Indicated	*289*	*8.93*	*4.52*	*83*	*42*
Inferred	146	7.27	4.69	35	22

Table 14-19: Peninsula Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes	Au Grade	Ag Grade	Au Contained Ounces	Ag Contained Ounces
	(kt)	(g/t Au)	(g/t Ag)	(koz Au)	(koz Ag)
Measured	3	5.60	27.05	0	2
Indicated	9	4.51	17.31	1	5
Measured + Indicated	*12*	*2.59*	*18.14*	*1*	*7*
Inferred	740	5.29	9.67	126	230

Table 14-20: Subida/Indepencia Underground Mineral Resources Potentially Amenable to Underground Mining Methods, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes	Au Grade	Ag Grade	Au Contained Ounces	Ag Contained Ounces
	(kt)	(g/t Au)	(g/t Ag)	(koz Au)	(koz Ag)
Measured	523	11.70	13.28	196	223
Indicated	25	9.40	59.75	8	48
Measured + Indicated	*548*	*11.58*	*15.38*	*204*	*271*
Inferred	683	7.23	16.15	159	355

Notes to Accompany Mineral Resource Tables for Mineral Resources Amenable to Underground Mining Methods

1. Mineral resources are exclusive of mineral reserves and do not include dilution;
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral resource estimates were prepared by Mr Luis Oviedo, RM CMC, an NCL employee, and reviewed by Ms Maryse Belanger, P.Geo, who is the Qualified Person for the estimate.
4. Mineral resources are reported to a gold price of US$1500/oz and a silver price of US$27/oz;
5. Mineral resources definition uses a mining cost of $97.99, process cost of $2.415, process recovery of 72%, and a refining cost of $3.26/oz;
6. Mineral resources are reported to a gold cut-off grade of 2.94 g/t Au;
7. Tonnages are rounded to the nearest 1,000 tonnes, grades are rounded to two decimal places for Au, grades for Ag are rounded to one decimal place; rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. Tonnage and grade measurements are in metric units. Gold and silver contained ounces are reported as troy ounces.

Total mineral resources for the project, comprising Measured, Indicated and Inferred Mineral Resources potentially amenable to open pit and underground mining methods are summarised in Table 14-21.

Table 14-21: Los Filos Gold Operation Total Mineral Resources, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t Au)	Ag Grade (g/t Ag)	Au Contained Ounces (koz Au)	Ag Contained Ounces (koz Ag)
Measured	9,609	1.90	8.5	587	2,620
Indicated	61,408	0.89	6.8	1,764	13,351
Total Measured and Indicated	*70,016*	1.03	7.0	*2,351*	*15,972*
Inferred	239,180	0.84	6.0	6,490	46,470

Notes to Accompany Mineral Resource Table

1. Mineral resources are exclusive of mineral reserves and do not include dilution;
2. Mineral resources that are not mineral reserves do not have demonstrated economic viability;
3. Mineral resource estimates potentially amenable to open pit mining methods were prepared by Mr M. Hester, F.AusIMM, an employee of International Mining Consultants. Mineral resource estimates potentially amenable to underground mining methods were prepared by Mr Luis Oviedo, RM CMC, an NCL employee. Estimates were reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimate;
4. Mineral resources are reported to a gold price of US$1,500/oz and a silver price of US$27/oz;
5. Mineral resources potentially amenable to open pit mining methods use a mining cost of $97.99, process cost of $2.415, process recovery of 72%, and a refining cost of $3.26/oz. Mineral resources potentially amenable to underground mining use a mining cost of $97.99, process cost of $2.415, process recovery of 72%, and a refining cost of $3.26/oz;
6. Mineral resources potentially amenable to open pit mining methods are reported to variable gold cut-off grades of 0.2 g/t Au for mineralization from El Bermejal and Guadalupe, and 0.22 g/t Au to 0.5 g/t Au for mineralization from Los Filos, 4P, and Aguita. Mineral resources potentially amenable to underground mining are reported to a gold cut-off grade of 2.94 g/t Au;
7. Tonnages are rounded to the nearest 1,000 tonnes, grades are rounded to two decimal places for Au, grades for Ag are rounded to one decimal place; rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. Tonnage and grade measurements are in metric units. Gold and silver contained ounces are reported as troy ounces.

14.12 Factors That May Affect the Mineral Resource Estimate

Factors which may affect the geological models, the conceptual pit shells, or the underground mining assumptions, and therefore the Mineral Resource estimates include:

- Gold and silver price assumptions;
- Changes in interpretations of lithological or geometallurgical domains;
- Changes in interpretations of structural boundaries;
- Pit slope angles and geotechnical assumptions supporting underground stope designs;
- Changes to the assumptions used to generate the gold cut-off grades for resource declaration;

- Changes to the search orientations, search ellipse ranges, and numbers of octants used for grade estimation;
- Review of the Measured classification criteria used at Los Filos
- The mining operation encounters more fresh sulphide material during mining operations than has been accounted for in the block models. This material, although it may have potentially economic gold grades, would be sent to waste rather than process.

14.13 Comments on Mineral Resource Estimates

The QP is of the opinion that the Mineral Resources for the Project, which have been estimated using core and RC drill data and channel sampling data, have been performed to industry best practices, and conform to the requirements of CIM (2010).

On review of blast hole and ore control data from the Project open pits, IMC noted:

- Recent reconciliation results for Los Filos have shown variances between the long-range block model and the ore-control model on a bench by bench basis. During future model updates, the kriging variance and drill spacing for block classification should be reviewed and modified if appropriate;
- Primary sulphide mineralization was encountered in the Los Filos pit during 2012 mining, and resulted in a reduction of material being sent to the crush–leach pad. Some sulphide material, grading over 1 g/t Au, was sent to the pad, and may result in slightly lower leach recoveries than planned. The next model update should quantify where the sulphides are located in the block model based on blast hole information, and assess the impact on the Mineral Resource, then address what, if any, changes to the mine plan will be required to deal with the sulphide material.

15.0 MINERAL RESERVE ESTIMATES

15.1 Basis of Estimates

Mineral Reserves were estimated using metal prices of US$1,350/oz gold and US$24/oz silver, which are the official Goldcorp Mineral Reserve prices at year-end 2012.

Open Pit Mineral Reserve estimates were prepared by Mr Michael Hester, F.AusIMM of IMC with the support of Goldcorp staff. Mineral Reserves are based on material that has been classified as Measured and Indicated Mineral Resources. Topography used to constrain the estimates is based on topography provided to IMC during November 2012 that was a projection of the December year-end-2012 topography.

Underground Mineral Reserve estimates were prepared by Mr Carlos Guzman, FAusIMM and CMC, of NCL, with the support of Goldcorp staff. Mineral Reserves are based on material that has been classified as Measured and Indicated Mineral Resources. Solids models of underground workings were provided to NCL by Goldcorp at 30 November 2012.

Models and estimates were reviewed by Ms Maryse Belanger, P.Geo., of Goldcorp, who is the QP for the estimates.

15.1.1 Dilution

No allocation (0%) is made for dilution within the open pit Mineral Reserve estimate. In the underground estimate, approximately 10% dilution (0.85 m) is added. Dilution is assigned an overall average gold grade of 1 g/t Au and 5 g/t Ag.

15.1.2 Parameters Used to Constrain Mineral Reserves Mined by Open Pit Methods

A nominal mining rate of 82 Mt/a, smoothed for truck requirements, is required to provide the nominal 24 Mt/a of oxide feed to the leach pads. It was assumed that the swell factor would be 32% and the moisture content 6%.

The Los Filos and 4P mining, processing, and G&A costs were developed by Goldcorp personnel and are based on budget 2013 estimates. Recovery estimates by rock type are the same as was used for the Feasibility Study. The overall waste:ore ratio is estimated at 4.2:1.

The El Bermejal and Guadalupe mining, processing, and G&A costs were developed by Goldcorp personnel and are based on budget 2013 estimates. Recovery estimates by rock type are the same as was used for the Feasibility Study. The intrusive sills are a new ore type. IMC used 55% for the ROM recovery for the sills, similar to Los Filos ROM ore for moderately altered intrusive ore. The amount of this ore type in the current mineral reserve is quite small. The overall waste:ore ratio is estimated at 3.5:1.

Table 13-2 in Section 13 outlines the basis for the lithology types or geometallurgical domains used in the Mineral Reserve estimates. Table 15-1 summarizes the parameters used in constraining the Mineral Reserves at Los Filos/4P. Table 15-2 summarizes the parameters used in constraining the Mineral Reserves at El Bermejal/Guadalupe.

Table 15-3 summarizes the pit slope assumptions for the Los Filos open pit. At El Bermejal, the general angle and the inter-ramp angle are both 45º, and the bench face angle is 65º.

15.1.3 Parameters Used to Constrain Mineral Reserves Mined by Underground Methods

The parameters used to support the Mineral Reserve estimates for the underground operation are shown in Table 15-6. The break-even cut-off grade for Mineral Reserves amenable to underground mining methods was established using the equation:

Cut-off grade = operating cost - selling cost x metallurgical recovery

Mineral Reserves must meet a minimum gold cut-off grade of 3.6 g/t Au. In addition to the cut-off grade, the following considerations were incorporated in cut-and-fill stope designs:

- Minimum horizontal continuity of 10 m, and minimum mining width of 1 m;
- 3 m sill pillars;
- 3 m artificial sill pillars when approaching development or other working accesses;
- Dilution skin assumption of 0.85 m for each stope; diluted material is assigned a grade of 1 g/t Au and 5 g/t Ag.

In addition, mining recovery assumptions were assigned to the stope sizes, depending on stope width, see Table 15-5. Once estimated, the Mineral Reserves were trimmed to remove areas of current workings.

Table 15-1: Assumptions Used in LG Shell to Constrain Los Filos and 4P Mineral Resource Estimates

Item	Area	Units	Crush-Leach			Run-of-Mine			Waste
			Ia	Ib	II, III, IV	Ia	Ib	II, III, IV	
Commodity Prices	Gold	US$/oz	1,350	1,350	1,350	1,350	1,350	1,350	—
	Silver	US$/oz	24	24	24	24	24	24	—
Mining Cost Per Tonne		US$/t mined	1.610	1.610	1.610	1.888	1.888	1.888	1.375
Process Costs	Base Processing Cost	US$/t processed	4.462	4.462	4.462	2.047	2.047	2.047	—
	Sustaining Capital	US$/t processed	0.323	0.323	0.323	0.323	0.323	0.323	—
	Total Process Cost	US$/t mineralization processed	4.785	4.785	4.785	2.370	2.370	2.370	—
	G&A Cost	US$/t mineralization processed	1.673	1.673	1.673	1.673	1.673	1.673	—
Recovery	Gold	%	77.0	72.0	64.0	59.0	55.0	49.0	—
	Silver	%	5	5	5	5	5	5	—
Refining	Gold	US$	3.26	3.26	3.26	3.26	3.26	3.26	—
	Silver	US$	0	0	0	0	0	0	—
Calculated Gold Cut-off Grades	Breakeven	g/t	0.24	0.26	0.29	0.23	0.25	0.28	—
	Internal	g/t	0.20	0.21	0.24	0.18	0.19	0.21	
	Crush-Leach/ROM Balancing Cut-off	g/t	0.27	0.29	0.33	—	—	—	—
Operational Gold Cut-off Grades		g/t	0.5	0.5	0.5	0.22	0.22	0.22	—

Table 15-2: Assumptions Used in LG Shell to Constrain El Bermejal and Guadalupe Mineral Reserve Estimates

Item	Area	Units	Oxide	Intrusive Sills	Intrusive	Carbonate	Waste
Commodity Prices	Gold	US$/oz	1,350	1,350	1,350	1,350	—
	Silver	US$/oz	24	24	24	24	—
Mining Cost Per Tonne		US$/t mined	1.239	1.239	1.239	1.239	1.498
Process Costs	Base Processing Cost	US$/t processed	2.047	2.047	2.047	2.047	—
	Sustaining Capital	US$/t processed	0.323	0.323	0.323	0.323	—
	Total Process Cost	US$/t mineralization processed	2.370	2.370	2.370	2.370	—
	G&A Cost	US$/t mineralization processed	1.673	1.673	1.673	1.673	—
Recovery	Gold	%	73.0	55.0	50.0	53.0	—
	Silver	%	5	5	5	5	—
Refining	Gold	US$	3.26	3.26	3.26	3.26	—
	Silver	US$	0	0	0	0	—
Calculated Gold Cut-off Grades	Breakeven	g/t	0.17	0.22	0.24	0.23	—
	Internal	g/t	0.12	0.16	0.17	0.16	—
Operational Gold Cut-off Grades		g/t	0.2	0.2	0.2	0.2	—

Table 15-3: Pit Slope Assumptions, Los Filos/4P Open Pit

Lithology	Bench Face Angle (º)	Inter-ramp Angle (º)
Granodiorite (east wall)	60	45
Granodiorite (west wall)	65	45
Limestone	70	51

Table 15-4: Assumptions Used to Constrain Los Filos Underground Mineral Reserve Estimates

Item	Area	Units	Value
Commodity Prices	Gold Mineral Reserves	US$/oz	1,350
	Silver Mineral Reserves	US$/oz	24
Mining Cost Per Tonne		US$/t mined	97.48
Process Costs	Includes refining costs	US$/t processed	4.462
General and Administrative Costs		US$/t mined	0.51
Recovery	Gold	%	72
	Silver	%	5
Dilution		%	10

Table 15-5: Mining Recovery Assumptions

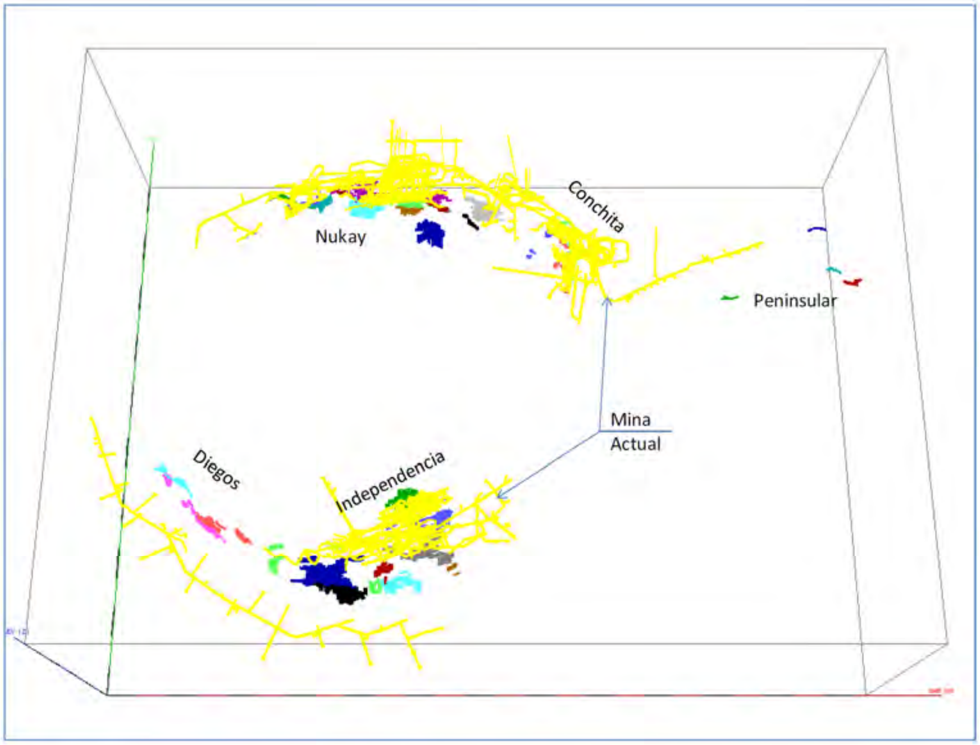
Stope Width (m)	Mining Recovery Assumption (%)
0–6	100
6–8	80
8–10	80
10–15	80
15–30	75

Figure 15-1 shows the relationship between the current operations and the remaining unexploited Mineral Reserves by zone. A total of 34 stopes were planned. Figure 15-2 to Figure 15-5 show the layout of the mine workings in relation to the Mineral Reserve panels.

15.1.4 Stockpiles

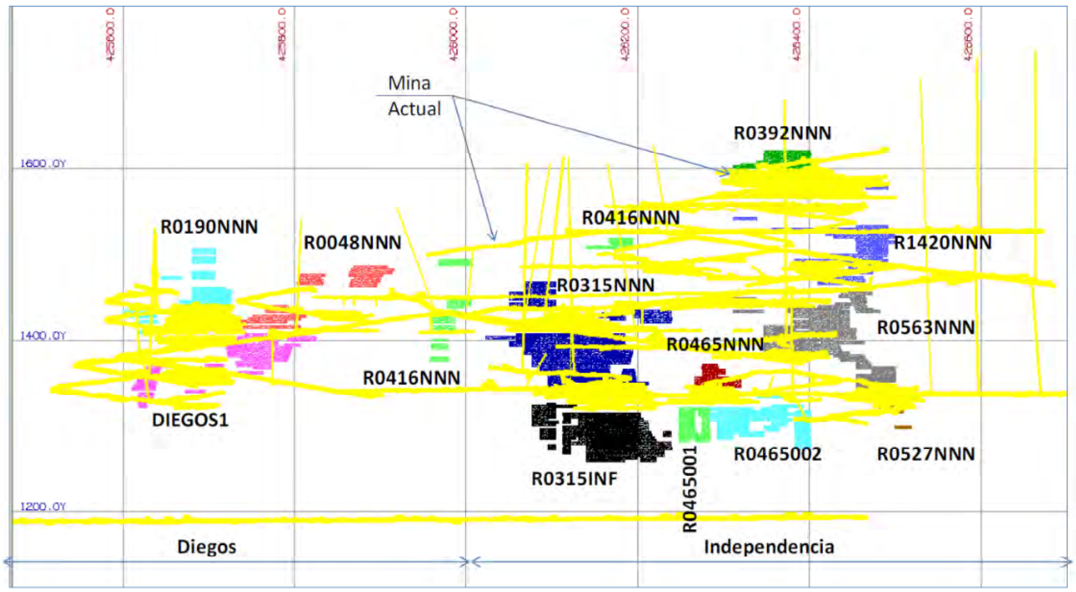
There are no current ore stockpiles.

Figure 15-1: Schematic Plan of Los Filos Underground Mineral Reserves by Zone and Workings



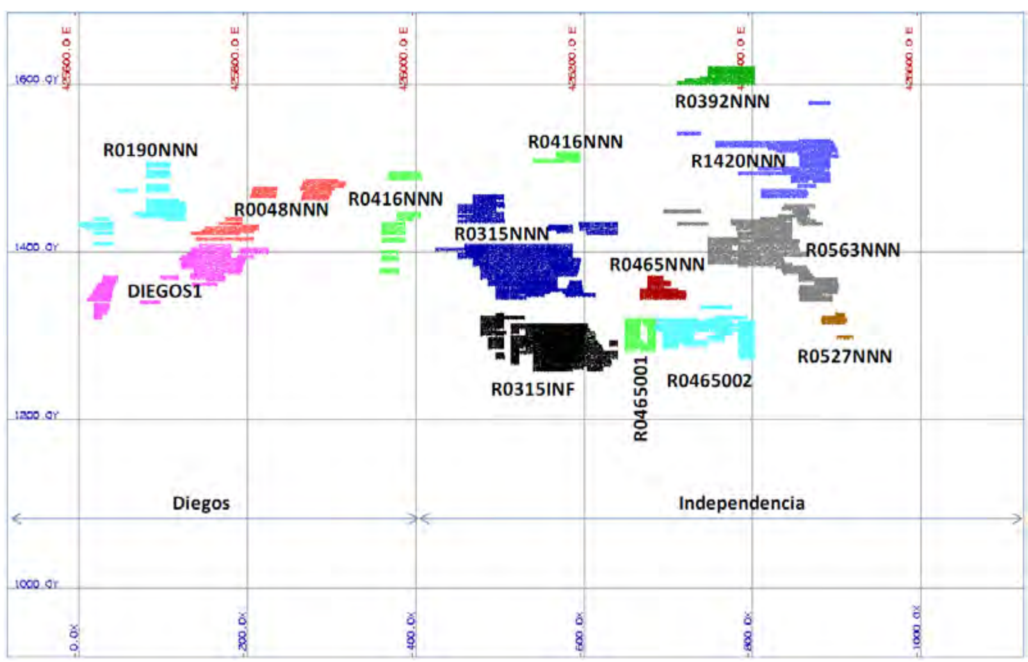
Note: Figure prepared by NCL, 2013.

Figure 15-2: Mine Design and Reserves Layout, Los Filos Underground South (Diego–Independencia)



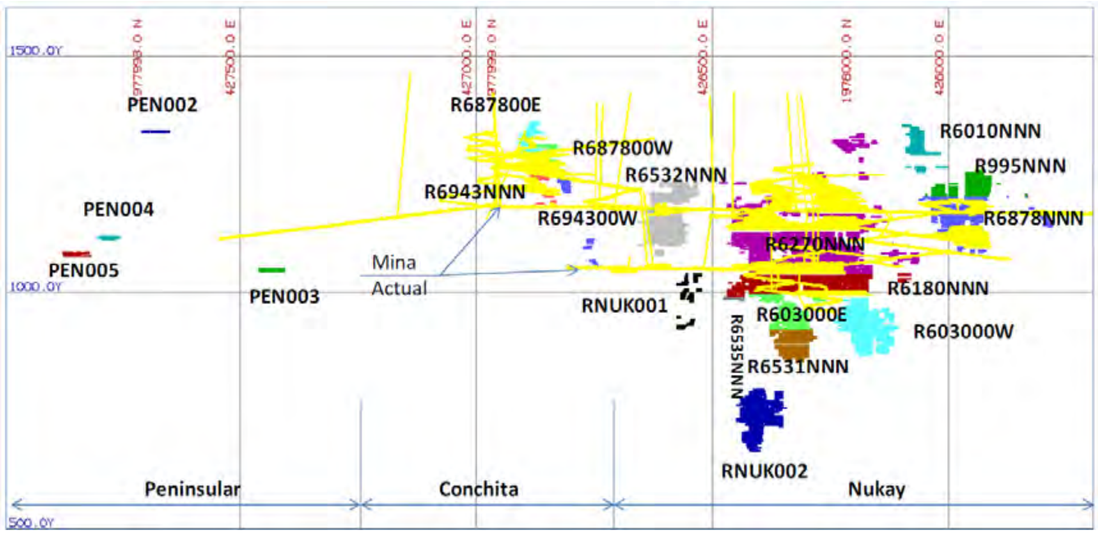
Note: Figure prepared by NCL, 2013

Figure 15-3: Reserves Layout, Los Filos Underground South (Diego–Independencia)



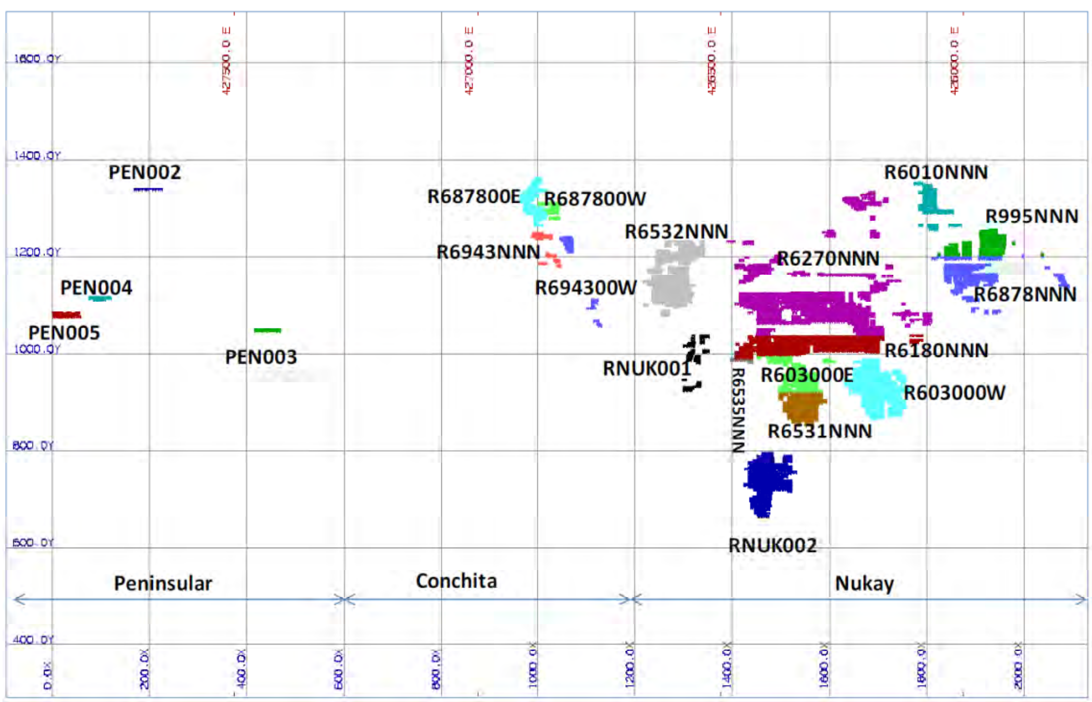
Note: Figure prepared by NCL, 2013

Figure 15-4: Mine Design and Reserves Layout, Los Filos Underground North (Peninsula–Conchita–Nukay)



Note: Figure prepared by NCL, 2013

Figure 15-5: Reserves Layout, Los Filos Underground North (Peninsula–Conchita–Nukay)



Note: Figure prepared by NCL, 2013

15.2 Mineral Reserves Statement

Mineral Reserves for the Los Filos Project included only mineralization classified as Measured and Indicated Mineral Resources. Mineral Reserves are estimated using a US$1,350/oz gold price, a US$24/oz silver price and an economic function that includes variable operating costs and metallurgical recoveries. 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.

The effective date for the Mineral Reserves is 31 December, 2012. The QP is Ms Maryse Belanger P.Geo.

Mineral Reserves amenable to open pit mining are presented in Table 15-6, Table 15-7 and Table 15-8. Mineral Reserves amenable to underground mining are presented in Table 15-9 and Table 15-10.

A summary of all Mineral Reserves is included as Table 15-11.

15.3 Factors That May Affect the Mineral Reserve Estimate

Factors which may affect the Mineral Reserve estimates include:

- Metal prices;
- Mining and metallurgical recovery assumptions;
- Presence of unexpected quantities of sulphide minerals encountered in the open pits that may require the mineralization being sent to waste rather than to the heap leach;
- Geotechnical characteristics of the rock mass;
- Effectiveness of the underground dilution assumptions;
- Ability of the mining operation to meet the planned annual throughput rate assumptions for the process plant;
- Capital and operating cost estimates.

Table 15-6: Mineral Reserve Statement, Los Filos Project Open Pits Total, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	71,433	0.84	5.0	1,933.1	11,522
Stockpile(s)	—	—	—	—	—
Probable	222,592	0.68	5.5	4,860.6	39,019
Total Proven and Probable	*294,025*	*0.72*	*5.3*	*6,793.7*	*50,541*

Table 15-7: Mineral Reserve Statement, Los Filos Open Pit, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Ore Type	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	Crush–Leach	27,844	1.40	5.39	1,250.6	4,825
	ROM	26,964	0.331	2.89	287.0	2,505
	Total Proven	*54,808*	*0.873*	*4.16*	*1,537.6*	*7,331*
Probable	Crush–Leach	43,052	1.105	5.79	1,529.5	8,014
	ROM	59,971	0.326	3.24	628.6	6,247
	Total Probable	*103,023*	*0.652*	*4.31*	*2,158.1*	*14,262*
Total Proven and Probable	Crush–Leach	70,896	1.220	5.63	2,780.1	12,840
	ROM	86,935	0.328	3.13	915.5	8,753
	Total Proven and Probable	*157,831*	*0.728*	*4.26*	*3,695.7*	*21,592*

Table 15-8: Mineral Reserve Statement, El Bermejal Open Pit, Effective Date 31 December 2012, M Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	16,625	0.740	7.84	395.5	4,191
Probable	119,569	0.703	6.44	2,702.5	24,757
Total Proven and Probable	*136,194*	*0.708*	*6.61*	*3,098.1*	*28,948*

Notes to Accompany Open Pit Mineral Reserve Tables:

1. Mineral Reserve estimates were prepared by Mr Michael Hester, F.AusIMM, an IMC employee, and reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimates;
2. Mineral Reserves are contained within Measured and Indicated pit designs, and supported by a mine plan, featuring variable throughput rates depending on the pit being mined, variable metallurgical recoveries depending on geometallurgical domain, and cut-off optimization.
3. Mineralization reported for Los Filos includes the mineralization within the planned 4P pit extension. Mineralization reported for El Bermejal includes the mineralization within the planned Guadalupe pit extension.
4. Metal price assumptions were $1,350/oz for Au, $24/oz for Ag.
5. The Los Filos crush-leach ore is based on an operational 0.5 g/t Au cut-off grade, ROM ore is based on a variable 0.22 to 0.5 g/t Au operational cut-off grade that is determined by lithology. The El Bermejal Mineral Reserve is based on a 0.2 g/t Au operational ROM cut-off grade.
6. Process gold recoveries vary from 64–77% for crush-leach ore and from 49–59% for ROM ore at Los Filos; recoveries at El Bermejal vary from 53–73%. A 5% silver recovery is assumed from all geometallurgical domains.
7. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content
8. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces

Table 15-9: Mineral Reserve Statement, Los Filos Project Underground Total, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	1,179	8.37	21.1	317	802
Probable	1,507	6.51	24.6	315	1,193
Total Proven and Probable	2,687	7.33	23.1	633	1,194

Table 15-10: Mineral Reserve Statement, Los Filos Project Underground by Zone, Effective Date 31 December 2012, M. Belanger, P.Geo.

Classification	Zone	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	Independencia	429	9.25	29.7	128	409
	Diegos	84	2.11	6.9	14	18
	Nukay	577	7.81	17.7	145	329
	Conchita	84	11.32	15.9	31	43
	Peninsula	6	3.50	13.0	1	3
Subtotal Proven		1,179	8.37	21.1	317	802
Probable	Independencia	578	7.82	28.2	145	524
	Diegos	114	5.42	7.5	20	27
	Nukay	765	5.65	25.1	139	616
	Conchita	39	8.08	16.4	10	21
	Peninsula	11	3.11	11.4	1	4
Subtotal Probable		1,507	6.51	24.6	315	1,193
Total Proven and Probable		2,686	7.32	23.1	632	1,994

Notes to Accompany Underground Mineral Reserve Tables:

1. Mineral Reserve estimates were prepared by Mr Carlos Guzman, F.AusIMM and CMC, an NCL employee, and reviewed by Ms Maryse Belanger, P.Geo., who is the Qualified Person for the estimate;
2. Mineral Reserves are contained within stope designs that have a minimum horizontal continuity of 10 m, and minimum mining width of 1 m, and supported by a mine plan that features variable stope thicknesses depending on zone; and cut-off optimization;
3. Metal price assumptions were $1,350 for Au, $24/oz for Ag;
4. Mineral Reserves are reported based on a cut-off grade of 3.64 g/t Au;
5. Dilution is assigned an average grade of 1 g/t Au and 5 g/t Ag and assumed to be 0.85 m thickness on average;
6. Mining recovery is variable, based on stope width, and can range from 75–100%;
7. Process gold recoveries are estimated at 72%. A 5% silver recovery is assumed from all zones;
8. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
9. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces.

Table 15-11: Mineral Reserve Statement, Total Los Filos Operation, Effective Date 31 December 2012, M. Belanger, P.Geo

Classification	Tonnes (kt)	Au Grade (g/t)	Ag Grade (g/t)	Au Contained Ounces (koz)	Ag Contained Ounces (koz)
Proven	72,613	0.96	5.3	2,251	12,324
Probable	224,099	0.72	5.6	5,176	40,212
Total Proven and Probable	296,712	0.78	5.5	7,427	52,535

Notes to Accompany Mineral Reserve Table:

1. Mineral Reserves amenable to open pit mining were estimated by Mr Michael Hester, F.AusIMM, an IMC employee. Mineral Reserves amenable to underground mining were estimated by Mr Carlos Guzman, FAusIMM and RM CMC, an NCL employee. Estimates were reviewed by Ms Maryse Belanger, P.Geo, who is the Qualified Person for the estimate;
2. Mineral Reserves amenable to open pit mining are contained within Measured and Indicated pit designs, and supported by a mine plan, featuring variable throughput rates depending on the pit being mined, variable metallurgical recoveries depending on geometallurgical domain, and cut-off optimization.
3. Mineral Reserves amenable to underground mining are contained within stope designs that have a minimum horizontal continuity of 10 m, and minimum mining width of 1 m, and supported by a mine plan that features variable stope thicknesses depending on zone; and cut-off optimization;
4. Metal price assumptions were $1,350 for Au, $24/oz for Ag;
5. The Los Filos crush-leach ore is based on an operational 0.5 g/t Au cut-off grade, ROM ore is based on a variable 0.22 to 0.5 g/t Au operational cut-off grade that is determined by lithology. The El Bermejal Mineral Reserve is based on a 0.2 g/t Au operational ROM cut-off grade
6. Mineral Reserves amenable to underground mining are reported based on a cut-off grade of 3.64 g/t Au;
7. Dilution in Mineral Reserves amenable to underground mining is assigned an average grade of 1 g/t Au and 5 g/t Ag and assumed to be 0.85 m thickness on average;
8. Mining recovery in Mineral Reserves amenable to underground mining is variable, based on stope width and can range from 75–100%;
9. Process gold recoveries for Mineral Reserves amenable to open pit mining vary from 64–77% for crush-leach ore and from 49–59% for ROM ore at Los Filos; recoveries at El Bermejal vary from 53–73%. A 5% silver recovery is assumed from all geometallurgical domains
10. Process gold recoveries for Mineral Reserves amenable to underground mining are estimated at 72%. A 5% silver recovery is assumed from all zones;
11. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
12. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces.

15.4 Comments on Mineral Reserve Estimates

The QP is of the opinion that the Mineral Reserves for the Project, which have been estimated using core, RC and channel sample drill data, appropriately consider modifying factors, have been estimated using industry best practices, and conform to the requirements of CIM (2010).

16.0 MINING METHODS

16.1 Production History

Mining at the current production rate commenced at the Project in 2007. Open pit production since 2005, which includes production prior to the current mine plan, is detailed in Table 16-1. Production from underground sources is included as Table 16-2.

16.2 Open Pit Mine Methods

16.2.1 Pit Designs

The pit design assumes development of a number of pit phases as indicated in Table 16-3 and Figure 16-1 (Los Filos) and Table 16-4 and Figure 16-2 (El Bermejal). The schedule is preliminary and is subject to change. Mining operations at future mining phases are currently planned to use the same pit configurations and the same equipment as is currently in use.

Mine design assumptions include:

- Haul road width Los Filos: 25 m;
- Haul road width El Bermejal: 27 m;
- Haul road grade: 10%;
- Mining bench height: 12 m in waste; 6 m in ore;
- Nominal minimum mining phase width: 100 m.

16.2.2 Mining Method

Once the Environmental Department authorizes the release of land for mining activities, clearing, pre-stripping and stripping activities are undertaken to level the land surface ahead of drilling.

Drill patterns are laid out by the Mine Planning Department, after consideration of factors such as structural geology, lithology, rock hardness, fragmentation, drill rig diameter, explosive to be used, and whether the material being drilled is classified as ore or waste. The drill pattern sizing can range from 4.5 x 5.0 m to 6 x 7 m.

Table 16-1: Open Pit Production Record 2005–2012

Year	Ore Produced (t)	Au Grade (g/t Au)	Waste (t)	Strip Ratio (waste to ore)
2005	79,968	0.777	3,682,223	46.05
2006	1,435,230	0.377	30,561,665	21.29
2007	8,383,675	0.636	26,816,273	3.20
2008	22,109,446	0.615	22,555,972	1.02
2009	24,984,922	0.607	28,655,310	1.15
2010	27,484,169	0.616	31,644,789	1.15
2011	26,271,849	0.675	39,663,262	1.51
2012	29,328,604	0.622	41,172,715	1.40

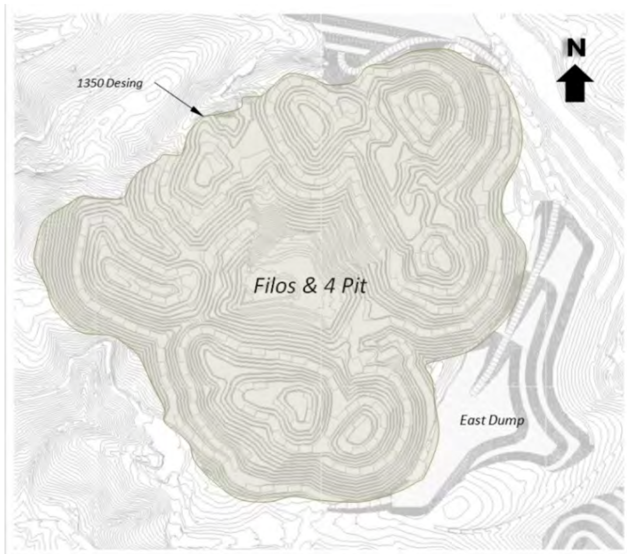
Table 16-2: Underground Production Record 2008–2012

Year	Ore Produced (t)	Au Grade (g/t Au)
2008	60,000	6.69
2009	109,000	5.83
2010	266000	6.25
2011	308000	6.14
2012	315,000	6.83
Total	**1,058,000**	6.37

Table 16-3: Los Filos Pit Design Phases by Year

Deposit	Year Production Commences
Filos Phase I	2012
Filos Phase II	2013
Filos Phase III a	2014
Filos Phase III b	2015
Filos Phase IV a	2015
Filos Phase IV b	2017
Filos Phase Sur I	2022
Filos Phase Sur II	2023
Aguita	2012
Pit 01	2015
Pit 02	2020

Figure 16-1: Final Pit Design, Los Filos–4P ($1,350 Au Pit)

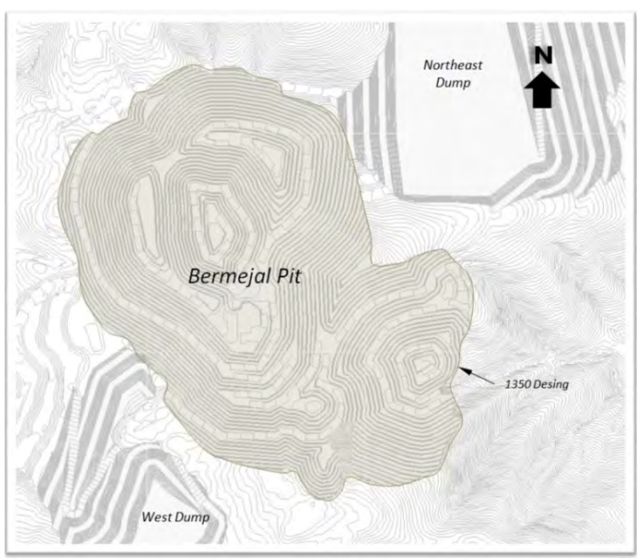


Note: Figure prepared by IMC, 2012

Table 16-4: El Bermejal Pit Design Phases by Year

Deposit	Year Production Commences
Bermejal Phase I	2012
Bermejal Phase II a	2013
Bermejal Phase II b	2014
Bermejal Phase III	2015

Figure 16-2: Final Pit Design, El Bermejal–Guadalupe ($1,350 Au Pit)



Note: Figure prepared by IMC, 2012

Drilling is completed using one of three Atlas Copco drill rigs. At Los Filos the production benches have a height of 6 m. On occasion, benches can be 12 m high in waste areas. For slope control, safety berms are constructed for each 18 m of bench height.

Blasting is undertaken by a contract blasting firm, Dufil, using ANFO. When setting up the ANFO mixture, consideration is paid to the structural geology, free-facing of the blast, material hardness, slope and vibration control, and the drill pattern being used.

Blast holes are sampled by Geology Department personnel, and sent to the mine laboratory for grade control analysis using AA methods. Analytical data are then sent to the Ore Control Department to allow delineation of waste and ore polygons.

The pit is then marked out as to:

- Waste: < 0.20 g/t Au and marked out in blue; waste is sent to one of the waste rock piles;
- ROM ore: >0.20 g/t–0.50 g/t and marked out in green; material is sent to the ROM heap leach pad;
- Crush–leach ore: >0.50 g/t and marked out in orange; material is sent to the crush pad;
- Material that has no assay result is marked in white.

Loading of blasted ore is by Hitachi EX 2500 model hydraulic excavators with a bucket capacity of 22 t, Caterpillar 992 front loaders with a bucket capacity of 18 t and 994 loaders with a bucket capacity of 28 t. Material is loaded into Caterpillar off-road Model 777 (Los Filos) and Model 785 (Bermejal) haul trucks.

16.2.3 Life-of-Mine Production Schedule

The mine plan includes mineralization that has been classified as Inferred. For the purposes of the financial evaluation that supports Mineral Reserves, this material was set to waste.

The Inferred in the mine plan amounts to about 14% of the material within the designed pits and stopes. While there is a reasonable expectation that some or all of the Inferred Mineral Resources can be upgraded and classified as higher-confidence Mineral Resources with additional exploration and blast hole drilling programs, Goldcorp cautions that some or all of this Inferred mineralization may not be able to be converted to higher-confidence Mineral Resource categories or eventually to Mineral Reserves.

Based on the year-end 2012 Mineral Reserves, production from open pit sources is planned to continue to 2031 and production from underground sources to 2021. The planned life-of-mine production schedule for both open pit and underground sources is presented in Table 16-5.

As part of day-to-day operations, Goldcorp will continue to perform reviews of the mine plan and consideration of alternatives to and variations within the plan. Alternative scenarios and reviews can be based on ongoing or future mining considerations, evaluation of different potential input factors and assumptions, and corporate directives. As a result, the reviews may alter the actual mine plan from that presented in Table 16-5.

16.3 Underground Mining Operations

16.3.1 Description of Underground Operations

Cut-and-fill mining methods are used in the underground operations. Production is forecast at a nominal 300,000 t/d to 2016, then reduces to 72,000 t in the last year of currently-planned underground operations in 2021.

Figure 16-3 and Figure 16-4 provide schematic illustrations of a 5 m wide cut-and-fill stope, showing the layout of the stope design in relation to ventilation and the production decline.

Development is preferentially located in the limestone units. Waste materials from the mining operations are used as stope backfill. Current geotechnical support includes shotcrete, bolts and mesh.

Production is scheduled from three shifts per day, seven days per week. Underground mining equipment includes 10 jumbos, 17 scoop trams, four utilities, and four jumbo bolters.

Ventilation design has incorporated considerations of fresh air provision, removal of exhaust fumes and other gases, optimal operating conditions of 20–22ºC and 50–60% humidity. Six surface fans provide the air circulation system, with 29 fans installed underground to ensure appropriate circulation is met at the working faces.

Figure 16-5 and Figure 16-6 show the ventilation layout for the South (Nukay and Conchita) and North (La Subida and San Andres) zones.

Table 16-5: Life-of-mine Production Plan

	LOM Total	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Waste (t)	1,161,239,434	44,285,562	56,133,754	58,404,255	59,766,845	60,888,654	58,421,506	61,256,892	67,181,946	64,540,600	59,791,497	64,653,914	68,947,387	78,474,846	69,762,997	71,336,789	67,059,307	60,823,633	57,985,568	16,240,079	15,283,403
Ore Crush Leach (t)	121,853,744	3,861,182	3,917,725	6,537,304	6,515,797	6,505,040	6,479,632	6,504,316	6,527,811	6,500,425	6,486,737	6,513,339	6,464,496	3,527,451	6,499,697	6,463,712	6,483,927	6,546,535	6,474,126	6,539,583	6,504,908
Au (g/t)	1.281	1.652	1.831	1.509	1.702	1.717	1.349	1.464	1.146	1.181	1.196	1.274	1.378	0.561	1.115	0.642	0.811	1.210	1.468	1.464	0.985
Contained Au (oz)	5,019,044	205,055	230,646	317,154	356,480	359,188	281,042	306,150	240,562	246,735	249,473	266,868	286,406	63,572	233,020	133,461	169,046	254,653	305,596	307,877	206,061
Ag (g/t)	6.673	6.234	5.425	6.195	6.524	4.676	5.469	6.056	6.794	6.535	6.929	8.958	9.527	7.517	6.969	6.319	5.710	4.830	6.805	9.205	6.501
Contained Ag (oz)	26,143,059	773,899	683,331	1,301,978	1,366,671	978,018	1,139,341	1,266,518	1,425,855	1,365,849	1,445,062	1,875,928	1,980,114	852,523	1,456,411	1,313,194	1,190,336	1,016,575	1,416,529	1,935,273	1,359,655
Ore ROM	239,053,787	24,477,971	20,936,596	17,448,485	16,188,042	14,682,133	17,156,769	14,364,019	8,453,729	11,004,949	15,798,237	10,832,508	6,668,855	9,659	6,033,718	4,201,191	8,483,992	15,099,926	17,263,747	9,724,679	224,582
Au g/t	0.419	0.509	0.575	0.415	0.413	0.397	0.365	0.372	0.381	0.386	0.374	0.347	0.328	0.288	0.375	0.412	0.408	0.401	0.426	0.402	0.356
Contained Au oz	3,216,816	400,594	386,968	232,610	215,017	187,273	201,448	171,694	103,616	136,701	190,042	120,984	70,336	89	72,825	55,707	111,164	194,813	236,596	125,765	2,574
Ag g/t	4.630	5.995	5.260	4.695	4.709	3.614	3.188	3.370	3.771	4.372	4.947	5.483	5.616	1.664	4.390	5.544	4.748	4.497	4.085	5.266	3.983
Contained Ag oz	35,584,443	4,717,962	3,540,742	2,633,886	2,450,982	1,705,982	1,758,731	1,556,273	1,024,848	1,546,757	2,512,692	1,909,651	1,204,088	517	851,612	748,863	1,295,048	2,183,194	2,267,334	1,646,527	28,756
Total Ore	360,907,531	28,339,153	24,854,321	23,985,789	22,703,839	21,187,173	23,636,401	20,868,335	14,981,540	17,505,374	22,284,974	17,345,847	13,133,351	3,537,110	12,533,415	10,664,903	14,967,919	21,646,461	23,737,873	16,264,262	6,729,490
Au g/t	0.710	0.665	0.773	0.713	0.783	0.802	0.635	0.712	0.715	0.681	0.613	0.695	0.845	0.560	0.759	0.552	0.582	0.646	0.710	0.829	0.964
Contained Au oz	8,235,861	605,649	617,614	549,764	571,497	546,461	482,490	477,844	344,178	383,436	439,515	387,852	356,742	63,661	305,845	189,168	280,210	449,466	542,192	433,642	208,634
Ag g/t	5.320	6.028	5.286	5.104	5.230	3.940	3.814	4.207	5.088	5.175	5.524	6.788	7.541	7.501	5.728	6.014	5.165	4.598	4.827	6.850	6.417
Contained Ag oz	61,727,502	5,491,861	4,224,074	3,935,864	3,817,653	2,684,000	2,898,072	2,822,791	2,450,702	2,912,606	3,957,754	3,785,579	3,184,201	853,040	2,308,023	2,062,057	2,485,384	3,199,769	3,683,863	3,581,800	1,388,411

Figure 16-3: Schematic Plan of Mine Working Face (5 m stope)

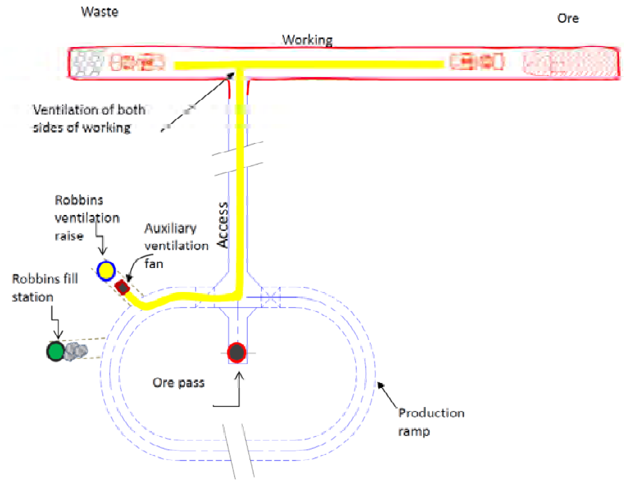


Figure 16-4: Schematic Plan of Mine Operations (5 m stope)

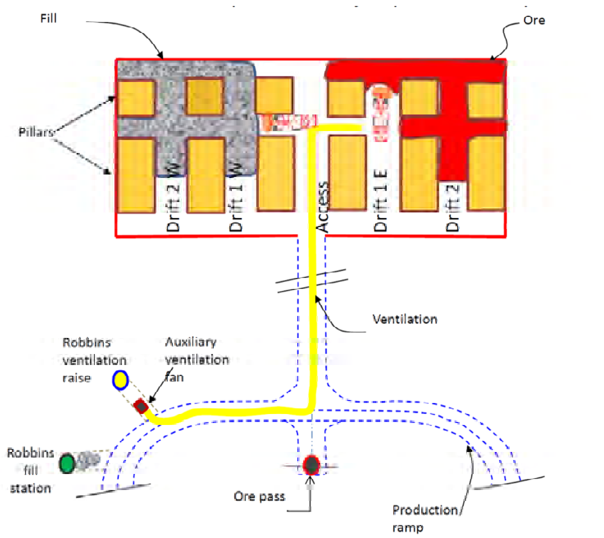


Figure 16-5: Ventilation Plan Cross Section, South Zone

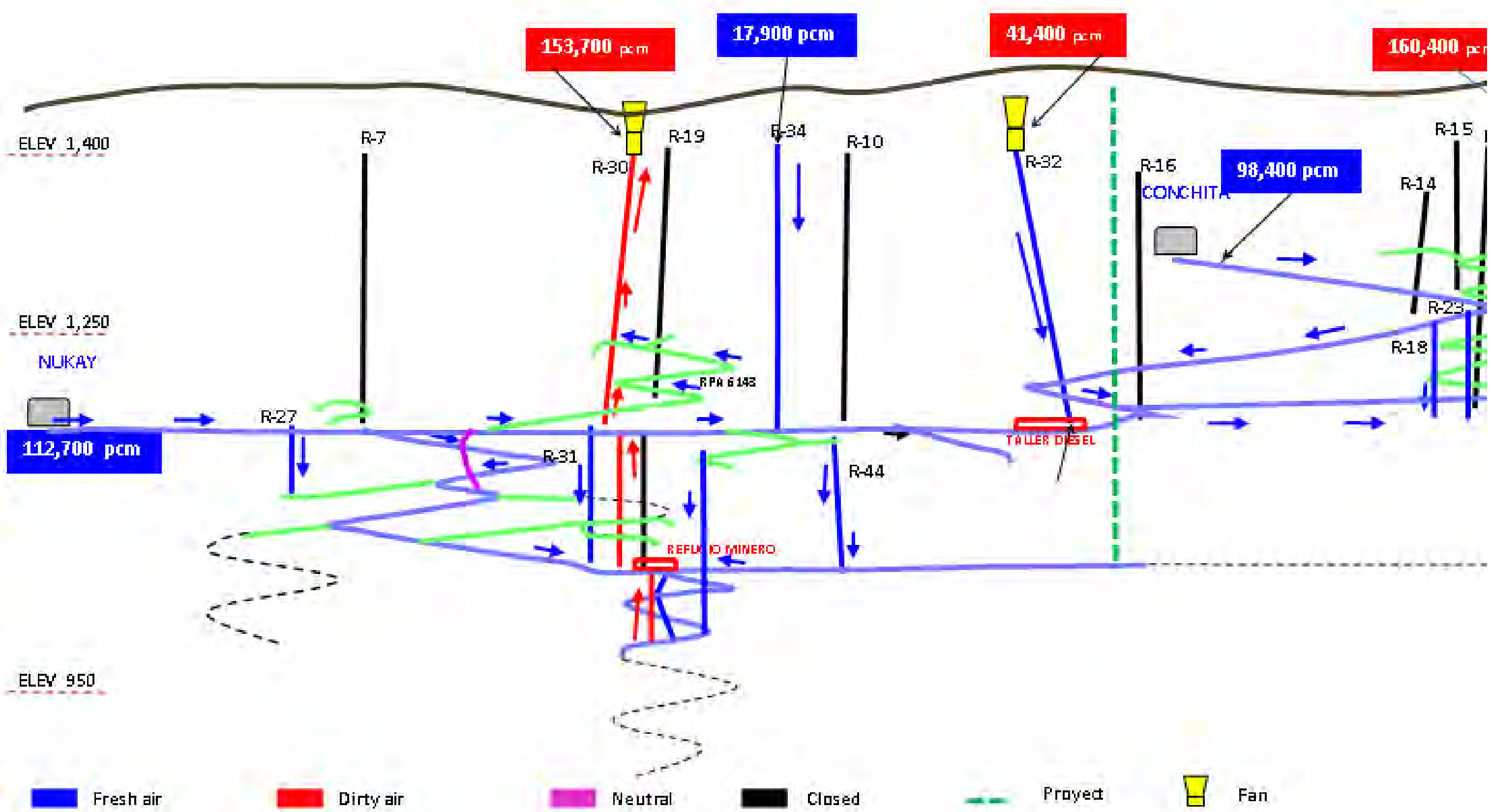
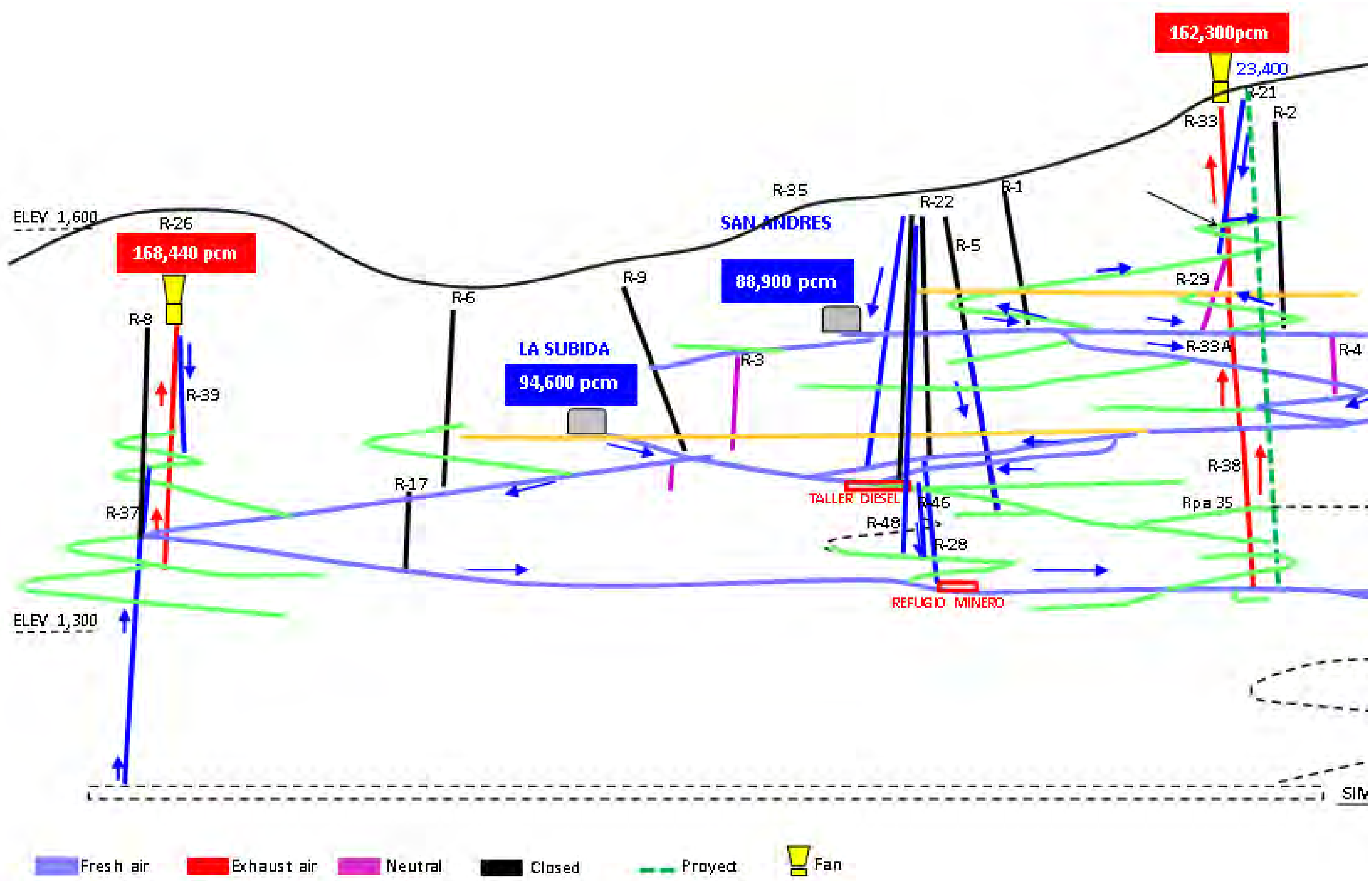


Figure 16-6: Ventilation Plan Cross Section, North Zone



16.3.2 Life-of-Mine Production Schedule

Underground mining operations are currently scheduled to continue until 2021. The planned life-of-mine production schedule was included in Table 16-5. As part of day-to-day operations, Goldcorp will continue to perform reviews of the mine plan and consideration of alternatives to and variations within the plan. Alternative scenarios and reviews can be based on ongoing or future mining considerations, evaluation of different potential input factors and assumptions, and corporate directives. As a result, the reviews may alter the actual mine plan from that presented in Table 16-5.

16.4 Reconciliation and Depletion

Reconciliation between open pit production and deposit models was performed in 2012 on a monthly basis. Variances from the ore control model were <10% of the prediction from the block model.

16.5 Geotechnical

Open pit design for the Project uses defined geotechnical domains together with rock mass quality ratings for the principal lithology and appropriate pit design criteria that reflect expected conditions and risk. Geotechnical studies have been completed by external consultants and Goldcorp operations staff.

16.5.1 Los Filos

Table 15-3 in Section 15 summarizes the overall pit slope angles for the final Los Filos pit. The overall pit slope recommendations by area and by bench assumption are included in Table 16-6.

East Wall

CNI performed a review of the east wall of the Los Filos pit. Analytical stability analyses included overall slope stability analyses on critical areas of low rock-mass strength, and a bench-scale backbreak analysis, from which the expected distribution of bench face angles were developed. Based on investigations, CNI recommended an interramp slope design angle of 44º for the east slope at the Filos pit. By using interramp angles for design, the recommended slope angles were considered to be more suitable for long-term stability.

Table 16-6: Los Filos Pit, Slope Design

Design Sector	Slope Angle Recommended by	Double Benching (12 meter)			Triple Benching (18 meter)		
		Interramp Slope Angle	Mean Bench-Face Angle(deg)	Mean Catch-Bench Width (m)	Interramp Slope Angle	Mean Bench-Face Angle (deg)	Mean Catch-Bench Width (m)
Talud Poniente	CNJ-2010	35º	70	12.8	35º	70	19.2
Talud Poniente	CNJ-2010	36°	55	8.1	36º	47	8.0
Talud Poniente	CNJ-2010	43º	70	8.5	43º	70	12.8
Talud Oriente	CNI-2009	44º	70	8.1	44º	70	12.1
Sectores Golder	Golder-2005	48°	70	6.4	48º	70	9.7
Sectores Golder	Golder-2005	51°	72	5.8	51º	70	8.0

CNI recommended in addition that:

- As benches are developed in the Filos east slope, follow-up pit mapping is required to confirm fracture characteristics and whether the design parameters are being adhered to;
- Design changes should be anticipated as additional geotechnical data are collected;
- The slope monitoring system design that uses prisms and fixed bases should be regularly observed and checked.

West Wall

CNI also undertook a review of the west wall of the Los Filos pit. This area has a known instability that is related to a combination of unfavourable geological structures, and a low RQD altered rock mass, and is negatively influenced by high moisture content.

Based on investigations, CNI recommended:

- 36º in the waste dumps, as in the current design;
- 43º in the granodiorite away from the low RQD area;
- 35º in the low RQD zone;

CNI also stated that a surface water control system must be implemented to prevent water from entering the area because increased moisture content in the low RQD material will make the slope unstable.

16.5.2 4P

CNI performed a geotechnical evaluation of design slope angles for the final pit plan within the 4P sector of the Los Filos pit. This evaluation included the determination of optimum slope design angles and bench design parameters for the final Aguita, El Grande, Zona 70, and Creston Rojo pit plans.

Analytical stability analyses included overall slope stability analyses on critical areas of low rock-mass strength, and a bench-scale backbreak analysis, from which the expected distribution of bench face angles and reliability schedules were developed. The analyses relied on geotechnical data collected by the Los Filos geotechnical staff and a cell-mapping program conducted along existing surface outcrops. A total of 12 slope design sectors were delineated for the Aguita, El Grande, Zona 70, and Creston Rojo pit plans. The delineation was based primarily on wall orientation, rock mass quality, and geological/structural considerations. Final slope parameters are included in Table 16-7.

16.5.3 El Bermejal

The mining configuration at El Bermejal and Guadalupe requires a combined double-bench (12 m) and triple-bench (18 m) configuration. CNI noted during Feasibility Study evaluations that design interramp slope angles were dependent upon bench configurations being achieved safely, and at production heights. Double bench heights were considered achievable with moderate slope angles; triple bench heights were considered practicable with good operating practices. However, the use of triple bench heights carried some risk in areas of unfavourable ground because the design slope angles might not be able to be met.

An alternative for increasing design inter-ramp slope angles was to implement a hybrid double bench design. This involves alternating standard-width catch benches to provide adequate permanent protection against rockfall, with narrower catch benches developed with the sole purpose of providing temporary protection against rockfall during drilling and excavation of the benches immediately below the narrow catch bench.

Bench configurations and pit slope designs are summarized in Table 16-8 for the Feasibility Study design for double-benching, in Table 16-9 for the Feasibility Study design for triple benching and in Table 16-10 for the hybrid design recommendations.

The bench and slope design incorporates some allowance for structurally-controlled failures; however, the design aim was to minimize any impact from the failures on the mine plan. Potential structural control of slope angles was indicated for each pit design sector, except the south and southwest.

Table 16-7: Pit Slope Design Summary, 4P Zone

Pit	Design Sector	Recommended Interramp Slope Angle	Design Control	Comments
Aguita	A-1	35°	Overall slope stability	
	A-2	40°	Overall slope stability	Above 1348 m el.
	A-3	44°	Overall slope stability	
	A-4	40°	Overall slope stability	Above 1330 m el.
Creston Rojo	C-1	47°	Bench design	Above 1606 m el.
	C-2	44°	Bench design / rock mass quality	
	C-3	35°	Overall slope stability	
El Grande	G-1	44°	Bench design / rock mass quality	
	G-2	40°	Overall slope stability	
Zona 70	Z-1	47°	Bench design	Above 1534 m el.
	Z-2	44°	Bench design / rock mass quality	

Table 16-8: Double Bench Configuration Slope Designs, El Bermejal–Guadalupe

Pit Sector #	Area	Criteria	Wall DDR	Vertical Separation (m)	BFA (º)	Width (m)	IRA (°)
1	Northwest, Bermejal Norte	Perimeter Wall	045°-120°	12	65	6	46
		Interior Wall	270°-300°	12	65	6	46
2	North, Bermejal Norte	Perimeter Wall	160°-180°	12	65	6	46
		Interior Wall	340°-000°	12	65	6	46
3	Northeast, Bermejal Norte	Perimeter Wall	270°-300°	12	65	6	46
		Interior Wall	340°-000°	12	60	6	43
4	Southwest, Bermejal Sur	Perimeter Wall	055°-090°	12	70		
		Interior Wall	237º	12	60-65	7	47
5	South, Bermejal Sur	Perimeter Wall	000°	12	70		
		Interior Wall	180°	12	60-65	7	47
6	Southeast, Bermejal Sur	-	150°-315°	12	65	7	44

Table 16-9: Triple Bench Configuration Slope Designs, El Bermejal–Guadalupe

Pit Sector #	Area	Criteria	Wall DDR	Vertical Separation (m)	BFA (º)	Width (m)	IRA (º)
1	Northwest, Bermejal Norte	Perimeter Wall	045°-120°	18	65	7	49
		Interior Wall	270°-300°	18	65	7	49
2	North, Bermejal Norte	Perimeter Wall	160°-180°	18	65	7	49
		Interior Wall	340º-000°	18	65	7	49
3	Northeast, Bermejal Norte	Perimeter Wall	270°-300°	18	65	7	49
		Interior Wall	340º-000°	18	60	7	46
4	Southwest, Bermejal Sur	—	055°-090°	18	70	8	51
5	South, Bermejal Sur	—	000°	18	70	8	51
6	Southeast, Bermejal Sur	—	150°-315º	18	65	8	48

Table 16-10: Double Bench Hybrid Configuration Slope Designs, El Bermejal–Guadalupe

Pit Sector #	Area	Criteria	Wall DDR	Vertical Separation (m)	BFA (º)	Width (m)	IRA (º)
1	Northwest, Bermejal Norte	Perimeter Wall	045°-120°	12	65	3 + 6.5	49
		Interior Wall	270°-300°	12	65	3 + 6.5	49
2	North, Bermejal Norte	Perimeter Wall	160°-180°	12	65	3 + 6.5	49
		Interior Wall	340º-000°	12	65	3 + 6.5	49
3	Northeast, Bermejal Norte	Perimeter Wall	270°-300°	12	65	3 + 6.5	49
		Interior Wall	340º-000°	12	60	3 + 6.5	46
4	Southwest, Bermejal Sur	—	055°-090°	12	70	3 + 7.5	51
5	South, Bermejal Sur	—	000°	12	70	3 + 7.5	51
6	Southeast, Bermejal Sur	—	150°-315º	12	65	3 + 7.5	48

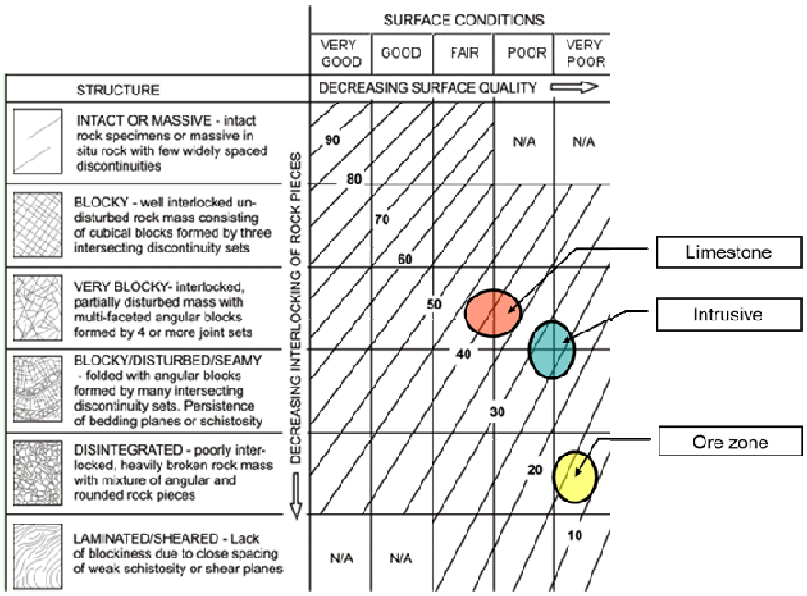
It was noted during the Feasibility Study that flatter slopes may be required during mining operations if unfavourable geotechnical conditions were encountered, or blasting and excavation practices were inadequate. Conversely, steeper slopes were considered to be possible if very favourable geotechnical conditions were documented and very good operating practices were demonstrated during the pit development phases.

16.5.4 Los Filos Underground

The underground rock mass has been divided into three geotechnical zones, based on Feasibility Study work completed by SRK Consultants. Figure 16-7 shows the geotechnical parameters typical of each domain. Figure 16-8 summarizes the typical ground support requirements.

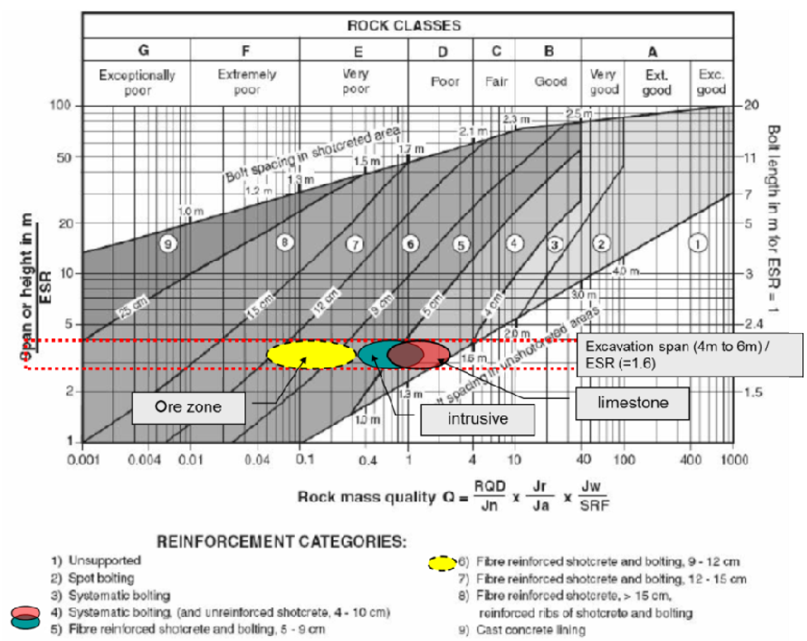
The majority of instability issues noted in mining to date are along the contacts between the limestone and oxide domains, and the oxide and granodiorite domains.

Figure 16-7: Los Filos Underground Geotechnical Ratings



Note: Figure from SRK 2008

Figure 16-8: Los Filos Underground Typical Ground Support



Note: Figure from SRK 2008

Limestone

All ramp development, access development and exploration drives are undertaken in the limestone units. Opening widths are restricted to no more than 6 m for stability reasons.

The limestone lithologies typically have a fair to poor rock quality rating and a rock strength of 50–70 MPa. Where development encounters limestone that has >70% poor rock strength, shotcrete, wire mesh and anchor rods are used for support. The remaining 30% of the rock is supported by wire mesh and anchor rods.

Oxide

The oxide geotechnical domain is characterized by poor to very poor rock mass quality. Where the rock strength is 20–30 MPa, a combination of shotcrete and split set anchor cables/bolts are used. In worse quality ground, where the rock strength is 10–15 MPa, a combination of shotcrete, wire mesh, shotcrete mesh, and split set anchor cables/bolts are used.

16.5.5 Granodiorite

The intrusive granodiorite domains are characterized as extremely poor ground, with a rock strength of 3–6 MPa. A combination of shotcrete, wire mesh, shotcrete mesh, and split set anchor cables/bolts is used to provide support.

16.6 Hydrology

Potential groundwater impact is related to transient ground saturation due to rainfall. Available information indicates that water table is very deep below pit-bottom elevations and that pit walls may be relatively free-draining, precluding the buildup of excessive pore pressure. It appears that draining will occur mostly through major faults and the more fractured ground surrounding these faults. The focus for minimizing the impact of groundwater is the use of surface control measures such as diversion ditches and proper grading of catch benches.

A combination of Goldcorp staff and external consultancies have developed the pit water management program, completed surface water studies, and estimated the life-of-mine site water balance. Management of water inflows to date has been appropriate, and no hydrological issues that could impact mining operations have been encountered.

16.7 Mining Equipment

All mining equipment is owner-operated.

The expected equipment required to support open pit mining operations to the currently-expected mine closure in 2031 are summarized in Table 16-11. Currently the open pit operations use a combination of Hitachi, Caterpillar and Atlas Copco equipment, including Caterpillar 785 trucks and 994 loader, Hitachi 2500 shovels and Atlas Copco DM45 drills.

Equipment needs for the underground operation for the remaining underground mine life to 2021 are summarized in Table 16-12.

16.8 Comments on Mining Methods

Based on the review of the mining methods, the QP has concluded:

- Underground mining operations are currently scheduled to continue until 2021; open pit operations to 2031. Open pit operations are undertaken using conventional, large-tonnage mining methods. The underground operations use conventional cut-and-fill methods;
- The mining methods used are appropriate to the deposit style and employ conventional mining tools and mechanization. Equipment is owner-operated;
- Mining equipment requirements were based on the mine production schedule and equipment productivities, and included consideration of workforce and operating hours. The fleet is appropriate to the planned production schedule;
- The production plan is considered appropriate to the quantity of Measured and Indicated Mineral Resources estimated for the Project;
- The mine design includes mineralization that has been classified as Inferred. For the purposes of the financial evaluation that supports Mineral Reserves, this material was set to waste. The Inferred in the mine plan amounts to about 14% of the material within the designed pits and stopes. While there is a reasonable expectation that some or all of the Inferred Mineral Resources can be upgraded and classified as higher-confidence Mineral Resources with additional exploration and blast hole drilling programs, Goldcorp cautions that some or all of this Inferred mineralization may not be able to be converted to higher-confidence Mineral Resource categories or eventually to Mineral Reserves.
- Mine design has incorporated geotechnical and hydrogeological considerations;
- Mining cost assumptions are considered reasonable;

Table 16-11: Open Pit Equipment Requirements

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Shovels	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Loaders	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Trucks	47	50	63	64	66	65	67	67	68	66	66	65	66	68	69	69	67	27	19
Drills	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

Table 16-12: Underground Equipment Requirements

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Scoop Trams	17	17	17	17	11	10	7	6	4
Jumbos	11	11	11	11	8	6	5	4	3
Utilities/bolters	6	6	6	6	4	3	3	2	2

- The mine plan returns positive project economics when the Inferred mineralization within the mine design is set to waste and supports declaration of Mineral Reserves.
- As part of day-to-day operations, Goldcorp will continue to perform reviews of the mine plan and consideration of alternatives to and variations within the plan. Alternative scenarios and reviews can be based on ongoing or future mining considerations, evaluation of different potential input factors and assumptions, and corporate directives.

17.0 RECOVERY METHODS

17.1 Process Flow Sheet

The Los Filos Project was designed as a 4 Mt/a heap leach operation utilizing a multiple-lift, single-use leach pad and has been in operation since 2007. The ore coming from the open pit and underground mines is classified into low- and high-grade ore. The low-grade ore is typically sent to the ROM pad as ROM ore; higher-grade material is regarded as crush–leach ore.

Currently, there is one lined leach pad in operation which is divided in two sections, one for the crush–leach ore and the other for ROM ore. A second pad is under construction and planned to come into operation in October 2013.

Low-grade ore is directly transported by 88 t and 120 t trucks from the mines to the leach pad as ROM ore. Prior to dumping on the pads, the ore is dosed with lime. The lift height on the pads for this ore is 10 m.

The high-grade ore is passed through a primary jaw crusher and secondary cone crushing system that is set to produce 80% passing minus ¾ inch (19 mm). The jaw crusher is a 1,000 ton/hr Sandvik 1312 model with 6 inch sizing. The secondary system consists of two 10 x 20 inch banana sieves and two Metso conical HP-800 crushers that have an average capacity of 750 t/hr, and have the ability to reduce material to 80% passing -⅞ inch.

Crushed ore is transported to the leach pad by a 2.1 km long overland conveyor. During transportation to the pad, cement and water are added for ore agglomeration.

At the pad, 13, 37 m-long grasshopper portable conveyor systems feed a 135 m long Rahco stacker that stacks the ore into 5 m lifts on the pad.

The leaching process is carried out by a cyanide solution drip irrigation system which percolates through the ore bed, dissolving the gold and silver, producing a gold–silver-rich solution which is pumped to feed to the adsorption–desorption–recovery (ADR) plant.

The ADR plant consists of two storage ponds. The north pond has a 56,457 m^3 capacity, and the south pond has a capacity of 53,260 m^3. The plant is equipped with four vertical pumps that are capable of pumping 4,600 m^3/hr. Pregnant solution is sent to four electrowinning cells that each contain five carbon columns of 50 m^3 capacity (20 columns total).

In the three-stage ADR plant, the pregnant leach solution is sent to four electrowinning cells to recover a sludge containing gold, silver and some impurities. The sludge is subsequently dried, and smelted in an electric induction furnace to produce doré bars.

Carbon is sent to a storage tank that has a capacity of 785 m^3, supplied with five 800 horsepower centrifugal pumps with a pumping capacity of 4,600 m^3/hr. The re-circulated solution is sent to a 327 m^3 storage tank equipped with two 500 horsepower centrifugal pumps with a total capacity of 1,100 m^3/hr. The solution re-pumping capacity is 5,700 m^3/hr. A booster station consists of a 785 m^3 storage tank equipped with five 800 horsepower centrifugal pumps with a pumping capacity of 5,500 m^3/hr.

The two neutralizing solution tanks have a capacity of 940 m^3 and an unloading rate of 1,100 m^3/hr. The sodium cyanide system has two tanks that have capacities of 95 m^3 and 113 m^3 respectively.

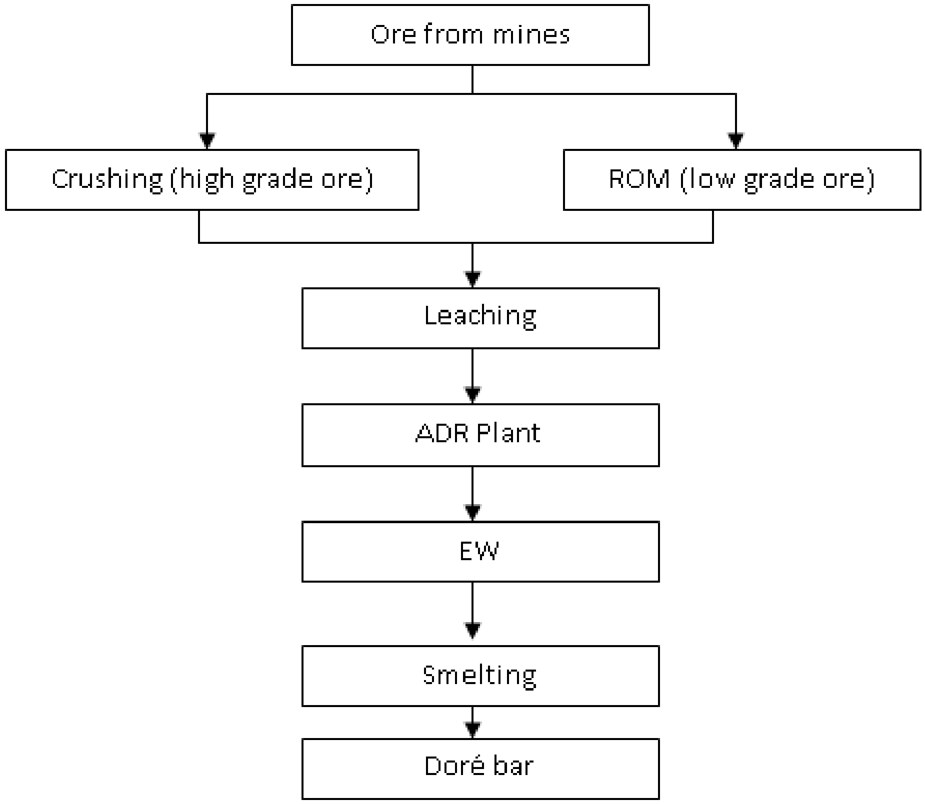
The two stainless-steel elution columns have a capacity of 14.6 m^3 each, and are designed to work at a pressure of 110 psi and a temperature of 150ºC. The weak solution recirculation tanks have a capacity of 18 m^3. There are also four electrolytic cells with a flow capacity of 32 m^3/hr.

The ADR plant also has two water-heating boilers, consisting of a closed burner system with a natural gas fuel input range from 3,000 to 11,000 CFH.

The carbon regeneration system has two acid wash columns that are fibreglass coated, and have a capacity of 14.6 m^3. Acid is stored in two 2.09 m^3 capacity tanks. In addition there is a thermal regeneration kiln, which has an activated carbon regeneration capability of 750 kg/hr, and is controlled by a frequency converter.

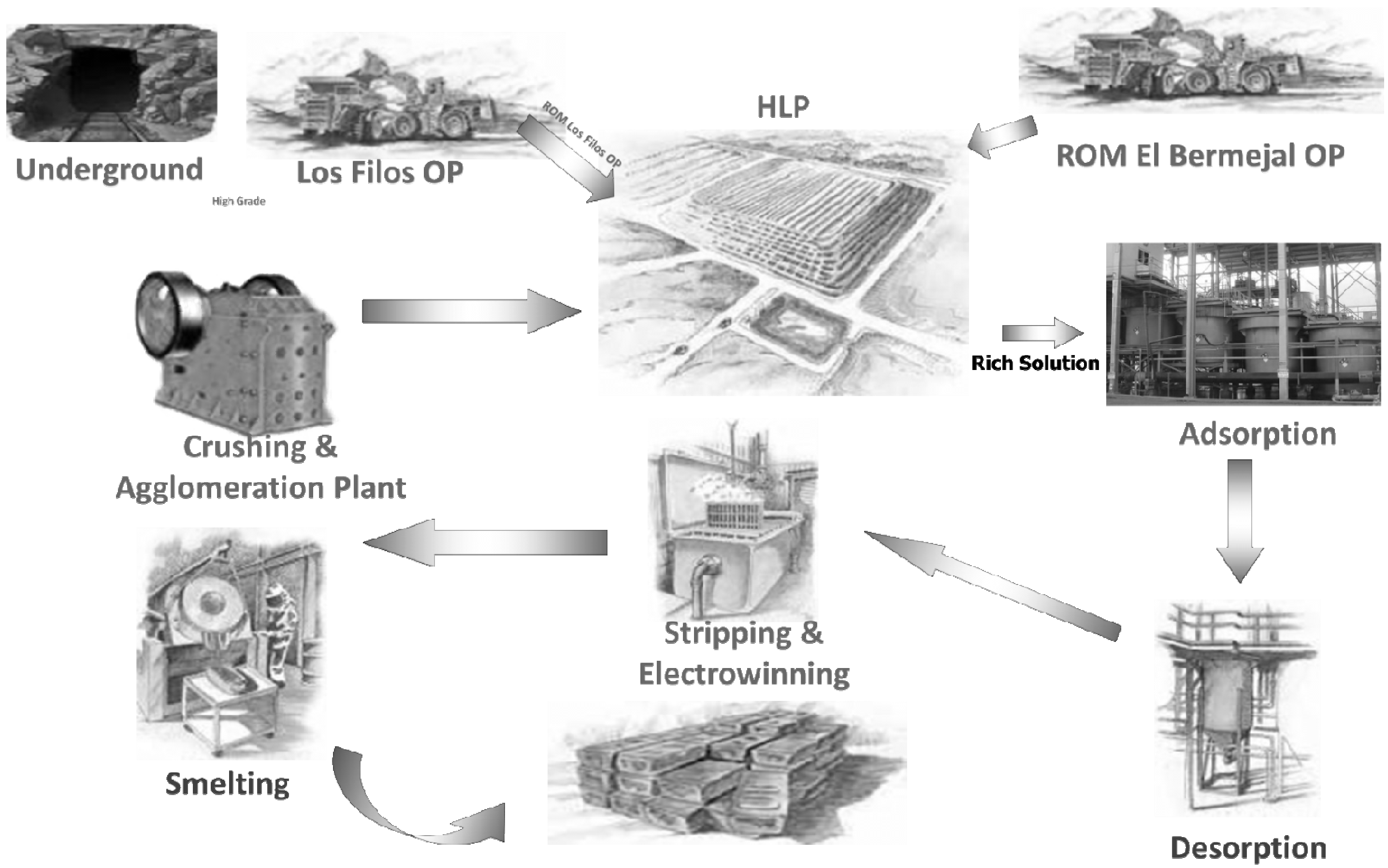
The process is summarized in the simplified flow sheet included as Figure 17-1. Figure 17-2 provides a schematic illustration of the ore flow for the ROM ore. Figure 17-3 provides a similar schematic illustration for the ore flow that is sent to crush–leach.

Figure 17-1: Simplified Process Flowsheet



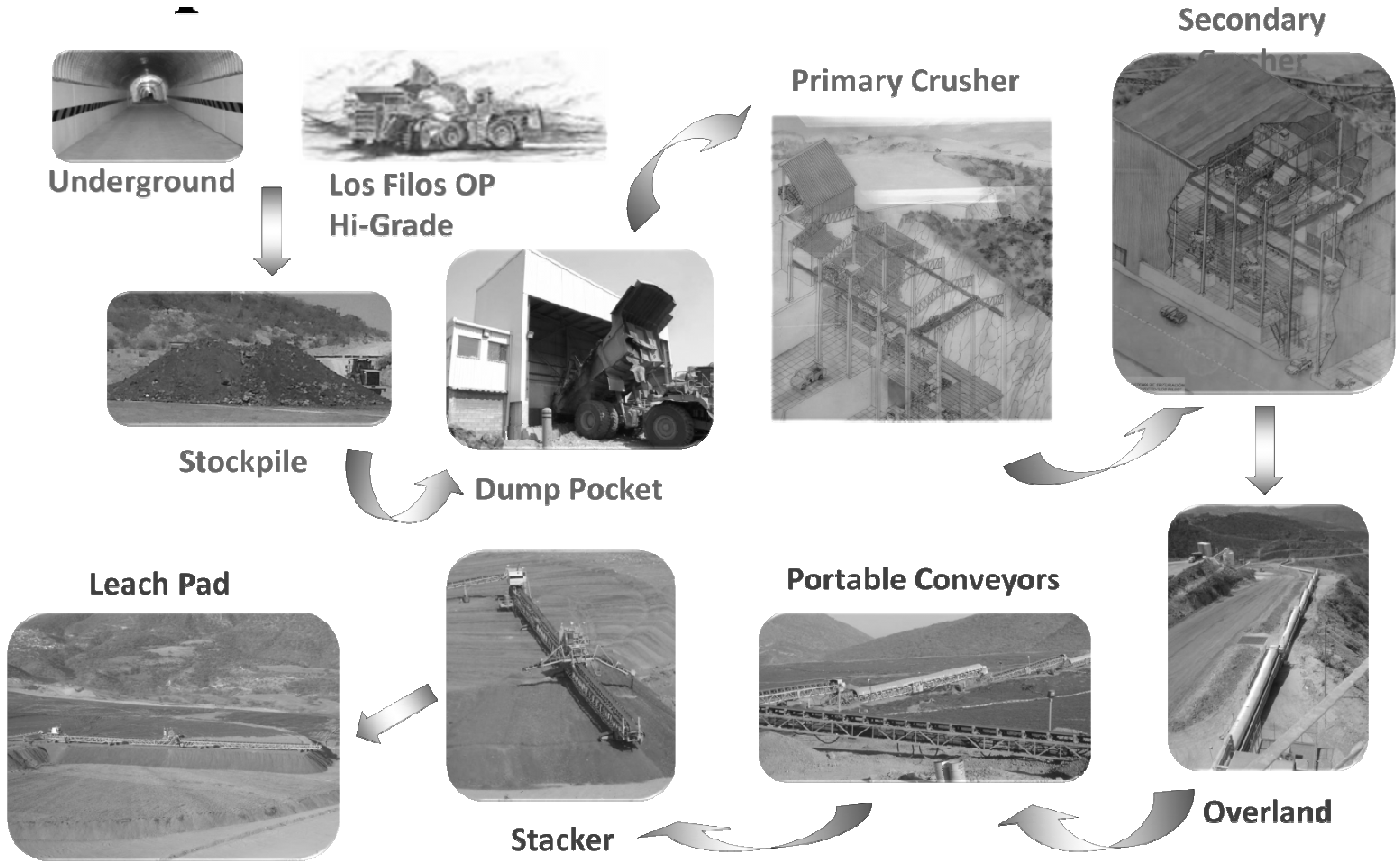
Note: Figure prepared by Goldcorp, 2013

Figure 17-2: ROM Ore Flow Sheet



Note: Figure prepared by Goldcorp, 2013

Figure 17-3: Crush-Leach Ore Flow Sheet



Note: Figure prepared by Goldcorp, 2013

17.2 Reagent Storage and Use

The main reagents are:

- Sodium cyanide: the operations use about 32 t/d and the Project site has storage capacity for 65 t;
- Caustic soda: the operations use approximately 1.8 t/d; storage capacity is 75 t
- Hydrochloric acid: usage of 2.6 t/d and onsite storage capacity of 25 t
- Butane gas: consumption of about 1.9 t/d; site capacity is 122 t/d;
- Lime: the operations use about 220 t/d; storage capacity is 1,300 t
- Cement: used at the rate of 67.5 t/d for agglomeration; site capacity is 200 t.

The current method of reagent supply by trucking and the reagent storage facilities on site are sufficient for the current mine plan.

17.3 Power

Project power usage is discussed in Section 18.6.

17.4 Water

Current process water requirements are met with the existing water facilities. Based on data collected from 2007 to 2012, in the highest consumption months, the operations are using about 55% of the installed water supply capacity of 587,000 m^3 per month. There are no forecast water consumption issues for operations over the mine life.

17.5 Comments on Recovery Methods

In the opinion of the QP, the current process facilities are appropriate to the mineralization styles in the underground and open pit operations and the facility as-built will support the current life-of-mine plan.

18.0 PROJECT INFRASTRUCTURE

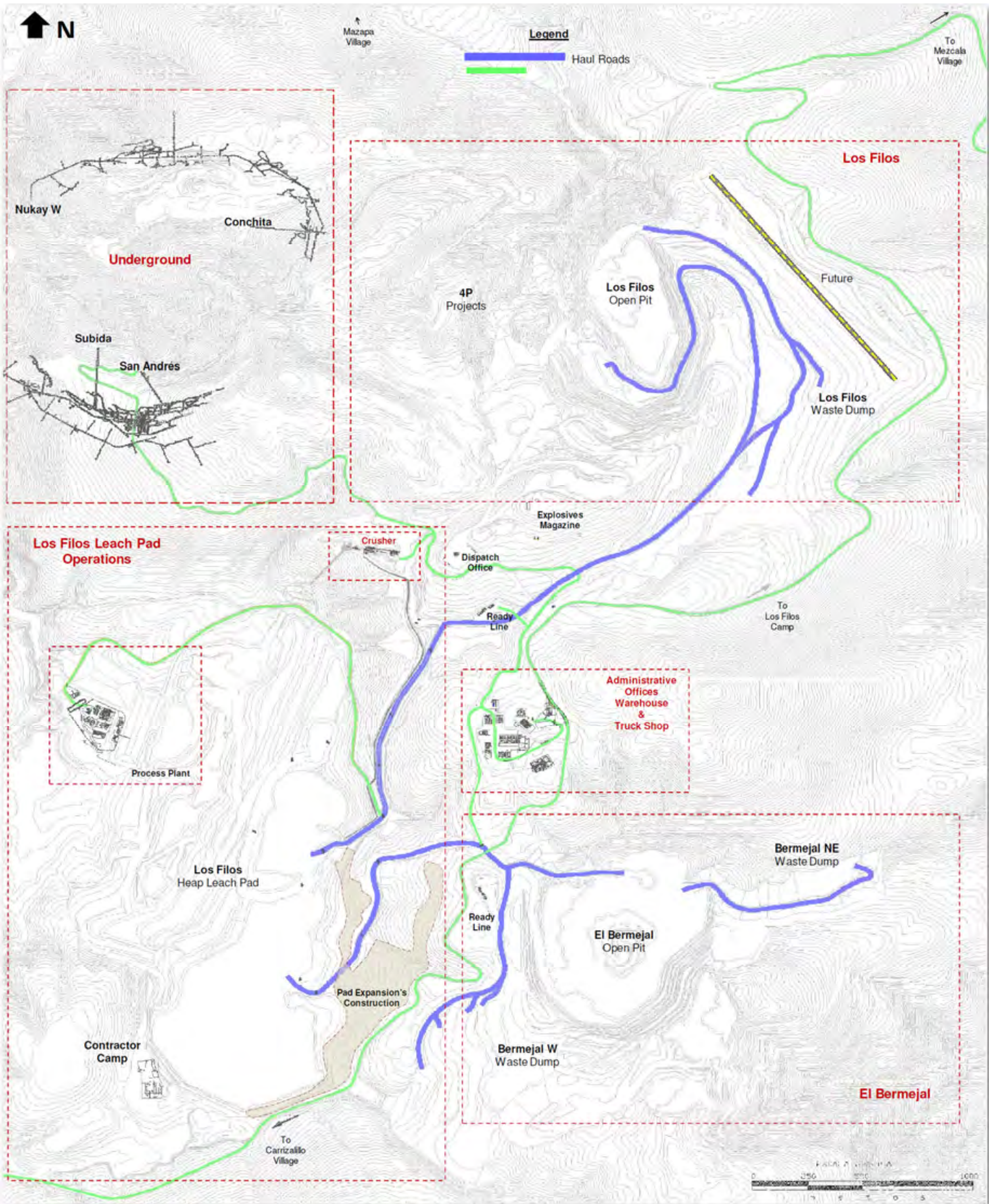
A project layout plan is included as Figure 18-1. Project infrastructure reflects the open pit and underground mining operations. Key mining infrastructure includes:

- Two open pits; one underground mine;
- Four waste rock dumps;
- Two heap leach pads, one operational, and one under construction, with associated conveyor systems and stackers;
- ADR plant;
- Mine workshops and facilities.

Support facilities include:

- Warehouse;
- Office facilities;
- Residential camp and mess halls;
- Exploration geology camps;
- Core processing facilities
- Site laboratory;
- Power substation;
- Water pumping facilities;
- Access roads;
- Explosive storage facilities;
- Personnel training facilities;
- Environmental monitoring facilities.

Figure 18-1: Project Layout Plan



Note: Figure prepared by Goldcorp, 2013

18.1 Road and Logistics

The road access route to site is described in Section 5.

Supplies are typically trucked to site using specialist containers as appropriate.

18.2 Waste Rock Storage Facilities

There are two established waste rock storage facilities for the Los Filos deposit and two for the El Bermejal deposit. Approximately 1,165 Mt of waste will be mined from open pit sources, of which 900 Mt will be placed on the waste rock heaps. The remaining 300 Mt is proposed to be used within the mined-out portions of the open pits as pit backfill.

CNI performed the geotechnical evaluation of the locations for the waste rock storage facilities and facility design as part of the Feasibility Study. Four waste dump areas were analyzed, including two dumps in the vicinity of the Los Filos pit on the northern side of the property (Tepetatera Filos Norte and Tepetatera Filos Este), and two dumps in the vicinity of the El Bermejal pit (Tepetatera Bermejal Norte and Tepetatera Bermejal Poniente). It was assumed that waste dumps would primarily consist of run-of-mine granodiorite and limestone.

The dump plans provided to CNI showed that waste rock facilities were to be placed over steeply-dipping topography at planned dump heights ranging from approximately 150 to 300 m and at slope angles of approximately 20º. The planned dump configuration provided to CNI consisted of 2.5H:1V (20.8º) overall dump slope angles with 30 to 50 m high benches, 25 to 30 m wide catch benches, and bench faces at 1.5H:1V (33.7º).

On review, CNI recommended bench heights for the dumps of 40 m. Stability analyses indicated that the facility designs were generally within adequate factor of safety values for all sections for both static and pseudostatic conditions. In Sector 8 at Bermejal Este, CNI recommended removal of topsoil to ensure the facility design was stable under pseudostatic conditions.

18.2.1 Landfill Waste

Until 2012, all landfill waste was disposed of in the Mezcala landfill facility. During 2013, Goldcorp intends to construct a landfill facility on site for operational use.

18.3 Water Management

18.3.1 Water Regime

The Project is situated in the Balsas River Hydrologic Region. The Balsas River is the only permanent watercourse in the greater Project area, and is about 10 km from the plant site. The three intermittent streams in the Project area, the Mazapa, Carrizalillo and Xochipala streams, are tributaries of the Balsas River.

18.3.2 Groundwater Supplies

CONAGUA has granted the Los Filos Project a concession title for groundwater use. Water is pumped from the groundwater well via four pump stations to a storage tank in the ancillaries area of the mine site. From this tank, water is pumped as needed to supply the process, open pit, underground and ancillary operations.

Goldcorp also purchases water from the local community for sanitary use in some site buildings.

18.3.3 Water Balance

A probabilistic water balance model has been developed for the heap leach facilities, diversion channels and process ponds. This model is tracked and updated on a daily basis. Modelling allows Goldcorp to define initial and operating conditions within the Los Filos mine system and simulate the projected performance of the mine water system over a given time period.

The mine is operated as a zero discharge system. Los Filos does not discharge process water to surface waters, and there are no direct discharges to surface waters.

The current design allows flexibility with fluctuating water levels. If water accumulates in the stormwater pond, then this water is sent to the recirculation pond. The water is neutralized in the neutralization tanks and then the neutralized water is sent to the stormwater pond in order to maintain a lower water level in the recirculation pond at all times. The neutralization process destroys free cyanide in the barren solution to below 4 mg/L. The water balance for the mine is in compliance with the International Cyanide Code.

18.3.4 Waste Water

All wastewater from the mine offices, camp and cafeteria is treated in 15 wastewater treatment plants prior to discharge to the environment.

All stormwater is diverted from the main infrastructure facilities such as heap leach facilities through use of diversion channels.

18.4 Acid Rock Drainage and Metal Leach Considerations

Characterization studies of waste rock and pit walls were undertaken to determine the acid rock drainage (ARD) and metal leaching (ML) potential.

Results indicated there is a low potential for acidic drainage from the Los Filos waste rock due to low sulphur and excess neutralization potential. Elevated arsenic concentrations were present in leachate from all waste rock lithologies at consistent levels, slightly exceeding the Mexican reference standard. Elevated antimony concentrations were present in leachate from Los Filos carbonates at levels up to an order of magnitude greater than the reference standard.

El Bermejal waste rock was found to have low potential for acidic drainage from the major waste rock lithologies (carbonate, intrusive and oxide materials). There was potential for waste rock with sulphides to oxidize to produce acidity; however, this could be controlled by adequate neutralization in these materials to overcome acidic drainage. With arsenic as an exception, all metal concentrations were within acceptable levels with respect to drinking water standards in Mexico.

Potentially acid-forming waste (PAG) materials and rock types that have ML potential are currently stored in the waste rock facilities, and encapsulated with non-reactive rock.

18.5 Camps and Accommodation

The mine camp is currently able to accommodate 162 persons and is being expanded to 292 beds.

18.6 Workforce

The personnel projection for 2013 is 1,226 employees.

18.7 Power and Electrical

Power is supplied by Comision Federal de Electricidad (CFE). Power is delivered at Los Filos 25 MVA substation, which is designed to increase its capacity to an additional 12.5 MVA capacity for future Project expansions. Current power consumption is about 12 MW/a, or about 60% of the existing power capacity. With the installation of the second leach pad, power usage is forecast at 14.6 MW/a or 73% of the installation capacity.

An emergency power plant was constructed during 2008 to provide back-up power for the leach pumps and gold recovery plant.

18.8 Fuel

Once trucked to site, fuel and gasoline are stored in five 75,000 L diesel tanks and one 40,000 L gasoline tank.

18.9 Water Supply

Water for the operations is sourced from a large well and filtration plant located 1.5 km west of Mezcala. The water plant has access to the Rio Balsas, which is a large perennial river. Water rights were granted in 2006 by the appropriate Mexican authorities.

Potable water is sourced from the settlement of Mezcala and treated for human consumption.

18.10 Communications

Site communications include satellite service, using voice over internet protocols (VoIP for telephones) and Internet protocols (for regular computer business). Pit operations use two-way radio communications.

18.11 Comments on Project Infrastructure

In the opinion of the QP, the existing infrastructure is appropriate to support the current life-of-mine plan.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

Goldcorp has an operative refining agreement with Johnson Matthey for refining of Dore produced from the mine. Goldcorp's bullion is sold on the spot market, by marketing experts retained in-house by Goldcorp.

19.2 Commodity Price Projections

The gold and silver price forecasts used for Mineral Resource and Mineral Reserve estimates are those set by Goldcorp Corporate and used across all operations for the year ended 31 December 2012. Mineral Resources are estimated using a gold price of $1,500/oz, and silver price of $27/oz. Mineral Reserves are estimated using a gold price of $1,350/oz and a silver price of $24/oz.

19.3 Comments on Market Studies and Contracts

In the opinion of the QP:

- Goldcorp is able and has been able to market the doré produced from the Project;
- 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;
- Part of the silver production is forward-sold to Silver Wheaton;
- Metal prices are set by Goldcorp Corporate and are appropriate to the commodity and mine life projections.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Baseline Studies

A summary of the baseline studies completed over the Project area in support of the original environmental assessment and later Project expansion is included as Table 20-1.

Environmental monitoring is ongoing at the Project and will continue over the Project life. Activities undertaken include:

- Water;
  - Surface water monitoring;
  - Subterranean water monitoring;
  - Human consumption water monitoring;
  - Waste water disposal monitoring;
  - Leaching pad solution monitoring;
- Air;
  - Total suspended particles monitoring;
  - Less than 10 micrometers particle monitoring;
  - Mercury emissions monitoring plant;
- Noise;
  - Noise monitoring;
- Fauna;
  - Wildlife monitoring;
- Forest resources;
  - Plant survival monitoring;

Table 20-1: Completed Baseline Studies

Los Filos MIA	Reports Completed
Laboratory analysis results	ALS ENVIRONMENTAL August 2004
Weather station data	AIR SCIENCES INC. Golden Colorado. November 2005. Executed by: Joel Firebaugh.
Air pollution emissions analysis	AIR SCIENCES INC February 2005. Executed by: Joel Firebaugh.
Soil analysis	TERRA QUAESSTUM S.C. Hermosillo, Sonora, México. December 2004. Executed by: Sandalio Reyes Osorio
Physical environment assessment	TERRA QUAESSTUM S.C. Hermosillo, Sonora, México, December 2004 Executed by: Sandalio Reyes Osorio
Assessment of possible existence of pre-Hispanic relics	CORPORACIÓN DE SERVICIOS ECO AMBIENTALLES, S.A. DE C.V. Consultoría en ingeniería ambiental total Guadalupe, Zac. México. January 2005. Executed by: Archaeologist Catalina Sandoval.
Explosives study	AUSTIN BACIS, S.A. DE C.V. December 2004. Executed by: Eng. Oscar Acuña G.
Los Filos Expansion MIA	**Reports Completed**
Flora & Wildlife Roster	UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO. June 2005 Executed by: Mc. Ana Liliana Muñoz Viveros
Weather station data	ALS ENVIRONMENTAL May 2005
Weather station data	SRK CONSULTING July 2005.
Air pollution emissions analysis	AIR SCIENCES INC September 2005. Executed by: Joel Firebaugh.
Soil analysis	FACULTAD DE ESTUDIOS SUPERIORES, IZTACALA (UNAM) August 2005. Executed by: Mc. Ana Liliana Muñoz Viveros
Physical environment assessment	UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO. July 2005. Executed by: Mc. Ana Liliana Muñoz Viveros
Explosives study	DUFIL, SISTEMA DE FRAGMENTACIÓN DE ROCA June 2005. Executed by: Javier Balcorta H.
Physical environment assessment	pH Environmental Consulting March 2007. Executed by: Mc. Ana Liliana Muñoz Viveros
Climate and landscape study	pH Environmental Consulting February 2007

Discussion of metal leachate and acid mine drainage considerations are included in Section 18-4.

20.2 Environmental Permits

Environmental permits are required by various Mexican Federal, State and municipal agencies, and are in place for Project operations. The operations have a granted LAU which is based on an approved environmental impact assessment, an environmental risk study, and a land use change authorization. The environmental management system and environmental and social management plans were developed in accordance with the appropriate Mexican regulations. Annual land usage and environmental compliance reports have been lodged. Environmental bonds were lodged as required under Mexican legislation.

During 2012, Los Filos was granted its "Industria Limpia" (Clean Industry) certification. The site meets International Cyanide Code requirements.

20.3 Closure Considerations

A closure and reclamation plan has been prepared for the mine site. The cost for this plan was calculated based on the standard reclamation cost estimator (SRCE) model which is based on the Nevada State regulations. The closure cost spending schedule has been updated for the current mine life, and reflects anticipated expenditures prior to closure, during decommissioning and during the post-closure monitoring and maintenance period. Site closure costs are funded by allocating a percentage of sales revenue to closure activities.

The closure and reclamation plan also incorporates international best practices, including the World Bank Environment, Health and Safety Guidelines Mining and Milling - Open Pit, the Draft International Finance Corporation (IFC) Environmental, Health and Safety Guidelines – Mining, and the International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide in the Production of Gold.

The key objectives of the reclamation and closure plan include:

- Minimizing erosion damage and protect surface and ground water resources through control of water runoff;
- Establishing physical and chemical stability of the site and its facilities;
- Ensuring that all cyanide and process chemicals are safely removed from the site at closure and equipment is properly decontaminated and decommissioned,

- Properly cleaning and detoxifying all facilities and equipment used in the storage, conveyance, use and handling of cyanide and other process chemicals in accordance with international practice;
- Establishing surface soil conditions conducive to the regeneration of a stable plant community through stripping, stockpiling and reapplication of soil material and/or application of waste rock suitable as growth medium;
- Repopulating disturbed areas with a diverse self-perpetuating mix of plant species in order to establish long-term productive plant communities compatible with existing land uses;
- Maintaining public safety by stabilizing or limiting access to landforms that could constitute a public hazard.

Current closure costs are estimated at $21.9 M, of which $18.9 M is associated with rehabilitation activities for the open pits operation, and $2 M with the underground operations.

20.4 Permitting

Goldcorp holds the appropriate permits under local, State and Federal laws to allow mining operations. Key permits include:

- Concession Title for Groundwater Extraction
- Waste Water Discharge Permit
- Industrial Discharge Permits
- Single Environmental License [Licencia Ambiental Unica (LAU)]
- Explosives Permit

In addition to these key permits, Goldcorp also holds:

- Environmental Impact Assessment resolution permits
  - S.G.P.A/DGIRA/DEI/2917.04: Los Filos Mining Project, first stage supply services (main access road rehabilitation, water pipelines and power lines) granted on November 18, 2004;
  - S.G.P.A.-DGIRA.-DEI.1410.05: Los Filos Mining Project, authorization granted on May 26, 2005 for mining exploitation;
  - S.G.P.A.-DGIRA.-DEI.0086.06: Los Filos Mining Project, expansion permit granted on January 24, 2006;

  - S.G.P.A./DGIRA.DG.5511: Los Filos Aerodrome (authorization to build the airstrip) granted on July 21, 2011;
  - S.G.P.A./D.G./R.A./D.G./2167: Mezcala road junction project (Cuernavaca-Chilpancingo Km 174+085 right lane) granted on March 16, 2012;
  - S.G.P.A./D.G.I.R.A/DG./2867: Los Filos production expansion permit, granted on April 16, 2012;
- Land Use Change Permits
  - DFG.SGPARN.02.018/05: Authorization for land use change of forest surface for the Los Filos Mining Project, first stage supply lines, granted on February 18, 2005;
  - DFG.02.03.284/05: Authorization for land use change of forest surface for the Los Filos Mining Project, obtained July 7, 2005;
  - DFG.02.03.284/06: Authorization for land use change of forest surface for Los Filos Mining Project expansion, granted on March 9, 2006;
  - DFG.UARRN.135/2012: Los Filos production expansion, granted on May 29, 2012;
- Environmental Risk Assessment;
  - S.G.P.A DGIRA-DEI.0086.06 Authorized by DGIRA on January 24, 2006. The risk assessment Resolution is included in Los Filos expansion MIA (EIA);
  - S.G.P.A./D.G.I.R.A/DG./2867. Authorized by DGIRA on April 16, 2012. The resolution is included in the Los Filos expansion (EIA);
- Concession Title for Groundwater Use and Extraction and Wastewater Discharge (CONAGUA);
  - 04GRO115667/18ISOC07, in effect since August 4, 2006;
  - 04GRO150559/18EMDL12, in effect since April 2, 2012;
  - 04GRO150560/18EMDL12, in effect since April 18, 2012;
- Other Permits
  - Single Environmental License (LAU): DFG-UGA-DGIMAR/066/09, license 12-75-LU-01/2009 was granted by SEMARNAT on March 13, 2009;
  - Registration as Hazardous Waste generator: Environmental Registration Number: DSM121207511, authorized by SEMARNAT on April 24, 2008 in agreement with DFG-DGIMAR/446/08 resolution;

– Accidents Prevention Program (PPA): DGGIMAR.710/008514, authorized by Mexico´s Integral Management of Materials and Risk Activities General Direction (DGGIMAC) on November 5, 2009.

20.5 Considerations of Social and Community Impacts

In support of mining operations, Goldcorp has entered into Temporary Occupation Agreements with the appropriate ejidos and comunidades, and has made and selective private property purchases.

Public consultation and community assistance and development programs are ongoing. Implementation of sustainable development initiatives for the communities of Carrizalillo, Mezcala and Mazapa commenced in 2007. Goldcorp has made contributions to health, infrastructure, education, culture and sports in the local communities.

20.6 Discussion on Risks to Mineral Resources and Mineral Reserves

There are no currently-gazetted national parks or protected areas near to the mine site.

The Mexican Government is currently considering a modification to the taxation regime whereby some of an operating mine’s income may be required to be paid to local communities that are affected by mining operations.

There are no currently-known environmental, permitting, or social issues that would preclude or could impact operations or would have a negative effect on the declaration of Mineral Resources or Mineral Reserves.

20.7 Comments on Environmental Studies, Permitting, and Social or Community Impact

- The Project's LAU is based on an approved environmental impact assessment, an environmental risk study, and a land use change authorization;
- Annual land usage and environmental compliance reports have been lodged;
- The appropriate environmental permits have been granted for Project operation by the relevant Mexican Federal, State and Municipal authorities;
- At the effective date of this Report, environmental liabilities are limited to those that would be expected to be associated with an operating gold mine where production occurs from open pit and underground sources, including roads, site infrastructure, and heap leach, waste dumps and disposal facilities;

- Goldcorp is not aware of any significant environmental, social or permitting issues that would prevent continued exploitation of the Mine deposits;
- Site closure costs are appropriately funded by allocating a percentage of sales revenue.

21.0 CAPITAL AND OPERATING COSTS

21.1 Capital Costs

As of December 31, 2012, capital spent as of that date was considered to be "sunk" capital; either spent or committed to be spent and so is not included in the economic evaluation.

For the current life-of-mine financials, capital costs are based on operating experience gained from current operations, 2013 budget data, and quotes received from manufacturers during 2012. Capital cost estimates include funding for infrastructure, mobile equipment replacement, development drilling, new pits pre-stripping 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 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.

Pre-stripping costs related to the development of new mining areas or pits are considered as capital expenditures.

Capital cost estimates for the LOM are presented in Table 21-1.

21.2 Operating Costs

Operating costs were developed by Los Filos Site, and approved by Goldcorp, based on 2013 budget figures and 2012 actual costs, factored as appropriate. These costs were used to establish ore cut-offs and ultimately, Mineral Reserves.

Table 21-1: Life-of-Mine Capital Cost Estimate (figures in US$ millions)

Area	LOM Total	LOM Average	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Major Project	25.9	$1	23.2	0.9	0.8	0.4		0.2		0.3	0.1										
Sustaining	406.8	$19	64	33.7	24.9	25	21.2	51.1	39.4	31.4	16.2	20	16.7	8.1	8.1	8.1	8.1	8.1	7.3	8.4	7.2
Exploration (Capitalized)	98.9	$5	8	9	9	9.7	9.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	2.0	2.0	2.0	2.0		
Development & Stripping	588.7	$28	29.4	41.6	33.7	29.9	11.7	26.9	37.7	26.4	3.3	23.9	65.4	94.1	31.0	58.4	50	0.9	24.5		
Total	*$1,120*	*$53*	*$124.6*	*$85.2*	*$68.4*	*$65.0*	*$42.6*	*$83.8*	*$82.7*	*$63.7*	*$25.4*	*$49.6*	*$87.7*	*$107.8*	*$44.8*	*$68.4*	*$60.1*	*$10.9*	*$33.8*	*$8.4*	*$7.2*

Operating costs included allocations for:

- Open pit mining;
- Underground mining;
- Processing;
- General and administration costs;
- Offsite costs;
- Treatment and refining costs.

Operating cost estimates over the LOM are given in Table 21-2. The table includes allocations for processing and overhead costs.

21.3 Comments on Capital and Operating Costs

The QP considers the following conclusions to be appropriate:

- Capital costs were estimated using a combination of operating experience, 2013 budget data and written supplier quotes. Capital costs total $1,120 M over the life-of-mine from 2013 to 2031, and average $53 M per year.
- Operating costs were estimated on 2013 budget figures and 2012 actual costs, factored as appropriate. Operating costs are expected to average $12.10/t processed over the LOM.

Table 21-2: Life-of-Mine Operating Cost Estimate (figures in US$ per tonne milled)

Area	LOM Average	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Cost Per Tonne Processed (All)	$12.1	$10.2	$11.1	$11.3	$11.9	$10.5	$11.4	$14.4	$12.6	$10.4	$12.1	$15.3	$55.7	$17.0	$17.9	$13.6	$10.3	$9.6	$6.8	$9.5
Mining Cost	$7.1	5.9	6.5	6.6	7.1	5.9	6.5	8.8	7.4	5.7	6.9	9.3	41.1	10.8	11.2	8.0	5.6	5.0	2.9	4.8
Processing Cost	$2.8	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
General & Admin Cost	$2.2	1.7	1.7	1.8	2.0	1.8	2.0	2.8	2.4	1.9	2.4	3.2	11.8	3.3	3.9	2.8	1.9	1.7	1.0	1.8
Off-Site Cost (TCRC + Transport)	$0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

22.0 ECONOMIC ANALYSIS

22.1 Methodology Used

The results of the economic analysis represent forward-looking information that is 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.

22.1.1 Basis of Financial Analysis

To support declaration of Mineral Reserves, Goldcorp prepared an economic analysis to confirm that the economics based on the Mineral Reserves could repay life-of-mine operating and capital costs. Inferred Mineral Resources above cut-off were considered as waste in the evaluation.

Operating costs were developed by Project personnel, based on a combination of actual 2012 costs, and 2013 budget figures and trends. Capital costs were based on operating experience, 2013 budget figures, and vendor quotes.

The Project was evaluated using a gold price of $1,401.40/oz and a silver price of $25.21/oz on an after-tax, project stand-alone, 100% equity-financed basis using a 5% discount rate, and all costs prior to 31 December 2012 were treated as sunk costs. Results of this assessment indicated positive Project economics until the end of mine life, and supported Mineral Reserve declaration.

Goldcorp prepared a check of the financial outcome by evaluating the Project using the three-year trailing average gold and silver prices. This check also supported Mineral Reserve declaration as the results showed positive Project economics until the end of mine life.

22.1.2 Sensitivity Analysis

Sensitivity analysis was performed on the base case net cash flow. Positive and negative variations, to a maximum of 20% in either direction, were applied independently to each of the following parameters:

- • Metal prices;
- • Metal grades
- • Capital costs;
- • Operating costs.

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.

22.2 Comments on Economic Analysis

The QP has reviewed the financial analysis and confirms that the Project has positive economics until the end of mine life, which supports Mineral Reserve declaration.

The QP notes that there is some upside for the Project if some or all of the Inferred Mineral Resources that are identified within the LOM open pit production plans can be upgraded to higher confidence Mineral Resource categories.

23.0 ADJACENT PROPERTIES

There are no adjacent properties that are relevant to this Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

There are no additional data that are relevant to this Report.

25.0 INTERPRETATION AND CONCLUSIONS

The QP, as author of this Report, has reviewed the data for the Project and is of the opinion that:

- Mining 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 open pit and underground planned life-of-mine that was developed based on the year-end 2012 Mineral Reserves;
- Permits held by Goldcorp for the Project are sufficient to ensure that mining activities within the Los Filos Project are conducted within the regulatory framework required by the Mexican Government and that Mineral Resources and Mineral Reserves can be declared;
- Goldcorp has sufficiently addressed the environmental impact of the 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;
- 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 different deposits 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;
- The mineralization style and setting is well understood within the Los Filos Project and can support declaration of Mineral Resources and Mineral Reserves;
- The exploration programs completed to date are appropriate to the style of the deposits identified within the Los Filos Project. The research work supports Goldcorp's genetic and affinity interpretations for the deposits;
- Additional exploration has a likelihood of generating further exploration successes. Goldcorp plans to continue evaluation of the San Pablo prospect;

- The quantity and quality of the lithological, geotechnical, collar and down hole survey data collected in the exploration, delineation, underground, and grade control drill programs are sufficient to support Mineral Resource and Mineral Reserve estimation;
- Sampling methods are acceptable, meet industry-standard practice, and are acceptable for Mineral Resource and Mineral Reserve estimation and mine planning purposes;
- The quality of the gold and silver analytical data is reliable and 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 Project 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;
- Metallurgical test work completed on the Project 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.
- Copper was identified as a potential deleterious element. High-copper grade composites tended to have higher reagent consumption and therefore areas of higher copper grades can result in increased processing costs. If too high, copper values in the final doré product can result in penalties being imposed by the refinery;
- Recovery factors estimated in the conceptual heap leach planning stage have, following production, been confirmed. As a result, the leach recovery factors are considered appropriate to support Mineral Resource and Mineral Reserve estimation, and mine planning;
- Mill process recovery factors are based on 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;
- Mineral Resources and Mineral Reserves for the Project, which have been estimated using RC 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 open pit and 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 open pit production plan can be upgraded to higher confidence Mineral Resource categories;
- The predicted mine life to 2031 is achievable based on the projected annual production rate and the Mineral Reserves estimated;
- 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;
- 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;
- As a producing issuer, Goldcorp's financial evaluation has been performed to support Mineral Reserve declaration. The QP has confirmed that the Project has positive economics until the end of mine life, which supports Mineral Reserve declaration;
- Assessment of the impact of changes of operating costs, capital costs, metal prices, and gold grades indicates the Project is most sensitive to variations in the gold grade and gold price, then to operating cost variations. The Project is least sensitive to changes in capital costs.

In the opinion of the QP, the Project that is outlined in this Report has met its objectives. Mineral Resources and Mineral Reserves have been estimated for the Project, a mine has 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.

26.0 RECOMMENDATIONS

The recommended work program for the Project consists of exploration and infill drilling, which will be conducted as a single-phase program. The program is summarized in Table 26-1. The drill costs in the program are estimated at $155/m. A total of about 35185 m is planned, for an overall rounded program cost of $9 M.

At the completion of the program, the results should be assessed, and where appropriate, included as support for updated Mineral Resource and potentially Mineral Reserve estimates.

Table 26-1: Recommended Exploration and Infill Drill Program

Area	Purpose	Planned Metres (m)	Estimated Cost ($US x 1000)
El Bermejal North – Los Filos Connection	Exploration	14,000	5,000
Filos Underground	Exploration	5,000	1,000
Filos Underground	Infill	11,000	2,000
San Pablo	Exploration	3,250	700
Exploration	Regional exploration	1,935	300
		35,185	9,000

27.0 REFERENCES

Barton, P.J., Ross, A.F., Hester, M.G., Kappes, D.W., and Lupo, J.F., 2006: Technical Report NI 43-101F1 Los Filos Project, Mexico: unpublished technical report prepared by Snowden Mining Industry Consultants for Goldcorp Inc., effective date 31 March, 2006.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2003: Estimation of Mineral Resources and Mineral Reserves, Best Practice Guidelines: Canadian Institute of Mining, Metallurgy and Petroleum, November 23, 2003, http://www.cim.org/committees/estimation2003.pdf.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2005: CIM Standards for Mineral Resources and Mineral Reserves, Definitions and Guidelines: Canadian Institute of Mining, Metallurgy and Petroleum, December 2005, http://www.cim.org/committees/CIMDefStds_Dec11_05.pdf.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2010: CIM Standards for Mineral Resources and Mineral Reserves, Definitions and Guidelines: Canadian Institute of Mining, Metallurgy and Petroleum, November 2010, http://www.cim.org/UserFiles/File/CIM_DEFINITON_STANDARDS_Nov_2010.pdf

Canadian Securities Administrators (CSA), 2011: National Instrument 43-101, Standards of Disclosure for Mineral Projects, Canadian Securities Administrators.

de la Garza, V., Tellez, R., Diaz, R., and Hernandez, A., 1996; Geology of the Bermejal Iron-Gold Deposit, Mezcala, Guerrero, Mexico; in Coyner, A.R., and Fahey. P.L., eds., Geology and Ore Deposits of the American Cordillera: Geological Society of Nevada Symposium Proceedings Vol. III, pp. 1355–1368.

Goldcorp Inc., 2004: Sustainability Report 2004: unpublished report posted to Goldcorp Inc. website, accessed 27 February 2010, http://www.goldcorp.com/_resources/project_presentations/Los%20Filos_Nukay_sm.pdf

Goldcorp Inc., 2009a: Los Filos Operation: unpublished report posted to Goldcorp Inc. website, accessed 27 February 2010, http://www.goldcorp.com/operations/los_filos/project_summary/

Goldcorp Inc., 2009b: Annual Report, 2008: unpublished report posted to Goldcorp Inc. website, accessed 27 February 2010, http://www.goldcorp.com/_resources/2009_ar/pdfs/ar08_reserves_and_resources.pdf

Goldcorp Inc., 2009c: Annual Information Form 2008: unpublished report to Toronto Stock Exchange, filed 16 March 2009, 113 p.

Goldcorp Inc., 2010: Annual Information Form 2009: unpublished report to Toronto Stock Exchange, filed 19 March 2010, 130 p.

Goldcorp Inc., 2011: Annual Information Form 2010: unpublished report to Toronto Stock Exchange, filed 31 March 2011, 112 p.

Goldcorp Inc., 2012: Annual Information Form 2012: unpublished report to Toronto Stock Exchange, filed 30 March 2012, 134 p.

Goldcorp Inc., 2012: Investor Day, 2012: unpublished PowerPoint presentation posted to Goldcorp website, accessed 12 February 2013, posted 29 March 2012. http://www.goldcorp.com/files/Investor%20Day%202012%20FINAL_v003_o7dq89.pdf

Hester, M., 2011: Los Filos Block Model Update: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 23 December 2011, 14 p.

Hester, M., 2012: Bermejal Block Model Update: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 14 January 2012, 13 p.

Hester, M., 2013: Los Filos Mineral Reserve: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 7 January 2013, 15 p.

Hester, M., 2013: Bermejal Mineral Reserve: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 9 January 2013, 10 p.

Hester, M., 2013: Bermejal Mineral Resource: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 10 January 2013, 9 p.

Hester, M., 2013: Los Filos Mineral Resource: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 12 January 2013, 8 p.

Hester, M., 2013: Los Filos Block Model Update: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 16 January 2013, 16 p.

Hester, M., 2013: Bermejal Block Model Update: unpublished memorandum prepared by IMC Consultants for Goldcorp Inc., 19 January 2013, 15 p.

Jones, D.M., and Jackson, P.R., 1999a: Geologic Setting of Skarn-Associated Gold Deposits of the Nukay District, Guerrero, Mexico; extended abstract in Proceedings Volume of the Sesiones Tecnicas de la XXIII Convencion de la Asociacion de Ingenieros de Minas, Metalurgistas, y Geologos de Mexico.

Jones, D.M., and Jackson, P.R., 1999b: Geology and Mineralization of the Los Filos Gold Deposit, Nukay District, Guerrero, Mexico; extended abstract in Proceedings Volume of the Sesiones Tecnicas de la XXIII Convencion de la Asociacion de Ingenieros de Minas, Metalurgistas, y Geologos de Mexico.

Jones, D.M., and Gonzales, E.P., 2003: Evidence of Magmatic Fluid Flux and ‘Recapture’ in Mineralizing Granodiorites of the Nukay Au(-Cu) Skarn District, Guerrero, Mexico; extended abstract in Proceedings Volume of the Sesiones Tecnicas de la XXV Convencion de la Asociacion de Ingenieros de Minas, Metalurgistas, y Geologos de Mexico.

Jones, D.M. 2005: Geologic Characteristics of Porphyry-Skarn Gold Deposits of the Guerrero Gold Trend, Mexico: extended abstract in Proceedings Volume of the Sesiones Tecnicas de la XXVII Convencion de la Asociacion de Ingenieros de Minas, Metalurgistas, y Geologos de Mexico.

Kappes, Cassidy and Associates, 2009: Nukay and Los Filos Projects Report of Metallurgical Tests: unpublished report prepared by KCA for Goldcorp Inc., August 2009, 760 p.

Kappes, Cassidy and Associates, 2013: Los Filos 4P Project, Report of Metallurgical Test Work, January 2013: unpublished report prepared by KCA for Desarrollos Mineros San Luis S.A. de C.V., January 2013, 525 p.

Micon International Limited, 2003: Report on the Los Filos Gold Deposit Guerrero, Mexico: unpublished technical report prepared by Micon Consultants for Wheaton River Minerals, effective date September 2003.

NCL Limited, 2013: Proyecto Explotación Subterránea - Los Filos Actualización Modelo De Bloques: unpublished report prepared by NCL Limited for Goldcorp Inc., January 2013, 52 p.

Snowden Mining Industry Consultants, 2004: Technical Report, Los Filos Project: unpublished technical report prepared by Snowden Mining Industry Consultants for Goldcorp Inc., effective date November 2004.