TECHNICAL REPORT
777 MINE,
FLIN FLON, MANITOBA, CANADA

Effective Date: October 15, 2012

Prepared for: HUDBAY

25 York Street, Suite 800
Toronto, Ontario
Canada M5J 2V5

Prepared by:

Brett Pearson, P. Geo.
777 Mine Senior Geologist, Hudbay

Darren Lyhkun, P. Eng.
777 Mine Senior Mine Engineer, Hudbay

Cassandra Spence, P. Eng.
Senior Mill Metallurgist, Hudbay

Stephen West, P. Eng.
Superintendent, Environmental Control, Hudbay

Robert Carter, P. Eng.
Director, Technical Services, Hudbay

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

FORWARD LOOKING STATEMENTS

This Technical Report contains “forward looking statements” and “forward looking information” (collectively, “forward looking information”) within the meaning of applicable Canadian and United States securities legislation. All information contained in this Technical Report, other than statements of current and historical fact, is forward looking information. Often, but not always, forward looking information can be identified by the use of words such as “plans”, “expects”, “budget”, “guidance”, “scheduled”, “estimates”, “forecasts”, “strategy”, “target”, “intends”, “objective”, “goal”, “understands”, “anticipates” and “believes” (and variations of these or similar words) and statements that certain actions, events or results ‘‘may’’, ‘‘could’’, ‘‘would’’, ‘‘should’’, ‘‘might’’ ‘‘occur’’ or ‘‘be achieved’’ or ‘‘will be taken’’ (and variations of these or similar expressions). All of the forward looking information in this Technical Report is qualified by this cautionary statement.

Forward looking information includes, but is not limited to, anticipated continued production from the 777 Mine and the anticipated mine life, assumptions respecting commodity prices, estimates of mineral resources and reserves, and other plans respecting the 777 Mine and 777 North expansion.

Forward looking information is not, and cannot be, a guarantee of future results or events. Forward looking information is based on, among other things, opinions, assumptions, estimates and analyses that, while considered reasonable by Hudbay at the date the forward looking information is provided, inherently are subject to significant risks, uncertainties, contingencies and other factors that may cause actual results and events to be materially different from those expressed or implied by the forward looking information.

The material factors or assumptions that were applied in drawing conclusions or making forecasts or projections set out in the forward looking information include, but are not limited to:

- the accuracy of geological, mining and metallurgical estimates;
- the costs of production;
- the supply and demand for produced metals;
- the volatility of commodity prices;
- the volatility in foreign exchange rates;
- the availability of third party processing facilities for produced concentrate;
- no significant unanticipated operational or technical difficulties;
- no significant unanticipated events relating to regulatory, environmental, health and safety matters; and
- no significant and continuing adverse changes in general economic conditions.

The risks, uncertainties, contingencies and other factors that may cause actual results to differ materially from those expressed or implied by the forward looking information may include, but are not limited to, risks generally associated with the mining industry, such as economic factors (including future commodity prices, currency fluctuations and energy prices), uncertainties related to the operation of the 777 Mine, operational risks and hazards, including unanticipated environmental, industrial and geological events and developments and the inability to insure against all risks, failure of plant, equipment, processes, transportation and other infrastructure to operate as anticipated, compliance with government and environmental regulations, dependence on key personnel and employee relations, uncertainties related to the geology, continuity, grade and estimates of mineral reserves and resources and the potential for variations in grade and recovery rates, uncertain costs of reclamation activities, as well as the risks discussed under the heading "Risk Factors" in our most recent Annual Information Form, Form 40 F and Management's Discussion and Analysis for the three and six months ended June 30, 2012.

Should one or more risk, uncertainty, contingency or other factor materialize or should any factor or assumption prove incorrect, actual results could vary materially from those expressed or implied in the forward-looking information. Accordingly, you should not place undue reliance on forward looking information. Hudbay does not assume any obligation to update or revise any forward looking information after the date of this Technical Report or to explain any material difference between subsequent actual events and any forward looking information, except as required by applicable law.

1. EXECUTIVE SUMMARY

1.1 Summary

INTRODUCTION

The authors have prepared this technical report for Hudbay Minerals Inc. (Hudbay) on its 777 Mine located in Flin Flon, Manitoba. The 777 North expansion is considered part of 777 Mine but for certain purposes including mineral resource and reserve, mine planning, infrastructure and metallurgical recovery it is discussed separately in this report. Unless the context indicates otherwise references to the 777 Mine include the 777 North expansion. This technical report conforms to the CIM Mineral Resource and Mineral Reserves definitions referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects.

Hudbay is an integrated Canadian mining company with assets in North and South America principally focused on the discovery, production, and marketing of base and precious metals. Hudbay's objective is to maximize shareholder value through efficient operations, organic growth and accretive acquisitions, while maintaining its financial strength.

The Hudbay operations in Flin Flon, Manitoba include the 777 Mine, an ore concentrator and a zinc plant. Operations in Snow Lake, Manitoba, include an ore concentrator and the Lalor development project.

This report includes mineral resource information pertaining to the 777 Mine as of October 1, 2011 and the mineral reserve information as of January 1, 2012. The underlying data consists of over 3,300 drill holes that have been recorded for the project, conducted during a span of over 20 years.

As of the date of this report, mining is actively underway at the 777 Mine with the deposit being continuously mined since operations started in the upper lenses of the mine, also known as the Callinan Deposit, in 1989.

The 777 deposit is a stratabound massive sulphide deposit that occurs within Precambrian volcanic and volcaniclastic rocks. Mineralization consists of generally medium to coarse-grained disseminated to solid sulphides consisting of pyrite, chalcopyrite, sphalerite, and pyrrhotite.

Hudbay's wholly owned subsidiary Hudson Bay Mining and Smelting Co., Limited (HBMS) took a working option on the property in 1967 from Consolidated Callinan Flin Flon Mines Limited (referred to now as Callinan Royalties Corporation) and later acquired the claims in exchange for a net profits interest (NPI) and a royalty in respect of production from these claims. Mineral production from the property is subject to a 6 2/3% NPI and a $0.25 per short ton royalty payable to Callinan Royalties Corporation. The royalty applies to all claims except for Lakeview, Sunshine Fractional, and 113.11 Ha of ML5518. No mineral production is currently expected from those claims.

On August 8, 2012 Hudbay entered into a precious metals stream agreement with Silver Wheaton Corp. for 100% of payable gold and silver from 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver. Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

MINERAL RESERVES

The 777 Mine and 777 North expansion mineral reserve estimate were prepared by Darren Lyhkun, P.Eng., 777 Senior Mine Engineer, Hudbay under the supervision of Robert Carter, P.Eng., Director, Technical Services, Hudbay. Both Mr. Lyhkun and Mr. Carter are Qualified Persons under NI 43-101. The 777 Mine and 777 North expansion mineral reserves presented in Table 1.1 as of January 1, 2012 are based on the measured resources to estimate the proven mineral reserves and the indicated resources to estimate the probable mineral reserves. Mining, processing and economic parameters were applied to the block model to form the basis of the reserve estimate.

Table 1.1 Mineral Reserve Summary – January 1, 2012[1]

	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)
Proven Mineral Reserve	4,921,000	1.97	26.78	2.36	4.16
Probable Mineral Reserve	7,464,000	1.82	27.86	1.64	4.44
Total Proven & Probable Mineral Reserves	12,385,000	1.88	27.43	1.92	4.33

[1]Includes 777 Mine and 777 North expansion and is inclusive of mineral resource estimates in Section 14.

The orebody is polymetallic with economically significant metals being copper, zinc, gold, and silver. The base metal mineralization consists of solid sulphide, near solid sulphides, and stringers sulphides. Precious metals are disseminated throughout the mineralized zones in varying amounts. Sulphide minerals present are typically chalcopyrite, sphalerite, pyrite, or pyrrhotite.

For mining purposes, there are eight active mining areas in the mine to allow for a blended product with the end goal to send a blended grade to the mill.

Mining methods were established for each mining area and a net smelter return (NSR) was calculated to determine the economic viability.

CONCLUSIONS

This technical report has used investigation and analysis that are considered appropriate to estimate mineral reserves for the 777 Mine and 777 North expansion.

The following presents the interpretations and conclusions of this technical report:

Geology

The 777 and Callinan deposits occur within an east-facing sequence of volcanic rocks documented as tholeiitic and basalt-dominated. The rocks immediately hosting the mineralization, however, consist of quartz-phyric and quartz-feldspar-phyric volcaniclastic rhyolite flows. The 777 deposit can be divided into two main southeast plunging trends, the North Limb and the South Limb, as well as the West Zone. All three zones lie within the same stratigraphic sequence with the same lithofacies as described above. The West Zone lies in the footwall in what is interpreted to be a lower thrust slice. Horizontal widths throughout the deposit range from 2.5 meters to 70 meters in thickness, and can be thicker when two or more zones overlap. There are a total of eight distinct sulphide lenses contained within the 777 deposit. Each of the lense is distinguished based on grade and ore type as well as their spatial location. Lenses in general are fairly continuous with the exception of scattered diorite intrusions. The Callinan deposit is subdivided into two rhyolite horizons termed the East-QP and the West-QP. The East-QP is host to the lenses of the North Zone, East Zone and is on the same horizon as the 777 mineralization. The West-QP hosts the South Zone and its associated lenses. Each of these zones is further subdivided into a number of mineralized lenses. The subdivision of zones into lenses was based on the spatial distribution of the mineralization. There are a total of 20 sulphide lenses contained within the three broad zones of the Callinan deposit. The Callinan mineralization is a distal deposit that has a matrix supported breccia with variable amounts of wallrock fragments in a fine to medium grained sulphide matrix. The wallrock fragments are intensely altered with chlorite, talc and sericite with some degree of pyritization and carbonation. These lenses contain variable amounts of pyrite, sphalerite, chalcopyrite and minor pyrrhotite.

Mineral Resource

Mineral resources have been separated into the 777 and Callinan portions of the deposit. This has been done for mining and planning purposes as the Callinan lenses represent the upper, and more historic, portion of the mineralization and the 777 Zones represent the lower more recently drilled and identified mineralization. The interpreted lenses of the 777 Zones as well as the 1 North, 2 North, 1 South, 2 East, 7 East, and 9 East Callinan lenses were built by digitizing polylines around the mineralization. Polylines were then linked with tag strings and triangulated in order to create three-dimensional wireframe solids. The remainder of the mineralization was interpreted by digitizing polylines in a 2D plane around mineralized intercepts. The average strike and dip of the zone was estimated and utilized to calculate the horizontal width of the mineralization for both the 2D Gridded Seam Model and the polygonal interpretations. The mineral resource for the 777 Zones were estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation, for Zones 20 and 70, or with relative ordinary kriging used for the remaining zones at the 777 Mine. Mineral resource estimates for the Callinan lenses were interpolated using a variety of methods over the years, depending mainly on how recently the lenses underwent diamond drilling or mine production. The mineral resource for the Callinan lenses was estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation for North 1, North 2, North 3, North 5, East 2, East 7, and the East 9 lenses. Several lenses were also calculated with ordinary kriging using 2D GSM interpretations. This was utilized for the North 4, South 2, South 4, South 7, South 9, East 1, and East 3 lenses. Polygonal resource calculations were carried out for South 3 as well as the Dan Zone. The South 1 lens was calculated using inverse distance squared methodology. The Dan Zone mineralization, accessed from the 777 North expansion, is included with the Callinan resource in the inferred category.

Processing

Concentrating and processing of the mineral resource will be done at the Flin Flon Concentrator, which is capable of producing two concentrates; a zinc concentrate and a copper concentrate with gold and silver credits. The actual metallurgical results from the Flin Flon Concentrator for 777 Mine and former Callinan Mine were used to generate projected plant performance data for the 777 Mine and 777 North expansion production. The Flin Flon Concentrator typically processes approximately two million tonnes of ore annually.

Infrastructure

777 Mine is located within the City of Flin Flon, Manitoba. The property is accessed from a paved highway, Provincial Trunk Highway #10. General area infrastructure used by the 777 Mine includes provincial roads, privately owned rail lines, 115kV Manitoba Hydro grid power and Manitoba Telecom Services land line and cellular phone service. The City of Flin Flon is a full service community with available housing, hospital, police, fire department, potable water system, sewage treatment, restaurants, stores and sporting facilities. The community has a municipal paved airstrip located at Baker’s Narrows serviced by two commercial airlines with daily flights to Winnipeg, Manitoba. Hudbay infrastructure within or near the Flin Flon metallurgical complex used by 777 Mine includes: zinc plant, Flin Flon concentrator, paste backfill plant, water retention pond that supplies fresh and process water to the 777 Mine, administration office, assay laboratory, central maintenance shops and tailings impoundment system. The 777 Mine and 777 North expansion are designed to produce approximately 4,300 tonnes per day of ore. Primary access to 777 Mine is by a production shaft. Secondary ramp access via 777 North expansion is under development. Ore is hoisted to surface via the 777 production shaft and milled at the Flin Flon Concentrator using a rod/ball mill and froth flotation circuit, producing zinc

and copper concentrates. The 777 North expansion project is currently under construction. This project will provide ramp access from surface to the existing workings at the 440m level and be used to truck 330 tonnes per day of production. Mining of this portion of the mine is expected to be completed in 2017. Copper concentrate from the mill is filtered (dewatered) and conveyed to bedding bins. The concentrate is loaded into gondola rail cars by a front end loader in the load out facility where concentrate is weighed and sampled for moisture. Following weighing and sampling, lids are placed on the gondola railcars for transport to 3rd party smelters. Bedding bin capacity is 10,900 tonnes (4,550 tonnes in the bedding bins and 6,350 tonnes in the backfill shed). Zinc concentrate is conveyed from the concentrator to the Hudbay zinc pressure leach (ZPL) facility at the Flin Flon metallurgical complex. Following purification, solutions from the ZPL plant are electroplated on aluminium cathode sheets in electrolytic cells. The zinc cathodes are stripped, melted, alloyed and poured into slabs for the market. Refined special high grade zinc is shipped to customers in one of three ingot shapes: continuous galvanizing grade, slabs, and ASTM blocks. Tailings from milling are sent to the Paste Backfill Plant located at the lower level of the mill building. Mixed paste backfill is pumped to one of two lined boreholes adjacent to the mill, where paste is gravity fed to 1082m level for distribution to mined out stopes. The plant operates between 40 to 50% of the time, and on average, utilizes approximately 22% of the total tailings tonnage. Tailings not used in paste production are pumped to the Flin Flon Tailings Impoundment System (FFTIS). The FFTIS, owned and operated by Hudbay is located in Saskatchewan approximately 500m to the west of the Flin Flon Metallurgical Complex. The system has been used for storage of tailings and other waste products generated by the mining and metallurgical processes in Flin Flon since operations began in 1929.

Environmental Permitting

The 777 Mine site did not require any environmental impact studies for approval in 2001, as the mine site was on Hudbay property and part of the existing Flin Flon Metallurgical Complex (FFMC). The 777 Mine site was described as an “alteration to process” under the FFMC Manitoba Environment Act Licence, and did not require any additional environmental investigation during the approval process. The 777 North expansion received Construction Approval PC10-147 from Saskatchewan Ministry of Environment in October of 2010. Hudbay obtained an Alteration to Process License CEC Order No. 1013VC in May 1999 from Manitoba Environment. The mine effluent reporting to the surface drainage system, and ultimately Lake Bottom Reservoir in Saskatchewan, gained approval from Saskatchewan Environment under Approval No. IC-391 in June 2000.

Mineral Reserves

Mining, processing and economic parameters were applied to the block model to form the basis of the reserve estimate. The measured resources were used to estimate the proven mineral reserves and the indicated resources were used to estimate the probable mineral reserve. For mining purposes, there are eight active mining areas in the mine to allow for a blended product with the end goal to send a blended grade to the mill. Mining methods were established for each mining area and a net smelter return (NSR) was calculated to determine the economic viability. The NSR payables consisting of mining areas comprised of blocks from the block model using assumed metallurgical recoveries, long term metal prices, onsite operating costs, capital development and offsite costs were estimated to determine the 777 Mine and 777 North expansion mineral reserves.

Mine Plan

777 Mine is a multi-lens orebody with shaft access down to the 1508m level. The mine consists of an internal ramp that provides access to each mining level. Mobile tired diesel equipment is utilized. Load haul dumps units vary from $6.1m^3$ to $7.6m^3$. Trucks are 40 to 50 ton units feeding an ore pass system or direct to rockbreakers which feed an underground crusher and ore is skipped to surface via the shaft. The 777 Mine began initial production in 2003 and steadily increased to full production in 2006, mining approximately 1.4 to 1.5 million tonnes per year since. A ramp access from surface is currently being developed to the 440m level of the Callinan North lens for mining purposes. This ramp will provide access to the ore of the upper Callinan lenses termed the 777 North expansion project, which is operated, and to an extent, serviced independently from the 777 Mine. The ramp will also have the added benefit of providing the 777 Mine with ramp access after completion, in late 2013 to the 440m level. The 777 Mine shaft will hoist production from both the 777 Zones as well as the lower Callinan lenses. The upper portion of the Callinan lenses production will be trucked up the 777 North expansion ramp. Both the 777 Mine and the 777 North expansion utilize a longhole open stoping mining method. Longhole mining is a non-entry bulk mining method requiring minimal ground support with high productivity and low cost per tonne. Current production rates are expected to be approximately 4,000 tonnes per day for the 777 Mine and 330 tonnes per day at the 777 North expansion based on 363 days of production per year. This yields an expected mine life through to 2020 for the 777 Mine and 2017 for the 777 North expansion.

While there can be risks with mining projects, many of those risks are mitigated with 777 Mine being in full production since 2004 and required surface infrastructure already in place and operating for many years. The author summarizes main risks associated with the 777 Mine as follows:

- Ability to achieve operating and capital costs estimates
- Forecasted metal commodity price and exchange rate

The author summarizes the following opportunities for improvement with the 777 Mine:

- Extension of mine life through upgrading of the inferred resource to higher confidence categories and the discovery of additional resources
- Ability to increase mine ore production by reducing waste tonnes hoisted at 777 Mine and increase ore production up the 777 North expansion ramp

RECOMMENDATIONS

As the 777 Mine is in production, and some early ore already mined at 777 North expansion and with most material exploration activities and engineering studies largely concluded, it is recommended that Hudbay continue its annual exploration and definition drilling programs and follow up on any positive results.

1.1 Technical Summary

PROPERTY DESCRIPTION AND LOCATION

The 777 Mine is an underground copper and zinc mine with significant precious metal credits that straddles the Manitoba/Saskatchewan border and is located immediately adjacent to Hudbay's principal concentrator and zinc pressure leach plant in Flin Flon. Development of the mine commenced in 1999 and commercial production began in 2004. It is part of a cluster of interlinked ore bodies including the prior Callinan Mine and the prior Flin Flon Mine.

Hudbay owns a 100% interest in the properties through 24 Order in Council (OIC) leases, 35 Mineral Leases, and 5 claims held by HBMS or Hudson Bay Exploration and Development Company Limited (HBED), wholly owned subsidiaries of Hudbay.

LAND TENURE AND ROYALTIES

The 777 Mine and Callinan property is located on claims, mineral leases, and Manitoba OIC leases totalling approximately 3,790.55 hectares, including approximately 501.06 hectares in Manitoba and approximately 3,289.49 hectares in Saskatchewan. Hudbay through its wholly owned subsidiaries, HBMS and HBED, own a 100% interest in these mineral leases. Individual leases have different expiry dates that range from 2012 to 2031. Surface rights are held under several leases and permits that also host the Flin Flon Metallurgical Complex with its concentrator and metallurgical plant.

Mineral production from the property is subject to a 6 2/3% NPI and a $0.25 per short ton royalty payable to Callinan Royalties Corporation. The royalty applies to all claims except for Lakeview, Sunshine Fractional, and 113.11 Ha of ML5518. No mineral production is currently expected from those claims.

The NPI is calculated as 6 2/3% of the NPI cash flow which is defined as follows:

- Revenue from sale of copper and zinc concentrate, less:
    - Mining costs (operating and capital)
    - Milling costs (share of Flin Flon concentrator)
    - Administration charge (11% of mining and milling costs)
    - Mill Stay-In-Business charge (4% of milling)

Revenue from sale of concentrate was originally done using prevailing Trout Lake concentrate terms (as per the concentrate agreements between HBMS and its joint venture partners). After HBMS acquired 100% of Trout Lake Mine, the Callinan NPI continued to be calculated using the Trout Lake Mine terms with various escalators to reflect inflation.

Milling costs reflect the 777 Mine's pro-rata share of the Flin Flon concentrator operating costs. Administration and mill Stay-In-Business charges were negotiated in lieu of an allocation of actual costs.

On August 8, 2012 Hudbay entered into a precious metals stream agreement with Silver Wheaton Corp. for 100% of payable gold and silver from 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver. Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

EXPLORATION

The discovery of the 777 deposit was, in contrast to most discoveries in the area, a geological success. Typically deposits in the Flin Flon Greenstone Belt are discovered through geophysical techniques such as airborne, surface and borehole electromagnetic surveys, as most of the deposits do not outcrop to surface. Due to depth, interference from culture such as power lines and lack of drilling in the 777 deposit area, these techniques were not able to be utilized. Instead, the 777 discovery was deemed a geological success as the first hole, 4Q-64, was drilled down to 1,682m in 1993 to test the down trend extents of the Callinan deposit. This hole, drilled on the west of Ross Lake, intercepted two zones of VMS style mineralization. With the confirmation of mineralization down trend, this hole was followed up with further drilling from underground at the 840 metre level track drift of the Callinan Mine. The deposit was later named after the discovery hole, CX-777, which intercepted several zones of massive mineralization, the largest of which was 22.52m in core length grading 5.358g/t gold, 55.994g/t silver, 2.89% copper, and 7.40% zinc.

Further exploration drilling was completed from both surface and underground sites. All deep surface holes, including 4Q-64 and its four wedges, and several underground holes, including CX-777 and its three wedges, were pulsed. They used a similar loop configuration and size to that which is currently used, approximately 1,500m by 1,000m. The results from the geophysical surveys confirmed the geological interpretations.

2011 marked the first year that a concentrated effort on exploration drilling was conducted from underground at the 777 Mine. Much of the drilling up to 2011 was concentrated on defining the current reserve. In excess of 21,000m of underground exploration drilling was drilled at the 777 Mine targeting additional resources in the hanging wall, footwall, along strike and in upgrading inferred resources. Significant knowledge was gained on the stratigraphy of the deposit and this information will aid in the 2012 exploration program which is budgeted to exceed 20,000m of exploration drilling.

GEOLOGY AND MINERALIZATION

REGIONAL GEOLOGY

The Flin Flon Belt is interpreted to be comprised of a variety of distinct 1.92 to 1.87Ga tectonostratigraphic assemblages including juvenile arc, back-arc, ocean-floor and ocean-island, and evolved volcanic arc assemblages that were amalgamated to form an accretionary collage prior to the emplacement of voluminous intermediate to granitoid plutons and generally subsequent deformation (Syme et al., 1998). The volcanic assemblages (Amisk Collage) consist of mafic to felsic volcanic rocks with intercalated volcanogenic sedimentary rocks. The younger plutons and coeval successor arc volcanics, volcaniclastic, and sedimentary successor basin rocks include the older, largely marine turbidites of the Burntwood Group and the terrestrial metasedimentary sequences of the Missi Group.

The Flin Flon Belt is in fault and/or gradational contact with the Kisseynew Domain metasedimentary gneisses to the north and is unconformably overlain by the Paleozoic (Ordovician) cover of sandstone and dolostones to the south. Regional metamorphism at 1.82 to 1.81Ga formed mineral assemblages in the Flin Flon belt that range from prehnite-pumpellyite to middle amphibolite facies in the east and upper amphibolite facies in the north and west (David et al., 1996; Froese and Moore, 1980; Syme et al., 1998).

The eastern portion of the Flin Flon belt is dominated by fold-thrust style tectonics that is atypical of western and central portions of the belt. It is a south-verging, northeast dipping imbricate that was thrust over the previously amalgamated collage of oceanic and arc rocks to the west (Bailes and Galley, 1999). This thrust package has been modified by 1.82 to 1.81Ga regional metamorphism to lower to middle almandine-amphibolite facies mineral assemblages (David et al., 1996; Froese and Moore, 1980).

Intrusions in the belt are divided into pre-, syn- and late tectonic varieties where the pretectonic group includes intrusions that are coeval with the volcanic rocks, as well as those that crosscut volcanic and Missi supracrustal rocks. Numerous mafic to ultramafic dykes intrude the volcanic rocks.

LOCAL AND PROPERTY GEOLOGY

A complex succession of felsic and basalt-dominated heterolithic volcaniclastic rocks host the Flin Flon Main, Callinan and 777 volcanogenic massive sulphide (VMS) deposits within the Paleoproterozoic Flin Flon Belt of Manitoba and Saskatchewan. The north-trending, VMS-hosting, 30 to 700m thick volcanic/volcaniclastic succession is recognized for at least 5 km along strike and has an average dip of 60°E. The volcaniclastic rocks have been interpreted to occupy a volcano-tectonic depression within a basaltic footwall succession (Syme and Bailes, 1993).

The Flin Flon formation is subdivided into three mappable members containing units of heterolithic and monolithic breccias, rhyolite flows and domes, and massive and pillowed basalt flows and flow-top breccias. It comprises of the Millrock member, which contains the 777 and Callinan mineralization, and the footwall to it with the Blue Lagoon and Club members (Devine, 2002).

MINE GEOLOGY AND MINERALIZATION

The 777 and Callinan deposits occur within an east-facing sequence of volcanic rocks documented as tholeiitic and basalt-dominated, and dated around 1888 Ma. The rocks immediately hosting the mineralization, however, consist of quartz-phyric (QP) and quartz-feldspar-phyric (QFP) rhyolite flows and quartz-±feldspar crystal-lithic volcaniclastic rocks of rhyolitic composition (Gibson, Et al, 2011).

The 777 deposit can be divided into two main southeast plunging trends, the North Limb and the South Limb, as well as the West Zone. All three zones lie within the same stratigraphic sequence with the same lithofacies as described above. The West Zone lies in the footwall in what is interpreted to be a lower thrust slice. Both limbs have the same stratigraphic sequence and most likely represent a structural repeat. On average the lenses strike at 010° and dip to the east at 45°. All zones have a relatively shallow plunge trending at -35° towards 140°. Horizontal widths throughout the deposit range from 2.5 meters to 70 meters in thickness, and can be thicker when two or more zones overlap.

There are a total of nine distinct sulphide lenses contained within the 777 deposit. This consists of Zones 10, 15, 20 and 30 occurring in the North Limb, Zones 40, 50, 60 and 70 in the South Limb, as well as Zone 33 as the West Zone. Each of the zones is distinguished based on grade and mineralization type as well as their spatial location. Zone 10 contains varying concentrations of pyrrhotite, pyrite, and chalcopyrite with local sphalerite, arsenopyrite, chalcocite, and chlorite. Zones 15, 50, and 70 are chlorite schist hosted and are typically pyrrhotite and chalcopyrite mineralized with minor amounts of sphalerite, pyrite, arsenopyrite, and magnetite. Zones 30, 33, 40, and 60 are zinc rich with variable amounts of pyrite, sphalerite, and chalcopyrite. Locally, minor pyrrhotite, magnetite, and arsenopyrite are present (Gibson Et. al, 2011). In general each trough is relatively zinc rich on the hanging wall and grading towards copper rich in the footwall. The 777 deposit encompasses an area approximately 1,300m downplunge by 550m across and varying in depth from approximately 870 to 1,600m below surface. Lenses in general are fairly continuous with the exception of scattered diorite intrusions.

The Callinan deposit is subdivided into two rhyolite horizons termed the East-QP and the West-QP. The East-QP is host to the lenses of the North Zone (northern portion), and the East Zone (southeast portion), and is on the same horizon as the 777 mineralization. The

West-QP hosts the South Zone (southwest portion) and its associated lenses. Each of these zones is further subdivided into a number of mineralized lenses. The subdivision of Zones into lenses was based on the spatial distribution of the mineralization. The South Zone lenses generally strikes to the north and dips at 50° to the east with a plunge trending at -50° towards 135°. The North and East Zones generally strike at 020° with a 50° dip to the east with a shallow plunge trending at -30° towards 145°.

There are a total of 20 sulphide lenses contained within the three broad zones of the Callinan deposit. They consist of Lenses 1 to 5, and the Dan Zone in the North Zone, Lenses 1 to 9 in the South Zone and Lenses 1 to 9 in the East Zone. The Callinan mineralization is a distal deposit that has a matrix supported breccia with variable amounts of wallrock fragments in a fine to medium grained sulphide matrix. The wallrock fragments are intensely altered with chlorite, talc and sericite with some degree of pyritization and carbonation. These lenses contain variable amounts of pyrite, sphalerite, chalcopyrite and minor pyrrhotite. Most of the Callinan lenses show similar metal grades typically averaging 1% copper and 4% zinc for most lenses, with the Dan Zone being the notable exception with an estimated grade of 0.27% copper and 8.60% zinc.

Mineralization is generally medium to coarse grained disseminated to solid sulphides consisting of pyrite, chalcopyrite, sphalerite, pyrrhotite, and magnetite. The principle gangue minerals are chlorite and quartz. Alteration minerals include biotite, epidote and actinolite.

MINERAL RESOURCES

In selecting drill hole intersections for the mineral resource estimation, a general guideline of 1% copper or 2.5% zinc was used, however lower grades were occasionally selected if they occurred in the immediate hanging wall or footwall of a zone. The mineralized core lengths used for estimation of zones were as low as 0.3m to allow for kriging of these grades into surrounding blocks, as well as general mine planning.

Mineral resources have been separated into the 777 and Callinan portions of the deposit. This has been done for mining and planning purposes as the Callinan lenses represent the upper, and more historic, portion of the mineralization and the 777 Zones represent the lower more recently drilled and identified mineralization. The 777 Mine shaft will hoist production from both the 777 Zones as well as the lower Callinan lenses. The upper portion of the Callinan lenses production will be trucked up the 777 North expansion ramp.

Hudbay has verified the drill hole database from drill logs and assay values. No significant discrepancies existed; the information was deemed reliable and is believed to be accurate and suitable for mineral resource estimation. Measured specific gravity (SG) determinations were made on a portion of the assay intervals included in the resource estimation. Where actual measurements were not available, calculation of the SG is based on core logged mineral code and corresponding stoichiometric formula. Both the measured and the calculated SG values were used to determine the bulk density for the mineral resource estimation.

In the 777 Zones and the Callinan East 9 lens, high grade values of gold, silver, copper and zinc, iron, and SG were restricted to 20m, as well as some low values for iron and SG. Assays for all zones/lenses were weighted either by SG or by SG multiplied by sample length and composited into either full length or fixed length composites, from footwall to hanging wall contact.

The interpreted lenses of the 777 Zones as well as the 1 North, 2 North, 1 South, 2 East, 7 East, and 9 East Callinan lenses were built by digitizing polylines around the mineralization on 4 to 8m sections at azimuths varying between 000° and 358° depending on the trend of the zone, or portion thereof. Polylines were then linked with tag strings and triangulated in order to create three-dimensional wireframe solids.

The remainder of the mineralization was interpreted by digitizing polylines in a 2D plane around mineralized intercepts. The average strike and dip of the zone was estimated and utilized to calculate the horizontal width (3rd dimension) of the mineralization for both the 2D GSM (Gridded Seam Model) and the polygonal interpretations.

The mineral resource for the 777 Zones were estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation, for Zones 20 and 70, or with relative ordinary kriging used for the remaining zones at the 777 Mine.

Mineral resource estimates for the Callinan lenses were interpolated using a variety of methods over the years, depending mainly on how recently the lenses underwent diamond drilling or mine production. The mineral resource for the Callinan lenses was estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation for North 1, North 2, North 3, North 5, East 2, East 7, and the East 9 lenses. Several lenses were also calculated with ordinary kriging using 2D GSM interpretations. This was utilized for the North 4, South 2, South 4, South 7, South 9, East 1, and East 3 lenses. Polygonal resource calculations were carried out for South 3 as well as the Dan Zone. The South 1 lens was calculated using inverse distance squared methodology. The Dan Zone mineralization, from the 777 North expansion operation, is included with the Callinan resource in the inferred category.

The 777 Mine mineral resource estimate as well as the Callinan 1 South and East 9 lenses were prepared by Brett Pearson, P.Geo., 777 Senior Mine Geologist, Hudbay under the supervision of Robert Carter, P.Eng., Director, Technical Services, Hudbay. The estimate was completed using MineSight 6.5 software in mine coordinates, or for the Callinan lenses, the current version of MineSight at the time of estimation. The block model was constrained by interpreted 3D wireframes of the mineralization. Gold, silver, copper, zinc, iron, specific gravity and in some cases dilution variables and horizontal width were estimated into blocks using either ordinary kriging or relative co-ordinate kriging for most lenses.

All other Callinan lenses were estimated previously under the supervision of the Senior Mine Geologist at the time of estimation. They have been verified and no major discrepancies were apparent that would have a material effect of the resource.

The mineral resource estimates for the 777 and the Callinan lenses are tabulated in Table 1.2.

Table 1.2 Mineral Resource Summary – October 1, 2011

Lenses	Classification	Tonnes	Gold (g/t)	Silver (g/t)	Copper (%)	Zinc (%)
777	Measured	5,060,000	2.48	33.19	3.08	5.21
	Indicated	7,061,000	2.16	32.31	2.18	5.17
	Meas. + Ind.	**12,121,000**	**2.29**	**32.68**	**2.56**	**5.19**
	Inferred	569,000	2.31	49.11	1.75	6.80
Callinan	Measured	568,000	2.15	33.00	1.37	4.57
	Indicated	1,606,000	1.82	27.99	1.14	3.82
	Meas. + Ind.	**2,174,000**	**1.91**	**29.30**	**1.20**	**4.02**
	Inferred	615,000	1.64	29.97	1.13	4.23
Total 777 & Callinan	**Meas. + Ind.**	**14,295,000**	**2.23**	**32.16**	**2.35**	**5.01**
	Inferred	1,184,000	1.96	39.17	1.43	5.47

Notes:
1. CIM definitions were followed for the estimation of mineral resources.
2. Specific gravity measurements were taken on a portion of the samples; where actual measurements were not available, a stoichiometric value was calculated.
3. Mineral resources that are not converted to mineral reserves do not have demonstrated economic viability

Validation exercises were carried-out on the block model grade estimates. These validation exercises included:

a) Comparisons against underground mine production and reconciliation
b) Visual inspection of the block model grades in plan and sectional views in comparison to the drill hole composite grades
c) Comparison to previous estimate

Mineral resources are classified according to the CIM Definition Standards on Mineral Resources and Mineral Reserves (CIM definitions), as incorporated in NI 43-101. All blocks estimated during the grade interpolation were assigned at least an Inferred category. Blocks that were at least estimated in the second pass and roughly less than or equal to 30m from the nearest drill hole showed a reasonable continuity of the mineralization and were generally qualified as Indicated resources. Measured blocks were defined from areas where mining has proven the continuity of mineralization. Where the zone has both an undercut and an overcut the ore between was classified as measured as well as any blocks within 5m above or below the mining development. An outline was created around the measured and indicated blocks in order to select contiguous blocks, and all blocks contained within these outlines were then classified accordingly.

The resource estimate was completed using MineSight 6.5 software in mine coordinates, or for the Callinan lenses, the current version of MineSight at the time of estimation. The block model was constrained by interpreted 3D wireframes of the mineralization. Gold, silver, copper, zinc, iron, specific gravity and in some cases dilution variables and horizontal width were estimated into blocks using either ordinary kriging or relative co-ordinate kriging for most lenses. Lens intersections were generally selected based on a copper grade of greater than 1% copper or 2.5% zinc, or a combination thereof. Intersections were modelled as low as 0.3m to provide additional information for statistical and mining information.

A zinc or copper equivalency was not used in the determination of the resource.

MINERAL RESERVES

Mining, processing and economic parameters were applied to the block model to form the basis of the reserve estimate. The measured resources were used to estimate the proven mineral reserves and the indicated resources were used to estimate the probable mineral reserve.

The orebody is polymetallic with economically significant metals being copper, zinc, gold, and silver. The base metal mineralization consists of solid sulphide, near solid sulphides, and stringers sulphides. Precious metals are disseminated throughout the mineralized zones in varying amounts. Sulphide minerals present are typically chalcopyrite, sphalerite, pyrite, or pyrrhotite.

For mining purposes, there are eight active mining areas in the mine to allow for a blended product with the end goal to send a blended grade to the mill. Mining methods were established for each mining area and a net smelter return (NSR) was calculated to determine the economic viability.

The methodology used to estimate the dilution and overall recovered tonnes was to cut plans and sections through each mining block and calculate an expected recovery, which is based cavity monitoring surveys of previously mined out stopes. Mining blocks are areas of similar geometry (dip and thickness) where a single mining method is appropriate.

After establishing mining blocks, cross sections were analyzed to determine expected dilution and expected mining losses. Dilution and recovery factors were then applied to each mining block to determine the diluted and recovered tonnes to which economic criteria would be applied.

The 777 Mine and 777 North expansion metallurgical assumptions are based on production head grades over the life of mine processed at the Flin Flon concentrator. Two concentrates are produced, a zinc concentrate is directed to the Hudbay zinc plant in the Flin Flon metallurgical complex for production of refined zinc, and a copper concentrate with precious metal enrichment that is shipped to third party smelters.

To determine the economic viability of resources, onsite operating costs (mining, concentrating and general mine expenses), capital development and offsite costs (concentrate freight, processing, refining, general & administration) were estimated and applied against copper and zinc concentrate produced for each mining block to estimate a NSR for each mining block.

The mining blocks that passed the NSR the economic test were scheduled in a mine plan prior to converting to mineral reserves.

The mineral reserve estimates for the 777 Mine and 777 North expansion is tabulated in Table 1.3.

Table 1.3 Mineral Reserve Summary[1]

	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)
Proven Mineral Reserve	4,921,000	1.97	26.78	2.36	4.16
Probable Mineral Reserve	7,464,000	1.82	27.86	1.64	4.44
Total Proven & Probable Mineral Reserves	12,385,000	1.88	27.43	1.92	4.33

[1]Inclusive of mineral resources set forth in Table 1.2.

OPERATIONS

MINING

777 Mine is a multi-lens orebody with shaft access down to the 1508m level. The mine consists of an internal ramp that provides access to each mining level. Mobile tired diesel equipment is utilized. Load haul dumps units vary from 6.1m^3 to 7.6m^3. Trucks are 40 to 50 ton units feeding an ore pass system or direct to rockbreakers which feed an underground crusher and ore is skipped to surface via the shaft.

The 777 Mine began initial production in 2003 and steadily increased to full production in 2006, mining approximately 1.4 to 1.5 million tonnes per year since.

A ramp access from surface is currently being developed to the 440m level of the Callinan North lens for mining purposes. This ramp will provide access to the ore of the upper Callinan lenses termed the 777 North expansion, which is operated, and to an extent, serviced independently from the 777 Mine. The ramp will also have the added benefit of providing the 777 Mine with ramp access after completion, in late 2013 to the 440m level.

Drilling in waste and ore drifts, crosscuts and ramps is done using two boom electric hydraulic jumbo drills. Rounds mined in low sulphide waste are blasted using ANFO, while rounds mined in ore are blasted using an emulsion with a sulphide blast inhibitor. Ore and waste are mucked by a load-haul-dump (LHD) scooptram to a remuck or directly to a haul truck or to an ore/waste pass if nearby. Following mucking, standard ground support, consisting of resin grouted rebar and welded wire mesh, to within 1.8m of the sill is installed.

Generally, hanging wall drifts are developed parallel to the ore zones and stope access drifts are then developed into the ore. As levels are developed, stope entrance crosscuts are stubbed off and used as temporary remucks. Main levels are connected by a haul ramp to allow mechanized equipment to travel from level to level.

Main ventilation raises and ore/waste pass raises are developed by a mining contractor using Alimak climbers and hand held drills.

Longhole open stope is the mining method used at the 777 Mine, which is a non-entry bulk mining method requiring minimal ground support with high productivity and low cost per tonne. Primary stopes are mined and filled with pastefill, while secondary stopes are mined and filled with unconsolidated loose waste rock. Longhole stopes are mined at 15m to 17m vertical sill to sill intervals. Stope strike lengths are generally 16m with widths of 2 to 100m, with an average of approximately 20m. The ore is undercut at the top and bottom of the block, providing access for drilling and mucking. Drilling is done by two top hammer longhole drills with holes varying in length between 10m and 20m long and a hole diameter of 3 inches. Mucking is accomplished by remote control LHD’s and then loaded to haul trucks.

Retreat longhole open stope and cut and fill are the mining methods planned for the 777 North expansion, for the upper Callinan lenses. Longhole stopes will be mined using a similar method as at 777 Mine.

Approximately 31.6% of the mineral reserve will be mined using cut and fill mining, 37% using longhole mining with the remaining 31.4% being mined by undercutting.

All stopes at the 777 Mine are backfilled to maintain long term stability and to provide a floor to work from for subsequent mining. Paste is the primary backfill method, which is an engineered product comprised of mill tailings and a binder (approximately 3% cement by weight) mixed with water to provide a thickened paste that is delivered by borehole and pipes to primary stopes. Unconsolidated or loose rock backfill is used in secondary longhole stopes, where pillar or wall confinement is not required.

Unconsolidated or loose rock backfill will be used in longhole stopes and cut and fill stopes in the 777 North expansion.

Ore at 777 Mine is loaded by LHD’s to underground haul trucks, which dump to a series of ore passes that feed three chutes on 1412m level. Haul trucks are loaded from the chutes and haul the ore on the 1412m level haulage drift directly to the ore grizzly / rockbreaker at 1412m to properly size the muck. The ore is temporarily stored in a 1,725 tonne coarse ore bin that feeds the Birdsboro Buchanan 48” x 60” C-DF 250HP crusher. From the crusher it is conveyed to a 1,600 tonne fine ore bin, where it is conveyed to a loading pocket at 1508m level and placed into two 15 tonne skips and hoisted to surface. The ore on surface is hauled by 53 to 63 tonne haulage trucks directly to the Flin Flon Concentrator or is dumped on a stockpile close to the concentrator.

Ore from 777 North expansion is loaded onto haul trucks by LHD's and transported up the ramp to surface. The ore is dumped on the ground prior to be sent through a surface crusher operated by a contractor. The ore is then loaded and transported for processing at the Flin Flon concentrator or stockpiled nearby.

The ore system that services the 777 Mine includes a Hepburn Double Drum (5.03m diameter x 2m) 5,500HP production hoist with two 15 tonnes skips, a Hepburn Double Drum (4.2m diameter x 2.06m) 1,750HP service hoist with a 2 deck 100 man cage, and a ASEA/ABB Single Drum (2.54m diameter x 1.29m) 1,120HP Auxiliary Hoist with a 6 man auxiliary cage. All conveyances are in a 6.7m diameter by 1,530 meter deep concrete lined shaft that runs from surface to the 1,508m level.

Current production rates are expected to be approximately 4,000 tonnes per day for the 777 Mine and 330 tonnes per day at the 777 North expansion based on 363 days of production per year. This yields an expected mine life through to 2020 for the 777 Mine, while 777 North expansion is expected to end production in 2017.

Water for mining activities is supplied from a reservoir located adjacent to 777 Mine site across Provincial Trunk Highway #10. Approximately 220,000 gallons of fresh water is required per day for rock drilling, dust suppression, washing of muckpiles and for active mining areas. Potable water is delivered to the site in five gallon containers and distributed to the various offices, lunchrooms and refuge stations.

The 777 Mine is supplied with approximately 650,000 cfm by two 350HP 2.6m Vane Axial fans with a propane heater pushing air down the shaft. This is augmented by one Centrifugal 2.1m 900HP fan in parallel with a Vane Axial 1.2m 250HP fan providing approximately an additional 300,000 cfm from the 2.7m x 3.7m Callinan downcast system which has its own propane air heater. The Callinan downcast raise is also connected to, and supplies air to, the 777 North expansion. Air is brought underground via fresh air raises and distributed to the levels with a series of 200HP booster fans and other smaller auxiliary fans using 54" vent tubing and various bulkheads. Exhaust raises bring exhaust air back to surface aided by a centrifugal 4.3m 3,500HP fan on surface.

The 777 North expansion is supplied by one Centrifugal 2.1m diameter 900HP fan in parallel with a Vane Axial 1.2m diameter 250HP fan providing approximately 120,000 cfm from the 2.7m x 3.7m Callinan downcast system which has its own propane air heater to the 120m level. Air is then brought to the workings via 54" rigid fibreglass ducting with exhaust being carried out the main decline to the portal.

The 777 Mine is supplied by two 13.8kV overhead lines and power is distributed throughout the site as required. The 777 North expansion power is supplied by two 4160V feeders, sourced from the Callinan downcast surface substation. The first 4160V line runs down to the 750kVA substation at 40m level and the second runs underground via a 0.23m borehole that parallels the ventilation raise to the 120m level where it connects to a second 750kVA substation and also continues down ramp to feed additional substations.

The 777 Mine workforce is expected to remain constant throughout the life of mine at current levels of 237 personnel and 777 North expansion is expected to increase once mining commences to approximately 32.

MINERAL PROCESSING

Ore is processed at the Hudbay Flin Flon concentrator. The ore from each mine is stored separately and batch crushed to 20 mm in a two stage closed circuit crushing plant. At this point, the 777 and 777 North expansion ore is combined with other available ore from other Hudbay mining operations, if available. This circuit consists of two 1200 Hp open circuit rod mills in parallel and one 5,000 Hp ball mill. The ball mill operates in closed circuit with 6x500 mm cyclones to produce a final product size of 80% passing 70 microns.

The Flin Flon Concentrator is capable of producing two concentrates; a zinc concentrate and a copper concentrate with gold and silver credits. The Flin Flon Concentrator typically processes approximately two million tonnes of ore annually.

Copper and zinc minerals are recovered in sequential flotation circuits, with gold and silver mineralization recovered to the copper concentrate. The copper circuit consists of roughing, scavenging and two stages of cleaning. Scavenger concentrate and first cleaner tailings report back to the ball mill for regrinding. Lime is added during the process to maintain pH levels in the roughers. The primary copper collector is used to enhance gold recoveries.

Tailings from the copper circuit report to conditioning tanks at the head of the zinc circuit. Additional lime is added to increase the pH levels, and copper sulphate is added to the slurry to activate the sphalerite and make it available for flotation. The zinc circuit consists of roughing, scavenging and three stages of cleaning.

Target concentrate grades are approximately 24.5% copper and 51.5% zinc. Both concentrates are dewatered with high capacity thickeners. The copper concentrate is filtered by a Larox pressure filter, achieving a moisture content of 8%, while the zinc concentrate is filtered by vacuum disc filters.

The copper concentrate is loaded onto railcars and shipped by rail for sale to customers. The zinc concentrate is mixed with other zinc concentrate from the company's Snow Lake mill and third party concentrate, if available. The mixed concentrate is then reground to 98% passing 44 micron and is thickened to produce a slurry that is pumped into the zinc pressure leach and electro-winning plant for processing.

INFRASTRUCTURE

General area infrastructure used by the 777 Mine includes provincial roads, privately owned rail lines, 115kV Manitoba Hydro grid power and Manitoba Telecom Services land line and cellular phone service.

The City of Flin Flon is a full service community with available housing, hospital, police, fire department, potable water system, sewage treatment, restaurants, stores and sporting facilities. The community has a municipal paved airstrip located at Baker's Narrows serviced by two commercial airlines with daily flights to Winnipeg, Manitoba.

The 777 Mine and 777 North expansion is designed to produce approximately 4,300 tonnes per day of ore. Primary access to 777 Mine is by a production shaft. Secondary ramp access via 777 North expansion is under construction. Ore is hoisted to surface via the 777 production shaft and milled at the Flin Flon Concentrator using a rod/ball mill, producing zinc and copper concentrates.

The 777 Mine produces approximately 1,500,000 tonnes per year of ore with excess hoisting capacity utilized for waste skipping. The main shaft is 1,540m deep and is 6.7m in diameter. The shaft has seven shaft stations located at 300m level, 690m level, 1082m level, 1262m level, 1412m level, 1465m level and 1508m level. The 300m level, 1465m level and 1508m level shaft stations are accessible from the shaft only. An internal ramp links underground infrastructure between the 440m level and the 1460m level. Currently, secondary egress is via an escape raise from the 440m level to surface.

The 777 North expansion project is currently under construction. This project will provide ramp access from surface to the existing workings at the 440m level and be used to truck 330 tonnes per day of production. Mining of this portion of the mine is expected to be completed in 2017.

Waste rock from mine development is used, when possible, for fill and cemented rock fill underground. The remainder is hoisted to surface and stored near the tailings pond to be used for civil construction projects such as tailings dam walls, road construction and other mining related purposes.

The Flin Flon Concentrator produces copper and zinc concentrates. Copper concentrate is sold to third party smelters. Copper concentrate from the mill is filtered (dewatered) and conveyed to bedding bins. The concentrate is loaded into gondola rail cars by a front end loader in the load out facility where it is weighed and sampled for moisture. Following weighing and sampling, lids are placed on the gondola railcars for transport to 3rd party smelters. Bedding bin capacity is 10,900 tonnes (4,550 tonnes in the bedding bins and 6,350 tonnes in the backfill shed).

Zinc concentrates are conveyed from the concentrator to the Hudbay zinc pressure leach (ZPL) facility at the Flin Flon metallurgical complex. The ZPL process ensures minimal discharge to the environment. The concentrate is treated in a two stage autoclave leaching and thickening process, followed by removal of sulphur, gypsum, copper and iron. Following purification, solutions from the ZPL plant are electroplated on aluminium cathode sheets in electrolytic cells. The zinc cathodes are stripped, melted, alloyed and poured into slabs for the market. Refined special high grade zinc is shipped to customers in one of three ingot shapes: continuous galvanizing grade, slabs, and ASTM blocks. Zinc can be alloyed with aluminium, lead, or cadmium. When zinc casting is complete, the zinc metal is placed in storage to cool before being loaded into boxcars or trucks and shipped to customers. Hudbay's casting operation is certified to ISO 9001, ISO 14001, and OHSAS 18001 management systems for quality, environment, and safety.

Tailings from milling are sent to the Paste Backfill Plant located at the lower level of the mill building. The tails are classified by cyclones to remove excess fines, then thickened, filtered and mixed with cement in a ratio specified by the mine. Mixed paste backfill is pumped to one of two lined boreholes adjacent to the mill, where paste is gravity fed to 1082m level for distribution to mined out stopes. The plant operates between 40 to 50% of the time, and on average, utilizes approximately 22% of the total tailings tonnage.

Tailings not used in paste production are pumped to the Flin Flon Tailings Impoundment System (FFTIS). Discharge water from the mining operations reports via a pipeline into an internal drainage channel where it flows to the Lake Bottom sump along with other surface infrastructure run-off water. The water is treated by the addition of lime before being pumped into the FFTIS where it is further treated before final discharge to the environment. The FFTIS, owned and operated by Hudbay is located in Saskatchewan approximately 500m to the west of the Flin Flon Metallurgical Complex. The system has been used for storage of tailings and other waste products generated by the mining and metallurgical processes in Flin Flon since operations began in 1929.

The FFTIS provides two basic objectives prior to water discharge to the environment; removal and storage of solids, and the removal and storage of heavy metals. Solids are removed by deposition, which occurs mainly within the Primary and Secondary Ponds as suspended solids fall out of suspension. Heavy metals are removed by maintaining an elevated pH within the facility and promoting the creation of hydroxide precipitates. This is achieved by first discharging a tailings slurry with a high pH followed by the addition of a lime slurry to the effluent.

Legal requirements issued by the Federal Government and Provinces of Manitoba and Saskatchewan are relevant to the FFTIS. Both Manitoba and Saskatchewan govern the physical integrity of the FFTIS. Saskatchewan and the Federal Fisheries Act regulate the quality of water discharged from the FFTIS. Saskatchewan Environment issues a permit to discharge water from the FFTIS.

The FFTIS covers an area approximately 365Ha in size with approximately 100 million tonnes of tailings.

Propane is stored on surface in two 30,000USG tanks where it is distributed via underground pipes to the 777 Mine headframe downcast and the former Callinan Mine downcast fan, where it is used in the burners to heat the air before it enters the mine. Propane is also distributed, via underground pipelines, to all other surface infrastructure (hoistroom, office, warehouse, etc) where it also utilized for heating.

ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The 777 Mine site did not require any environmental impact studies for approval in 2001, as the mine site was on Hudbay property and part of the existing Flin Flon Metallurgical Complex (FFMC). Additionally, the FFMC is a historic site that predates current environmental regulation, and at the time the 777 Mine was being developed, the surrounding environment had already been impacted from the historic mining activities in the area. These impacts are outlined in an Environmental Impact Statement completed for the Flin Flon Tailings Impoundment System (FFTIS).

The 777 North expansion site was described as an “alteration to process” of the existing 777 Mine site, and did not require any additional environmental investigation during the approval process. The 777 North expansion received Construction Approval PC10-147 from Saskatchewan Ministry of Environment in October of 2010.

All water from the 777 Mine is discharged to an internal drainage channel, which drains to the Lake Bottom Reservoir. Water from the reservoir is pumped to the FFTIS for treatment, and then discharged at our licensed discharge location at the North Weir. Water quality samples from the 777 Mine discharge are collected on a weekly basis and analysed for metals and suspended solids. Water quality at the FFTIS North Weir final discharge is analysed on a daily basis to ensure it complies with environmental regulations for effluent discharge.

Hudbay has close ties to the neighboring communities of Flin Flon and Creighton. Ongoing communications with these communities provides for continued good relations.

Closure and remediation plans including detailed costs associated with the 777 North expansion will be incorporated in future FFMC Closure Plans. Orders of magnitude costs associated with mine openings and waste rock would be $200,000. Only one new vent raise and the portal will require decommissioning. All other openings already exist and are covered under the 777 Mine closure plan.

The 777 Mine closure plan addresses surface infrastructure only. It is assumed that the underground will be decommissioned prior to completion of production. All buildings will be demolished, as well as the vent raise and backfill raise huts. The shaft, vent raises and exhaust will be capped. Contaminated soils will be excavated and disposed of. The final surface will be graded to direct surface run-off towards the Lake Bottom Reservoir at the FFMC. The access road will be scarified as part of the FFMC area closure plan. Growth medium will be placed, seeded and fertilized.

A limited period of post-closure monitoring of the revegetated area will be required at the 777 Mine site.

CAPITAL and OPERATING COSTS

Capital and operating costs are estimated in constant 2012 Canadian dollars. The 777 Mine has been in commercial production since 2004 and the original project capital has already been paid back and ongoing capital is defined as sustaining capital.

Capital and operating costs are based on actual costs from the last several years of mining at 777 Mine and were used in preparation of the 2012 budgets for 777 Mine and 777 North expansion.

The LOM sustaining capital costs are estimated to be $162.12M as summarized in Table 1.4. The sustaining capital cost estimates are determined to have a high level of accuracy in the range of +/-15%.

Table 1.4 LOM Sustaining Capital Cost Estimate

	Sustaining Capital (C$ 000's)
Surface Construction and Equipment Repairs	16,320
Underground Installations	5,755
Replacement Mine Equipment	32,202
Mine Equipment	2,890
Underground Development	71,905
General Mine Expense	33,047
Total Sustaining Capital	**162,120**

The operating costs were estimated based on actual costs from the last several years of mining at 777 Mine and were used in preparation of the 2012 budgets for 777 Mine and 777 North expansion. Operating costs include onsite operating development, ore production, ore removal, concentrating, share of general mine expense costs, processing and refining and G & A. The total operating LOM costs are estimated to be $115.47/tonne milled or $1,430.1M for the life of mine, shown in Table 1.5.

Table 1.5 LOM Operating Costs

	Total (C$ 000's)	Unit Cost (C$/tonne)
Ore Extraction and Removal	231,702	18.71
Operating Development	98,282	7.94
General Mine Expense	165,263	13.34
Concentrating	165,709	13.38
Total Mine/Mill Operating Cost	**660,957**	**53.37**
Processing & Refining	355,767	28.73
G & A	413,360	33.38
Total Operating Cost	**1,430,083**	**115.47**

2. INTRODUCTION

The authors have prepared this technical report for Hudbay Minerals Inc. (Hudbay) on its 777 Mine located in Flin Flon, Manitoba. The 777 North expansion is considered part of 777 Mine but for certain purposes including mineral resource and reserve, mine planning, infrastructure and metallurgical recovery it is disclosed separately in this report. Unless the context indicates otherwise references to the 777 Mine include the 777 North expansion. This technical report conforms to the CIM Mineral Resource and Mineral Reserves definitions referred to in National Instrument (NI) 43-101, Standards of Disclosure for Mineral Projects.

Hudbay is an integrated Canadian mining company with assets in North and South America principally focused on the discovery, production, and marketing of base and precious metals. Hudbay's objective is to maximize shareholder value through efficient operations, organic growth and accretive acquisitions, while maintain its financial strength.

The Hudbay operations in Flin Flon, Manitoba include the 777 Mine, an ore concentrator and a zinc plant. Operations in Snow Lake, Manitoba, include an ore concentrator and the Lalor development project.

This report includes mineral resource information pertaining to the 777 Mine as of October 1, 2011 and the mineral reserve information as of January 1, 2012. The underlying data consists of over 3,300 drill holes that have been recorded for the project, conducted during the span of over 20 years.

As of the date of this report, mining is actively underway at the 777 Mine with the deposit being continuously mined since operations started in the upper lenses of the mine, also known as the Callinan Deposit, in 1989.

The 777 deposit is a stratabound massive sulphide deposit that occurs within Precambrian volcanic and volcaniclastic rocks. Mineralization consists of generally medium to coarse-grained disseminated to solid sulphides consisting of pyrite, chalcopyrite, sphalerite, and pyrrhotite.

Hudbay's wholly owned subsidiary HBMS took a working option on the property in 1967 from Consolidated Callinan Flin Flon Mines Limited (referred to now as Callinan Royalties Corporation) and later acquired the claims in exchange for a net profits interest (NPI) and a royalty in respect of production from these claims. Mineral production from the property is subject to a 6 2/3% NPI and a $0.25 per short ton royalty payable to Callinan Royalties Corporation. The royalty applies to all claims except for Lakeview, Sunshine Fractional, and 113.11 Ha of ML5518. No mineral production is currently expected from those claims.

On August 8, 2012 Hudbay entered into a precious metals stream agreement with Silver Wheaton Corp. for 100% of payable gold and silver from 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver. Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

Purpose of Technical Report

This report has been prepared to satisfy Hudbay's requirement as a reporting issuer under National Instrument (NI) 43-101.

The Qualified Persons (QP) are not independent of Hudbay, and this is not an independent technical report, but as Hudbay is a "producing issuer" as defined in NI 43-101, its technical report is not required to be prepared by or under the supervision of an independent QP.

2.1 Sources of Information

A summary of the QPs responsible for each section of this report is detailed in Table 2.1 and certificates of QPs are included in this technical report. Personal inspections of the 777 Mine were conducted by Robert Carter, P. Eng, Brett Pearson, P. Geo, and Darren Lyhkun, P. Eng. on June 5, 2012, by Cassandra Spence, P. Eng. on December 13, 2011 and by Stephen West, P. Eng. on May 8, 2012.

Table 2.1 Technical Report Participants

Activity	Report Section	Prepared by	Responsible Qualified Person
Executive Summary	1		Robert Carter, P. Eng., Hudbay
Introduction and Terms of Reference	2	Trevor Allen, P. Geo., Hudbay	Robert Carter, P. Eng., Hudbay
Reliance on Other Experts	3	Trevor Allen, P. Geo., Hudbay	Robert Carter, P. Eng., Hudbay
Property Description and History	4 to 6	Trevor Allen, P. Geo., Hudbay	Robert Carter, P. Eng., Hudbay
Geology, Mineralization, and Drilling	7 to 10	Trevor Allen, P. Geo., Hudbay	Brett Pearson, P. Geo., Hudbay
Sample Preparation, Analyses and Security, and Data Verification	11 to 12	Trevor Allen, P. Geo., Hudbay	Robert Carter, P. Eng., Hudbay
Mineral Processing and Metallurgical Testing, and Recovery Methods	13 and 17		Cassandra Spence, P. Eng., Hudbay
Mineral Resource	14		Brett Pearson, P. Geo., Hudbay
Mineral Reserve	15		Darren Lyhkun, P. Eng., Hudbay
Mining Methods	16		Darren Lyhkun, P. Eng., Hudbay
Project Infrastructure	18	Doug Salahub, Hudbay	Robert Carter, P. Eng., Hudbay
Market Studies and Contracts	19		Robert Carter, P. Eng., Hudbay
Environmental Studies, Permitting and Social or Community Impact	20	Jay Cooper, Hudbay	Stephen West, P. Eng., Hudbay
Capital and Operating Costs	21		Robert Carter, P. Eng., Hudbay
Economic Analysis	22		Robert Carter, P. Eng., Hudbay
Adjacent Properties	23, 24	Trevor Allen, P. Geo., Hudbay	Robert Carter, P. Eng., Hudbay
Interpretation, Conclusions and Recommendations	25, 26		Robert Carter, P. Eng., Hudbay

Definitions

Acronyms and abbreviations commonly used in this report are presented in this section. Both imperial and metric units are used in this report. All currency in this report is Canadian dollars (C$) unless otherwise noted.

Unit Abbreviations

µ	micron
°C	degree Celsius
%	percent
C$	Canadian dollars
cfm	cubic feet per minute
cm	centimetre
Ga	billion years
g/t	gram per tonne
hr	hour
ha	hectare
k	kilo (thousand)
kg	kilogram
km	kilometre
km/hr	kilometre per hour
kV	kilovolt
kVA	Kilovolt-ampere
kWh	kilowatt-hour
kWh/t	Kilowatt-hour/tonne
M	million
m^3	cubic metre
Ma	million years
MW	Megawatts
t	metric tonne
US$	United States dollar
USgpm	US gallon per minute
V	volt

Name abbreviations

2DGSM	Two-Dimensional Gridded Seam Model
3D	Three-Dimensional
AAS	Atomic Absorption Spectrometry
Acme	Acme Analytical Laboratories Ltd.
ACS	American Chemical Society
AES	Atomic Emmision Spectrometry
ASL	Above Sea Level
ASTM	American Society for Testing and Materials
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CMS	Cavity Monitoring System
CRF	Cemented Rock Fill
CRM	Certified Reference Material
FFMC	Flin Flon Metallurgical Complex
FFTIS	Flin Flon Tailings Impoundment System
G & A	General & Administration
H_2O	Water
HBED	Hudson Bay Exploration and Development Company Limited
HBMS	Hudson Bay Mining and Smelting Co., Limited
HCl	Hydrochloric Acid
HNO_3	Nitric Acid
Hudbay	Hudbay Minerals Inc.
ICP	Inductively Coupled Plasma
IDW	Inverse Distance Squared Weighted
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
LHD	Load haul and dump
LOM	Life of Mine
NN	Nearest Neighbour
OK	Ordinary Kriging
OLG	Otter Lake Granite
P. Eng.	Professional Engineer
P. Geo.	Professional Geoscientist
PbO	Lead Oxide
PGE	Platinum Group Elements
PTH	Provincial Trunk Highway
QAQC	Quality Assurance/Quality Control
RQD	Rock Quality Designation
SG	Specific Gravity
VMS	Volcanogenic Massive Sulphide

3. RELIANCE ON OTHER EXPERTS

Hudbay has followed standard professional procedures in preparing the contents of this mineral resource estimation report for Hudbay. Data used in this report has been verified where possible and Hudbay has no reason to believe that the data was not collected in a professional manner and no information has been withheld that would affect the conclusions made herein.

The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Hudbay at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Hudbay and other third party sources

For the purpose of the report, the author's have relied on title and property ownership information provided by Ens Land Management (dated March 1, 2012 from Janelle Toffan) and tax information provided by Hudbay. The author's do not take responsibility for information regarding property ownership and tax.

4. PROPERTY DESCRIPTION AND LOCATION

The 777 Mine is an underground copper and zinc mine with significant precious metal credits that straddles the Manitoba/Saskatchewan border and is located immediately adjacent to Hudbay's principal concentrator and zinc pressure leach plant in Flin Flon. Development of the mine commenced in 1999 and commercial production began in 2004. It is part of a cluster of interlinked ore bodies including the prior Callinan Mine and the prior Flin Flon Mine.

Hudbay owns a 100% interest in the properties through 24 Order in Council (OIC) leases, 35 Mineral Leases, and 5 claims held by HBMS or HBED, wholly owned subsidiaries of Hudbay.

4.1 Location

The 777 and Callinan property is located 1km north of the original Flin Flon mine, in close proximity to the metallurgical plant facilities, in Flin Flon, Manitoba at 54°46.5'N latitude, 101°52.8'W longitude, and 311m ASL (Figure 4.1).

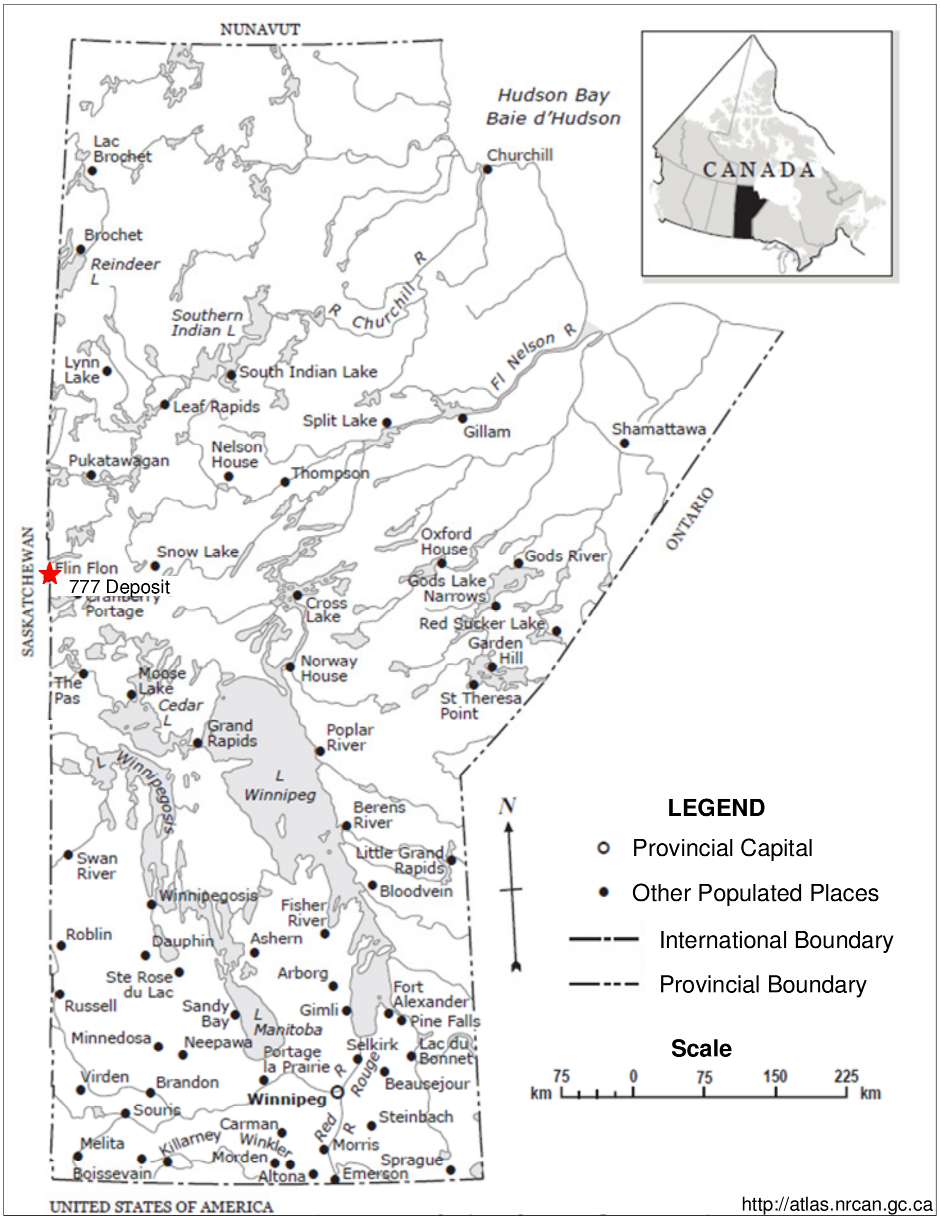
4.2 Land Tenure and Title

The 777 Mine and Callinan property is located on claims, mineral leases, and Manitoba OIC leases totalling approximately 3,790.55 hectares, including approximately 501.06 hectares in Manitoba and approximately 3,289.49 hectares in Saskatchewan. The actual claim area is smaller than stated as a portion of the Saskatchewan and Manitoba properties overlap due to their close proximity to the interprovincial border. Hudbay through its wholly owned subsidiaries, HBMS and HBED, own a 100% interest in these mineral leases. Individual leases have different expiry dates that range from 2012 to 2031. Surface rights are held under several leases and permits that also host the Flin Flon Metallurgical Complex with its concentrator and metallurgical plant. The 24 Order in Council (OIC) leases, 35 Mineral Leases, and 5 claims are in good standing (Figure 4.2 and Table 4.1).

OIC leases, located in Manitoba, have 21 year terms with annual payments of $10.50/ha, or fraction thereof but not less than $193 that is due over the 21 year term. An annual tax of $10 per lease is due by December 31 of each year. Total annual payments due are $5,412. There are no work commitments on OIC leases.

Mineral Leases, located in Manitoba, have a term of 21 years. An annual payment of $10.50/ha, or fraction thereof but not less than $193, per lease and a work commitment of $1250/ha is required to be completed over the 21 year term. Total annual payments of $1,712 and total work commitments of $201,863 are due over the term.

Figure 4.1 Map of Manitoba



Callinan claims, located in Manitoba, are well past their 11th anniversary date and each have an annual work commitment of $25.00/ha with a Filing Fee of $12.50 required for each annual renewal. Total filing fees, for each year renewed, of $72.00 and total work commitments of $1,500 are due annually.

Mineral Leases, located in Saskatchewan, have a 10 year term. With the exception of Q-1258, the Callinan Mineral Leases are well past their 20th Anniversary date and have an annual work commitment of $75.00/ha with a minimum of $1,200 per lease. Q-1258 is also well past its 20th Anniversary date but rather than a work commitment an annual production rental of $1,600 per year is required. Total annual payments of $1,600 and total annual work commitments of $257,025 are due annually.

Figure 4.2 Deposit Land Claim Map for 777/Callinan

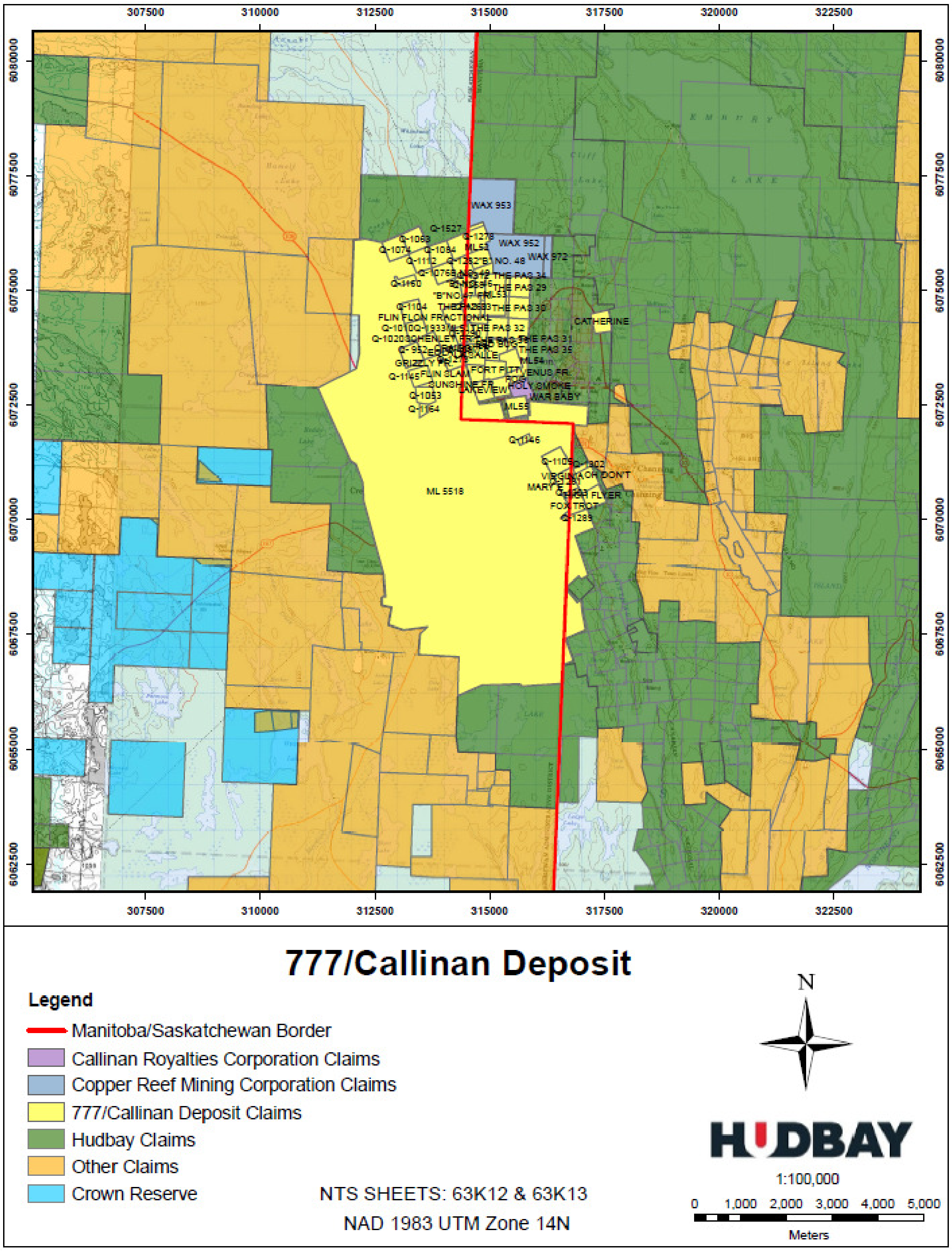


Table 4.1 Manitoba and Saskatchewan Mineral Leases and Claims of 777 and Callinan Property

Holder	Disposition Type	Disposition No.	Disposition Name	Area (Ha)	Annual Anniversary Date	Royalty Agreement	Ownership Date
HBMS	Claim	23139	EOLA	1.00	Sep 16, 2017	Callinan Royalty/NPI	July 29, 1985
HBED	Claim	28390	HIGH FLYER	21.00	Apr 30, 2012	Callinan Royalty/NPI	May 2, 1986
HBED	Claim	28391	FOX TROT	13.00	Apr 30, 2012	Callinan Royalty/NPI	May 2, 1986
HBED	Claim	29171	OH DON'T	21.00	Aug 23, 2012	Callinan Royalty/NPI	May 2, 1986
HBED	Claim	29524	VIRGINIA	2.00	May 28, 2012	Callinan Royalty/NPI	May 2, 1986
HBED	Claim	34600	MARY E	2.00	Jun 29, 2012	Callinan Royalty/NPI	May 2, 1986
HBMS	Mineral Lease	ML051	CALLINAN MIN LEASE	33.72	Apr 01, 2012	Callinan Royalty/NPI	September 18, 1989
HBMS	Mineral Lease	ML052	CALLINAN MIN LEASE	46.78	Apr 01, 2012	Callinan Royalty/NPI	September 18, 1989
HBMS	Mineral Lease	ML053	CALLINAN MIN LEASE	41.78	Apr 01, 2012	Callinan Royalty/NPI	September 18, 1989
HBMS	Mineral Lease	ML054	CALLINAN MIN LEASE	18.31	Apr 01, 2012	Callinan Royalty/NPI	September 18, 1989
HBMS	Mineral Lease	ML055	CALLINAN MIN LEASE	20.90	Apr 01, 2012	Callinan Royalty/NPI	September 18, 1989
HBMS	OIC	331	THE PAS 33	3.57	May 06, 2012	Callinan Royalty/NPI	May 6, 1924
HBMS	OIC	332	THE PAS 30	20.89	May 06, 2012	Callinan Royalty/NPI	December 6, 1928
HBMS	OIC	333	THE PAS 29	20.83	May 06, 2012	Callinan Royalty/NPI	December 5, 1928
HBMS	OIC	346	THE PAS 31	20.86	May 06, 2012	Callinan Royalty/NPI	December 6, 1928
HBMS	OIC	347	THE PAS 32	20.42	May 06, 2012	Callinan Royalty/NPI	December 7, 1928
HBMS	OIC	361	GRIZZLY FR	0.13	May 09, 2012	Callinan Royalty/NPI	March 1, 1945
HBMS	OIC	400	THE PAS 34	3.11	Dec 11, 2012	Callinan Royalty/NPI	December 7, 1928
HBMS	OIC	416	THE PAS 36	0.41	Sep 11, 2012	Callinan Royalty/NPI	December 4, 1928
HBMS	OIC	418	THE PAS 35	13.88	Sep 11, 2012	Callinan Royalty/NPI	December 10, 1928
HBMS	OIC	466	LA SALLE	19.05	Nov 11, 2012	Callinan Royalty/NPI	July 29, 1985
HBMS	OIC	467	FLIN SLAM	11.63	Nov 11, 2012	Callinan Royalty/NPI	July 29, 1985
HBMS	OIC	576	BED BUG	17.87	Nov 30, 2012	Callinan Royalty/NPI	December 10, 1928
HBMS	OIC	608	SCHENLEY FR	14.20	Feb 17, 2012	Callinan Royalty/NPI	June 13, 1952
HBMS	OIC	611	HOLY SMOKE	17.52	Feb 10, 2012	Callinan Royalty/NPI	June 13, 1952
HBMS	OIC	629	FOG	3.74	Feb 10, 2012	Callinan Royalty/NPI	June 13, 1952
HBMS	OIC	630	FORT PITT	18.05	Feb 10, 2012	Callinan Royalty/NPI	June 13, 1952
HBMS	OIC	632	CRAIGGI FR	3.15	Feb 17, 2012	Callinan Royalty/NPI	June 13, 1952
HBMS	OIC	677	VENUS FR	6.92	Sep 21, 2012	Callinan Royalty/NPI	September 21, 1926
HBMS	OIC	M 3	CATHERINE	16.71	Apr 23, 2012	Callinan Royalty/NPI	April 23, 1931
HBMS	OIC	M 86	B NO. 46	10.43	Apr 25, 2012	Callinan Royalty/NPI	February 14, 1929
HBMS	OIC	M 87	B NO. 47 Fr.	1.87	Apr 25, 2012	Callinan Royalty/NPI	February 14, 1929
HBMS	OIC	M 88	B NO. 48	6.84	Apr 25, 2012	Callinan Royalty/NPI	February 14, 1929
HBMS	OIC	M 90	FLIN FLON FR	9.79	Apr 25, 2012	Callinan Royalty/NPI	February 14, 1929
HBMS	OIC	M 908	B NO. 49	1.17	Sep 26, 2012	Callinan Royalty/NPI	November 9, 1928
HBMS	OIC	16	LAKEVIEW	16.49	Jan 31, 2012	-	January 31, 1919
HBMS	OIC	22	SUNSHINE FR	0.04	Feb 25, 2012	-	December 5, 1928
Total Manitoba:		**37 Claims**		**501.06**			

HBMS	Mineral Lease	ML 5518	FFN LEASE	2,928.00	Sep 08, 2012	113.11 Ha subject to Callinan Royalty/NPI	July 19, 1965
HBMS	Mineral Lease	Q- 952	MONROE	20.00	May 09, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1010	RHINOCEROS	20.00	Apr 17, 2012	Callinan Royalty/NPI	50% August 18, 1989 and 50% July 12, 2010
HBMS	Mineral Lease	Q-1020	DARNING NEEDLE	20.00	Apr 17, 2012	Callinan Royalty/NPI	50% August 18, 1989 and 50% July 12, 2010
HBMS	Mineral Lease	Q-1053	TORPEDO	16.00	Apr 17, 2012	Callinan Royalty/NPI	50% August 18, 1989 and 50% July 12, 2010
HBMS	Mineral Lease	Q-1063	RED TOP	21.00	Dec 23, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1074	WEE RED TOP	19.00	Dec 24, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1076	4 QUEENS	17.00	Dec 24, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1084	MARGUERITE	21.00	Dec 23, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1104	SKY PILOT	21.00	Dec 18, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1105	JOHNNY BARON	21.00	Dec 16, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1112	B.M.JUNIOR	21.00	Dec 24, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1145	BATTLESHIP	18.00	Apr 17, 2012	Callinan Royalty/NPI	50% August 18, 1989 and 50% July 12, 2010
HBMS	Mineral Lease	Q-1146	TWO BITS	3.00	Apr 17, 2012	Callinan Royalty/NPI	50% August 18, 1989 and 50% July 12, 2010
HBMS	Mineral Lease	Q-1160	LITTLE RED TOP FR.	6.00	Dec 24, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1164	RED ROSE	6.00	Apr 17, 2012	Callinan Royalty/NPI	50% August 18, 1989 and 50% July 12, 2010
HBMS	Mineral Lease	Q-1258	JANUARY LEASE	6.00	Dec 23, 2011	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1260	JANNETTE	2.00	Dec 23, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1273	EOLA	17.00	Sep 05, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1278	LILLY	1.00	Dec 23, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1281	VIRGINIA	17.00	Dec 16, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1282	1920	16.00	Dec 23, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1289	FOX TROT	3.40	Dec 16, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1290	AMARYLLIS	8.00	Dec 27, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1302	OH DON'T	0.07	Dec 16, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1303	MARY E.	2.00	Dec 16, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1312	B49	0.02	Jul 30, 2012	Callinan Royalty/NPI	October 23, 1928
HBMS	Mineral Lease	Q-1527	GENERAL HEPBURN	19.00	Dec 23, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-1933	DAN	19.00	Jul 17, 2012	Callinan Royalty/NPI	August 18, 1989
HBMS	Mineral Lease	Q-4097	A38FR	1.00	Jul 13, 2012	Callinan Royalty/NPI	August 16, 1950
Total Saskatchewan:		**30 Claims**		**3,289.49**			

4.4 Royalties and Agreements

Hudbay's wholly owned business unit HBMS acquired claims from Consolidated Callinan Flin Flon Mines Ltd., referred to now as Callinan Royalties Corporation for a net profits interest (NPI) and royalty in respect of production from the Callinan claims. Mineral production from the property is subject to a 6 2/3% NPI and a $0.25 per short ton royalty payable to Callinan Royalties Corporation. The royalty applies to all claims except for Lakeview, Sunshine Fractional, and 113.11 Ha of ML5518. No mineral production is currently expected from those claims.

The NPI is calculated as 6 2/3% of the NPI cash flow which is defined as follows:

- Revenue from sale of copper and zinc concentrate, less:
    - Mining costs (operating and capital)
    - Milling costs (share of Flin Flon concentrator)
    - Administration charge (11% of mining and milling costs)
    - Mill Stay-In-Business charge (4% of milling)

Revenue from sale of concentrate was originally done using prevailing Trout Lake concentrate terms (as per the concentrate agreements between HBMS and its joint venture partners). After HBMS acquired 100% of Trout Lake Mine, the Callinan NPI continued to be calculated using the Trout Lake Mine terms with various escalators to reflect inflation.

Milling costs reflect the 777 Mine's pro-rata share of the Flin Flon concentrator operating costs. Administration and mill Stay-In-Business charges were negotiated in lieu of an allocation of actual costs.

On August 8, 2012 Hudbay entered into a precious metals stream agreement with Silver Wheaton Corp. for 100% of payable gold and silver from 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver. Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

4.5 Environmental Liabilities

The 777 Mine site did not require any environmental impact studies for approval in 2001, as the mine site was on Hudbay property and part of the existing Flin Flon Metallurgical Complex (FFMC). The property is subject to closure and remediation plans estimated at $1,222,121 in January 1, 2010 dollars.

4.6 Work Permits

Several work permits were obtained over several years for the development of the 777 Mine and, more recently, the 777 North expansion. Work permits required for both were minimal, as the shaft and infrastructure was situated on Hudbay's existing industrial property, an industrial brownfield site, already permitted for most aspects.

Work permits for construction of the 777 Mine included permits from the Fire Commissioner for the surface infrastructure sprinkler systems (headframe, hoistroom, etc) as well as an Alteration to Process License CEC Order No. 1013VC in May 1999 from Manitoba Environment. This was based on studies and information presented to Manitoba Environment; at the time it was deemed that the environmental effects from the mine would be insignificant. The mine effluent reports to the surface drainage system and ultimately to the tailings impoundment area in Saskatchewan gaining approval from Saskatchewan Environment under Approval No. IC-391 in June, 2000.

Work permits for the construction of the 777 North expansion, located just into Saskatchewan, were obtained from the Saskatchewan Ministry of Environment for construction approval in the form of a Construction Approval No. PC10-147 (Alter or Extend a Pollutant Control Facility) in October 2010. Several approvals were also obtained from the Workplace Safety & Health Division, Mines Safety Branch, for surface blasting of the portal, blasting procedures, explosives storage, and mine ventilation. Some secondary permits were also obtained which included permitting for propane hook-up to the downcast fan heater and for the relocation of a surface diesel fuel tank on the site.

4.7 Other Significant Factors and Risks

There are no known significant factors or risks that may affect access, title, the right, or ability of Hudbay to perform work at the property.

5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Topography, Elevation, and Vegetation

The 777 Mine is located at an elevation of 335m above sea level in the Churchill River Upland Ecoregion the Boreal Shield Ecozone. The ecozone extends from northern Saskatchewan east to Newfoundland. Largely wilderness, the Boreal Shield is a mix of forests, wetlands, igneous outcroppings and rolling uplands. The topography features land forms left behind by retreating glaciers. About 80% of the ecozone is covered by forests consisting of mainly coniferous trees throughout the ecozone, though deciduous trees increasingly appear toward the south.

The Churchill River Upland Ecoregion is located along the southern edge of the Precambrian Shield in north-central Saskatchewan and Manitoba. This ecoregion is classified as having a subhumid high boreal ecoclimate. It forms part of the continuous coniferous boreal forest that extends from northwestern Ontario to Great Slave Lake in the southern Northwest Territories.

The predominant vegetation consists of closed stands of black spruce and jack pine with a shrub layer of ericaceous shrubs and a ground cover of mosses and lichens. Black spruce is the climatic climax species. Depending on drainage, surficial material and local climate, trembling aspen, white birch, white spruce, and to a lesser extent balsam fir, occupy significant areas, especially in the eastern section.

Bedrock exposures have fewer trees and are covered with lichens. Closed to open stands of stunted black spruce with ericaceous shrubs and a ground cover of sphagnum moss dominate poorly drained peat-filled depressions. Permafrost is distributed throughout the ecoregion, but is only widespread in organic deposits. Although local relief rarely exceeds 25m, ridged to hummocky, massive rocks form locally steep sloping uplands and lowlands. Small to large lakes comprise approximately 30 to 40% of this ecoregion. In the western part of the ecoregion, uplands are covered with discontinuous sandy acidic tills, whereas extensive thin clayey lacustrine deposits, and locally prominent, sandy fluvioglacial uplands, are common in the eastern section. Exposed bedrock occurs throughout the ecoregion and is locally prominent.

Wildlife includes barren-ground caribou, moose, black bear, lynx, wolf, beaver, muskrat, snowshoe hare and red-backed vole. Bird species include raven, common loon, spruce grouse, bald eagle, gray jay, hawk owl, and waterfowl, including ducks and geese (Ecological Stratification Working Group, 1995).

5.2 Accessibility

The 777 Mine is located adjacent to Provincial Highway #10 in Flin Flon (Figure 5.1). Flin Flon has a population of approximately 6,000 people, with an additional 3,000 people living in the surrounding community, and is in an area with a rich history of operating mines. In addition, Flin Flon has well developed access to road, rail and air transportation and it is the site of our principal concentrator and zinc pressure leach plant. Personnel requirements for our 777 mine and processing facilities are largely drawn from the immediate area, which is sufficient for the mine.

A full service commercial airport is located near Baker's Narrows Provincial Park, approximately 20km southeast of Flin Flon.

5.3 Proximity to Population Centres

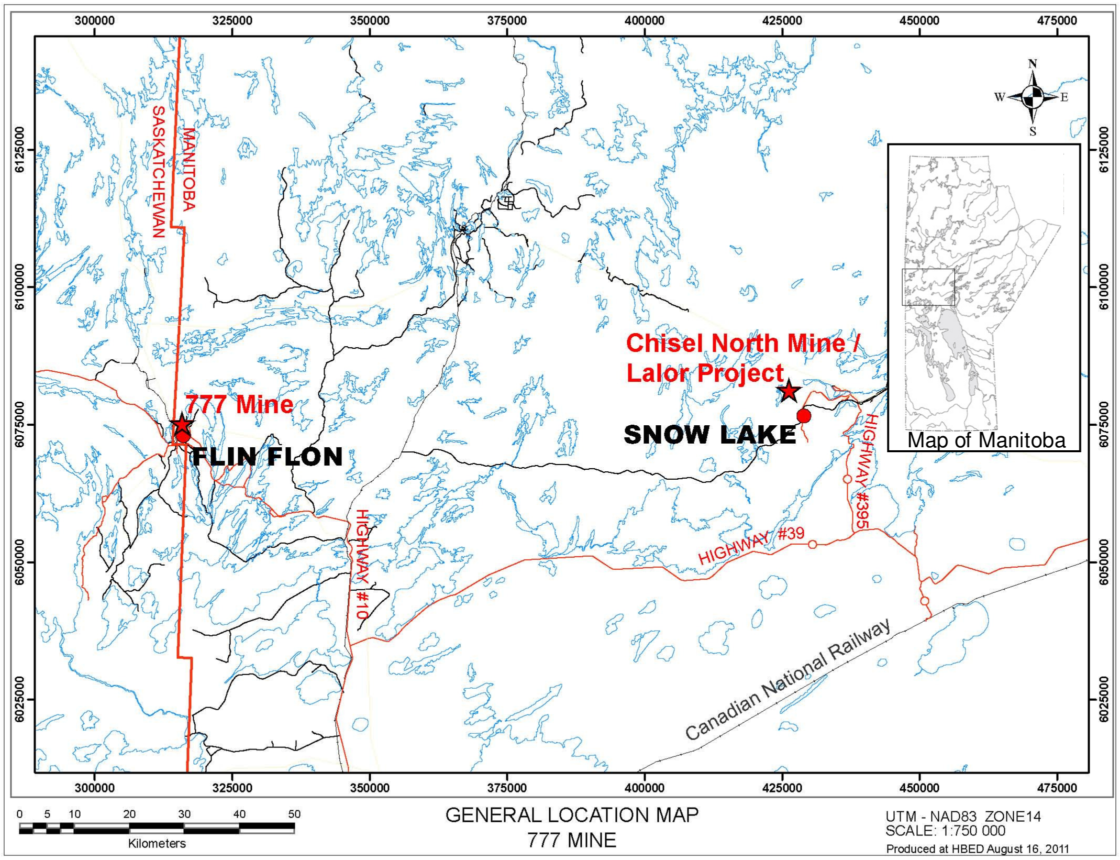
The city of Flin Flon is located approximately 750 kilometres northwest of Winnipeg, the capital city of the Province of Manitoba, which has a population of greater than 630,000 people (2006 Canada Census).

An additional 3,000 people are located in the surrounding communities of Creighton, Denare Beach, and Cranberry Portage. All three communities are connected year round to Flin Flon by paved highway between one kilometre and 44km away.

There are also cottage subdivisions located at nearby lakes including Big Island Lake, Lake Athapapuskow, Schist Lake, and Twin Lake near Provincial Highway #10, between 3 and 32km southeast of the town. There are also a small number of seasonal remote cottages located near lakes throughout the area.

The nearest larger centre (5,000+) to the 777 Mine, other than Flin Flon, is The Pas, located approximately 140km south by paved highway.

Figure 5.1 General Location Map



5.4 Climate and Operating Season

Flin Flon has a typical mid-continental climate with short cool summers and long, cold winters. Seasonality does not affect the operation of the 777 Mine other than increases seen in operating costs due to heating of mine air.

The nearest Environment Canada weather station is located at the Baker's Narrows (Flin Flon) Airport, approximately 20km to the southeast.

The average annual temperature at the Baker's Narrows Airport weather station is -0.2ºC. The highest monthly average daily maximum temperature is 23.1ºC occurring in July, and the lowest monthly average daily minimum temperature is -26.2ºC occurring in January. Freeze-up of small bays and lakes occurs in mid November, with break-up occurring in mid May. There is an average of 156.5 frost-free days.

On average, at the Flin Flon weather station, 47.1cm of precipitation falls annually, 30% as snow. The maximum daily precipitation, since 1970, was recorded as 7.8cm in July 1981.

Average wind speeds for the area range from 9 to 12km/hr with winds most often originating from the northwest (Environment Canada).

5.5 Local Resources and Infrastructure

Continuous mining and processing of ore has been conducted in the Flin Flon camp year-round since 1929. All mining and processing facilities at the site are in good working condition at the time of writing.

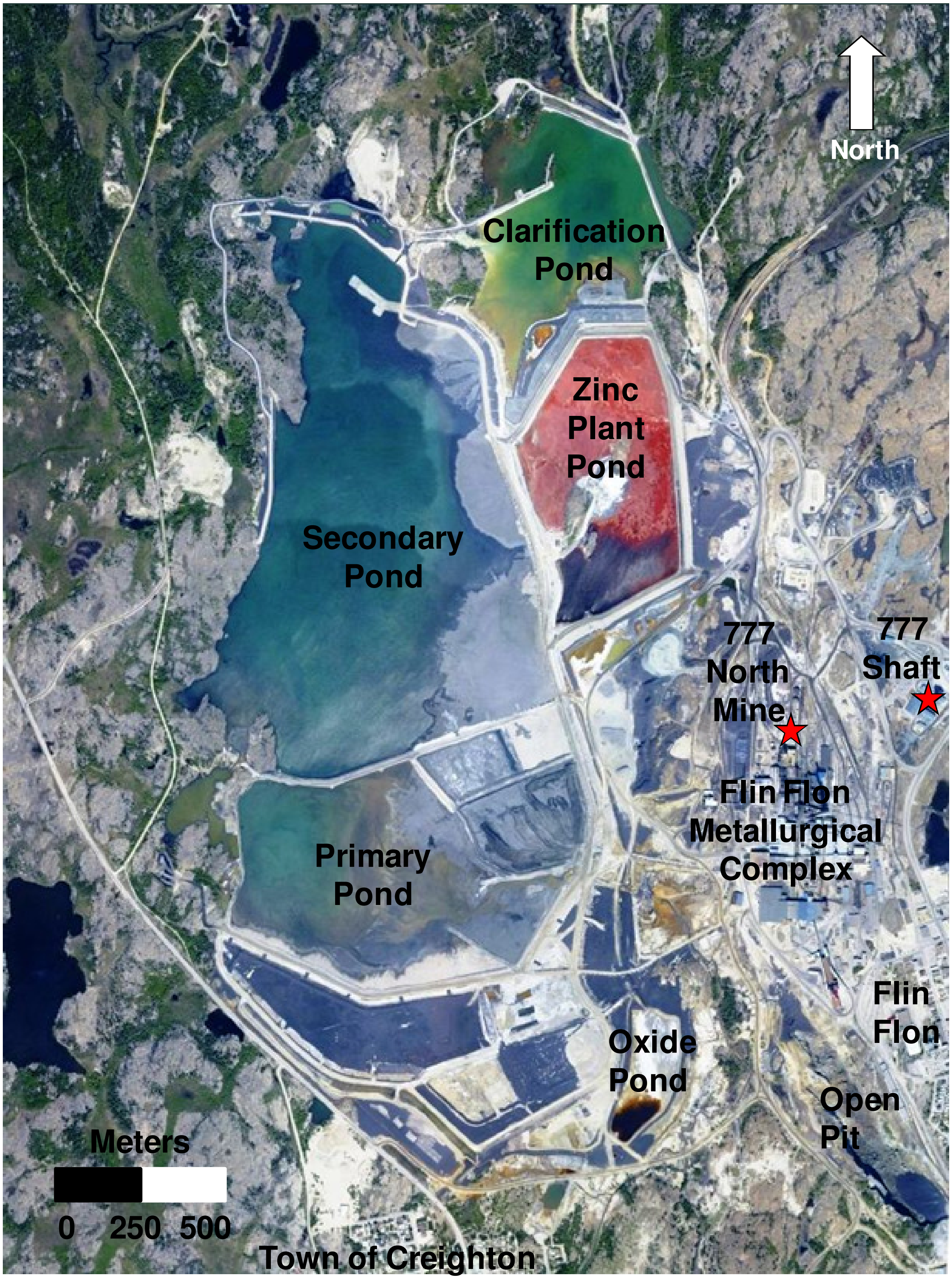
Flin Flon has well-developed road and air transportation as well as established businesses that have serviced the mining and recreation industries for decades.

5.5.1 Surface Rights

The area has adequate resources for a mining operation and all the necessary permits are in place, many of which were obtained historically through the long history of mining in the Flin Flon area.

In the immediate area surrounding the 777 Mine, Hudbay operates the Flin Flon Metallurgical Complex which incorporates a zinc pressure leach and electrowinning plant, a tailings facility, as well as a previously operated copper smelter. A general site plan is shown in Figure 5.2.

Figure 5.2 General Site Plan



5.5.2 Power Source

Electrical power is supplied from the Manitoba Hydro and Saskatchewan Power Corporation power grids, which are fed by three hydroelectric generating stations. No issues are foreseen for securing additional electrical power in the future if required.

5.5.3 Water Source

Water is sourced at Cliff Lake, where Hudbay operates a pump house that supplies water via a pipeline to the zinc plant for cooling purposes. The facility is located approximately three kilometres northeast of the 777 Mine. From the cooling pond this non-potable water is treated and distributed through the mine and plant. Potable water is supplied in bottle jugs for work force consumption.

5.5.4 Personnel

As of August 2011, the 777 Mine is well staffed with a total of 261 employees and 14 contractors. Total employees employed at Hudbay, as of August 2011, is 1286; 101 of these are employed at the Snow Lake operations.

Recruitment of personnel is easily sourced from the local area, with some specialized skilled positions sourced from outside of the area.

5.5.5 Tailings Storage

The tailings storage ponds, which are further discussed in Section 18 of this report, are located approximately one kilometre to the west of the 777 Mine.

5.5.6 Waste Disposal

Waste material from the mining operation is stored on Hudbay property, approximately half way between the 777 Mine and the tailings ponds. It is stockpiled for future use in expanding the tailings ponds or later disposed of within the tailings pond area.

5.5.7 Ore Processing

Ore from the 777 Mine is processed at the nearby Hudbay metallurgical complex, as discussed in Section 17 of this report, located less than a kilometre away.

6. HISTORY

The 777 Mine is an extension of mining activities and facilities in Flin Flon that have been in operation since the 1930s. Hudbay has operated in Flin Flon Greenstone Belt from more than 85 years.

Under the ownership of Minorco, S.A. in the mid 1990s, a strategic review of the northern Manitoba and Saskatchewan operations depicted a company with declining reserves, lower ore grades, rising costs and a poor safety record. At that time, it was concluded that a less than a 10-year mine life was possible and closure of operations before 2005 was planned.

In connection with the closure plan, it was decided to continue exploration efforts until 1998, the latest time an ore body could be developed for production prior to the planned closure. In 1993, based on the drilling program, the 777 deposit was first indicated by an underground exploration hole that intersected the mineralization at a depth of 1,000m. In 1995, a drilling program delineated the ore body and by 1997, this ore body was defined. In 1999, development of the 777 mine was commenced as part of the “777 Project” and commercial production from the mine commenced in January 2004. It was determined that the 777 ore body had the potential to extend operations to 2014 if a number of critical factors were first addressed. As a result, Hudbay’s northern Manitoba and Saskatchewan operations lowered their overall unit operating cost, improved safety performance and created a performance-oriented culture.

6.1 Prior Ownership

Hudbay took a working option on the property in 1967 from Consolidated Callinan Flin Flon Mines Limited (Consolidated Callinan). Hudbay agreed to spend $15,000 in exploration by August 31, 1968, $50,000 by August 31, 1970, and if the company elected to exercise the option, they agreed to spend $140,000 by August 31, 1977 or pay the difference to the new company formed.

In 1988, Hudbay made a joint agreement with Manitoba Mineral Resources (MMR) to develop the property. Hudbay would be the operator of the project with a 51% interest, and covering an $18 million development cost, to the 49% interest that MMR can earn on the investment of the remaining $9.7 million development costs. Consolidated Callinan retained a 6 2/3% net profits interest and received $0.25 per short ton royalty on all ore produced (Manitoba Science, Technology, Energy and Mines – Geological Survey Mineral Inventory File No 1045).

6.2 Exploration History

Callinan Flin Flon Mines Limited formed in June 1946, with the discovery of the Callinan property. From 1945, until to the time at which the company officially formed, 4,574m (15,000 ft.) of diamond drilling was completed, with a further 3,050m (10,000 ft.) over the following year. By 1948, considerable surface work had been completed including 13,400m (44,000 ft.) of diamond drilling, and a gravimeter survey. The focus of exploration was in search for gold values, which were found to be interesting. At this time, base metal possibilities were considered inconclusive.

In July 1956, Callinan Flin Flon Mines Limited changed its name to Consolidated Callinan Flin Flon Mines Limited.

In 1976, HBMS drove an exploratory drift into the property at the 1690 foot level, from the North Main shaft in the Flin Flon Mine. The 1.5km drift took 3 years to complete.

The deposit was only 915m from the Flin Flon Mine's North Main shaft, but the decision was made to access the mine through the South Main shaft, 1.5 to 2.5 km to the south. Access for development, was made from the 1609, 2210, and 2750 foot levels. At this time, the property contained historical reserves totalling 2.4 million tonnes, averaging 4% zinc, 1.5% copper, 1.90g/t gold, and 23g/t silver. Callinan Mine opened in 1990, at a production rate of 45,000 t/month. Shortly after opening, HBMS acquired MMR's 49% interest for $7.5 million. Underground exploration drilling continued, and in 1993, new ore-grade mineralization was intersected near the North and South zones (Manitoba Science, Technology, Energy and Mines – Geological Survey Mineral Inventory File No 1045).

The discovery of the 777 deposit was, in contrast to most of the recent discoveries in the area, a geological success. Typically deposits in the Flin Flon Greenstone Belt were discovered through geophysical techniques such as airborne or down hole pulsing, as many of the deposits do not outcrop at or near surface. Due to depth and lack of drilling in the area these techniques were not able to be utilized.

The 777 volcanogenic massive sulphide (VMS) deposit was discovered in November 1993 by a Hudbay initiated and funded surface exploration drill program targeted on deep geological and structural features along the Flin Flon mine horizon. The surface exploration hole 4Q-64 was recommended to search for the deep down plunge extension of the Callinan deposit. The first hole, 4Q-64, was drilled down to 1,682m and successfully intersected a narrow high-grade zinc zone approximately 1.54km due north of the Flin Flon deposit, 700m south of the presently producing Callinan deposit, and 900m below surface. The hole intersected two zones of mineralization, the first was a 1.70m intercept of massive sulphides containing 4.541 g/t gold, 42.256 g/t silver, 1.43% copper, and 11.76% zinc at 1,277.5m down the hole. The second intercept, 4.91 meters, was a mineralized felsic volcanic at 1,298m down the hole grading 1.618 g/t gold, 10.383 g/t silver, 1.62% copper, and 0.56% silver. Later, an additional four wedges were completed from this parent hole.

With the confirmation of mineralization down trend, this hole was followed up with further drilling from underground at the 840 metre level track drift of the Callinan deposit. The deposit was named after the discovery hole, CX-777, which intercepted several zones of massive mineralization, the largest of which was 22.52m in core length grading 5.358 g/t gold, 55.994 g/t silver, 2.89% copper, and 7.40% zinc. An additional three wedges were completed from this parent hole.

With this success, an intense two year drilling program was undertaken in 1995 to delineate the 777 ore bodies.

Exploration drilling began again in September 2004 and had been gradually ongoing until the end of 2010. 2011 marked the first year that a concentrated effort on exploration drilling was conducted from underground at the 777 Mine. Much of the drilling to that date had been focused on converting resources to reserves. In excess of 201,000 meters of underground exploration drilling was drilled at the 777 Mine targeting additional resources in the hanging wall, footwall, along strike and in upgrading inferred resources. Significant knowledge was gained on the stratigraphy of the deposit and this information will aid in the 2012 exploration program which is budgeted to exceed 20,000 meters of exploration drilling.

6.3 Historical Resource and Reserve Estimates

A historical resource and reserve estimate was prepared by Hudbay in 1999 using kriging estimation for the resource estimation. The 777 deposit resource included the 1 South lens, a previously defined lens from the currently producing Callinan mine (MRDI, 1999). This resource and reserve estimate (Tables 6.1 and 6.2) is historical in nature, is considered non 43-101 compliant and should not be relied upon.

Table 6.1 Historical Resource Estimate for the 777 and Callinan Deposits 1999

Mine	Category	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)
777	**Measured**	0	0.000	0.000	0.00	0.00
	Indicated	7,307,459	2.355	34.676	2.95	5.66
	Inferred	7,077,534	2.603	39.104	2.60	5.90
Callinan	**Measured**	2,126,671	2.464	35.047	1.60	4.57
	Indicated	2,125,469	2.520	37.896	1.52	6.17
	Inferred	877,936	1.989	33.919	1.29	5.57
Total	**Measured & Indicated**	**11,559,599**	**2.405**	**35.336**	**2.44**	**5.55**
	Inferred	**7,955,470**	**2.535**	**38.532**	**2.46**	**5.86**

Table 6.2 Historical Reserve Estimate for the 777 and Callinan Deposits 1999[1]

Mine	Category	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)
777	Proven	0	0.000	0.000	0.00	0.00
	Probable	6,749,849	2.044	29.927	2.61	4.87
	Sub Total:	**6,749,849**	**2.044**	**29.927**	**2.61**	**4.87**
Callinan	Proven	1,423,254	1.942	26.306	1.26	3.64
	Probable	1,755,421	2.080	29.732	1.26	5.16
	Sub Total:	**3,178,675**	**2.018**	**28.198**	**1.26**	**4.48**
	Total:	**9,928,524**	**2.036**	**29.373**	**2.18**	**4.74**

[1]Inclusive of the mineral resources set forth in Table 6.1.

6.4 Property Production

In 1999, development of the 777 Mine commenced and commercial production was achieved in 2004 upon completion of the shaft. As of the end of 2011, a total of 17,943,600 tonnes have been mined from the 777 Mine.

Hudbay has operated in the Flin Flon Greenstone Belt for more than 80 years, mining approximately 147 million tonnes of ore.

6.5 Precious Metals Stream Transaction

On September 28, 2012 Hudbay announced that it closed a precious metals stream transaction with Silver Wheaton Corp. with an effective date of August 1, 2012. At closing, Hudbay received an upfront deposit payment of US$500 million of which $455.1 million is for 100% of payable gold and silver from Hudbay's 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver. In addition to the deposit payment for gold and silver delivered, Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

7. GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

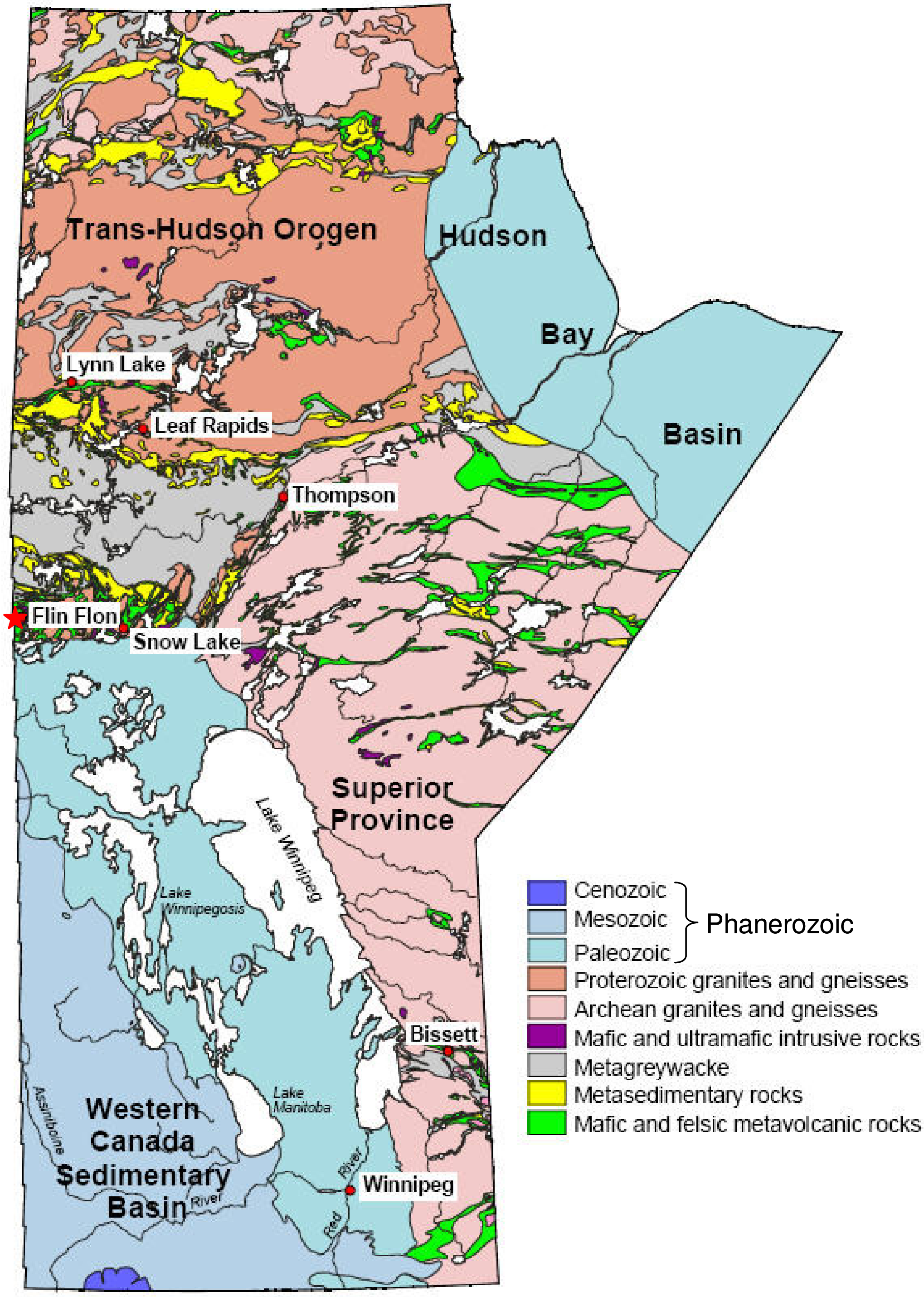
The 777 deposit lies in the western portion of the Paleoproterozoic Flin Flon greenstone belt (Figures 7.1 and 7.2). Located within the Trans-Hudson Orogen, the Flin Flon Belt is interpreted to be comprised of a variety of distinct 1.92 to 1.87Ga tectonostratigraphic assemblages including juvenile arc, back-arc, ocean-floor and ocean-island and evolved volcanic arc assemblages that were amalgamated to form an accretionary collage prior to the emplacement of voluminous intermediate to granitoid plutons and generally subsequent deformation (Syme et al., 1998). The volcanic assemblages (Amisk Collage) consist of mafic to felsic volcanic rocks with intercalated volcanogenic sedimentary rocks. The younger plutons and coeval successor arc volcanics, volcaniclastic, and sedimentary successor basin rocks include the older, largely marine turbidites of the Burntwood Group and the terrestrial metasedimentary sequences of the Missi Group.

The Flin Flon Belt is in fault and/or gradational contact with the Kisseynew Domain metasedimentary gneisses to the north and is unconformably overlain by the Phanerozoic cover of sandstone and dolostones to the south. Regional metamorphism at 1.82 to 1.81Ga formed mineral assemblages in the Flin Flon belt that range from prehnite-pumpellyite to middle amphibolite facies in the east and upper amphibolite facies in the north and west (David et al., 1996; Froese and Moore, 1980; Syme et al., 1998).

The eastern portion of the Flin Flon belt is dominated by fold-thrust style tectonics that is atypical of western and central portions of the belt. It is a south-verging, northeast dipping imbricate that was thrust over the previously amalgamated collage of oceanic and arc rocks to the west (Bailes and Galley, 1999). This thrust package has been modified by 1.82 to 1.81Ga regional metamorphism to lower to middle almandine-amphibolite facies mineral assemblages (David et al., 1996; Froese and Moore, 1980).

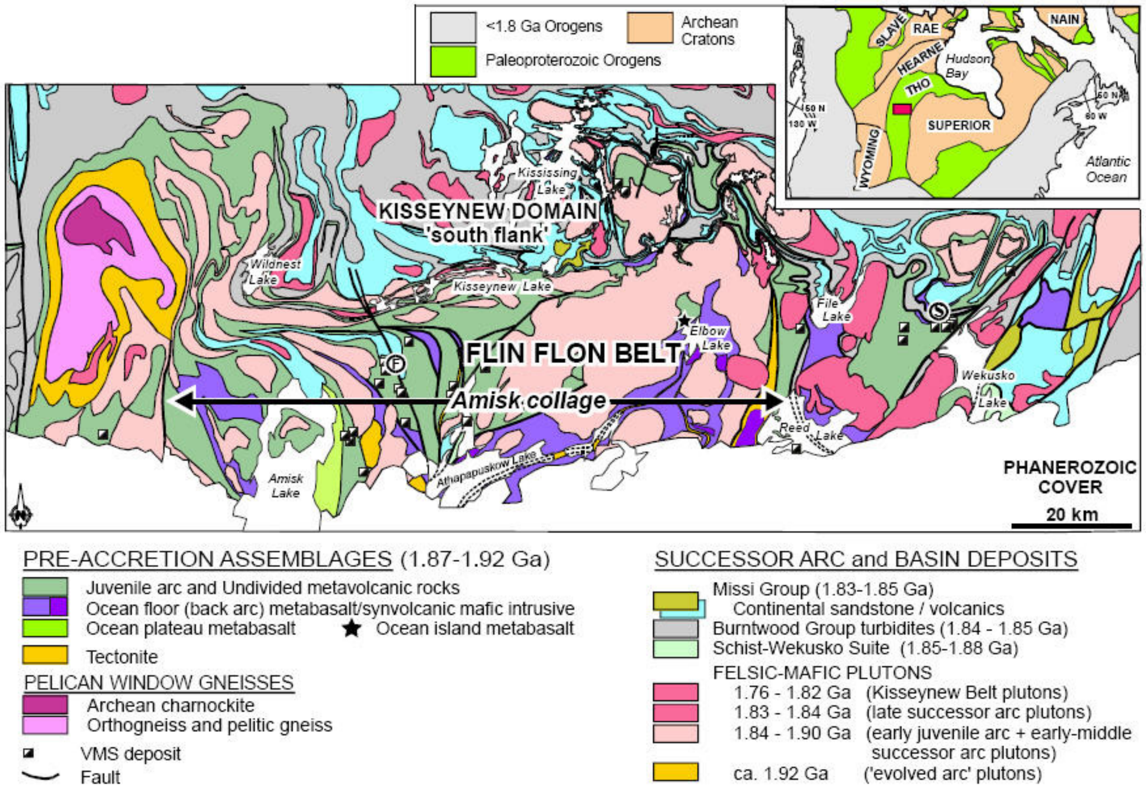
Intrusions in the belt are divided into pre-, syn- and late tectonic varieties where the pretectonic group includes intrusions that are coeval with the volcanic rocks, as well as those that crosscut volcanic and Missi supracrustal rocks. Numerous mafic to ultramafic dykes intrude the volcanic rocks.

Figure 7.1 Geology of Manitoba



Source: Manitoba Science, Technology, Energy and Mines – Geological Survey

Figure 7.2 Geology of the Flin Flon Belt, Manitoba



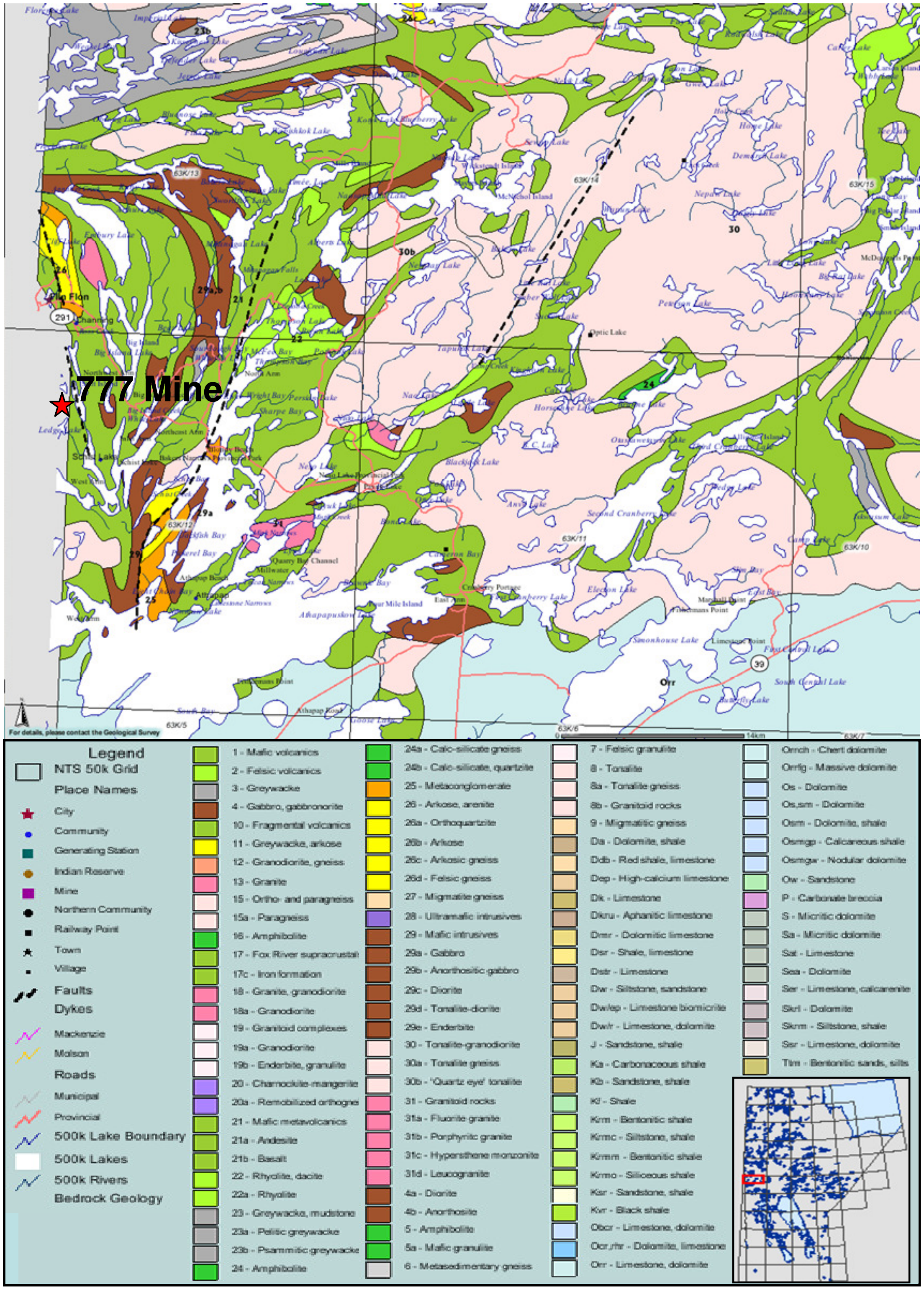
Source: Manitoba Science, Technology, Energy and Mines – Geological Survey

7.2 Property Geology

A complex succession of felsic and basalt-dominated heterolithic volcaniclastic rocks host the Flin Flon Main, Callinan and 777 volcanogenic massive sulphide (VMS) deposits within the Paleoproterozoic Flin Flon Belt of Manitoba and Saskatchewan (Figure 7.3). The north-trending, VMS-hosting, 30 to 700m thick volcanic/volcaniclastic succession is recognized for at least 5 km along strike and has an average dip of 60°E. The volcaniclastic rocks have been interpreted to occupy a volcano-tectonic depression within a basaltic footwall succession (Syme and Bailes, 1993).

The Flin Flon formation is subdivided into three mappable members containing units of heterolithic and monolithic breccias, rhyolite flows and domes, and massive and pillowed basalt flows and flow-top breccias. It comprises of the Millrock member, which contains the 777 and Callinan mineralization, and the footwall to it with the Blue Lagoon and Club members (Devine, 2002).

Figure 7.3 Geology of the 777 Mine Area



Source: Manitoba Science, Technology, Energy and Mines – Geological Survey

The Club Lake member, the oldest member of the Flin Flon formation, consists of four main units: heterolithic basalt ± rhyolite breccia; dominantly rhyolite breccia; massive, aphyric rhyolite; and sparsely feldsparphyric to aphanitic pillowed basalt flows.

The Blue Lagoon member conformably overlies the Club Lake member and is a distinctive unit characterized by varying amounts and sizes of feldspar crystals that may constitute 5 to 25% of the matrix and that range in size from 0.2 to 1 cm. It contains several subsidiary rock types, including rhyolitic tuff, heterolithic crystal lithic basaltic breccia, and feldspar-phyric massive and pillowed basalt flow and flow breccia.

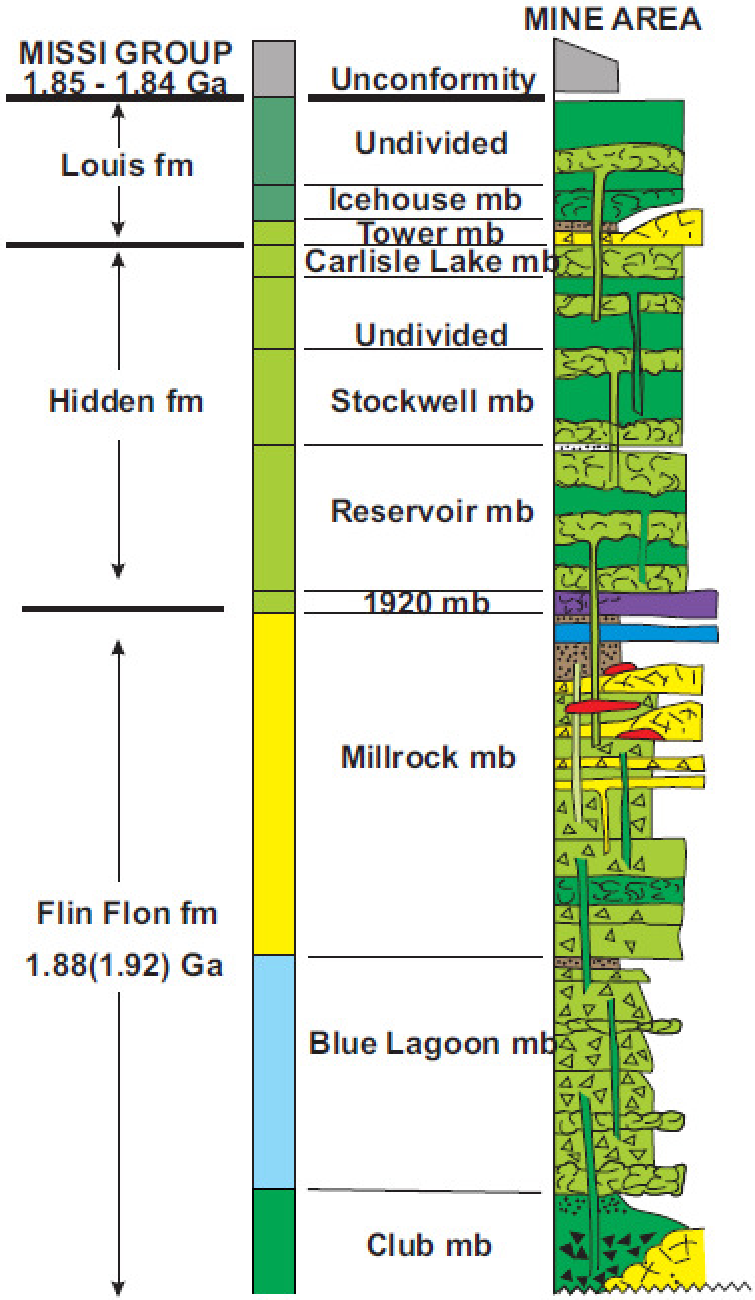
The Millrock member is the uppermost member of the Flin Flon formation and unconformably and locally conformably overlies the previously deposited footwall strata. The Millrock member hosts the Flin Flon, Callinan and 777 VMS deposits, and includes heterolithic and monolithic footwall breccias, chlorite schist, aphyric to quartz-feldspar–phyric rhyolite and contemporaneous volcaniclastic rocks. A bedded tuff unit caps the Millrock member.

The hanging wall to the Flin Flon VMS deposits, which consists of basaltic flows, sills and volcaniclastic rocks with subordinate rhyolitic flows and volcaniclastic rocks, can be subdivided into two formations, the Hidden formation and the Louis formation (DeWolfe, 2006).

The Hidden formation defines the onset of hanging wall volcanism and comprises, from oldest to youngest, the 1920 unit (previously identified as a member), the Reservoir member and the Stockwell member. The 1920 unit comprises massive, pillowed and peperite facies basalt flows and is overlain locally by felsic or undifferentiated volcaniclastic rocks. The Reservoir member, which conformably overlies the 1920 unit, comprises massive, pillow, breccia and peperite facies basalt flows. It is conformably overlain by the Stockwell member, which comprises massive, pillowed and breccia facies basalt flows and is locally overlain by mafic volcaniclastic rocks.

The Louis formation conformably overlies the Hidden formation and consists of the Tower and Icehouse members, as well as undivided basaltic flows. The Tower member occurs at the base of the Louis formation and consists of massive to in situ–brecciated, aphyric rhyolite and associated volcaniclastic rocks. The Icehouse member, which conformably overlies the Tower member, consists of massive, pillowed and volcaniclastic facies basalts that are conformably overlain by undivided basaltic flows. An idealized stratigraphic column is shown in Figure 7.4.

Figure 7.4 Idealized Stratigraphic Column of the 777 Mine Area



Source: Gibson, Et al. 2011.

7.3 Deposit Lithology

The 777 Mine mineralization is hosted in the Millrock member which consists of rhyolitic and basaltic volcanic lithofacies. The hanging wall consists of basaltic flows and intrusive volcanics of the overlying Hidden formation. At 777 the Millrock member can be subdivided into five main mapping units in addition to the mineralization; fragmental basalt, chlorite schist, quartz porphyry rhyolite (QP), intrusives (typically diorite), and mafic/felsic tuffs.

The fragmental basalt is typically dark green, fine-grained to aphanitic, amygdaloidal aphyric and sparsely feldspar phyric basalt clasts within a finer-grained, light to medium green basaltic matrix. The basalt clasts are sub angular to well rounded, and range in size from 1 to 10cm in size.

The chlorite schist has a schistose fabric and consists of near massive chlorite with sections of very strongly foliated and chloritized mafic and felsic volcaniclastic lithofacies. Locally this unit contains pyrrhotite, chalcopyrite, magnetite mineralization, and it occurs only within the footwall to the 777 deposit. Sulphide Zones 15, 50, and 70 occur in this unit. The Chlorite schist unit is interpreted to be the hydrothermally altered equivalent of the fragmental basalt unit (locally the Quartz Porphyry Rhyolite unit) and, as such is interpreted to define the footwall alteration pipe (Gibson Et. al, 2011).

The intrusives are typically diorite, dark green, fine-grained to aphanitic, and are typically not foliated. The diorites often cross-cut through the mineralized zones and can contain varying amounts of pyrrhotite, pyrite, chalcopyrite, sphalerite, and magnetite mineralization. Mineralization typically occurs as remobilized or as xenoliths being concentrated near the contacts. Diorites vary in size from a few centimetres to tens of meters in thickness.

The quartz-porphyry rhyolite (QP) unit hosts the majority of the mineralization at the 777 Mine. The QP consists of coherent and volcaniclastic lithofacies which can contain sub-angular to sub-rounded QP fragments inside a finer grained matrix that also contain quartz crystals. The QP is typically aphanitic to very fine grained with up to 10% blue to clear quartz eyes with varying amounts of plagioclase phenocrysts. Sericite and chlorite alteration exist throughout much of the QP and range from minor to pervasive.

The tuffs are mainly mafic in composition however some felsic tuffs are encountered. The tuff lithofacies consist of massive, thick to medium bedded tuff and thinly bedded to laminated tuffs. The tuffs contain lapilli sized clasts of QP, chlorite and/or sericite altered QP, amygdaloidal and massive sulphide in a finer grained tuff sized matrix. The tuffs mark the top of the Millrock member. The flow units occur above the tuff and mark the base of the overlying Hidden formation. The flows consist of fine grained to aphanitic basalts that vary between massive and amygdaloidal with up to 15% white quartz/carbonate amygdules. The flow is interpreted to consist of basaltic flows and sills.

The 777 resource model uses the lithology legend as shown in Table 7.1 for rock type coding of the drill core.

Table 7.1 777 Mine Lithology Rock Codes

Rock Code	Rock Type
-1	No Core, Missing Log
4	Fault
5	Shear Zone
6	Breccia
8	Chert
10-13	Dacitic flow, tuff
20-27	Quartz porphyritic rhyolite
30-33	Rhyolitic flow, tuff
41-47	Schist
48	Argillite
49	Greywacke
50	Arkose
51	Conglomerate
52	Hetrolithic fragmental basalt
60	Solid sulphide
61	Near solid sulphide
62	Disseminated sulphide
64	Weak sulphide
65	Scattered sulphide
70-79	Mafic to Intermediate flow, tuff, fragmentals
81	Quartz vein
90-98	Intrusives
99	Unknown

7.4 Mineralization

The 777 and Callinan deposits occur within an east-facing sequence of volcanic rocks documented as tholeiitic and basalt-dominated, and dated around 1888 Ma. The rocks immediately hosting the mineralization, however, consist of quartz-phyric (QP) and quartz-feldspar-phyric (QFP) rhyolite flows and quartz-±feldspar crystal-lithic volcaniclastic rocks of rhyolitic composition (Gibson, Et al, 2011).

7.4.1 777 Mineralization

The 777 deposit can be divided into two main southeast plunging trends, the North Limb and the South Limb, as well as the West Zone. All three zones lie within the same stratigraphic sequence with the same lithofacies as described above. The West Zone (Zone 33) lies in the footwall in what is interpreted to be a lower thrust slice. Both limbs have the same stratigraphic sequence and most likely represent a structural repeat. On average the lenses strike at 010° and dip to the east at 45°. All zones have a relatively shallow plunge trending at -35° towards 140°. Horizontal widths throughout the deposit range from 2.5 meters to 70 meters in thickness, and can be thicker when two or more zones overlap.

There are a total of nine distinct sulphide lenses contained within the 777 deposit. This consists of Zones 10, 15, 20 and 30 occurring in the North Limb, Zones 40, 50, 60 and 70 in the South Limb, as well as Zone 33 as the West Zone. Each of the zones is distinguished based on grade and mineralization type as well as their spatial location. Zone 10 contains varying concentrations of pyrrhotite, pyrite, and chalcopyrite with local sphalerite, arsenopyrite, chalcocite, and chlorite. Zones 15, 50, and 70 are chlorite schist hosted and are typically pyrrhotite and chalcopyrite mineralized with minor amounts of sphalerite, pyrite, arsenopyrite, and magnetite. Zones 30, 33, 40, and 60 are zinc rich with variable amounts of pyrite, sphalerite, and chalcopyrite. Locally, minor pyrrhotite, magnetite, and arsenopyrite are present (Gibson Et. al, 2011). In general each trough is relatively zinc rich on the hanging wall and grading towards copper rich in the footwall. The 777 deposit encompasses an area approximately 1,300m downplunge by 550m across and varying in depth from approximately 870 to 1,600m below surface. Lenses in general are fairly continuous with the exception of scattered diorite intrusions. A summary of the mineralized wireframes are displayed in Figures 7.5 and 7.6.

7.4.2 Callinan Mineralization

The Callinan deposit is subdivided into two rhyolite horizons termed the East-QP and the West-QP. The East-QP is host to the lenses of the North Zone (northern portion), and the East Zone (southeast portion), and is on the same horizon as the 777 mineralization. The West-QP hosts the South Zone (southwest portion) and its associated lenses. Each of these zones is further subdivided into a number of mineralized lenses. The subdivision of Zones into lenses was based on the spatial distribution of the mineralization. The South Zone lenses generally strikes to the north and dips at 50° to the east with a plunge trending at -50° towards 135°. The North and East Zones generally strike at 020° with a 50° dip to the east with a shallow plunge trending at -30° towards 145°.

There are a total of 20 sulphide lenses contained within the three broad zones of the Callinan deposit. They consist of Lenses 1 to 5, and the Dan Zone in the North Zone, Lenses 1 to 9 in the South Zone and Lenses 1 to 9 in the East Zone. The Callinan mineralization is a distal deposit that has a matrix supported breccia with variable amounts of wallrock fragments in a fine to medium grained sulphide matrix. The wallrock fragments are intensely altered with chlorite, talc and sericite with some degree of pyritization and carbonation. These lenses contain variable amounts of pyrite, sphalerite, chalcopyrite and minor pyrrhotite. Most of the Callinan lenses show similar metal grades typically averaging 1% copper and 4% zinc for most lenses, with the Dan Zone being the notable exception with an estimated grade of 0.27% copper and 8.60% zinc.

Figure 7.5 3D Plan View of the 777/Callinan Mineralized Wireframes and Drilling

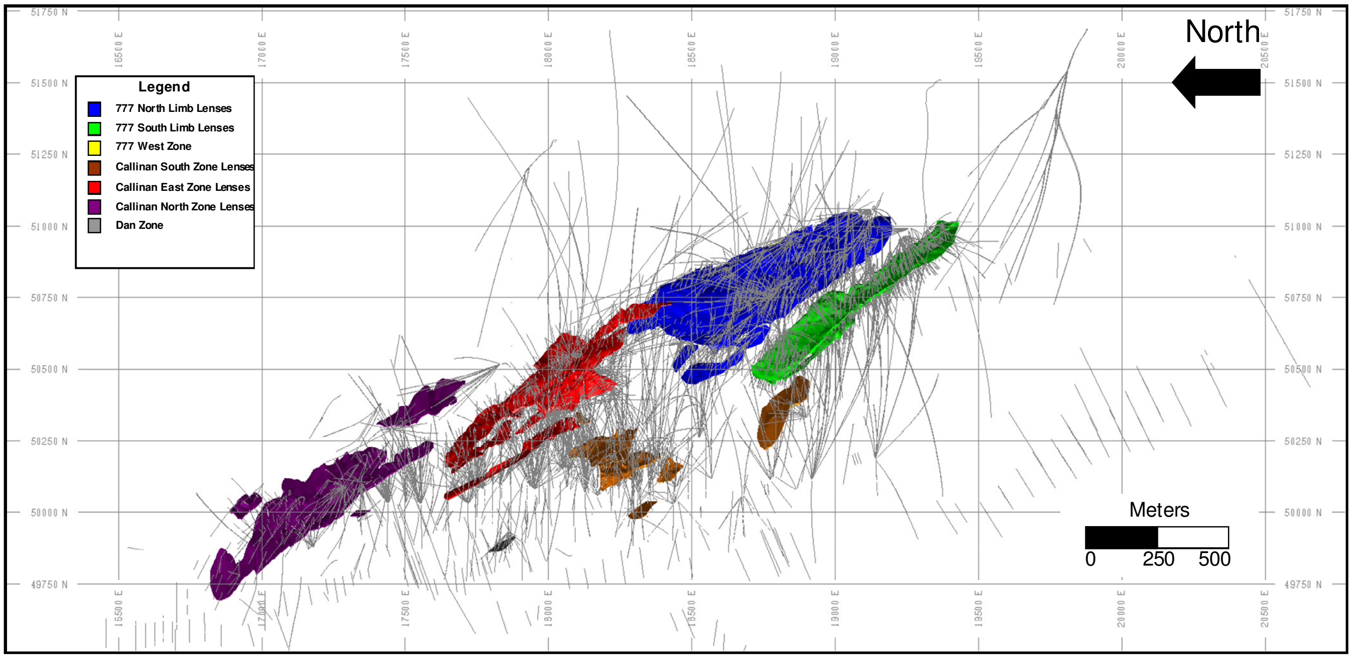
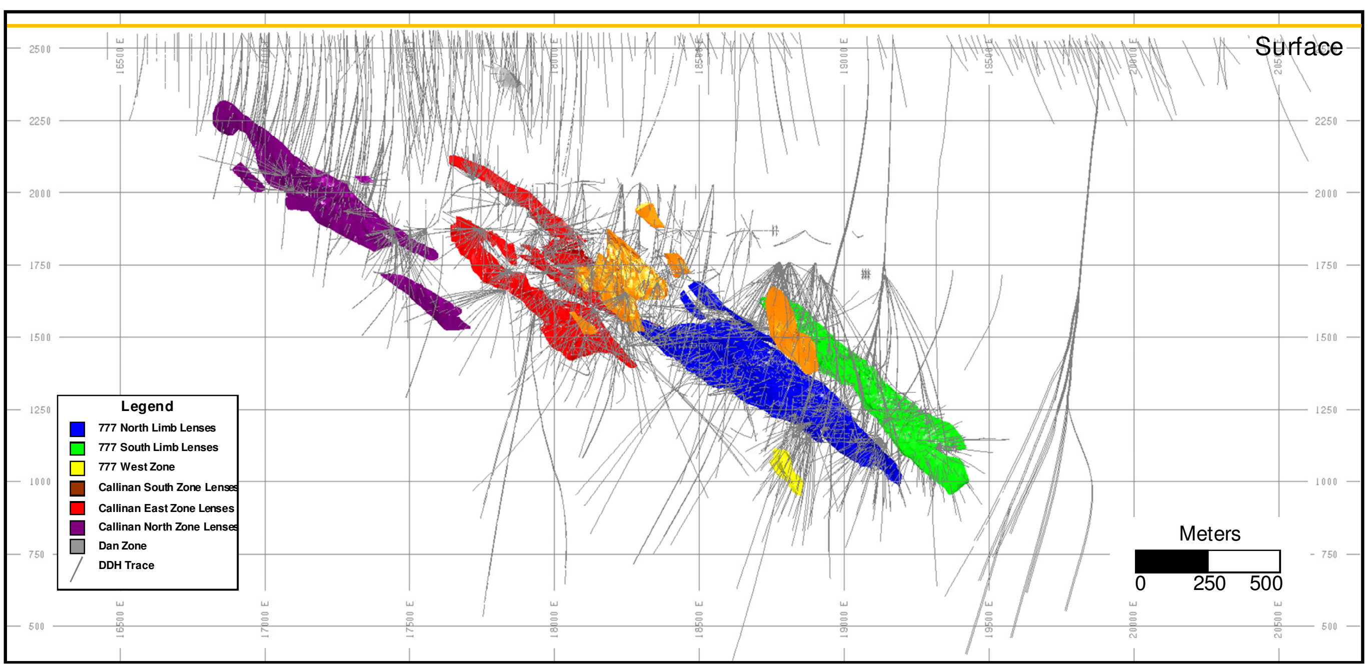


Figure 7.6 3D Sectional View of the 777/Callinan Mineralized Wireframes and Drilling Looking East



8. DEPOSIT TYPE

777 and Callinan are interpreted as VMS deposits that precipitated at or near the seafloor in association with contemporaneous volcanism, forming a stratabound accumulation of sulphide minerals. VMS deposits typically form during periods of rifting along volcanic arcs, fore arcs, and in extensional back arc basins. Rifting causes extension and thinning of the crust, providing the high heat source required to generate and sustain a high-temperature hydrothermal system (Franklin et al., 2005).

The location of VMS deposits is often controlled by synvolcanic faults and fissures, which permit a focused discharge of hydrothermal fluids. A typical deposit will include the massive mineralization located proximal to the active hydrothermal vent, footwall stockwork mineralization, and distal products, which are typically thin but extensive. Footwall, and less commonly, hanging wall semiconformable alteration zones are produced by high temperature water-rock interactions (Franklin et al., 2005).

The 777 and Callinan deposits exhibits typical VMS type hydrothermal alteration package in the footwall, with an extensive chlorite and sericite pipe.

9. EXPLORATION

Under the ownership of Minorco, S.A. in the mid-1990's a review of Hudbay showed declining reserves and ore grades, rising mining costs, and a poor safety record. With less than 10 years of mine life left, exploration was to be conducted until 1998; the latest time an ore body could be developed prior to mine closure in 2005. The 777 deposit was first discovered in 1993 and was defined with significant drilling between 1995 and 1997. This discovery was determined to have the ability to extend operation for an additional 12 to 16 years and resulted in significantly lowering overall unit operating costs as well as an improved safety performance.

9.1 Discovery

The discovery of the 777 deposit was, in contrast to most discoveries in the area, a geological success. Typically deposits in the Flin Flon Greenstone Belt are discovered through geophysical techniques such as airborne, surface and borehole electromagnetic surveys, as most of the deposits do not outcrop to surface. Due to depth, interference from culture such as power lines and lack of drilling in the 777 deposit area, these techniques were not able to be utilized. Instead, the 777 discovery was deemed a geological success as the first hole, 4Q-64, was drilled down to 1,682m in 1993 to test the down trend extents of the Callinan deposit. This hole, drilled on the west of Ross Lake, intercepted two zones of VMS style mineralization. The first zone was 1.7 meters, in core length, of massive sulphides at 1,277.5m down hole grading 4.541g/t gold, 42.256g/t silver, 1.43% copper, and 11.76% zinc. The second intercept, 4.91m core length, was a mineralized felsic volcanic at 1,298m down the hole grading 1.618g/t gold, 10.383g/t silver, 1.62% copper, and 0.56% zinc. Later, an additional four wedges were completed to follow up on this intercept.

With the confirmation of mineralization down trend, this hole was followed up with further drilling from underground at the 840 metre level track drift of the Callinan Mine. The deposit was later named after the discovery hole, CX-777, which intercepted several zones of massive mineralization, the largest of which was 22.52m in core length grading 5.358g/t gold, 55.994g/t silver, 2.89% copper, and 7.40% zinc.

Further exploration drilling was completed from both surface and underground sites. All deep surface holes, including 4Q-64 and its four wedges, and several underground holes, including CX-777 and its three wedges, were pulsed. They used a similar loop configuration and size to that which is currently used, approximately 1,500m by 1,000m. The results from the geophysical surveys confirmed the geological interpretations.

9.2 Geophysics

Due to the depth of the 777 Mine, airborne geophysical methods were ineffective for target generation which left downhole geophysical techniques. Downhole geophysics is conducted by Hudbay typically using the Crone Geophysics Limited Borehole Electromagnetic surveying equipment. The probes used are the induction coil probes which measure the secondary electro-magnetic field induced by the primary field created by the loop. The Z probe is utilized to determine the proximity of the target to the drill hole. This probe would yield an inhole response if the target is encountered in the hole, an inhole-offhole response if a less conductive portion of the target is hit, or an offhole response if the target was missed. These electronic methods can generally see offhole targets up to 150m or more from the hole depending on the size and conductivity of the target. In addition to the Z probe, an XY probe is also utilized to collect the X and Y components of the secondary field which allows for the direction of the potential conductor to be determined.

The general procedure for downhole geophysics is to first lay a loop to couple the horizon of interest, in a manner that the primary field is cutting the horizon at approximately 90 degrees. The loop, either on surface or underground in the 777 Mine footwall, generally has a frequency range of 1.67 to 5Hz, depending on the hole, while the survey is performed with a sampling rate of 512. Over the years two footwall loops and a few surface orientations have been used. The surface loops have either been placed throughout the City of Flin Flon around Ross Lake or just to the north with a general size of 1,500m by 1,000m. The borehole counter, receiver probes, and borehole cable is assembled underground and either lowered or raised up the drill hole, depending on its orientation. To raise probe up holes, probes are pushed up using a wire brush anchor system with a pulley able to haul the probes up the hole with a Kevlar rope. The probe is moved at 10m intervals in the hole with the data collected in the receiver. Data is then processed and interpreted by the geophysics department with the results categorized as either A, B, or C before being sent to the Senior Mine Geologist for follow up. Category A and B targets have responses with the smallest dimension of 100m, or bigger, where category A targets are highly conductive and category B targets are moderately conductive. Category C targets are all other targets, typically those that show small responses or are poorly conductive.

After the initial aggressive exploration program that defined the 777 deposit, few holes had downhole geophysical surveys. The first modern exploration drill hole at the 777 Mine, T7X-001, was pulsed in late 2004. Following that hole, little exploration work was conducted between 2005 and 2008 with only 56 exploration holes drilled during that four year period. Since 2009, exploration efforts have increased and downhole geophysical surveying of approximately 30 holes was completed, 20 of these using one of the underground footwall loops. These were concentrated on deep footwall drilling, around the West Zone, and in the hanging wall. Among these 30 holes, eight were surveyed in the hanging wall using a surface loop. All category A targets have been followed up with drilling as well as most of the lesser category targets. The few lesser category targets remaining are planned to be drill tested in 2012.

The quality of the downhole geophysical data can be affected by active mine workings and the proximity of the geophysical apparatus to a large ore body, such as 777, which can leave an imprint of the mine itself on the data.

In 2011 a total of four holes, T7X-127, T7X-130, T7X-131, and T7X-170 were downhole pulsed with a surface loop approximately 1,500m by 1,000m. Results from the program are pending completion of the interpretation, it was noted that the quality of the data received was good.

9.3 Seismic

Between May and September 2007 a seismic survey was conducted in the Flin Flon area as part of a joint initiative, labeled TGI[3]. The initiative was funded by Natural Resources Canada, Saskatchewan Industry and Resources, as well as Manitoba Industry, Economic Development and Mines, with active participation from Hudbay. This joint Federal-Provincial effort was led by the Geological Survey of Canada as part of a five year program that was aimed at sustaining reserves of base metals in established mining communities across Canada by supporting exploration for new deposits in the vicinity.

As the deposits in the Flin Flon area are generally massive sulphides, containing predominantly pyrite, pyrrhotite, sphalerite, and chalcopyrite, they are characterized by high acoustical impedance when compared to the country rock. This can make the deposits excellent candidates for discovery with high resolution seismic techniques. The program was designed to aid in 3D geological model construction, refine current conceptual exploration models, and to provide new drill targets for exploration (Malinowski et al., 2008).

To obtain the best results possible rock property measurements, downhole geophysical logging and vertical seismic profiles were taken before the main seismic survey. Downhole multisensory geophysical logging were completed on three surface drill holes (FFS039, 4Q66W3, and FFM001) in advance of the seismic survey as well as one 777 underground drill hole (T7X-074) which was completed afterwards in 2009. The geophysical logs included natural gamma ray spectrometry, density, full waveform sonic (compressional, Vp and Shear, Vs, wave velocities), magnetic susceptibility, resistivity and temperature. The natural gamma ray logs accurately defined the lithology. Vertical seismic profiling was also done on drill holes FFS039, 4Q66W3, and FFM001 with an 8-level 3-component downhole clamping geophone system. This recorded 150 to 450 gram dynamite shots that were detonated on surface near the drill hole collar. The mini-Vibroseis machines were also tested as an alternate, operating in both vertical and horizontal modes (White et al., 2007).

Data was recorded using IO System IV digital vector (3-component) accelerometers. Accelerometers were spaced at 5 meter intervals, for the 2D survey, with recording times of 4 seconds. Seismic sources were typically spaced at 20m intervals for both Vibroseis and dynamite sources on land, and an airgun for lake covered areas. The use of 1,050 gram dynamite shots provided the best results with direct p-wave arrivals observed out to maximum distances up to 2,300m. Intermediate shot sizes, 450 to 750 gram, were also used depending on the maximum desired recording offsets with maximum distances in excess of 1,600m. Mini-Vibroseis machines were utilized for smaller offsets, however they only provided limited depth penetrations. These were used in areas where dynamite or larger vibrators could not be used, such as in the town site. Arrivals of direct p-waves were observed to up 500m away (Malinowski et al., 2008).

During this time period a total of 75km of high resolution 2D seismic profiles as well as a 3D survey covering approximately 10km^2 was completed. Results were hampered by the significant challenges posed by the complex crystalline geology of the area, proximity to an active town, active mining operations, and the highly variable terrain (Malinowski et al., 2008).

The survey resulted in a greater understanding of the area geology. Also, the discovery of Zone 33 at the 777 Mine was attributed to this survey as it showed a seismic reflector in the footwall, which was later followed up with drilling and downhole pulsing. Previous downhole geophysical surveys had noted this anomaly, but it was previously discounted as a shadow effect from the 777 Mine. The first drill hole (T7X-060) intercept in the zone encountered 9.55m in core length of 6.402 g/t gold, 99.25 g/t silver, 0.89% copper, and 15.59% zinc. This zone currently has an indicated resource of 246,000 tonnes grading 3.50g/t gold, 71.47g/t silver, 1.23% copper and 10.42% zinc.

9.4 Ongoing Exploration

2011 marked the first year that a concentrated effort on exploration drilling was conducted from underground at the 777 Mine. Much of the drilling up to 2011 was concentrated on defining the current reserve. In excess of 21,000m of underground exploration drilling was drilled at the 777 Mine targeting additional resources in the hanging wall, footwall, along strike and in upgrading inferred resources. Significant knowledge was gained on the stratigraphy of the deposit and this information will aid in the 2012 exploration program which is budgeted to exceed 20,000m of exploration drilling.

10. DRILLING

The rock was drilled by a contract drilling company using a diamond bit. Whole core was retrieved from three or six metre core barrels. The drill helper removed the core from the barrel and placed the core in boxes that are labelled by hole and box number. Distance tags were placed at appropriate locations.

The core boxes were typically stacked on a pallet as each box was filled. The pallets would then be hauled away every few days day from the drill site by a Hudbay employee or by diamond drillers. Once on surface the core was delivered to the core logging facility at the site. The geologist and/or the technician transferred the core to the core logging tables. The geologist oriented the core to fit matching pieces and marks one meter intervals on the core with a grease pencil. The intervals were compared to the diamond drillers' down-the-hole tags and any conflicts with the meterage tags were resolved. For exploration holes that were kept, core boxes would be labelled with aluminium tags containing the drill hole number, box number and the corresponding downhole distances for each box. For other holes, the mineralization would be taken as whole core and the remaining portion would be dumped. The diamond drill core was typically not photographed.

Standard procedure is that the core is initially logged for lithology then descriptively for grain size, foliation, minor units, alteration minerals and intensity, faults, RQD, joints and contacts. Sample intervals are determined by both lithology and a visual estimate of the sulphide mineralization. As a general rule, sample intervals are approximately one metre, though the length varies depending on lithology or type of mineralization. It is likely that in no cases were samples taken from intervals less than 10cm in length. However, as many of the assays are historic in nature, several were split when they overlapped lithological boundaries in the resource block model and resulted in sample intervals having lengths as low as one centimetre.

In all holes, the mineralized material is sampled from upper through to lower mineralized contacts. The geologist identifies higher and lower grade portions of the mineralized lens in an attempt to sample similar grade material and break sample lengths at these contacts. A minimum of one shoulder sample is taken on either side of the lens to check for mineralization in the country rock. Shoulder samples are typically one meter in core length.

The drilling for the original Callinan deposit, and surface exploration in the area, has been completed mainly by Major Midwest Drilling. Core sizes typically consisted of AW-34, BQ, and NQ.

The modern 777 Mine drilling began in the early 2000's for a total of 1,621 drill holes (Table 10.1). All holes, except a geotechnical shaft pilot hole, were drilled from underground by Major Midwest Drilling with AW-34, AQTK and BQ core sizes. Drill hole spacing along the deposit is generally 30 to 50m. Core recovery is near 100% for all holes. Drilling was categorized as definition, exploration, or geotechnical. Geotechnical drilling was completed in areas of planned underground infrastructure to ensure competency. A summary of the Property diamond drilling, completed to the end of September 2011, is shown in Table 10.1 below.

Table 10.1 Summary of Modern Underground Drilling

Location	Type of Drilling	Number of Drill Holes	Total Meters	Number of Assays
777 Mine Drilling	Definition Drilling	1,367	159,900.25	53,646
	Exploration Drilling	192	59,390.54	6,572
	Geotechnical Drilling	62	4,818.50	279
	Total:	**1,621**	**224,109.29**	**60,497**
Callinan and Surface Drilling	Definition Drilling	1,200	161,452.61	33,721
	Exploration Drilling	793	233,999.69	19,338
	Geotechnical Drilling	6	193.79	211
	Total:	**1,775**	**346,140.72**	**52,235**
	Combined Total:	**3,396**	**570,250**	**112,732**

10.1 Downhole Surveying

Downhole deviation surveys completed during the 1993-1997 drilling consisted of Tropari magnetic instrument readings and acid tests. All Callinan Mine drilling was done in a similar manner with the exception of a few modern holes drilled after the 777 Mine came into production. The modern downhole surveys, starting in 2003, were recorded using a Reflex E-Z Shot (Reflex) instrument or, to a lesser extent, with a FlexIt instrument. Surveys are often completed at regular intervals of 30 to 50m down the hole.

Historically, a hand magnet was used by the geologist prior to each Tropari survey to assess the core for magnetics. In the rare case of magnetic detection from the core, no test was completed at that depth. The geologist reviewed all Tropari readings, and where anomalous azimuth readings were recorded, the experienced geologist decided whether to re-survey the downhole depth. Acid or etch tests, which record the dip of the hole when a glass test tube is etched by a hydrofluoric acid solution, were compared to the Tropari readings. Acid tests were corrected for the meniscus effect using industry standard charts.

The Reflex and FlexIt instruments measure the azimuth relative to the earth's magnetic field and records the dip of the hole. The magnetic field strength is checked for possible magnetic interference, where magnetic rock or material close to the instrument affects the magnetic field strength and magnetic azimuth readings.

The normal magnetic field strength for the deposit was established in an area free from magnetic effects. The Reflex and FlexIt instruments are calibrated based on the normal field strength and flashes when the magnetic strength is greater or less than 1,000nT (an approximate 15% difference) from normal. The geologist viewing the survey results will accept or reject the magnetic azimuth reading. If the reading is rejected the geologist will use a best estimated value based on a comparison to the uphole and downhole readings.

10.2 Reliability

There is no known drilling, sampling, or recovery factors that could materially impact the accuracy or reliability of the results.

11. SAMPLE PREPARATION, ANALYSES, AND SECURITY

Once sample intervals are selected, estimated total sulphide percentages are recorded in a sample tag book with a unique sample number for each sample interval. The samples are labelled on the core and are recorded in the sample booklet.

The majority of sample intervals from definition and exploration drilling were whole rock sampled with the core placed in a plastic bag with its unique sample identification tag. Typically when exploration drilling in new areas, all samples are either split or cut in half with a diamond saw. Half of the core was placed into a plastic bag with its unique sample identification tag and the other half of the core was returned to the core box for storage.

The bagged samples were placed in either a burlap bag or a plastic pail with a submittal sheet that was prepared by the geologist or technician. Samples were delivered to the Flin Flon assay laboratory, located in the Flin Flon Metallurgical Complex, which is owned and operated by Hudbay. Samples are checked by laboratory personnel to ensure that they match the submittal sheet.

A total of 112,732 samples from 3,396 drill holes were submitted to the Flin Flon assay laboratory for analysis. The average length for these sample intervals was 1.62m.

For security purposes, all sample preparation, splitting, handling, and storage was in the control of Hudbay personnel at all times in accordance with then applicable chain of custody policies which were consistent with industry standards at the time. A documented full chain of custody procedure was implemented at Hudbay in August 2011. This involves the creation of a submittal sheet with all batches of drill core sent for assay by the geologist daily. The sheet is signed both by the geologist, to verify the samples were stored securely, and by the laboratory personnel, to verify it was in their control from the time it left the core shack and is consistent with the current industry standards. Since no security documentation was recorded prior to the current chain of custody; data verification measures by the author suggest that copper and zinc assays were consistent with the mineralization observed in the core. Precious metal assays also generally correlated well with the mineralization features.

The author believes that there are no factors that could have materially impacted on the accuracy and reliability of the sample preparation, security, and analytical procedures and that those used are appropriate and adequate for VMS type mineralization.

11.1 Bulk Density Measurements

Bulk density measurements were taken on 2,982 of the mineralized samples selected for assaying. The measurement methodology consisted of first weighing the core sample in air, then, the sample was suspended in a tub filled with water by a chain on the underside of the scale in such a way that it did not touch the sides of the water-filled tub and the weight of the submerged sample was recorded. The sample is contained in a wire basket for both weighing procedures.

During the initial drilling of the 777 Mine deposit a regression formula was derived based on a suite of specific gravity (SG) measurements. During 2008, a subsequent SG program was undertaken to verify the regression formula that was being used to determine the calculated SG values. A total of 1,591 samples were measured and, when compared to the calculated SG, it was determined that the regression formula being used was sufficient with a correlation of approximately 86%. The SG formula that was derived is based on a combination of the mineralization type and the contained assay grades.

The determination of the measured specific gravity (SG) is calculated from measured values as follows:

SG = A / (A-B)

Where,

A = (Weight of sample and basket in air – Weight of basket in air)

B = (Weight of sample and basket in water suspended – Weight of basket in water)

Measurements were in grams and it was assumed that the water was 1.0g/cm^3 at room temperature.

11.2 Sample Preparation

All samples generated during the Hudbay drilling campaigns were prepared and analyzed at its associated assay laboratory in Flin Flon, MB.

The sample preparation, analyses and security procedures are considered to be industry standard and are adequate and acceptable.

All samples arriving at the Hudbay laboratory are checked against the geologist's sample submission sheets. Samples were then dried and crushed to 10 mesh then split to approximately 250g, pulverized to about 90% passing 150 mesh and placed into labeled bags. Crushers, riflers, and pans are cleaned with compressed air between samples. Pulverizing pots and rings are brushed, hand cleaned, and air blown. Crusher and pulverizer checks are conducted daily to ensure there is no excessive wear on the crusher plates and pulverizer pots. During the sample preparation a pulp split is taken at approximate one in every 20 samples for comparison and verification purposes as detailed below. Coarse rejects are stored at the exploration logging facility located near Flin Flon.

11.3 Assay Methodology

All samples collected from drill core were analyzed at the Hudbay assay laboratory in Flin Flon. The samples were analyzed for the following elements: gold, silver, copper, zinc, lead, iron, arsenic and nickel. Base metal and silver assaying was completed by aqua regia digestion and read by a simultaneous ICP unit. The gold analysis was completed on each sample by AAS after fire assay lead collection. Gold values greater than 10g/t were re-assayed using a gravimetric finish. All analytical balances are certified annually by a third party. Check weights are used daily to verify calibration of balances. All metal standards used to make the calibration standards for the AAS and ICP are certified and traceable. Each is received with a certificate of analysis. The Flin Flon assay laboratory was recently certified, in December 2011, to the ISO 9001 quality management system to help ensure they meet the needs of Hudbay as well as other stakeholders. The laboratory has been participating in CANMET PTP/MAL round robin testing since 2000. PTP/MAL is a requirement for laboratories to be ISO/IEC 17025 certified, the main standard used by testing and calibration laboratories. The Flin Flon laboratory is currently in application for this certification. The laboratory also has been participating since 2002 in round robin testing conducted by GEOSTATS of Australia.

The assay laboratory reports all assays at or above the detection limit to the mines to be imported into their AcQuire database. Assays above the upper detection limit are typically diluted to extend this limit. A summary of the Hudbay laboratory upper and lower detection limits is summarized in Table 11.1.

Table 11.1 Hudbay Laboratory Detection Limits

Element	Detection Limit	
	Upper	Lower
Au	0.069 g/t	27.429 g/t
Ag	0.446 g/t	2198.743 g/t
Cu	0.002%	16.50%
Zn	0.010%	33.00%
Fe	0.005%	50.00%
Pb	0.002%	11.00%
As	0.001%	2.20%
Ni	0.001%	2.20%

As part of Hudbay Quality Assurance and Quality Control (QAQC) measures, a portion of the pulp duplicates has been sent to Acme Analytical Laboratories Ltd. (Acme) in Vancouver, British Columbia for comparison and verification purposes since early 2006. The Hudbay

QAQC measures also involve the use of blank materials, reference standards, internal duplicates, and repeats.

11.3.1 Gold Bias

In September 2009, a suite of 1,839 pulps and 161 quality control samples were sent from the nearby, Hudbay owned, gold rich Lalor project. When the Acme and Hudbay results were compared the Hudbay results were typically higher, fairly consistently. Based on statistical comparisons, a correction factor was determined and applied to all Hudbay mine assays obtained from the Hudbay laboratory, including those from the 777 Mine. The correction factor, referred to as the gold bias, was applied to all historic gold assays as well as those going forward. This correction was applied only to regular assays, not blanks, duplicates, standards, etc.

The correction factors are as follows:

Samples <10g/t: Correction factor 0.90
Samples 10 to 30g/t: Correction factor 0.84
Samples >30g/t: Correction factor 0.90

11.4 Blanks

During the drilling programs at 777 a total of four different types of blanks were inserted into the sample stream between early 2000 and September 2011. Blanks were inserted at a rate of 1 for every 20 assays until the fall of 2003, when this was reduced to 1 for every 50 assays as a means of cost reduction. Since the Hudbay assay laboratory runs batches of 50-60 samples at a time this should place at least one blank in every batch. Blanks were inserted as a means to test and measure contamination in the sampling stream, the assumption is that contamination can occur at the sample preparation stage (primary crusher) due to improper cleaning of equipment between samples. A total of 1,408 blanks were inserted into the sampling stream from these four different blanks as in Table 11.2.

Table 11.2 Hudbay Blank Reference Materials

Date Used	Reference Material	Number of Samples
Jan 2000 to Nov. 2009	**Otter Lake Granite**	799
Jan 2008 to Apr 2011	**F-5**	311
Nov 2009 to Jan 2010	**AuBlank28**	21
Dec 2009 to Sep 2011	**F-6**	277

11.4.1 Otter Lake Granite Blank

The Otter Lake Granite (OLG), non-mineralized granite blank material, was sourced from a nearby granite pluton located at Otter Lake alongside Provincial Trunk Highway 10, approximately 36km southeast of Flin Flon. Samples were hand collected and broken down to fist size before being entered into the sample stream. Of the 799 granite assays 12 outliers were removed from the data set, several of which were presumed to be mislabeled samples. Contamination was deemed probable when assay values were in excess of three times the detection limits for precious and base metals, except iron which is assumed to be approximately 1.3% based on historical averages. Of these 787 samples, 217, 58, 175, and 236 samples returned gold, silver, copper, and zinc contamination respectively. contaminated samples were typically those inserted into the sample stream directly following a high grade sample.

The OLG material was discontinued in late 2007 with the arrival of the packaged F-5 reference material. Approximately 16 samples of OLG material was inserted into the sample stream until November 2009. A summary of the results, without the 12 outliers, is shown in Table 11.3.

Table 11.3 Hudbay Non-Certified Otter Lake Granite Blank Material Summary

OLG	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.000	0.000	0.000	0.000	1.300	0.000	0.000
Records	787	787	787	787	787	787	787
Minimum	0.000	0.000	0.00	0.00	0.46	0.00	0.00
Maximum	0.857	5.830	0.68	0.81	5.99	0.05	0.03
Mean	0.069	0.223	0.03	0.04	1.25	0.00	0.00
Std. Dev.	0.078	0.608	0.05	0.09	0.51	0.00	0.00
CV	1.132	2.730	2.01	2.08	0.41	4.80	5.89

11.4.2 F-5 Blank

The F-5 blanks are non-certified blank material, introduced in January 2008, which was sourced from Ore Research & Exploration PTY Ltd. (Ore Research) of Australia. The blank material was manufactured from Australian volcanic rock. They are presented in silver packets labeled as F-5. The F-5 blank samples are considered barren having undetectable limits for precious and base metals. If assay results for the blanks are considerably above or below the mean value, considered the detection limit for all metals except iron, the assumption is there has been contamination. Of these 311 samples, 65 gold, 3 silver, 29 copper, and 56 zinc returned some level of contamination. A summary of the results is shown in Table 11.4.

Table 11.4 Hudbay Non-Certified F-5 Blank Material Summary

F-5	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.034	0.062	0.003	0.006	4.020	0.000	0.000
Records	311	311	311	311	311	311	311
Minimum	0.000	0.000	0.00	0.00	3.42	0.00	0.00
Maximum	0.171	0.690	0.08	0.09	4.52	0.00	0.00
Mean	0.031	0.007	0.00	0.01	3.96	0.00	0.00
Std. Dev.	0.034	0.068	0.01	0.01	0.18	0.00	0.00
CV	1.119	10.149	3.57	2.52	0.04	-	-

11.4.3 AuBlank28

The AuBlank28 reference material was certified for gold values only, and is considered barren having undetectable limits for silver and base metals, except iron. They are presented in silver packets labeled AuBlank28. The AuBlank28 was used mainly for a one month basis (December 2008) to bridge the gap between running out of F-5 blanks and the arrival of the new F-6 blanks. If assay results for the blanks are considerably above or below the median value, considered the detection limit for all metals except iron, the assumption is there has been contamination. Of the 21 AuBlank28 samples that were inserted, only 8 gold and 2 silver samples showed contamination. A summary of the results is shown in Table 11.5.

Table 11.5 Hudbay Certified AuBlank28 Blank Material Summary

AuBlank28	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.002	0.000	0.000	0.000	3.230	0.000	0.000
Records	21	21	21	21	21	21	21
Minimum	0.000	0.000	0.00	0.00	0.68	0.00	0.00
Maximum	0.137	0.000	0.00	0.02	3.34	0.00	0.00
Mean	0.028	0.000	0.00	0.00	3.00	0.00	0.00
Std. Dev.	0.043	0.000	0.00	0.01	0.73	0.00	0.00
CV	1.545	-	-	3.16	0.24	-	-

11.4.4 F-6 Blank

The F6 blank certified reference material was implemented in late 2009. The material was provided by Ore Research who manufactured the material from Australian volcanic rock. It is presented in silver packets labeled F-6. The blank samples are considered barren having undetectable limits for precious and base metals, except iron. If assay results on the blanks are above three times the detection limit the assumption is there has been contamination at the sample preparation stage (primary crusher) due to improper cleaning of equipment between samples. Of the 277 F-6, samples contamination was shown in only 11 gold, 3 silver, 3 copper and 13 zinc assays. A summary of the results are shown below in Table 11.6 and in Figures 11.1 and 11.2.

Table 11.6 Hudbay Certified F-6 Blank Material Summary

F-6	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.000	0.100	0.004	0.010	3.900	0.000	0.000
Records	277	277	277	277	277	277	277
Minimum	0.000	0.000	0.00	0.00	3.19	0.00	0.00
Maximum	2.023	1.030	0.06	0.11	4.57	0.00	0.00
Mean	0.016	0.026	0.00	0.01	3.93	0.00	0.00
Std. Dev.	0.126	0.146	0.01	0.02	0.16	0.00	0.00
CV	7.636	5.578	2.86	2.26	0.04	-	-

Figure 11.1 Hudbay Certified F-6 Blank Material – Gold and Silver

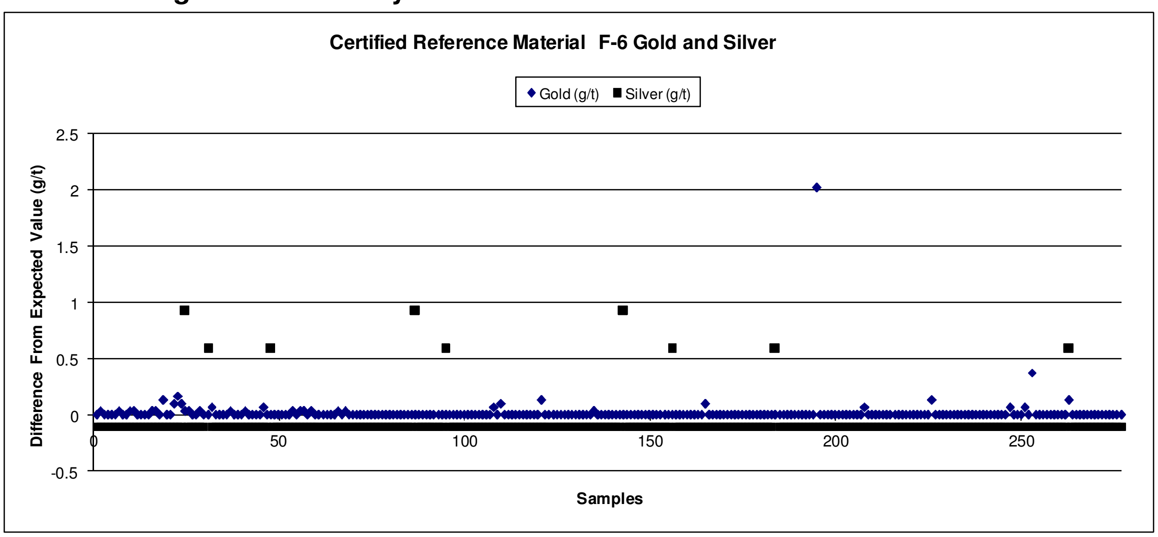
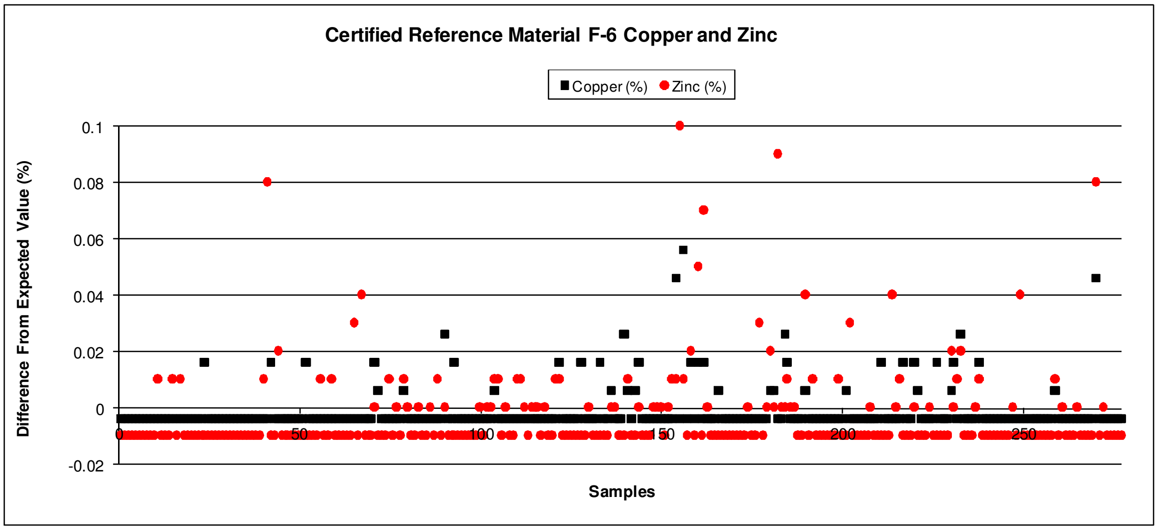


Figure 11.2 Hudbay Certified F-6 Blank Material – Copper and Zinc



11.5 Standards

Certified and non-certified reference materials were used by Hudbay and are identified in Table 11.7. Standards were first introduced at Hudbay mines starting in 1999 and have been common practice since 2003. The Series 1, 2, and 3 standards are non-certified standards that were prepared at the Hudbay laboratory with the intent of monitoring the laboratory performance. The expected values were determined from the average of 5 assays taken from the Hudbay assay laboratory. The acceptable values were determined to be within 10% of this expected value. The Series 4 and 5 standards are certified reference standards by Ore Research. For the Series 4 and 5 standards Hudbay supplied 5 different grade internals of ore material (grab samples) that represented at least 90% of the grades encountered at the mines. Ore Research crushed the samples then calculated the expected grades based on the average of assay results from eight independent laboratory analyses. Standards appeared to be somewhat sporadically inserted at first and became increasingly systematic over a couple of years to the point where they are inserted into the sample stream at every 20th assay interval.

Table 11.7 Hudbay Standards

Standard	Dates Used
A-1	Aug 2002 - 2003
C-1	Mar 2000 - Apr 2001
A-2	Feb 1999 - 2003
B-2	Mar 1999 - 2003
C-2	Mar 1999 - May 1999
C-3	Sep 2001 - May 2002
A-4	Jun 2003 - Nov 2007
B-4	Jun 2003 - Nov 2007
C-4	Jun 2003 - Feb 2008
D-4	Jun 2003 - Apr 2008
E-4	Jun 2003 - Jan 2008
A-5	Jan 2008 - Current
B-5	Jan 2008 - Current
C-5	Jan 2008 - Current
D-5	Jan 2008 - Current
E-5	Jan 2008 - Current

11.5.1 Series 1 Standards

The reference standard analyses for the Series 1 standards displayed an acceptable comparison to the gold, copper, and zinc expected values, considering their low expected values. The silver analyses had a poor comparison; assays were generally within range but did show some sporadic values. In summary, 43% of the gold and 25% of the silver fall within +/-10% of the expected value. Also, 64% of the copper and 66% of the zinc analyses fall within +/-5% of the expected value. Series 1 standards are summarized in Table 11.8.

Table 11.8 Hudbay Non-Certified Series 1 Standards

A-1	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.145	2.493	0.16	0.08	9.16	0.02	0.01
Records	20	20	20	20	20	20	20
Minimum	0.003	0.000	0.12	0.03	7.89	0.00	0.00
Maximum	0.171	3.086	0.16	0.09	9.64	0.02	0.03
Mean	0.049	0.697	0.14	0.07	9.06	0.02	0.01
Std. Dev.	0.064	1.061	0.01	0.01	0.44	0.01	0.01
CV	1.324	1.521	0.07	0.22	0.05	0.51	1.65

C-1	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.987	9.394	0.73	0.55	11.53	0.07	0.01
Records	36	35	36	36	36	36	36
Minimum	0.034	1.749	0.65	0.49	10.07	0.04	0.00
Maximum	1.817	25.029	0.78	0.61	12.79	0.10	0.04
Mean	1.049	10.626	0.73	0.56	11.55	0.07	0.01
Std. Dev.	0.249	3.195	0.03	0.03	0.53	0.01	0.01
CV	0.238	0.301	0.05	0.05	0.05	0.14	0.59

11.5.2 Series 2 Standards

The reference standard analyses for the Series 2 standards showed a reasonable comparison to the gold, silver, copper, and zinc expected values. In summary, 61% of the gold and 42% of the silver fall within +/-10% of the expected value. Also, 73% of the copper and 53% of the zinc analyses fall within +/-5% of the expected value. Series 2 standards are summarized in Table 11.9.

Table 11.9 Hudbay Non-Certified Series 2 Standards

A-2	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.004	0.040	0.14	0.07	-	-	-
Records	18	21	21	21	21	21	21
Minimum	0.003	0.040	0.13	0.00	8.25	0.00	0.00
Maximum	0.006	0.160	0.17	0.08	9.86	0.15	0.02
Mean	0.004	0.095	0.14	0.06	8.84	0.02	0.01
Std. Dev.	0.001	0.030	0.01	0.02	0.44	0.03	0.01
CV	0.234	0.311	0.06	0.34	0.05	1.29	1.05

B-2	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.205	1.750	4.99	4.22	-	-	-
Records	28	28	28	28	28	28	26
Minimum	0.034	1.580	4.24	3.70	16.05	0.39	0.09
Maximum	0.280	2.210	5.03	4.44	18.69	0.44	0.10
Mean	0.205	1.824	4.74	4.05	17.66	0.42	0.10
Std. Dev.	0.042	0.145	0.19	0.19	0.76	0.02	0.01
CV	0.204	0.080	0.04	0.05	0.04	0.04	0.05

C-2	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.027	0.240	0.70	0.53	-	-	-
Records	11	11	11	11	11	11	5
Minimum	0.006	0.280	0.65	0.49	10.29	0.00	0.01
Maximum	0.052	0.350	0.75	0.62	11.68	0.08	0.02
Mean	0.025	0.307	0.69	0.54	11.08	0.03	0.02
Std. Dev.	0.012	0.023	0.03	0.04	0.50	0.04	0.00
CV	0.497	0.074	0.04	0.08	0.04	1.16	0.25

11.5.3 Series 3 Standards

The reference standard analyses for the Series 3 standards showed an acceptable comparison to the gold and copper expected values. The silver and zinc values correspond well, likely due to the small sample size, only 12 samples, as well as the low expected values. In summary, 42% of the gold and 8% of the silver fall within +/-10% of the expected value. Also, 90% of the copper and 8% of the zinc analyses fall within +/-5% of the expected value. Series 3 standards are summarized in Table 11.10.

Table 11.10 Hudbay Non-Certified Series 3 Standard

C-3	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.178	3.531	0.06	0.30	8.53	0.04	0.01
Records	12	12	10	12	12	11	5
Minimum	0.069	1.783	0.06	0.16	8.10	0.02	0.01
Maximum	0.274	4.114	0.07	0.28	8.86	0.05	0.03
Mean	0.168	3.257	0.06	0.25	8.56	0.04	0.01
Std. Dev.	0.049	0.813	0.00	0.03	0.25	0.01	0.01
CV	0.293	0.249	0.05	0.13	0.03	0.21	0.64

11.5.4 Series 4 Standards

The reference standard analyses from the Hudbay Flin Flon assay laboratory for the Series 4 standards show reasonable precision in analyses. Overall five outliers were removed from the data set, most of which were likely mislabeled blanks. In total, 48% of the copper and 38% of the zinc analyses fall within the +/-5% acceptable limits. Many of the Series 4 results are lower than the standard “expected” values as the Hudbay laboratory uses aqua regia digestion rather than total digestion method, which was used during the certification process. Gold and silver show a similar comparison, with 67% of the gold and 86% of the silver occurring within +/-10% the acceptable limits. Many of the values that failed to fall within these limits were largely due to the sensitivities associated with the low grade gold and silver values of the standards. Series 4 standards are summarized in Table 11.11.

Table 11.11 Hudbay Certified Series 4 Standards

A-4	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.225	4.114	0.43	0.22	9.24	0.03	0.02
Records	317	317	317	317	317	317	317
Minimum	0.000	2.740	0.37	0.16	7.80	0.02	0.01
Maximum	1.817	6.170	0.55	0.24	9.88	0.03	0.03
Mean	0.269	4.000	0.41	0.20	8.76	0.03	0.02
Std. Dev.	0.104	0.375	0.02	0.01	0.32	0.00	0.00
CV	0.387	0.094	0.04	0.06	0.04	0.19	0.16

B-4	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.838	12.823	1.02	2.12	15.06	0.09	0.03
Records	318	318	318	318	318	318	318
Minimum	0.103	8.230	0.75	1.53	11.37	0.07	0.02
Maximum	1.337	14.060	1.12	2.23	16.83	0.10	0.04
Mean	0.884	11.752	0.95	1.96	14.36	0.08	0.03
Std. Dev.	0.108	0.615	0.03	0.07	0.51	0.01	0.00
CV	0.123	0.052	0.03	0.03	0.04	0.06	0.06

C-4	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	3.160	19.200	4.50	6.11	22.20	0.10	0.05
Records	309	309	309	309	309	309	309
Minimum	0.069	16.110	3.31	5.05	19.79	0.09	0.04
Maximum	33.600	41.040	4.61	6.26	26.52	0.12	0.08
Mean	3.207	18.784	4.25	5.74	22.10	0.10	0.05
Std. Dev.	1.785	1.609	0.14	0.18	0.78	0.01	0.01
CV	0.557	0.086	0.03	0.03	0.04	0.05	0.12

D-4	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	5.940	24.103	15.30	3.55	34.20	0.01	0.03
Records	331	331	331	331	331	331	331
Minimum	0.069	19.200	13.45	3.07	29.18	0.00	0.02
Maximum	8.229	67.890	16.83	3.81	38.05	0.02	0.04
Mean	5.884	23.616	15.16	3.28	33.46	0.00	0.03
Std. Dev.	0.685	2.734	0.53	0.11	1.27	0.01	0.00
CV	0.116	0.116	0.03	0.03	0.04	2.48	0.06

E-4	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.746	12.686	1.17	29.40	20.60	0.56	0.10
Records	335	335	335	335	335	335	335
Minimum	0.069	1.030	0.93	26.22	17.62	0.09	0.08
Maximum	1.234	17.490	1.20	31.87	22.93	0.61	0.11
Mean	0.745	12.397	1.09	28.63	20.48	0.53	0.09
Std. Dev.	0.125	0.980	0.04	0.94	0.68	0.03	0.01
CV	0.168	0.079	0.04	0.03	0.03	0.06	0.06

11.5.5 Series 5 Standards

The reference standard analyses from the Hudbay Flin Flon assay laboratory for the Series 5 standards show good precision in analyses. In total, 86% of the copper and 79% of the zinc analyses fall within the +/-5% acceptable limits. Gold and silver show a similar comparison, with 64% of the gold and 78% of the silver occurring within the acceptable limits. Series 5 standards are summarized in Table 11.12 below. Also, analyses for the C-5 and D-5 standards are shown in Figures 11.3 to 11.10 below.

Table 11.12 Hudbay Certified Series-5 Standards

A-5	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.141	1.910	0.095	0.506	8.040	0.006	0.008
Records	308	308	308	308	308	308	308
Minimum	0.069	1.030	0.08	0.46	7.13	0.00	0.00
Maximum	0.309	5.060	0.14	0.57	8.31	0.01	0.01
Mean	0.161	1.898	0.09	0.50	7.65	0.00	0.00
Std. Dev.	0.041	0.310	0.01	0.02	0.20	0.00	0.00
CV	0.253	0.163	0.06	0.03	0.03	17.55	6.57

B-5	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Values	0.476	2.860	1.330	0.125	11.450	0.003	0.006
Records	304	304	304	304	304	304	304
Minimum	0.309	2.060	1.21	0.12	10.07	0.00	0.00
Maximum	0.789	3.770	1.47	0.17	11.81	0.00	0.01
Mean	0.513	2.966	1.31	0.13	10.87	0.00	0.00
Std. Dev.	0.067	0.309	0.03	0.01	0.31	0.00	0.00
CV	0.131	0.104	0.02	0.06	0.03	-	17.44

C-5	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	2.493	21.100	3.370	5.280	20.420	0.127	0.076
Records	302	302	302	302	302	302	302
Minimum	2.023	18.510	3.07	4.74	17.27	0.11	0.07
Maximum	3.429	25.030	3.74	5.79	21.95	0.14	0.09
Mean	2.607	21.428	3.30	5.13	19.65	0.12	0.08
Std. Dev.	0.205	1.271	0.08	0.14	0.56	0.01	0.00
CV	0.079	0.059	0.02	0.03	0.03	-	0.06

D-5	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	7.344	90.300	9.420	2.460	32.880	0.073	0.161
Records	294	294	294	294	294	294	294
Minimum	5.417	76.800	8.82	2.12	29.77	0.06	0.15
Maximum	10.011	105.600	10.26	2.49	34.35	0.08	0.17
Mean	7.753	90.364	9.53	2.31	32.20	0.07	0.16
Std. Dev.	0.676	5.348	0.24	0.07	0.94	0.00	0.01
CV	0.087	0.059	0.03	0.03	0.03	0.05	0.04

E-5	Au (g/t)	Ag (g/t)	Cu %	Zn %	Fe %	Pb %	As %
Expected Value	0.780	19.700	0.393	23.700	12.100	0.749	0.096
Records	300	300	300	300	300	300	300
Minimum	0.144	17.830	0.35	22.10	10.89	0.69	0.09
Maximum	1.131	24.000	0.42	25.31	13.81	0.87	0.10
Mean	0.840	20.310	0.39	23.65	11.71	0.75	0.10
Std. Dev.	0.083	1.166	0.01	0.62	0.33	0.02	0.00
CV	0.099	0.057	0.03	0.03	0.03	0.03	0.05

Figure 11.3 Hudbay Certified Reference Material C-5 – Gold

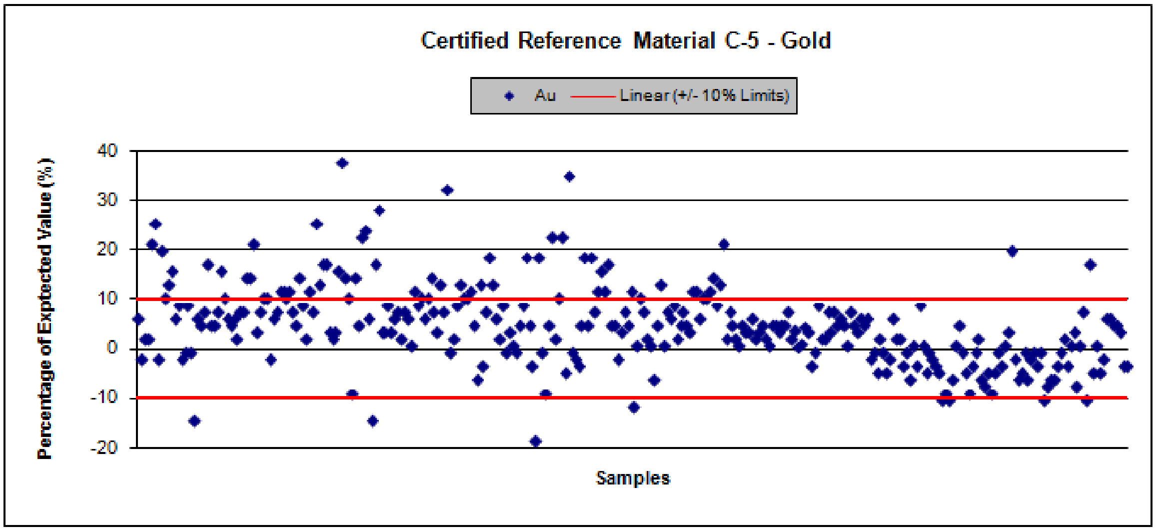


Figure 11.4 Hudbay Certified Reference Material C-5 – Silver

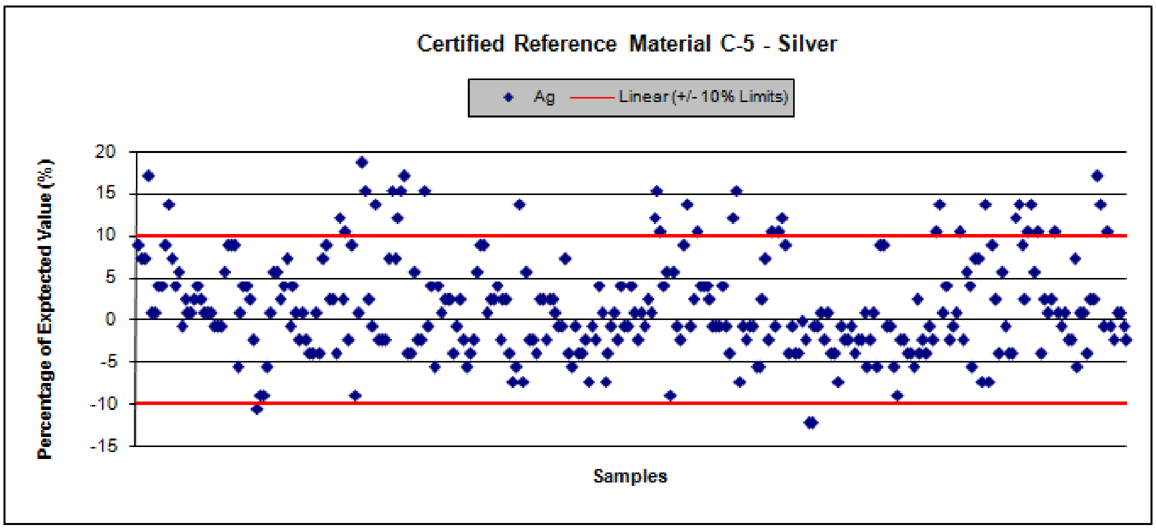


Figure 11.5 Hudbay Certified Reference Material C-5 – Copper

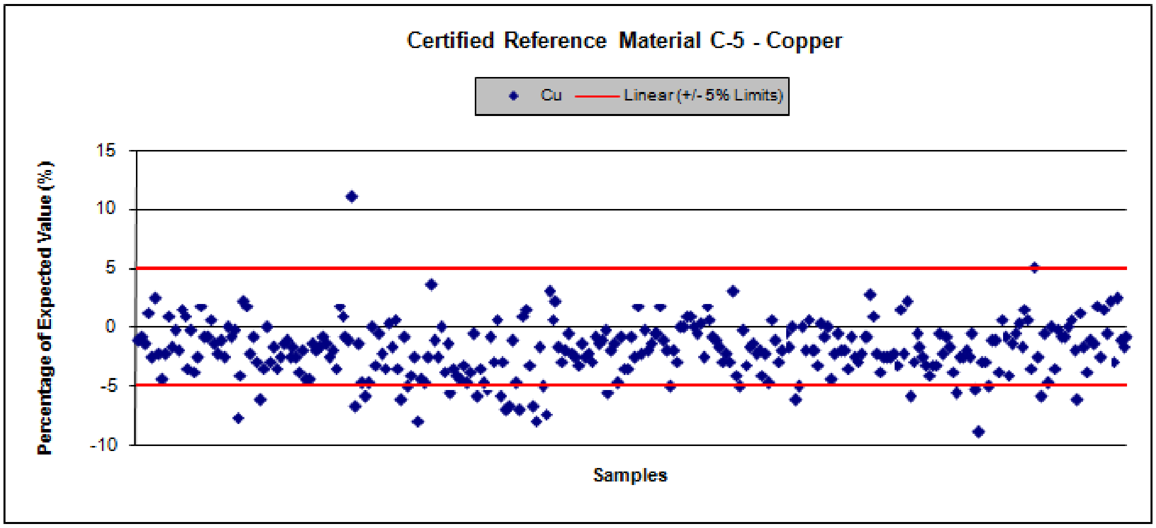


Figure 11.6 Hudbay Certified Reference Material C-5 – Zinc

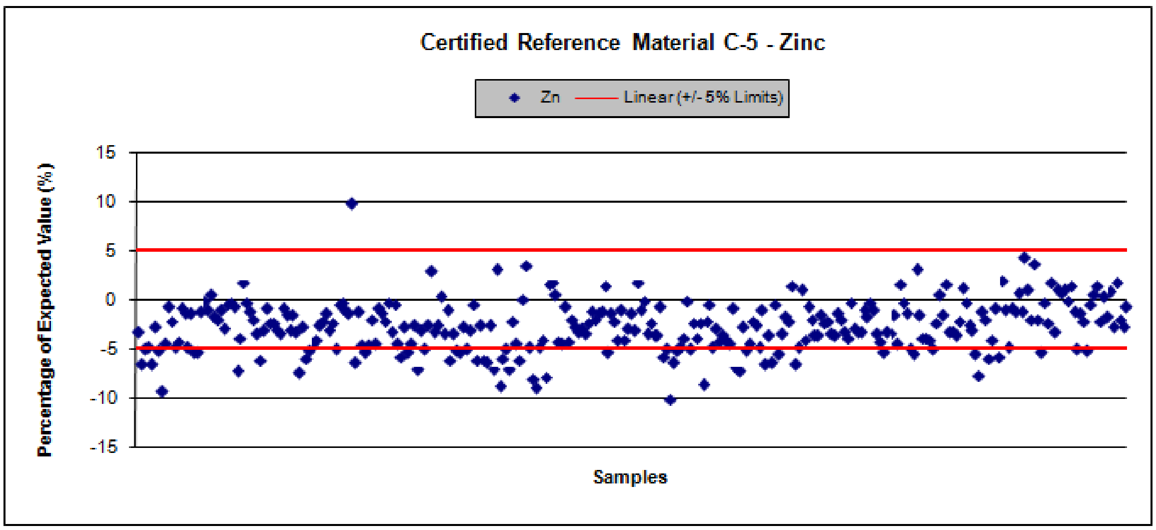


Figure 11.7 Hudbay Certified Reference Material D-5 – Gold

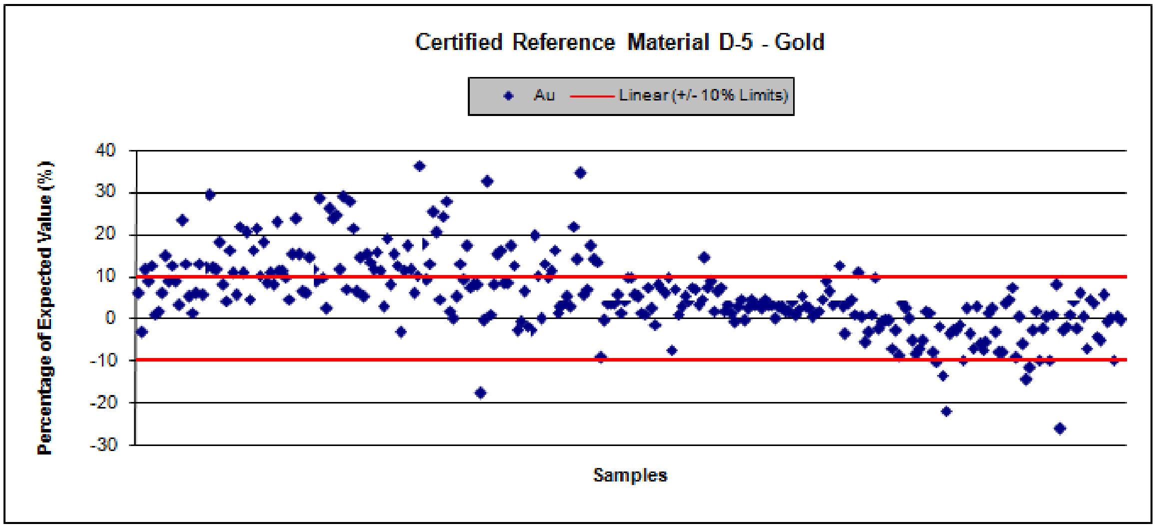


Figure 11.8 Hudbay Certified Reference Material D-5 – Silver

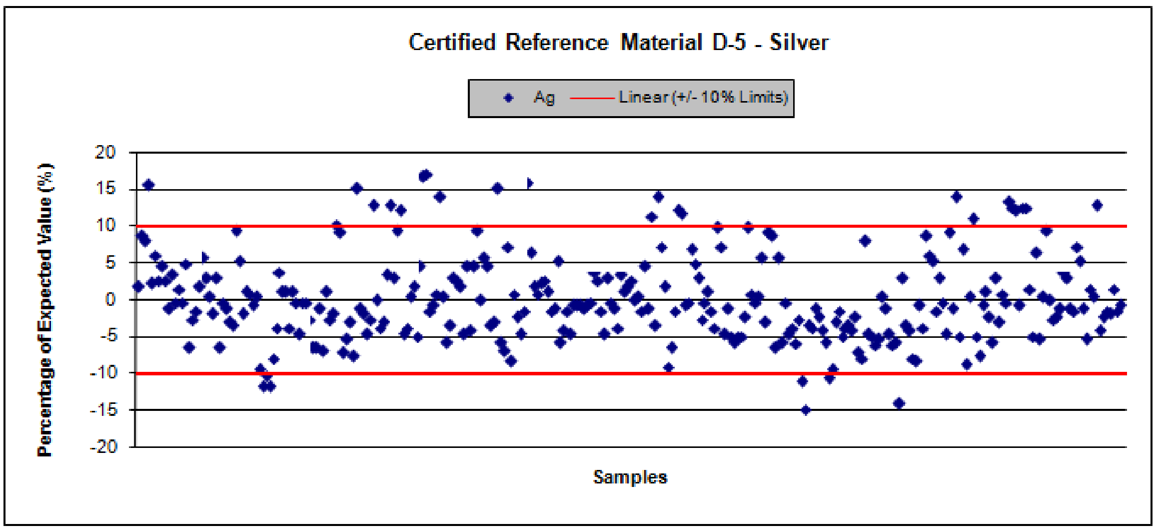


Figure 11.9 Hudbay Certified Reference Material D-5 – Copper

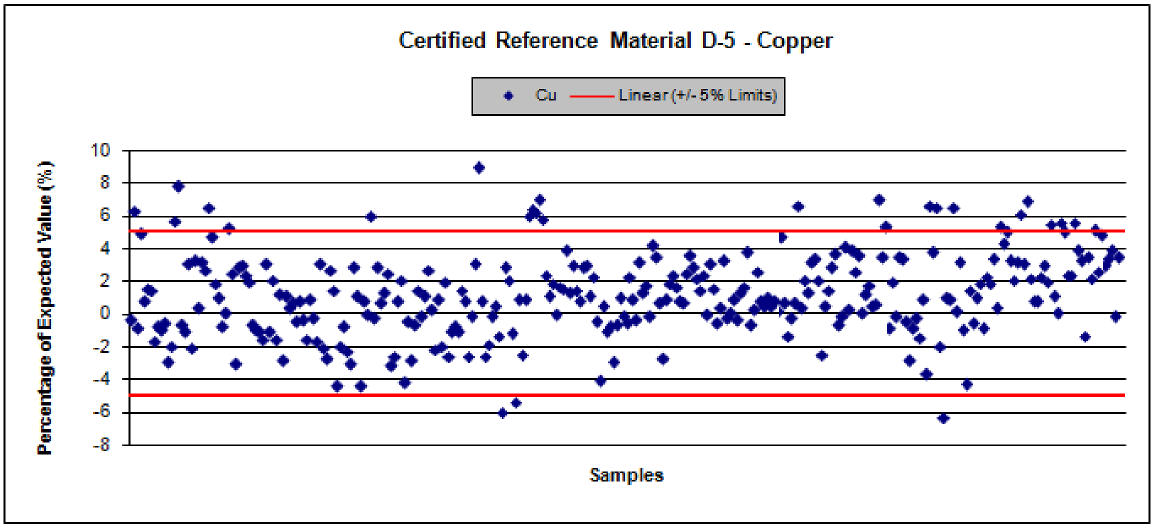
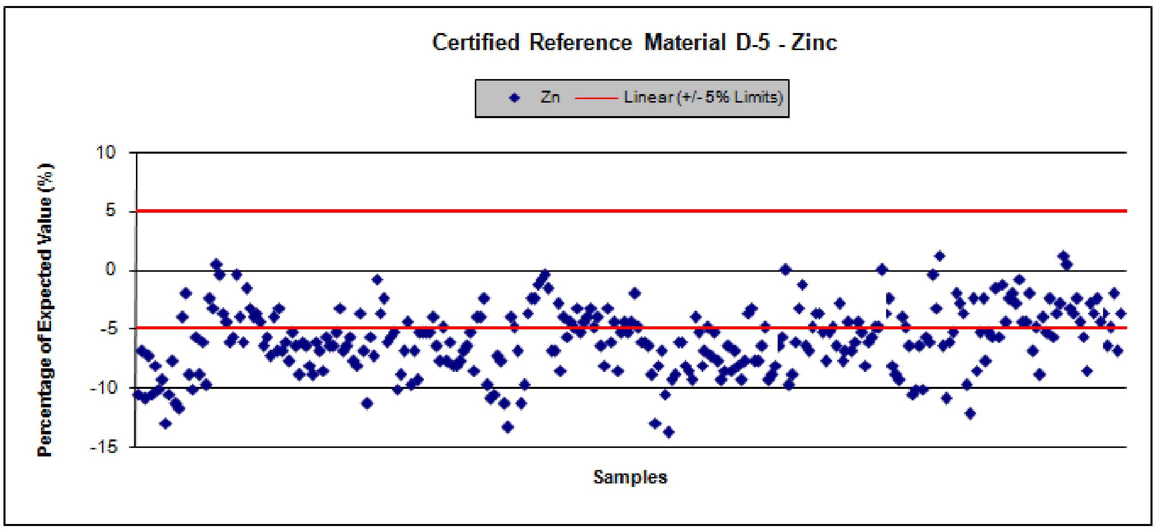


Figure 11.10 Hudbay Certified Reference Material D-5 – Zinc



11.6 Duplicates

The process of running duplicate assays has been in progress at Hudbay since mid 2004. Duplicates are used as a check to verify the repeatability of the assay data. Duplicates are run at the Hudbay laboratory, representing an internal check, and also at Acme as an external independent check.

11.6.1 Internal Duplicates

Beginning in May 2004, the Hudbay laboratory performed internal duplicate checks at approximately every 20th sample. Since March 2010 the Hudbay mines have taken over the task of designating which samples will be duplicated as per the geologist instruction, at every 20th sample. The duplicate analyses showed good correlation, with R^2 values of 0.93, 0.98, 0.98, and 0.99 for gold, silver, copper, and zinc respectively. Figures 11.11 through 11.14 display a comparison of the original Hudbay gold, silver, copper, and zinc assays compared to the duplicate check assays.

Figure 11.11 Comparison of Original Hudbay Assay and Pulp Duplicate for Gold

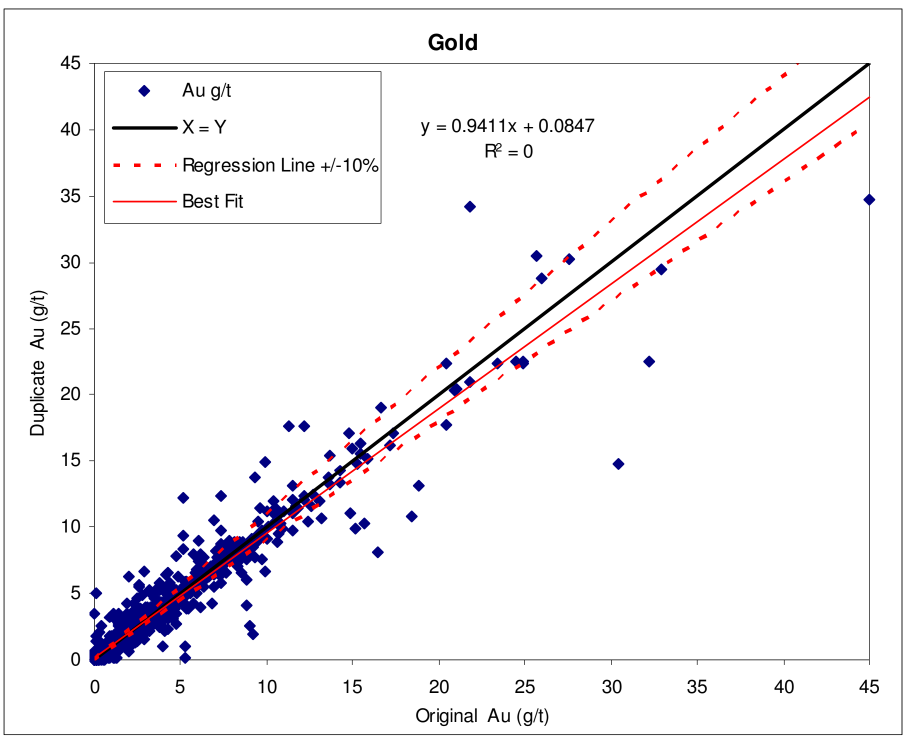


Figure 11.12 Comparison of Original Hudbay Assay and Pulp Duplicate for Silver

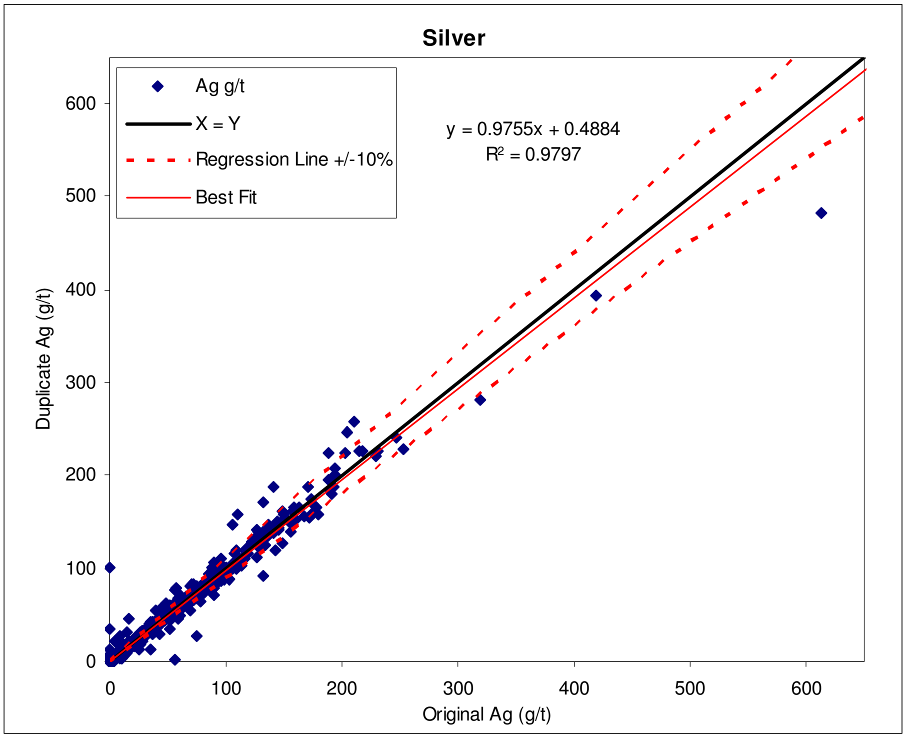


Figure 11.13 Comparison of Original Hudbay Assay and Pulp Duplicate for Copper

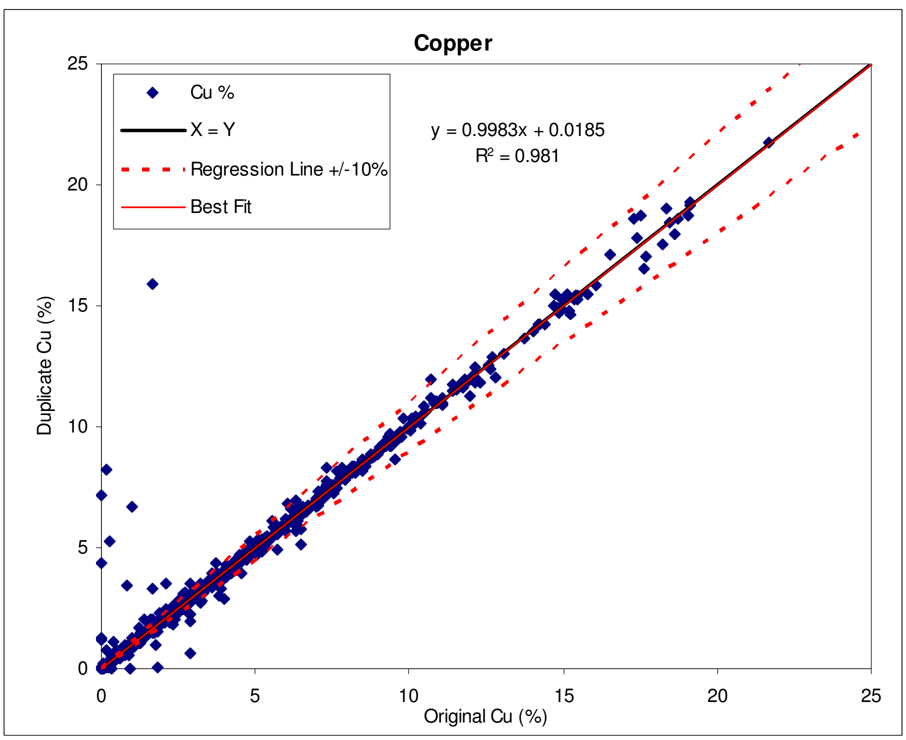
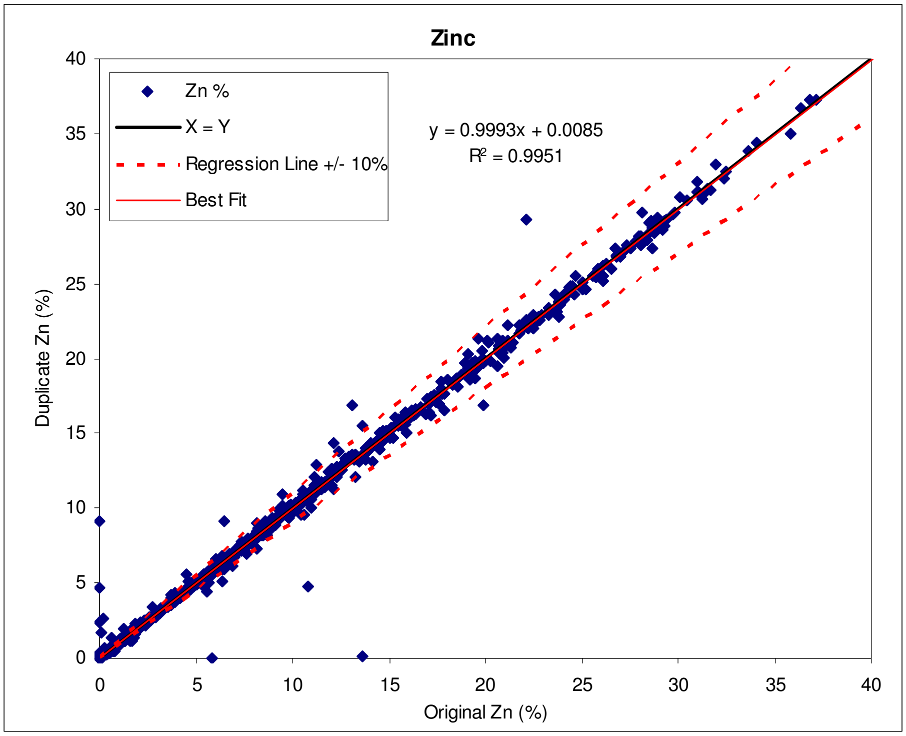


Figure 11.14 Comparison of Original Hudbay Assay and Pulp Duplicate for Zinc



11.6.2 External Duplicates

Beginning in the first quarter of 2006, a portion of Hudbay internal duplicate assays were sent to Acme as an external independent check on the assay laboratory results. Samples were selected at a minimum frequency of one sample per every five internal duplicates which equates to at least one sample per every 100 samples. Acme performs a multi-element assay by ICP-AES after aqua regia digestion on a 1g sample, and gold analysis by ICP-AES after fire assay on a 30g sample. Gold values greater than 10g/t were re-assayed using a gravimetric finish. Acme is currently registered with ISO/IEC 17025:2005 as well as ISO 9001:2008 accreditations. Typically an analytical batch will be comprised of 34 to 36 samples, a pulp duplicate to monitor analytical precision, a reagent blank to measure background, and an aliquot of Certified Reference Material (CRM) or in house reference material to monitor accuracy. All pulps are stored at the Hudbay exploration core logging facility near Flin Flon. Results are summarized for individual mines on a quarterly basis.

The duplicate analyses showed good correlation, with R^2 values of 0.899, 0.903, 0.986, 0.997, and 0.993 for gold, gold bias, silver, copper, and zinc respectively. The R^2 values for gold and gold bias are very similar since over 73% of the original assay results are less than 1g/t gold. However, it does appear that the gold bias shows the best results overall as the best fit line for the un-biased gold is below the -10% regression line whereas the best fit line for the gold bias is nearly a 1:1 ratio. Figures 11.15 through 11.19 display a comparison of the original Hudbay gold, gold bias, silver, copper, and zinc assays compared to the Acme duplicate assays.

Figure 11.15 Comparison of Original Hudbay Assay and Acme Duplicate Assay for Gold

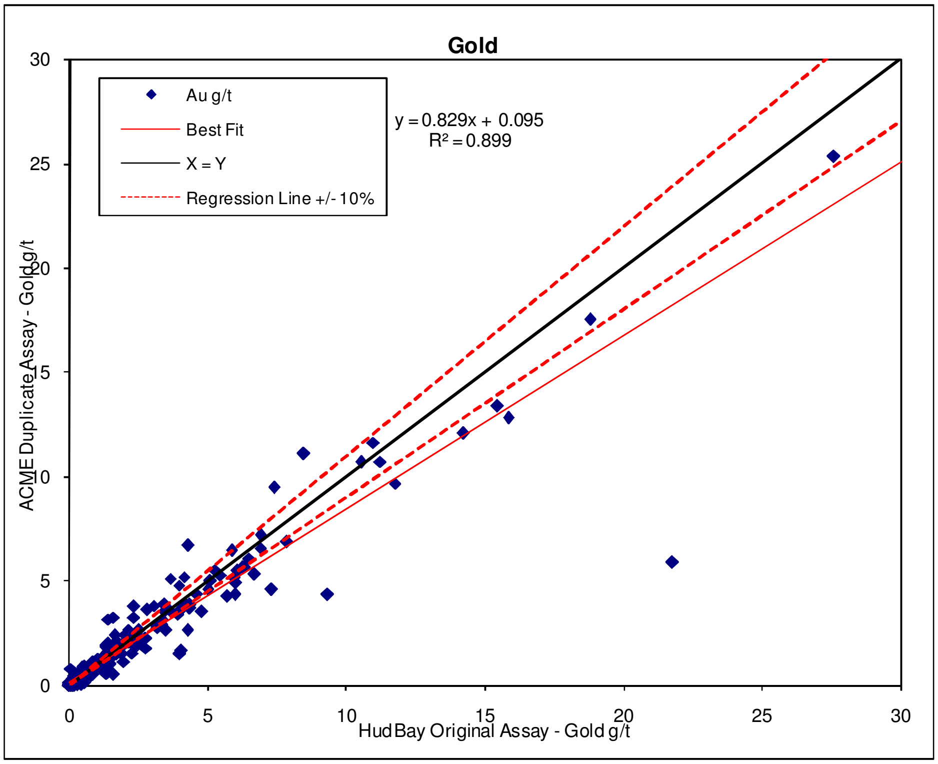


Figure 11.16 Comparison of Hudbay Biased Assay and Acme Duplicate for Gold

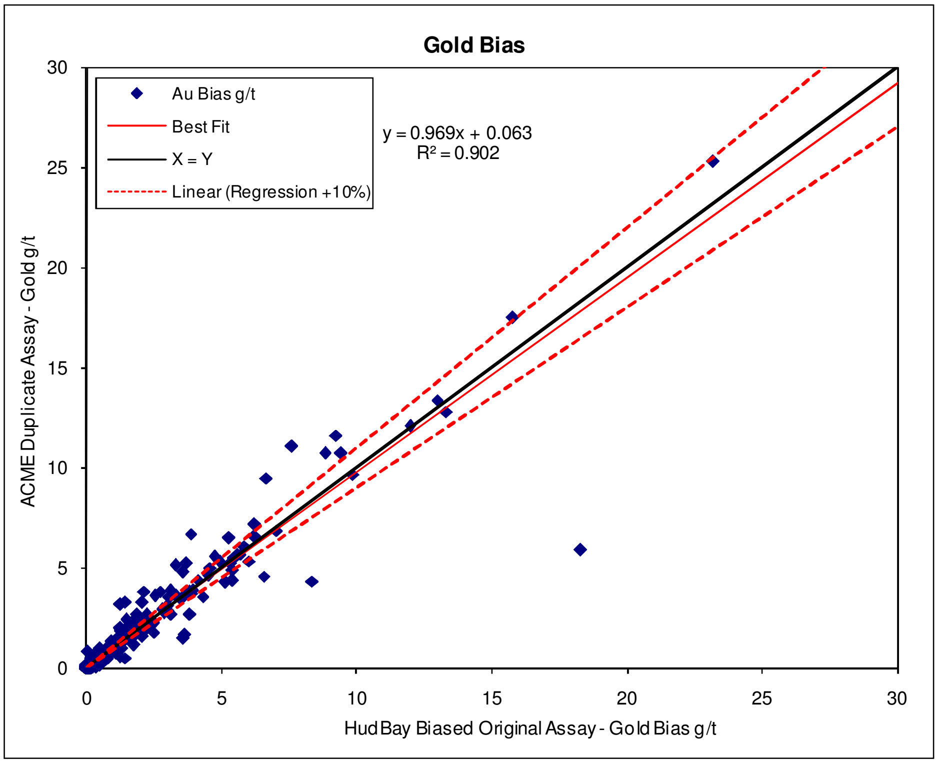


Figure 11.17 Comparison of Original Hudbay Assay and Acme Duplicate for Silver

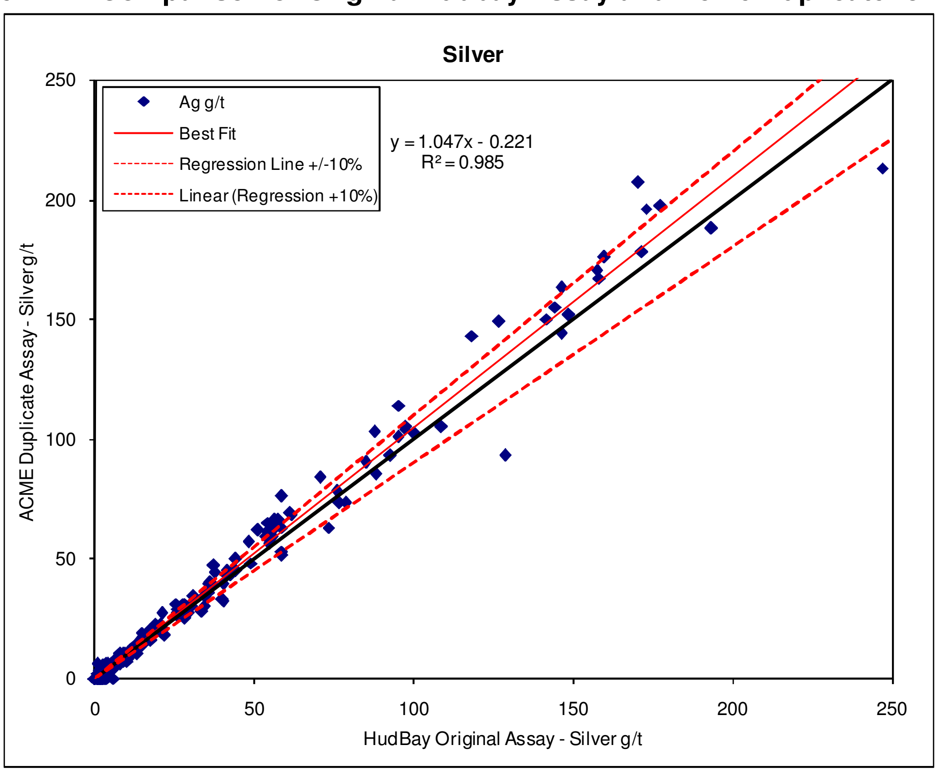


Figure 11.18 Comparison of Original Hudbay Assay and Acme Duplicate for Copper

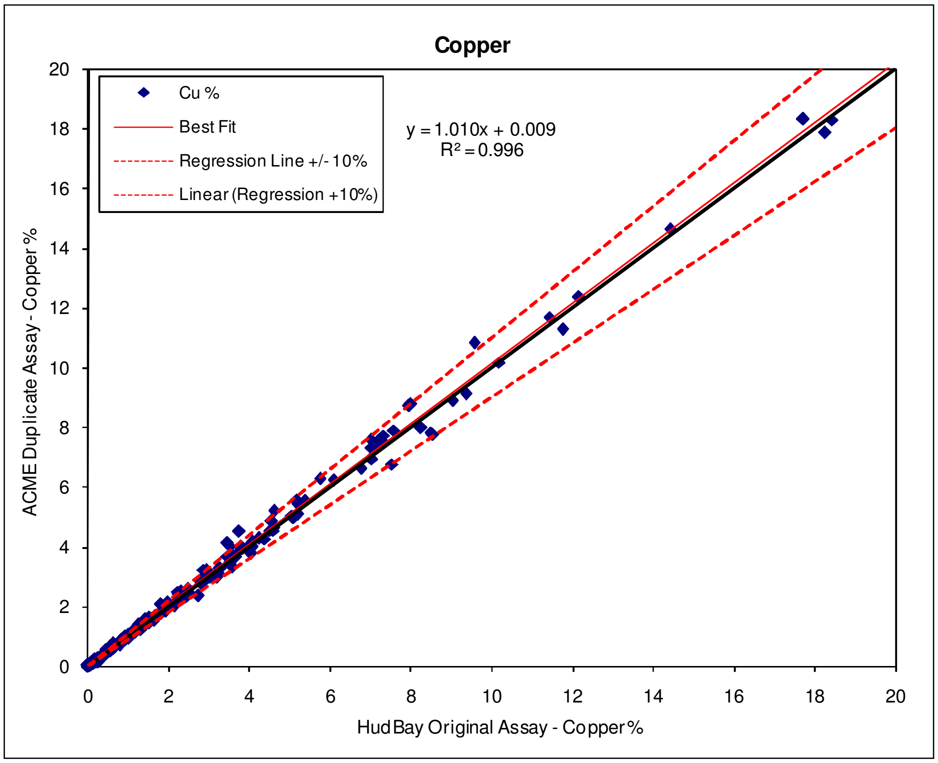
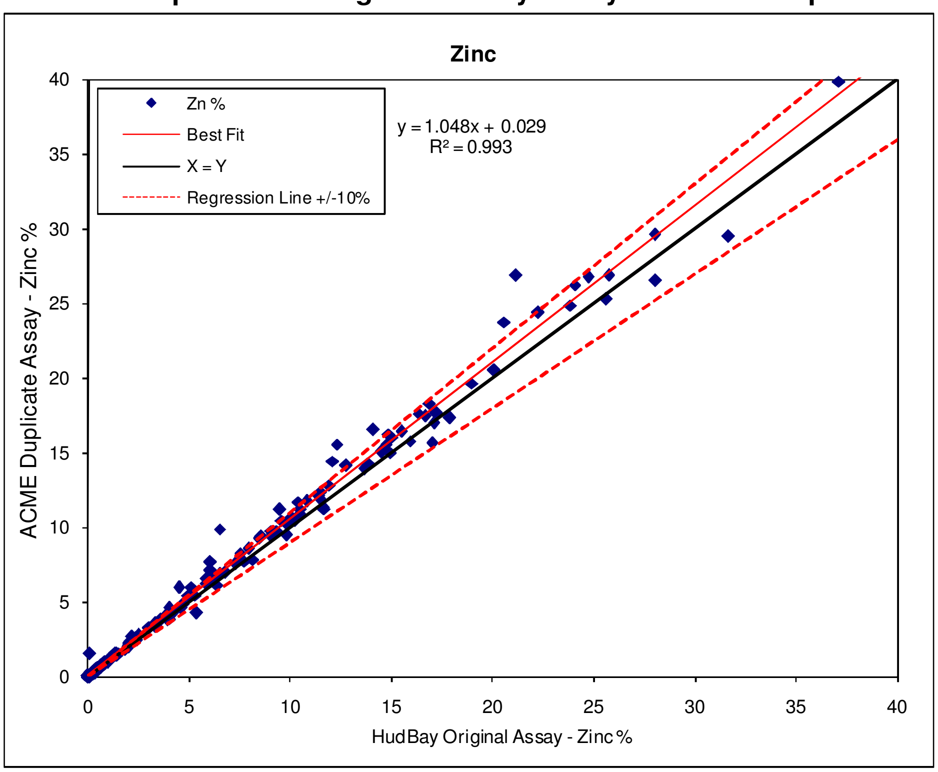


Figure 11.19 Comparison of Original Hudbay Assay and Acme Duplicate for Zinc



11.7 Repeats

Repeats, typically referred to as ‘blinds’, were implemented by Hudbay in December of 2006, and are run on a monthly basis. The results are considered an internal independent check on the Hudbay assay laboratory results. The assay laboratory designate in charge of pulp storage chooses one sample out of every four or five duplicates that were analyzed during the month and sends this list to the responsible individual at the mines in charge of QAQC. The pulps are pulled from the pulp room at the assay lab and divided into a new pulp bag and given new sample tag numbers. This repeat sample is then resubmitted, along with one to three standards, to the assay laboratory for the standard analysis. The standards are removed from their foil packets and submitted in a new pulp bag with a new sample number so the laboratory will have no knowledge of which samples are the certified standards. Results are summarized for individual mines on a quarterly basis.

The duplicate analyses showed good correlation, with R^2 values of 0.67, 0.98, 0.97, and 0.99 for gold, silver, copper, and zinc respectively. Figures 11.20 through 11.23 display a comparison of the original Hudbay gold, silver, copper and zinc assays compared to the repeat check assays.

Figure 11.20 Comparison of Original Hudbay Assay and Repeat Analyses for Gold

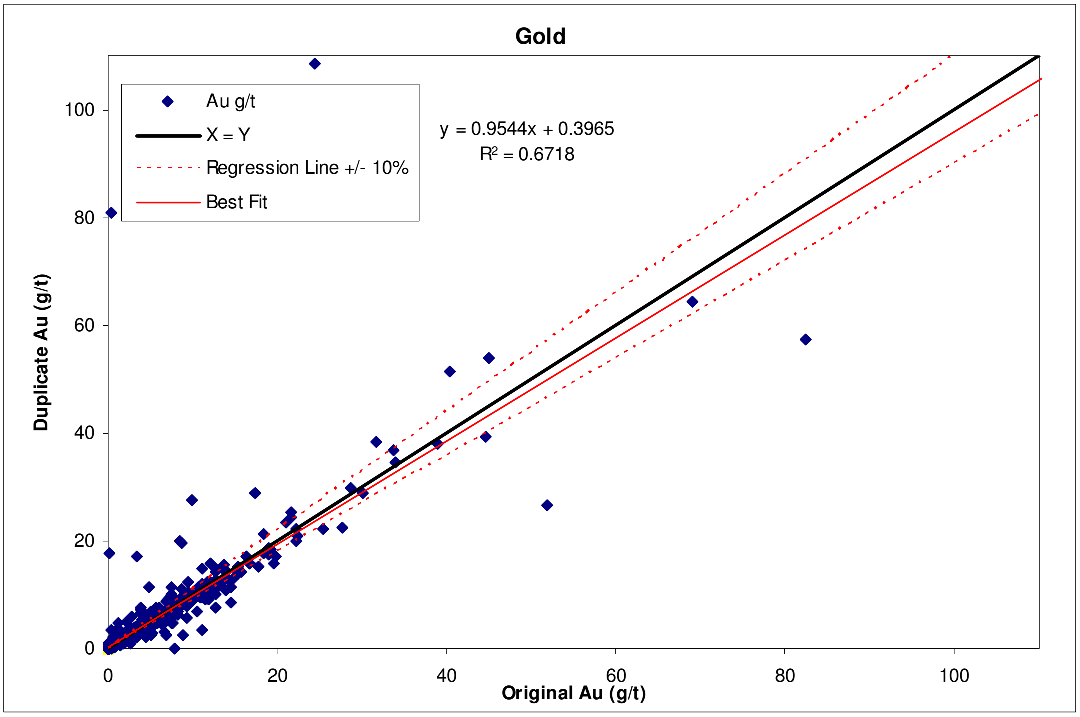


Figure 11.21 Comparison of Original Hudbay Assay and Repeat Analyses for Silver

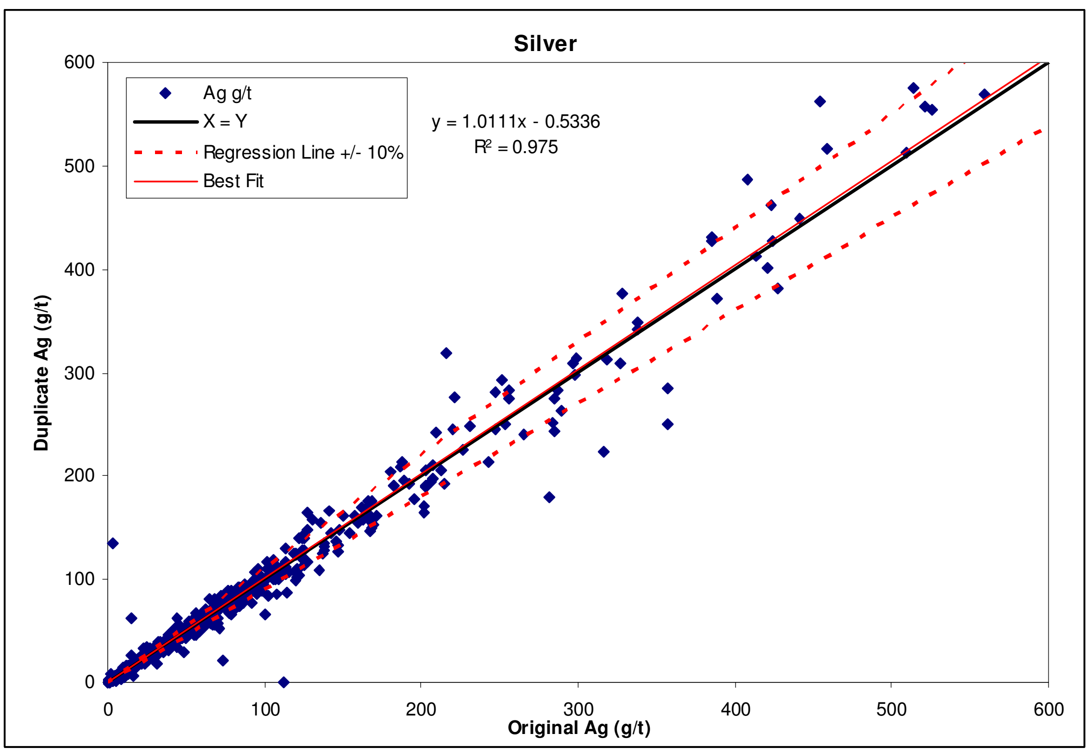


Figure 11.22 Comparison of Original Hudbay Assay and Repeat Analyses for Copper

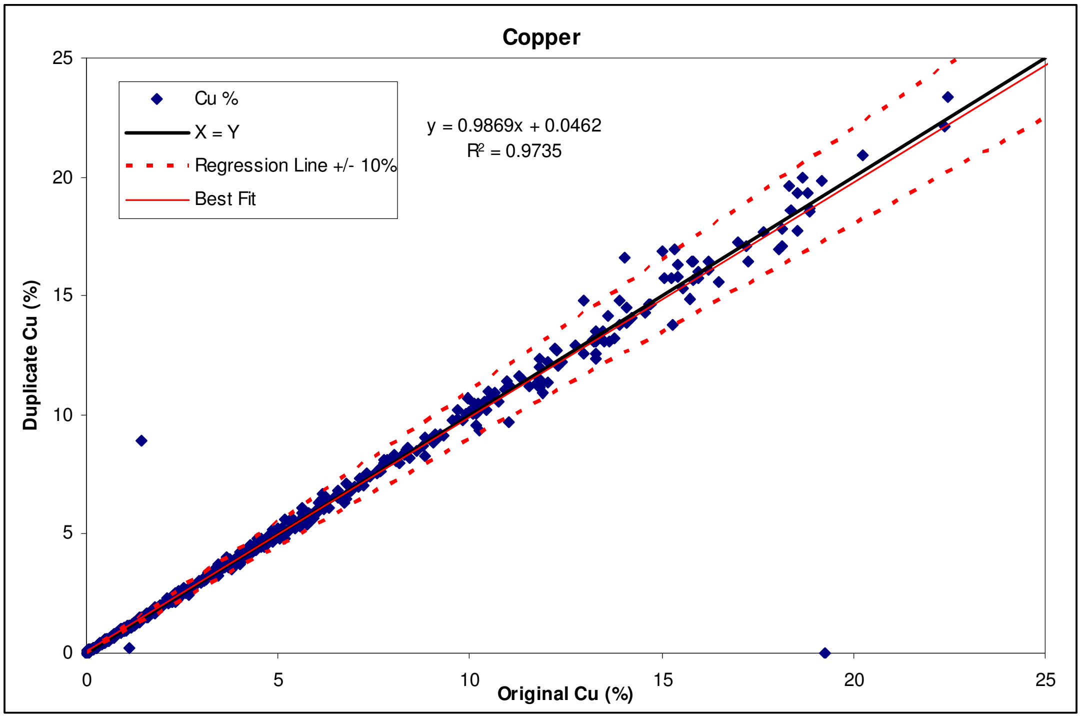
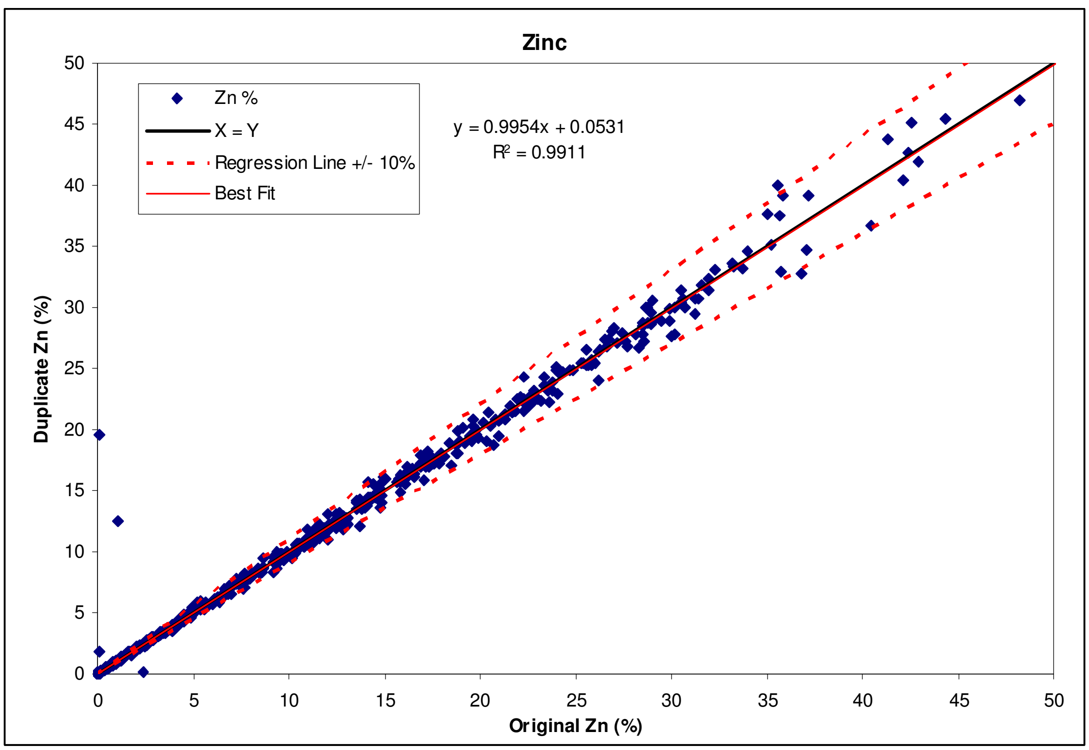


Figure 11.23 Comparison of Original Hudbay Assay and Repeat Analyses for Zinc



11.8 Third Party Laboratory Analysis Procedures

All third party samples were analyzed by Acme. Acme performs a multi-element assay (Group 7AR) measured on an ICP emission spectrograph after aqua regia digestion, and gold analysis (Group 601) on an ICP emission spectrometer after fire assay. Gold samples returning values > 10g/t by fire assay are gravimetrically finished (Group 601+612) as instructed by Hudbay.

For the multi-element assay, aliquots of 1.000 ± 0.002g are weighed into 100mL volumetric flasks. Acme's QAQC protocol requires one pulp duplicate to monitor analytical precision and a blank and aliquot of in-house reference material to monitor accuracy in each batch of 36 samples. 30mL of Aqua Regia, a 1:1:1 mixture of ACS grade concentrated HCl, concentrated HNO_3 and de-mineralised H_2O, is added to each sample. Samples are digested for one hour in a hot water bath (> 95°C). After cooling for 3 hrs, solutions are made up to volume (100mL) with dilute (5%) HCl. Very high-grade samples may require a 1g to 250mL or 0.25g to 250mL sample/solution ratio for accurate determination. Acme's QAQC protocol requires simultaneous digestion of a reagent blank inserted in each batch. Sample solutions are aspirated into a Spectro Ciros Vision ICP emission spectrograph (ES) to determine 23 elements. Raw and final data from the ICP-ES undergoes a final verification by a British Columbia Certified Assayer who then signs the analytical report before it is released to the Hudbay. This 23 multi-element assay and gold analysis detection limits are displayed in Table 11.13.

Table 11.13 Acme Elemental Detection Limits

Element	Detection Limit
Ag	2.000 g/t
Al	0.010 %
As	0.010 %
Au	0.010 g/t
Bi	0.010 %
Ca	0.010 %
Cd	0.001 %
Co	0.001 %
Cr	0.001 %
Cu	0.001 %
Fe	0.010 %
Hg	0.001 %
K	0.010 %
Mg	0.010 %
Mn	0.010 %
Mo	0.001 %
Na	0.010 %
Ni	0.001 %
P	0.001 %
Pb	0.010 %
Sb	0.001 %
Sr	0.001 %
W	0.001 %
Zn	0.010 %

For the gold analysis, one assay ton aliquots (29.2g) are weighed into fire assay crucibles. Smaller aliquots of ¼ or ½ assay ton may be required with difficult ore matrices. The sample aliquot is custom blended with fire assay fluxes, PbO litharge and a silver inquart. Firing the charge at 1,050°C liberates Au, Ag ± PGEs that report to the molten Pb-metal phase. After cooling the Pb button is recovered, placed in a cupel, and fired at 950°C to render an Ag ± Au ± PGEs dore bead. The bead is weighed and parted (i.e. leached in 1mL of hot HNO_3) to dissolve silver leaving a gold sponge. Adding 10mL of HCl dissolves the Au ± PGE sponge. Solutions are analysed for gold on a Jarrel-Ash Atomcomp model 975 ICP emission spectrometer. Gold in excess of 10g/t forms a large sponge that can be weighed (gravimetric finish). An analytical batch is comprised of 34 samples.

As part of Acme‘s QAQC protocol, a sample-preparation blank is inserted as the first sample and carried through all stages of preparation to analysis as well as a pulp duplicate to monitor analytical precision. Two reagent blanks are inserted in each batch to measure background, and aliquots of Rocklabs Certified Reference Materials to monitor accuracy. Raw and final data undergo a final verification by a British Columbia Certified Assayer who signs the analytical report before it is released to the client. Acme is currently registered with ISO/IEC 17025:2005 as well as ISO 9001:2008 accreditations. All pulps are stored at the Hudbay exploration core logging facility near Flin Flon.

12. DATA VERIFICATION

Examination and mapping of the underground drifting visually confirmed the geology and VMS style of mineralization. As well, the examination of drill core for several holes has also confirmed the mineralization and geology and compared well to underground mapping with drill logs and assays. Database geology was deemed to be reasonably accurate.

A visit was conducted to the 777 core logging and storage area, exploration core storage facility, and the Hudbay assay facility and were deemed to be secure and in reasonable condition. More recent core is stored on pallets in close proximity to the 777 core logging warehouse and older original exploration core is stored at the exploration facility.

The author also has had several discussions with current and former geologists as well as other personnel that have worked at the deposit to verify various details of the mining, infrastructure, geology, drilling and sampling.

The validation of the 777 database was carried out by the author and subjected to a range of checks. Minor errors were noted and fixed if possible, but were deemed minor in nature and have minimal effect on the resource.

As another test of the database validity a review was done on the QAQC program for the 777 Mine. A few obvious errors were noted where the standard or blank was mislabelled and was rectified accordingly. The QAQC was deemed acceptable and is discussed in great detail in Section 11.

Full verification of the data was not able to be completed as a small portion of the data, from the Callinan portion of the deposit is considered historic in nature. Given that the Callinan portion of the deposit is mainly mined out and historic samples are not typically used for interpolation due to the existence of modern drilling information, the data was deemed acceptable for resource and reserve estimations.

In the author's opinion, the data is relatively free from errors and is sufficient for the purposes of this technical report.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Metallurgical testing of the mineralization from the 777 Mine assumed a similar flowsheet regime to that being used at the Hudbay Metallurgical facility for processing ore from the producing mines at the time, the Callinan and Trout Lake Mines. With the addition of the 777 Mine ore, the concentrator had to be expanded from 1.81M tonnes per annum to 2.18M tonnes. Expansion included modifications to the ore receiving, crushing, installation of a large ball mill and increased flotation capacity.

Previous testwork was carried out by Hudbay and was detailed in a July 5, 1996 summary report using material that was grading 4.4% copper and 5.4% zinc. This report is considered historic as a copy was not able to be obtained at the time of reporting, and was followed up with independent testing by Lakefield Research in Lakefield, Ontario.

A preliminary metallurgical testwork program on the 777 deposit was completed in 1999 by Lakefield Research. The purpose was to perform a mineralogical and predictive metallurgical examination of the deposit ores. The other aim of the study was to establish the basic mineral composition and associations, with particular regard to mineral features that may affect mineral processing, as well as to establish a suitable mill flowsheet and reagent scheme for flotation.

13.1.1 November 17, 1998 Report

In September 1998, Lakefield received 481m of drill core, or 1,387 kg, of mineralization and dilution material from the 777 deposit. Dilution material was selected to be from the hanging wall, footwall, and ramp each representing 5% of the core weight, or a total of 15% dilution. The core was obtained from 19 holes including 4 wedges and is summarized in Tables 13.1 and 13.2. An additional 10% of hanging wall samples were also sent but not crushed for the 1998 portion of the study.

Table 13.1 Sample Selection and Size for Metallurgical Testwork

Lens	Sample	Drill Hole	Length (m)	Weight kg	Weight %
1	A	4Q71W9	24.49	101.70	16.16
		CZ66	9.67	23.10	3.67
	B	4Q71W7	18.50	71.30	11.33
		CZ36	14.10	35.80	5.68
	C	CZ48	25.75	57.10	9.06
		CZ13	67.60	257.70	40.94
	G	CZ21	9.04	22.90	3.63
		CZ24	21.18	60.00	9.52
Total	-	-	-	**629.50**	**100.00**
2	D	CX777	32.40	66.30	9.71
		4Q71W7	6.90	30.40	4.45
		CZ6	14.96	71.40	10.45
		CZ6W1	13.95	39.60	5.80
	E	CZ8W1	19.00	39.70	5.81
		CZ8	15.40	61.50	9.01
		CZ10	16.65	67.80	9.93
	H	CZ34	81.30	189.70	27.80
		CZ45	16.29	38.30	5.61
		CZ47	12.52	28.90	4.23
		CZ48	22.01	49.00	7.18
Total	-	-	-	**682.60**	**100.00**
3	F	CZ24	15.60	30.60	40.76
		CZ57	19.93	37.20	49.65
		CZ64	4.20	7.20	9.59
Total	-	-	-	**75.00**	**100.00**

Table 13.2 Individual Sample Head Assays

Lens	Sample	Au g/t	Ag g/t	Cu %	Zn %	Pb %	As %	Fe %	S %	SiO2 %	MgO %
1	A	2.90	54.00	0.88	16.10	0.33	0.60	38.20	27.90	11.00	0.95
	B	2.64	61.50	2.82	8.51	0.34	0.33	32.10	28.50	15.80	1.49
	D	3.26	53.70	5.02	8.06	0.15	0.18	22.50	21.10	24.80	3.00
	G	3.27	33.90	1.35	6.75	0.13	0.24	32.80	30.80	14.90	2.26
	Average	**3.66**	**57.40**	**2.76**	**8.85**	**0.21**	**0.30**	**22.90**	**27.10**	**17.50**	**2.14**
2	D	4.17	41.70	2.73	5.57	0.12	0.24	29.10	30.00	18.80	1.44
	E	1.55	31.60	3.52	4.05	0.10	0.09	29.70	22.30	15.80	4.89
	H	3.36	9.85	7.44	0.13	0.00	0.01	31.60	19.00	21.20	4.54
	Average	**3.29**	**26.60**	**4.88**	**3.36**	**0.06**	**0.12**	**30.30**	**24.40**	**19.70**	**3.12**
3	F	**0.27**	**3.30**	**2.32**	**0.10**	**0.00**	**0.01**	**16.80**	**4.65**	**30.20**	**7.74**

Preliminary metallurgical and mineralogical testwork was conducted on mineralization from Lens 1 and Lens 2 of the 777 deposit with work ongoing at the time of reporting. Lens 1, now split into the north and south limbs, then consisted of massive sulphide with moderate grade copper and higher zinc grading 2.76% and 8.85% respectively. Lens 1 represented approximately 75% of the historic ore reserve as defined at this time. Lens 2, now split into the north and south limbs, represents most of the remaining historic reserve. Lens 2 at the time consisted of massive sulphides with higher grade copper and low zinc, grading 4.88%, and 3.36% respectively. Lens 3 is the moderate grade copper stringer zone on the footwall to the other lenses and is also now split into the north and south limbs. Lens 3 samples were included with the shipment; however this lens only encompasses approximately 2% of the historic ore reserve and as such was not as extensively evaluated at that time.

Gravity separation was evaluated as fine grained electrum was encountered in the Lens 1 and 2 samples with most observed grains less than 5 µm. The gravity testwork confirmed these observations. Recoveries of 10-20% were achieved and, when coupled with a flotation circuit, seemed to result in slightly higher overall gold recoveries. Results are summarized in Table 13.3. Gravity separation was not included in the subsequent batch tests or in the locked cycle tests as the Flin Flon Metallurgical Complex did not use this in their flowsheet.

Table 13.3 Results of Gravity Separation Testwork

Lens	Test No.	Mozley Concentrate			(Moz)+Cu Ro+Scav Concs		
		Wt %	Au g/t	% Au Dist'n	Wt %	Au g/t	% Au Dist'n
1	8	0.033	1117	10.0	12.79	19.60	68.5
	5	-	-	-	13.19	17.90	65.2
2	9	0.049	1408	20.9	26.11	9.93	78.2
	2	-	-	-	25.59	6.74	71.8

Flotation testing of both of the mineralized lenses confirmed that the present plant flowsheet and reagent types would be appropriate for the 777 mineralization. Sixteen batch tests and a single locked cycle test were performed on the Lens 1 mineralization. Intense aeration prior to copper flotation did not improve results. Grinding to an 80% passing (K_{80}) size of 53 to 89µm did not have a significant effect on metallurgical results and regrinding was not carried out for this mineralization.

Two batch and one locked cycle test were conducted on the Lens 2 mineralized sample. As for Lens 1, depressants and intense aeration were not required. Reaching the target zinc concentrate grade was challenging due to higher pyrite content and lower head grades. Primary grind size was selected based on the results for Lens 1. Regrinding was found to have a detrimental effect on cleaner recovery and led to higher collector requirements.

The flotation results confirmed that the present plant flowsheet and reagent types would be appropriate for the 777 mineralization. The lock cycle test results are summarized in Table 13.4.

Table 13.4 Results of Locked Cycle Testwork

Lens	Test No.	Product	Weight %	Assays			% Distribution		
				Cu %	Zn %	Au g/t	Cu	Zn	Au
1	35	Cu Cl Conc	11.53	21.70	3.79	18.30	92.9	5.2	63.1
		Zn Cl Conc	14.89	0.29	50.60	1.97	1.6	89.1	8.8
		Zn Scav Tail	73.58	0.20	0.67	1.28	5.5	5.8	28.1
		Head (Calc)	**100.00**	**2.69**	**8.46**	**3.35**	**100.0**	**100.0**	**100.0**
2	36	Cu Cl Conc	21.96	20.70	2.37	9.63	98.2	15.3	76.3
		Zn Cl Conc	4.11	0.15	51.30	1.40	0.1	62.1	2.1
		Zn Scav Tail	73.93	0.10	1.04	0.81	1.7	22.6	21.6
		Head (Calc)	**100.00**	**4.62**	**3.40**	**2.77**	**100.0**	**100.0**	**100.0**

Rod and ball mill work indices were determined for each of the composites. The average work index for the material was10.4 kWh/t for the rod mill and 10.3kWh/t for the ball mill. Work index values for Lens 1 and 2 had a narrow range between 9 and 12kWh/t. The hardness of Lens 3 was greater, with a work index of 13 to 14kWh/t.

After a review of the data, Lakefield Research concluded and recommended:

- The gold mostly occurs as fine grained electrum at 777. Gravity testwork suggested that pre-treatment can result in an overall increase in gold recovery. However, gravity was not included in subsequent batch tests or in the locked cycle tests.
- The mineralization from the two main lenses provided good flotation results. Zinc recovery from the Lens 2 sample was only 62% and gold recovery from Lens 1 sample was 63%.
- The effect of primary grind size was evaluated over a fairly narrow range and there was little effect on the copper circuit metallurgy of either Lens 1 or Lens 2 sample. Coarser grinding should be evaluated in conjunction with regrinding. Secondary collectors in both the copper and zinc circuits should be evaluated for higher recoveries of gold and zinc respectively (Lakefield report November 17th, 1998).

13.1.2 Progress Report No. 1 – February 8th, 1999

Testwork was ongoing with results presented in a progress report dated February 8, 1999. Rougher-scavenger flotation kinetic testing on each of the Lens 1 and Lens 2 samples was conducted to determine their characteristics and required flotation times. Confirmation flotation tests were conducted on eight individual sample composites. Results were deemed to be satisfactory, although several of the copper concentrate grades were a little low at 21% copper. Composite A had a low copper recovery as collector was reduced too much and Composite E's zinc concentrate grade was low. The Lens 3 material (Sample F) contains very low zinc and an iron sulphide level one-half or two-thirds of the other ore composites. The remaining samples have iron sulphide levels in the same order of magnitude as Lens 1 and 2.

Good solid–liquid separation results were obtained on both the copper and zinc concentrates. Scoping tests were carried out at 30% solids with Percol flocculants 156 (anionic), 351 (non-ionic) and 352 (cationic). The 351 and 156 yielded good copper concentrate settling rates, although the 156 was faster for the zinc concentrate but with slightly poorer clarity. The 352 had slower settling rates for both concentrates. Also portions of the 30% solids slurry were transferred to two litre cylinders for thickening tests which displayed fast settling rates and low unity area with small flocculent additions. Later all of the solids were recombined with the original slurry and settled to 70% solids without the addition of extra flocculent and tested with a 0.08ft^2 vacuum leaf filter. POPR-825F multi-filament polypropylene cloth, with an air flow of 9.2 to 7.6 m^3/m^2/min, was used in all tests. A summary of the results is displayed in Table 13.5 to 13.8.

Table 13.5 Thickening Conditions

Conc	Test No.	Size K_{80} µm	SG g/cc	pH Adjustment g/t Conc	pH Adjustment pH	Flocculant Type	Flocculant g/t Conc*	Flocculant mgpL Liquid*	TSS mgpL
Cu	S1	~58	4.18	469	10.5	None	0	0.0	37
	S2		4.18	562	10.5	351	15	6.4	17
Zn	S3	~60	4.12	258	10.5	None	0	0.0	40
	S4		4.12	293	10.5	351	11	4.0	11
	S5		4.12	220	10.5	156	8	4.2	55

per tonne or litre of tails

Table 13.6 Thickening Results

Conc	Test No.	% Solids Initial	% Solids Compr	% Solids Terminal	Rise Rate m^3/m^2/d	U'Flow Unit Area m^2/t/d*	Thickener Hydraulic at % Solids	Thickener Hydraulic Unit Area m^2/t/d*
Cu	S1	29.3	69.5	79.0	33.0	0.132	74	0.062
	S2	30.0	59.1	70.0	148.3	0.013	70	0.013
Zn	S3	29.9	73.0	80.1	48.3	0.028	75	0.042
	S4	26.5	59.0	72.2	104.9	0.036	70	0.022
	S5	33.7	63.6	73.9	99.6	0.027	71	0.016

per tonne or litre of tails

Table 13.7 Filtration Conditions

Conc	Test No	Slurry % Solids	Slurry pH	Slurry Temp °C	Vacuum mm. Hg Form	Vacuum mm. Hg Dry	Filter Time seconds Form	Filter Time seconds Dry	Filter Time seconds Cycle
Cu	FT1A	~70	6.1	14.0	648	648	5	5	15
	FT1B	~70	6.1	14.0	648	648	5	10	23
	FT1C	~70	6.1	14.0	648	635	5	15	30
	FT1D	~70	6.1	14.0	648	635	5	20	38
Zn	FT2A	~70	7.1	14.0	648	648	5	5	15
	FT2B	~70	7.1	14.0	648	635	5	10	23
	FT2C	~70	7.1	14.0	648	635	5	15	30
	FT2D	~70	7.1	14.0	648	622	5	20	38

Table 13.8 Filtration Results

Conc	Test No	Filter Cake			Filtration Data		Filtration Rate**	Calc. % Solids
		Thickness mm	Moist %	Rate*	Volume mL	TSS ppm		
Cu	FT1A	13.7	15.0	7081	76	652	1963	68.8
	FT1B	15.1	13.4	5447	83		1429	70.6
	FT1C	15.1	12.1	4105	98		1266	69.2
	FT1D	14.6	11.5	3308	97		1002	69.8
Zn	FT2A	16.5	13.7	10072	104	380	2687	70.2
	FT2B	17.0	12.5	6779	110		1894	70.3
	FT2C	16.9	11.0	5070	114		1473	70.7
	FT2D	17.1	9.9	3759	114		1178	70.3

**Dry Kg per Hour per Square meter   **Litres per Hour per Square meter*

The results of this study suggested that the mineralized samples are fast floating and coarse grained, suggesting that liberation will be extensive at the present plant grind K_{80} of 70µm. Regrinding of the mineralized sample was deemed not to be required for production of a suitable concentrate. An alternative method suggested was to target a coarser primary grind and then regrind both rougher concentrates.

After a review of the data, Lakefield Research further concluded and recommended:

- The samples from the individual lenses provided good, selective flotation. It was concluded that the duplication in the locked cycle testing was good for Lens 1, good for Lens 2 copper, but poor for Lens 2 zinc. The second locked cycle test on each sample seemed to be a little slower on floating due to the mild oxidation during storage. Copper concentrate grades were variable.
- Good flotation results were obtained for most samples with some anomalous results that could be readily fixed by modifying reagent addition levels or by reducing cleaner flotation times. Also, copper concentrate grades were lower than desired for several samples on the order of 21% copper. This could be rectified by cutting rougher and cleaner flotation times and collector with minimal loss in cleaner recovery. Overall, the concentrates showed good settling and flotation rates.
- The effects of primary grind were also evaluated over a fairly narrow range, with K_{80} in the range of 53 to 89µm. Primary grind showed little effect on the copper circuit metallurgy of either Lens 1 or 2 samples. It was also recommended to evaluate coarser grinding. Secondary collectors could still be evaluated to improve gold flotation in the copper circuit and sphalerite flotation in the zinc circuit.
- Work index values were in a fairly narrow range, from 9 to 12kWh/t, for Lenses 1 and 2. The hardness of Lens 3 sample was greater, as the work index was 13.14kWh/t.
- Good settling and flotation rates were obtained from the copper and zinc concentrates.
- Use of talc, pyrite, and zinc depressants was not required as selective flotation was achieved with lime as the lone depressant.

At the time of the Progress Report No. 1 it was recommended that future testwork evaluate the effects of grind and regrind size, specifically the possibility of coarsening the primary grind and adding regrind stages. Some further kinetics testing should be undertaken to confirm the copper grade-recovery relationship. Other avenues for future testwork could entail other flotation parameters such as collector and frother type, copper sulphate levels and open versus closed circuit flowsheet configurations.

13.1.3 Progress Report No. 2 - May 28th, 1999

In the May 28, 1999 progress report from Lakefield Research it was noted that previous testwork on the Lens 1 and Lens 2 sample composite materials previously submitted were not representative of the historic reserve.

Additional mineralized samples were sent from drill hole CZ9 to supplement the original samples that had been used up in 1998 and to provide a grade more representative of the actual mineralized Lens 1. The composites were renamed 1B and 2B to distinguish them from earlier testwork

Further testwork was then undertaken to confirm recoveries on the new composites and to further establish the effect of primary grind size. Due to the limited amount of 2B sample and limited time available, not all parameters could be fully explored prior to the lock cycle tests. The new composites better reflected the composition and head grades of the two major lenses of the deposit. In addition, the 777 samples were blended with Trout Lake and Callinan ores to determine its processing characteristics (4 composite). A summary of the final composites is shown in Table 13.11. Note that the Lens 1B + 2B blend was at a 1:1 relationship.

Table 13.11 Makeup of 4 Mineralized Composites

Sample	Weight %	Assays g/t, %						
		Au	Ag	Cu	Zn	Pb	Fe	S
Trout Lake	39.8	2.28	16.8	1.61	4.40	-	17.2	13.7
Callinan	18.5	1.46	22.9	4.02	1.73	-	22.8	18.0
777 Lens 1B	20.9	2.44	49.4	1.66	9.90	0.230	29.4	25.9
777 Lens 2B	20.9	2.04	21.2	5.29	1.57	0.042	32.0	24.6
Lens 1B + 2B	-	2.24	35.3	3.48	5.74	0.140	30.7	25.3
4 Composite	100	2.11	25.6	2.83	4.46	-	23.9	19.3

Batch flotation tests were conducted on the 777 composites and the 4 composite. The 777 flotation tests were successful, except the Lens 2B zinc concentrate was low due to the low zinc grade (1.57%) of the sample. Three batch tests and one locked cycle test were run on the Lens 2B sample, but the target zinc concentrate grade was not achieved in any test. Further tests were not possible due to the lack of material. Further reduction in the Cu rougher SIPX, the $CuSO_4$ and Zn rougher sodium isopropyl xanthate (SIPX) were required to improve grade. As for the 1B + 2B sample, coarse grinding yielded low final concentrate grades and would require either a further reduction in collector levels or the addition of a regrind. The 4 composite had good copper results, but as expected, zinc displacement in the copper circuit was high. Zinc recovery and product grades were correspondingly low.

Six locked cycle flotation tests were performed to confirm the recoveries on the new composites and to evaluate the effect of grind fineness. Primary grind size and results are summarized in Table 13.12. The metallurgical results were good for the finer ground Lens 1B + 2B sample blend test number 67. Coarser grinding required a lower copper and zinc collector addition. The collector was reduced in Test 69, but evidently needed to be cut further, as low grades were obtained. In general the copper and gold recoveries were good but target zinc concentrate grade for the low zinc grade material was not achieved. The 4 composite, as expected, also exhibited poor copper-zinc selectivity.

Table 13.12 Locked Cycle Results

Ore	Test No.	Grind K_{80}, µm	Product	Weight %	Assays Cu %	Assays Zn %	Assays Au g/t	% Distribution Cu	% Distribution Zn	% Distribution Au
Lens 1B	54	62	Cu Cl Conc	6.81	22.20	6.45	16.90	95.40	4.6	65.2
			Zn Cl Conc	17.58	0.18	50.80	0.82	2.00	92.7	8.2
			Zn Scav Tail	75.62	0.06	0.34	0.62	2.60	2.7	26.6
			Head (Calc)	**100.00**	**1.58**	**9.63**	**1.76**	**100.0**	**100.0**	**100.0**
Lens 2B	55	62	Cu Cl Conc	21.22	24.00	0.81	7.63	98.7	11.5	74.8
			Zn Cl Conc	2.79	0.15	43.10	1.06	0.1	80.4	1.4
			Zn Scav Tail	76.00	0.08	0.16	0.68	1.2	8.1	23.9
			Head (Calc)	**100.00**	**5.16**	**1.50**	**2.17**	**100.0**	**100.0**	**100.0**
Lens 1B + 2B	56	62	Cu Cl Conc	14.10	23.50	3.64	11.20	97.9	9.5	71.3
			Zn Cl Conc	9.39	0.19	50.00	1.77	0.5	86.7	7.5
			Zn Scav Tail	76.50	0.07	0.27	0.61	1.6	3.8	21.1
			Head (Calc)	**100.00**	**3.39**	**5.42**	**2.21**	**100.0**	**100.0**	**100.0**
Lens 1B + 2B	67	53	Cu Cl Conc	14.22	23.50	3.36	8.44	98.00	8.8	68.5
			Zn Cl Conc	9.03	0.20	52.20	0.83	0.53	86.8	4.3
			Zn Scav Tail	76.74	0.07	0.31	0.62	1.51	4.4	27.2
			Head (Calc)	**100.00**	**3.42**	**5.43**	**1.75**	**100.0**	**100.0**	**100.0**
Lens 1B + 2B	69	75	Cu Cl Conc	16.16	20.80	4.53	7.86	97.8	13.5	68.2
			Zn Cl Conc	10.91	0.22	41.60	1.15	0.7	83.3	6.7
			Zn Scav Tail	72.93	0.07	0.24	0.64	1.5	3.2	25.1
			Head (Calc)	**100.00**	**3.44**	**5.44**	**1.86**	**100.0**	**100.0**	**100.0**
4 Comp. Blend	68	46	Cu Cl Conc	12.00	22.10	9.21	11.30	97.1	26.0	75.8
			Zn Cl Conc	5.98	0.40	49.10	1.08	0.9	69.0	3.6
			Zn Scav Tail	82.00	0.07	0.26	0.45	2.0	5.0	20.6
			Head (Calc)	**100.00**	**2.73**	**4.25**	**1.79**	**100.0**	**100.0**	**100.0**

After a review of the data, Lakefield Research concluded:

- The 777 flotation results were similar to those from the original Lens 1 and Lens 2 composites.
- Good results were obtained with a simple reagent scheme and the only problem in both phases of the work was with zinc upgrading from the low grade zinc material.
- Coarser grinding provided reasonably good copper rougher-scavenger flotation but upgrading was poor. This was due to a combination of poor liberation and excess collector for the coarser material. Regrinding would have to be considered for such grinds and reagents and flotation times optimized.
- The problem with the zinc displacement for the 4 composite blend is similar to that in the previous testwork on the mill feeds. About 16% or less of the zinc ended up in the locked cycle Cu cleaner concentrate from a 6.6% zinc sample. The present mineralized sample returned 26% displacement from a lower grade 4.2% Zn sample. Use of $S0_2$ for zinc depression, as is planned for the plant, will help the zinc flotation.

13.2 Plant Recovery

Metallurgical results from the Flin Flon Concentrator for 777 Mine and former Callinan Mine were used to generate projected plant performance data for the 777 Mine and 777 North expansion production, as shown in Tables 13.12 and 13.13. The recovery and grades indicated are based on current life of mine production, mineralogy and concentrator flow sheet.

Table 13.12 Projected Recoveries

Metal	Recovery (%)	
	777 Mine	777 North Expansion
Gold	72.5	57.0
Silver	64.0	45.0
Copper	93.0	85.0
Zinc	85.2	85.0

Table 13.13 Projected Concentrate Grades

	777 Mine	777 North Expansion
Copper Concentrate Grade (%)	24.6	23.4
Zinc Concentrate Grade (%)	51.5	50.0

14. MINERAL RESOURCE ESTIMATES

14.1 Mineral Resources Summary

In selecting drill hole intersections for the mineral resource estimation, a general guideline of 1% copper or 2.5% zinc was used, however lower grades were occasionally selected if they occurred in the immediate hanging wall or footwall of a zone. The mineralized core lengths used for estimation of zones were as low as 0.3m to allow for kriging of these grades into surrounding blocks, as well as general mine planning.

Mineral resources have been separated into the 777 and Callinan portions of the deposit. This has been done for mining and planning purposes as the Callinan lenses represent the upper, and more historic, portion of the mineralization and the 777 Zones represent the lower more recently drilled and identified mineralization. The 777 Mine shaft will hoist production from both the 777 Zones as well as the lower Callinan lenses. The upper portion of the Callinan lenses production will be trucked up the 777 North expansion ramp.

14.1.1 Mineral Resource

Hudbay has verified the drill hole database from drill logs and assay values. No significant discrepancies existed; the information was deemed reliable and is believed to be accurate and suitable for mineral resource estimation. Measured specific gravity (SG) determinations were made on a portion of the assay intervals included in the resource estimation. Where actual measurements were not available, calculation of the SG is based on core logged mineral code and corresponding stoichiometric formula. Both the measured and the calculated SG values were used to determine the bulk density for the mineral resource estimation.

In the 777 Zones and the Callinan East 9 lens, high grade values of gold, silver, copper and zinc, iron, and SG were restricted to 20m, as well as some low values for iron and SG. Assays for all zones/lenses were weighted either by SG or by SG multiplied by sample length and composited into either full length or fixed length composites, from footwall to hanging wall contact.

The interpreted lenses of the 777 Zones as well as the 1 North, 2 North, 1 South, 2 East, 7 East, and 9 East Callinan lenses were built by digitizing polylines around the mineralization on 4 to 8m sections at azimuths varying between 000° and 358° depending on the trend of the zone, or portion thereof. Polylines were then linked with tag strings and triangulated in order to create three-dimensional wireframe solids.

The remainder of the mineralization was interpreted by digitizing polylines in a 2D plane around mineralized intercepts. The average strike and dip of the zone was estimated and utilized to calculate the horizontal width (3rd dimension) of the mineralization for both the 2D GSM (Gridded Seam Model) and the polygonal interpretations.

The mineral resource for the 777 Zones were estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation, for Zones 20 and 70, or with relative ordinary kriging used for the remaining zones at the 777 Mine.

Mineral resource estimates for the Callinan lenses were interpolated using a variety of methods over the years, depending mainly on how recently the lenses underwent diamond drilling or mine production. The mineral resource for the Callinan lenses was estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation for North 1, North 2, North 3, North 5, East 2, East 7, and the East 9 lenses. Several lenses were also calculated with ordinary kriging using 2D GSM interpretations. This was utilized for the North 4, South 2, South 4, South 7, South 9, East 1, and East 3 lenses. Polygonal resource calculations were carried out for South 3 as well as the Dan Zone. The South 1 lens was calculated using inverse distance squared methodology. The Dan Zone mineralization, from the 777 North expansion operations, is included with the Callinan resource in the inferred category.

The mineral resource estimates for the 777 Mine and the Callinan lenses is tabulated in Table 14.1 as of October 1, 2011.

Table 14.1 Mineral Resource Summary – as of October 1, 2011

Lenses	Classification	Tonnes	Gold (g/t)	Silver (g/t)	Copper (%)	Zinc (%)
777	Measured	5,060,000	2.48	33.19	3.08	5.21
	Indicated	7,061,000	2.16	32.31	2.18	5.17
	Meas. + Ind.	**12,121,000**	**2.29**	**32.68**	**2.56**	**5.19**
	Inferred	569,000	2.31	49.11	1.75	6.80
Callinan	Measured	568,000	2.15	33.00	1.37	4.57
	Indicated	1,606,000	1.82	27.99	1.14	3.82
	Meas. + Ind.	**2,174,000**	**1.91**	**29.30**	**1.20**	**4.02**
	Inferred	615,000	1.64	29.97	1.13	4.23
Total 777 & Callinan	**Meas. + Ind.**	**14,295,000**	**2.23**	**32.16**	**2.35**	**5.01**
	Inferred	1,184,000	1.96	39.17	1.43	5.47

Notes:
1. CIM definitions were followed for the estimation of mineral resources.
2. Specific gravity measurements were taken on a portion of the samples; where actual measurements were not available, a stoichiometric value was calculated.
3. Mineral resources that are not converted to mineral reserves do not have demonstrated economic viability
4. The mineral resources are inclusive of and not in addition to the mineral reserves.

Validation exercises were carried-out on the block model grade estimates. These validation exercises included:

a) Comparisons against underground mine production and reconciliation
b) Visual inspection of the block model grades in plan and sectional views in comparison to the drill hole composite grades
c) Comparison to previous estimate

Mineral resources are classified according to the CIM Definition Standards on Mineral Resources and Mineral Reserves (CIM definitions), as incorporated in NI 43-101. All blocks estimated during the grade interpolation were assigned at least an Inferred category. Blocks that were at least estimated in the second pass and roughly less than or equal to 30m from the nearest drill hole showed a reasonable continuity of the mineralization and were generally qualified as Indicated resources. Measured blocks were defined from areas where mining has proven the continuity of mineralization. Where the zone has both an undercut and an overcut the ore between was classified as measured as well as any blocks within 5m above or below the mining development. An outline was created around the measured and indicated blocks in order to select contiguous blocks, and all blocks contained within these outlines were then classified accordingly.

The 777 Mine mineral resource estimate as well as the Callinan 1 South and East 9 lenses were prepared by Brett Pearson, P.Geo., 777 Senior Mine Geologist, Hudbay under the supervision of Robert Carter, P.Eng., Director, Technical Services, Hudbay. The estimate was completed using MineSight 6.5 software in mine coordinates, or for the Callinan lenses, the current version of MineSight at the time of estimation. The block model was constrained by interpreted 3D wireframes of the mineralization. Gold, silver, copper, zinc, iron, specific gravity and in some cases dilution variables and horizontal width were estimated into blocks using either ordinary kriging or relative co-ordinate kriging for most lenses. Lens intersections were generally selected based on a copper grade of greater than 1% copper or 2.5% zinc, or a combination thereof. Intersections were modelled as low as 0.3m to provide additional information for statistical and mining information.

All other Callinan lenses were estimated previously under the supervision of the Senior Mine Geologist at the time of estimation. They have been verified and no major discrepancies were apparent that would have a material effect on the resource.

A zinc or copper equivalency was not used in the determination of the resource.

14.2 Geological Interpretation

The mineralization in the 777 Mine as well as the 1 North, 2 North, 3 North, 5 North, 1 South, 2 East, and 7 East and 9 East Callinan lenses were interpreted into three-dimensional wireframes based on a grade of greater than 1% copper or 2.5% zinc, or a combination thereof, and in some circumstances lower grade in the immediate hanging wall or footwall of a zone. The interpreted lenses were built by digitizing polylines around the mineralization on four to eight meter sections at azimuths varying between 000° and 358°, as dictated by the orientation of the zone, or portion thereof. Polylines were then linked with tag strings and triangulated in order to create three-dimensional wireframe solids.

The remainder of the mineralization was interpreted by digitizing polylines in 2D plan around mineralized intercepts. The average strike and dip of the zone was estimated and utilized to calculate the horizontal width of the mineralization for both the 2D GSM and the polygonal interpretations.

A summary of the mineralized wireframe volumes, prior to mining, and drilling information are shown in Table 14.2 and have been validated in MineSight. Five of these lenses, East 1, East 3, South 2, South 3, and South 7 have had changes to their shapes since their resource was last conducted. As a result the original resource shapes are missing minor portions, typically the inferred or previously mined out resource portions. These zones are not currently being mined, however they are currently planned to be re-evaluated.

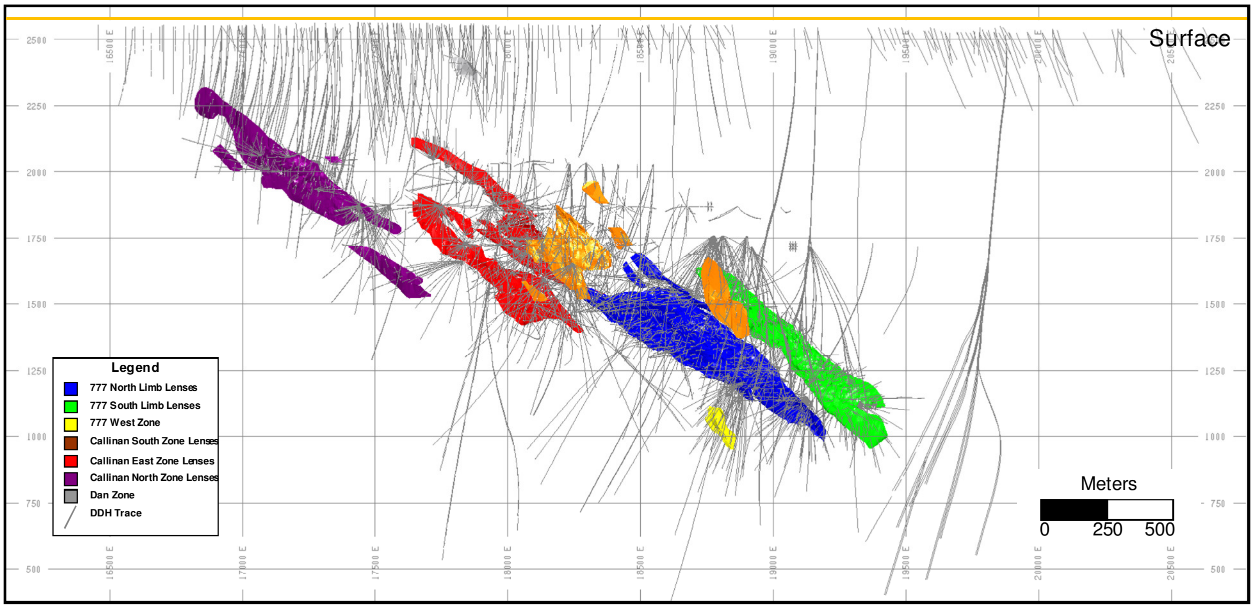
Table 14.2 Summary of Interpreted Wireframes

Lens	Volume (m^3)	Surface Area (m^2)	Avg. Thickness of Mineralization (m)	Number of Drill Holes (Including Wedges)	Drill Core Assay Length (m)	Volume (m^3) Per Number of Drill Holes
1 East	81,000	43,200	3.75	40	241.74	2,024
2 East	593,000	242,600	4.89	227	2,244.51	2,612
3 East	13,100	15,900	1.65	22	78.50	595
7 East	496,200	176,200	5.63	146	1,977.98	3,399
9 East	208,100	75,000	5.55	108	974.61	1,927
1 South	218,600	114,300	3.83	31	269.56	7,053
2 South	122,100	74,900	3.26	117	535.76	1,044
3 South	14,600	12,000	2.43	12	41.61	1,215
4 South	12,100	19,100	1.27	29	93.90	416
7 South	92,200	38,400	4.80	79	587.56	1,168
9 South	9,200	8,700	2.11	22	53.65	416
1,3,& 5 North	590,100	345,100	3.42	187	1,155.63	3,156
2 North	39,800	27,800	2.86	24	97.79	1,657
4 North	76,800	66,900	2.30	33	181.80	2,327
Dan Zone	16,700	12,500	2.67	16	27.59	1,043
Total Callinan:	**2,583,600**	**-**	**4.36**	**-**	**8,562.19**	**-**
Zone 10	1,514,800	340,100	8.91	425	6,016.50	3,564
Zone 15	673,200	226,100	5.95	313	3,482.67	2,151
Zone 20	343,500	86,700	7.92	91	1,628.39	3,775
Zone 30	1,604,100	407,700	7.87	545	7,511.79	2,943
Zone 33	59,600	32,300	3.69	21	100.84	2,837
Zone 40	1,057,200	250,300	8.45	386	5,118.57	2,739
Zone 50	245,500	64,000	7.67	57	801.81	4,307
Zone 60	852,600	214,300	7.96	260	3,282.34	3,279
Zone 70	156,700	53,700	5.84	85	831.77	1,843
Total 777:	**6,507,200**	**-**	**7.93**	**-**	**28,774.68**	**-**

The wireframes incorporate a total of 2,336 drill holes. Figure 14.1 shows the mineralized lenses as wireframe solids and the entire drill hole database, including those used to complete the interpretations. The entire 777 and Callinan mineralization encompasses an area approximately 3,200m down plunge by 700m across and varying in depth from 120m to over 1,600 meters below surface.

Drill hole spacing across the Property mineralization generally ranges from 20 to 50m between intersections.

Figure 14.1 3D Sectional View of the 777 and Callinan Mineralized Wireframes and Drill Hole Locations Looking East



14.3 Bulk Density

Specific gravity (SG) was measured by Hudbay geologists and technicians on 2,982 sampled assay intervals from the 777 portion of the deposit, a portion of these are included in the resource estimation. SG measurements were taken in three programs on the 777 portion of the deposit. The first suite of 510 SG measurements was taken during the initial exploration program, around 1998, with the aim of creating modern regression formulas of the SG values to be used in the 777 resource estimation (MRDI Canada, 1999). These historical SG measurements were taken during the initial 777 exploration program; no records of these measurements were able to be obtained. Two more suites of SG measurements were later conducted on definition drill core in 2003 and 2008. A summary of the SG measurements on the 777 deposit is shown in Table 14.3.

Table 14.3 Summary of Measured SG Values

Year	Number of SG measurements
1998	510
2003	881
2008	1,591
Total	**2,982**

All of the SG measurement records from the initial exploration program on the 777 deposit (510 measurements) were unable to be obtained, representing 17% of the total. A summary of all the available measured SG values and the mineral codes is displayed in Table 14.4.

Table 14.4 Statistical Summary of Measured SG Values

Mineral Code	Mineralization Type	Number of Records	Minimum	Maximum	Mean	Median
1	Callinan Type Near Solid to Solid Sulphide	12	2.79	4.10	3.33	3.19
2	Chlorite Stringer Sulphide	450	2.61	3.96	3.17	3.12
3	Massive Sulphides	506	2.76	5.32	4.35	4.40
4	Cpy Rich Massive Sulphides	231	2.72	4.88	4.14	4.15
5	Sph Rich Massive Sulphides	181	3.42	5.16	4.37	4.34
6	Py Rich Massive Sulphides	187	3.49	5.16	4.30	4.30
7	Near Solid Sulphide	140	2.96	4.53	3.84	3.89
8	Mineralized QP	381	2.68	3.86	2.95	2.90
9	Diorite	288	2.76	4.16	2.85	2.82
10	Magnetite Rich	96	2.74	4.61	3.96	3.98
Total		**2,472**	**2.61**	**5.32**	**3.67**	**3.68**

A mineral code is assigned by the core logging geologist when sampling the mineralization from a drill hole. Mineral code 2, 8, 9, 10 are honored and the remaining codes are divided into the appropriate code based on assay metal content. A summary of the mineral code selection is shown in Table 14.5.

Table 14.5 Derived Mineral Coding for 777

Mineral Code	Derived Mineralized Code Formula	
2	=	2
3	If	Cu>=3.5 AND Zn>=3
4	If	Cu>=3.5 AND Zn<3
5	If	Cu<3.5 AND Zn>=4
6	If	Cu<3.5 AND Zn<4 AND Fe<30 AND (As + Pb)>=0.1
7	If	Cu<3.5 AND Zn<4 AND (As + Pb)<0.1
8	=	8
9	=	9
10	=	10

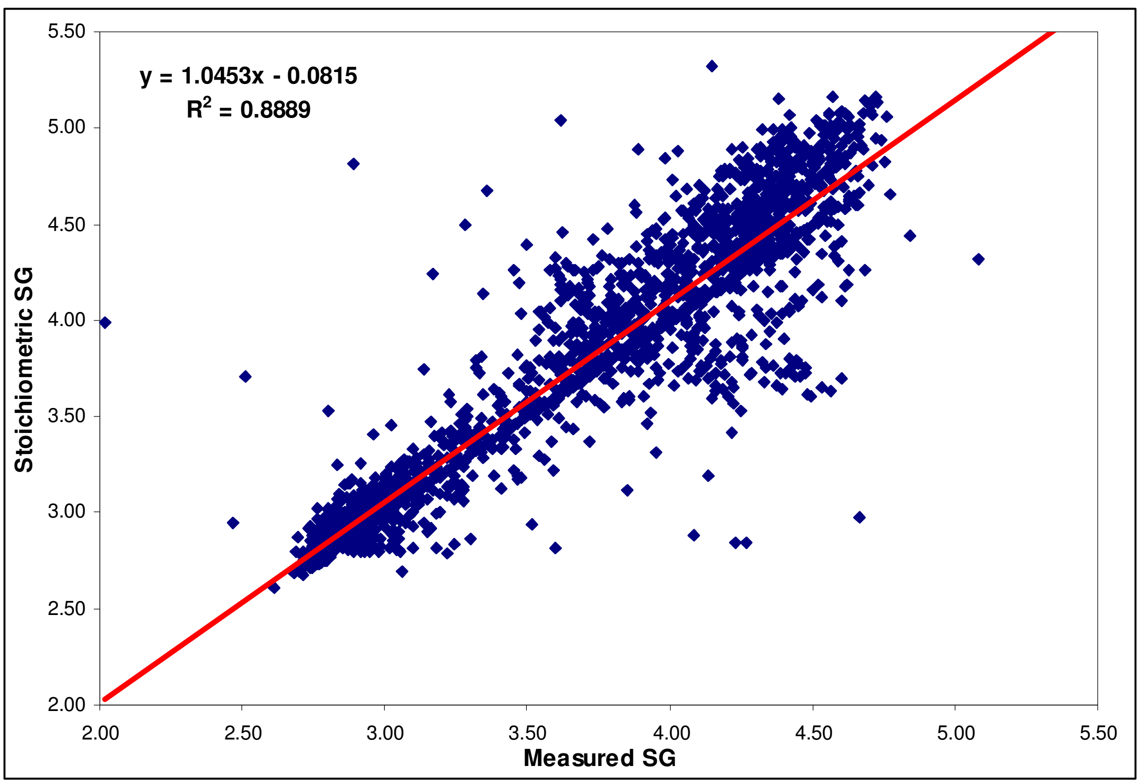
Once the mineral code is determined, as above, the unmeasured SG values for 777 are then calculated using a stoichiometric formula. The stoichiometric (calculated) method uses the assayed percentages of copper, zinc, lead, iron and arsenic to calculate unmeasured SG values in each sample. The formulas used to calculate the appropriate SG for each unmeasured sample is summarized by mineral code in Table 14.6. Mineral codes 0 and 1 are historic and are not used in the 777 portion of the database; rather the derived ore code is used.

Table 14.6 Calculated SG Values Based on Mineral Coding for 777

Mineral Code	Stoichiometric SG Formula		
0	SG	=	2.80
1	SG	=	Not used for 777 data; specific to historic Callinan core logging
2	SG	=	2.57 + 0.014*Cu - 0.023*Zn + 0.033*Fe
3	SG	=	3.36 + 0.002*Cu + 0.015*Zn + 0.03*(Fe - Cu - (Zn*0.1)) - 0.06*Pb + 0.02*As
4	SG	=	2.43 + 0.013*Cu + 0.004*Zn + 0.046*Fe + 0.058*Pb + 0.683*As
5	SG	=	2.59 + 0.018*Cu + 0.016*Zn + 0.059*(Fe - Cu - (Zn*0.1)) + 0.355*Pb - 0.01*As
6	SG	=	2.47 - 0.012*Cu - 0.04*Zn + 0.06*(Fe - Cu - (Zn*0.1)) - 1.02*Pb + 3.94*As
7	SG	=	2.43 + 0.026*Cu + 0.002*Zn + 0.043*Fe + 2.00*Pb - 0.43*As
8	SG	=	2.648 - 0.001*Cu + 0.012*Zn + 0.036*Fe + 0.32*As - 0.039*Pb
9	SG	=	2.74 + 0.064*Cu + 0.034*Zn + 0.011*Fe
10	SG	=	2.58 + 0.012*Cu + 0.07*Zn + 0.04*Fe

The measured SG values were compared to calculated stoichiometric values for each sample for confirmation. A simple XY plot of the comparison is shown in Figure 14.2 with a derived R^2 value of 0.89. The formulas used to calculate an appropriate SG, for those samples not measured, appears to be reasonably accurate for the purposes of resource estimation.

Figure 14.2 Comparison of Stoichiometric SG and Measured SG Values



14.4 Assay Statistics

A total of 41,260 assay intervals from 2,336 drill holes were selected as defining the mineralization on the Property. The remaining holes lie on the fringe of the deposit and are either not mineralized or contain weak mineralization not meeting cut-off criteria. Samples were grouped according to their interpreted lens of mineralization. Sample statistics of the assayed information are shown in Tables 14.8 through to Table 14.11. Data analysis was conducted by creating probability and histogram plots of the data. There were a few minor non-assayed intervals within the selected mineralization, which were assigned a zero grade and a waste SG of either 2.7 or 2.8.

Assays were as of the end of September 2011, the cut-off date used for resource information.

Assays cut-offs for the Callinan lenses, Table 14.7, are taken from the last estimated resource model. Minor changes in the zone coding for the Callinan lenses have occurred since and are not reflected in the assay statistics. Changes in zone coding will be taken into account during the next resource review of each of these lenses.

Table 14.7 Assay Cut-Off Dates for Callinan Lenses

Lens	Assay Cut-Off Date
1 East	2000
2 East	2002
3 East	2000
7 East	2002
9 East	2010
1 North	2002
2 North	2002
4 North	1998
1 South	2010
2 South	1997
3 South	1997
4 South	1997
7 South	1997
9 South	1997
Dan Zone	1974

Table 14.8 Range of Assay Values by Callinan North Lenses

#1, 3, & 5 North	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	1935	1935	1935	1935	476	1938
Minimum	0.00	0.00	0.00	0.00	0.00	2.60
Maximum	30.51	194.40	18.25	39.00	38.05	6.57
Mean	2.02	24.90	1.77	3.42	20.72	3.48
Std. Dev.	2.34	19.31	1.75	2.54	8.87	0.38
CV	1.16	0.78	0.99	0.74	0.43	0.11

#2 North	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	178	178	178	178	96	178
Minimum	0.00	0.00	0.00	0.00	0.01	2.71
Maximum	27.94	67.20	8.84	9.60	33.27	4.35
Mean	1.76	20.87	1.63	3.95	20.97	3.56
Std. Dev.	2.66	17.06	1.55	2.50	9.61	0.45
CV	1.51	0.82	0.95	0.63	0.46	0.13

#4 North	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	231	231	231	231	181	233
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	17.66	97.03	5.31	9.38	32.84	4.32
Mean	2.56	30.31	1.33	3.24	20.98	3.51
Std. Dev.	2.57	18.62	0.99	2.09	7.63	0.41
CV	1.00	0.61	0.74	0.65	0.36	0.12

Dan Zone	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	68	68	68	68	0	0
Minimum	0.00	0.00	0.00	0.00	-	-
Maximum	8.91	233.83	2.95	27.60	-	-
Mean	1.39	55.49	0.45	9.63	-	-
Std. Dev.	1.99	48.95	0.70	7.67	-	-
CV	1.43	0.88	1.56	0.80	-	-

Table 14.9 Range of Assay Values by Callinan South Lenses

#1 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	395	395	395	395	368	395
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	13.73	256.11	5.13	10.80	38.01	4.93
Mean	1.61	25.40	0.97	2.91	17.19	3.36
Std. Dev.	1.68	21.90	0.86	2.17	7.71	0.45
CV	1.04	0.86	0.89	0.74	0.45	0.13

#2 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	782	782	782	782	42	783
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	63.77	122.06	15.99	17.40	35.71	4.52
Mean	2.76	28.68	1.78	4.75	18.62	3.42
Std. Dev.	4.68	21.40	1.60	3.12	8.06	0.27
CV	1.70	0.75	0.90	0.66	0.43	0.08
#3 South	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	62	62	62	62	26	62
Minimum	0.00	0.00	0.00	0.00	0.00	2.66
Maximum	7.89	77.14	9.36	10.90	27.29	4.05
Mean	1.57	21.35	1.16	3.59	15.68	3.34
Std. Dev.	1.59	20.34	1.43	2.98	7.80	0.39
CV	1.01	0.95	1.23	0.83	0.50	0.12
#4 South	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	142	142	142	142	0	142
Minimum	0.00	0.00	0.00	0.00	-	2.70
Maximum	25.03	77.14	5.55	11.20	-	3.55
Mean	1.69	20.49	1.16	3.38	-	3.42
Std. Dev.	2.75	18.52	0.95	2.31	-	0.24
CV	1.63	0.90	0.82	0.68	-	0.07
#7 South	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	784	784	784	784	94	784
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	34.29	130.97	16.70	23.20	28.01	4.18
Mean	2.11	28.55	1.44	4.22	16.68	3.39
Std. Dev.	2.48	21.80	1.46	3.04	6.92	0.28
CV	1.18	0.76	1.02	0.72	0.41	0.08
#9 South	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	83	83	83	83	64	83
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	31.37	150.51	6.55	10.90	38.46	4.55
Mean	2.17	28.75	1.24	3.36	16.51	3.40
Std. Dev.	4.57	27.88	1.37	2.77	10.19	0.49
CV	2.11	0.97	1.10	0.82	0.62	0.14

Table 14.10 Range of Assay Values by Callinan East Lenses

#1 East	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	284	284	284	284	284	284
Minimum	0.03	0.34	0.02	0.00	4.78	2.80
Maximum	18.00	112.80	5.28	12.70	36.36	4.49
Mean	3.53	46.43	1.47	4.77	23.10	3.73
Std. Dev.	2.82	21.40	0.86	2.37	6.16	0.41
CV	0.80	0.46	0.58	0.50	0.27	0.11
#2 East	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	2638	2638	2638	2638	1545	2639
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	107.31	408.69	18.04	29.00	38.39	5.71
Mean	2.99	35.32	1.81	4.18	24.49	3.68
Std. Dev.	3.16	20.32	1.31	2.26	6.28	0.35
CV	1.06	0.58	0.72	0.54	0.26	0.10
#3 East	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	101	101	101	101	26	101
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	30.17	351.09	1.25	18.40	29.02	4.35
Mean	3.07	86.60	0.39	6.62	13.81	3.44
Std. Dev.	3.62	65.72	0.28	3.79	4.70	0.25
CV	1.18	0.76	0.71	0.57	0.34	0.07
#7 East	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	2522	2522	2522	2522	2510	2522
Minimum	0.00	0.00	0.00	0.00	0.00	2.66
Maximum	47.62	524.57	18.03	47.9	43.1	5.24
Mean	3.00	50.39	1.97	8.04	23.08	3.88
Std. Dev.	3.75	48.62	2.75	7.77	7.58	0.49
CV	1.25	0.96	1.39	0.97	0.33	0.13
#9 East	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	1047	1047	1047	1047	965	1047
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	27.43	385.03	10.34	27.61	42.68	5.54
Mean	2.15	33.53	0.98	5.16	25.21	3.95
Std. Dev.	2.34	26.36	1.01	3.88	8.10	0.59
CV	1.09	0.79	1.03	0.75	0.32	0.15

Table 14.11 Range of Assay Values by 777 Lenses

Zone 10	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	6,351	6,350	6,350	6,350	6,348	6,351
Minimum	0.00	0.00	0.00	0.00	0.00	2.36
Maximum	45.08	250.97	24.27	29.96	81.89	6.52
Mean	2.00	9.83	4.72	0.65	32.11	3.93
Std. Dev.	2.40	11.39	4.54	1.74	13.60	0.62
CV	1.20	1.16	0.96	2.67	0.42	0.16
Zone 15	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	3,663	3,664	3,664	3,664	3,664	3,664
Minimum	0.00	0.00	0.00	0.00	0.00	2.57
Maximum	8.89	40.11	18.59	7.61	48.92	4.77
Mean	0.42	4.80	2.97	0.13	17.28	3.19
Std. Dev.	0.62	3.93	2.38	0.26	5.55	0.21
CV	1.46	0.82	0.80	2.02	0.32	0.07
Zone 20	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	1,572	1,572	1,572	1,572	1,572	1,572
Minimum	0.00	0.00	0.00	0.00	0.00	2.70
Maximum	15.15	480.00	23.18	20.61	48.80	5.04
Mean	0.95	11.43	2.14	0.67	14.40	3.13
Std. Dev.	1.46	20.43	2.90	1.59	8.50	0.34
CV	1.53	1.79	1.35	2.37	0.59	0.11
Zone 30	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	7,794	7,793	7,794	7,794	7,794	7,794
Minimum	0.00	0.00	0.00	0.00	0.00	2.02
Maximum	149.29	991.89	24.30	48.21	47.67	6.64
Mean	3.59	55.66	2.69	9.59	24.10	3.94
Std. Dev.	5.01	66.23	3.88	9.68	10.89	0.70
CV	1.40	1.19	1.44	1.01	0.45	0.18
Zone 33	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	119	119	119	119	119	119
Minimum	0.00	0.00	0.00	0.02	2.10	2.73
Maximum	16.10	252.69	13.59	26.75	41.16	6.07
Mean	3.14	58.42	1.11	8.40	22.16	3.92
Std. Dev.	3.55	57.48	1.92	7.32	9.63	0.80
CV	1.13	0.98	1.73	0.87	0.43	0.20

Zone 40	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	5,407	5,407	5,407	5,407	5,407	5,407
Minimum	0.00	0.00	0.00	0.00	0.36	2.44
Maximum	97.05	504.00	24.03	49.12	57.75	6.72
Mean	3.06	50.52	2.67	7.79	26.59	4.00
Std. Dev.	4.61	52.93	3.49	8.67	10.10	0.68
CV	1.51	1.05	1.31	1.11	0.38	0.17
Zone 50	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	752	752	752	752	752	752
Minimum	0.00	0.00	0.00	0.00	3.53	2.70
Maximum	9.59	36.00	17.77	3.89	48.95	4.58
Mean	0.26	2.72	1.71	0.13	18.63	3.23
Std. Dev.	0.57	3.17	1.83	0.32	7.14	0.30
CV	2.14	1.17	1.07	2.51	0.38	0.09
Zone 60	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	3,475	3,475	3,475	3,475	3,475	3,476
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	39.81	543.77	20.28	31.12	54.23	6.62
Mean	1.82	19.24	2.38	3.00	31.03	4.08
Std. Dev.	2.70	25.72	2.81	4.20	10.94	0.71
CV	1.49	1.34	1.18	1.40	0.35	0.17
Zone 70	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	866	866	866	866	866	866
Minimum	0.00	0.00	0.00	0.00	2.70	2.65
Maximum	14.14	103.20	8.37	13.56	49.66	6.55
Mean	0.94	7.34	1.01	1.27	25.20	3.60
Std. Dev.	1.52	11.11	1.20	2.07	10.59	0.61
CV	1.62	1.51	1.19	1.64	0.42	0.17

14.5 Capping of High Grades

No capping was conducted on the assays prior to compositing. High grade values were later restricted after compositing.

14.6 Composites

The assay data set of mineralization was composited into either full or fixed length composites, depending on the zone, from footwall to hanging wall contact. Composites were weighted either by SG or SG multiplied by assay length to calculate the overall composited grades. Table 14.12 through 14.15 shows the composite statistics summary information by lens and metal type used in the mineral resource.

Mineralized composites from outside of the shape were not used for the 777 Zones and most of the Callinan lenses. A few of the Callinan lenses did include this information in an attempt to establish better variography results and for the establishment of plunge lines.

Larger assay intervals without any measured grades from the composite files were removed for statistical purposes, as these were likely internal waste intervals that weren't sampled. It should be noted that at the time of the resource estimate for several of the Callinan lenses that some extreme outliers in the composite files were removed prior to variography.

One drill hole, CL114, was inadvertently not composited prior to the resource evaluation of South 3. This hole was to be used for statistical and plunge line purposes only as it contained near nil values for metals and would not likely have any significant affect. As the South 2 and South 9 lenses were kriged together a discrepancy occurred for hole CL241, which had two mineralized intercepts. It was first interpreted to intercept both zones but was later discovered after the resource was completed that it only encountered South 9 and a second band of mineralization not associated with any zone. Also, the South 9 resources had two full length composites; holes CL554 and CL555 that were not used in the resource calculations, as they fell outside of the model limits. Also, due to the age of the Dan Zone resource, the composite data was unable to be sourced.

These discrepancies will be incorporated into the next resource estimate and are considered minor in nature, not likely have a material effect on the resource.

Table 14.12 Range of Composite Values by Callinan North Lenses

#1, 3, & 5 North	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	188	188	188	188	188	188
Minimum	0.18	0.89	0.34	0.65	0.00	3.04
Maximum	6.41	76.39	6.69	7.81	33.50	4.25
Mean	2.06	25.49	1.66	3.54	7.32	3.47
Std. Dev.	1.06	10.05	0.88	1.15	10.63	0.21
CV	0.52	0.39	0.53	0.32	1.45	0.06

#2 North	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	24	24	24	24	24	24
Minimum	0.71	7.96	0.41	1.22	0.00	3.06
Maximum	7.34	41.68	3.00	6.34	27.79	4.15
Mean	1.89	22.68	1.68	4.08	13.83	3.57
Std. Dev.	1.44	10.36	0.80	1.27	11.47	0.25
CV	0.76	0.46	0.47	0.31	0.83	0.07

#4 North	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	33	33	33	33	33	33	33
Minimum	0.00	0.00	0.00	0.00	0.00	2.70	0.19
Maximum	15.17	79.92	3.21	6.30	27.89	4.05	12.85
Mean	2.71	29.12	1.21	3.10	16.41	3.42	3.73
Std. Dev.	2.64	17.95	0.77	1.64	10.05	0.37	3.33
CV	0.98	0.62	0.63	0.53	0.61	0.11	0.89

Table 14.13 Range of Composite Values by Callinan North Lenses

#1 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	32	32	32	32	31	32
Minimum	0.218	6.29	0.24	0.91	7.09	2.93
Maximum	3.489	55.72	2.04	5.45	24.8	4.07
Mean	1.655	25.602	0.959	2.995	17.920	3.376
Std. Dev.	0.79	11.85	0.43	1.22	4.89	0.30
CV	0.48	0.46	0.45	0.41	0.27	0.09

#2 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	117	117	117	117	117	117	117
Minimum	0.00	0.00	0.01	0.00	0.00	2.82	0.12
Maximum	12.05	62.98	7.89	8.79	26.23	3.78	17.45
Mean	2.34	27.14	1.78	4.68	1.72	3.41	3.52
Std. Dev.	1.72	13.86	1.22	2.02	5.66	0.18	3.12
CV	0.74	0.51	0.69	0.43	3.29	0.05	0.89

#3 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	12	12	12	12	12	12	12
Minimum	0.00	0.00	0.03	0.06	0.00	2.87	0.06
Maximum	3.09	56.35	2.36	7.45	24.48	3.91	7.96
Mean	1.50	22.44	1.09	3.25	6.61	3.31	2.96
Std. Dev.	0.95	17.08	0.88	2.45	9.13	0.35	2.08
CV	0.63	0.76	0.80	0.75	1.38	0.11	0.70

#4 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	29	29	29	29	29	29	29
Minimum	0.00	2.34	0.05	0.38	0.00	2.94	0.26
Maximum	5.78	39.96	2.43	8.08	0.00	3.55	11.28
Mean	1.62	20.44	1.23	3.58	0.00	3.40	3.16
Std. Dev.	1.33	11.74	0.65	1.81	0.00	0.20	2.10
CV	0.82	0.57	0.53	0.50	-	0.06	0.67

#7 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	79	79	79	79	79	79	79
Minimum	0.00	0.00	0.13	0.88	0.00	2.81	0.23
Maximum	8.48	58.63	4.25	9.10	25.15	3.81	18.06
Mean	2.11	26.94	1.36	3.87	3.13	3.36	4.75
Std. Dev.	1.32	12.56	0.75	1.81	6.58	0.19	3.45
CV	0.63	0.47	0.55	0.47	2.11	0.06	0.73

#9 South	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	22	22	22	22	22	22	22
Minimum	0.03	1.37	0.05	0.00	0.00	2.80	0.07
Maximum	11.20	96.07	3.80	6.27	29.87	3.78	9.09
Mean	2.14	25.66	1.15	3.21	14.62	3.37	1.63
Std. Dev.	2.85	22.28	1.02	1.92	9.70	0.31	1.92
CV	1.33	0.87	0.88	0.60	0.66	0.09	1.18

Table 14.14 Range of Composite Values by Callinan East Lenses

#1 East	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	40	40	40	40	40	40
Minimum	0.69	13.70	0.33	1.69	11.63	3.08
Maximum	8.71	71.85	3.21	7.04	30.69	4.39
Mean	3.41	44.86	1.39	4.58	22.01	3.66
Std. Dev.	1.77	15.54	0.63	1.39	5.26	0.32
CV	0.52	0.35	0.45	0.30	0.24	0.09

#2 East	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	227	227	227	227	138	227
Minimum	0.47	3.22	0.26	0.51	11.31	3.17
Maximum	13.98	66.94	4.22	7.49	30.83	4.24
Mean	2.94	34.88	1.71	4.21	24.30	3.67
Std. Dev.	1.31	11.27	0.54	1.04	3.36	0.21
CV	0.44	0.32	0.31	0.25	0.14	0.06

#3 East	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG	Calculated Hor. Width (m)
Records	22	22	22	22	8	22	22
Minimum	0.68	19.78	0.13	2.38	5.93	2.97	1.09
Maximum	8.17	188.10	0.76	10.26	16.89	3.55	7.19
Mean	2.89	85.18	0.35	6.31	11.17	3.35	3.20
Std. Dev.	1.77	38.51	0.19	2.22	3.41	0.19	1.58
CV	0.61	0.45	0.53	0.35	0.31	0.06	0.49

#7 East	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	1410	1410	1410	1410	0	1410
Minimum	0.00	0.00	0.00	0.00	-	2.70
Maximum	29.18	322.78	15.61	43.55	-	4.99
Mean	3.04	50.46	1.98	8.29	-	3.88
Std. Dev.	3.10	41.23	2.47	7.03	-	0.43
CV	1.02	0.82	1.25	0.85	-	0.11

#9 East	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	116	116	116	116	108	116
Minimum	0.09	3.70	0.03	0.06	12.20	2.96
Maximum	5.59	243.97	2.60	17.24	38.51	4.88
Mean	1.98	33.51	0.86	4.96	24.27	3.84
Std. Dev.	1.12	24.41	0.57	2.77	5.55	0.42
CV	0.57	0.73	0.66	0.56	0.23	0.11

Table 14.15 Range of Composite Values by 777 Zone

Zone 10	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	4,615	4,615	4,615	4,615	4,615	4,615
Minimum	0.00	0.00	0.00	0.00	0.00	0.11
Maximum	25.58	250.97	23.59	29.96	67.06	5.36
Mean	1.95	9.58	4.50	0.71	31.29	3.89
Std. Dev.	2.16	11.10	4.30	1.82	13.56	0.63
CV	1.11	1.16	0.96	2.54	0.43	0.16

Zone 15	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	2,642	2,642	2,642	2,642	2,642	2,642
Minimum	0.00	0.00	0.00	0.00	2.34	1.21
Maximum	5.81	26.74	15.18	6.26	48.92	4.77
Mean	0.44	4.78	2.94	0.13	17.38	3.18
Std. Dev.	0.58	3.49	2.07	0.25	5.31	0.21
CV	1.31	0.73	0.71	1.86	0.31	0.07

Zone 20	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	1,169	1,169	1,169	1,169	1,169	1,169
Minimum	0.00	0.00	0.00	0.00	2.05	0.71
Maximum	10.56	313.94	17.41	17.65	48.10	4.55
Mean	0.93	10.92	2.03	0.64	14.12	3.11
Std. Dev.	1.29	17.41	2.63	1.40	8.25	0.36
CV	1.39	1.59	1.30	2.19	0.58	0.12

Zone 30	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	5,871	5,871	5,871	5,871	5,871	5,871
Minimum	0.00	0.00	0.00	0.00	0.35	0.77
Maximum	74.18	806.50	21.56	47.58	46.27	6.40
Mean	3.42	55.25	2.54	9.29	23.47	3.88
Std. Dev.	4.33	64.66	3.56	9.13	10.70	0.71
CV	1.26	1.17	1.40	0.98	0.46	0.18
Zone 33	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	97	97	97	97	97	97
Minimum	0.00	0.00	0.02	0.02	7.87	2.83
Maximum	15.57	252.69	12.60	23.36	37.53	5.44
Mean	3.40	60.59	1.28	8.54	22.78	3.93
Std. Dev.	3.50	55.93	1.99	6.53	8.60	0.72
CV	1.03	0.92	1.55	0.77	0.38	0.18
Zone 40	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	4,046	4,046	4,046	4,046	4,046	4,046
Minimum	0.00	0.00	0.00	0.00	0.41	1.60
Maximum	61.35	423.43	23.72	43.37	47.90	6.38
Mean	2.94	49.23	2.54	7.62	25.89	3.96
Std. Dev.	3.97	48.84	3.19	8.06	9.96	0.67
CV	1.35	0.99	1.25	1.06	0.38	0.17
Zone 50	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	610	610	610	610	610	610
Minimum	0.00	0.00	0.00	0.00	3.53	2.73
Maximum	5.67	22.63	10.54	3.89	47.37	4.52
Mean	0.26	2.67	1.66	0.13	18.51	3.22
Std. Dev.	0.43	2.78	1.56	0.31	6.93	0.28
CV	1.68	1.04	0.94	2.39	0.37	0.09
Zone 60	**Au g/t**	**Ag g/t**	**Cu %**	**Zn%**	**Fe%**	**SG**
Records	2,524	2,524	2,524	2,524	2,524	2,524
Minimum	0.00	0.00	0.00	0.00	1.18	1.35
Maximum	33.20	373.67	16.82	24.63	54.23	6.43
Mean	1.77	19.44	2.37	2.99	30.62	4.05
Std. Dev.	2.28	23.57	2.63	3.92	10.55	0.69
CV	1.29	1.21	1.11	1.31	0.34	0.17

Zone 70	Au g/t	Ag g/t	Cu %	Zn%	Fe%	SG
Records	639	639	639	639	639	639
Minimum	0.00	0.00	0.00	0.00	2.70	2.65
Maximum	11.95	103.20	7.89	11.15	47.73	5.78
Mean	0.91	7.19	1.04	1.20	24.52	3.55
Std. Dev.	1.44	10.61	1.14	1.89	10.25	0.57
CV	1.59	1.48	1.10	1.57	0.42	0.16

14.7 Restricting

Composited data from each lens was combined to generate cumulative probability and histogram plots. A review of the results concluded that there were several high grade values of gold, silver, copper, and zinc as well some low and high values of iron and SG depending on the lens. Most of these were spatially discontinuous from the remainder of the data set and as such, restricting the search distance for these composites was deemed necessary. A summary of the restrictions for each lens is shown in Tables 14.16 and 14.17 below.

Table 14.16 Restricted Values and Distances by 777 Lens

Zone	Component	Restricted Value	Distance (m)
10	Au	>8.6 g/t	20
	Ag	>35.7 g/t	20
	Cu	>15.9 %	20
	Zn	>10.6 %	20
	Fe	<8.8 % or >52.1 %	20
	Sg	None	N/A
15	Au	>2.4 g/t	20
	Ag	>14.2 g/t	20
	Cu	>8.40 %	20
	Zn	>0.60 %	20
	Fe	<8.8 % or >30.5 %	20
	Sg	None	N/A
20	Au	>5.2 g/t	20
	Ag	>58.8 g/t	20
	Cu	>9.40 %	20
	Zn	>5.4 %	20
	Fe	>39.2 %	20
	Sg	None	N/A
30	Au	>15.7 g/t	20
	Ag	>254.9 g/t	20
	Cu	>14.3 %	20
	Zn	>31.4 %	20
	Fe	<6.6 % or >41.7 %	20
	Sg	<2.9 or >5.2	N/A
33	Au	>15.7 g/t	20
	Ag	>254.9 g/t	20
	Cu	>14.3 %	20
	Zn	>31.4 %	20
	Fe	<6.6 % or >41.7 %	20
	Sg	<2.9 or >5.2	N/A
40	Au	>15.2 g/t	20
	Ag	>194.1 g/t	20
	Cu	>12.4 %	20
	Zn	>27.5 %	20
	Fe	<9.6 % or >41.8 %	20
	Sg	<2.7 or >5.0	N/A
50	Au	>1.67 g/t	20
	Ag	>11.3 g/t	20
	Cu	>6.3 %	20
	Zn	>1 %	20
	Fe	None	N/A
	Sg	None	N/A
60	Au	>9.0 g/t	20
	Ag	>76.5 g/t	20
	Cu	>10.0 %	20
	Zn	>13.5 %	20
	Fe	<8.2 % or >46.0 %	N/A
	Sg	>4.9	N/A
70	Au	>4.7 g/t	20
	Ag	>39.5 g/t	20
	Cu	>4.3 %	20
	Zn	>7.6 %	20
	Fe	>43.1 %	20
	Sg	None	N/A

Table 14.17 Restricted Values and Distances by Callinan Lens

Zone	Component	Restricted Value	Distance (m)
1, 3, & 5 North	Au	>5.8 g/t	15
	Ag	>57 g/t	15
	Cu	>4.5 g/t	15
	Zn	>6.7 %	15
2 North	Au	>4 g/t	15
	Ag	>40 g/t	15
	Sg	>4.0	15
4 North	Au	>6.4 g/t	20
	Ag	<6.7 or >60 g/t	20
	Cu	<0.25 or >2.55 g/t	20
	Zn	<1.62 %	20
	Sg	<3.0	20
	Hor. Width	>11.0 m	20
2 East	Au	>4.9 g/t	15
	Ag	<10 or >59 g/t	15
	Cu	<0.4 or >3.0 g/t	15
	Zn	<1.0 or >6.3 %	15
3 East	Au	>6.6 g/t	10
	Ag	<20 or >147 g/t	10
	Cu	<0.7 %	10
	Zn	<2.8 or >9.6 %	10
	Sg	>6.6	10
7 East	Au	>20 g/t	10
	Ag	>216 g/t	10
	Cu	>10.0 g/t	10
	Zn	>29 %	10
9 East	Au	>3.75 g/t	20
	Ag	<15.55 or >58.33 g/t	20
	Cu	>1.46 %	20
	Zn	>8.75 %	20
	Sg	>4.7	20

14.8 Spatial Analysis

Correlograms and variograms, using MineSight software, were conducted on gold, silver, copper, zinc, lead, iron, horizontal width, SG, and the flag variable (internal dilution) depending on the lens and method used.

To account for internal dilution, in the form of intrusive diorites, a flag variable was derived. The flag variable is simply a ratio of mineralization and diorite waste that is expected to be present throughout block model. The flag variable is calculated for all 777 Zones with the exception of Zone 70 as intrusive diorites are not prevalent in this zone.

When the core is logged, the geologist assigns a rock type to each sample, making note of any diorites greater than the minimum sample length of 0.3m. Diorite intervals are composited on a fixed length of 1.5m with any additional down hole interval added to the previous composite if they are less than 0.75m in core length. Each diorite interval is then assigned a zero grade, regardless of assay results, for all metals and assigned a waste SG of 2.8.

Statistics and variography are preformed on the diorites separately from the mineralization. The diorite composites are treated the same as any other metal or SG value, and the variography of their location relative to each other indicates the range/sill/nugget that is used in the kriging process. Each block is assigned a percentage of expected waste based on the kriged flag variable. The mineral grades and SG are then diluted by the flag variable, or waste percentage, for each individual block.

Combined composite data was done for Zones 30 and 33, North 1, 2, 3, and 5, as well as South 2 and 9 were used in the variography process. The reason for combining composites from zones for the variography process was to increase the number of composites from similar mineralization to produce better plots. In the case of Zone 33 it had a low drilling density and Zones 30 and 33 have a similar mineralized trend with similar metal composition as it is believed that Zone 33 is a fault offset of Zone 30. The North 1, 2, 3, and 5 lenses were combined as the lenses were similar in mineralization, close in proximity, and since North 2, 3, and 5 had insufficient data to be kriged independently. The South 2 and 9 lenses were combined as they have a similar mineralized trend and few composites existed for South 9.

A summary of the ellipse rotation parameters used in the variography is shown in Table 14.18.

Table 14.18 Rotation Parameters for Ellipses (LRL Rule)

Lens	Model Coordinates		
	Rotation North	Dip North	Dip East
Zone 10	238	0	0
Zone 15	250	0	0
Zone 20	228	37	-10
Zone 30/33	236	0	0
Zone 40	236	0	0
Zone 50	240	0	0
Zone 60	232	0	0
Zone 70	200	0	0
1, 2, & 5 North	230	35	30
1 South	40	-40	40
2 East	227	35	-45
7 East	217	35	-25
	246	27	-35
	250	23	-5
9 East	53	0	0

Correlograms were generated to determine the orientation and spatial continuity of the composited mineralization and bulk density. A summary of the variography results are shown in Tables 14.19 to 14.36.

Table 14.19 Zone 10 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
Au	Downhole	0.084	0.616	9.8			1.5	0.120		12
	0	0.084	0.629	9.7	0.175	27.1	8.0	0.095	0.92	33
	90	0.084	0.732	135.0	0.137	29.3	8.0	0.088		35
Ag	Downhole	0.070	0.630	9.8			1.5	0.100		12
	0	0.070	0.437	4.8	0.447	35.3	8.0	0.073	0.91	42
	90	0.070	0.630	13.0	0.320	38.6	8.0	0.069		46
Cu	Downhole	0.035	0.511	12.2			1.5	0.064		15
	0	0.035	0.426	18.9	0.296	39.9	8.0	0.076	0.63	48
	90	0.035	0.578	14.0	0.335	63.0	8.0	0.057		76
Zn	Downhole	0.089	0.591	10.3			1.5	0.131		12
	0	0.089	0.541	12.0	0.223	33.1	8.0	0.104	0.83	40
	90	0.089	0.744	23.4	0.157	40.1	8.0	0.090		48
Fe	Downhole	0.021	0.396	10.7			1.5	0.050		13
	0	0.021	0.369	15.2	0.800	58.9	8.0	0.026	1.36	71
	90	0.021	0.502	14.8	0.877	43.4	8.0	0.023		52
Sg	Downhole	0.015	0.452	10.6			1.5	0.032		13
	0	0.015	0.434	15.7	0.810	61.0	8.0	0.018	1.24	73
	90	0.015	0.519	12.9	0.880	49.3	8.0	0.017		59
FLAG	Downhole	0.421	0.432	10.4			1.5	0.494		12
	0	0.421	0.399	10.1	0.539	38.6	8.0	0.439	1.17	46
	90	0.421	0.447	10.3	0.568	32.9	8.0	0.426		39

Table 14.20 Zone 15 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
Au	Downhole	0.071	0.609	7.4			1.5	0.104	1.14	9
	0	0.071	0.576	10.6	0.274	41.5	8.0	0.077		50
	90	0.071	0.629	8.7	0.220	36.5	8.0	0.077		44
Ag	Downhole	0.052	0.841	6.7			1.5	0.058	1.11	8
	0	0.052	0.838	10.2	0.091	37.2	8.0	0.053		45
	90	0.052	0.866	9.2	0.067	33.6	8.0	0.053		40
Cu	Downhole	0.065	0.802	7.9			1.5	0.075	0.91	9
	0	0.065	0.707	8.8	0.167	45.4	8.0	0.084		54
	90	0.065	0.768	9.1	0.140	49.9	8.0	0.078		60
Zn	Downhole	0.170	0.691	7.9			1.5	0.197	1.00	9
	0	0.170	0.690	13.0	0.133	39.6	8.0	0.171		48
	90	0.170	0.711	9.5	9.330	39.6	8.0	0.018		48
Fe	Downhole	0.041	0.583	9.5			1.5	0.066	0.96	11
	0	0.041	0.587	17.9	0.876	50.0	8.0	0.045		60
	90	0.041	0.665	12.8	0.911	51.9	8.0	0.043		62
Sg	Downhole	0.064	0.661	10.2			1.5	0.088	0.92	12
	0	0.064	0.538	11.5	0.862	41.3	8.0	0.069		50
	90	0.064	0.622	6.7	0.903	45.1	8.0	0.066		54
FLAG	Downhole	0.048	0.866	4.7			1.5	0.053	1.04	6
	0	0.048	0.882	8.7	0.944	38.2	8.0	0.048		46
	90	0.048	0.861	8.3	0.952	36.9	8.0	0.048		44

Table 14.21 Zone 20 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
Au	Downhole	0.201	0.619	9.9			1.5	0.245	0.74	12
	0	0.201	0.549	9.8	0.247	47.9	8.0	0.202		57
	90	0.201	0.641	8.3	0.258	64.6	8.0	0.183		78
Ag	Downhole	0.090	0.719	8.5			1.5	0.111	0.70	10
	0	0.090	0.420	11.9	0.430	32.4	8.0	0.096		39
	90	0.090	0.720	11.3	0.250	46.6	8.0	0.085		56
Cu	Downhole	0.071	0.579	10.1			1.5	0.109	1.59	12
	0	0.071	0.749	20.0	0.180	57.7	8.0	0.087		69
	90	0.071	0.709	8.4	0.300	36.4	8.0	0.091		44
Zn	Downhole	0.100	0.670	10.4			1.5	0.130	1.30	12
	0	0.100	0.590	13.0	0.290	42.1	8.0	0.102		51
	90	0.100	0.750	16.2	0.980	32.3	8.0	0.093		39
Fe	Downhole	0.058	0.252	8.7			1.5	0.187	1.43	10
	0	0.058	0.722	25.9	0.872	51.9	8.0	0.062		62
	90	0.058	0.532	22.5	0.792	36.4	8.0	0.068		44
Sg	Downhole	0.067	0.223	6.9			1.5	0.231	1.40	8
	0	0.067	0.783	27.1	0.903	64.0	8.0	0.069		77
	90	0.067	0.316	24.4	1.019	45.6	8.0	0.062		55
FLAG	Downhole	0.172	0.484	8.0			1.5	0.262	0.75	10
	0	0.172	0.748	7.2	0.808	36.0	8.0	0.176		43
	90	0.172	0.608	17.7	0.818	48.2	8.0	0.174		58

Table 14.22 Zone 30 and 33 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
Au	**Downhole**	0.245	0.603	7.3			1.5	0.289	1.21	9
	0	0.245	0.629	10.3	0.077	43.1	8.0	0.258		52
	90	0.245	0.629	10.3	0.126	35.7	8.0	0.245		43
Ag	**Downhole**	0.151	0.513	9.5			1.5	0.227	0.95	11
	0	0.151	0.562	13.0	0.187	60.0	8.0	0.168		72
	90	0.151	0.635	16.5	0.254	63.0	8.0	0.145		76
Cu	**Downhole**	0.087	0.335	10.3			1.5	0.206	1.84	12
	0	0.087	0.418	13.0	0.211	75.2	8.0	0.122		90
	90	0.087	0.376	7.9	0.492	40.9	8.0	0.091		49
Zn	**Downhole**	0.040	0.540	10.6			1.5	0.069	0.95	13
	0	0.040	0.589	11.1	0.131	40.8	8.0	0.053		49
	90	0.040	0.461	9.5	0.629	43.0	8.0	0.035		52
Fe	**Downhole**	0.030	0.580	10.5			1.5	0.049	0.80	13
	0	0.030	0.570	11.5	0.820	53.7	8.0	0.035		64
	90	0.030	0.620	10.4	0.980	67.4	8.0	0.030		81
Sg	**Downhole**	0.045	0.575	10.2			1.5	0.073	1.49	12
	0	0.045	0.553	11.5	0.835	56.8	8.0	0.051		68
	90	0.045	0.676	11.8	0.881	38.0	8.0	0.049		46
FLAG	**Downhole**	0.687	0.193	12.3			1.5	0.781	1.01	15
	0	0.687	0.103	10.0	0.263	31.2	8.0	0.723		37
	90	0.687	0.102	7.9	0.323	31.0	8.0	0.680		37

Table 14.23 Zone 40 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
Au	**Downhole**	0.257	0.544	8.0			1.5	0.321	0.88	10
	0	0.257	0.653	10.7	0.060	40.6	8.0	0.265		49
	90	0.257	0.589	9.1	0.154	46.3	8.0	0.257		56
Ag	**Downhole**	0.080	0.610	9.5			1.5	0.116	1.25	11
	0	0.080	0.596	11.4	0.827	56.9	8.0	0.087		68
	90	0.080	0.702	9.5	0.194	45.5	8.0	0.082		55
Cu	**Downhole**	0.042	0.388	7.4			1.5	0.098	1.14	9
	0	0.042	0.468	16.9	0.248	41.3	8.0	0.082		50
	90	0.042	0.508	9.5	0.269	36.1	8.0	0.076		43
Zn	**Downhole**	0.036	0.714	10.3			1.5	0.048	1.55	12
	0	0.036	0.609	12.3	0.276	51.4	8.0	0.039		62
	90	0.036	0.625	8.7	0.316	33.2	8.0	0.037		40
Fe	**Downhole**	0.029	0.741	9.9			1.5	0.038	1.94	12
	0	0.029	0.703	11.1	0.935	60.5	8.0	0.030		73
	90	0.029	0.638	8.7	0.991	31.2	8.0	0.028		37
Sg	**Downhole**	0.029	0.881	9.9			1.5	0.032	1.62	12
	0	0.029	0.698	12.3	0.241	50.9	8.0	0.030		61
	90	0.029	0.684	8.7	0.287	31.4	8.0	0.029		38
FLAG	**Downhole**	0.447	0.508	7.8			1.5	0.468	1.70	9
	0	0.447	0.439	4.9	0.543	51.3	8.0	0.452		62
	90	0.447	0.458	3.2	0.543	30.2	8.0	0.452		36

Table 14.24 Zone 50 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
	Downhole	0.048	0.804	4.9			1.5	0.056		6
Au	**0**	0.048	0.432	26.9	0.500	57.6	8.0	0.049	1.35	69
	90	0.048	0.862	7.8	0.090	42.6	8.0	0.048		51
	Downhole	0.047	0.833	6.0			1.5	0.053		7
Ag	**0**	0.047	0.763	4.8	0.180	59.8	8.0	0.047	1.53	72
	90	0.047	0.703	3.9	0.320	39.1	8.0	0.044		47
	Downhole	0.034	0.696	4.8			1.5	0.047		6
Cu	**0**	0.034	0.766	8.7	0.166	67.1	8.0	0.043	2.22	81
	90	0.034	0.758	7.8	0.288	30.2	8.0	0.043		36
	Downhole	0.069	0.961	8.8			1.5	0.067		11
Zn	**0**	0.069	0.771	5.6	0.160	26.8	8.0	0.069	0.75	32
	90	0.069	0.638	5.9	0.353	35.7	8.0	0.065		43
	Downhole	0.033	0.727	8.2			1.5	0.043		10
Fe	**0**	0.033	0.709	13.5	0.987	73.2	8.0	0.032	1.77	88
	90	0.033	0.725	5.1	0.947	41.4	8.0	0.034		50
	Downhole	0.050	0.660	7.9			1.5	0.070		9
Sg	**0**	0.050	0.740	22.6	0.210	77.5	8.0	0.050	1.90	93
	90	0.050	0.710	7.1	0.880	40.8	8.0	0.054		49
	Downhole	0.310	0.630	7.1			1.5	0.330		9
FLAG	**0**	0.310	0.640	8.1	0.730	49.2	8.0	0.298	1.34	59
	90	0.310	0.550	7.5	0.690	36.8	8.0	0.310		44

Table 14.25 Zone 60 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
	Downhole	0.230	0.495	5.2			1.5	0.317		6
Au	**0**	0.230	0.545	8.8	0.185	68.8	8.0	0.240	2.54	83
	90	0.230	0.497	8.7	0.193	27.1	8.0	0.250		33
	Downhole	0.190	0.377	9.8			1.5	0.335		12
Ag	**0**	0.190	0.430	18.0	0.827	61.9	8.0	0.222	1.86	74
	90	0.190	0.400	7.5	0.200	33.2	8.0	0.241		40
	Downhole	0.076	0.400	8.6			1.5	0.160		10
Cu	**0**	0.076	0.504	10.3	0.190	54.1	8.0	0.131	1.65	65
	90	0.076	0.497	11.2	0.349	32.8	8.0	0.133		39
	Downhole	0.072	0.342	7.8			1.5	0.174		9
Zn	**0**	0.072	0.388	20.2	0.214	44.5	8.0	0.107	2.08	53
	90	0.072	0.478	5.8	0.100	21.4	8.0	0.111		26
	Downhole	0.082	0.578	12.6			1.5	0.124		15
Fe	**0**	0.082	0.568	11.1	0.768	50.5	8.0	0.096	1.45	61
	90	0.082	0.548	5.8	0.798	34.8	8.0	0.093		42
	Downhole	0.060	0.466	9.1			1.5	0.114		11
Sg	**0**	0.060	0.545	12.5	0.215	57.8	8.0	0.073	1.85	69
	90	0.060	0.545	8.3	0.738	31.2	8.0	0.075		37
	Downhole	0.430	0.410	5.1			1.5	0.512		6
FLAG	**0**	0.430	0.470	8.4	0.570	43.0	8.0	0.430	1.06	52
	90	0.430	0.445	9.1	0.570	40.4	8.0	0.430		48

Table 14.26 Zone 70 Variography Parameters

Variable	Direction	Nugget	Sill1	Range1	Sill2	Range2	Lag	Nug/T. Sill	Ratio 0/90	Max. Range
Au	**Downhole**	0.020	0.370	5.7			1.5	0.051	1.60	7
	0	0.020	0.500	26.9	0.450	101.5	16.0	0.021		122
	90	0.020	0.740	20.0	0.030	63.4	16.0	0.025		76
Ag	**Downhole**	0.050	0.410	5.7			1.5	0.109	1.17	7
	0	0.050	0.590	12.8	0.270	80.1	16.0	0.055		96
	90	0.050	0.560	5.4	0.360	68.7	16.0	0.052		82
Cu	**Downhole**	0.046	0.704	6.5			1.5	0.061	0.78	8
	0	0.046	0.684	15.1	0.290	38.3	16.0	0.063		46
	90	0.046	0.634	11.5	0.390	48.8	16.0	0.068		59
Zn	**Downhole**	0.060	0.610	7.6			1.5	0.090	2.31	9
	0	0.060	0.790	9.5	0.040	56.5	16.0	0.067		68
	90	0.060	0.740	6.6	0.090	24.5	16.0	0.067		29
Fe	**Downhole**	0.010	0.630	9.4			1.5	0.016	1.58	11
	0	0.010	0.660	9.2	0.890	57.9	16.0	0.011		69
	90	0.010	0.810	8.6	0.920	36.6	16.0	0.011		44
Sg	**Downhole**	0.040	0.539	9.9			1.5	0.069	4.13	12
	0	0.040	0.540	16.0	0.380	126.5	16.0	0.042		152
	90	0.040	0.696	1.7	0.830	30.6	16.0	0.046		37

Table 14.27 North 1, 2, 3, and 5 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill
Au	0.44	0.60	65.70	1.04	18.8	0.42
Ag	0.58	0.51	92.30	1.09	29.0	0.53
Cu	0.26	0.90	50.60	1.16	26.0	0.22
Zn	0.76	0.14	108.00	0.90	21.8	0.84
Sg	0.58	0.37	91.30	0.95	24.0	0.61

Table 14.28 North 4 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill
Au	0.272	1.39	34.10	1.66	26.0	0.164
Ag	49.420	134.40	33.77	183.82	16.2	0.269
Cu	0.067	0.30	54.90	0.37	23.6	0.180
Zn	0.277	2.12	32.72	2.40	26.2	0.116
Sg	0.025	0.12	103.62	0.15	27.4	0.175
Hor. Width	5.178	9.25	22.01	14.43	16.3	0.359

Table 14.29 South 2 and Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill	Ratio 0/90
Au	0.254	1.77	23.95	2.02	17.8	0.126	1.00
Ag	40.900	82.67	22.38	123.57	16.2	0.331	0.94
Cu	0.290	0.36	38.95	0.65	16.8	0.449	0.96
Zn	0.120	2.25	25.35	2.37	18.6	0.051	1.01
Sg	0.007	0.02	26.40	0.03	16.0	0.233	1.00
Hor. Width	2.220	3.27	49.70	5.49	16.6	0.404	0.98

Table 14.30 South 4 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill	Ratio 0/90
Au	0.076	0.53	11.57	0.61	10.5	0.126	0.13
Ag	3.630	130.67	8.00	134.30	10.9	0.027	0.03
Cu	0.014	0.41	11.00	0.42	13.0	0.033	0.03
Zn	0.059	2.67	33.69	2.73	10.8	0.022	0.02
Sg	0.001	0.04	41.30	0.04	11.0	0.024	0.02
Hor. Width	0.600	3.01	30.10	3.69	10.2	0.163	0.16

Table 14.31 South 7 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Nug/T. Sill	Ratio 0/90
Au	0.370	0.45	22.60	0.82	0.451	0.87
Ag	35.560	99.58	22.35	135.17	0.263	0.95
Cu	0.229	0.23	99.26	4.56	0.502	0.94
Zn	0.336	2.50	69.30	2.84	0.118	1.03
Sg	0.003	0.02	24.16	0.02	0.173	0.99
Hor. Width	1.370	7.50	20.44	8.87	0.154	0.97

Table 14.32 East 1 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill	Ratio 0/90
Au	0.845	0.69	8.67	1.54	16.9	0.55	0.635
Ag	28.180	146.32	12.80	174.50	12.9	0.16	0.946
Cu	0.120	0.23	24.16	0.35	19.4	0.34	0.853
Zn	0.270	1.37	24.53	1.64	16.1	0.16	0.931
Sg	0.008	0.06	53.90	0.07	20.5	0.11	-
Hor. Width	1.040	13.36	46.50	14.40	18.1	0.07	-

Table 14.33 East 2 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill
Au	0.65	0.24	16.40	0.89	16.1	0.730
Ag	0.34	0.68	119.40	1.02	26.4	0.333
Cu	0.54	0.50	97.50	1.04	24.0	0.519
Zn	0.59	0.68	76.06	1.27	28.0	0.465
Sg	0.68	0.25	146.00	0.93	28.4	0.731

Table 14.34 East 3 Variography Parameters

Variable	Nugget	Sill	Range	Total Sill	Lag	Nug/T. Sill
Au	0.439	0.96	21.63	1.40	22.0	0.314
Ag	590.200	746.80	51.30	1337.00	13.1	0.441
Cu	0.007	0.03	81.00	0.03	19.0	0.212
Zn	4.200	4.50	61.80	8.70	15.0	0.483
Sg	0.016	0.04	63.50	0.05	16.0	0.302
Hor. Width	0.138	1.72	22.70	1.85	15.8	0.074

Table 14.35 East 7 Variography Parameters

Variable	Direction	Nugget	Total Sill	Range	Lag	Nug/T. Sill
Au	**Downhole**	0.16	0.92	8.50	1.5	0.17
	0		0.88	12.85	30.0	0.18
	90		0.99	96.00	30.0	0.16
Ag	**Downhole**	0.13	0.92	6.00	1.5	0.17
	0		0.84	6.00	25.8	0.19
	90		0.96	28.31	25.8	0.17
Cu	**Downhole**	0.05	0.98	12.50	1.5	0.16
	0		0.60	12.50	24.5	0.27
	90		1.04	108.60	24.5	0.15
Zn	**Downhole**	0.07	0.55	6.19	1.5	0.29
	0		0.58	6.19	21.4	0.28
	90		1.06	126.00	21.4	0.15
Sg	**Downhole**	0.1	0.88	10.40	1.5	0.18
	0		0.90	10.40	24.0	0.18
	90		1.02	117.20	24.0	0.16

Table 14.36 East 9 Variography Parameters

Variable	Nugget	Sill1	Range	Total Sill	Lag	Nug/T. Sill
Au	0.700	0.25	68.70	0.95	20.0	0.737
Ag	0.740	0.29	41.50	1.03	20.0	0.718
Cu	0.487	0.55	48.30	1.04	20.0	0.468
Zn	0.470	0.51	65.00	0.98	20.0	0.480
Fe	0.785	0.25	25.60	0.79	20.0	1.000
Sg	0.879	0.17	71.60	1.05	20.0	0.837

14.9 Resource Block Model

The resource block model was created using MineSight 6.5 on model coordinates for the 777 Zones and in previous versions of MineSight for the Callinan lenses. Model coordinates have been adjusted by adding 2,560m to the Z value (elevation) as a means to avoid negative elevation values. Table 14.37 provides the block model limits and sizes used.

Table 14.37 Block Model Limits and Size for the 777 Zones

Lens	Coordinate	Number of Blocks	Block Size (m)	Model Limits Minimum	Model Limits Maximum
777 Zones	X - East	270	5	18250	19600
	Y - North	160	5	50400	51200
	Z - Elevation	160	5	900	1700
1, 2, 3, & 5 North	X - East	200	5	16700	17700
	Y - North	160	5	49600	50400
	Z - Elevation	160	5	1600	2400
4 North	X - East	30	20	17300	17900
	Y - North	150	20	49000	52000
	Z - Elevation	20	20	1400	1800
1 South	X - East	600	5	17000	20000
	Y - North	400	5	49000	51000
	Z - Elevation	160	5	1200	2000
2 & 9 South	X - East	80	10	17900	18700
	Y - North	300	10	49000	52000
	Z - Elevation	130	10	1000	2300
4 South	X - East	15	20	18300	18600
	Y - North	15	20	50000	50300
	Z - Elevation	15	20	1600	1900
7 South	X - East	25	20	18000	18500
	Y - North	20	20	50000	50400
	Z - Elevation	20	20	1400	1800
1 East	X - East	50	10	17800	18300
	Y - North	40	10	50300	50700
	Z - Elevation	30	10	1500	1800
2 East	X - East	200	5	17400	18400
	Y - North	160	5	50000	50800
	Z - Elevation	160	5	1200	2000
3 East	X - East	80	10	17500	18300
	Y - North	50	10	50000	50500
	Z - Elevation	60	10	1500	2100
7 East	X - East	140	5	17800	18500
	Y - North	160	5	50100	50900
	Z - Elevation	120	5	1400	2000
9 East	X - East	220	5	17300	18400
	Y - North	160	5	49800	50600
	Z - Elevation	140	5	1600	2300

14.10 Interpolation Plan

The interpolation plan of the 777 and Callinan resource estimation models was completed using the following estimation methods: ordinary kriging (OK), relative coordinate kriging (RCK), inverse distance squared (IDW), and polygonal/average estimation.

Either RCK or OK estimates were completed on all of the 777 lenses and most of the Callinan lenses. OK was utilized for Zone 20, Zone 70, North 1, North, North 3, North 4, North 5, South 2, South 4, South 7, East 1, East 2, East 3, East 7, and East 9. The remaining 777 Zones (10, 15, 30, 33, 40, 50, and 60) were estimated using RCK.

The first iteration (pass) was designed to estimate a block using the search distance parameters and minimum number of composites when the criteria in Table 14.38 were met. The subsequent passes reduced the search distances and used the same minimum number of composites or more, in an attempt to more closely model the local composite grades. In most passes, a minimum of three drill holes were required to estimate a block, the exceptions were those lenses that contained full length composites. The minimum and maximum number of composites was directed by the average thickness of the mineralization in each zone as well as the drilling density.

The South 3 lens and the Dan Zone were calculated using polygonal/average estimation due to their small size and small number of composites. The South 1 lens was calculated using IDW for similar reasons.

Table 14.38 Search Parameters by Pass

Lens	Pass	Search Parameter	Search Ellipse Distance			Number of Composites			Indicator Variable Composites		
			Major	Minor	Vertical	Minimum	Maximum	Per Hole	Minimum	Maximum	Per Hole
Zone 10	1	-	100	50	30	8	18	3	8	18	3
	2	-	60	30	30	8	18	3	5	10	3
	3	-	40	20	10	8	18	3	5	10	3
	4	-	20	10	10	8	18	3	5	10	3
Zone 15	1	-	80	40	30	8	18	3	8	18	3
	2	-	40	20	10	8	18	3	5	10	3
	3	-	20	10	10	8	18	3	5	10	3
Zone 20	1	-	150	75	30	8	18	3	8	18	3
	2	-	50	25	15	8	18	3	5	10	3
	3	-	25	12	10	8	18	3	5	10	3
Zone 30 & 33	1	-	120	90	25	8	18	3	8	18	3
	2	-	60	30	15	8	18	3	5	10	3
	3	-	40	20	10	8	18	3	5	10	3
	4	-	20	10	10	8	18	3	5	10	3
Zone 40	1	-	60	30	30	8	18	3	8	18	3
	2	-	40	20	10	8	18	3	5	10	3
	3	-	20	10	10	8	18	3	5	10	3
Zone 50	1	-	60	30	30	8	18	3	8	18	3
	2	-	30	15	15	8	18	3	5	10	3
	3	-	20	10	10	8	18	3	5	10	3
Zone 60	1	-	80	40	30	8	18	3	8	18	3
	2	-	40	20	10	8	18	3	5	10	3
	3	-	20	10	10	8	18	3	5	10	3
Zone 70	1	-	150	75	30	8	18	3	-	-	-
	2	-	50	25	15	8	18	3	-	-	-
	3	-	25	12	10	8	18	3	-	-	-
1, 3, & 5 North	1	-	150	75	30	2	8	1	-	-	-
	2	-	75	35	20	3	8	1	-	-	-
	3	-	50	25	15	3	8	1	-	-	-
	4	-	25	15	10	3	8	1	-	-	-
2 North	1	-	75	35	20	2	8	1	-	-	-
	2	-	50	25	15	3	8	1	-	-	-
	3	-	25	15	10	3	8	1	-	-	-
4 North	1	Au	34.1	34.1	-	1	6	1	-	-	-
		Ag	37	37	-				-	-	-
		Cu	54.9	54.9	-				-	-	-
		Zn	32.72	32.72	-				-	-	-
		Sg	103.6	103.6	-				-	-	-
		Hor. Width	22.011	22.011	-				-	-	-
	2	-	37	37	-	3	6	1	-	-	-
	3	-	30	30	-	3	6	1	-	-	-
1 South	1	-	270	135	15	2	15	1	-	-	-
	2	-	200	100	15	3	15	1	-	-	-
	3	-	100	50	15	5	15	1	-	-	-
2 & 9 South	1	-	25	25	-	3	10	1	-	-	-
4 South	1	-	26	26	-	3	10	1	-	-	-
7 South	1	-	42	42	-	3	10	1	-	-	-
1 East	1	-	26	26	-	1	6	1	-	-	-
	2	-	24	24	-	3	6	1	-	-	-
	3	-	20	20	-	3	6	1	-	-	-
2 East	1	-	100	50	25	2	8	1	-	-	-
	2	-	50	25	15	3	8	1	-	-	-
	3	-	25	15	10	3	8	1	-	-	-
3 East	1	-	30	30	-	1	6	1	-	-	-
	2	-	27	27	-	2	6	1	-	-	-
	3	-	25	25	-	3	6	1	-	-	-
	4	-	20	20	-	3	6	1	-	-	-
7 East	1	Entire Lens	100	50	25	6	18	3	-	-	-
	2	Main Portion	75	35	10	8	18	3	-	-	-
		Upper South Limb Lower Limb	75	35	10	6	18	3	-	-	-
	3	Main Portion	50	25	10	8	18	3	-	-	-
		Upper South Limb Lower Limb	50	25	10	6	18	3	-	-	-
	4	Main Portion	30	15	8	8	18	3	-	-	-
		Upper South Limb Lower Limb	30	15	8	6	18	3	-	-	-
9 East	1	-	150	150	150	3	8	1	-	-	-
	2	-	50	50	50	3	8	1	-	-	-
	3	-	25	25	25	3	8	1	-	-	-

14.11 Block Model Validation

The 777 resource estimation model was validated by the following methods:

- Comparison of the block grades to the actual results seen during underground mining
- Visual comparisons of colour coded block grades and drill hole composites
- Comparison to previous estimates

The block models were checked in plan and section views to compare block grades with the drill hole grades, and ensure that the interpolation honoured the composites. The visual comparisons of block model grades with composite grades of gold, silver, copper, zinc, iron showed a reasonable correlation between the values and no large discrepancies were apparent.

14.12 Mineral Resource Classification

Several factors were used in the determination of the mineral resource classification as follows:

- CIM requirements and guidelines
- Experience with similar base metal deposits
- Spatial continuity of the mineralization
- Previous mining of the mineralization

14.13 Mineral Resource Tabulation

The mineral resource estimate for the 777 and Callinan deposit is summarized in Table 14.39. The resources are tabulated separately into 777 and Callinan portions for mining and planning purposes only.

Table 14.39 Summary of the 777/Callinan Resources

		Measured					Indicated					Inferred				
		Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)
Callinan North Zones	Lens 1	141,000	1.58	23.89	1.43	3.36	294,000	2.03	26.42	1.68	4.69	35,000	2.19	26.40	1.90	4.69
	Lens 2	-	-	-	-	-	15,000	1.05	17.06	1.05	3.69	-	-	-	-	-
	Lens 3	8,000	1.45	31.08	1.61	3.27	26,000	1.47	29.74	1.45	3.24	45,000	1.59	30.50	1.46	3.27
	Lens 4	-	-	-	-	-	226,000	2.48	32.28	1.36	3.69	78,000	1.64	23.40	1.11	3.73
	Lens 5	-	-	-	-	-	-	-	-	-	-	23,000	2.11	27.75	1.33	4.23
	Dan Zone	-	-	-	-	-	-	-	-	-	-	35,000	1.17	55.89	0.27	8.60
	Total	**149,000**	**1.58**	**24.26**	**1.44**	**3.36**	**561,000**	**2.16**	**28.69**	**1.52**	**4.20**	**216,000**	**1.69**	**31.03**	**1.20**	**4.62**
Callinan South Zones	Lens 1	-	-	-	-	-	661,000	1.62	25.77	0.96	3.04	70,000	1.50	26.35	0.86	2.99
	Lens 2	111,000	3.02	33.74	2.13	4.89	4,000	1.45	21.47	0.98	1.55	9,000	0.53	15.10	1.71	0.26
	Lens 3	-	-	-	-	-	-	-	-	-	-	110,000	1.72	32.63	1.33	4.68
	Lens 4	31,000	1.75	22.25	1.39	3.92	4,000	1.50	27.09	1.68	4.51	9,000	1.28	23.84	1.46	3.89
	Lens 7	55,000	2.19	29.35	1.70	4.55	19,000	1.38	27.71	1.01	2.63	47,000	1.34	24.56	1.09	2.30
	Lens 9	-	-	-	-	-	9,000	2.89	39.55	1.64	4.71	11,000	1.83	23.17	1.01	3.80
	Total	**196,000**	**2.59**	**30.72**	**1.90**	**4.64**	**697,000**	**1.63**	**25.97**	**0.98**	**3.05**	**256,000**	**1.54**	**28.11**	**1.16**	**3.56**
Callinan East Zones	Lens 1	33,000	2.22	37.95	1.13	3.74	-	-	-	-	-	-	-	-	-	-
	Lens 2	48,000	1.72	19.81	1.13	4.07	3,000	1.77	16.63	1.04	3.68	94,000	1.83	24.78	1.25	4.81
	Lens 3	42,000	2.90	87.39	0.39	6.49	9,000	2.83	93.58	0.52	6.88	12,000	2.42	100.57	0.37	5.73
	Lens 7	18,000	2.78	42.22	1.08	7.36	150,000	1.45	28.14	0.59	5.88	8,000	1.39	29.33	0.58	5.72
	Lens 9	81,000	1.85	30.42	0.77	5.63	185,000	1.72	30.23	1.08	3.77	29,000	1.28	26.02	0.37	4.38
	Total	**223,000**	**2.15**	**40.85**	**0.86**	**5.31**	**348,000**	**1.64**	**30.90**	**0.85**	**4.76**	**143,000**	**1.74**	**31.66**	**0.96**	**4.85**
Callinan Total		**568,000**	**2.15**	**33.00**	**1.37**	**4.57**	**1,606,000**	**1.82**	**27.99**	**1.14**	**3.82**	**615,000**	**1.64**	**29.97**	**1.13**	**4.23**
777 Zones	ZONE 10	1,418,000	1.91	9.51	4.65	0.52	1,302,000	2.18	9.12	3.73	1.25	-	-	-	-	-
	ZONE 15	385,000	0.40	4.59	2.70	0.13	426,000	0.40	5.24	2.66	0.15	-	-	-	-	-
	ZONE 20	284,000	1.01	11.59	2.50	0.58	326,000	0.78	8.58	1.82	0.49	-	-	-	-	-
	ZONE 30	1,573,000	3.65	58.90	2.35	10.23	1,417,000	3.66	81.63	2.06	13.27	408,000	2.40	55.70	2.13	7.47
	ZONE 33	-	-	-	-	-	246,000	3.50	71.47	1.23	10.42	-	-	-	-	-
	ZONE 40	907,000	3.12	52.74	2.59	8.56	761,000	2.72	45.82	2.17	8.17	-	-	-	-	-
	ZONE 50	-	-	-	-	-	704,000	0.25	2.81	1.74	0.13	-	-	-	-	-
	ZONE 60	493,000	1.64	18.03	2.44	3.12	1,315,000	2.30	27.68	1.64	4.67	161,000	2.06	32.36	0.79	5.09
	ZONE 70	-	-	-	-	-	563,000	1.13	8.44	1.04	1.44	-	-	-	-	-
	Total	**5,060,000**	**2.48**	**33.19**	**3.08**	**5.21**	**7,061,000**	**2.16**	**32.31**	**2.18**	**5.17**	**569,000**	**2.31**	**49.11**	**1.75**	**6.80**
Total 777/Callinan		**5,628,000**	**2.44**	**33.17**	**2.91**	**5.14**	**8,667,000**	**2.09**	**31.51**	**1.99**	**4.92**	**1,184,000**	**1.96**	**39.17**	**1.43**	**5.47**

15. MINERAL RESERVE ESTIMATE

Mining, processing and economic parameters were applied to the block model to form the basis of the reserve estimate. NI 43-101 defines a Mineral Reserve as “the economically mineable part of a Measured or Indicated Mineral Resource”. The measured resources were used to estimate the proven mineral reserves and the indicated resources were used to estimate the probable mineral reserve.

The orebody is polymetallic with economically significant metals being copper, zinc, gold, and silver. The base metal mineralization consists of solid sulphide, near solid sulphides, and stringers sulphides. Precious metals are disseminated throughout the mineralized zones in varying amounts. Sulphide minerals present are typically chalcopyrite, sphalerite, pyrite, or pyrrhotite.

The 777 Mine and 777 North expansion metallurgical assumptions shown in Table 15.1 are based on production head grades over the life of mine processed at the Flin Flon concentrator. Two concentrates are produced; a zinc concentrate is directed to the Hudbay zinc plant in the Flin Flon metallurgical complex for production of refined zinc, and a copper concentrate with precious metal enrichment that is shipped to third party smelters. Refer to Section 15.2 for smelter and refinery terms.

Zones are modeled primarily on spatial location as well as on metal content. In the North Limb of the 777 deposit, Zone 30, and 33 are primarily zinc, Zone 10 and 15 are primarily copper, and Zone 20 is a low grade mixing zone between the two commodities. In the South Limb, Zone 40 is primarily zinc, Zone 60, and 70 are a mixture between zinc and copper and zones 50 is low grade copper lens. Spatially, each limb consists of stacked lenses.

For mining purposes, there are eight active mining areas in the mine to allow for a blended product with the end goal to send a blended grade to the mill.

Mining methods were established for each mining area and a net smelter return (NSR) was calculated to determine the economic viability.

The 777 Mine and 777 North expansion mineral reserve estimate were prepared by Darren Lyhkun, P.Eng., 777 Senior Mine Engineer, Hudbay under the supervision of Robert Carter, P.Eng., Director, Technical Services, Hudbay. Both Mr. Lyhkun and Mr. Carter are both Qualified Persons under NI 43-101.

A summary of the conversion from mineral resource to mineral reserve is shown in Table 15.2.

Table 15.1 Metallurgical Assumptions

777 Mine	Au	Ag	Cu	Zn
Recovery to Zn Concentrate				85.2%
Recovery to Cu Concentrate	72.5%	64.0%	93.0%	
Zn Concentrate Produced				51.5%
Cu Concentrate Produced			24.6%	

777 North Expansion	Au	Ag	Cu	Zn
Recovery to Zn Concentrate				85.0%
Recovery to Cu Concentrate	57.0%	45.0%	85.0%	
Zn Concentrate Produced				50.0%
Cu Concentrate Produced			23.4%	

TABLE 15.2 MINERAL RESERVES SUMMARY[1]

		Tonnes	Au (g/t)	Ag (g/t)	Cu(%)	Zn(%)
777 Mine Measured Mineral Resource (Sep 30, 2011)		5,534,000	2.45	33.22	2.94	5.14
777 Mine Measured Diluted Mineral Resource (Sep 30, 2011)	26.7% dil	7,012,000	1.94	26.21	2.32	4.06
777 Mine Measured Recovered Mineral Resource (Sep 30, 2011)	74.6% rec	5,234,000	1.96	26.35	2.40	4.04
777 Mine Proven Mineral Reserve (Sep 30, 2011)	$129.74 NSR	5,077,000	2.00	26.72	2.44	4.12
Oct 1 to Dec 31, 2011 Proven Production		250,000	2.39	24.94	3.50	3.58
777 Mine Proven Mineral Reserve (Jan 1, 2012)		4,827,000	1.98	26.81	2.39	4.15
777 Mine Indicated Mineral Resource (Sep 30, 2011)		8,206,000	2.10	31.71	2.02	4.95
777 Mine Indicated Diluted Mineral Resource (sep 30, 2011)	28.1% dil	10,511,000	1.64	24.75	1.58	3.86
777 Mine Indicated Recovered Mineral Resource (Sep 30, 2011)	81.1% rec	8,523,000	1.66	25.05	1.58	3.92
777 Mine Probable Mineral Reserve (Sep 30, 2011)	$99.75 NSR	7,131,000	1.86	28.46	1.69	4.52
Oct 1 to Dec 31, 2011 Probable Production		121,000	3.03	40.52	2.50	5.05
777 Mine Probable Mineral Reserve (Jan 1, 2012)		7,011,000	1.84	28.25	1.67	4.51
777 Mine Total Mineral Resource (Sep 30, 2011)		13,739,000	2.24	32.32	2.39	5.03
777 Mine Total Diluted Mineral Resource (Sep 30, 2011)	27.5% dil	17,523,000	1.76	25.34	1.88	3.94
777 Mine Total Recovered Mineral Resource (Sep 30, 2011)	78.6% rec	13,757,000	1.78	25.54	1.90	3.97
777 Mine Total Mineral Reserve (Sep 30, 2011)	$112.22 NSR	12,208,000	1.92	27.73	2.00	4.35
Oct 1 to Dec 31, 2011 Total Production		371,000	2.60	30.01	3.17	4.06
777 Mine Total Mineral Reserve (Jan 1, 2012)		11,838,000	1.90	27.66	1.96	4.36

		Tonnes	Au (g/t)	Ag (g/t)	Cu(%)	Zn(%)
777 North Expansion Measured Mineral Resource (Sep 30, 2011)		94,000	1.88	30.37	0.90	5.45
777 North Expansion Measured Diluted Mineral Resource (Sep 30, 2011)	19.7% dil	113,000	1.57	25.38	0.75	4.55
777 North Expansion Measured Recovered Mineral Resource (Sep 30, 2011)	83.3% rec	94,000	1.57	25.48	0.74	4.58
777 North Expansion Proven Mineral Reserve (Sep 30, 2011)	$27.84 NSR	94,000	1.57	25.48	0.74	4.58
Oct 1 to Dec 31, 2011 Proven Production		0	0.00	0.00	0.00	0.00
777 North Expansion Proven Mineral Reserve (Jan 1, 2012)		94,000	1.57	25.48	0.74	4.58
777 North Expansion Indicated Mineral Resource (Sep 30, 2011)		461,000	1.92	28.03	1.44	4.39
777 North Expansion Indicated Diluted Mineral Resource (Sep 30, 2011)	31.2% dil	605,000	1.46	21.36	1.10	3.34
777 North Expansion Indicated Recovered Mineral Resource (Sep 30, 2011)	76.0% rec	460,000	1.46	21.69	1.09	3.34
777 North Expansion Probable Mineral Reserve (Sep 30, 2011)	$11.06 NSR	453,000	1.47	21.77	1.10	3.37
Oct 1 to Dec 31, 2011 Probable Production		0	0.00	0.00	0.00	0.00
777 North Expansion Probable Mineral Reserve (Jan 1, 2012)		453,000	1.47	21.77	1.10	3.37
777 North Expansion Total Mineral Resource (Sep 30, 2011)		555,000	1.91	28.42	1.35	4.57
777 North Expansion Total Diluted Mineral Resource (Sep 30, 2011)	29.4% rec	717,000	1.48	21.99	1.05	3.53
777 North Expansion Total Recovered Mineral Resource (Sep 30, 2011)	77.2% rec	553,000	1.48	22.33	1.03	3.55
777 North Expansion Total Mineral Reserve (Sep 30, 2011)	$13.94 NSR	547,000	1.49	22.41	1.03	3.57
Oct 1 to Dec 31, 2011 Total Production		0	0.00	0.00	0.00	0.00
777 North Expansion Total Mineral Reserve (Jan 1, 2012)		547,000	1.49	22.41	1.03	3.57

		Tonnes	Au (g/t)	Ag (g/t)	Cu(%)	Zn(%)
Total Measured Mineral Resource (Sep 30, 2011)		5,628,000	2.44	33.17	2.91	5.14
Total Measured Diluted Mineral Resource (Sep 30, 2011)	26.6% dil	7,125,000	1.93	26.20	2.30	4.06
Total Measured Recovered Mineral Resource (Sep 30, 2011)	74.8% rec	5,328,000	1.96	26.33	2.38	4.05
Total Proven Mineral Reserve (Sep 30, 2011)	$128.22 NSR	5,171,000	1.99	26.69	2.41	4.13
Oct 1 to Dec 31, 2011 Proven Production		250,000	2.39	24.94	3.50	3.58
Total Proven Mineral Reserve (Jan 1, 2012)		4,921,000	1.97	26.78	2.36	4.16
Total Indicated Mineral Resource (Sep 30, 2011)		8,667,000	2.09	31.51	1.99	4.92
Total Indicated Diluted Mineral Resource (Sep 30, 2011)	28.3% dil	11,116,000	1.63	24.57	1.55	3.84
Total Indicated Recovered Mineral Resource (Sep 30, 2011)	80.8% rec	8,983,000	1.65	24.88	1.56	3.89
Total Probable Mineral Reserve (Sep 30, 2011)	$94.45 NSR	7,585,000	1.84	28.06	1.65	4.45
Oct 1 to Dec 31, 2011 Probable Production		121,000	3.03	40.52	2.50	5.05
Total Probable Mineral Reserve (Jan 1, 2012)		7,464,000	1.82	27.86	1.64	4.44
Total Total Mineral Resource (Sep 30, 2011)		14,294,000	2.23	32.16	2.35	5.01
Total Total Diluted Mineral Resource (Sep 30, 2011)	27.6% dil	18,241,000	1.75	25.21	1.84	3.92
Total Total Recovered Mineral Resource (Sep 30, 2011)	78.6% rec	14,311,000	1.77	25.42	1.86	3.95
Total Total Mineral Reserve (Sep 30, 2011)	$108.00 NSR	12,756,000	1.90	27.50	1.96	4.32
Oct 1 to Dec 31, 2011 Total Production		371,000	2.60	30.01	3.17	4.06
Total Mineral Reserve (Jan 1, 2012)		12,385,000	1.88	27.43	1.92	4.33

[1]Inclusive of the mineral resources set forth in Table 14.1 and 14.39.

15.1 Dilution and Recovery

Dilution is normally defined as the ratio of tonnes of waste mined to tonnes of ore mined expressed as a percentage. For this purpose the mineral resource contained within the 3D interpreted wireframes constructed by senior geologist from diamond drilling information contains only the mineralization and dilution is waste tonnes that will be mined with an assumed no metal value.

The methodology used to estimate the dilution and overall recovered tonnes was to cut plans and sections through each mining block and calculate an expected recovery, which is based on cavity monitoring surveys of previously mined out stopes. Mining blocks are areas of similar geometry (dip and thickness) where a single mining method is appropriate.

After establishing mining blocks, cross sections were analyzed to determine expected dilution and expected mining losses. Dilution and recovery factors were then applied to each mining block to determine the diluted and recovered tonnes to which economic criteria would be applied.

The specific gravity (SG) of waste dilution is assumed to be 2.8 and the average ore SG is 3.62. Dilution quantities were estimated volumetrically by cross section for each zone and each mining area and converted to tonnes of waste. There are two sources of dilution: internal (or planned) dilution and external dilution. A summary of dilution and recovery is shown in Table 15.3.

Table 15.3 Summary of Dilution and Recovery

	Mineral Resource Tonnes	Dilution Total by	Overall Recovery
777 Mine	13,739,000	27.5%	78.6%
777 North Expansion	555,000	29.4%	77.2%

15.1.1 Internal Dilution

Internal dilution is waste rock that is planned to be mined within the stope design boundaries, but outside the mineral resource during the course of mining. Mining considerations normally make the mining of internal dilution unavoidable.

At 777 Mine, internal dilution will be mined due to orebody geometry. Due to the ore dipping greater than 40° and being of sufficient thickness, longhole mining with sills at 17m vertical intervals is used.

In order to operate rubber tired mobile equipment underground and to maintain wall and back stability, ore drifts and ore cross cuts will be mined with vertical walls and a flat sill and back. The ore is accessed via the hanging wall, due to weak footwall host rock and some hanging wall and footwall waste rock will be mined during this process.

Hudbay's experience indicates that longhole stopes require a minimum 50° dip at the footwall to allow blasted ore to fall to drawpoints below. A wedge of waste rock is planned to be mined at the footwall contact to meet this requirement.

Any dilution within the mineralized zones is handled separately by calculating the percentage of waste expected to each block within the resource block model.

15.1.2 External Dilution

External dilution is waste rock that is mined with the ore beyond the stope design boundaries. External dilution is from two sources; wall falloff and overbreak and backfill.

External dilution from backfill is minimized at the 777 Mine as longhole stopes are backfilled with cemented tailings (paste backfill). In smaller stopes, unconsolidated waste backfill or cemented rock fill is used. External dilution from overbreak and wall falloff is expected to be zero in longhole undercut drifts and drill sublevels as all headings will be screened to eliminate falloff. In longhole stopes, an average of 1m of falloff from the hanging wall in the stope has been typically realized. Based on Hudbay's experience and active mining in the 777 Mine, the short vertical interval (12m) minimizes hole deviation and subsequent wall falloff in longhole stopes.

15.1.3 Mining Recovery

Mining recovery is defined as the ratio of mineral resource tonnes delivered to the process plant (concentrator) to the insitu mineral resource tonnes. Average mining recoveries are shown in Table 15.4 and some mineral resources are not recovered due to:

- Mining design. This includes rib, post and sill pillars that are not recovered to maintain rock stability.
- Inefficiencies in mining. This includes small blocks of ore along ore/waste contacts and underbreak.
- Inefficiencies in mucking. This includes losses of broken rock in longhole stopes mucked by remote control LHD (load haul and dump) and broken rock that is mixed with waste backfill and is not mucked.

15.2 Reserve Economics

The net smelter return (NSR) payable was calculated assuming the metallurgical recoveries in Table 15.1. Metal prices ($USD) were assumed at $1.00/lb for zinc (includes premium),

$2.75/lb for copper, $1,100/oz for gold and $22.00/oz for silver, with a currency exchange rate of 1.05 C$/US$.

For the purposes of calculating NSR for each mining area gold and silver metal prices were not reduced as per Hudbay's precious metal stream transaction with Silver Wheaton Corp. and economics of the stream are dealt with in the life of mine economic analysis that supports the reserves. Assumed bulk copper and zinc concentrate terms are shown in Tables 15.5 and 15.6.

Table 15.5 Copper Concentrate Net Revenue Assumptions

Item	Value
Concentrate Freight	C$ 185.60/dmt
Base Treatment Charge	US$ 75.00/dmt
Payable Copper	96.5%
Payable Gold	96.5%
Payable Silver	90.0%
Penalties	None
Copper Refining Charge	US$ 0.075/lb
Gold Refining Charge	US$ 5.00/oz
Silver Refining Charge	US$ 0.50/oz

Table 15.6 Zinc Concentrate & Secondary's Revenue Assumptions

Item	Value
Zn Conc. Treatment & Zinc Refining Charges	C$ 379.00/dmt
Zn Conc. Recovered Copper	70.0%
Zn Conc. Recovered/Payable Zinc	97.5%
Zn Conc. Penalties	None
Copper Cake (ZPL Secondary Product) Grade	70% Cu
Copper Price for Cu in Cake	LME less $1,500/t
Cu Cake Payable Copper	Content less 5 units
Cu Cake Treatment Charge	US$ 615.38/dmt
Cu Cake Freight	C$ 107.65/wmt

NSR revenues were calculated for mining areas comprised of blocks from the block model. The average revenue attributed to the diluted 777 Mine mineral resources, after zinc metal distribution costs were applied is $260.15/t. The average revenue attributed to the diluted 777 North expansion mineral resources, after zinc metal distribution costs were applied is $161.17/t.

To determine the economic viability of resources, onsite operating costs (mining, concentrating and general mine expenses), capital development and offsite costs (concentrate freight, processing, refining, general & administration) were estimated and applied against copper and zinc concentrate produced for each mining block. Total costs for the 777 Mine is $147.93/t and 777 North expansion is $147.23/t.

777 Mine onsite mining costs average $30.74/t of ore and $13.38 for milling. Mill costs include zinc concentrate conveyance to the adjacent zinc processing plant.

777 North expansion onsite mining costs average $60.67/t of ore and $13.38 for milling. Mill costs include zinc concentrate conveyance to the adjacent zinc processing plant.

777 Mine onsite and offsite general and administration is $46.90/t. Offsite costs are applied to copper and zinc concentrates produced, and payable of recovered metal. Processing and refining costs of $56.90/t includes Hudbay zinc plant costs for zinc concentrates and third party smelter treatment, refining costs and freight for copper concentrates. Processing costs were applied per tonne of concentrate produced.

777 North expansion onsite and offsite general and administration is $35.43/t. Offsite costs are applied to copper and zinc concentrates produced, and payable of recovered metal. Processing and refining costs of $37.75/t includes Hudbay zinc plant costs for zinc concentrates and third party smelter treatment, refining costs and freight for copper concentrates. Processing costs were applied per tonne of concentrate produced.

Resource optimization has been done on an economic basis. The mineral reserves are sensitive to changes in NSR revenues (excluding the impact of the precious metal stream agreement) as demonstrated in Table 15.7 and 15.8.

Table 15.7 777 Mine Reserve Sensitivity to NSR (Excluding the Impact of the Precious Metal Stream Agreement)

NSR	+$10/t	Base Case	-$10/t	-$20/t	-$30/t	-$40/t
Tonnes	12,289,410	11,837,603	11,236,884	10,824,039	10,129,309	9,052,253
Au (g/t)	1.85	1.90	1.98	2.01	2.08	2.20
Ag (g/t)	26.90	27.66	28.82	29.39	30.54	32.43
Cu (%)	1.93	1.96	2.01	2.04	2.11	2.22
Zn (%)	4.23	4.36	4.53	4.63	4.83	5.18

Table 15.8 777 North Expansion Reserve Sensitivity to NSR (Excluding the Impact of the Precious Metal Stream Agreement)

NSR	+$10/t	Base Case	-$10/t	-$20/t	-$30/t
Tonnes	547,261	547,261	305,730	221,545	116,517
Au (g/t)	1.49	1.49	1.55	1.60	1.73
Ag (g/t)	22.41	22.41	26.07	27.49	30.89
Cu (%)	1.03	1.03	0.99	0.96	0.92
Zn (%)	3.57	3.57	3.91	4.21	4.78

Table 15.9 and 15.10 lists the resources that have had the NSR test applied and those that pass the economic test by mining block were scheduled in a mine plan prior to converting to mineral reserves.

Table 15.8 777 Mine Net Smelter Return Calculations

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
Economic Blocks													
10-1040-N12	10	906	0.702	8.028	3.017	0.562	$205.53	$20.38	$13.38	$47.61	$43.81	$125.18	$80.35
10-1040-N14	10	1,568	0.532	5.274	2.521	0.267	$165.81	$20.42	$13.38	$38.49	$38.66	$110.95	$54.86
10-1040-N16	10	2,979	0.706	4.590	3.238	0.129	$208.48	$20.43	$13.38	$48.07	$44.34	$126.22	$82.25
10-1040-N18	10	3,830	0.541	4.137	3.225	0.124	$203.16	$55.39	$13.38	$47.83	$44.21	$160.81	$42.35
10-1040-N20	10	2,380	0.432	3.430	2.122	0.048	$135.27	$35.55	$13.38	$31.27	$34.57	$114.77	$20.51
10-1040-N22	10	1,976	1.067	5.415	4.098	0.050	$266.03	$71.09	$13.38	$60.16	$51.44	$196.07	$69.97
10-1040-N24	10	1,969	0.891	4.693	4.246	0.046	$269.55	$71.21	$13.38	$62.26	$52.69	$199.53	$70.02
10-1040-N26	10	1,295	0.863	5.290	4.223	0.071	$268.24	$100.87	$13.38	$62.08	$52.57	$228.90	$39.34
10-1040-N30	10	3,514	0.840	8.335	6.852	0.122	$420.73	$60.18	$13.38	$100.70	$75.16	$249.42	$171.31
10-1040-N32	10	4,005	0.593	7.242	5.010	0.196	$309.64	$57.23	$13.38	$74.31	$59.67	$204.60	$105.04
10-1040-N34	10	1,949	0.500	6.613	4.557	0.140	$279.88	$71.59	$13.38	$67.35	$55.64	$207.96	$71.92
10-1040-N38	10	3,096	0.452	6.197	5.400	0.139	$326.79	$48.97	$13.38	$79.60	$62.82	$204.78	$122.01
10-1040-N40	10	2,694	0.448	7.438	6.311	0.144	$379.58	$62.17	$13.38	$92.92	$70.61	$239.09	$140.49
10-1055-N08	10	11,149	1.870	23.878	5.409	1.190	$391.94	$22.36	$13.38	$86.67	$66.17	$188.58	$203.36
10-1055-N10	10	15,460	1.606	19.208	4.744	0.430	$330.33	$21.25	$13.38	$72.15	$58.13	$164.92	$165.42
10-1055-N12	10	13,097	0.645	7.213	2.653	0.353	$178.78	$21.40	$13.38	$40.98	$40.05	$115.81	$62.97
10-1055-N14	10	9,812	0.545	4.783	2.474	0.254	$163.01	$21.73	$13.38	$37.73	$38.22	$111.06	$51.96
10-1055-N16	10	16,341	0.905	5.705	4.316	0.121	$275.82	$21.21	$13.38	$63.76	$53.52	$151.86	$123.96
10-1055-N18	10	10,340	1.199	7.911	6.604	0.208	$417.29	$42.87	$13.38	$97.67	$73.31	$227.23	$190.06
10-1070-N14	10	14,851	0.708	4.645	3.622	0.125	$230.55	$21.29	$13.38	$53.65	$47.61	$135.93	$94.62
10-1082-N10	10	8,153	0.568	3.867	1.715	0.647	$127.25	$47.35	$13.38	$29.14	$32.96	$122.83	$4.42
10-1082-N12	10	5,991	0.528	3.963	2.757	0.361	$180.48	$48.85	$13.38	$42.50	$40.96	$145.69	$34.78
10-1082-N14	10	3,273	0.876	5.895	5.312	0.181	$333.44	$49.74	$13.38	$78.64	$62.20	$203.96	$129.48
10-1082-N16	10	5,294	1.285	8.284	6.644	0.145	$420.81	$48.28	$13.38	$97.88	$73.46	$233.00	$187.81
10-1082-N18	10	4,996	1.399	8.676	6.200	0.137	$398.30	$48.48	$13.38	$91.38	$69.65	$222.89	$175.41
10-1107-NP30	10	13,332	0.809	3.746	3.014	0.505	$205.17	$25.96	$13.38	$47.18	$43.60	$130.11	$75.06
10-1107-NP32	10	19,985	1.283	6.245	4.940	0.310	$325.27	$23.36	$13.38	$74.07	$59.43	$170.24	$155.03
10-1107-NP34	10	25,561	1.162	6.315	5.075	0.125	$326.36	$23.40	$13.38	$74.87	$60.01	$171.66	$154.70
10-1107-NP36	10	12,820	1.378	8.148	6.127	0.102	$392.67	$20.42	$13.38	$90.09	$68.91	$192.81	$199.87
10-1107-NP38	10	5,643	1.641	10.269	7.349	0.077	$470.00	$20.42	$13.38	$107.77	$79.26	$220.84	$249.16
10-1107-NP40	10	6,316	1.068	7.945	6.091	0.058	$381.62	$20.42	$13.38	$89.25	$68.47	$191.52	$190.10
10-1107-NP42	10	6,329	1.255	9.417	6.968	0.086	$437.95	$20.42	$13.38	$102.23	$76.04	$212.07	$225.89
10-1107-NP44	10	5,768	1.832	12.119	8.475	0.128	$541.31	$20.42	$13.38	$124.52	$89.02	$247.35	$293.96
10-1107-NP46	10	5,554	2.610	13.735	10.801	0.148	$696.03	$20.42	$13.38	$158.63	$108.94	$301.36	$394.66
10-1107-NP48	10	4,227	2.467	15.830	10.279	0.169	$663.63	$20.42	$13.38	$151.15	$104.54	$289.50	$374.13
10-1107-NP50	10	3,269	2.414	14.545	9.147	0.155	$596.52	$20.42	$13.38	$134.57	$94.84	$263.21	$333.32
10-1107-NP52	10	2,895	1.548	11.365	8.483	0.119	$533.88	$20.42	$13.38	$124.54	$89.06	$247.41	$286.48
10-1107-NP54	10	2,840	0.870	8.934	7.326	0.110	$448.74	$20.41	$13.38	$107.55	$79.17	$220.50	$228.24
10-1107-NP56	10	1,639	0.686	7.924	6.011	0.219	$370.15	$54.09	$13.38	$89.04	$68.28	$224.79	$145.36
10-1107-NP58	10	1,274	0.517	6.514	4.486	0.309	$279.46	$47.67	$13.38	$67.38	$55.55	$183.98	$95.49
10-1122-NP22	10	2,191	1.028	4.431	2.558	0.172	$178.62	$20.42	$13.38	$38.48	$38.68	$110.96	$67.66
10-1122-NP24	10	5,900	1.316	5.931	3.958	0.085	$265.37	$20.42	$13.38	$58.37	$50.35	$142.53	$122.84
10-1122-NP26	10	4,321	1.145	5.958	4.362	0.129	$284.94	$20.42	$13.38	$64.51	$53.93	$152.24	$132.70
10-1122-NP30	10	4,841	1.384	6.381	4.679	0.181	$310.57	$20.42	$13.38	$69.49	$56.81	$160.10	$150.47
10-1122-NP32	10	12,880	1.543	6.537	5.204	0.172	$344.68	$30.71	$13.38	$77.10	$61.26	$182.45	$162.23
10-1122-NP34	10	15,976	1.579	6.303	5.219	0.138	$345.68	$26.57	$13.38	$77.09	$61.27	$178.31	$167.37
10-1122-NP56	10	1,667	0.661	4.615	3.688	0.635	$242.86	$24.76	$13.38	$57.79	$49.75	$145.68	$97.18
10-1137-NP22	10	7,531	1.044	4.754	3.407	0.090	$226.31	$20.42	$13.38	$50.34	$45.67	$129.80	$96.51
10-1137-NP24	10	11,928	1.095	5.347	3.979	0.099	$260.87	$21.50	$13.38	$58.74	$50.58	$144.19	$116.68
10-1137-NP26	10	12,154	0.953	4.502	3.339	0.107	$220.26	$32.85	$13.38	$49.45	$45.14	$140.82	$79.43
10-1137-NP28	10	6,768	1.244	5.268	3.359	0.276	$232.53	$20.42	$13.38	$50.84	$45.84	$130.47	$102.06
10-1137-NP30	10	2,382	1.671	5.900	4.059	0.355	$285.53	$20.43	$13.38	$61.57	$52.05	$147.43	$138.11
10-1137-NP34	10	5,303	2.271	7.988	5.671	0.164	$390.83	$20.42	$13.38	$83.94	$65.21	$182.95	$207.87
10-1137-NP52	10	4,182	0.855	4.383	3.166	0.501	$215.31	$20.43	$13.38	$49.38	$44.89	$128.08	$87.23
10-1152-NP20	10	11,854	0.733	3.803	2.429	0.131	$162.49	$21.58	$13.38	$36.31	$37.45	$108.72	$53.77
10-1152-NP22	10	22,081	0.871	4.907	2.877	0.108	$191.80	$25.34	$13.38	$42.71	$41.20	$122.63	$69.17
10-1152-NP26	10	34,733	0.990	5.006	3.260	0.202	$218.69	$24.21	$13.38	$48.89	$44.76	$131.24	$87.45
10-1152-NP28	10	32,874	1.210	5.134	2.955	0.381	$210.41	$20.81	$13.38	$45.60	$42.71	$122.50	$87.91
10-1152-NP30	10	13,838	1.476	5.570	3.541	0.294	$249.49	$20.42	$13.38	$53.63	$47.44	$134.87	$114.62
10-1152-NP34	10	5,307	3.057	10.808	7.337	0.138	$507.53	$20.42	$13.38	$108.16	$79.35	$221.31	$286.22
10-1171-NP20	10	21,863	0.602	3.865	2.141	0.076	$141.53	$20.97	$13.38	$31.75	$34.82	$100.91	$40.62
10-1171-NP22	10	30,231	0.937	6.142	3.066	0.193	$206.51	$20.88	$13.38	$46.02	$43.07	$123.35	$83.16
10-1171-NP26	10	30,799	1.845	7.633	4.846	0.267	$334.26	$20.42	$13.38	$72.51	$58.49	$164.80	$169.45
10-1171-NP30	10	20,287	2.088	7.739	5.400	0.142	$370.03	$20.42	$13.38	$79.84	$62.84	$176.47	$193.55
10-1171-NP34	10	11,925	2.718	9.720	6.550	0.137	$453.10	$20.42	$13.38	$96.64	$72.63	$203.08	$250.02
10-1171-NP44	10	12,736	3.170	16.057	9.216	0.265	$622.88	$21.43	$13.38	$136.37	$95.77	$266.95	$355.93
10-1171-NP46	10	12,340	1.359	8.058	4.143	0.713	$290.07	$20.97	$13.38	$65.02	$53.88	$153.26	$136.81
10-1171-NP48	10	4,386	0.764	4.392	2.190	0.895	$164.54	$20.42	$13.38	$37.63	$37.78	$109.21	$55.33

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
10-1190-NP22	10	33,454	1.117	6.766	3.808	0.240	$254.91	$21.66	$13.38	$57.14	$49.55	$141.73	$113.18
10-1190-NP26	10	31,387	1.693	7.271	4.484	0.222	$308.54	$20.42	$13.38	$66.95	$55.26	$156.01	$152.54
10-1190-NP30	10	24,541	2.072	8.181	5.745	0.170	$390.13	$20.42	$13.38	$85.04	$65.87	$184.70	$205.42
10-1190-NP34	10	20,228	1.895	9.706	6.353	0.216	$421.91	$20.42	$13.38	$94.17	$71.19	$199.16	$222.75
10-1190-NP44	10	7,724	1.799	7.941	4.152	0.715	$302.02	$20.42	$13.38	$65.22	$53.97	$152.99	$149.02
10-1190-NP46	10	5,136	0.833	3.534	1.959	1.470	$163.77	$20.41	$13.38	$37.87	$37.60	$109.26	$54.51
10-1208-NP22	10	33,660	1.246	6.887	3.733	0.231	$253.85	$21.28	$13.38	$56.01	$48.89	$139.55	$114.30
10-1208-NP44	10	3,235	0.854	3.069	1.502	1.400	$136.55	$20.43	$13.38	$30.77	$33.48	$98.06	$38.49
10-1278-NP26	10	2,700	1.737	10.122	2.992	0.906	$238.45	$20.41	$13.38	$49.54	$44.66	$127.99	$110.46
10-1278-NP28	10	5,363	2.184	11.579	4.440	0.670	$329.21	$31.52	$13.38	$69.21	$56.28	$170.38	$158.83
10-1278-NP30	10	7,295	1.890	10.757	4.682	0.477	$331.40	$31.15	$13.38	$71.49	$57.75	$173.76	$157.64
10-1278-NP32	10	12,197	1.273	7.335	3.481	0.192	$239.54	$33.43	$13.38	$52.10	$46.61	$145.53	$94.01
10-1278-NP34	10	13,588	0.991	6.405	3.229	0.108	$215.77	$36.21	$13.38	$47.87	$44.21	$141.67	$74.10
10-1278-NP36	10	12,582	1.242	7.189	3.400	0.128	$232.81	$27.38	$13.38	$50.52	$45.72	$137.01	$95.80
10-1278-NP38	10	12,424	1.980	10.370	5.120	0.346	$356.19	$41.70	$13.38	$77.05	$61.08	$193.21	$162.99
10-1278-NP40	10	12,317	2.394	10.177	5.229	0.474	$375.61	$38.66	$13.38	$79.49	$62.41	$193.95	$181.66
10-1278-NP42	10	11,998	2.688	10.214	4.484	0.429	$339.60	$37.72	$13.38	$68.38	$55.90	$175.39	$164.21
10-1278-NP44	10	9,146	2.634	10.361	4.190	0.772	$328.02	$36.76	$13.38	$66.26	$54.47	$170.87	$157.15
10-1278-NP46	10	7,427	2.420	11.396	4.329	1.179	$338.68	$37.94	$13.38	$70.81	$56.91	$179.04	$159.64
10-1278-NP48	10	6,555	2.067	8.934	3.102	0.984	$254.36	$38.41	$13.38	$51.66	$45.84	$149.29	$105.07
10-1295-NP20	10	804	1.177	16.156	1.219	2.325	$152.09	$35.28	$13.38	$32.62	$33.94	$115.21	$36.88
10-1295-NP22	10	3,174	2.217	14.179	2.746	1.190	$244.04	$51.54	$13.38	$47.84	$43.44	$156.21	$87.84
10-1295-NP24	10	6,117	2.160	11.189	3.340	0.594	$263.90	$22.53	$13.38	$52.72	$46.66	$135.29	$128.61
10-1295-NP26	10	9,837	1.761	10.477	4.040	0.449	$290.59	$20.42	$13.38	$61.95	$52.18	$147.93	$142.66
10-1295-NP28	10	6,643	1.572	9.924	3.924	0.480	$279.39	$30.02	$13.38	$60.42	$51.29	$155.11	$124.28
10-1312-NP18	10	6,007	1.270	12.554	1.543	1.299	$151.85	$27.38	$13.38	$30.89	$33.52	$105.17	$46.68
10-1312-NP20	10	15,006	2.190	14.051	3.948	0.788	$304.51	$21.28	$13.38	$62.82	$52.45	$149.93	$154.58
10-1312-NP22	10	22,873	2.245	12.368	4.298	0.462	$319.03	$24.50	$13.38	$65.86	$54.43	$158.17	$160.86
10-1312-NP24	10	13,630	1.948	12.045	4.296	0.405	$309.94	$21.36	$13.38	$65.43	$54.23	$154.41	$155.53
10-1312-NP26	10	17,514	1.915	9.681	3.983	0.559	$293.05	$23.03	$13.38	$61.81	$52.03	$150.25	$142.80
10-1312-NP28	10	16,137	1.854	10.641	4.077	0.548	$297.06	$21.21	$13.38	$63.11	$52.80	$150.51	$146.55
10-1312-NP30	10	3,855	1.481	9.678	3.606	0.391	$256.95	$57.74	$13.38	$55.22	$48.30	$174.65	$82.31
10-1312-NP32	10	5,328	1.103	6.535	2.505	0.216	$179.25	$49.80	$13.38	$38.01	$38.36	$139.55	$39.70
10-1329-NP18	10	17,128	2.468	11.073	2.752	0.377	$233.96	$21.17	$13.38	$42.83	$40.97	$118.35	$115.61
10-1329-NP22	10	19,725	1.916	10.371	4.643	0.383	$327.88	$24.80	$13.38	$70.33	$57.12	$165.63	$162.25
10-1329-NP24	10	14,376	1.367	8.494	3.172	0.406	$228.92	$21.31	$13.38	$48.98	$44.65	$128.32	$100.60
10-1329-NP26	10	19,383	1.152	5.334	2.120	0.460	$162.64	$32.30	$13.38	$33.94	$35.83	$115.45	$47.19
10-1329-NP28	10	14,763	1.446	8.559	3.237	0.589	$238.18	$21.29	$13.38	$51.07	$45.76	$131.50	$106.68
10-1329-NP30	10	17,839	1.163	7.635	2.665	0.402	$194.09	$26.64	$13.38	$41.54	$40.31	$121.86	$72.23
10-1329-NP32	10	22,104	1.291	5.337	1.558	0.833	$141.19	$27.03	$13.38	$28.11	$32.20	$100.71	$40.48
10-1346-NP18	10	22,859	2.563	8.766	2.985	0.449	$250.17	$20.42	$13.38	$46.66	$43.18	$123.64	$126.53
10-1346-NP22	10	23,250	2.095	10.060	3.990	0.609	$299.29	$20.97	$13.38	$62.26	$52.25	$148.86	$150.43
10-1346-NP26	10	15,818	0.933	5.558	2.035	0.416	$151.36	$24.81	$13.38	$32.41	$34.98	$105.57	$45.79
10-1346-NP28	10	16,900	1.155	7.334	2.473	0.661	$187.70	$21.24	$13.38	$40.36	$39.47	$114.45	$73.25
10-1346-NP30	10	16,225	1.001	5.585	1.371	1.141	$128.98	$30.69	$13.38	$27.29	$31.56	$102.91	$26.06
10-1346-NP32	10	21,956	1.476	5.773	1.234	1.039	$131.58	$24.13	$13.38	$24.71	$30.07	$92.30	$39.29
10-1363-NP24	10	10,248	1.312	7.143	2.292	0.759	$183.19	$23.92	$13.38	$38.35	$38.23	$113.88	$69.31
10-1363-NP26	10	11,651	0.988	6.080	1.889	1.002	$155.89	$23.49	$13.38	$33.96	$35.55	$106.38	$49.50
10-1363-NP28	10	12,212	1.298	4.771	0.694	1.538	$105.13	$24.37	$13.38	$19.94	$27.01	$84.71	$20.43
10-1363-NP30	10	17,760	2.681	5.353	0.880	0.871	$139.18	$21.30	$13.38	$18.65	$26.53	$79.86	$59.32
10-1363-NP32	10	17,091	2.800	7.736	1.973	0.782	$204.24	$28.21	$13.38	$34.03	$35.58	$111.19	$93.05
10-1380-NP28	10	8,714	4.127	5.614	0.938	0.576	$174.51	$21.89	$13.38	$17.82	$26.11	$79.21	$95.31
10-1380-NP30	10	12,428	3.384	5.015	1.122	0.268	$159.59	$27.73	$13.38	$18.47	$26.73	$86.31	$73.28
10-1380-NP32	10	25,415	1.973	4.848	1.152	0.431	$127.69	$25.09	$13.38	$19.75	$27.48	$85.70	$41.99
10-1395-NP28	10	3,601	2.212	5.314	1.232	0.378	$137.63	$20.42	$13.38	$20.61	$28.00	$82.41	$55.22
10-1395-NP30	10	4,389	1.833	5.238	1.326	0.322	$132.11	$20.42	$13.38	$21.59	$28.63	$84.02	$48.10
10-1395-NP32	10	5,583	2.766	6.139	1.238	0.635	$157.70	$71.89	$13.38	$22.39	$28.85	$136.52	$21.18
15-1040-NP28	15	1,182	0.165	3.014	2.203	0.129	$134.41	$35.03	$13.38	$32.93	$35.51	$116.86	$17.56
15-1040-NP34	15	1,090	0.068	3.454	2.059	0.056	$122.43	$35.54	$13.38	$30.37	$34.06	$113.35	$9.08
15-1040-NP40	15	1,693	0.201	3.493	2.765	0.144	$168.06	$60.09	$13.38	$41.22	$40.36	$155.05	$13.01
15-1040-NP42	15	3,685	0.242	5.066	3.365	0.186	$204.99	$58.50	$13.38	$50.23	$45.60	$167.71	$37.28
15-1040-NP44	15	2,964	0.244	5.875	3.219	0.159	$196.52	$64.08	$13.38	$47.94	$44.27	$169.67	$26.85
15-1107-NP38	15	1,770	0.330	1.920	1.551	0.032	$98.97	$20.43	$13.38	$22.84	$29.65	$86.31	$12.67
15-1107-NP40	15	2,651	0.325	2.194	1.913	0.043	$119.92	$20.42	$13.38	$28.18	$32.77	$94.75	$25.17
15-1107-NP42	15	1,538	0.263	2.244	2.089	0.070	$128.94	$20.43	$13.38	$30.91	$34.36	$99.08	$29.87
15-1107-NP52	15	2,386	0.223	2.291	1.587	0.064	$99.05	$20.43	$13.38	$23.56	$30.06	$87.42	$11.62
15-1107-NP54	15	2,739	0.206	2.714	1.730	0.065	$106.99	$20.43	$13.38	$25.64	$31.28	$90.73	$16.26
15-1122-NP56	15	3,402	0.140	2.646	1.605	0.070	$98.17	$24.57	$13.38	$23.85	$30.23	$92.04	$6.13
15-1137-NP34	15	1,935	0.337	2.433	1.350	0.068	$88.50	$20.42	$13.38	$20.14	$28.04	$81.98	$6.52
15-1137-NP52	15	4,500	0.267	3.560	2.463	0.076	$151.19	$33.18	$13.38	$36.41	$37.57	$120.53	$30.66
15-1171-NP30	15	3,290	0.318	2.721	1.648	0.059	$105.11	$20.42	$13.38	$24.43	$30.56	$88.79	$16.32

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
15-1171-NP34	15	7,525	0.548	3.493	2.120	0.052	$138.31	$23.74	$13.38	$31.28	$34.56	$102.96	$35.34
15-1171-NP44	15	7,719	0.286	2.961	2.298	0.060	$141.68	$20.42	$13.38	$33.90	$36.11	$103.82	$37.86
15-1171-NP46	15	9,758	0.310	4.097	2.843	0.083	$174.44	$24.23	$13.38	$41.99	$40.83	$120.42	$54.01
15-1171-NP48	15	9,554	0.286	4.364	2.893	0.082	$176.84	$26.27	$13.38	$42.72	$41.26	$123.63	$53.21
15-1171-NP50	15	7,302	0.228	4.046	2.681	0.071	$162.76	$31.46	$13.38	$39.54	$39.41	$123.79	$38.98
15-1171-NP52	15	9,083	0.155	2.904	1.807	0.049	$109.85	$29.47	$13.38	$26.66	$31.89	$101.40	$8.45
15-1190-NP30	15	8,109	0.360	2.832	1.819	0.066	$116.17	$20.42	$13.38	$26.97	$32.04	$92.81	$23.36
15-1190-NP34	15	13,192	0.966	5.192	3.677	0.054	$239.25	$21.39	$13.38	$54.04	$47.86	$136.67	$102.58
15-1190-NP44	15	17,637	0.438	4.242	2.912	0.111	$182.35	$21.15	$13.38	$43.19	$41.51	$119.22	$63.13
15-1190-NP46	15	19,368	0.261	3.883	2.538	0.100	$155.93	$22.32	$13.38	$37.65	$38.28	$111.63	$44.30
15-1190-NP48	15	12,138	0.206	3.737	2.389	0.084	$145.59	$23.82	$13.38	$35.37	$36.96	$109.53	$36.06
15-1208-NP44	15	15,593	0.229	3.075	2.201	0.152	$136.40	$20.42	$13.38	$33.05	$35.57	$102.42	$33.99
15-1208-NP46	15	20,353	0.177	3.306	2.001	0.077	$122.25	$21.05	$13.38	$29.67	$33.63	$97.73	$24.52
15-1208-NP48	15	16,450	0.162	3.143	1.796	0.064	$109.78	$20.42	$13.38	$26.60	$31.84	$92.24	$17.54
15-1278-NP28	15	2,064	0.400	5.887	2.404	0.138	$153.46	$31.58	$13.38	$35.97	$37.26	$118.20	$35.26
15-1278-NP30	15	2,670	0.352	6.183	2.884	0.164	$180.36	$32.38	$13.38	$43.12	$41.43	$130.31	$50.05
15-1278-NP32	15	1,859	0.250	4.407	2.189	0.144	$136.70	$28.27	$13.38	$32.85	$35.44	$109.95	$26.76
15-1278-NP34	15	1,502	0.245	4.183	2.210	0.137	$137.52	$50.63	$13.38	$33.10	$35.59	$132.70	$4.82
15-1278-NP36	15	2,615	0.286	4.268	2.270	0.132	$141.98	$29.24	$13.38	$33.95	$36.09	$112.66	$29.32
15-1278-NP38	15	3,782	0.493	4.595	2.525	0.111	$161.70	$36.96	$13.38	$37.56	$38.20	$126.10	$35.60
15-1278-NP40	15	6,297	0.683	5.213	2.794	0.097	$182.09	$36.86	$13.38	$41.42	$40.46	$132.11	$49.97
15-1278-NP42	15	8,430	0.683	4.971	2.738	0.092	$178.69	$30.97	$13.38	$40.57	$39.96	$124.89	$53.80
15-1278-NP44	15	8,265	0.483	3.676	2.035	0.091	$132.62	$34.53	$13.38	$30.30	$33.97	$112.18	$20.45
15-1278-NP46	15	10,162	0.389	3.846	2.049	0.139	$131.94	$32.30	$13.38	$30.78	$34.23	$110.69	$21.24
15-1278-NP48	15	12,510	0.424	3.860	2.065	0.140	$133.79	$31.45	$13.38	$31.03	$34.37	$110.23	$23.56
15-1278-NP50	15	6,631	0.362	3.287	1.854	0.091	$118.88	$20.42	$13.38	$27.64	$32.42	$93.85	$25.03
15-1295-NP26	15	945	0.453	5.793	2.327	0.118	$149.95	$20.43	$13.38	$34.72	$36.53	$105.07	$44.88
15-1295-NP28	15	2,382	0.374	5.449	2.158	0.119	$138.12	$20.43	$13.38	$32.26	$35.10	$101.17	$36.95
15-1312-NP26	15	4,958	0.288	3.979	1.587	0.212	$104.26	$26.71	$13.38	$24.50	$30.51	$95.10	$9.16
15-1312-NP28	15	7,339	0.242	3.755	1.464	0.143	$94.64	$20.42	$13.38	$22.28	$29.26	$85.34	$9.30
15-1312-NP30	15	2,121	0.304	4.180	1.921	0.139	$122.53	$20.44	$13.38	$28.92	$33.14	$95.87	$26.66
15-1312-NP32	15	2,429	0.270	4.003	1.963	0.131	$123.81	$20.42	$13.38	$29.47	$33.47	$96.74	$27.07
15-1329-NP24	15	2,403	0.372	3.489	1.374	0.134	$92.50	$25.58	$13.38	$20.91	$28.45	$88.32	$4.18
15-1329-NP26	15	6,493	0.307	3.149	1.314	0.225	$88.99	$22.33	$13.38	$20.60	$28.22	$84.53	$4.45
15-1329-NP28	15	8,595	0.250	2.955	1.320	0.176	$86.84	$21.91	$13.38	$20.38	$28.12	$83.79	$3.04
15-1329-NP30	15	7,994	0.353	3.677	1.736	0.143	$113.04	$28.77	$13.38	$26.24	$31.57	$99.96	$13.07
15-1329-NP32	15	9,488	0.383	4.332	2.182	0.135	$139.55	$26.47	$13.38	$32.71	$35.36	$107.91	$31.64
15-1346-NP26	15	4,354	0.473	3.371	1.461	0.284	$103.01	$20.42	$13.38	$23.15	$29.67	$86.62	$16.40
20-1040-NP10	20	19,911	1.141	14.220	2.792	1.298	$220.81	$20.42	$13.38	$49.06	$44.17	$127.04	$93.78
20-1040-NP12	20	18,341	0.830	10.402	2.373	0.785	$177.18	$20.42	$13.38	$39.66	$39.00	$112.46	$64.72
20-1040-NP14	20	8,863	0.506	6.789	1.826	0.440	$129.24	$20.42	$13.38	$29.47	$33.26	$96.53	$32.71
20-1055-NP08	20	5,522	1.799	21.029	4.262	0.549	$310.77	$24.64	$13.38	$65.92	$54.39	$158.33	$152.44
20-1055-NP10	20	13,980	1.377	15.642	3.254	0.465	$238.05	$22.59	$13.38	$50.61	$45.53	$132.10	$105.95
20-1055-NP12	20	17,935	0.950	10.297	2.518	0.286	$178.99	$21.28	$13.38	$38.66	$38.69	$112.01	$66.98
20-1055-NP14	20	9,522	0.415	4.796	1.445	0.283	$101.17	$22.05	$13.38	$22.91	$29.53	$87.87	$13.31
20-1070-NP12	20	17,173	0.658	7.891	2.198	0.211	$150.62	$23.68	$13.38	$33.49	$35.73	$106.27	$44.35
20-1070-NP14	20	4,328	0.328	3.180	1.240	0.196	$84.79	$20.42	$13.38	$19.36	$27.51	$80.67	$4.12
20-1082-NP08	20	2,119	1.052	16.162	3.652	0.345	$250.34	$45.20	$13.38	$55.62	$48.55	$162.75	$87.59
20-1082-NP10	20	13,041	0.643	9.097	2.428	0.183	$163.40	$45.23	$13.38	$36.67	$37.60	$132.88	$30.52
20-1107-NP24	20	5,071	0.792	10.202	1.644	0.557	$129.93	$20.42	$13.38	$27.62	$32.07	$93.49	$36.44
20-1107-NP26	20	9,352	0.516	7.277	1.371	0.499	$104.72	$20.42	$13.38	$23.22	$29.56	$86.57	$18.15
20-1107-NP28	20	7,524	0.263	3.742	1.326	0.387	$91.89	$22.11	$13.38	$21.79	$28.83	$86.11	$5.78
20-1107-NP30	20	2,836	0.182	2.148	1.369	0.082	$85.72	$20.41	$13.38	$20.48	$28.25	$82.52	$3.20
20-1122-NP24	20	1,775	1.083	11.609	2.522	0.525	$187.85	$20.43	$13.38	$40.25	$39.47	$113.53	$74.32
20-1122-NP26	20	959	0.905	8.186	2.068	0.555	$156.30	$20.43	$13.38	$33.77	$35.69	$103.27	$53.04
20-1137-NP22	20	5,261	1.167	15.453	3.322	0.197	$231.27	$20.41	$13.38	$49.90	$45.28	$128.97	$102.30
20-1137-NP24	20	22,432	1.118	12.349	2.829	0.397	$204.19	$20.99	$13.38	$43.92	$41.68	$119.98	$84.21
20-1137-NP26	20	6,042	0.645	5.280	1.178	0.556	$97.31	$20.42	$13.38	$20.77	$28.10	$82.67	$14.63
20-1171-NP22	20	9,801	1.257	16.649	2.523	0.451	$193.15	$20.42	$13.38	$39.87	$39.24	$112.92	$80.24
20-1190-NP22	20	10,425	0.981	10.152	0.999	0.604	$98.75	$23.18	$13.38	$18.55	$26.72	$81.83	$16.93
20-1208-NP22	20	4,016	1.021	9.520	0.287	1.134	$68.88	$20.42	$13.38	$11.50	$22.29	$67.59	$1.29
20-1278-NP28	20	2,378	0.838	7.208	1.423	0.245	$111.17	$33.46	$13.38	$22.42	$29.22	$98.47	$12.70
20-1295-NP22	20	370	1.080	8.667	0.993	0.617	$100.61	$20.41	$13.38	$18.54	$26.71	$79.04	$21.57
20-1312-NP20	20	5,133	1.300	10.847	1.700	0.609	$147.64	$20.41	$13.38	$28.83	$32.72	$95.34	$52.30
20-1312-NP22	20	11,165	0.912	7.085	0.778	0.500	$80.93	$20.42	$13.38	$14.63	$24.50	$72.93	$8.00
20-1312-NP24	20	9,381	0.597	5.465	0.946	0.440	$80.56	$20.42	$13.38	$16.65	$25.75	$76.21	$4.36
30-1015-NP08	30	1,154	2.492	43.121	3.716	6.007	$411.84	$20.45	$13.38	$92.48	$66.69	$193.00	$218.84
30-1015-NP10	30	3,190	1.864	30.215	2.825	4.810	$315.90	$165.03	$13.38	$71.81	$55.37	$305.59	$10.31
30-1040-NP08	30	8,202	2.630	35.050	3.921	5.123	$406.70	$31.28	$13.38	$89.86	$65.69	$200.20	$206.50
30-1040-NP10	30	14,882	3.046	40.079	4.990	3.642	$452.54	$21.28	$13.38	$96.24	$70.21	$201.12	$251.42
30-1040-NP12	30	235	3.251	45.946	4.070	5.953	$452.05	$75.02	$13.38	$97.42	$69.54	$255.36	$196.69
30-1055-NP02	30	2,813	2.819	44.984	2.704	6.721	$376.80	$45.91	$13.38	$82.28	$60.27	$201.84	$174.96
30-1055-NP04	30	2,766	2.042	42.095	2.582	8.531	$383.20	$47.96	$13.38	$91.73	$64.85	$217.92	$165.28
30-1055-NP06	30	3,760	3.067	39.556	4.807	7.688	$520.12	$20.42	$13.38	$118.93	$81.21	$233.95	$286.18
30-1055-NP08	30	17,426	3.069	41.988	5.408	6.516	$533.14	$21.16	$13.38	$120.36	$82.70	$237.60	$295.55
30-1055-NP10	30	8,773	4.444	52.823	6.105	6.695	$616.95	$21.89	$13.38	$131.90	$89.21	$256.38	$360.57
30-1055-NP12	30	1,027	3.056	50.385	4.029	6.663	$460.16	$32.89	$13.38	$101.29	$71.39	$218.95	$241.20
30-1070-NP00	30	5,971	3.247	48.386	2.791	7.160	$402.82	$51.63	$13.38	$86.38	$62.37	$213.76	$189.06
30-1070-NP02	30	7,074	3.120	47.045	3.039	6.496	$400.38	$50.27	$13.38	$85.80	$62.42	$211.87	$188.52
30-1070-NP04	30	3,252	2.734	44.086	2.862	8.078	$409.36	$52.44	$13.38	$93.07	$65.83	$224.72	$184.64

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
30-1070-NP06	30	7,568	3.637	42.850	4.768	9.088	$561.02	$31.26	$13.38	$127.24	$85.23	$257.12	$303.90
30-1070-NP12	30	1,426	2.888	61.984	4.505	6.588	$486.61	$20.43	$13.38	$107.84	$75.22	$216.87	$269.74
30-1082-NP00	30	9,948	3.237	46.257	2.967	6.270	$394.64	$47.85	$13.38	$83.35	$61.11	$205.69	$188.95
30-1082-NP-01	30	5,189	3.179	46.301	2.780	6.378	$384.51	$49.03	$13.38	$81.29	$59.85	$203.56	$180.96
30-1082-NP02	30	9,150	3.435	48.027	3.554	6.339	$435.50	$48.06	$13.38	$92.36	$66.33	$220.13	$215.37
30-1082-NP04	30	3,402	3.300	41.807	3.695	6.510	$440.74	$49.57	$13.38	$95.41	$68.07	$226.43	$214.31
30-1082-NP08	30	6,694	3.198	46.785	6.224	5.457	$565.00	$45.83	$13.38	$125.66	$86.37	$271.24	$293.76
30-1082-NP10	30	3,477	3.292	48.701	6.542	6.063	$598.16	$45.80	$13.38	$134.12	$90.97	$284.27	$313.89
30-1107-NP15	30	4,276	2.851	47.891	3.399	6.502	$414.56	$43.13	$13.38	$91.06	$65.52	$213.10	$201.46
30-1107-NP16	30	5,264	2.781	45.724	3.673	6.707	$431.46	$56.87	$13.38	$96.31	$68.49	$235.05	$196.41
30-1107-NP18	30	1,885	2.729	38.770	2.974	6.444	$381.97	$72.09	$13.38	$84.40	$61.71	$231.58	$150.39
30-1107-NP20	30	2,220	2.774	37.693	3.131	5.341	$370.47	$20.41	$13.38	$79.77	$59.63	$173.19	$197.29
30-1107-NP22	30	4,723	3.594	53.245	5.927	5.274	$557.48	$20.42	$13.38	$120.30	$83.27	$237.37	$320.11
30-1107-NP24	30	5,406	3.924	56.489	7.650	7.582	$710.68	$30.71	$13.38	$159.93	$105.15	$309.17	$401.51
30-1107-NP26	30	888	2.275	53.280	3.612	9.591	$473.46	$20.39	$13.38	$113.50	$76.93	$224.21	$249.25
30-1122-NP16	30	1,040	1.359	22.852	3.091	4.695	$312.69	$20.45	$13.38	$74.83	$57.28	$165.94	$146.75
30-1122-NP18	30	1,074	1.950	21.550	3.204	5.564	$350.64	$20.43	$13.38	$81.97	$60.94	$176.72	$173.91
30-1137-NP14	30	2,018	2.664	59.028	3.401	8.772	$458.24	$20.43	$13.38	$105.41	$72.59	$211.82	$246.42
30-1137-NP20	30	17,486	3.762	49.703	6.529	6.115	$611.06	$22.10	$13.38	$134.33	$91.02	$260.82	$350.24
30-1137-NP22	30	14,744	2.888	44.005	4.495	6.960	$485.49	$25.35	$13.38	$109.85	$76.29	$224.87	$260.62
30-1137-NP24	30	3,789	2.326	40.041	1.970	9.878	$380.51	$20.41	$13.38	$91.29	$63.82	$188.90	$191.61
30-1152-NP10	30	2,792	3.767	66.289	4.324	6.675	$502.57	$25.02	$13.38	$105.89	$73.95	$218.24	$284.33
30-1152-NP12	30	10,433	2.803	65.998	3.209	6.375	$407.70	$21.65	$13.38	$87.67	$63.50	$186.20	$221.50
30-1152-NP14	30	15,710	2.671	51.927	3.256	8.051	$433.16	$21.24	$13.38	$98.71	$69.11	$202.43	$230.73
30-1152-NP15	30	23,853	1.911	24.113	2.835	3.847	$296.51	$20.96	$13.38	$65.85	$52.45	$152.64	$143.87
30-1152-NP20	30	21,334	3.995	49.566	5.203	6.687	$551.97	$20.42	$13.38	$118.63	$81.48	$233.91	$318.06
30-1171-NP12	30	25,612	3.712	74.084	4.054	8.075	$515.91	$20.89	$13.38	$110.81	$75.99	$221.07	$294.84
30-1171-NP15	30	35,594	2.269	24.905	3.241	3.283	$318.60	$20.75	$13.38	$68.28	$54.17	$156.58	$162.03
30-1190-NP15	30	30,653	3.010	33.803	4.861	3.673	$442.08	$20.42	$13.38	$94.48	$69.20	$197.49	$244.60
30-1190-NP22	30	4,227	2.632	63.163	1.007	17.240	$484.65	$20.42	$13.38	$123.67	$78.46	$235.94	$248.71
30-1208-NP22	30	5,453	2.013	62.017	0.550	14.155	$382.54	$25.70	$13.38	$97.60	$64.98	$201.66	$180.88
30-1208-NP24	30	2,532	1.398	54.561	0.307	12.929	$325.89	$30.76	$13.38	$86.23	$59.10	$189.48	$136.41
30-1208-NP26	30	882	1.033	41.010	0.649	8.273	$240.70	$28.99	$13.38	$61.84	$47.56	$151.77	$88.93
30-1227-NP02	30	1,863	1.789	50.806	2.812	4.726	$320.35	$43.67	$13.38	$71.27	$54.99	$183.31	$137.04
30-1227-NP26	30	5,484	0.691	14.187	0.543	3.831	$128.84	$22.76	$13.38	$32.15	$32.85	$101.14	$27.70
30-1227-NP28	30	2,161	0.620	38.908	0.361	5.993	$168.66	$26.37	$13.38	$43.28	$38.01	$121.04	$47.63
30-1242-NP01	30	1,871	3.223	77.432	3.339	7.861	$459.56	$48.07	$13.38	$99.04	$69.23	$229.73	$229.83
30-1242-NP02	30	3,813	2.847	95.377	4.006	9.461	$526.47	$34.92	$13.38	$118.91	$79.89	$247.10	$279.37
30-1262-NP00	30	3,990	4.024	80.514	3.172	7.228	$459.91	$32.55	$13.38	$92.76	$65.84	$204.53	$255.38
30-1262-NP01	30	7,864	3.445	90.324	3.300	9.121	$492.82	$26.73	$13.38	$106.52	$72.81	$219.45	$273.37
30-1278-NP10	30	1,198	3.889	62.199	3.085	4.653	$394.05	$26.84	$13.38	$75.15	$57.09	$172.47	$221.58
30-1278-NP12	30	5,684	4.678	87.650	3.324	9.204	$526.68	$22.81	$13.38	$107.52	$73.28	$216.98	$309.70
30-1278-NP14	30	9,234	3.671	8.664	2.814	10.421	$460.88	$30.46	$13.38	$106.83	$72.70	$223.37	$237.51
30-1278-NP16	30	15,993	3.661	68.133	2.045	10.340	$440.40	$25.49	$13.38	$95.70	$65.89	$200.46	$239.94
30-1278-NP18	30	15,873	4.139	50.098	2.015	11.137	$458.68	$24.96	$13.38	$100.14	$68.11	$206.58	$252.10
30-1278-NP20	30	15,490	3.353	42.433	2.272	7.714	$383.90	$21.13	$13.38	$82.25	$59.67	$176.43	$207.47
30-1278-NP22	30	15,497	2.921	34.403	2.467	5.647	$340.70	$25.53	$13.38	$72.01	$54.91	$165.83	$174.86
30-1278-NP24	30	17,142	3.050	33.628	1.674	5.996	$304.95	$28.91	$13.38	$62.66	$49.23	$154.17	$150.78
30-1278-NP26	30	10,442	1.537	17.655	0.514	4.298	$159.58	$35.12	$13.38	$34.78	$34.05	$117.33	$42.25
30-1278-NP28	30	7,996	1.554	42.905	0.362	10.758	$286.39	$48.26	$13.38	$73.33	$52.83	$187.80	$98.59
30-1278-NP30	30	7,117	1.785	68.491	0.566	16.210	$419.82	$52.05	$13.38	$110.75	$71.50	$247.68	$172.13
30-1278-NP32	30	7,606	1.497	43.917	0.409	11.547	$303.20	$48.35	$13.38	$78.96	$55.68	$196.38	$106.82
30-1295-NP10	30	2,474	3.655	69.156	2.519	5.437	$373.54	$48.40	$13.38	$71.86	$54.70	$188.34	$185.21
30-1295-NP12	30	7,586	3.515	78.383	2.165	11.234	$465.04	$22.12	$13.38	$103.13	$69.69	$208.32	$256.72
30-1295-NP14	30	14,579	3.346	59.591	1.433	10.663	$399.66	$25.04	$13.38	$88.70	$61.67	$188.80	$210.87
30-1295-NP16	30	16,267	4.043	47.922	1.639	10.500	$421.47	$21.21	$13.38	$90.65	$62.92	$188.16	$233.32
30-1295-NP18	30	28,415	3.685	37.934	1.974	7.365	$366.81	$20.42	$13.38	$75.72	$56.04	$165.57	$201.25
30-1295-NP20	30	40,565	2.950	31.074	1.798	3.630	$262.85	$20.74	$13.38	$49.58	$42.93	$126.63	$136.22
30-1295-NP22	30	11,242	4.145	39.302	1.662	3.761	$292.11	$26.73	$13.38	$48.65	$42.18	$130.93	$161.18
30-1295-NP24	30	6,930	3.617	73.320	0.848	7.571	$319.58	$20.42	$13.38	$60.96	$47.08	$141.84	$177.74
30-1312-NP08	30	1,488	4.197	7.679	2.794	6.359	$394.87	$20.41	$13.38	$81.12	$59.91	$174.82	$220.05
30-1312-NP10	30	8,459	3.790	81.777	2.469	8.432	$437.18	$21.94	$13.38	$90.05	$63.58	$188.95	$248.23
30-1312-NP14	30	43,830	3.551	53.734	1.468	11.226	$415.30	$21.94	$13.38	$92.70	$63.72	$191.73	$223.56
30-1312-NP16	30	31,805	4.440	42.591	2.034	8.252	$408.91	$20.42	$13.38	$82.29	$59.31	$175.40	$233.52
30-1312-NP18	30	32,116	3.111	25.416	2.244	3.111	$280.20	$22.64	$13.38	$52.79	$45.13	$133.94	$146.27
30-1312-NP20	30	16,693	2.768	25.188	1.259	3.427	$220.78	$20.42	$13.38	$40.39	$37.70	$111.89	$108.89
30-1312-NP22	30	17,115	4.525	61.457	0.927	7.623	$343.60	$24.60	$13.38	$62.42	$47.91	$148.31	$195.28
30-1312-NP24	30	13,720	3.184	69.113	0.497	9.633	$326.02	$21.35	$13.38	$68.68	$50.48	$153.90	$172.12
30-1312-NP26	30	3,906	2.389	47.480	0.246	10.100	$290.69	$23.70	$13.38	$67.65	$49.79	$154.53	$136.16
30-1312-NP28	30	2,324	2.786	70.292	0.448	9.861	$317.78	$20.41	$13.38	$69.37	$50.78	$153.94	$163.84
30-1312-NP30	30	426	2.942	89.444	0.781	11.324	$377.22	$20.50	$13.38	$83.59	$58.16	$175.62	$201.61
30-1329-NP10	30	19,817	2.866	86.551	1.872	11.621	$442.34	$21.07	$13.38	$101.30	$68.39	$204.14	$238.19
30-1329-NP14	30	45,444	3.640	40.179	1.413	10.526	$395.21	$20.70	$13.38	$87.39	$61.07	$182.55	$212.66
30-1329-NP18	30	24,739	3.803	28.696	2.827	2.963	$330.22	$20.42	$13.38	$60.47	$49.65	$143.91	$186.30
30-1329-NP20	30	16,730	2.993	46.735	0.754	7.438	$284.04	$21.19	$13.38	$58.42	$45.86	$138.85	$145.19
30-1329-NP22	30	18,574	4.609	89.077	0.702	13.625	$460.12	$24.68	$13.38	$97.06	$64.64	$199.76	$260.36
30-1329-NP24	30	10,279	4.123	66.268	0.395	13.568	$419.03	$21.67	$13.38	$91.96	$61.84	$188.85	$230.19
30-1346-NP14	30	35,808	4.376	29.743	1.960	6.651	$366.72	$20.42	$13.38	$71.04	$53.70	$158.55	$208.17
30-1346-NP18	30	14,213	2.996	32.234	1.308	5.912	$280.33	$20.42	$13.38	$56.78	$45.84	$136.42	$143.91
30-1346-NP22	30	18,619	2.095	59.397	0.401	13.931	$370.71	$21.11	$13.38	$94.01	$63.01	$191.51	$179.20

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
30-1346-NP24	30	12,828	2.563	66.117	0.546	16.905	$451.24	$21.42	$13.38	$114.88	$73.49	$223.17	$228.07
30-1346-NP26	30	7,403	3.162	61.497	0.449	16.051	$442.83	$22.15	$13.38	$108.14	$70.01	$213.69	$229.14
30-1346-NP28	30	1,138	3.508	70.770	0.221	15.093	$424.33	$31.69	$13.38	$98.96	$65.09	$209.12	$215.21
30-1363-NP26	30	14,004	2.570	69.003	0.220	11.049	$321.39	$21.40	$13.38	$73.46	$52.52	$160.77	$160.62
30-1363-NP28	30	5,874	2.695	80.402	0.175	11.478	$335.16	$22.77	$13.38	$75.61	$53.47	$165.23	$169.93
30-1363-NP30	30	3,177	1.248	24.066	0.269	6.684	$186.71	$24.75	$13.38	$46.21	$39.38	$123.72	$62.99
30-1439-NP06 FW	30	736	3.136	79.410	1.226	8.087	$341.28	$20.41	$13.38	$69.70	$51.90	$155.39	$185.89
30-1439-NP08 FW	30	8,803	2.851	83.512	0.808	13.372	$413.29	$21.88	$13.38	$96.76	$64.76	$196.78	$216.51
30-1439-NP10 FW	30	12,259	3.226	84.522	0.539	16.533	$468.79	$23.15	$13.38	$112.71	$72.28	$221.51	$247.28
30-1439-NP12 FW	30	12,927	4.485	73.847	0.619	12.107	$416.43	$24.60	$13.38	$86.18	$59.21	$183.37	$233.06
30-1439-NP14 FW	30	16,246	6.821	54.267	1.144	8.421	$427.98	$23.74	$13.38	$70.79	$52.24	$160.16	$267.82
30-1439-NP16 FW	30	17,143	3.214	37.592	1.029	9.358	$338.57	$32.15	$13.38	$74.41	$54.17	$174.11	$164.46
30-1439-NP18 FW	30	11,516	2.811	34.483	0.785	10.759	$339.72	$38.62	$13.38	$79.56	$56.44	$188.00	$151.73
30-1439-NP20 FW	30	9,280	2.044	40.948	0.506	11.565	$322.01	$42.35	$13.38	$80.51	$56.56	$192.80	$129.21
30-1439-NP22 FW	30	11,097	2.192	52.681	0.542	12.369	$348.42	$39.32	$13.38	$86.22	$59.37	$198.29	$150.13
30-1439-NP24 FW	30	11,930	2.204	57.124	0.472	9.751	$296.25	$38.59	$13.38	$68.82	$50.63	$171.43	$124.82
30-1439-NP26 FW	30	11,600	1.901	45.501	0.249	11.279	$300.00	$37.85	$13.38	$75.00	$53.48	$179.72	$120.29
30-1439-NP28 FW	30	13,950	2.978	58.034	0.267	10.688	$323.05	$34.60	$13.38	$71.82	$51.80	$171.60	$151.45
30-1439-NP30 FW	30	8,037	2.648	76.804	0.225	14.609	$395.44	$29.41	$13.38	$95.93	$63.62	$202.33	$193.11
30-1455-NP06 FW	30	2,151	3.941	91.032	1.519	10.916	$438.36	$100.24	$13.38	$91.91	$63.19	$268.72	$169.65
30-1455-NP08 FW	30	8,293	3.447	78.941	0.749	17.618	$505.10	$46.04	$13.38	$122.55	$77.44	$259.41	$245.68
30-1455-NP10 FW	30	10,925	3.072	74.606	0.504	18.351	$493.52	$39.43	$13.38	$123.49	$77.63	$253.93	$239.60
30-1455-NP12 FW	30	14,681	3.810	66.057	0.624	12.204	$397.71	$36.56	$13.38	$86.70	$59.55	$196.19	$201.52
30-1455-NP14 FW	30	16,499	5.473	39.245	0.712	10.976	$410.91	$43.24	$13.38	$80.22	$56.49	$193.33	$217.58
30-1455-NP16 FW	30	9,322	5.067	46.252	0.816	12.953	$447.31	$43.35	$13.38	$94.14	$63.52	$214.39	$232.91
10-1015-NP-12	10	2,935	1.028	12.665	4.414	0.523	$295.33	$23.68	$13.38	$67.79	$55.60	$160.45	$134.88
10-1015-NP-14	10	2,781	0.984	10.337	4.853	0.629	$320.39	$61.01	$13.38	$74.81	$59.68	$208.88	$111.51
10-1015-NP-16	10	1,520	0.903	8.314	4.102	0.249	$267.10	$96.07	$13.38	$61.48	$52.09	$223.03	$44.07
10-1040-NP 10	10	6,581	0.678	9.256	2.514	0.701	$179.24	$22.37	$13.38	$41.17	$39.94	$116.86	$62.38
10-1040-NP 12	10	14,465	0.931	10.442	3.892	0.615	$263.67	$21.31	$13.38	$60.72	$51.43	$146.85	$116.82
10-1040-NP 14	10	18,478	0.737	7.659	3.417	0.417	$226.41	$24.22	$13.38	$52.52	$46.76	$136.89	$89.52
10-1040-NP 16	10	19,050	0.620	5.098	2.840	0.149	$184.01	$21.09	$13.38	$42.40	$41.01	$117.88	$66.14
10-1040-NP 18	10	11,436	0.460	3.720	2.811	0.106	$176.83	$35.54	$13.38	$41.69	$40.63	$131.25	$45.59
10-1040-NP 20	10	6,226	0.454	3.413	2.224	0.046	$141.68	$53.74	$13.38	$32.75	$35.43	$135.30	$6.38
10-1040-NP 22	10	4,977	0.981	5.077	4.006	0.048	$258.36	$35.54	$13.38	$58.79	$50.65	$158.36	$100.00
10-1040-NP 24	10	5,693	0.951	5.058	4.237	0.048	$270.79	$45.62	$13.38	$62.14	$52.61	$173.76	$97.03
10-1040-NP 26	10	2,637	0.637	4.630	3.501	0.067	$220.64	$35.55	$13.38	$51.52	$46.40	$146.85	$73.80
10-1040-NP 28	10	2,075	0.652	5.981	5.149	0.149	$317.67	$35.53	$13.38	$76.03	$60.71	$185.66	$132.01
10-1040-NP 30	10	4,263	0.832	7.609	6.333	0.158	$391.13	$36.10	$13.38	$93.37	$70.84	$213.69	$177.44
10-1040-NP 32	10	2,394	0.705	7.577	5.247	0.164	$325.67	$36.11	$13.38	$77.58	$61.60	$188.67	$137.00
10-1107-NP20	10	453	0.685	2.791	0.198	5.444	$135.05	$20.46	$13.38	$37.13	$34.92	$105.89	$29.16
10-1107-NP24	10	9,833	0.590	2.697	1.179	1.134	$105.90	$26.12	$13.38	$24.37	$29.90	$93.77	$12.13
10-1107-NP26	10	19,356	0.657	2.763	1.941	0.428	$137.78	$23.64	$13.38	$31.04	$34.20	$102.27	$35.51
10-1107-NP28	10	23,187	0.585	2.299	1.823	0.425	$128.94	$24.92	$13.38	$29.31	$33.20	$100.80	$28.13
10-1107-NP30	10	9,986	0.938	4.038	3.207	0.584	$221.27	$29.18	$13.38	$50.51	$45.50	$138.57	$82.71
10-1107-NP56	10	1,171	0.719	7.927	5.973	0.312	$370.67	$25.27	$13.38	$89.08	$68.25	$195.99	$174.68
10-1107-NP58	10	1,370	0.399	4.982	3.328	0.325	$209.61	$25.04	$13.38	$50.59	$45.72	$134.73	$74.88
10-1107-NP60	10	611	0.239	3.859	2.253	0.288	$142.60	$25.05	$13.38	$34.67	$36.43	$109.54	$33.07
10-1122-NP22	10	5,943	0.556	3.052	1.104	0.904	$96.45	$28.69	$13.38	$21.83	$28.54	$92.45	$4.00
10-1122-NP24	10	5,938	1.297	5.428	3.461	0.220	$238.78	$22.58	$13.38	$51.98	$46.53	$134.47	$104.30
10-1122-NP26	10	19,625	0.948	4.679	3.415	0.161	$225.57	$31.25	$13.38	$50.88	$45.95	$141.46	$84.12
10-1122-NP28	10	27,956	1.012	4.587	3.221	0.134	$215.57	$25.45	$13.38	$47.90	$44.22	$130.95	$84.62
10-1122-NP30	10	19,861	1.460	6.350	4.590	0.189	$307.51	$28.46	$13.38	$68.24	$56.07	$166.15	$141.37
10-1122-NP32	10	8,307	1.480	5.861	4.818	0.156	$320.27	$25.95	$13.38	$71.35	$57.91	$168.59	$151.69
10-1122-NP34	10	5,600	1.767	6.114	5.233	0.149	$351.51	$30.91	$13.38	$77.39	$61.43	$183.11	$168.40
10-1122-NP56	10	5,096	0.540	4.477	3.297	0.671	$217.94	$24.75	$13.38	$52.32	$46.53	$136.98	$80.96
10-1122-NP58	10	4,209	0.355	3.709	2.387	0.453	$156.41	$24.42	$13.38	$37.67	$38.09	$113.56	$42.86
10-1137-NP20	10	7,177	0.647	3.647	1.929	0.543	$139.43	$27.99	$13.38	$31.59	$34.46	$107.42	$32.01
10-1137-NP22	10	3,991	0.809	4.398	2.680	0.170	$179.90	$33.44	$13.38	$40.23	$39.71	$126.76	$53.14
10-1137-NP26	10	10,540	0.938	4.337	2.997	0.153	$201.07	$20.42	$13.38	$44.75	$42.37	$120.91	$80.15
10-1137-NP28	10	15,643	1.174	5.004	3.356	0.164	$228.28	$21.30	$13.38	$50.08	$45.46	$130.22	$98.06
10-1137-NP30	10	20,585	1.675	6.148	4.246	0.234	$294.17	$26.51	$13.38	$63.54	$53.27	$156.69	$137.47
10-1137-NP32	10	26,373	1.704	5.697	4.532	0.167	$309.83	$20.87	$13.38	$67.28	$55.50	$157.03	$152.79
10-1137-NP34	10	14,572	1.887	6.561	4.780	0.134	$328.55	$24.24	$13.38	$70.72	$57.52	$165.86	$162.69
10-1152-NP18	10	1,936	0.591	3.248	1.088	0.928	$96.98	$20.42	$13.38	$21.76	$28.48	$84.04	$12.94
10-1152-NP20	10	4,331	0.850	4.590	2.722	0.175	$183.51	$20.42	$13.38	$40.86	$40.08	$114.75	$68.76
10-1152-NP22	10	2,037	1.022	5.749	3.792	0.108	$248.61	$20.43	$13.38	$56.07	$49.01	$138.88	$109.72
10-1152-NP30	10	24,081	1.598	6.249	4.005	0.217	$278.05	$24.32	$13.38	$59.92	$51.16	$148.78	$129.28
10-1152-NP32	10	30,178	2.106	7.519	5.356	0.161	$368.25	$20.84	$13.38	$79.32	$62.52	$176.06	$192.19
10-1152-NP34	10	13,448	2.901	10.478	7.381	0.189	$506.83	$22.35	$13.38	$109.10	$79.88	$224.71	$282.13
10-1171-NP30	10	4,112	1.648	6.374	4.220	0.138	$290.20	$23.55	$13.38	$62.56	$52.75	$152.23	$137.97
10-1171-NP34	10	2,711	3.261	11.525	7.492	0.153	$522.32	$24.82	$13.38	$110.54	$80.72	$229.46	$292.87
10-1278-NP26	10	2,339	1.641	9.164	3.218	0.514	$241.04	$45.74	$13.38	$50.37	$45.38	$154.86	$86.18
10-1278-NP28	10	2,901	2.271	12.261	5.111	0.477	$366.53	$27.71	$13.38	$77.78	$61.40	$180.28	$186.25
10-1278-NP30	10	3,644	1.761	11.057	5.054	0.408	$348.21	$27.97	$13.38	$76.46	$60.71	$178.51	$169.69
10-1278-NP32	10	6,458	1.303	8.313	4.338	0.144	$289.00	$27.07	$13.38	$64.30	$53.78	$158.53	$130.47
10-1278-NP34	10	6,676	0.943	6.092	3.250	0.099	$215.41	$35.47	$13.38	$48.11	$44.35	$141.32	$74.09
10-1278-NP36	10	6,911	1.153	7.224	3.524	0.127	$237.60	$46.54	$13.38	$52.31	$46.78	$159.01	$78.60
10-1278-NP38	10	6,224	2.075	10.954	4.969	0.559	$354.37	$30.01	$13.38	$76.21	$60.45	$180.05	$174.32
10-1278-NP40	10	5,428	2.223	10.187	4.608	0.697	$339.79	$27.71	$13.38	$71.82	$57.80	$170.71	$169.09

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
10-1278-NP42	10	5,220	2.705	10.674	4.317	0.718	$336.25	$30.17	$13.38	$67.78	$55.38	$166.71	$169.54
10-1278-NP44	10	4,681	3.325	12.291	4.990	1.226	$401.41	$30.13	$13.38	$80.85	$62.70	$187.06	$214.35
10-1278-NP46	10	3,183	3.083	12.579	4.764	1.434	$386.32	$31.11	$13.38	$78.85	$61.42	$184.76	$201.56
10-1278-NP48	10	2,421	2.199	9.676	3.313	1.115	$272.75	$26.31	$13.38	$55.58	$48.05	$143.32	$129.43
10-1295-NP22	10	1,775	1.052	15.909	1.052	2.179	$136.39	$20.43	$13.38	$29.26	$32.06	$95.13	$41.26
10-1295-NP24	10	4,733	1.816	11.115	2.749	0.906	$227.03	$20.42	$13.38	$46.03	$42.59	$122.41	$104.62
10-1295-NP26	10	9,835	1.934	11.167	4.605	0.455	$327.90	$28.35	$13.38	$70.24	$57.02	$168.99	$158.91
10-1295-NP28	10	10,488	1.793	10.439	4.309	0.454	$306.92	$20.42	$13.38	$65.90	$54.49	$154.19	$152.73
10-1295-NP30	10	16,806	1.544	9.846	4.291	0.323	$296.66	$28.70	$13.38	$64.78	$53.93	$160.80	$135.86
10-1295-NP32	10	26,551	1.259	8.022	4.115	0.153	$275.08	$30.73	$13.38	$61.10	$51.90	$157.11	$117.97
10-1295-NP34	10	27,527	0.947	5.794	2.905	0.128	$196.16	$29.96	$13.38	$43.27	$41.50	$128.11	$68.05
10-1295-NP36	10	27,045	1.367	7.494	3.416	0.302	$240.42	$33.19	$13.38	$51.85	$46.40	$144.83	$95.59
10-1295-NP38	10	30,590	1.923	8.570	3.545	0.978	$275.73	$30.35	$13.38	$58.05	$49.60	$151.38	$124.35
10-1295-NP40	10	27,823	2.096	9.137	3.684	0.890	$286.74	$29.20	$13.38	$59.54	$50.51	$152.64	$134.11
10-1295-NP42	10	25,675	2.800	11.032	4.030	1.092	$329.56	$29.26	$13.38	$65.95	$54.09	$162.68	$166.88
10-1295-NP44	10	22,247	2.811	10.870	4.107	1.339	$338.99	$28.98	$13.38	$68.63	$55.52	$166.52	$172.47
10-1295-NP46	10	15,885	2.944	11.531	3.860	2.176	$344.63	$30.47	$13.38	$70.30	$56.01	$170.16	$174.47
10-1295-NP48	10	12,795	2.031	7.745	2.264	2.387	$231.80	$32.55	$13.38	$48.24	$43.05	$137.22	$94.59
10-1295-NP50	10	5,938	1.520	7.596	1.097	3.878	$180.21	$28.99	$13.38	$40.53	$37.72	$120.63	$59.58
10-1312-NP28	10	2,847	1.683	10.783	4.045	0.411	$288.23	$20.43	$13.38	$61.77	$52.10	$147.69	$140.54
10-1312-NP30	10	15,409	1.559	10.049	3.927	0.373	$277.22	$20.42	$13.38	$59.80	$50.98	$144.58	$132.64
10-1312-NP32	10	27,330	1.118	7.163	3.160	0.172	$216.66	$20.42	$13.38	$47.28	$43.81	$124.89	$91.76
10-1312-NP34	10	36,467	1.247	5.996	2.432	0.451	$183.14	$25.23	$13.38	$38.44	$38.47	$115.52	$67.62
10-1312-NP36	10	32,527	1.923	6.554	2.102	1.167	$195.74	$28.81	$13.38	$38.21	$37.88	$118.27	$77.47
10-1312-NP38	10	28,799	2.330	7.100	2.227	1.933	$228.51	$27.41	$13.38	$44.89	$41.33	$127.01	$101.50
10-1312-NP40	10	24,344	2.251	7.412	2.410	1.225	$223.41	$29.43	$13.38	$43.10	$40.68	$126.59	$96.81
10-1312-NP42	10	27,675	3.453	12.282	3.976	2.090	$363.22	$27.39	$13.38	$71.53	$56.74	$169.03	$194.19
10-1312-NP44	10	17,225	3.240	13.229	3.709	3.057	$361.33	$28.71	$13.38	$73.68	$57.46	$173.22	$188.11
10-1312-NP46	10	9,799	3.319	12.750	3.010	4.928	$359.05	$35.98	$13.38	$75.23	$57.30	$181.90	$177.16
10-1312-NP48	10	4,200	2.071	8.524	1.879	4.238	$246.73	$26.90	$13.38	$54.26	$45.52	$140.06	$106.67
10-1329-NP34	10	21,154	2.648	6.922	1.635	1.543	$195.18	$26.11	$13.38	$33.85	$35.06	$108.40	$86.79
10-1329-NP36	10	21,159	2.265	6.158	1.613	1.991	$192.28	$32.09	$13.38	$36.30	$36.27	$118.04	$74.25
10-1329-NP38	10	22,249	2.269	5.651	1.554	2.053	$189.93	$30.94	$13.38	$35.81	$35.95	$116.08	$73.86
10-1329-NP40	10	24,871	1.644	5.587	1.167	1.620	$143.18	$29.92	$13.38	$27.40	$31.31	$102.00	$41.17
10-1329-NP42	10	26,136	2.606	9.055	1.736	2.400	$217.29	$29.23	$13.38	$40.72	$38.58	$121.91	$95.38
10-1329-NP44	10	11,512	2.430	9.961	1.943	2.769	$232.06	$31.21	$13.38	$46.03	$41.49	$132.11	$99.95
10-1346-NP34	10	20,545	1.838	5.998	1.513	0.765	$151.78	$26.47	$13.38	$27.09	$31.60	$98.54	$53.24
10-1346-NP36	10	14,679	2.616	5.734	1.693	2.657	$218.61	$29.12	$13.38	$41.67	$39.02	$123.19	$95.41
10-1346-NP38	10	13,082	2.669	6.268	1.673	2.694	$219.81	$30.88	$13.38	$41.63	$38.96	$124.85	$94.96
10-1346-NP40	10	11,025	2.081	9.419	1.500	2.826	$198.48	$31.92	$13.38	$39.90	$37.90	$123.10	$75.39
10-1346-NP42	10	10,299	2.041	10.052	1.561	3.379	$211.81	$32.73	$13.38	$44.25	$40.13	$130.49	$81.33
10-1363-NP34	10	25,324	1.342	5.918	1.192	0.752	$120.22	$25.66	$13.38	$22.29	$28.82	$90.15	$30.06
10-1363-NP36	10	26,431	1.444	4.211	1.069	1.313	$125.87	$25.20	$13.38	$24.01	$29.52	$92.10	$33.77
10-1363-NP38	10	4,908	2.522	6.977	1.811	3.412	$237.96	$43.52	$13.38	$48.12	$42.37	$147.39	$90.58
10-1380-NP34	10	15,496	1.691	7.242	0.921	0.774	$114.76	$27.26	$13.38	$18.54	$26.58	$85.75	$29.01
10-1395-NP28	10	4,957	2.046	6.015	1.488	0.366	$148.09	$78.00	$13.38	$24.26	$30.15	$145.78	$2.31
10-1395-NP30	10	6,793	2.128	6.372	1.448	0.515	$150.94	$62.74	$13.38	$24.62	$30.27	$131.01	$19.94
10-1395-NP32	10	3,839	3.317	6.467	1.154	0.940	$173.21	$20.42	$13.38	$23.15	$29.08	$86.03	$87.17
10-1412-NP30	10	7,284	2.619	6.952	1.233	1.042	$161.77	$79.67	$13.38	$24.86	$30.07	$147.98	$13.79
10-1412-NP32	10	336	3.712	6.862	1.070	2.248	$204.01	$22.42	$13.38	$30.19	$32.43	$98.42	$105.59
10-1427-NP24	10	1,081	1.863	5.006	0.543	1.093	$102.71	$31.08	$13.38	$15.03	$24.35	$83.84	$18.87
10-1427-NP28	10	8,363	2.589	10.290	1.123	2.515	$184.43	$96.38	$13.38	$32.52	$33.71	$176.00	$8.43
10-1439-NP26	10	1,677	2.418	8.782	0.981	1.137	$144.72	$25.89	$13.38	$21.79	$28.22	$89.28	$55.44
10-1439-NP28	10	2,183	2.188	8.177	0.650	2.503	$145.77	$25.89	$13.38	$25.50	$29.64	$94.41	$51.37
15-1040-NP28	15	1,126	0.144	2.912	2.261	0.175	$138.04	$44.55	$13.38	$34.06	$36.15	$128.14	$9.90
15-1040-NP30	15	1,403	0.115	3.214	2.606	0.070	$155.16	$35.56	$13.38	$38.42	$38.77	$126.12	$29.03
15-1040-NP32	15	1,042	0.103	3.273	2.304	0.057	$137.31	$35.57	$13.38	$33.94	$36.15	$119.04	$18.28
15-1040-NP40	15	4,450	0.198	3.919	2.988	0.116	$180.41	$35.54	$13.38	$44.29	$42.17	$135.38	$45.02
15-1040-NP42	15	9,550	0.231	4.771	3.410	0.170	$206.89	$35.54	$13.38	$50.79	$45.94	$145.65	$61.24
15-1040-NP44	15	11,276	0.197	4.950	2.666	0.151	$163.05	$35.54	$13.38	$39.84	$39.53	$128.29	$34.76
15-1040-NP46	15	9,093	0.203	4.931	2.405	0.135	$147.94	$35.02	$13.38	$35.94	$37.26	$121.59	$26.35
15-1040-NP48	15	3,566	0.185	4.966	2.520	0.134	$154.01	$35.53	$13.38	$37.59	$38.23	$124.73	$29.28
15-1152-NP32	15	4,324	0.402	2.841	1.544	0.079	$101.76	$20.42	$13.38	$23.06	$29.74	$86.60	$15.16
15-1152-NP34	15	5,865	0.277	2.426	1.406	0.061	$90.06	$27.08	$13.38	$20.91	$28.50	$89.88	$0.18
15-1171-NP48	15	590	0.228	4.545	2.923	0.099	$177.44	$20.43	$13.38	$43.25	$41.57	$118.64	$58.80
15-1171-NP50	15	1,890	0.202	3.965	2.540	0.068	$153.91	$27.23	$13.38	$37.46	$38.20	$116.27	$37.64
15-1171-NP52	15	2,183	0.158	3.003	1.764	0.049	$107.48	$26.30	$13.38	$26.03	$31.52	$97.23	$10.25
15-1171-NP54	15	2,349	0.152	2.682	1.437	0.046	$88.38	$20.41	$13.38	$21.25	$28.72	$83.75	$4.63
15-1190-NP48	15	3,922	0.197	3.604	2.262	0.078	$137.90	$20.41	$13.38	$33.48	$35.86	$103.14	$34.76
15-1190-NP50	15	18,352	0.161	2.772	1.691	0.084	$103.94	$22.47	$13.38	$25.19	$31.00	$92.04	$11.90
15-1190-NP52	15	21,997	0.186	3.153	1.594	0.068	$98.88	$22.87	$13.38	$23.68	$30.12	$90.06	$8.82
15-1190-NP54	15	8,376	0.228	3.790	1.712	0.061	$106.93	$26.29	$13.38	$25.38	$31.12	$96.16	$10.77
15-1208-NP52	15	9,793	0.252	3.805	1.665	0.081	$105.21	$21.67	$13.38	$24.81	$30.77	$90.62	$14.58
15-1278-NP28	15	1,362	0.422	6.025	2.403	0.138	$154.00	$27.70	$13.38	$35.96	$37.25	$114.28	$39.72
15-1278-NP30	15	1,637	0.337	6.397	2.889	0.160	$180.24	$27.96	$13.38	$43.16	$41.46	$125.96	$54.28
15-1278-NP34	15	1,196	0.229	4.286	2.221	0.154	$138.16	$26.10	$13.38	$33.38	$35.75	$108.60	$29.56
15-1278-NP46	15	2,256	0.492	4.010	2.174	0.143	$141.95	$27.72	$13.38	$32.65	$35.31	$109.07	$32.89
15-1278-NP48	15	1,137	0.351	3.541	1.757	0.138	$114.05	$26.84	$13.38	$26.52	$31.74	$98.48	$15.57
15-1295-NP26	15	1,450	0.398	5.074	1.998	0.120	$129.39	$25.96	$13.38	$29.93	$33.73	$103.00	$26.39
15-1295-NP28	15	5,242	0.367	5.449	2.187	0.123	$139.64	$31.49	$13.38	$32.70	$35.35	$112.93	$26.72

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
15-1295-NP30	15	8,377	0.282	5.054	2.248	0.147	$141.25	$29.12	$13.38	$33.74	$35.96	$112.19	$29.06
15-1295-NP32	15	5,050	0.222	4.640	2.259	0.165	$140.49	$31.20	$13.38	$33.99	$36.10	$114.68	$25.81
15-1295-NP34	15	5,660	0.355	5.312	2.678	0.165	$168.25	$27.95	$13.38	$40.11	$39.68	$121.12	$47.13
15-1295-NP36	15	5,841	0.486	5.608	2.938	0.143	$186.27	$37.57	$13.38	$43.78	$41.83	$136.55	$49.72
15-1295-NP38	15	6,958	0.690	5.696	2.945	0.126	$191.70	$35.13	$13.38	$43.80	$41.84	$134.15	$57.55
15-1295-NP40	15	12,373	0.589	4.883	2.340	0.126	$154.03	$28.86	$13.38	$34.97	$36.67	$113.88	$40.14
15-1295-NP42	15	13,331	0.458	4.249	1.803	0.150	$119.98	$27.37	$13.38	$27.28	$32.16	$100.20	$19.78
15-1295-NP44	15	11,870	0.509	3.756	1.885	0.197	$126.71	$28.36	$13.38	$28.77	$33.01	$103.52	$23.19
15-1295-NP46	15	5,889	0.503	3.404	2.060	0.146	$135.50	$24.43	$13.38	$31.00	$34.35	$103.16	$32.34
15-1312-NP28	15	1,705	0.232	3.770	1.449	0.090	$92.50	$20.42	$13.38	$21.73	$28.96	$84.49	$8.01
15-1312-NP30	15	8,346	0.293	4.602	2.034	0.135	$128.87	$23.26	$13.38	$30.55	$34.10	$101.29	$27.58
15-1312-NP32	15	7,772	0.182	3.642	1.757	0.124	$109.40	$24.13	$13.38	$26.40	$31.69	$95.61	$13.79
15-1312-NP34	15	14,238	0.410	4.580	2.300	0.143	$147.29	$26.21	$13.38	$34.48	$36.39	$110.46	$36.84
15-1312-NP36	15	14,817	0.513	4.979	2.619	0.141	$168.36	$29.86	$13.38	$39.12	$39.10	$121.46	$46.91
15-1312-NP38	15	9,718	0.636	5.647	2.797	0.136	$181.97	$24.99	$13.38	$41.70	$40.60	$120.67	$61.29
15-1312-NP40	15	10,611	0.536	4.620	2.119	0.134	$140.01	$29.30	$13.38	$31.80	$34.81	$109.29	$30.72
15-1312-NP42	15	9,365	0.762	4.947	2.476	0.187	$167.51	$30.01	$13.38	$37.36	$38.02	$118.77	$48.73
15-1312-NP44	15	4,968	0.897	5.079	2.688	0.224	$183.94	$35.44	$13.38	$40.69	$39.94	$129.46	$54.48
20-1015-NP10	20	1,094	0.667	10.571	1.721	1.289	$145.36	$20.42	$13.38	$33.33	$35.01	$102.13	$43.23
20-1015-NP12	20	5,926	0.663	9.082	1.673	1.056	$137.37	$26.09	$13.38	$31.15	$33.87	$104.49	$32.88
20-1040-NP10	20	4,636	1.001	14.048	2.266	1.311	$187.21	$20.42	$13.38	$41.47	$39.72	$114.99	$72.22
20-1040-NP12	20	8,075	0.775	10.578	2.009	0.977	$158.68	$20.42	$13.38	$35.57	$36.49	$105.87	$52.81
20-1040-NP14	20	2,581	0.548	7.654	1.862	0.736	$138.46	$20.41	$13.38	$31.87	$34.49	$100.15	$38.31
20-1107-NP22	20	1,767	0.528	6.773	1.098	0.629	$91.71	$29.87	$13.38	$20.06	$27.64	$90.96	$0.75
20-1107-NP24	20	14,912	0.904	11.131	1.917	0.454	$146.94	$21.79	$13.38	$30.97	$34.08	$100.23	$46.72
20-1107-NP26	20	22,803	0.667	8.539	1.537	0.370	$116.25	$21.70	$13.38	$24.86	$30.58	$90.52	$25.73
20-1107-NP28	20	20,547	0.355	3.787	1.359	0.252	$93.64	$20.42	$13.38	$21.45	$28.70	$83.94	$9.70
20-1107-NP30	20	12,460	0.322	2.130	1.201	0.061	$79.31	$20.42	$13.38	$17.92	$26.75	$78.47	$0.83
20-1107-NP32	20	824	0.290	2.561	1.404	0.058	$90.29	$20.44	$13.38	$20.87	$28.48	$83.17	$7.12
20-1122-NP20	20	6,395	0.479	5.256	0.828	0.925	$79.95	$22.33	$13.38	$17.96	$26.25	$79.92	$0.03
20-1122-NP22	20	20,251	0.609	8.225	1.606	0.395	$119.05	$21.80	$13.38	$26.01	$31.25	$92.43	$26.61
20-1122-NP24	20	42,317	0.959	11.614	2.538	0.277	$180.80	$20.72	$13.38	$38.92	$38.83	$111.85	$68.94
20-1122-NP26	20	43,143	0.775	7.946	1.727	0.544	$133.02	$20.86	$13.38	$28.72	$32.74	$95.69	$37.32
20-1122-NP28	20	22,495	0.881	6.560	1.595	0.582	$128.36	$20.97	$13.38	$27.04	$31.73	$93.12	$35.24
20-1122-NP30	20	4,333	0.771	3.946	1.571	0.117	$114.07	$20.42	$13.38	$23.73	$30.08	$87.62	$26.45
20-1137-NP22	20	15,012	0.766	8.834	2.244	0.131	$154.90	$22.32	$13.38	$33.67	$35.87	$105.24	$49.67
20-1137-NP24	20	500	0.861	10.051	3.271	0.145	$217.04	$20.40	$13.38	$48.73	$44.67	$127.19	$89.85
20-1137-NP26	20	5,966	0.645	5.028	1.013	0.906	$94.46	$23.26	$13.38	$20.56	$27.78	$84.98	$9.47
20-1137-NP28	20	3,064	0.968	5.495	0.931	0.565	$91.75	$20.41	$13.38	$17.26	$26.01	$77.07	$14.69
30-0978-NP02	30	1,777	1.446	34.027	1.673	9.932	$339.06	$43.92	$13.38	$87.13	$61.44	$205.88	$133.19
30-0978-NP04	30	4,024	1.656	38.195	1.939	9.085	$345.25	$39.87	$13.38	$85.75	$61.08	$200.08	$145.17
30-0978-NP06	30	1,334	1.600	34.361	1.670	6.160	$270.50	$46.32	$13.38	$63.46	$49.70	$172.86	$97.64
30-0993-NP02	30	6,903	2.708	52.316	2.315	10.234	$422.28	$41.05	$13.38	$98.69	$67.86	$220.98	$201.30
30-0993-NP04	30	8,779	2.669	45.860	2.180	10.483	$415.58	$40.65	$13.38	$98.23	$67.48	$219.74	$195.84
30-1015-NP00	30	4,289	2.447	69.321	2.099	8.543	$377.88	$128.17	$13.38	$85.09	$60.77	$287.41	$90.47
30-1015-NP02	30	12,528	2.998	52.278	2.309	7.791	$382.47	$57.96	$13.38	$83.32	$60.22	$214.88	$167.59
30-1015-NP04	30	4,587	3.994	49.922	2.711	6.642	$408.30	$121.21	$13.38	$82.07	$60.08	$276.74	$131.56
30-1015-NP08	30	2,055	2.746	38.444	3.137	6.610	$394.84	$20.42	$13.38	$87.82	$63.62	$185.24	$209.59
30-1015-NP10	30	1,692	2.129	29.848	3.208	3.955	$328.13	$20.42	$13.38	$72.05	$55.98	$161.82	$166.30
30-1040-NP00	30	5,351	3.081	52.258	2.321	8.023	$389.83	$33.89	$13.38	$84.97	$61.05	$193.30	$196.53
30-1040-NP02	30	12,378	3.467	44.316	2.463	7.207	$388.88	$30.73	$13.38	$81.89	$59.72	$185.72	$203.16
30-1040-NP04	30	3,141	2.759	41.855	2.560	6.837	$367.87	$63.18	$13.38	$80.87	$59.40	$216.83	$151.03
30-1040-NP06	30	5,994	1.678	32.076	2.278	7.444	$331.12	$42.93	$13.38	$80.35	$58.88	$195.54	$135.58
30-1040-NP08	30	7,955	2.475	34.738	3.564	7.007	$418.30	$35.77	$13.38	$96.45	$68.49	$214.09	$204.21
30-1040-NP10	30	2,418	2.966	38.974	4.254	3.400	$403.09	$47.42	$13.38	$83.98	$63.18	$207.95	$195.14
30-1040-NP12	30	7,845	2.459	29.410	3.443	4.244	$355.52	$20.42	$13.38	$77.31	$58.88	$169.99	$185.54
30-1040-NP14	30	356	2.438	20.049	3.102	5.092	$347.75	$20.43	$13.38	$77.57	$58.60	$169.99	$177.76
30-1107-NP15	30	2,915	2.567	47.219	3.638	6.619	$422.86	$25.14	$13.38	$95.24	$67.93	$201.69	$221.17
30-1107-NP16	30	3,682	2.606	38.381	2.926	9.422	$433.11	$25.14	$13.38	$102.36	$70.55	$211.42	$221.69
30-1107-NP18	30	10,388	2.777	33.019	3.518	7.179	$426.11	$21.66	$13.38	$96.88	$68.64	$200.56	$225.55
30-1107-NP20	30	21,283	2.916	34.965	4.837	4.335	$451.48	$24.08	$13.38	$98.29	$71.05	$206.80	$244.68
30-1107-NP22	30	36,590	4.175	57.431	8.570	4.623	$713.45	$22.79	$13.38	$154.81	$103.80	$294.78	$418.66
30-1107-NP24	30	27,419	3.502	44.570	6.132	9.675	$647.81	$20.42	$13.38	$150.79	$98.70	$283.30	$364.51
30-1107-NP26	30	3,899	1.581	33.536	2.096	7.477	$319.41	$32.20	$13.38	$77.91	$57.43	$180.91	$138.50
30-1122-NP14	30	7,442	2.552	52.638	4.025	6.860	$451.58	$31.30	$13.38	$102.42	$71.97	$219.07	$232.51
30-1122-NP15	30	10,553	1.418	33.053	1.833	6.905	$288.90	$28.79	$13.38	$70.48	$53.41	$166.06	$122.84
30-1122-NP16	30	14,421	1.859	27.926	2.882	6.454	$349.64	$24.66	$13.38	$82.92	$60.96	$181.92	$167.72
30-1122-NP18	30	19,730	2.087	24.201	3.611	5.170	$371.07	$21.07	$13.38	$85.46	$63.18	$183.10	$187.97
30-1122-NP20	30	27,445	3.187	41.689	5.838	5.786	$546.75	$21.77	$13.38	$122.06	$84.11	$241.32	$305.43
30-1122-NP22	30	25,636	3.160	47.604	6.314	6.854	$596.41	$23.77	$13.38	$135.74	$91.48	$264.38	$332.03
30-1122-NP24	30	12,729	2.164	39.645	3.691	8.368	$445.77	$20.42	$13.38	$106.84	$73.80	$214.44	$231.32
30-1137-NP14	30	10,270	2.747	61.087	3.571	8.254	$461.06	$21.58	$13.38	$104.67	$72.43	$212.06	$249.00
30-1137-NP15	30	9,227	1.769	33.481	2.396	7.592	$343.68	$28.70	$13.38	$83.02	$60.34	$185.44	$158.24
30-1137-NP20	30	375	3.382	45.317	6.847	5.128	$598.58	$20.40	$13.38	$132.68	$90.67	$257.14	$341.44
30-1137-NP22	30	2,750	2.633	44.658	5.484	7.790	$551.87	$20.43	$13.38	$129.44	$87.31	$250.56	$301.31
30-1137-NP24	30	741	2.426	41.547	3.532	5.944	$397.66	$20.41	$13.38	$89.38	$64.92	$188.09	$209.57
30-1152-NP10	30	2,588	2.489	43.759	2.602	6.381	$355.32	$20.41	$13.38	$78.61	$58.34	$170.74	$184.58
30-1152-NP12	30	7,878	2.939	66.754	3.593	6.027	$426.87	$20.42	$13.38	$91.09	$65.70	$190.59	$236.29
30-1262-NP18	30	2,609	1.674	51.582	0.300	11.132	$296.81	$105.02	$13.38	$74.86	$53.46	$246.72	$50.09
30-1262-NP20	30	3,280	1.189	28.758	0.401	10.915	$276.05	$87.64	$13.38	$74.69	$53.64	$229.35	$46.70

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
30-1262-NP22	30	4,254	0.953	9.071	0.486	7.654	$203.74	$73.27	$13.38	$55.28	$44.25	$186.17	$17.57
30-1262-NP24	30	607	1.192	12.534	0.625	10.104	$266.44	$20.42	$13.38	$72.71	$53.04	$159.55	$106.90
30-1278-NP10	30	783	3.603	54.869	2.785	4.215	$357.85	$20.38	$13.38	$67.93	$53.17	$154.87	$202.98
30-1278-NP12	30	1,955	4.733	91.341	3.094	9.981	$531.40	$26.99	$13.38	$109.07	$73.72	$223.16	$308.24
30-1278-NP14	30	5,022	3.655	76.327	2.170	11.661	$476.27	$20.43	$13.38	$105.88	$71.06	$210.74	$265.53
30-1278-NP16	30	7,775	3.901	59.443	1.625	11.082	$433.07	$20.42	$13.38	$94.18	$64.61	$192.59	$240.48
30-1278-NP18	30	3,435	4.460	49.699	1.763	11.456	$458.54	$20.41	$13.38	$98.51	$66.95	$199.25	$259.29
30-1278-NP22	30	4,506	4.068	40.979	2.718	4.267	$361.17	$20.42	$13.38	$67.21	$52.76	$153.77	$207.40
30-1278-NP24	30	7,303	3.681	40.527	1.767	5.347	$317.10	$20.42	$13.38	$60.07	$48.00	$141.87	$175.23
30-1278-NP26	30	4,372	2.453	33.457	0.783	6.784	$253.44	$20.42	$13.38	$54.56	$44.08	$132.43	$121.00
30-1278-NP28	30	2,939	1.758	46.884	0.397	10.742	$295.05	$27.70	$13.38	$73.79	$53.07	$167.95	$127.10
30-1278-NP30	30	1,963	1.789	59.046	0.605	10.804	$314.21	$27.95	$13.38	$77.34	$55.04	$173.72	$140.49
30-1278-NP32	30	1,764	1.436	44.214	0.472	8.859	$253.65	$26.11	$13.38	$63.02	$47.87	$150.37	$103.27
30-1295-NP10	30	1,103	4.097	65.415	2.395	5.026	$368.41	$20.41	$13.38	$67.50	$52.36	$153.65	$214.75
30-1295-NP12	30	6,175	4.040	87.014	2.530	10.151	$482.48	$20.42	$13.38	$101.80	$69.44	$205.04	$277.44
30-1295-NP14	30	18,966	3.107	62.357	1.571	11.016	$409.34	$20.42	$13.38	$92.92	$63.94	$190.66	$218.68
30-1295-NP16	30	24,199	3.991	52.876	1.562	11.388	$434.87	$20.42	$13.38	$95.13	$65.02	$193.95	$240.92
30-1295-NP18	30	14,488	4.463	46.075	1.924	9.987	$438.06	$26.36	$13.38	$91.61	$63.76	$195.11	$242.95
30-1295-NP22	30	17,465	4.553	39.035	2.169	3.297	$322.80	$20.42	$13.38	$53.17	$45.07	$132.03	$190.76
30-1295-NP24	30	21,200	3.856	50.673	1.221	6.051	$308.26	$21.03	$13.38	$56.67	$45.54	$136.61	$171.65
30-1295-NP26	30	18,516	2.312	36.258	0.425	7.549	$245.14	$26.74	$13.38	$54.15	$43.40	$137.67	$107.48
30-1295-NP28	30	10,020	1.681	41.263	0.415	8.730	$253.04	$27.32	$13.38	$61.39	$46.98	$149.07	$103.97
30-1295-NP30	30	6,943	1.721	64.242	0.616	10.101	$301.72	$41.15	$13.38	$73.12	$52.95	$180.60	$121.13
30-1295-NP32	30	2,749	1.469	49.840	0.498	9.961	$279.60	$65.80	$13.38	$70.37	$51.51	$201.06	$78.55
30-1312-NP24	30	811	1.648	37.216	0.226	6.888	$204.15	$20.45	$13.38	$47.04	$39.64	$120.50	$83.64
30-1312-NP26	30	6,067	2.107	37.227	0.229	7.985	$237.34	$20.42	$13.38	$54.01	$43.08	$130.88	$106.46
30-1312-NP28	30	3,667	1.929	49.864	0.397	9.123	$269.65	$25.78	$13.38	$63.70	$48.05	$150.91	$118.75
30-1312-NP30	30	2,322	1.876	73.733	0.672	9.177	$295.31	$46.54	$13.38	$68.26	$50.56	$178.74	$116.56
30-1312-NP34	30	1,615	1.204	14.070	0.317	8.176	$212.72	$37.03	$13.38	$56.16	$44.42	$150.99	$61.72
30-1312-NP36	30	3,231	1.299	20.529	0.324	7.582	$206.89	$30.08	$13.38	$52.60	$42.63	$138.69	$68.20
30-1329-NP32	30	1,901	1.544	16.219	0.239	6.702	$189.62	$27.19	$13.38	$45.84	$39.18	$125.59	$64.04
30-1329-NP34	30	7,313	1.224	13.406	0.225	6.894	$182.99	$22.17	$13.38	$46.77	$39.65	$121.98	$61.01
30-1329-NP36	30	3,294	1.061	9.010	0.251	5.674	$154.94	$29.90	$13.38	$39.45	$36.09	$118.82	$36.12
30-1346-NP32	30	6,780	1.615	16.250	0.238	6.019	$178.28	$31.56	$13.38	$41.55	$37.04	$123.52	$54.76
30-1346-NP34	30	2,581	1.214	8.469	0.229	5.573	$155.48	$20.41	$13.38	$38.51	$35.59	$107.88	$47.60
30-1363-NP30	30	319	1.221	11.738	0.282	4.066	$131.08	$20.50	$13.38	$29.85	$31.35	$95.08	$36.00
30-1439-NP16 FW	30	1,782	2.936	41.786	0.771	11.459	$358.73	$28.77	$13.38	$83.83	$58.50	$184.48	$174.25
30-1439-NP18 FW	30	3,032	2.895	47.925	0.740	12.063	$370.09	$28.76	$13.38	$87.21	$60.10	$189.45	$180.64
30-1439-NP20 FW	30	2,750	2.248	54.582	0.574	12.335	$351.87	$28.47	$13.38	$86.49	$59.54	$187.88	$163.99
30-1439-NP22 FW	30	3,745	2.215	59.214	0.545	11.263	$330.73	$28.46	$13.38	$79.40	$55.96	$177.20	$153.53
30-1439-NP24 FW	30	4,188	1.991	55.679	0.344	8.980	$267.94	$28.47	$13.38	$62.09	$47.15	$151.08	$116.86
30-1439-NP26 FW	30	4,124	3.177	53.665	0.252	10.510	$322.04	$28.46	$13.38	$70.46	$51.12	$163.42	$158.62
30-1439-NP28 FW	30	4,321	3.060	72.644	0.270	12.810	$372.39	$26.31	$13.38	$85.32	$58.42	$183.43	$188.96
30-1439-NP30 FW	30	1,285	2.496	66.504	0.211	15.335	$400.27	$26.33	$13.38	$100.16	$65.76	$205.63	$194.64
30-1455-NP06 FW	30	4,484	3.269	76.826	1.003	11.391	$394.38	$26.05	$13.38	$87.16	$60.26	$186.86	$207.52
30-1455-NP08 FW	30	8,929	2.992	83.837	0.710	18.910	$517.94	$26.05	$13.38	$130.07	$81.12	$250.63	$267.32
30-1455-NP10 FW	30	6,102	2.404	79.296	0.444	17.702	$462.26	$25.61	$13.38	$118.52	$75.10	$232.61	$229.65
30-1455-NP12 FW	30	7,391	3.683	73.061	0.722	12.176	$402.52	$25.42	$13.38	$88.01	$60.31	$187.12	$215.40
30-1455-NP14 FW	30	7,383	6.720	44.039	0.557	11.890	$454.03	$46.17	$13.38	$83.89	$58.01	$201.45	$252.59
30-1455-NP16 FW	30	10,988	3.345	56.194	0.666	13.427	$407.31	$25.83	$13.38	$94.82	$63.71	$197.73	$209.57
30-1455-NP18 FW	30	11,880	2.913	62.770	0.734	14.781	$428.87	$37.83	$13.38	$104.32	$68.50	$224.03	$204.83
30-1455-NP20 FW	30	12,261	2.659	68.644	0.644	14.254	$409.45	$41.01	$13.38	$99.72	$66.09	$220.21	$189.24
30-1455-NP22 FW	30	20,036	2.250	67.712	0.483	9.772	$303.04	$33.25	$13.38	$69.23	$50.80	$166.65	$136.39
30-1455-NP24 FW	30	25,159	2.553	58.841	0.296	8.549	$272.85	$38.04	$13.38	$58.78	$45.40	$155.59	$117.26
30-1455-NP26 FW	30	24,584	3.047	60.338	0.232	10.300	$316.36	$30.54	$13.38	$68.91	$50.30	$163.13	$153.23
30-1455-NP28 FW	30	14,268	2.872	75.857	0.227	14.029	$389.85	$35.50	$13.38	$92.34	$61.84	$203.06	$186.79
30-1455-NP30 FW	30	1,051	2.743	70.989	0.217	15.785	$417.61	$25.64	$13.38	$103.15	$67.21	$209.37	$208.24
30-1471-NP04 FW	30	1,851	2.783	59.051	0.973	7.069	$289.26	$109.03	$13.38	$59.38	$46.57	$228.37	$60.89
30-1471-NP06 FW	30	14,902	2.838	75.719	0.755	12.747	$394.53	$47.54	$13.38	$91.98	$62.36	$215.26	$179.27
30-1471-NP08 FW	30	21,540	2.690	97.028	0.544	20.703	$540.67	$43.91	$13.38	$138.99	$85.27	$281.55	$259.12
30-1471-NP10 FW	30	9,760	3.243	134.372	0.759	17.490	$521.56	$48.72	$13.38	$122.40	$77.13	$261.62	$259.95
30-1471-NP12 FW	30	10,400	3.386	79.614	0.714	15.120	$453.73	$49.15	$13.38	$106.37	$69.38	$238.29	$215.44
30-1471-NP14 FW	30	10,814	5.755	68.936	0.614	15.450	$511.33	$48.73	$13.38	$107.17	$69.56	$238.83	$272.49
30-1471-NP16 FW	30	10,125	2.568	70.004	0.583	13.158	$383.12	$48.81	$13.38	$91.97	$62.17	$216.32	$166.80
30-1471-NP18 FW	30	8,029	2.408	69.778	0.616	13.618	$389.56	$51.76	$13.38	$95.31	$63.87	$224.32	$165.24
30-1471-NP20 FW	30	11,668	2.457	88.085	0.463	13.699	$391.52	$47.29	$13.38	$93.79	$62.83	$217.29	$174.23
30-1471-NP22 FW	30	20,593	2.307	92.606	0.313	13.347	$374.19	$42.82	$13.38	$89.42	$60.46	$206.08	$168.11
30-1471-NP24 FW	30	20,181	1.995	73.023	0.239	9.220	$274.10	$42.78	$13.38	$62.24	$47.00	$165.40	$108.70
30-1471-NP26 FW	30	13,461	1.959	71.533	0.201	11.314	$310.58	$45.75	$13.38	$74.79	$53.18	$187.10	$123.48
30-1471-NP28 FW	30	2,846	2.459	77.647	0.182	14.385	$384.18	$37.49	$13.38	$93.89	$62.56	$207.33	$176.85
30-1487-NP02 FW	30	956	3.128	62.542	0.984	8.049	$319.22	$59.66	$13.38	$65.77	$49.71	$188.52	$130.70
30-1487-NP04 FW	30	10,156	3.318	74.940	0.964	9.091	$348.36	$42.59	$13.38	$72.15	$52.78	$180.90	$167.46
30-1487-NP06 FW	30	17,000	3.788	114.758	1.134	15.411	$508.87	$41.66	$13.38	$114.70	$73.87	$243.60	$265.27
30-1487-NP08 FW	30	15,091	2.707	100.078	0.639	18.692	$509.23	$41.90	$13.38	$127.79	$79.84	$262.91	$246.32
30-1487-NP10 FW	30	10,065	2.689	79.573	0.503	14.753	$416.42	$41.70	$13.38	$100.91	$66.44	$222.43	$193.99
30-1487-NP12 FW	30	8,815	2.668	62.686	0.403	16.513	$436.78	$59.40	$13.38	$110.33	$71.06	$254.17	$182.61
30-1487-NP14 FW	30	9,262	2.538	76.947	0.586	14.394	$409.25	$41.90	$13.38	$99.83	$66.04	$221.15	$188.10
30-1487-NP16 FW	30	7,926	2.363	73.568	0.591	12.087	$359.17	$42.34	$13.38	$85.38	$58.91	$200.00	$159.17
30-1487-NP18 FW	30	6,598	2.605	82.016	0.553	12.837	$381.34	$42.89	$13.38	$89.65	$60.92	$206.84	$174.50
30-1487-NP20 FW	30	8,435	2.455	120.972	0.343	16.799	$458.24	$61.02	$13.38	$111.79	$71.43	$257.63	$200.61

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
30-1487-NP22 FW	30	11,369	1.998	105.247	0.259	14.498	$390.56	$42.16	$13.38	$95.93	$63.57	$215.03	$175.52
30-1487-NP24 FW	30	9,755	1.628	75.052	0.207	10.334	$285.00	$42.50	$13.38	$68.73	$50.19	$174.80	$110.20
30-1487-NP26 FW	30	1,821	1.897	68.646	0.166	10.646	$292.89	$50.14	$13.38	$70.06	$50.81	$184.39	$108.50
30-1503-NP02 FW	30	3,864	2.974	69.493	0.912	8.506	$322.88	$44.83	$13.38	$67.64	$50.53	$176.38	$146.50
30-1503-NP04 FW	30	14,903	3.941	103.734	1.252	11.432	$438.39	$41.63	$13.38	$91.38	$62.51	$208.90	$229.49
30-1503-NP06 FW	30	15,857	4.054	116.717	1.368	16.156	$544.36	$42.82	$13.38	$122.83	$78.18	$257.20	$287.16
30-1503-NP08 FW	30	14,642	2.623	68.403	0.570	15.318	$424.62	$51.47	$13.38	$105.31	$68.77	$238.92	$185.70
30-1503-NP10 FW	30	12,773	3.167	64.728	0.404	13.521	$393.17	$41.28	$13.38	$91.67	$61.77	$208.10	$185.06
30-1503-NP12 FW	30	8,953	3.306	64.749	0.552	9.979	$337.16	$58.96	$13.38	$71.63	$52.03	$195.99	$141.16
30-1503-NP14 FW	30	5,981	1.953	67.126	0.570	10.731	$318.51	$43.16	$13.38	$76.47	$54.52	$187.54	$130.98
30-1503-NP16 FW	30	6,619	2.265	68.711	0.488	10.827	$324.41	$42.75	$13.38	$75.92	$54.11	$186.17	$138.24
30-1503-NP18 FW	30	7,655	2.392	97.175	0.401	15.126	$417.57	$41.47	$13.38	$101.91	$66.73	$223.48	$194.09
30-1503-NP20 FW	30	9,648	2.094	130.414	0.221	19.173	$491.54	$40.84	$13.38	$124.95	$77.77	$256.93	$234.61
30-1503-NP22 FW	30	6,534	1.642	96.384	0.183	13.086	$346.05	$41.93	$13.38	$85.85	$58.54	$199.69	$146.35
30-1503-NP24 FW	30	1,220	1.407	68.490	0.172	9.728	$262.77	$56.90	$13.38	$64.33	$48.00	$182.61	$80.16
30-1519-NP02 FW	30	2,590	4.006	94.095	1.166	11.028	$423.28	$45.15	$13.38	$87.51	$60.53	$206.56	$216.71
30-1519-NP04 FW	30	9,623	3.099	84.121	1.230	9.420	$368.17	$36.42	$13.38	$78.15	$56.07	$184.03	$184.14
30-1519-NP06 FW	30	30,617	2.101	52.150	0.668	8.742	$283.30	$35.46	$13.38	$65.29	$49.17	$163.31	$119.99
30-1519-NP08 FW	30	12,057	2.807	55.990	0.490	14.318	$400.28	$38.74	$13.38	$97.78	$64.98	$214.87	$185.41
30-1519-NP10 FW	30	10,435	4.520	64.155	0.576	9.085	$352.61	$38.52	$13.38	$66.51	$49.46	$167.86	$184.74
30-1519-NP12 FW	30	5,820	4.150	71.974	0.707	6.910	$312.05	$40.63	$13.38	$54.82	$43.82	$152.64	$159.41
30-1519-NP14 FW	30	1,610	1.892	54.153	0.500	7.845	$251.88	$48.59	$13.38	$57.22	$44.96	$164.15	$87.73
30-1519-NP16 FW	30	1,891	2.084	72.937	0.400	12.325	$345.30	$46.51	$13.38	$84.06	$58.02	$201.96	$143.34
30-1519-NP18 FW	30	3,428	2.313	105.135	0.320	16.928	$448.96	$42.21	$13.38	$112.10	$71.64	$239.32	$209.64
30-1519-NP20 FW	30	4,518	1.754	105.757	0.185	18.984	$466.49	$42.35	$13.38	$122.96	$76.87	$255.57	$210.92
30-1535-NP02 FW	30	1,452	3.442	81.893	1.189	9.308	$371.67	$59.96	$13.38	$76.88	$55.38	$205.60	$166.07
30-1535-NP04 FW	30	18,734	2.528	61.937	0.941	6.988	$280.52	$39.13	$13.38	$58.42	$46.05	$156.98	$123.54
30-1535-NP06 FW	30	21,369	3.874	94.694	1.123	14.757	$489.32	$37.34	$13.38	$110.25	$71.74	$232.71	$256.61
30-1535-NP08 FW	30	13,490	3.298	73.463	0.640	13.347	$410.49	$38.00	$13.38	$94.11	$63.25	$208.74	$201.75
30-1535-NP10 FW	30	4,293	4.056	72.671	0.658	9.664	$360.01	$41.92	$13.38	$71.35	$51.95	$178.60	$181.42
30-1550-NP02 FW	30	4,279	2.137	49.926	0.830	5.630	$232.78	$34.45	$13.38	$48.13	$40.89	$136.85	$95.93
30-1550-NP04 FW	30	24,935	2.554	62.112	0.872	7.949	$295.83	$37.13	$13.38	$63.45	$48.46	$162.42	$133.41
30-1550-NP06 FW	30	34,652	2.009	51.220	0.542	8.182	$262.51	$30.66	$13.38	$59.93	$46.36	$150.33	$112.19
30-1550-NP08 FW	30	15,053	1.902	46.146	0.411	7.289	$232.88	$32.00	$13.38	$52.36	$42.47	$140.20	$92.68
30-1565-NP02 FW	30	1,544	3.621	93.394	1.639	12.051	$459.77	$65.09	$13.38	$100.76	$67.74	$246.97	$212.80
30-1565-NP04 FW	30	13,105	3.653	88.118	1.214	13.010	$452.42	$53.68	$13.38	$100.54	$67.10	$234.70	$217.71
30-1565-NP06 FW	30	12,943	3.212	80.009	0.865	12.848	$414.34	$41.70	$13.38	$94.31	$63.61	$213.00	$201.34
30-1565-NP08 FW	30	1,174	3.032	75.769	0.790	11.463	$376.94	$48.43	$13.38	$84.48	$58.67	$204.96	$171.98
30-1107-NP38 HW	30	3,886	0.448	34.722	0.182	5.022	$133.51	$31.19	$13.38	$34.53	$33.47	$112.57	$20.94
30-1107-NP40 HW	30	3,894	0.511	30.850	0.395	5.004	$145.38	$34.77	$13.38	$37.49	$35.24	$120.88	$24.50
30-1107-NP42 HW	30	2,999	0.758	21.587	1.112	3.503	$160.07	$34.16	$13.38	$38.46	$36.69	$122.68	$37.39
30-1107-NP44 HW	30	2,231	1.000	17.838	1.782	2.369	$181.35	$38.83	$13.38	$41.08	$38.88	$132.17	$49.18
30-1122-NP34 HW	30	607	0.597	58.356	0.200	8.072	$207.17	$87.38	$13.38	$54.16	$43.10	$198.02	$9.14
30-1122-NP36 HW	30	3,530	0.513	45.691	0.176	6.737	$172.53	$31.93	$13.38	$45.31	$38.75	$129.37	$43.16
30-1122-NP38 HW	30	2,805	0.832	70.703	0.414	10.004	$268.00	$35.23	$13.38	$69.54	$50.93	$169.08	$98.92
30-1122-NP40 HW	30	4,590	0.896	33.637	0.980	5.542	$200.45	$29.08	$13.38	$49.45	$41.89	$133.80	$66.65
30-1122-NP42 HW	30	3,719	1.415	31.485	2.903	4.105	$295.69	$31.10	$13.38	$68.48	$53.84	$166.81	$128.88
30-1122-NP44 HW	30	4,355	0.908	15.783	1.633	1.557	$153.93	$29.54	$13.38	$33.79	$35.08	$111.80	$42.13
30-1137-NP34 HW	30	2,091	0.686	60.126	0.176	8.877	$224.37	$54.28	$13.38	$58.89	$45.40	$171.96	$52.41
30-1137-NP36 HW	30	2,890	0.615	50.904	0.172	8.701	$214.96	$32.82	$13.38	$57.63	$44.82	$148.64	$66.31
30-1137-NP38 HW	30	3,701	0.986	49.333	0.618	9.062	$256.43	$23.65	$13.38	$66.42	$49.74	$153.19	$103.24
30-1137-NP40 HW	30	5,801	1.416	40.542	1.910	7.083	$299.87	$22.32	$13.38	$72.77	$54.61	$163.09	$136.78
30-1137-NP42 HW	30	4,532	1.654	38.221	3.949	2.788	$339.44	$22.84	$13.38	$75.55	$58.67	$170.44	$168.99
30-1137-NP44 HW	30	3,987	1.135	20.379	1.858	1.252	$168.84	$23.18	$13.38	$35.23	$36.06	$107.86	$60.98
30-1152-NP30 HW	30	937	0.397	52.482	0.046	4.178	$115.73	$20.44	$13.38	$27.42	$29.69	$90.93	$24.81
30-1152-NP32 HW	30	4,009	0.493	38.108	0.088	4.825	$126.94	$26.15	$13.38	$31.96	$32.06	$103.55	$23.39
30-1152-NP34 HW	30	3,755	0.736	72.101	0.142	10.439	$258.87	$29.96	$13.38	$68.31	$49.96	$161.61	$97.26
30-1152-NP36 HW	30	3,787	0.721	44.242	0.207	8.792	$218.58	$23.81	$13.38	$58.65	$45.39	$141.23	$77.35
30-1152-NP38 HW	30	5,854	1.134	27.403	0.808	7.333	$228.51	$24.34	$13.38	$58.14	$45.99	$141.85	$86.66
30-1152-NP40 HW	30	9,520	1.119	21.156	1.311	4.599	$201.73	$22.91	$13.38	$48.26	$41.79	$126.33	$75.40
30-1152-NP42 HW	30	6,838	0.790	15.916	1.389	1.844	$142.42	$22.30	$13.38	$32.02	$33.89	$101.60	$40.82
30-1171-NP30 HW	30	4,047	0.415	48.791	0.053	3.952	$110.70	$29.26	$13.38	$26.08	$29.05	$97.77	$12.93
30-1171-NP32 HW	30	3,540	0.820	43.167	0.139	8.833	$217.60	$30.53	$13.38	$57.93	$44.94	$146.78	$70.81
30-1171-NP34 HW	30	4,817	0.592	24.846	0.127	7.675	$180.87	$27.86	$13.38	$50.28	$41.24	$132.76	$48.11
30-1171-NP36 HW	30	5,787	1.146	34.296	0.728	8.974	$258.78	$26.61	$13.38	$67.34	$50.41	$157.74	$101.04
30-1171-NP38 HW	30	8,495	1.501	29.936	1.172	7.553	$264.25	$24.42	$13.38	$64.89	$49.78	$152.46	$111.78
30-1171-NP40 HW	30	11,407	1.219	19.290	0.943	3.204	$155.64	$23.48	$13.38	$34.16	$34.32	$105.33	$50.31
30-1190-NP28 HW	30	4,665	0.498	50.061	0.047	6.242	$157.10	$22.98	$13.38	$40.37	$36.11	$112.85	$44.25
30-1190-NP30 HW	30	7,831	0.693	44.993	0.121	7.616	$190.65	$22.06	$13.38	$50.04	$41.01	$126.49	$64.16
30-1190-NP32 HW	30	6,025	1.064	62.327	0.229	10.468	$268.74	$24.99	$13.38	$69.70	$50.79	$158.86	$109.88
30-1190-NP34 HW	30	5,673	1.105	40.204	0.523	8.445	$238.28	$22.69	$13.38	$61.08	$47.01	$144.16	$94.12
30-1190-NP36 HW	30	7,158	1.056	30.685	0.609	5.684	$184.78	$24.03	$13.38	$44.92	$39.17	$121.51	$63.27
30-1190-NP38 HW	30	5,566	1.245	23.515	0.722	4.019	$161.08	$25.14	$13.38	$36.08	$34.96	$109.57	$51.51
30-1208-NP26 HW	30	4,783	0.698	34.834	0.211	5.159	$144.35	$24.79	$13.38	$35.84	$34.15	$108.16	$36.19
30-1208-NP28 HW	30	8,541	0.566	58.457	0.107	7.064	$181.70	$23.36	$13.38	$46.48	$39.17	$122.39	$59.30
30-1208-NP30 HW	30	4,994	0.764	53.990	0.137	6.765	$180.89	$25.37	$13.38	$45.03	$38.50	$122.29	$58.60
30-1208-NP32 HW	30	4,978	1.083	38.399	0.366	8.075	$220.83	$24.95	$13.38	$56.46	$44.53	$139.32	$81.51
30-1208-NP34 HW	30	3,806	1.197	37.694	0.548	7.469	$222.25	$26.09	$13.38	$55.31	$44.19	$138.98	$83.27
30-1227-NP24 HW	30	3,242	0.809	31.586	0.232	5.529	$154.17	$32.68	$13.38	$38.45	$35.47	$119.98	$34.19
30-1227-NP26 HW	30	7,111	0.868	74.292	0.130	10.949	$272.31	$26.27	$13.38	$71.36	$51.44	$162.45	$109.86

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
30-1227-NP28 HW	30	10,323	0.519	25.142	0.070	3.736	$100.12	$30.56	$13.38	$24.76	$28.52	$97.22	$2.90
30-1227-NP30 HW	30	7,293	0.847	23.462	0.109	4.975	$133.93	$32.02	$13.38	$33.10	$32.70	$111.20	$22.73
30-1242-NP22 HW	30	1,651	1.123	38.255	0.349	6.437	$189.34	$64.51	$13.38	$45.95	$39.29	$163.12	$26.21
30-1242-NP24 HW	30	3,363	1.012	54.304	0.260	8.643	$230.61	$42.08	$13.38	$58.62	$45.38	$159.47	$71.15
30-1242-NP26 HW	30	2,497	1.550	63.172	0.272	9.985	$274.90	$62.95	$13.38	$67.37	$49.66	$193.35	$81.55
30-1262-NP20 HW	30	1,572	2.016	51.929	0.881	10.797	$332.75	$110.69	$13.38	$81.27	$57.38	$262.71	$70.04
30-1262-NP22 HW	30	2,925	1.230	36.119	0.568	7.160	$217.70	$59.57	$13.38	$53.67	$43.41	$170.03	$47.67
30-1262-NP24 HW	30	2,221	2.234	58.806	0.623	11.021	$330.90	$56.95	$13.38	$79.02	$55.88	$205.22	$125.67
30-1107-NP38 HW	30	1,672	0.431	37.849	0.226	5.752	$150.96	$20.43	$13.38	$39.77	$36.11	$109.70	$41.27
30-1107-NP40 HW	30	3,999	0.536	36.869	0.292	6.049	$162.78	$20.42	$13.38	$42.61	$37.60	$114.01	$48.77
30-1107-NP42 HW	30	3,326	0.739	31.551	0.763	4.974	$172.11	$20.41	$13.38	$42.69	$38.28	$114.76	$57.35
30-1107-NP44 HW	30	2,359	0.946	22.398	1.530	3.098	$181.47	$20.41	$13.38	$42.03	$38.99	$114.81	$66.66
30-1262-NP34 HW	30	1,282	1.557	54.226	0.832	11.157	$325.90	$70.66	$13.38	$82.77	$58.07	$224.88	$101.02
30-1262-NP36 HW	30	6,723	2.313	49.478	1.241	7.750	$301.49	$31.09	$13.38	$67.42	$50.98	$162.87	$138.61
30-1262-NP38 HW	30	6,390	2.573	73.726	1.276	6.812	$302.56	$42.84	$13.38	$62.31	$48.37	$166.90	$135.67
30-1262-NP40 HW	30	1,555	2.391	70.973	0.713	9.382	$313.79	$94.12	$13.38	$70.18	$51.55	$229.23	$84.57
30-1278-NP34 HW	30	8,313	2.384	55.103	0.947	9.746	$327.24	$28.78	$13.38	$75.71	$54.68	$172.55	$154.68
30-1278-NP36 HW	30	15,400	3.507	68.198	1.359	7.351	$339.62	$25.67	$13.38	$66.96	$50.75	$156.77	$182.86
30-1278-NP38 HW	30	3,112	2.829	94.249	0.957	9.814	$357.42	$33.77	$13.38	$76.72	$54.97	$178.84	$178.58
30-1295-NP32 HW	30	8,835	1.461	53.052	0.553	8.543	$256.64	$28.33	$13.38	$62.30	$47.57	$151.59	$105.05
30-1295-NP34 HW	30	14,532	1.322	32.612	0.455	7.116	$211.26	$25.23	$13.38	$51.72	$42.31	$132.64	$78.63
30-1295-NP36 HW	30	7,100	1.909	47.737	0.583	7.869	$254.80	$31.94	$13.38	$58.52	$45.74	$149.58	$105.22
30-1312-NP30 HW	30	4,543	2.158	72.306	0.640	7.766	$273.02	$35.03	$13.38	$58.97	$45.90	$153.28	$119.74
30-1312-NP32 HW	30	14,847	2.117	67.269	0.557	10.661	$320.73	$26.63	$13.38	$75.86	$54.19	$170.06	$150.67
30-1312-NP34 HW	30	3,934	1.441	32.640	0.294	8.260	$227.08	$43.98	$13.38	$56.56	$44.48	$158.40	$68.68
30-1329-NP30 HW	30	14,918	2.868	111.348	0.729	10.732	$370.31	$24.36	$13.38	$79.32	$55.87	$172.93	$197.38
30-1329-NP32 HW	30	5,726	1.880	68.031	0.409	11.317	$319.05	$30.68	$13.38	$77.80	$54.97	$176.83	$142.22
30-1346-NP28 HW	30	1,967	3.003	106.516	0.823	8.407	$332.46	$38.62	$13.38	$66.09	$49.46	$167.55	$164.91
30-1346-NP30 HW	30	10,883	1.914	66.500	0.382	8.463	$262.82	$33.11	$13.38	$59.50	$45.87	$151.86	$110.96
50-1055-SP11	50	5,522	0.330	2.381	2.287	0.071	$142.13	$47.84	$13.38	$33.81	$36.05	$131.08	$11.05
50-1055-SP13	50	9,773	0.371	2.132	2.091	0.078	$131.98	$44.38	$13.38	$31.00	$34.40	$123.15	$8.82
50-1055-SP15	50	8,880	0.242	1.964	1.858	0.058	$114.79	$38.00	$13.38	$27.46	$32.35	$111.18	$3.61
50-1070-SP11	50	15,517	0.396	2.615	2.228	0.126	$141.63	$42.54	$13.38	$33.30	$35.72	$124.94	$16.69
50-1070-SP13	50	19,155	0.264	2.084	1.889	0.076	$117.54	$42.07	$13.38	$28.03	$32.67	$116.15	$1.40
50-1082-SP11	50	5,399	0.302	2.636	2.037	0.158	$128.82	$26.11	$13.38	$30.70	$34.18	$104.38	$24.44
50-1090-SP09	50	5,430	0.381	3.122	2.462	0.101	$154.38	$42.17	$13.38	$36.56	$37.64	$129.74	$24.64
50-1090-SP11	50	5,817	0.284	2.685	2.091	0.096	$130.28	$41.37	$13.38	$31.10	$34.45	$120.29	$9.98
50-1107-SP27	50	5,708	0.674	4.397	2.400	0.061	$158.21	$32.94	$13.38	$35.44	$36.98	$118.74	$39.47
50-1122-SP25	50	13,630	0.451	3.144	1.462	0.189	$100.58	$30.21	$13.38	$22.56	$29.38	$95.54	$5.05
50-1122-SP27	50	9,965	0.395	3.228	1.529	0.136	$101.96	$30.67	$13.38	$23.20	$29.79	$97.04	$4.93
50-1137-SP35	50	9,619	0.244	4.513	1.498	0.388	$101.65	$29.27	$13.38	$24.32	$30.30	$97.27	$4.38
50-1152-SP31	50	9,413	0.136	2.721	2.117	0.053	$127.16	$46.11	$13.38	$31.20	$34.55	$125.24	$1.91
70-1015mL	70	17,232	0.708	6.004	1.294	0.208	$99.15	$33.02	$13.38	$20.28	$28.00	$94.68	$4.47
70-1082mL	70	5,207	1.201	6.653	0.764	2.167	$119.55	$43.24	$13.38	$24.92	$29.57	$111.11	$8.44
70-1090mL	70	25,037	1.261	7.209	0.732	2.332	$122.65	$32.42	$13.38	$25.50	$29.80	$101.10	$21.56
70-1107mL	70	52,685	1.340	8.050	0.787	1.987	$121.58	$30.92	$13.38	$24.15	$29.20	$97.65	$23.93
70-1122mL	70	85,901	1.431	10.565	0.907	1.599	$124.49	$27.64	$13.38	$23.51	$29.02	$93.55	$30.93
70-1137mL	70	103,061	0.900	7.666	0.794	1.169	$94.65	$28.69	$13.38	$19.06	$26.72	$87.85	$6.80
70-1152mL	70	86,136	0.788	5.910	0.833	0.923	$88.52	$30.16	$13.38	$18.06	$26.29	$87.90	$0.62
40-0962-SP13	40	2,824	1.731	38.998	0.215	7.463	$217.48	$24.96	$13.38	$50.50	$41.33	$130.18	$87.30
40-0962-SP15	40	6,262	0.968	18.094	0.332	5.374	$155.24	$43.77	$13.38	$38.82	$35.84	$131.80	$23.44
40-0962-SP17	40	3,043	0.833	15.817	0.684	7.075	$203.70	$20.42	$13.38	$54.58	$44.13	$132.51	$71.20
40-0962-SP19	40	3,389	1.214	27.281	0.863	9.857	$282.28	$46.07	$13.38	$74.79	$54.31	$188.55	$93.74
40-0962-SP21	40	3,703	1.732	35.790	1.000	8.565	$282.37	$20.43	$13.38	$68.82	$51.46	$154.08	$128.28
40-0962-SP23	40	3,997	1.319	27.798	0.669	4.704	$174.99	$20.42	$13.38	$39.66	$36.64	$110.10	$64.89
40-0962-SP25	40	3,848	2.395	49.751	0.900	7.465	$278.67	$20.42	$13.38	$60.67	$47.19	$141.66	$137.01
40-0962-SP27	40	4,395	1.930	49.001	0.813	6.902	$250.45	$20.42	$13.38	$55.82	$44.69	$134.31	$116.14
40-0962-SP29	40	253	1.730	42.337	0.582	6.472	$220.86	$20.40	$13.38	$49.66	$41.39	$124.82	$96.03
40-0978-SP11	40	11,404	1.412	33.900	0.237	6.281	$185.57	$25.23	$13.38	$43.33	$37.85	$119.79	$65.77
40-0978-SP13	40	26,471	1.078	22.679	0.229	4.519	$137.73	$20.94	$13.38	$32.02	$32.31	$98.65	$39.08
40-0978-SP15	40	23,523	1.189	22.517	0.470	5.772	$178.49	$23.03	$13.38	$43.40	$38.26	$118.07	$60.41
40-0978-SP19	40	13,173	1.703	31.904	0.874	7.800	$258.03	$21.47	$13.38	$62.15	$48.01	$145.00	$113.03
40-0978-SP23	40	16,974	2.375	34.334	0.664	5.868	$227.31	$21.23	$13.38	$47.07	$40.21	$121.90	$105.42
40-0978-SP27	40	5,364	1.651	45.553	0.616	7.075	$233.74	$35.05	$13.38	$53.96	$43.55	$145.95	$87.79
40-0993-SP11	40	17,938	1.401	30.603	0.407	5.439	$177.41	$21.19	$13.38	$40.49	$36.69	$111.74	$65.67
40-0993-SP15	40	15,955	2.315	31.785	0.952	5.524	$234.53	$21.28	$13.38	$49.07	$41.60	$125.33	$109.20
40-0993-SP19	40	14,780	2.075	24.961	0.755	5.330	$210.36	$20.42	$13.38	$44.89	$39.31	$118.01	$92.35
40-0993-SP23	40	14,168	4.144	60.314	1.521	5.707	$330.44	$20.42	$13.38	$59.00	$47.02	$139.82	$190.62
40-1107-SP21	40	2,743	1.826	35.994	1.409	6.296	$264.74	$48.17	$13.38	$60.56	$47.90	$170.01	$94.73
40-1107-SP23	40	4,371	1.229	19.885	1.083	4.948	$197.69	$35.61	$13.38	$47.13	$40.93	$137.04	$60.65
40-1107-SP25	40	7,647	1.086	16.499	1.017	4.891	$187.68	$35.61	$13.38	$45.77	$40.19	$134.95	$52.73
40-1107-SP27	40	10,564	1.542	21.511	1.240	4.539	$207.66	$35.61	$13.38	$46.90	$41.00	$136.89	$70.78
40-1107-SP29	40	10,043	1.943	29.424	1.168	5.834	$242.22	$35.61	$13.38	$54.10	$44.40	$147.49	$94.73
40-1107-SP31	40	10,613	2.075	33.249	1.117	6.388	$255.03	$36.17	$13.38	$56.89	$45.69	$152.13	$102.90
40-1107-SP33	40	11,356	1.852	36.144	1.007	6.522	$246.77	$36.86	$13.38	$56.13	$45.17	$151.54	$95.23
40-1107-SP35	40	8,678	2.039	30.736	1.428	4.717	$238.75	$36.86	$13.38	$50.91	$43.16	$144.30	$94.44
40-1107-SP37	40	4,031	1.867	28.056	1.421	3.945	$217.86	$35.60	$13.38	$45.91	$40.69	$135.59	$82.26
40-1122-SP33	40	2,705	2.107	29.303	1.592	3.036	$216.98	$25.50	$13.38	$42.75	$39.33	$120.97	$96.02
40-1122-SP35	40	797	1.503	23.883	1.170	2.596	$166.31	$20.46	$13.38	$33.73	$34.37	$101.93	$64.38
40-1137-SP21	40	2,533	1.745	39.853	1.742	10.167	$357.81	$20.42	$13.38	$89.70	$62.76	$186.27	$171.54

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
40-1137-SP23	40	3,749	2.065	49.387	2.121	9.964	$388.00	$20.42	$13.38	$94.08	$65.37	$193.24	$194.76
40-1137-SP25	40	3,562	2.472	47.511	2.399	8.245	$380.70	$20.41	$13.38	$87.38	$62.40	$183.57	$197.13
40-1137-SP27	40	3,603	3.265	56.661	1.978	8.415	$384.34	$20.42	$13.38	$82.50	$59.34	$175.64	$208.70
40-1137-SP29	40	3,479	2.880	45.461	1.548	4.503	$269.67	$20.42	$13.38	$51.56	$43.52	$128.88	$140.79
40-1137-SP31	40	4,471	2.706	38.911	2.023	3.827	$276.54	$20.42	$13.38	$54.14	$45.46	$133.40	$143.14
40-1137-SP33	40	11,755	2.065	29.792	1.659	3.049	$220.19	$26.63	$13.38	$43.81	$39.95	$123.76	$96.43
40-1152-SP13	40	732	4.271	85.356	1.426	11.835	$456.83	$20.42	$13.38	$96.30	$65.25	$195.34	$261.48
40-1152-SP15	40	2,036	6.177	73.053	2.832	8.538	$518.36	$85.15	$13.38	$96.21	$67.01	$261.75	$256.61
40-1152-SP17	40	2,651	4.500	51.473	1.846	9.605	$429.52	$20.42	$13.38	$88.13	$61.91	$183.85	$245.67
40-1152-SP19	40	5,058	2.059	39.586	0.979	12.165	$360.52	$20.42	$13.38	$91.16	$62.46	$187.43	$173.09
40-1152-SP21	40	20,606	1.864	43.017	1.728	12.616	$408.51	$20.42	$13.38	$104.90	$70.25	$208.95	$199.57
40-1152-SP23	40	26,256	2.698	50.480	2.113	9.624	$397.93	$23.25	$13.38	$91.91	$64.24	$192.78	$205.14
40-1152-SP27	40	9,354	2.778	39.351	1.314	5.667	$273.34	$21.79	$13.38	$55.37	$45.13	$135.68	$137.66
40-1152-SP31	40	7,672	2.899	46.971	1.842	6.711	$330.11	$29.93	$13.38	$69.70	$52.88	$165.89	$164.22
40-1152-SP33	40	276	3.008	46.397	2.106	6.368	$341.22	$20.35	$13.38	$71.39	$54.07	$159.19	$182.03
40-1171-SP11	40	7,046	1.961	53.246	1.005	8.544	$295.65	$22.24	$13.38	$68.95	$51.43	$156.00	$139.65
40-1171-SP15	40	15,773	6.401	65.305	2.418	6.035	$448.98	$21.29	$13.38	$74.44	$55.70	$164.81	$284.17
40-1171-SP19	40	21,794	1.937	42.953	1.768	11.451	$390.31	$20.42	$13.38	$98.19	$66.98	$198.97	$191.35
40-1171-SP23	40	38,650	2.001	33.188	1.464	5.041	$247.07	$20.75	$13.38	$53.48	$44.47	$132.08	$114.99
40-1171-SP27	40	10,602	2.819	37.180	1.198	6.074	$274.67	$29.65	$13.38	$56.22	$45.41	$144.66	$130.01
40-1171-SP29	40	7,147	2.785	47.892	1.157	8.046	$313.88	$26.36	$13.38	$68.08	$51.18	$159.00	$154.88
40-1171-SP31	40	4,404	2.608	44.861	1.077	8.476	$311.71	$36.10	$13.38	$69.57	$51.84	$170.90	$140.81
40-1190-SP23	40	13,377	2.014	22.419	0.491	4.101	$168.92	$26.70	$13.38	$33.32	$33.24	$106.64	$62.28
40-1190-SP25	40	7,236	1.675	21.103	0.515	2.984	$139.47	$33.94	$13.38	$26.61	$29.98	$103.91	$35.55
40-1190-SP27	40	5,591	2.503	39.050	0.793	5.786	$238.49	$37.74	$13.38	$48.50	$41.06	$140.68	$97.80
40-1190-SP29	40	4,441	3.262	55.769	1.087	8.645	$337.16	$42.24	$13.38	$70.95	$52.45	$179.02	$158.14
40-1208-SP21	40	7,700	3.361	58.362	1.655	9.278	$385.61	$34.99	$13.38	$83.23	$59.26	$190.86	$194.75
40-1208-SP23	40	10,668	1.127	18.892	0.400	2.286	$104.26	$24.20	$13.38	$20.47	$26.83	$84.89	$19.38
40-1227-SP19	40	3,152	2.103	39.793	1.212	6.393	$264.14	$56.45	$13.38	$58.37	$46.52	$174.73	$89.41
40-1227-SP21	40	2,199	2.683	57.278	0.857	9.282	$321.87	$72.05	$13.38	$71.55	$52.47	$209.45	$112.42
40-1227-SP23	40	745	2.586	54.257	0.715	6.574	$257.83	$76.48	$13.38	$52.46	$42.84	$185.17	$72.66
40-1278-SP27	40	321	1.886	33.828	4.246	4.788	$399.08	$29.99	$13.38	$92.40	$67.42	$203.19	$195.89
40-1278-SP29	40	1,438	2.101	31.757	3.729	2.967	$339.09	$107.60	$13.38	$73.45	$57.35	$251.78	$87.31
40-1278-SP31	40	5,684	1.939	33.499	4.741	3.043	$395.11	$54.44	$13.38	$88.66	$66.22	$222.69	$172.42
40-1278-SP33	40	6,056	1.593	28.676	3.678	3.899	$339.57	$54.87	$13.38	$78.46	$59.81	$206.52	$133.05
40-1278-SP35	40	8,896	1.411	25.720	2.928	4.901	$309.85	$46.85	$13.38	$73.78	$56.53	$190.53	$119.32
40-1278-SP37	40	12,070	2.087	36.614	2.289	5.444	$305.88	$44.54	$13.38	$68.07	$52.76	$178.75	$127.13
40-1278-SP39	40	7,920	3.009	45.056	2.941	3.901	$341.17	$52.63	$13.38	$68.08	$53.53	$187.62	$153.55
40-1278-SP41	40	7,148	3.566	48.793	2.956	4.429	$368.21	$48.58	$13.38	$71.70	$55.29	$188.95	$179.26
40-1278-SP43	40	10,906	2.601	39.523	2.324	5.079	$315.44	$40.57	$13.38	$66.37	$51.93	$172.25	$143.19
40-1278-SP45	40	4,917	2.916	41.201	2.511	5.837	$349.68	$29.92	$13.38	$73.91	$55.88	$173.09	$176.59
40-1295-SP25	40	396	2.623	31.988	2.973	6.343	$374.30	$43.56	$13.38	$83.67	$61.39	$202.00	$172.30
40-1295-SP27	40	895	2.728	40.262	3.994	3.994	$393.97	$34.75	$13.38	$83.91	$62.81	$194.85	$199.13
40-1295-SP29	40	1,762	2.410	39.061	5.000	3.313	$429.81	$90.91	$13.38	$94.23	$69.27	$267.79	$162.02
40-1295-SP31	40	2,596	2.326	35.577	5.017	2.918	$419.54	$56.23	$13.38	$91.97	$68.19	$229.77	$189.77
40-1295-SP33	40	2,743	1.430	29.971	2.827	4.498	$298.58	$25.45	$13.38	$69.82	$54.41	$163.05	$135.52
40-1295-SP35	40	3,469	2.374	45.236	1.962	9.856	$383.07	$50.54	$13.38	$91.08	$63.68	$218.68	$164.39
40-1295-SP37	40	4,081	3.689	55.291	2.987	5.950	$405.19	$23.80	$13.38	$81.76	$60.28	$179.22	$225.97
40-1295-SP39	40	4,691	3.109	43.117	2.624	7.067	$385.60	$41.66	$13.38	$83.30	$60.66	$199.00	$186.60
40-1295-SP41	40	1,255	3.093	46.151	2.054	8.723	$385.67	$31.37	$13.38	$85.42	$60.94	$191.11	$194.56
40-1312-SP21	40	2,253	2.318	24.545	1.845	4.739	$267.66	$26.13	$13.38	$57.08	$46.78	$143.38	$124.29
40-1312-SP23	40	4,701	2.139	34.931	2.430	5.095	$307.85	$23.35	$13.38	$67.91	$52.88	$157.52	$150.33
40-1312-SP25	40	5,576	2.806	46.129	4.453	6.043	$464.23	$22.89	$13.38	$103.50	$73.08	$212.85	$251.38
40-1312-SP27	40	10,465	2.712	39.183	5.589	1.903	$444.35	$28.58	$13.38	$94.00	$69.91	$205.87	$238.48
40-1312-SP29	40	17,789	2.433	34.382	4.709	3.367	$412.75	$20.42	$13.38	$90.30	$66.96	$191.05	$221.70
40-1312-SP31	40	18,881	1.936	29.008	3.315	3.103	$312.54	$26.51	$13.38	$68.24	$54.24	$162.37	$150.16
40-1312-SP35	40	18,710	3.396	53.039	2.725	8.550	$431.66	$21.16	$13.38	$94.21	$66.13	$194.88	$236.78
40-1312-SP39	40	13,533	3.314	42.318	2.343	7.098	$375.05	$27.31	$13.38	$79.42	$58.36	$178.46	$196.59
40-1329-SP19	40	2,341	2.852	36.188	3.428	4.766	$377.81	$25.90	$13.38	$80.48	$60.37	$180.13	$197.68
40-1329-SP23	40	9,274	2.423	38.430	3.538	6.795	$413.00	$21.71	$13.38	$94.78	$67.62	$197.48	$215.51
40-1329-SP27	40	16,563	2.724	40.716	6.513	1.788	$496.10	$21.20	$13.38	$106.75	$77.44	$218.77	$277.33
40-1329-SP31	40	17,963	2.070	33.538	2.679	8.073	$377.02	$20.42	$13.38	$90.19	$64.26	$188.25	$188.77
40-1329-SP35	40	21,231	5.350	72.435	4.999	5.129	$555.33	$20.98	$13.38	$106.28	$74.90	$215.54	$339.79
40-1346-SP15	40	3,693	1.816	23.099	2.282	3.043	$246.44	$23.91	$13.38	$52.74	$45.24	$135.27	$111.17
40-1346-SP17	40	4,226	3.503	42.056	3.941	3.922	$410.48	$23.46	$13.38	$82.80	$62.13	$181.77	$228.71
40-1346-SP19	40	7,366	3.573	48.526	4.532	5.310	$475.63	$21.92	$13.38	$100.17	$71.48	$206.95	$268.68
40-1346-SP23	40	13,392	2.876	41.651	4.941	4.521	$462.86	$20.42	$13.38	$101.03	$72.52	$207.35	$255.52
40-1346-SP35	40	8,209	3.835	58.344	4.587	5.122	$486.19	$21.87	$13.38	$99.93	$71.37	$206.55	$279.64
40-1431-SP05	40	3,225	2.341	52.813	1.555	12.112	$405.49	$22.14	$13.38	$99.37	$67.21	$202.09	$203.39
40-1431-SP07	40	3,506	2.104	37.003	2.235	9.598	$383.24	$21.99	$13.38	$93.33	$65.20	$193.90	$189.34
40-1431-SP09	40	2,279	2.258	38.083	3.843	4.883	$389.28	$22.84	$13.38	$87.21	$64.28	$187.71	$201.58
40-1431-SP11	40	1,849	5.597	59.054	6.649	4.748	$643.30	$23.39	$13.38	$127.81	$87.80	$252.37	$390.93
40-1431-SP13	40	1,304	3.901	44.197	4.411	6.756	$503.15	$24.66	$13.38	$107.47	$74.94	$220.45	$282.70
40-1431-SP15	40	577	2.925	41.393	2.648	6.422	$369.06	$29.99	$13.38	$79.56	$58.86	$181.79	$187.27
40-1431-SP17	40	502	2.270	39.139	2.409	8.766	$382.44	$31.37	$13.38	$90.68	$64.10	$199.53	$182.91
40-1431-SP19	40	1,205	2.170	62.492	1.815	11.100	$400.65	$20.42	$13.38	$96.88	$66.29	$196.97	$203.68
40-1431-SP21	40	6,552	1.995	59.614	1.330	13.101	$405.52	$20.42	$13.38	$102.32	$68.36	$204.48	$201.04
40-1431-SP23	40	8,436	1.925	68.384	0.981	15.513	$433.88	$20.42	$13.38	$112.45	$72.89	$219.14	$214.74
40-1431-SP25	40	7,111	1.933	63.246	1.062	15.684	$439.80	$20.42	$13.38	$114.65	$74.10	$222.55	$217.24
40-1431-SP27	40	1,883	2.500	68.251	2.145	12.641	$460.27	$23.36	$13.38	$111.45	$73.89	$222.09	$238.18

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
40-1451-SP11	40	1,329	3.610	44.643	4.351	3.847	$436.42	$20.42	$13.38	$88.33	$65.39	$187.53	$248.90
40-1451-SP13	40	268	5.263	55.564	5.828	8.848	$664.88	$20.37	$13.38	$141.48	$93.53	$268.75	$396.13
40-1451-SP15	40	922	2.466	50.108	1.360	9.175	$339.93	$20.45	$13.38	$78.10	$56.42	$168.36	$171.57
40-1451-SP17	40	8,342	2.261	69.908	1.005	10.251	$343.41	$20.42	$13.38	$79.85	$56.74	$170.39	$173.03
40-1451-SP19	40	10,551	2.332	67.391	1.117	12.337	$390.70	$20.42	$13.38	$94.55	$64.17	$192.52	$198.19
40-1451-SP21	40	13,589	3.203	76.014	1.763	14.802	$501.51	$21.36	$13.38	$119.60	$77.35	$231.69	$269.81
40-1451-SP23	40	7,721	3.033	83.676	1.909	15.207	$516.49	$22.09	$13.38	$124.31	$79.85	$239.63	$276.87
40-1451-SP25	40	2,199	2.533	69.256	1.693	14.541	$472.13	$20.41	$13.38	$116.79	$75.93	$226.52	$245.61
60-0962-SP17	60	1,205	0.734	6.707	1.882	0.952	$148.17	$20.42	$13.38	$33.52	$35.33	$102.65	$45.52
60-0962-SP19	60	1,754	0.519	4.473	2.018	0.368	$138.18	$20.40	$13.38	$31.78	$34.67	$100.24	$37.95
60-0962-SP21	60	1,641	0.338	4.082	3.238	0.078	$197.77	$20.44	$13.38	$47.72	$44.19	$125.72	$72.04
60-0962-SP23	60	2,214	0.453	2.724	3.212	0.038	$197.90	$20.41	$13.38	$47.09	$43.84	$124.72	$73.18
60-0962-SP25	60	2,070	1.143	4.545	4.886	0.044	$312.73	$20.42	$13.38	$71.59	$58.14	$163.54	$149.19
60-0962-SP27	60	1,456	0.756	3.234	2.418	0.033	$160.33	$41.47	$13.38	$35.53	$37.05	$127.42	$32.91
60-0978-SP15	60	2,304	0.523	5.852	1.252	1.142	$109.87	$33.63	$13.38	$25.51	$30.55	$103.06	$6.81
60-0978-SP19	60	9,390	0.368	3.945	2.426	0.326	$156.63	$20.42	$13.38	$37.44	$38.02	$109.27	$47.36
60-0978-SP23	60	10,652	0.887	3.494	3.960	0.042	$252.47	$20.42	$13.38	$58.05	$50.23	$142.09	$110.38
60-0993-SP15	60	2,685	0.346	2.948	1.421	0.407	$99.56	$20.42	$13.38	$23.31	$29.70	$86.80	$12.75
60-0993-SP19	60	14,596	0.343	1.974	1.398	0.074	$91.32	$21.36	$13.38	$20.87	$28.47	$84.09	$7.24
60-0993-SP23	60	10,980	1.030	4.095	4.419	0.050	$282.93	$20.42	$13.38	$64.81	$54.18	$152.79	$130.14
60-1040-SP15	60	7,259	0.702	4.067	4.155	0.356	$265.11	$105.36	$13.38	$62.84	$52.87	$234.46	$30.65
60-1055-SP13	60	8,942	0.488	3.080	3.584	0.113	$221.72	$62.15	$13.38	$52.98	$47.25	$175.75	$45.97
60-1055-SP15	60	5,815	0.496	4.316	5.684	0.100	$342.67	$84.46	$13.38	$83.49	$65.13	$246.46	$96.21
60-1070-SP15	60	1,646	0.280	3.546	5.148	0.026	$304.55	$20.44	$13.38	$75.18	$60.32	$169.32	$135.23
60-1107-SP23	60	1,904	1.089	6.593	1.590	2.059	$161.92	$47.04	$13.38	$36.26	$36.28	$132.96	$28.96
60-1107-SP25	60	6,701	1.636	10.228	2.792	0.881	$223.93	$43.37	$13.38	$46.46	$42.87	$146.08	$77.85
60-1107-SP27	60	5,880	1.678	12.656	2.882	0.716	$228.07	$36.18	$13.38	$46.77	$43.13	$139.46	$88.61
60-1107-SP29	60	5,685	1.017	7.744	2.623	0.676	$193.18	$36.17	$13.38	$42.62	$40.80	$132.97	$60.21
60-1107-SP31	60	4,579	0.759	5.386	2.534	0.236	$171.86	$35.61	$13.38	$38.51	$38.67	$126.16	$45.69
60-1137-SP21	60	1,311	1.078	7.950	2.175	2.225	$198.98	$30.23	$13.38	$45.83	$41.79	$131.23	$67.75
60-1137-SP23	60	1,802	1.644	13.203	4.522	2.044	$347.00	$20.42	$13.38	$78.97	$61.25	$174.02	$172.97
60-1137-SP25	60	1,173	1.589	19.227	5.229	0.995	$368.52	$31.39	$13.38	$82.74	$64.02	$191.53	$176.98
60-1137-SP27	60	2,388	0.919	9.226	2.716	0.377	$190.88	$20.43	$13.38	$42.11	$40.67	$116.59	$74.29
60-1137-SP29	60	1,842	0.484	4.245	1.859	0.152	$123.96	$20.41	$13.38	$28.12	$32.65	$94.56	$29.39
60-1137-SP31	60	242	0.505	3.890	2.187	0.119	$142.52	$20.42	$13.38	$32.69	$35.35	$101.84	$40.68
60-1152-SP15	60	1,041	1.833	19.683	3.815	0.610	$286.58	$20.45	$13.38	$59.78	$50.76	$144.36	$142.21
60-1152-SP17	60	3,524	1.633	12.443	2.723	1.852	$239.51	$20.42	$13.38	$51.57	$45.30	$130.66	$108.85
60-1152-SP19	60	4,708	1.368	9.587	2.026	2.753	$208.80	$20.42	$13.38	$47.02	$42.16	$122.98	$85.83
60-1152-SP21	60	11,661	1.102	7.852	1.916	2.116	$182.58	$20.42	$13.38	$41.37	$39.24	$114.41	$68.17
60-1152-SP23	60	14,603	1.465	12.245	4.257	1.431	$315.00	$24.70	$13.38	$71.25	$57.09	$166.41	$148.59
60-1152-SP27	60	5,502	0.654	7.282	2.230	0.439	$156.47	$42.21	$13.38	$35.37	$36.71	$127.67	$28.79
60-1171-SP15	60	14,598	1.951	17.861	3.504	1.415	$286.51	$20.42	$13.38	$60.29	$50.61	$144.70	$141.81
60-1171-SP19	60	15,774	1.570	12.328	2.426	2.462	$232.57	$21.23	$13.38	$51.07	$44.67	$130.35	$102.22
60-1171-SP23	60	16,558	0.841	8.370	2.404	0.449	$171.92	$21.20	$13.38	$37.99	$38.22	$110.79	$61.13
60-1278-SP37	60	2,724	1.918	19.612	1.707	5.291	$257.89	$44.50	$13.38	$58.45	$47.32	$163.65	$94.23
60-1278-SP39	60	6,386	1.870	22.270	1.360	3.376	$201.05	$35.52	$13.38	$41.41	$38.41	$128.72	$72.33
60-1278-SP41	60	10,159	1.720	19.061	1.126	2.653	$168.46	$34.19	$13.38	$33.42	$34.17	$115.16	$53.30
60-1278-SP43	60	6,911	1.650	17.078	0.909	2.677	$153.80	$35.88	$13.38	$30.39	$32.39	$112.03	$41.77
60-1295-SP33	60	1,069	1.275	17.238	1.495	6.689	$254.91	$20.43	$13.38	$64.03	$49.86	$147.70	$107.21
60-1295-SP37	60	3,367	2.189	28.272	1.553	4.992	$254.05	$20.42	$13.38	$54.45	$45.08	$133.33	$120.71
60-1295-SP39	60	3,058	1.815	27.049	1.111	4.122	$201.71	$33.62	$13.38	$42.50	$38.60	$128.09	$73.62
60-1295-SP41	60	3,722	1.749	23.961	0.787	5.006	$197.05	$20.42	$13.38	$43.28	$38.58	$115.66	$81.39
60-1295-SP43	60	3,861	1.184	17.057	0.543	2.689	$120.92	$20.42	$13.38	$25.07	$29.30	$88.18	$32.74
60-1312-SP29	60	853	0.589	8.086	0.551	5.770	$161.34	$20.42	$13.38	$44.36	$38.95	$117.10	$44.24
60-1312-SP31	60	7,150	1.170	13.426	0.839	6.722	$213.52	$30.76	$13.38	$54.63	$44.36	$143.13	$70.40
60-1312-SP35	60	20,103	1.811	18.904	1.018	4.695	$203.81	$22.76	$13.38	$44.66	$39.59	$120.38	$83.42
60-1312-SP39	60	19,906	1.845	22.945	0.900	4.432	$194.60	$24.23	$13.38	$41.33	$37.76	$116.70	$77.90
60-1312-SP41	60	24,822	1.435	18.046	0.673	3.236	$145.87	$20.94	$13.38	$30.44	$32.12	$96.88	$48.99
60-1312-SP43	60	7,360	2.320	28.724	0.895	3.565	$192.45	$34.63	$13.38	$35.94	$35.03	$118.98	$73.47
60-1329-SP31	60	18,777	1.748	18.196	0.927	6.606	$233.36	$21.10	$13.38	$55.29	$44.74	$134.52	$98.84
60-1329-SP35	60	18,561	1.814	24.290	0.900	4.528	$196.21	$22.95	$13.38	$41.94	$38.06	$116.34	$79.87
60-1329-SP39	60	11,027	1.370	19.707	0.912	3.313	$160.03	$21.50	$13.38	$34.40	$34.39	$103.67	$56.36
60-1329-SP41	60	5,360	2.528	30.693	1.054	3.560	$207.71	$38.49	$13.38	$38.27	$36.37	$126.51	$81.21
60-1346-SP35	60	19,316	1.415	20.832	0.847	5.133	$192.93	$23.01	$13.38	$44.88	$39.49	$120.75	$72.17
60-1363-SP35	60	12,259	1.351	24.117	1.282	4.729	$209.86	$21.47	$13.38	$48.71	$41.94	$125.50	$84.36
60-1420-SP23	60	1,305	1.868	35.894	1.701	4.582	$249.54	$80.04	$13.38	$54.06	$45.06	$192.54	$57.00
60-1420-SP25	60	2,045	3.317	60.483	1.703	6.035	$325.74	$26.26	$13.38	$63.61	$49.59	$152.84	$172.90
60-1420-SP27	60	3,620	3.052	45.321	1.595	5.834	$302.33	$23.72	$13.38	$60.60	$48.05	$145.74	$156.59
60-1420-SP29	60	4,545	2.310	34.343	1.645	5.778	$280.19	$23.05	$13.38	$60.79	$48.31	$145.53	$134.66
60-1420-SP31	60	2,491	2.793	42.920	2.406	6.394	$351.88	$25.22	$13.38	$75.87	$56.71	$171.18	$180.70
40-0946-SP15	40	1,686	1.203	15.523	0.136	4.832	$138.61	$35.54	$13.38	$32.57	$32.49	$113.98	$24.63
40-0946-SP17	40	4,909	0.914	9.995	0.198	3.968	$115.65	$31.06	$13.38	$27.96	$30.33	$102.73	$12.92
40-0946-SP19	40	7,273	1.009	11.080	0.370	5.806	$163.83	$49.59	$13.38	$42.02	$37.51	$142.50	$21.33
40-0946-SP21	40	8,768	1.238	16.567	0.497	7.814	$218.01	$54.46	$13.38	$56.53	$44.83	$169.21	$48.80
40-0946-SP23	40	9,456	1.332	20.666	0.604	5.859	$190.74	$47.42	$13.38	$45.89	$39.67	$146.36	$44.39
40-0946-SP25	40	9,601	1.596	33.083	0.701	5.112	$194.09	$48.26	$13.38	$42.76	$38.18	$142.58	$51.51
40-0946-SP27	40	6,104	1.436	30.590	0.577	4.297	$166.11	$59.87	$13.38	$35.81	$34.59	$143.64	$22.46
40-0946-SP29	40	1,357	1.550	36.002	0.636	5.231	$192.76	$95.17	$13.38	$42.59	$38.00	$189.14	$3.62
40-0962-SP11	40	376	1.603	34.137	0.257	9.029	$244.62	$20.40	$13.38	$60.88	$46.56	$141.22	$103.40
40-0962-SP13	40	5,670	1.589	32.822	0.150	7.865	$215.15	$20.42	$13.38	$52.00	$42.03	$127.83	$87.32

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
40-0962-SP15	40	13,816	1.088	18.034	0.173	5.848	$158.35	$20.42	$13.38	$39.49	$35.96	$109.25	$49.10
40-0962-SP17	40	13,470	0.952	11.566	0.334	6.359	$171.09	$21.44	$13.38	$44.95	$38.92	$118.69	$52.40
40-0962-SP19	40	14,941	0.965	16.617	0.549	8.291	$223.10	$20.42	$13.38	$60.25	$46.76	$140.81	$82.29
40-0962-SP21	40	12,923	1.373	21.798	0.676	9.032	$257.43	$21.49	$13.38	$66.85	$50.14	$151.86	$105.58
40-0962-SP23	40	14,062	1.524	25.647	0.744	5.612	$201.17	$25.65	$13.38	$46.45	$40.10	$125.58	$75.58
40-0962-SP25	40	13,445	2.276	46.037	0.735	6.206	$240.35	$21.44	$13.38	$50.34	$41.87	$127.03	$113.32
40-0962-SP27	40	11,203	1.984	44.977	0.722	6.322	$233.75	$29.99	$13.38	$50.82	$42.12	$136.30	$97.45
40-0962-SP29	40	2,689	1.882	48.558	0.559	7.895	$253.52	$20.41	$13.38	$58.33	$45.61	$137.74	$115.79
40-1107-SP21	40	2,675	1.966	46.396	1.457	8.435	$316.71	$43.34	$13.38	$74.79	$54.96	$186.46	$130.25
40-1107-SP23	40	3,522	1.183	20.194	0.931	4.473	$178.80	$69.12	$13.38	$41.94	$38.16	$162.60	$16.20
40-1107-SP25	40	4,847	1.051	16.004	0.907	4.647	$175.51	$64.13	$13.38	$42.62	$38.49	$158.62	$16.89
40-1107-SP27	40	5,923	1.826	24.037	1.128	4.892	$216.52	$62.05	$13.38	$47.55	$41.14	$164.13	$52.39
40-1107-SP29	40	5,774	2.232	32.679	1.182	6.333	$261.52	$63.62	$13.38	$57.49	$46.07	$180.57	$80.96
40-1107-SP31	40	6,341	2.493	30.699	1.175	6.036	$261.34	$62.97	$13.38	$55.54	$45.09	$176.98	$84.36
40-1107-SP33	40	5,913	1.865	32.762	1.073	5.719	$233.98	$68.01	$13.38	$52.02	$43.24	$176.65	$57.34
40-1107-SP35	40	4,072	1.799	24.901	1.378	2.913	$192.40	$70.75	$13.38	$38.77	$37.12	$160.03	$32.37
40-1122-SP17	40	2,604	1.952	39.666	2.660	4.319	$303.27	$71.84	$13.38	$66.42	$52.43	$204.06	$99.21
40-1122-SP19	40	2,286	2.123	47.808	2.374	7.662	$359.10	$63.17	$13.38	$83.32	$60.38	$220.25	$138.85
40-1122-SP21	40	15,279	2.462	69.405	1.475	13.231	$432.71	$41.36	$13.38	$105.41	$70.01	$230.15	$202.56
40-1122-SP23	40	19,450	1.947	33.022	1.297	7.472	$282.77	$26.97	$13.38	$66.28	$50.59	$157.22	$125.54
40-1122-SP25	40	22,713	2.586	31.356	1.606	6.849	$304.42	$25.27	$13.38	$66.94	$51.30	$156.89	$147.53
40-1122-SP27	40	24,972	2.566	32.487	1.813	6.203	$303.86	$24.78	$13.38	$65.92	$51.06	$155.13	$148.73
40-1122-SP29	40	25,721	3.063	40.638	1.779	7.442	$342.14	$20.42	$13.38	$73.33	$54.62	$161.75	$180.39
40-1122-SP31	40	28,760	2.669	37.220	1.257	7.109	$294.08	$24.65	$13.38	$63.56	$49.13	$150.72	$143.37
40-1122-SP33	40	21,394	1.786	32.052	1.143	4.915	$220.21	$20.42	$13.38	$47.99	$41.34	$123.13	$97.08
40-1122-SP35	40	16,944	1.219	16.196	0.941	1.688	$125.03	$24.67	$13.38	$24.59	$29.59	$92.23	$32.80
40-1137-SP13	40	338	1.754	58.136	0.689	12.445	$349.26	$20.46	$13.38	$88.83	$60.86	$183.53	$165.73
40-1137-SP15	40	4,515	2.159	55.639	2.921	6.967	$381.37	$36.59	$13.38	$87.00	$62.88	$199.85	$181.52
40-1137-SP17	40	7,975	2.233	39.210	3.397	3.096	$329.16	$22.15	$13.38	$69.51	$54.92	$159.96	$169.20
40-1137-SP19	40	11,918	2.195	39.380	2.979	6.042	$360.89	$26.50	$13.38	$81.89	$60.50	$182.28	$178.62
40-1137-SP21	40	19,130	2.043	55.904	1.541	11.840	$393.06	$20.42	$13.38	$97.46	$66.25	$197.51	$195.55
40-1137-SP23	40	23,078	2.283	42.893	1.810	9.473	$363.62	$24.14	$13.38	$86.43	$61.19	$185.14	$178.48
40-1137-SP25	40	22,085	2.791	37.117	2.780	9.257	$425.81	$20.42	$13.38	$99.20	$68.79	$201.80	$224.01
40-1137-SP27	40	20,421	2.655	33.975	2.471	5.525	$331.46	$25.21	$13.38	$71.26	$54.56	$164.41	$167.05
40-1137-SP29	40	28,155	2.505	33.619	1.468	4.913	$258.13	$20.88	$13.38	$52.80	$44.11	$131.16	$126.97
40-1137-SP31	40	24,933	2.170	29.340	1.391	3.766	$221.13	$20.97	$13.38	$44.41	$39.89	$118.65	$102.49
40-1152-SP13	40	2,878	2.420	64.686	1.010	11.718	$373.80	$24.89	$13.38	$89.09	$61.34	$188.70	$185.11
40-1152-SP15	40	6,705	4.374	72.753	3.100	10.152	$517.75	$20.42	$13.38	$110.01	$74.30	$218.11	$299.64
40-1152-SP17	40	11,490	3.426	52.750	2.885	8.763	$445.53	$20.42	$13.38	$97.86	$68.15	$199.82	$245.71
40-1152-SP19	40	16,771	2.302	38.626	1.699	10.381	$373.37	$24.46	$13.38	$90.47	$63.06	$191.37	$182.00
40-1278-SP27	40	299	2.377	37.031	5.906	2.980	$473.60	$268.36	$13.38	$105.31	$75.96	$463.01	$10.59
40-1278-SP29	40	751	2.475	34.827	4.099	2.298	$358.48	$29.57	$13.38	$74.72	$58.43	$176.09	$182.38
40-1278-SP31	40	1,927	2.040	31.791	4.516	2.190	$367.75	$93.08	$13.38	$80.04	$61.66	$248.15	$119.60
40-1278-SP33	40	2,469	1.276	24.376	3.129	3.726	$294.70	$29.90	$13.38	$69.31	$54.59	$167.19	$127.52
40-1278-SP35	40	3,121	1.423	27.192	2.349	6.084	$300.29	$29.92	$13.38	$72.77	$55.25	$171.32	$128.97
40-1278-SP37	40	3,573	2.263	38.605	2.063	4.751	$285.00	$80.80	$13.38	$60.47	$48.68	$203.33	$81.67
40-1278-SP39	40	2,506	3.059	45.904	2.897	3.825	$338.81	$29.92	$13.38	$66.97	$52.92	$163.19	$175.62
40-1278-SP41	40	2,979	3.487	47.303	2.534	5.229	$356.70	$29.92	$13.38	$70.55	$54.18	$168.03	$188.68
40-1278-SP43	40	3,314	2.377	37.683	2.216	5.216	$305.28	$29.91	$13.38	$65.61	$51.43	$160.33	$144.95
40-1295-SP25	40	1,801	2.524	33.398	3.066	6.767	$385.82	$20.42	$13.38	$87.68	$63.50	$184.99	$200.83
40-1295-SP27	40	3,696	2.464	38.159	4.858	3.864	$433.28	$20.43	$13.38	$95.62	$69.77	$199.20	$234.08
40-1295-SP29	40	9,534	2.481	39.698	4.812	3.451	$423.78	$21.87	$13.38	$92.37	$68.09	$195.71	$228.07
40-1295-SP31	40	13,674	2.420	39.562	5.238	3.086	$439.54	$20.42	$13.38	$96.28	$70.59	$200.67	$238.87
40-1295-SP33	40	15,011	1.462	29.017	3.259	4.152	$317.18	$20.42	$13.38	$73.94	$57.03	$164.77	$152.41
40-1295-SP35	40	17,698	1.850	38.197	2.341	8.148	$355.38	$20.42	$13.38	$85.77	$61.61	$181.17	$174.21
40-1295-SP37	40	16,448	3.371	55.443	3.018	6.093	$401.55	$20.42	$13.38	$83.08	$60.99	$177.87	$223.68
40-1295-SP39	40	15,144	3.514	50.908	3.117	5.964	$406.52	$20.42	$13.38	$83.68	$61.44	$178.92	$227.59
40-1295-SP41	40	14,052	3.785	53.284	2.698	7.582	$421.69	$20.42	$13.38	$87.79	$62.90	$184.49	$237.20
40-1295-SP43	40	9,494	2.185	32.857	1.799	4.534	$261.21	$20.42	$13.38	$55.20	$45.75	$134.75	$126.46
40-1451-SP19	40	5,603	2.696	65.300	1.690	13.656	$457.49	$22.71	$13.38	$111.18	$73.16	$220.43	$237.06
40-1451-SP21	40	4,995	3.515	82.342	2.274	13.638	$519.22	$22.99	$13.38	$119.83	$78.09	$234.29	$284.93
40-1451-SP23	40	755	3.254	84.069	2.054	14.635	$519.76	$37.41	$13.38	$122.87	$79.31	$252.97	$266.79
40-1471-SP15	40	1,927	2.823	87.790	2.078	9.805	$418.64	$39.15	$13.38	$92.92	$64.51	$209.96	$208.68
40-1471-SP17	40	6,263	2.768	81.401	2.223	10.696	$439.89	$44.02	$13.38	$100.54	$68.51	$226.45	$213.44
40-1471-SP19	40	5,455	3.098	71.913	2.303	14.849	$528.89	$47.51	$13.38	$127.70	$82.10	$270.70	$258.19
40-1471-SP21	40	3,014	3.218	70.976	2.066	14.504	$511.38	$43.22	$13.38	$122.09	$79.01	$257.70	$253.67
40-1487-SP15	40	3,309	4.613	120.465	3.999	8.279	$559.95	$45.02	$13.38	$111.85	$76.16	$246.41	$313.53
40-1487-SP17	40	3,463	4.800	113.240	3.834	8.881	$563.84	$43.34	$13.38	$113.18	$76.62	$246.52	$317.33
60-0946-SP17	60	678	0.991	6.633	0.722	4.864	$163.51	$30.51	$13.38	$41.19	$37.59	$122.66	$40.84
60-0946-SP19	60	2,848	0.797	5.043	1.015	2.113	$121.71	$33.23	$13.38	$28.17	$31.54	$106.32	$15.38
60-0946-SP21	60	3,032	0.431	3.275	1.829	0.193	$121.20	$35.25	$13.38	$27.92	$32.52	$109.07	$12.14
60-0946-SP23	60	2,901	0.368	2.725	2.161	0.051	$135.65	$33.52	$13.38	$31.85	$34.91	$113.66	$21.99
60-0946-SP25	60	1,343	0.649	2.648	2.299	0.035	$150.54	$39.15	$13.38	$33.79	$36.04	$122.36	$28.17
60-0946-SP27	60	464	0.596	2.302	2.197	0.034	$143.14	$27.75	$13.38	$32.29	$35.17	$108.59	$34.54
60-0962-SP17	60	4,958	0.795	5.965	1.309	2.291	$142.32	$20.42	$13.38	$33.57	$34.60	$101.97	$40.35
60-0962-SP19	60	6,575	0.664	4.548	1.504	0.839	$121.61	$29.30	$13.38	$27.28	$31.76	$101.72	$19.89
60-0962-SP21	60	6,141	0.366	3.023	2.159	0.103	$136.63	$22.66	$13.38	$32.16	$35.06	$103.26	$33.37
60-0962-SP23	60	8,053	0.330	2.538	2.323	0.041	$143.67	$26.31	$13.38	$34.14	$36.26	$110.08	$33.59
60-0962-SP25	60	5,368	0.982	3.960	4.117	0.045	$264.22	$20.42	$13.38	$60.38	$51.59	$145.77	$118.45
60-0962-SP27	60	2,214	0.839	3.114	2.879	0.037	$188.93	$20.41	$13.38	$42.27	$40.99	$117.05	$71.87

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
60-1107-SP21	60	742	1.169	8.690	2.280	0.552	$175.48	$44.36	$13.38	$36.88	$37.49	$132.11	$43.37
60-1107-SP23	60	2,207	1.061	6.318	1.712	1.660	$160.38	$36.16	$13.38	$35.52	$36.08	$121.14	$39.24
60-1107-SP25	60	4,391	1.442	8.724	2.240	1.281	$194.30	$36.17	$13.38	$40.90	$39.41	$129.85	$64.45
60-1107-SP27	60	4,200	1.456	10.073	2.549	0.930	$206.23	$42.74	$13.38	$43.21	$40.95	$140.29	$65.94
60-1107-SP29	60	3,667	0.829	6.626	2.921	0.529	$202.07	$46.88	$13.38	$46.00	$42.88	$149.14	$52.93
60-1107-SP31	60	2,854	0.623	4.286	2.593	0.155	$169.71	$45.28	$13.38	$38.84	$38.92	$136.41	$33.29
60-1107-SP33	60	1,033	0.834	4.676	2.361	0.169	$162.31	$41.89	$13.38	$35.57	$36.98	$127.83	$34.49
60-1122-SP19	60	6,170	1.529	11.999	3.299	0.699	$247.52	$51.37	$13.38	$52.72	$46.64	$164.11	$83.42
60-1122-SP21	60	14,903	1.261	9.683	2.471	1.936	$215.85	$36.45	$13.38	$48.36	$43.41	$141.60	$74.25
60-1122-SP23	60	15,453	1.167	7.589	1.955	2.478	$193.33	$22.57	$13.38	$44.21	$40.69	$120.85	$72.48
60-1122-SP25	60	12,992	1.205	7.192	2.024	2.069	$190.23	$24.23	$13.38	$42.65	$40.01	$120.27	$69.96
60-1122-SP27	60	14,418	1.127	8.069	3.086	0.931	$227.66	$23.16	$13.38	$50.98	$45.54	$133.06	$94.59
60-1122-SP29	60	12,510	0.870	6.901	4.091	0.270	$265.41	$21.44	$13.38	$61.43	$52.06	$148.32	$117.10
60-1122-SP31	60	9,109	0.707	5.415	3.135	0.165	$203.71	$30.32	$13.38	$46.82	$43.58	$134.11	$69.60
60-1122-SP33	60	3,133	0.830	5.301	3.140	0.182	$207.41	$20.42	$13.38	$47.01	$43.67	$124.48	$82.93
60-1137-SP17	60	4,872	1.406	12.573	3.226	0.531	$237.15	$20.42	$13.38	$50.59	$45.49	$129.88	$107.28
60-1137-SP19	60	17,228	1.579	13.116	3.382	1.092	$261.59	$22.71	$13.38	$56.40	$48.56	$141.05	$120.54
60-1137-SP21	60	17,700	1.085	8.454	2.270	2.216	$204.61	$21.14	$13.38	$47.16	$42.57	$124.25	$80.36
60-1137-SP23	60	16,957	1.092	8.237	2.964	1.852	$237.48	$22.35	$13.38	$54.97	$47.36	$138.06	$99.42
60-1137-SP25	60	9,699	1.344	15.262	4.828	0.962	$336.82	$20.42	$13.38	$76.63	$60.50	$170.92	$165.90
60-1137-SP27	60	11,207	0.965	10.056	3.580	0.314	$240.72	$26.67	$13.38	$54.30	$47.84	$142.19	$98.54
60-1137-SP29	60	12,680	0.592	4.861	2.679	0.127	$173.57	$31.30	$13.38	$39.92	$39.57	$124.17	$49.39
60-1137-SP31	60	6,781	0.531	4.559	2.808	0.133	$179.36	$20.42	$13.38	$41.82	$40.69	$116.31	$63.05
60-1152-SP15	60	2,477	1.857	20.740	4.024	0.526	$298.06	$28.47	$13.38	$62.31	$52.29	$156.45	$141.61
60-1152-SP17	60	13,882	1.662	13.481	2.978	1.535	$249.26	$21.35	$13.38	$53.31	$46.49	$134.53	$114.73
60-1152-SP19	60	14,218	1.315	9.437	1.987	3.225	$214.20	$23.67	$13.38	$49.40	$43.29	$129.73	$84.46
60-1278-SP37	60	2,015	1.676	19.452	1.705	4.452	$235.28	$35.90	$13.38	$53.13	$44.70	$147.10	$88.18
60-1278-SP39	60	2,598	1.837	22.269	1.281	3.410	$196.27	$31.15	$13.38	$40.46	$37.84	$122.82	$73.45
60-1278-SP41	60	4,016	1.819	20.271	1.080	2.898	$173.58	$32.37	$13.38	$34.31	$34.53	$114.59	$59.00
60-1278-SP43	60	3,318	1.483	16.542	0.766	2.911	$145.50	$33.78	$13.38	$29.74	$31.89	$108.79	$36.71
60-1278-SP45	60	1,792	1.278	15.222	0.740	2.271	$125.84	$36.12	$13.38	$25.31	$29.69	$104.50	$21.33
60-1295-SP33	60	990	1.106	16.786	1.197	7.184	$242.73	$20.41	$13.38	$62.77	$48.85	$145.40	$97.33
60-1295-SP37	60	13,652	2.184	26.144	1.726	5.282	$268.47	$21.43	$13.38	$58.76	$47.45	$141.01	$127.45
60-1295-SP39	60	15,569	2.187	27.737	1.414	4.026	$227.19	$20.42	$13.38	$46.36	$40.89	$121.04	$106.15
60-1295-SP41	60	17,040	2.102	25.204	1.104	4.018	$205.96	$21.17	$13.38	$41.76	$38.22	$114.53	$91.43
60-1295-SP43	60	21,953	1.219	15.315	0.581	2.689	$123.27	$24.61	$13.38	$25.61	$29.63	$93.23	$30.04
60-1295-SP45	60	3,373	2.095	26.282	0.978	3.282	$184.84	$51.47	$13.38	$35.31	$34.85	$135.01	$49.83
60-1346-SP35	60	7,752	3.011	38.847	1.646	5.663	$298.12	$20.42	$13.38	$60.20	$47.95	$141.95	$156.17
60-1439-SP27	60	490	1.361	21.032	1.245	3.884	$190.43	$35.02	$13.38	$42.84	$39.00	$130.24	$60.19
60-1439-SP29	60	8,282	2.020	35.797	1.439	5.297	$252.20	$36.29	$13.38	$54.75	$45.05	$149.48	$102.72
60-1439-SP31	60	20,364	2.304	36.467	1.272	5.450	$253.24	$42.58	$13.38	$53.32	$44.10	$153.39	$99.85
60-1439-SP33	60	22,254	3.473	34.218	1.348	6.005	$297.63	$41.41	$13.38	$58.01	$46.47	$159.27	$138.36
60-1439-SP35	60	22,192	2.992	35.520	1.863	5.757	$310.46	$42.09	$13.38	$63.91	$50.09	$169.47	$140.98
60-1439-SP37	60	14,068	2.646	37.424	2.186	5.860	$322.82	$46.45	$13.38	$69.25	$53.17	$182.25	$140.57
60-1439-SP39	60	408	3.199	47.739	2.709	7.222	$397.76	$36.23	$13.38	$85.56	$61.86	$197.04	$200.72
60-1455-SP23	60	3,679	1.346	18.541	0.403	5.335	$168.57	$66.69	$13.38	$39.65	$36.32	$156.05	$12.52
60-1455-SP25	60	5,424	1.214	19.649	0.484	3.888	$142.49	$55.18	$13.38	$31.76	$32.53	$132.85	$9.64
60-1455-SP27	60	9,158	1.310	28.438	0.825	4.642	$182.75	$47.49	$13.38	$41.54	$37.77	$140.18	$42.57
60-1455-SP29	60	17,965	1.570	29.524	1.034	4.942	$207.71	$62.10	$13.38	$46.51	$40.49	$162.47	$45.24
60-1455-SP31	60	19,413	2.398	34.150	1.361	5.663	$263.83	$41.96	$13.38	$55.93	$45.52	$156.80	$107.04
60-1455-SP33	60	17,554	2.708	34.060	1.672	5.649	$289.42	$42.55	$13.38	$60.41	$48.13	$164.47	$124.95
60-1455-SP35	60	6,120	2.631	33.977	1.869	5.798	$301.59	$55.82	$13.38	$64.21	$50.28	$183.69	$117.90
60-1471-SP19	60	3,461	1.537	23.278	0.399	5.564	$179.77	$52.07	$13.38	$41.11	$37.01	$143.57	$36.20
60-1471-SP21	60	9,544	1.394	18.821	0.369	5.521	$171.62	$39.35	$13.38	$40.34	$36.62	$129.69	$41.93
60-1471-SP23	60	10,616	1.829	25.456	0.409	4.732	$172.84	$74.80	$13.38	$36.08	$34.50	$158.76	$14.07
60-1471-SP25	60	13,173	1.544	24.816	0.510	4.985	$175.83	$41.93	$13.38	$39.10	$36.15	$130.57	$45.26
60-1471-SP27	60	19,837	1.548	29.773	0.757	5.606	$204.19	$41.35	$13.38	$46.65	$40.19	$141.58	$62.61
60-1471-SP29	60	21,648	1.932	29.081	1.113	6.076	$243.31	$39.53	$13.38	$54.81	$44.69	$152.41	$90.90
60-1471-SP31	60	16,912	2.390	33.940	1.575	6.393	$289.85	$41.26	$13.38	$63.62	$49.61	$167.87	$121.97
60-1471-SP33	60	7,756	2.151	33.355	1.618	5.801	$274.47	$45.38	$13.38	$60.50	$48.14	$167.40	$107.06
60-1487-SP07	60	636	1.210	23.950	0.098	4.263	$129.29	$20.39	$13.38	$28.53	$30.40	$92.70	$36.58
60-1487-SP09	60	1,347	1.358	23.128	0.131	4.448	$138.21	$50.04	$13.38	$30.18	$31.25	$124.84	$13.37
60-1487-SP11	60	1,592	1.322	17.980	0.158	4.064	$129.21	$45.40	$13.38	$28.11	$30.29	$117.17	$12.04
60-1487-SP13	60	1,983	1.355	17.777	0.186	4.335	$136.84	$48.43	$13.38	$30.23	$31.37	$123.41	$13.44
60-1487-SP15	60	2,493	1.524	20.935	0.307	5.125	$164.72	$38.85	$13.38	$36.99	$34.86	$124.08	$40.64
60-1487-SP17	60	7,566	1.053	13.239	0.244	3.104	$106.72	$36.99	$13.38	$23.27	$28.04	$101.69	$5.04
60-1487-SP19	60	8,687	1.545	23.621	0.430	5.789	$186.19	$35.53	$13.38	$42.96	$37.97	$129.84	$56.36
60-1487-SP21	60	11,165	1.848	24.115	0.563	5.193	$190.49	$34.62	$13.38	$41.21	$37.25	$126.46	$64.03
60-1487-SP23	60	13,729	2.112	29.967	0.697	4.790	$199.76	$35.46	$13.38	$40.72	$37.14	$126.69	$73.07
60-1487-SP25	60	22,552	1.699	27.792	0.777	4.973	$196.20	$46.99	$13.38	$42.96	$38.39	$141.72	$54.48
60-1487-SP27	60	19,430	1.703	24.958	0.908	5.559	$213.90	$33.04	$13.38	$48.52	$41.33	$136.27	$77.63
60-1487-SP29	60	10,598	1.845	25.966	1.210	5.886	$241.63	$37.96	$13.38	$55.00	$44.93	$151.27	$90.37
60-1487-SP31	60	3,409	1.970	29.470	1.361	6.930	$275.08	$20.42	$13.38	$63.78	$49.46	$147.03	$128.05
60-1503-SP09	60	11,234	0.983	17.816	0.095	3.278	$101.65	$33.00	$13.38	$22.23	$27.31	$95.92	$5.73
60-1503-SP11	60	7,499	1.553	22.183	0.221	5.256	$163.58	$38.53	$13.38	$36.57	$34.53	$123.00	$40.57
60-1503-SP13	60	7,430	1.601	21.286	0.268	5.512	$172.06	$37.93	$13.38	$38.86	$35.73	$125.89	$46.17
60-1503-SP15	60	6,778	1.963	24.760	0.455	5.314	$189.86	$38.82	$13.38	$40.42	$36.71	$129.32	$60.54
60-1503-SP17	60	9,316	1.963	23.879	0.478	4.642	$177.84	$37.81	$13.38	$36.52	$34.81	$122.52	$55.32
60-1503-SP19	60	12,435	1.653	27.802	0.682	4.838	$186.98	$44.66	$13.38	$40.73	$37.16	$135.93	$51.04
60-1503-SP21	60	18,393	2.126	26.840	0.854	3.911	$190.92	$39.90	$13.38	$37.47	$35.76	$126.52	$64.40

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
60-1503-SP23	60	23,557	2.313	30.238	1.119	4.614	$225.93	$52.88	$13.38	$45.79	$40.20	$152.25	$73.68
60-1503-SP25	60	18,833	2.182	29.348	1.190	5.837	$249.75	$40.20	$13.38	$54.47	$44.61	$152.66	$97.09
60-1503-SP27	60	4,012	1.789	26.647	1.203	6.193	$245.94	$56.29	$13.38	$56.81	$45.82	$172.30	$73.65
60-1519-SP05	60	4,724	1.141	28.262	0.084	3.992	$123.32	$35.47	$13.38	$26.67	$29.44	$104.95	$18.37
60-1519-SP07	60	8,963	1.106	27.839	0.100	3.859	$120.58	$35.61	$13.38	$26.06	$29.16	$104.20	$16.38
60-1519-SP09	60	10,333	1.226	25.845	0.164	3.874	$126.83	$35.17	$13.38	$27.08	$29.75	$105.39	$21.45
60-1519-SP11	60	9,653	1.536	28.005	0.427	4.771	$168.09	$37.66	$13.38	$36.58	$34.78	$122.40	$45.69
60-1519-SP13	60	8,509	1.726	29.176	0.648	5.148	$193.49	$37.96	$13.38	$42.20	$37.84	$131.38	$62.11
60-1519-SP15	60	13,045	2.302	32.586	0.721	4.655	$204.59	$42.20	$13.38	$40.27	$36.93	$132.78	$71.81
60-1519-SP17	60	17,284	1.957	28.298	0.717	3.894	$178.93	$59.45	$13.38	$35.36	$34.53	$142.72	$36.21
60-1519-SP19	60	19,318	2.481	29.783	1.137	3.810	$215.65	$39.91	$13.38	$41.02	$37.85	$132.17	$83.48
60-1519-SP21	60	20,797	2.724	32.288	1.417	4.920	$260.47	$40.32	$13.38	$52.12	$43.69	$149.52	$110.95
60-1519-SP23	60	16,085	2.511	31.412	1.466	6.352	$284.92	$41.48	$13.38	$61.78	$48.56	$165.20	$119.72
60-1519-SP25	60	4,267	1.798	26.030	1.233	6.255	$248.85	$53.36	$13.38	$57.63	$46.27	$170.64	$78.21
60-1536-SP05	60	2,324	1.508	52.356	0.121	4.880	$162.34	$41.64	$13.38	$33.04	$32.51	$120.57	$41.77
60-1536-SP07	60	2,667	1.387	40.043	0.178	4.614	$152.11	$65.22	$13.38	$32.08	$32.17	$142.85	$9.26
60-1536-SP09	60	6,885	1.665	30.603	0.436	4.451	$166.94	$47.29	$13.38	$34.75	$33.86	$129.28	$37.66
60-1536-SP11	60	12,390	1.605	27.463	0.603	4.070	$166.29	$69.24	$13.38	$34.75	$34.10	$151.47	$14.81
60-1536-SP13	60	16,697	2.210	26.857	0.796	3.194	$175.96	$39.60	$13.38	$32.14	$33.03	$118.14	$57.82
60-1536-SP15	60	20,652	2.947	29.234	1.063	3.577	$218.80	$39.81	$13.38	$38.53	$36.50	$128.22	$90.58
60-1536-SP17	60	19,443	2.529	30.583	1.388	3.911	$233.62	$39.49	$13.38	$45.33	$40.31	$138.51	$95.11
60-1536-SP19	60	15,924	2.924	32.144	1.623	5.325	$285.19	$41.10	$13.38	$57.67	$46.70	$158.85	$126.34
60-1536-SP21	60	8,216	2.081	26.212	1.257	5.232	$237.95	$45.64	$13.38	$51.60	$43.29	$153.91	$84.04
60-1536-SP23	60	1,078	1.755	25.469	1.268	5.254	$230.22	$101.11	$13.38	$51.85	$43.45	$209.80	$20.42
60-1553-SP09	60	12,280	1.538	23.558	0.627	3.667	$156.49	$41.45	$13.38	$32.52	$33.05	$120.41	$36.09
60-1553-SP11	60	18,815	2.192	25.308	0.900	3.258	$182.05	$39.85	$13.38	$34.04	$34.12	$121.38	$60.67
60-1553-SP13	60	19,541	4.679	24.317	1.049	3.125	$252.21	$39.66	$13.38	$35.65	$34.97	$123.66	$128.55
60-1553-SP15	60	18,362	4.488	29.906	1.423	4.008	$288.07	$53.06	$13.38	$46.67	$40.91	$154.02	$134.06
60-1553-SP17	60	12,090	2.587	27.757	1.503	4.655	$254.76	$42.05	$13.38	$51.64	$43.60	$150.67	$104.10
60-1553-SP19	60	3,021	1.981	20.114	1.150	5.157	$225.16	$63.89	$13.38	$49.50	$42.14	$168.91	$56.24
60-1570-SP09	60	13,965	2.937	22.586	0.763	5.453	$234.55	$57.35	$13.38	$45.86	$39.76	$156.35	$78.20
60-1570-SP11	60	20,165	2.954	22.950	0.931	4.189	$220.52	$39.59	$13.38	$40.39	$37.28	$130.64	$89.88
60-1570-SP13	60	13,154	3.468	24.706	1.185	3.906	$243.75	$41.62	$13.38	$42.40	$38.56	$135.96	$107.79
60-1570-SP15	60	4,814	2.292	25.613	1.251	4.716	$232.98	$53.20	$13.38	$48.31	$41.65	$156.54	$76.44
60-1570-SP17	60	476	1.766	19.246	0.891	4.667	$194.98	$60.79	$13.38	$42.63	$38.42	$155.23	$39.75
60-1587-SP09	60	11,509	2.277	22.260	0.774	4.549	$200.52	$38.13	$13.38	$40.27	$37.05	$128.83	$71.69
60-1587-SP11	60	11,360	2.236	21.983	0.947	4.262	$203.75	$52.49	$13.38	$40.99	$37.64	$144.50	$59.25
60-1587-SP13	60	1,621	2.019	23.456	1.053	4.590	$211.16	$83.85	$13.38	$44.58	$39.56	$181.37	$29.79
60-1600-SP09	60	4,908	2.143	23.478	0.997	3.768	$195.35	$87.26	$13.38	$38.62	$36.53	$175.79	$19.57
Z33-1455-L1	Z3	2,208	1.837	39.894	0.469	5.013	$188.07	$95.69	$13.38	$38.86	$35.89	$183.81	$4.26
Z33-1471-L1	Z3	27,460	1.821	45.839	0.402	5.532	$196.36	$69.66	$13.38	$41.20	$36.93	$161.17	$35.19
Z33-1487-L1	Z3	28,515	1.683	46.081	0.398	7.233	$225.36	$67.66	$13.38	$51.79	$42.18	$175.02	$50.35
Z33-1503-L1	Z3	26,203	2.170	45.911	0.663	7.703	$262.17	$68.09	$13.38	$58.65	$45.90	$186.02	$76.15
Z33-1519-L1	Z3	34,130	2.674	51.428	0.976	7.947	$300.27	$65.88	$13.38	$64.85	$49.33	$193.45	$106.82
Z33-1535-L1	Z3	40,868	3.077	56.734	1.148	8.628	$335.96	$64.93	$13.38	$71.73	$52.92	$202.96	$133.01
Z33-1550-L1	Z3	43,523	2.579	61.826	1.283	8.306	$326.74	$64.63	$13.38	$71.66	$53.07	$202.74	$124.00
Z33-1565-L1	Z3	32,213	2.072	51.874	0.979	7.072	$268.18	$65.64	$13.38	$59.35	$46.64	$185.02	$83.16
Z33-1580-L1	Z3	22,683	1.903	38.153	0.726	5.751	$217.96	$67.98	$13.38	$47.22	$40.37	$168.95	$49.00
Z33-1595-L1	Z3	19,299	2.936	32.802	0.635	4.904	$221.04	$67.65	$13.38	$40.66	$36.97	$158.67	$62.37
Z33-1610-L1	Z3	7,607	4.262	31.445	0.481	4.789	$243.84	$69.30	$13.38	$37.83	$35.30	$155.81	$88.02
E1-0785	E1	1,635	1.627	35.013	1.082	3.356	$183.87	$27.99	$13.38	$37.33	$35.98	$114.68	$69.19
E1-0805	E1	14,607	1.663	33.631	1.016	3.352	$180.30	$20.42	$13.38	$36.33	$35.40	$105.53	$74.77
E1-0825	E1	14,285	1.992	27.769	0.803	2.713	$161.87	$21.42	$13.38	$29.21	$31.60	$95.61	$66.26
E2-0710	E2	21,015	1.503	17.568	0.980	3.672	$173.37	$33.94	$13.38	$37.64	$36.08	$121.04	$52.32
E3-0710	E3	15,846	1.814	55.443	0.289	4.049	$165.26	$40.26	$13.38	$30.35	$31.36	$115.34	$49.92
E3-0730	E3	5,292	1.810	56.653	0.301	4.047	$166.36	$44.41	$13.38	$30.53	$31.46	$119.78	$46.58
E3-0745	E3	5,990	2.059	45.355	0.253	3.572	$156.06	$25.02	$13.38	$26.76	$29.57	$94.72	$61.33
N1-0485	N1	12,337	1.007	13.599	0.735	2.254	$117.45	$21.76	$13.38	$25.08	$29.59	$89.80	$27.65
N1-0530	N1	3,556	1.282	19.310	1.380	2.704	$172.73	$20.41	$13.38	$37.39	$36.49	$107.68	$65.06
N1-0705	N1	18,971	1.033	16.385	1.022	2.104	$132.94	$59.18	$13.38	$28.35	$31.57	$132.49	$0.45
N1-0720	N1	42,399	1.152	17.588	0.989	2.476	$141.79	$23.15	$13.38	$30.23	$32.45	$99.21	$42.58
S2-1000	S2	14,988	3.040	29.929	1.644	3.504	$253.46	$123.65	$13.38	$46.56	$41.23	$224.82	$28.64
S2-1020	S2	20,121	3.049	32.465	1.716	3.255	$254.12	$96.68	$13.38	$46.07	$41.07	$197.20	$56.92
S4-0820	S4	26,615	1.167	14.685	0.927	2.519	$138.20	$58.66	$13.38	$29.57	$32.05	$133.66	$4.54
S4-0880	S4	13,736	1.106	14.421	0.893	2.679	$137.61	$60.36	$13.38	$30.06	$32.26	$136.06	$1.56
S7-0840	S7	7,182	2.087	25.222	1.704	4.170	$242.91	$39.13	$13.38	$51.44	$43.81	$147.76	$95.15
S7-0860	S7	10,699	1.841	24.121	1.538	3.827	$219.93	$147.33	$13.38	$46.83	$41.33	$248.87	-$28.95
E3-0710	E3	2,319	1.815	72.051	0.415	5.250	$202.71	$41.18	$13.38	$39.87	$36.16	$130.59	$72.12
E3-0730	E3	6,010	1.844	64.696	0.359	4.651	$185.65	$44.52	$13.38	$35.24	$33.83	$126.97	$58.67
E7-0993	E7	14,537	1.650	24.183	0.592	5.050	$184.26	$60.23	$13.38	$40.71	$37.05	$151.37	$32.88
E7-0998	E7	15,510	1.362	22.617	0.617	5.026	$177.11	$59.23	$13.38	$40.88	$37.20	$150.70	$26.42
E7-1003	E7	15,423	1.088	20.058	0.483	5.000	$160.70	$58.24	$13.38	$38.71	$35.97	$146.30	$14.40
E7-1008	E7	13,892	1.155	21.517	0.425	5.208	$163.74	$62.74	$13.38	$39.19	$36.12	$151.43	$12.31
E7-1013	E7	13,923	1.110	22.692	0.442	4.933	$158.74	$63.48	$13.38	$37.71	$35.41	$149.98	$8.76
E7-1018	E7	13,621	1.133	23.783	0.475	4.775	$158.66	$63.58	$13.38	$37.22	$35.20	$149.39	$9.27
E7-1023	E7	13,515	1.163	24.808	0.450	4.592	$154.92	$64.26	$13.38	$35.72	$34.42	$147.78	$7.14
E7-1028	E7	13,957	1.125	24.700	0.442	4.392	$149.57	$63.79	$13.38	$34.34	$33.73	$145.23	$4.34
E7-1033	E7	12,336	1.118	24.667	0.458	4.317	$148.88	$68.08	$13.38	$34.11	$33.64	$149.21	-$0.33
E7-1038	E7	12,515	1.080	23.144	0.440	4.376	$147.34	$64.62	$13.38	$34.20	$33.67	$145.87	$1.48
E7-1043	E7	11,291	1.130	23.424	0.488	4.808	$159.83	$63.30	$13.38	$37.61	$35.42	$149.71	$10.13

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
N1-0720	N1	18,330	1.469	19.696	1.256	2.480	$166.31	$23.12	$13.38	$34.20	$34.74	$105.44	$60.87
S11 1000	S1	69,116	1.101	18.534	0.692	2.191	$118.36	$27.18	$13.38	$24.13	$29.03	$93.71	$24.65
S11 1020	S1	74,237	1.148	18.731	0.692	2.151	$118.89	$28.89	$13.38	$23.88	$28.90	$95.04	$23.84
S11 1040	S1	82,106	1.168	18.663	0.703	2.167	$120.30	$31.09	$13.38	$24.14	$29.04	$97.65	$22.64
S11 1060	S1	68,620	1.264	19.110	0.737	2.210	$125.81	$27.00	$13.38	$24.93	$29.47	$94.78	$31.03
S11 1080	S1	57,970	1.299	19.278	0.724	2.130	$124.50	$22.42	$13.38	$24.24	$29.11	$89.15	$35.35
S11 1100	S1	51,866	1.206	16.586	0.657	1.875	$112.15	$17.86	$13.38	$21.62	$27.74	$80.61	$31.54
S11 1120	S1	42,526	1.163	13.655	0.606	1.687	$103.27	$10.62	$13.38	$19.68	$26.73	$70.41	$32.86
S11 1140	S1	33,746	1.170	13.667	0.598	1.685	$102.95	$0.16	$13.38	$19.55	$26.65	$59.74	$43.22
S11 1160	S1	26,880	1.146	16.053	0.617	1.825	$107.10	-$12.79	$13.38	$20.71	$27.25	$48.55	$58.55
S11 1200	S1	17,026	2.104	33.353	0.892	2.536	$168.87	-$48.52	$13.38	$29.47	$31.81	$26.14	$142.74
S11 880	S1	21,584	0.668	12.877	0.469	1.835	$85.03	-$27.31	$13.38	$18.53	$26.02	$30.62	$54.41
S11 900	S1	32,808	0.926	17.145	0.604	2.252	$109.33	-$0.20	$13.38	$23.19	$28.47	$64.83	$44.50
S11 940	S1	45,108	0.939	17.693	0.613	2.429	$113.82	$14.01	$13.38	$24.44	$29.09	$80.92	$32.91
S11 960	S1	55,584	1.073	19.922	0.727	2.560	$127.30	$21.15	$13.38	$26.95	$30.47	$91.96	$35.34
S11 980	S1	66,274	1.123	20.233	0.758	2.437	$128.19	$26.12	$13.38	$26.65	$30.36	$96.50	$31.69
S7-1000	S7	7,433	1.188	22.904	0.848	2.240	$132.37	$60.93	$13.38	$26.75	$30.51	$131.57	$0.80
Total 2P - Sep 30, 2011		12,208,246	1.920	27.733	2.000	4.352	$260.15	$30.74	$13.38	$56.90	$46.90	$147.93	$112.22
Production Oct - Dec		370,644	2.597	30.010	3.174	4.057							
Total 2P - Jan 1, 2012		**11,837,603**	**1.899**	**27.662**	**1.963**	**4.361**							

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
Not in Mine Plan Blocks													
10-1082-N08	10	2,025	0.669	4.100	1.349	1.163	$118.83	$52.16	$13.38	$27.04	$31.43	$124.02	-$5.18
10-1278-NP50	10	5,199	1.023	4.373	1.285	1.338	$127.86	$65.54	$13.38	$27.25	$31.43	$137.61	-$9.75
10-1312-NP34	10	112	1.246	6.302	2.224	0.407	$170.44	$20.47	$13.38	$35.14	$36.56	$105.54	$64.90
15-1040-NP30	15	1,961	0.120	3.391	2.494	0.070	$148.94	$62.05	$13.38	$36.79	$37.81	$150.03	-$1.08
15-1040-NP46	15	1,702	0.231	5.133	2.852	0.162	$174.88	$85.24	$13.38	$42.61	$41.15	$182.39	-$7.51
15-1040-NP48	15	3,387	0.160	4.716	2.412	0.137	$147.12	$60.52	$13.38	$36.03	$37.32	$147.25	-$0.13
15-1107-NP50	15	1,247	0.188	1.644	1.264	0.055	$79.14	$20.40	$13.38	$18.79	$27.27	$79.84	-$0.70
15-1152-NP34	15	1,887	0.250	2.253	1.337	0.052	$85.13	$27.24	$13.38	$19.84	$27.89	$88.35	-$3.22
15-1171-NP54	15	8,386	0.156	3.040	1.661	0.050	$101.58	$34.38	$13.38	$24.54	$30.64	$102.95	-$1.37
15-1190-NP26	15	1,938	0.233	2.114	1.147	0.081	$74.30	$20.42	$13.38	$17.25	$26.35	$77.40	-$3.11
15-1346-NP28	15	5,175	0.278	2.326	1.016	0.206	$70.45	$20.42	$13.38	$16.14	$25.62	$75.57	-$5.11
20-1082-NP12	20	13,123	0.295	3.552	1.832	0.100	$116.21	$45.33	$13.38	$27.38	$32.26	$118.34	-$2.14
20-1082-NP14	20	1,940	0.248	2.623	1.312	0.122	$85.14	$29.77	$13.38	$19.92	$27.89	$90.95	-$5.82
20-1107-NP22	20	111	0.548	6.814	1.114	0.628	$93.15	$20.47	$13.38	$20.29	$27.77	$81.92	$11.23
20-1137-NP28	20	442	0.666	3.991	0.736	0.430	$69.50	$20.47	$13.38	$13.53	$23.93	$71.32	-$1.82
20-1190-NP24	20	3,774	0.689	8.824	0.379	0.679	$56.45	$20.42	$13.38	$9.94	$21.66	$65.39	-$8.94
20-1278-NP30	20	1,023	0.827	5.805	1.236	0.286	$100.37	$39.42	$13.38	$19.95	$27.75	$100.51	-$0.13
20-1295-NP20	20	128	0.848	8.070	1.044	0.416	$93.35	$20.39	$13.38	$17.99	$26.52	$78.27	$15.08
20-1295-NP24	20	590	0.498	4.727	0.721	0.361	$63.26	$20.43	$13.38	$12.86	$23.59	$70.27	-$7.01
20-1312-NP26	20	5,535	0.435	4.283	0.806	0.312	$65.35	$20.42	$13.38	$13.78	$24.16	$71.75	-$6.40
30-1122-NP20	30	117	2.705	31.150	4.072	6.692	$445.82	$20.44	$13.38	$101.86	$71.85	$207.53	$238.30
30-1137-NP15	30	158	1.727	40.868	2.130	9.307	$363.46	$20.29	$13.38	$89.96	$63.40	$187.03	$176.43
10-1107-NP22	10	4,844	0.436	2.200	0.312	2.116	$70.84	$22.66	$13.38	$17.88	$25.55	$79.46	-$8.62
10-1122-NP20	10	6,605	0.587	2.111	0.573	1.717	$82.05	$26.53	$13.38	$19.20	$26.54	$85.65	-$3.60
10-1412-NP26	10	9,163	1.210	3.042	0.484	0.497	$70.03	$26.77	$13.38	$10.33	$21.99	$72.47	-$2.45
10-1412-NP28	10	12,800	1.505	4.699	0.865	0.495	$100.25	$54.15	$13.38	$15.92	$25.23	$108.69	-$8.44
10-1427-NP26	10	5,370	2.222	7.486	0.975	1.232	$140.55	$95.95	$13.38	$22.26	$28.46	$160.06	-$19.50
10-1427-NP30	10	2,053	3.896	12.109	1.403	2.548	$235.84	$162.30	$13.38	$36.97	$36.20	$248.86	-$13.02
15-1122-NP56	15	9,670	0.147	3.216	1.752	0.080	$107.25	$38.00	$13.38	$26.06	$31.52	$108.96	-$1.71
15-1122-NP58	15	18,036	0.109	3.206	1.512	0.085	$92.58	$31.70	$13.38	$22.59	$29.48	$97.16	-$4.58
15-1122-NP60	15	18,763	0.102	2.897	1.475	0.083	$90.05	$30.75	$13.38	$22.03	$29.15	$95.32	-$5.27
15-1137-NP34	15	3,618	0.399	2.432	1.296	0.076	$87.20	$26.86	$13.38	$19.41	$27.61	$87.26	-$0.05
15-1137-NP56	15	9,205	0.119	2.982	1.627	0.069	$99.03	$39.30	$13.38	$24.17	$30.42	$107.27	-$8.24
15-1137-NP58	15	14,246	0.109	2.716	1.334	0.076	$81.98	$32.37	$13.38	$19.94	$27.94	$93.62	-$11.64
15-1208-NP48	15	5,990	0.151	2.698	1.495	0.068	$92.16	$28.48	$13.38	$22.24	$29.29	$93.39	-$1.22
15-1208-NP50	15	23,079	0.170	2.661	1.349	0.094	$84.73	$23.63	$13.38	$20.27	$28.12	$85.40	-$0.68
20-1015-NP14	20	1,988	0.467	6.923	1.570	0.757	$119.71	$69.50	$13.38	$27.73	$32.06	$142.68	-$22.96
20-1278-NP30	20	1,838	0.631	5.670	0.871	0.324	$74.98	$27.93	$13.38	$14.83	$24.75	$80.90	-$5.92
20-1295-NP20	20	281	0.507	5.257	0.691	0.250	$59.86	$20.34	$13.38	$11.74	$22.99	$68.45	-$8.58
30-0978-NP08	30	200	1.518	29.953	1.397	4.638	$221.56	$101.17	$13.38	$49.89	$42.65	$207.09	$14.47
30-0993-NP06	30	114	1.821	40.975	1.968	8.319	$337.69	$20.46	$13.38	$81.43	$58.95	$174.22	$163.46
30-1015-NP12	30	771	1.771	25.298	2.617	3.544	$275.10	$168.40	$13.38	$60.79	$49.66	$292.23	-$17.13
30-1152-NP15	30	109	1.651	26.207	2.195	5.508	$285.92	$20.48	$13.38	$66.95	$52.16	$152.96	$132.96
30-1152-NP44 HW	30	3,552	0.563	9.759	0.724	0.850	$76.67	$24.03	$13.38	$16.03	$25.13	$78.58	-$1.91
50-1015-SP17	50	2,872	0.593	3.377	1.711	0.088	$116.68	$54.66	$13.38	$25.57	$31.19	$124.79	-$8.11
50-1015-SP19	50	6,252	0.645	3.437	1.628	0.082	$113.19	$48.91	$13.38	$24.33	$30.47	$117.09	-$3.90
50-1040-SP17	50	9,195	0.371	2.628	1.715	0.075	$110.54	$42.94	$13.38	$25.50	$31.18	$113.00	-$2.46

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
50-1040-SP19	50	10,512	0.404	2.559	1.539	0.062	$101.02	$46.99	$13.38	$22.86	$29.64	$112.87	-$11.85
50-1055-SP17	50	12,054	0.198	2.084	1.721	0.053	$105.75	$36.73	$13.38	$25.43	$31.16	$106.70	-$0.95
50-1055-SP19	50	7,626	0.177	2.144	1.610	0.050	$98.82	$50.11	$13.38	$23.80	$30.21	$117.49	-$18.67
50-1070-SP15	50	17,403	0.142	1.746	1.554	0.045	$94.42	$33.71	$13.38	$22.94	$29.71	$99.74	-$5.32
50-1070-SP17	50	20,164	0.106	1.684	1.325	0.046	$80.37	$33.40	$13.38	$19.61	$27.77	$94.16	-$13.79
50-1082-SP09	50	107	0.433	3.234	2.576	0.145	$163.20	$26.18	$13.38	$38.51	$38.75	$116.82	$46.39
50-1082-SP13	50	16,257	0.191	2.152	1.620	0.086	$100.44	$42.52	$13.38	$24.17	$30.41	$110.47	-$10.02
50-1082-SP17	50	14,621	0.103	1.676	1.381	0.073	$84.02	$33.66	$13.38	$20.59	$28.33	$95.97	-$11.94
50-1090-SP17	50	8,862	0.111	1.657	1.449	0.072	$88.08	$33.89	$13.38	$21.58	$28.90	$97.74	-$9.66
50-1107-SP25	50	6,741	0.502	2.974	1.367	0.082	$94.26	$34.15	$13.38	$20.50	$28.23	$96.27	-$2.00
50-1107-SP29	50	4,601	0.335	2.720	1.420	0.077	$92.78	$36.67	$13.38	$21.22	$28.67	$99.93	-$7.15
50-1122-SP29	50	8,622	0.201	2.487	1.195	0.136	$77.42	$31.96	$13.38	$18.30	$26.93	$90.57	-$13.15
50-1152-SP19	50	10,898	0.102	2.387	1.225	0.121	$76.28	$30.31	$13.38	$18.63	$27.15	$89.47	-$13.18
50-1152-SP21	50	16,060	0.134	2.774	1.244	0.183	$79.51	$29.81	$13.38	$19.29	$27.49	$89.98	-$10.47
50-1152-SP23	50	14,026	0.145	2.691	1.318	0.297	$86.20	$29.01	$13.38	$21.09	$28.48	$91.96	-$5.76
50-1152-SP25	50	15,750	0.126	2.259	1.326	0.146	$83.11	$30.12	$13.38	$20.26	$28.09	$91.85	-$8.74
70-1070mL	70	6,914	0.927	5.230	0.686	1.508	$94.67	$39.87	$13.38	$19.60	$26.85	$99.71	-$5.03
70-1171mL	70	71,947	0.589	5.224	0.790	0.712	$76.51	$30.86	$13.38	$16.08	$25.27	$85.59	-$9.08
70-993mL	70	18,268	1.009	6.221	0.747	1.141	$93.67	$47.19	$13.38	$18.21	$26.24	$105.02	-$11.35
40-1122-SP31	40	177	2.769	38.146	1.288	5.558	$269.04	$20.24	$13.38	$54.31	$44.58	$132.50	$136.53
40-1137-SP19	40	135	2.104	36.706	1.860	8.413	$338.83	$20.36	$13.38	$80.44	$58.32	$172.50	$166.33
60-1070-SP13	60	8,162	0.448	3.977	3.549	0.151	$219.79	$107.89	$13.38	$52.71	$47.07	$221.04	-$1.26
60-1107-SP33	60	2,344	0.816	4.751	2.294	0.171	$158.13	$89.96	$13.38	$34.62	$36.42	$174.39	-$16.26
60-1278-SP45	60	3,037	1.279	13.226	0.881	2.057	$128.98	$68.75	$13.38	$26.01	$30.23	$138.36	-$9.38
60-1329-SP27	60	709	0.585	12.989	0.379	7.386	$184.53	$20.43	$13.38	$52.03	$42.50	$128.34	$56.19
40-1107-SP37	40	1,054	2.149	31.287	1.519	3.610	$225.76	$127.12	$13.38	$45.31	$40.49	$226.29	-$0.54
40-1278-SP45	40	189	2.856	40.147	2.334	5.589	$332.67	$30.07	$13.38	$69.74	$53.59	$166.78	$165.89
60-1503-SP05	60	1,206	0.893	18.002	0.062	3.105	$94.13	$41.89	$13.38	$20.64	$26.49	$102.40	-$8.27
60-1503-SP07	60	9,452	0.833	16.736	0.068	2.924	$88.96	$32.84	$13.38	$19.59	$25.98	$91.80	-$2.83
E2-0690	E2	11,016	1.271	14.163	0.828	2.939	$143.11	$78.50	$13.38	$30.78	$32.52	$155.18	-$12.07
E7-0732	E7	3,305	1.890	36.710	1.055	5.230	$225.89	$125.62	$13.38	$48.73	$41.57	$229.30	-$3.41
S7-1000	S7	8,528	1.260	21.992	0.888	2.328	$137.84	$61.39	$13.38	$27.89	$31.13	$133.78	$4.06
E2-0690	E2	1,564	1.312	12.320	0.768	2.723	$135.75	$77.87	$13.38	$28.53	$31.33	$151.11	-$15.36
E3-0745	E3	1,872	1.629	38.002	0.204	3.018	$128.35	$82.59	$13.38	$22.46	$27.44	$145.87	-$17.52
E7-1048	E7	7,509	1.177	23.885	0.531	5.308	$173.30	$91.32	$13.38	$41.38	$37.33	$183.42	-$10.12
E7-1053	E7	5,328	1.133	23.007	0.511	5.496	$174.29	$110.75	$13.38	$42.26	$37.75	$204.15	-$29.86
E7-1058	E7	2,484	0.833	17.760	0.371	4.623	$139.44	$78.55	$13.38	$34.66	$33.85	$160.44	-$21.00
N4-0860	N4	35,336	2.150	21.030	0.986	2.670	$172.76	$105.04	$13.38	$31.56	$33.03	$183.00	-$10.24
N4-0880	N4	34,357	2.381	27.804	1.193	3.339	$206.38	$103.06	$13.38	$38.85	$36.87	$192.17	$14.21
N4-0900	N4	38,515	2.375	30.076	1.248	3.154	$206.80	$86.66	$13.38	$38.52	$36.76	$175.32	$31.48
N4-0920	N4	39,888	2.068	26.311	1.070	2.733	$178.87	$78.88	$13.38	$33.21	$33.93	$159.40	$19.47
N4-0940	N4	30,590	1.554	24.289	0.985	2.658	$158.35	$86.25	$13.38	$31.42	$32.97	$164.02	-$5.67
N4-0960	N4	29,531	1.239	22.824	0.914	2.777	$147.79	$75.74	$13.38	$31.09	$32.74	$152.96	-$5.17
S9-1040	S9	11,462	1.278	19.030	0.784	2.321	$130.93	$69.01	$13.38	$26.30	$30.22	$138.91	-$7.98
2P Not in Mine Plan - Jan 1, 2012		**799,756**	**0.894**	**10.707**	**1.186**	**1.286**	**$120.54**	**$54.30**	**$13.38**	**$25.54**	**$30.43**	**$123.65**	**-$3.10**

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
Non Economic Blocks													
10-1137-NP56	10	463	0.539	2.703	1.716	0.757	$128.11	$77.85	$13.38	$29.82	$33.31	$154.35	-$26.24
10-1395-NP26	10	1,314	0.893	1.955	0.373	0.513	$55.27	$20.43	$13.38	$8.77	$21.09	$63.66	-$8.39
15-1040-NP32	15	1,749	0.090	3.450	2.288	0.055	$136.11	$81.67	$13.38	$33.71	$36.01	$164.77	-$28.65
15-1107-NP56	15	1,940	0.193	2.748	1.598	0.066	$99.10	$56.95	$13.38	$23.73	$30.16	$124.21	-$25.10
15-1107-NP58	15	1,903	0.166	2.851	1.406	0.129	$88.69	$60.72	$13.38	$21.33	$28.72	$124.15	-$35.46
15-1107-NP60	15	2,454	0.127	2.834	1.419	0.103	$87.89	$115.82	$13.38	$21.35	$28.75	$179.30	-$91.41
15-1107-NP62	15	1,839	0.063	2.355	1.169	0.060	$70.87	$54.99	$13.38	$17.43	$26.48	$112.28	-$41.40
15-1107-NP64	15	1,866	0.052	2.572	1.299	0.064	$78.20	$103.38	$13.38	$19.35	$27.60	$163.71	-$85.51
15-1171-NP56	15	2,064	0.136	2.686	1.201	0.051	$74.54	$39.89	$13.38	$17.85	$26.72	$97.84	-$23.31
20-1137-NP20	20	1,058	0.243	1.853	0.466	0.298	$39.55	$20.44	$13.38	$8.70	$21.22	$63.74	-$24.18
20-1171-NP26	20	1,432	0.487	5.938	0.390	0.686	$50.73	$20.43	$13.38	$10.09	$21.77	$65.67	-$14.94
20-1278-NP26	20	2,692	0.195	1.759	0.350	0.052	$26.89	$20.41	$13.38	$5.46	$19.46	$58.71	-$31.83
20-1295-NP26	20	444	0.353	3.958	0.649	0.284	$53.58	$20.47	$13.38	$11.32	$22.74	$67.91	-$14.33
20-1312-NP28	20	195	0.124	1.163	0.171	0.074	$14.93	$20.56	$13.38	$2.97	$18.00	$54.91	-$39.98
10-1395-NP26	10	8,694	0.630	1.743	0.263	0.681	$45.28	$40.30	$13.38	$8.19	$20.67	$82.54	-$37.25
15-1015-NP42	15	2,768	0.180	3.700	2.200	0.117	$134.69	$95.07	$13.38	$32.82	$35.45	$176.72	-$42.03
15-1015-NP44	15	3,607	0.149	4.352	1.619	0.132	$101.11	$83.36	$13.38	$24.46	$30.54	$151.73	-$50.62
15-1107-NP56	15	1,137	0.172	2.327	1.273	0.082	$80.04	$80.79	$13.38	$19.09	$27.43	$140.69	-$60.65
15-1107-NP58	15	1,558	0.168	3.212	1.431	0.134	$90.38	$105.82	$13.38	$21.72	$28.94	$169.86	-$79.48
15-1107-NP60	15	2,005	0.107	2.737	1.393	0.078	$85.37	$106.11	$13.38	$20.81	$28.45	$168.75	-$83.38
15-1107-NP62	15	1,235	0.063	2.295	1.264	0.053	$76.14	$133.01	$13.38	$18.76	$27.26	$192.42	-$116.28
15-1107-NP64	15	911	0.050	2.439	1.194	0.070	$72.15	$111.82	$13.38	$17.84	$26.72	$169.76	-$97.61
15-1122-NP62	15	19,576	0.059	1.641	0.848	0.048	$51.82	$23.29	$13.38	$12.68	$23.71	$73.06	-$21.24
15-1137-NP60	15	7,634	0.126	2.466	1.193	0.067	$74.02	$33.79	$13.38	$17.82	$26.70	$91.70	-$17.68
15-1152-NP56	15	8,603	0.120	2.635	1.162	0.065	$72.15	$50.39	$13.38	$17.37	$26.43	$107.57	-$35.43
15-1152-NP58	15	8,929	0.188	2.653	1.064	0.063	$68.22	$39.57	$13.38	$15.93	$25.59	$94.47	-$26.24
15-1171-NP56	15	4,576	0.153	2.860	1.152	0.057	$72.37	$34.74	$13.38	$17.18	$26.32	$91.63	-$19.25
20-1137-NP20	20	6,947	0.286	2.605	0.525	0.423	$46.79	$22.79	$13.38	$10.35	$22.11	$68.63	-$21.84
20-1278-NP26	20	1,522	0.232	2.280	0.427	0.078	$32.96	$20.44	$13.38	$6.75	$20.20	$60.76	-$27.80
20-1278-NP28	20	1,800	0.374	3.454	0.630	0.133	$49.90	$27.72	$13.38	$10.09	$22.11	$73.29	-$23.39
20-1295-NP22	20	11,119	0.474	4.448	0.570	0.278	$52.27	$20.42	$13.38	$10.14	$22.04	$65.99	-$13.72
20-1295-NP24	20	17,525	0.388	3.736	0.548	0.235	$47.60	$20.42	$13.38	$9.53	$21.72	$65.04	-$17.45
20-1295-NP26	20	9,467	0.299	3.400	0.539	0.141	$42.87	$20.42	$13.38	$8.81	$21.36	$63.96	-$21.09
20-1295-NP28	20	7,849	0.261	2.634	0.403	0.103	$33.01	$20.42	$13.38	$6.57	$20.08	$60.45	-$27.44
20-1295-NP30	20	3,112	0.511	5.710	0.659	0.238	$58.09	$24.93	$13.38	$11.20	$22.68	$72.18	-$14.10
50-0993-SP19	50	781	0.638	3.875	1.482	0.083	$104.84	$187.96	$13.38	$22.21	$29.22	$252.77	-$147.93
50-1015-SP21	50	3,032	0.352	2.803	1.447	0.057	$94.46	$64.13	$13.38	$21.50	$28.84	$127.85	-$33.39
50-1040-SP15	50	1,466	0.233	2.175	1.591	0.072	$99.63	$58.75	$13.38	$23.66	$30.11	$125.91	-$26.28
50-1040-SP21	50	2,942	0.225	2.440	1.616	0.047	$100.48	$65.47	$13.38	$23.87	$30.25	$132.97	-$32.49
50-1055-SP09	50	836	0.390	2.437	2.160	0.079	$136.59	$92.84	$13.38	$32.02	$34.99	$173.24	-$36.64
50-1055-SP21	50	610	0.152	2.244	1.605	0.042	$97.76	$215.57	$13.38	$23.67	$30.14	$282.76	-$185.00
50-1070-SP19	50	14,136	0.124	1.858	1.444	0.050	$87.79	$46.54	$13.38	$21.36	$28.79	$110.07	-$22.29
50-1070-SP21	50	1,877	0.124	2.088	1.559	0.040	$94.28	$87.77	$13.38	$22.98	$29.74	$153.87	-$59.59
50-1082-SP15	50	18,250	0.084	1.601	1.230	0.052	$74.41	$32.62	$13.38	$18.26	$26.97	$91.23	-$16.82
50-1082-SP19	50	2,694	0.111	1.618	1.554	0.055	$93.79	$57.02	$13.38	$23.00	$29.75	$123.15	-$29.36
50-1090-SP13	50	15,604	0.136	1.976	1.367	0.084	$84.41	$41.90	$13.38	$20.47	$28.24	$104.00	-$19.58
50-1090-SP15	50	21,562	0.103	1.552	1.161	0.074	$71.34	$32.26	$13.38	$17.39	$26.45	$89.49	-$18.15
50-1107-SP23	50	1,187	0.293	1.939	0.824	0.218	$59.90	$64.82	$13.38	$13.42	$24.02	$115.64	-$55.74
50-1107-SP31	50	5,504	0.164	1.877	1.032	0.058	$65.34	$33.22	$13.38	$15.42	$25.30	$87.32	-$21.98
50-1107-SP33	50	6,579	0.214	2.138	1.471	0.058	$91.94	$52.18	$13.38	$21.82	$29.05	$116.43	-$24.49

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
50-1107-SP35	50	7,755	0.176	1.981	1.315	0.058	$81.96	$51.50	$13.38	$19.55	$27.72	$112.15	-$30.20
50-1107-SP37	50	7,626	0.198	1.625	1.014	0.071	$65.40	$52.16	$13.38	$15.26	$25.19	$105.99	-$40.59
50-1107-SP39	50	13,334	0.221	1.579	1.050	0.071	$67.99	$42.31	$13.38	$15.77	$25.49	$96.95	-$28.96
50-1107-SP41	50	8,113	0.119	1.412	1.072	0.067	$66.44	$40.47	$13.38	$16.05	$25.67	$95.57	-$29.13
50-1122-SP23	50	5,739	0.224	2.088	0.860	0.212	$60.12	$32.32	$13.38	$13.90	$24.32	$83.91	-$23.79
50-1122-SP31	50	7,134	0.145	2.015	1.047	0.091	$66.43	$29.80	$13.38	$15.85	$25.53	$84.57	-$18.14
50-1122-SP33	50	8,162	0.173	2.642	1.421	0.087	$88.80	$47.13	$13.38	$21.28	$28.71	$110.51	-$21.71
50-1122-SP35	50	13,703	0.164	2.736	1.171	0.153	$75.51	$54.19	$13.38	$18.05	$26.78	$112.40	-$36.89
50-1122-SP37	50	8,988	0.206	2.555	1.283	0.121	$82.35	$44.05	$13.38	$19.49	$27.64	$104.55	-$22.20
50-1122-SP39	50	12,482	0.205	2.018	1.121	0.089	$72.24	$30.12	$13.38	$16.93	$26.16	$86.59	-$14.35
50-1137-SP19	50	1,462	0.091	2.230	1.184	0.153	$74.14	$37.97	$13.38	$18.22	$26.89	$96.47	-$22.33
50-1137-SP21	50	5,607	0.096	2.441	1.060	0.166	$67.50	$33.93	$13.38	$16.50	$25.87	$89.69	-$22.19
50-1137-SP23	50	9,417	0.180	2.429	0.856	0.199	$58.61	$30.55	$13.38	$13.75	$24.24	$81.91	-$23.30
50-1137-SP25	50	16,170	0.179	2.531	1.003	0.211	$67.34	$30.35	$13.38	$15.98	$25.53	$85.24	-$17.90
50-1137-SP27	50	13,838	0.118	1.978	0.985	0.121	$62.73	$29.57	$13.38	$15.13	$25.09	$83.18	-$20.45
50-1137-SP29	50	11,984	0.129	1.909	1.033	0.099	$65.30	$30.32	$13.38	$15.69	$25.43	$84.82	-$19.52
50-1137-SP31	50	8,910	0.152	2.356	1.513	0.115	$93.96	$46.62	$13.38	$22.79	$29.58	$112.38	-$18.41
50-1137-SP33	50	10,039	0.242	3.506	1.448	0.255	$95.72	$52.25	$13.38	$22.74	$29.46	$117.84	-$22.12
50-1137-SP37	50	850	0.232	3.198	1.245	0.186	$82.37	$61.87	$13.38	$19.35	$27.52	$122.12	-$39.75
50-1137-SP39	50	1,202	0.200	2.665	1.237	0.147	$80.12	$51.41	$13.38	$18.98	$27.33	$111.10	-$30.99
50-1152-SP17	50	965	0.090	1.959	1.088	0.087	$67.22	$25.69	$13.38	$16.41	$25.87	$81.34	-$14.13
50-1152-SP27	50	11,293	0.120	1.927	1.260	0.063	$77.38	$36.05	$13.38	$18.77	$27.26	$95.45	-$18.07
50-1152-SP29	50	8,643	0.111	2.073	1.177	0.029	$71.86	$38.05	$13.38	$17.36	$26.45	$95.24	-$23.38
50-1171-SP19	50	12,237	0.099	1.937	1.119	0.085	$69.25	$32.17	$13.38	$16.86	$26.13	$88.55	-$19.29
50-1171-SP21	50	17,109	0.117	2.249	1.193	0.158	$75.44	$33.27	$13.38	$18.39	$26.98	$92.02	-$16.58
50-1171-SP23	50	22,066	0.059	0.976	0.653	0.097	$41.29	$30.40	$13.38	$10.14	$22.19	$76.11	-$34.81
50-1171-SP25	50	9,212	0.081	1.290	0.899	0.055	$55.27	$39.54	$13.38	$13.45	$24.16	$90.53	-$35.26
50-1171-SP27	50	8,492	0.053	0.954	0.617	0.024	$37.66	$43.71	$13.38	$9.15	$21.66	$87.90	-$50.24
70-1040mL	70	9,360	0.979	6.890	0.700	0.314	$74.56	$37.18	$13.38	$12.34	$23.26	$86.16	-$11.61
70-1055mL	70	8,514	0.733	5.037	0.567	0.846	$70.00	$37.93	$13.38	$13.70	$23.79	$88.80	-$18.80
70-1190mL	70	56,267	0.201	3.068	0.938	0.418	$68.34	$34.35	$13.38	$16.32	$25.61	$89.67	-$21.33
70-1208mL	70	37,335	0.161	2.096	0.779	0.212	$53.83	$41.42	$13.38	$12.71	$23.62	$91.13	-$37.30
70-1227mL	70	7,374	0.190	1.848	0.574	0.124	$41.02	$124.86	$13.38	$9.17	$21.60	$169.01	-$127.99
70-962mL	70	6,488	1.255	8.174	0.237	1.948	$87.12	$54.08	$13.38	$15.88	$24.38	$107.73	-$20.61
70-978mL	70	20,148	1.273	6.928	0.292	1.817	$87.73	$50.20	$13.38	$15.86	$24.45	$103.89	-$16.16
40-1107-SP19	40	424	2.173	45.698	1.659	8.116	$327.21	$263.05	$13.38	$75.74	$55.68	$407.85	-$80.64
E2-0680	E2	1,293	1.234	16.186	0.907	2.621	$141.43	$367.31	$13.38	$29.95	$32.20	$442.84	-$301.41
E3-0660	E3	2,844	1.229	53.597	0.115	3.393	$126.69	$177.68	$13.38	$23.61	$27.84	$242.51	-$115.82
E3-0675	E3	8,115	1.227	46.499	0.119	3.511	$126.14	$128.82	$13.38	$24.35	$28.24	$194.79	-$68.66
E3-0695	E3	8,166	2.075	59.165	0.263	4.536	$181.49	$167.09	$13.38	$33.08	$32.65	$246.20	-$64.71
E7-0988	E7	2,881	2.025	26.233	0.608	5.242	$199.52	$216.53	$13.38	$42.22	$37.79	$309.92	-$110.40
N3-0515	N3	5,175	1.035	22.200	1.150	2.336	$147.26	$161.34	$13.38	$31.73	$33.38	$239.83	-$92.57
S2-1040	S2	6,252	1.385	19.655	0.849	1.656	$124.93	$150.31	$13.38	$23.10	$28.70	$215.49	-$90.56
N2-0455	N2	1,460	0.411	6.347	0.359	1.461	$62.10	$37.43	$13.38	$14.50	$23.92	$89.23	-$27.12
N3-0500	N3	7,778	1.040	21.800	1.074	2.407	$144.24	$155.51	$13.38	$31.07	$32.96	$232.92	-$88.68
N3-0530	N3	8,533	1.093	21.464	1.036	2.307	$141.34	$146.25	$13.38	$29.88	$32.32	$221.84	-$80.50
N4-0840	N4	9,933	2.134	20.996	1.041	2.016	$162.89	$157.60	$13.38	$28.25	$31.46	$230.69	-$67.80
N4-0980	N4	19,114	1.268	22.952	0.918	3.054	$154.13	$112.58	$13.38	$32.88	$33.63	$192.48	-$38.35
N4-1000	N4	797	0.929	24.687	0.771	2.671	$130.30	$102.71	$13.38	$28.33	$31.20	$175.61	-$45.31
S2-1020	S2	366	1.174	19.213	1.928	0.724	$163.21	$109.75	$13.38	$32.94	$35.02	$191.08	-$27.87
S2-1040	S2	5,542	0.905	13.278	0.536	1.003	$79.19	$149.94	$13.38	$14.32	$24.00	$201.65	-$122.46
S9-1060	S9	3,541	1.482	15.695	0.664	1.717	$116.30	$122.36	$13.38	$20.76	$27.31	$183.82	-$67.52
2P Non Economic - Jan 1, 2012		**749,279**	**0.382**	**5.673**	**0.954**	**0.544**	**$77.57**	**$53.45**	**$13.38**	**$17.41**	**$26.15**	**$110.39**	**-$32.82**

Table 15.9 777 North Expansion Net Smelter Return Calculations

Mining Block	Zone	Tonnes (Dil/Rec)	Au (g/t)	Ag (g/t)	Cu (%)	Zn (%)	Revenue ($/t)	Mining ($/t)	Milling ($/t)	Processing & Refining ($/t)	G & A ($/t)	Total Costs	NSR
Economic Blocks													
E9-0540	E9	23,331	1.331	23.069	0.803	3.977	$153.48	$43.81	$13.38	$37.10	$34.81	$129.10	$24.37
E9-0560	E9	22,984	1.575	28.270	0.721	4.906	$173.47	$44.29	$13.38	$42.01	$37.11	$136.79	$36.68
E9-0580	E9	33,483	1.831	27.863	0.559	5.547	$182.14	$48.17	$13.38	$43.89	$37.82	$143.26	$38.88
N1-0455	N1	1,525	1.005	12.846	0.708	1.733	$95.62	$30.16	$13.38	$21.23	$26.88	$91.64	$3.98
N1-0470	N1	12,443	1.383	19.975	1.152	2.863	$150.97	$77.41	$13.38	$34.79	$34.12	$159.70	-$8.74
E9-0445	E9	4,046	1.224	21.957	1.429	1.975	$146.07	$47.71	$13.38	$32.91	$33.55	$127.56	$18.51
E9-0450	E9	5,870	1.229	22.099	1.458	2.059	$149.39	$62.07	$13.38	$33.86	$34.06	$143.37	$6.03
E9-0455	E9	9,998	1.181	22.120	1.318	2.112	$141.99	$36.05	$13.38	$32.26	$33.09	$114.77	$27.22
E9-0460	E9	10,822	1.275	26.146	1.214	2.405	$145.13	$49.19	$13.38	$32.73	$33.17	$128.47	$16.66
E9-0465	E9	13,731	1.341	26.905	1.161	2.655	$148.63	$54.70	$13.38	$33.60	$33.53	$135.20	$13.43
E9-0470	E9	17,361	1.287	24.202	0.979	2.756	$138.92	$39.74	$13.38	$31.70	$32.36	$117.18	$21.74
E9-0475	E9	14,298	1.358	22.671	0.825	3.142	$139.06	$49.20	$13.38	$32.03	$32.33	$126.93	$12.12
E9-0480	E9	13,152	1.394	20.833	0.703	3.311	$135.94	$57.29	$13.38	$31.41	$31.87	$133.95	$1.99
E9-0485	E9	12,904	1.394	18.715	0.585	3.209	$127.02	$38.31	$13.38	$29.09	$30.57	$111.35	$15.67
E9-0490	E9	10,007	1.733	22.814	0.759	3.779	$155.46	$47.72	$13.38	$35.26	$33.82	$130.19	$25.27
E9-0495	E9	11,826	1.874	29.083	0.883	3.990	$170.89	$56.72	$13.38	$38.39	$35.51	$144.00	$26.89
E9-0500	E9	15,020	1.846	34.770	0.819	4.030	$169.37	$38.90	$13.38	$37.79	$35.11	$125.18	$44.19
E9-0505	E9	8,751	2.018	43.893	0.846	4.719	$190.30	$45.81	$13.38	$42.69	$37.54	$139.42	$50.89
E9-0510	E9	7,217	1.994	40.958	0.840	4.772	$189.61	$60.56	$13.38	$42.92	$37.65	$154.52	$35.10
E9-0515	E9	6,820	1.800	33.663	0.861	4.405	$177.55	$45.81	$13.38	$40.78	$36.65	$136.63	$40.93
E9-0520	E9	9,196	1.263	20.213	0.791	3.328	$138.09	$38.41	$13.38	$32.72	$32.64	$117.16	$20.94
E9-0525	E9	5,543	1.430	21.360	0.871	3.970	$158.49	$51.39	$13.38	$38.01	$35.35	$138.12	$20.37
N1-0255	N1	7,888	1.359	26.683	1.917	4.000	$215.32	$73.77	$13.38	$52.82	$44.02	$184.00	$31.32
N1-0270	N1	14,355	1.459	26.093	1.757	4.186	$212.16	$73.27	$13.38	$51.79	$43.30	$181.74	$30.42
N1-0285	N1	17,765	1.600	24.467	1.489	4.333	$203.00	$76.21	$13.38	$49.00	$41.58	$180.17	$22.83
N1-0300	N1	25,038	1.404	20.280	1.173	3.713	$168.92	$73.71	$13.38	$40.56	$37.01	$164.66	$4.26
N1-0315	N1	28,718	1.440	20.100	1.179	3.729	$170.17	$75.89	$13.38	$40.73	$37.10	$167.10	$3.07
N1-0330	N1	28,384	1.572	20.169	1.223	3.700	$174.72	$67.54	$13.38	$41.18	$37.37	$159.48	$15.24
N1-0345	N1	21,340	1.353	15.455	0.841	2.986	$134.68	$75.20	$13.38	$31.21	$31.97	$151.75	-$17.07
N1-0360	N1	13,827	1.217	14.234	0.800	3.014	$129.84	$72.33	$13.38	$30.79	$31.72	$148.21	-$18.37
N1-0375	N1	15,719	1.359	15.248	0.979	3.159	$145.45	$76.21	$13.38	$34.24	$33.65	$157.48	-$12.03
N1-0390	N1	17,687	1.502	15.890	1.103	3.221	$156.41	$72.02	$13.38	$36.39	$34.86	$156.65	-$0.24
N1-0405	N1	19,502	1.530	16.036	1.114	3.250	$158.16	$72.14	$13.38	$36.73	$35.05	$157.30	$0.87
N1-0420	N1	22,807	1.453	15.986	1.121	2.986	$151.89	$67.87	$13.38	$35.12	$34.26	$150.63	$1.25
N1-0440	N1	24,221	1.478	17.634	1.239	2.746	$154.60	$71.72	$13.38	$35.23	$34.46	$154.80	-$0.20
N1-0455	N1	19,681	1.434	19.514	1.364	2.907	$164.07	$75.27	$13.38	$38.03	$36.00	$162.67	$1.39
Total 2P - Sep 30, 2011		547,261	1.488	22.406	1.035	3.574	$161.17	$60.67	$13.38	$37.75	$35.43	$147.23	$13.94
Production Oct - Dec		0	0.000	0.000	0.000	0.000							
Total 2P - Jan 1, 2012		**547,261**	**1.488**	**22.406**	**1.035**	**3.574**	**$161.17**	**$60.67**	**$13.38**	**$37.75**	**$35.43**	**$147.23**	**$13.94**
Not in Mine Plan Blocks													
E9-0430	E9	430	0.868	16.818	0.193	2.081	$128.70	$29.10	$13.38	$32.10	$31.72	$106.30	$22.40
E9-0435	E9	1,995	0.812	14.109	0.745	0.699	$135.56	$49.18	$13.38	$33.42	$32.31	$128.29	$7.26
E9-0440	E9	3,637	0.902	16.372	1.031	1.159	$177.62	$71.21	$13.38	$40.24	$37.18	$162.01	$15.62
2P Not in Mine Plan - Jan 1, 2012		**6,061**	**0.870**	**15.659**	**0.878**	**1.073**	**$160.31**	**$60.97**	**$13.38**	**$37.42**	**$35.19**	**$146.96**	**$13.35**

16. MINING METHODS

16.1 Introduction

777 Mine is a multi-lens orebody with shaft access down to the 1508m level. The mine consists of an internal ramp that provides access to each mining level. Mobile tired diesel equipment is utilized. Load haul dumps units vary from 6.1m^3 to 7.6m^3. Trucks are 40 to 50 ton units feeding an ore pass system or direct to rockbreakers which feed an underground crusher and ore is skipped to surface via the shaft.

There are 4 main mining areas:

- Upper – accessed from 1082m level
- Middle – accessed from 1262 level
- Lower – accessed from 1412 level
- Lower Deep – accessed via ramp from 1412m level

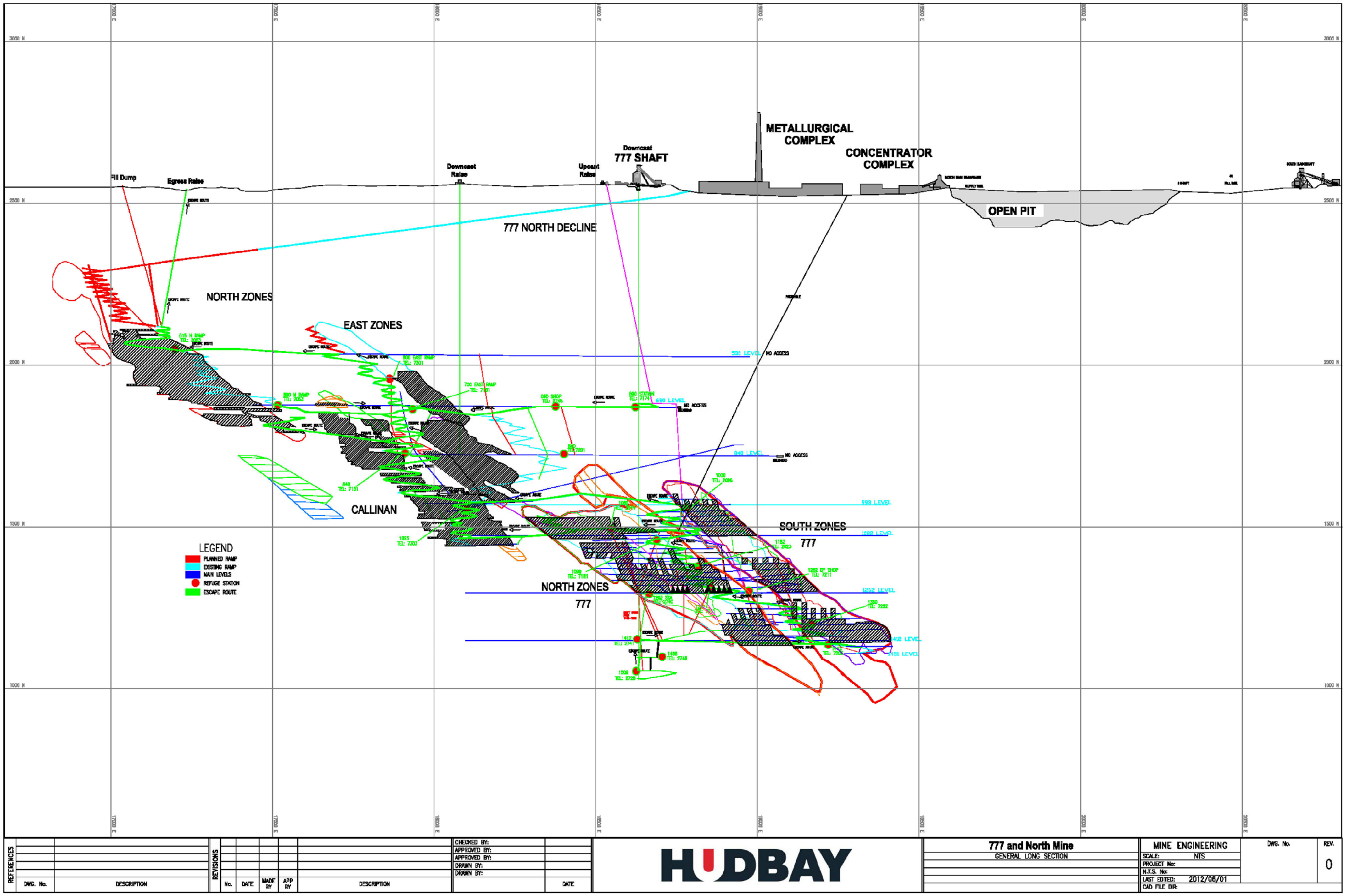
Each is separated into north and south portions for a total of approximately 8 mining areas.

The 777 Mine began initial production in 2003 and steadily increased to full production in 2006, mining approximately 1.4 to 1.5 million tonnes per year since.

A ramp access from surface is currently being developed to the 440m level of the Callinan North lens for mining purposes. This ramp will provide access to the ore of the upper Callinan lenses termed the 777 North expansion, which is operated, and to an extent, serviced independently from the 777 Mine. The ramp will also have the added benefit of providing the 777 Mine with ramp access after completion, in late 2013 to the 440m level.

A general longsection of the 777 Mine and 777 North expansion is shown in Figure 16.

Figure 16.1 General Longsection of the 777 Mine and 777 North Expansion Looking East



16.2 Lateral Development

Drilling in waste and ore drifts, crosscuts and ramps is done using two boom electric hydraulic jumbo drills. Rounds mined in low sulphide waste are blasted using ANFO, while rounds mined in ore are blasted using an emulsion with a sulphide blast inhibitor. Ore and waste are mucked by a LHD to a remuck or directly to a haul truck or to an ore/waste pass if nearby. Following mucking, standard ground support, consisting of resin grouted rebar and welded wire mesh, to within 1.8m of the sill is installed.

Mine services, including compressed air, process water and discharge water pipes, paste backfill pipeline, power cables, leaky feeder communications and ventilation ducting will be installed in main levels and stope entrances.

Generally, hanging wall drifts are developed parallel to the ore zones and stope access drifts are then developed into the ore. As levels are developed, stope entrance crosscuts are stubbed off and used as temporary remucks. Main levels are connected by a haul ramp to allow mechanized equipment to travel from level to level.

16.2.1 Mining Unit Dimensions

The mining dimensions at the 777 Mine differ based on the material being mined. Mine development in the waste (hanging wall drifts, ramps, etc.) is prepared on a 5.5m wide by 5.0m high drift. Mine development drifting in the ore zones is prepared on a 5.5m wide by 4.6m high drift. The 777 North expansion development drifting is planned on a 5.0m wide by 4.6m high drift.

16.3 Vertical Development

Main ventilation raises and ore/waste pass raises are developed by a mining contractor using Alimak climbers and hand held drills. Ground support and ladder ways, if required, will be installed to Hudbay standards.

Longhole slot raises are limited to approximately 12m in length and will be developed using longhole drop raise techniques or via contractors using raiseboring methods.

Drain, backfill and electrical cable holes are drilled using longhole drills, and reamed to designed diameter. Larger diameter (+0.15m) holes will be drilled by contracted raisebore drills.

16.4 Stope Mining

Both the 777 Mine and the 777 North expansion utilize a longhole open stoping mining method. Longhole mining is a non-entry bulk mining method requiring minimal ground support with high productivity and low cost per tonne.

16.4.1 777 Mine

Longhole open stope is the mining method used at the 777 Mine. Primary stopes are mined and filled with pastefill, while secondary stopes are mined and filled with unconsolidated loose waste rock. Mining sequence for 777 Mine is shown in Figure 16.2 by year.

Longhole stopes are mined at 15m to 17m vertical sill to sill intervals. The vertical height is based on historical data which shows that increasing the sublevel interval would result in either excessive dilution, or lower recoveries. Stope strike lengths are generally 16m with widths of 2 to 100m, with an average of approximately 20m. In 2011, the average panel size was 21,800 tonnes with tonnage ranging from 5,400 to 44,500 tonnes.

The ore is undercut at the top and bottom of the block, providing access for drilling and mucking. Drilling is done by two top hammer longhole drills with holes varying in length between 10m and 20m long and a hole diameter of 3 inches. Mucking is accomplished by remote control LHD's and then loaded to haul trucks.

Approximately 90% of the mineral reserve will be mined using longhole mining and the remaining by undercutting.

16.4.2 777 North Expansion

Retreat longhole open stope and cut and fill are the mining methods planned for the 777 North expansion, in the Callinan lenses. Longhole stopes will be mined using the same method with the exception, that these stopes will be using loose waste rock as fill rather than paste, as is the case in the 777 Mine.

All North Lens ore will be mined by overhand mechanized longitudinal cut & fill mining method as the dip of the orebody is rather shallow and not conducive to longhole mining methods, see Figures 16.3 to 16.4 for a generalized cross section. Sill pillars will provide mining horizons. As with mechanized cut & fill, the ore will be accessed from a footwall drift by a crosscut developed at approximately -15%. Ore will be mined 5.0m high up to the hanging wall and footwall contacts. When ore mining is complete, ore remaining on the sill will be mucked, pipes and ventilation ducting will be stripped, backfill will be placed to within 1.8m of the back and the entrance crosscut will be back slashed to provide access to the next cut.

Ground control in overhand mechanized longitudinal cut & fill mining will be 2.2m resin rebar in the back, walls and pillars to within 1.5m of the sill with welded wire mesh.

Approximately 31.6% of the mineral reserve will be mined using cut and fill mining, 37% using longhole mining with the remaining 31.4% being mined by undercutting.

Figure 16.2 777 Mine Longsection Mining Sequence Looking East

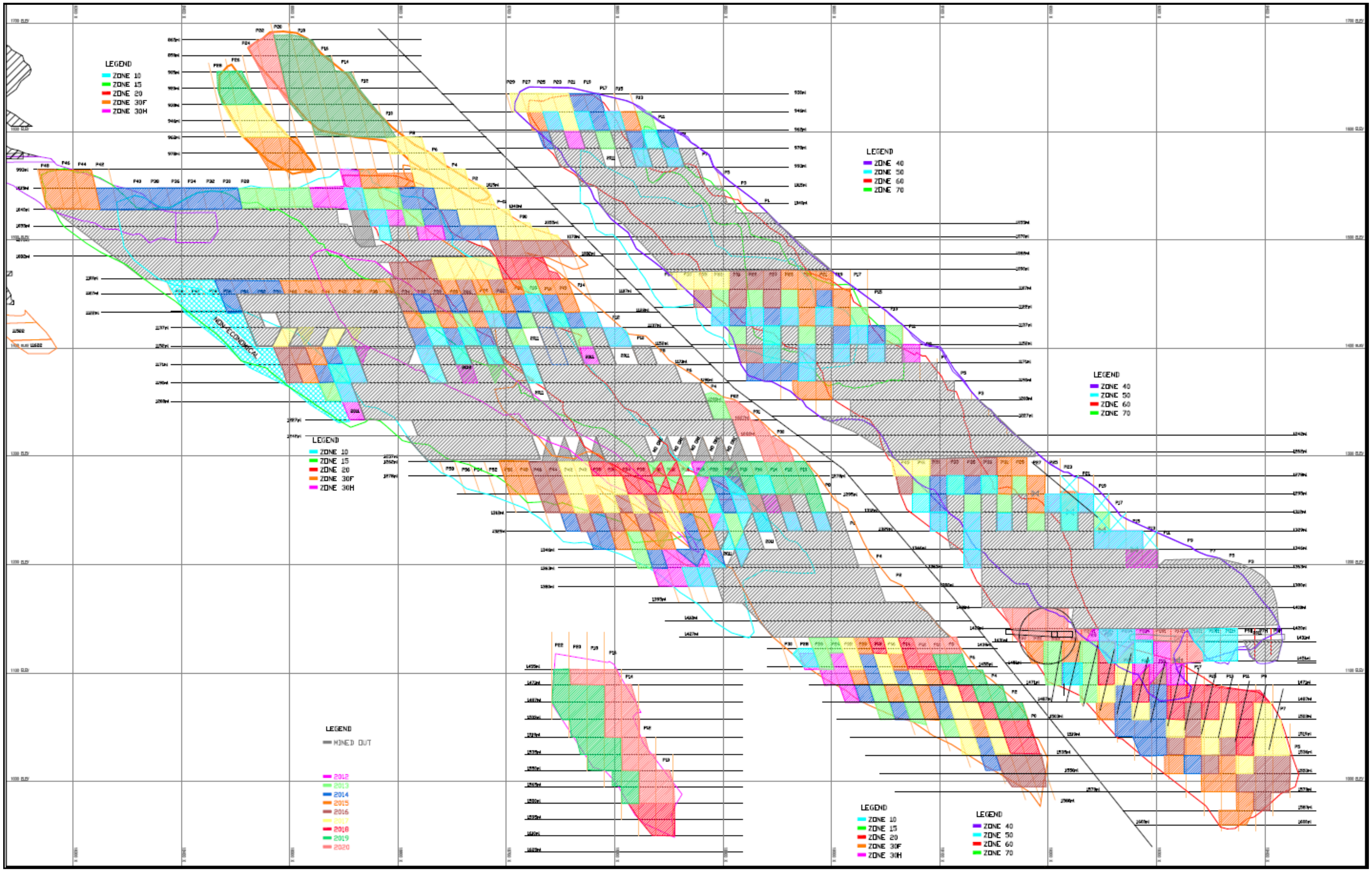


Figure 16.3 777 North Expansion 1 North Lens Cut and Fill Mining Area Longsection

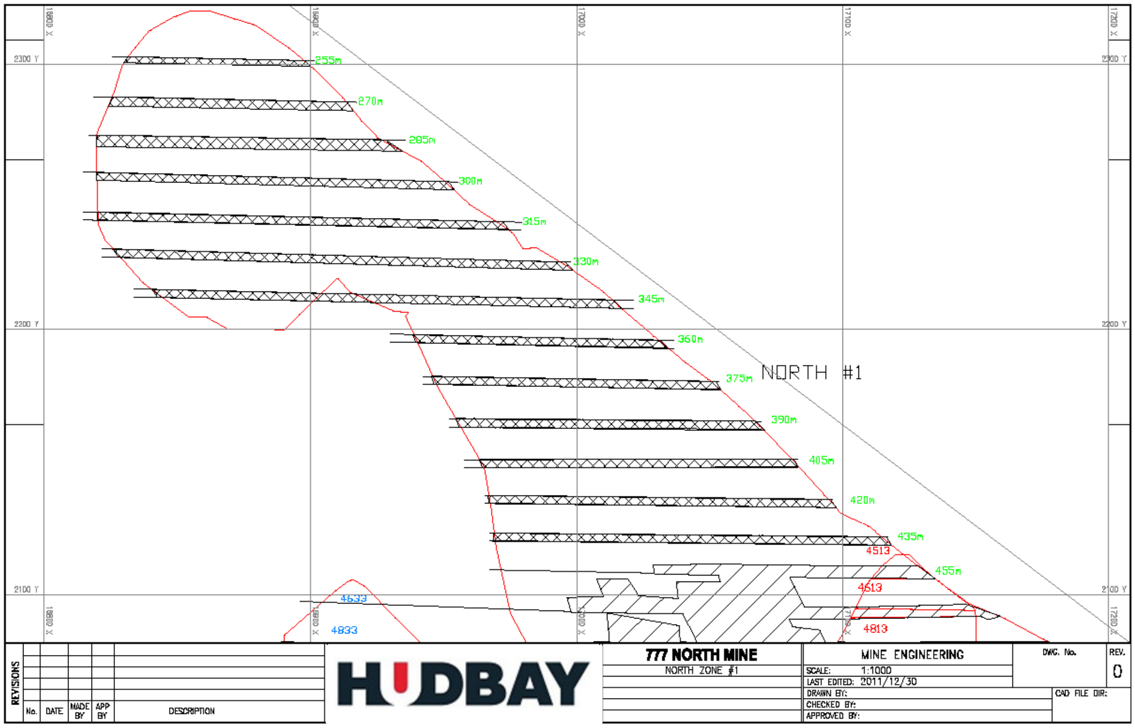
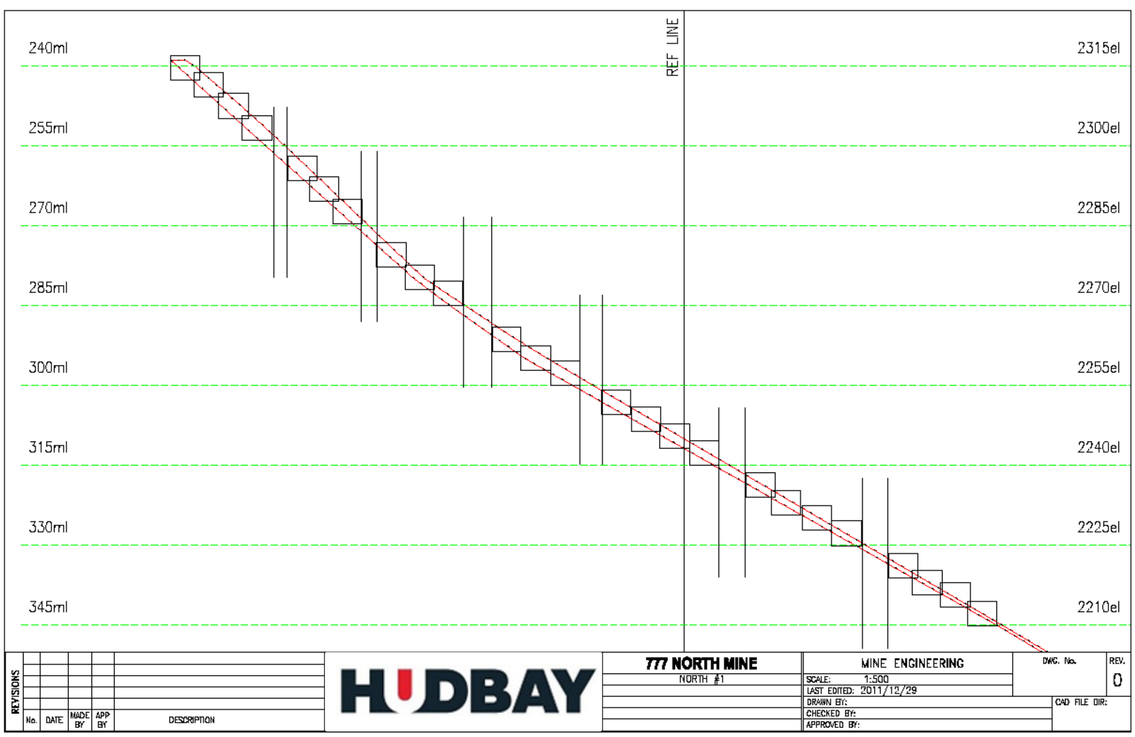


Figure 16.4 Cross Section of 777 North Expansion Cut and Fill Mining Method



16.5 Backfill (777 Mine)

16.5.1 777 Mine

All stopes at the 777 Mine are backfilled to maintain long term stability and to provide a floor to work from for subsequent mining. Backfill will be either:

- Paste backfill
- Unconsolidated waste rock backfill
- Cemented waste rock backfill

Paste is the primary backfill, which is an engineered product comprised of mill tailings and a binder (approximately 3% cement by weight) mixed with water to provide a thickened paste that is delivered by borehole and pipes to primary stopes. Paste backfill has advantages over unconsolidated slurried mill tailings and loose rock fill as follows:

- Flows to the hanging wall to seal off previous mining areas, improving ventilation control and limiting the potential for hangingwall failure. By comparison, loose rock fill typically rills to approximately 50°.
- Cures to a solid product. This allows mining between paste backfill walls in secondary longhole stopes, and creates a good mucking floor in all stopes. This also eliminates the possibility of the buildup of hydraulic head in stopes and potential flows of re-liquified unconsolidated tails.

Cemented waste rock backfill (CRF) has been used at 777 Mine, but has not been used recently. CRF backfilling process adds cement to waste rock using a spray bar, and CRF material is placed in stopes by LHD's to cure.

Unconsolidated or loose rock backfill is used in secondary longhole stopes, where pillar or wall confinement is not required.

16.5.2 777 NorthExpansion

Unconsolidated or loose rock backfill will be used in longhole stopes and cut and fill stopes for the 777 North expansion.

16.6 Underground Backfill Requirements

Based on the 2012 LOM the underground backfill requirements to the end of mine life, based on current mineral reserves, is:

- 777 Mine – 6,085,641 tonnes @ 2.15 tonnes/m3, combination of loose rockfill, paste fill, and to a much lesser extent cemented rockfill
- 777 North expansion – 310,720 tonnes @ 2.15 tonnes/m3, loose rockfill

16.7 Ore Removal

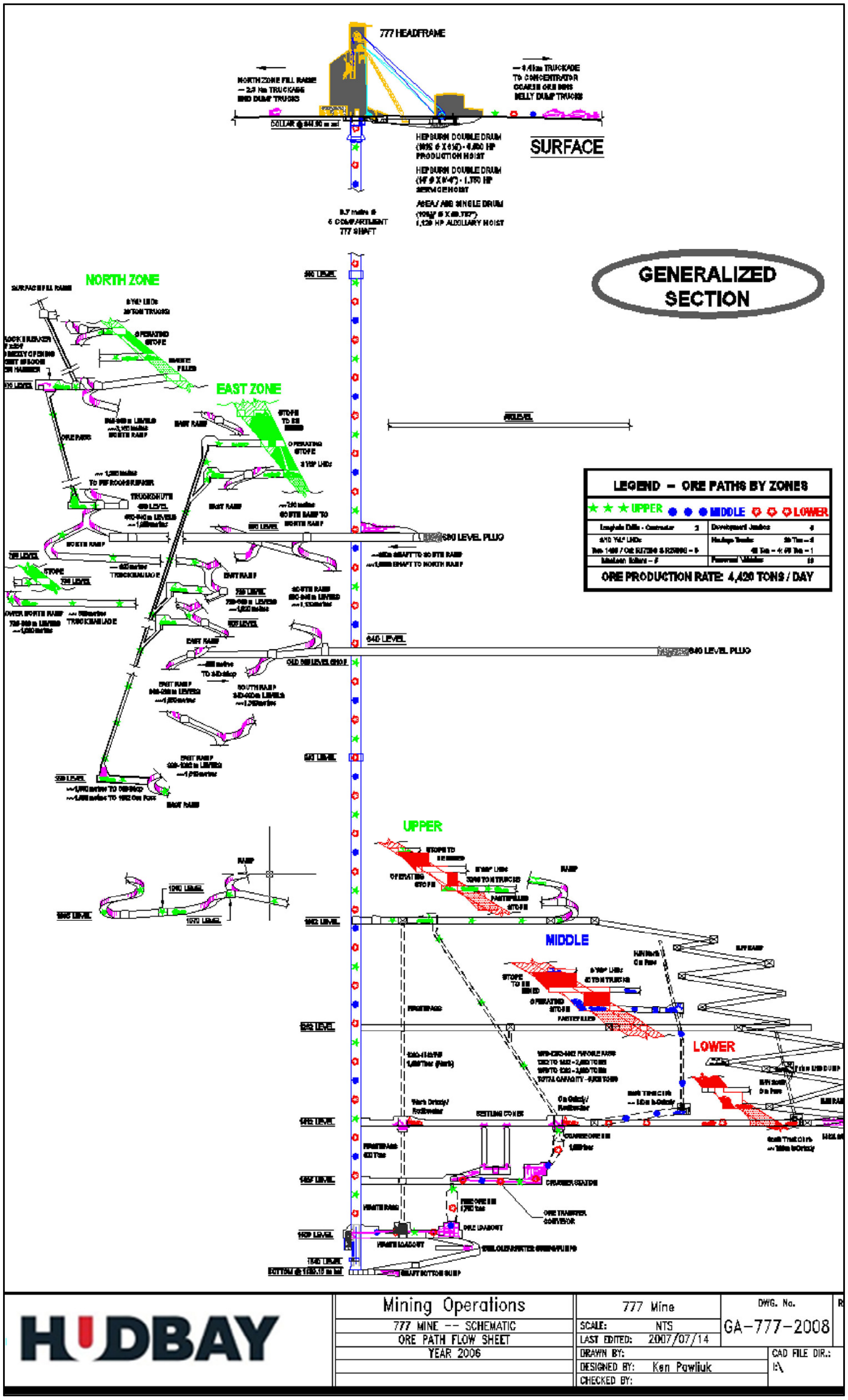
Ore at 777 Mine is loaded by LHD’s to underground haul trucks, which dump to a series of ore passes that feed three chutes on 1412m level. 45 tonne haul trucks are loaded from the chutes and haul the ore on the 1412m level haulage drift directly to the ore grizzly / rockbreaker at 1412m to properly size the muck. The ore is temporarily stored in a 1,725 tonne coarse ore bin that feeds the Birdsboro Buchanan 48” x 60” C-DF 250HP crusher. From the crusher it is conveyed to a 1,600 tonne fine ore bin, where it is conveyed to a loading pocket at 1508m level and placed into two 15 tonne skips and hoisted to surface. The ore on surface is hauled by 53 to 63 tonne haulage trucks directly to the Flin Flon Concentrator or is dumped on a stockpile close to the concentrator.

Ore from 777 North expansion is loaded onto haul trucks by LHD’s and transported up the ramp to surface. The ore is dumped on the ground prior to be sent through a surface crusher operated by a contractor. The ore is then loaded and transported for processing at the Flin Flon concentrator or stockpiled nearby.

16.8 Ore System

The ore system that services the 777 Mine includes a Hepburn Double Drum (5.03m diameter x 2m) 5,500HP production hoist with two 15 tonnes skips, a Hepburn Double Drum (4.2m diameter x 2.06m) 1,750HP service hoist with a 2 deck 100 man cage, and a ASEA/ABB Single Drum (2.54m diameter x 1.29m) 1,120HP Auxiliary Hoist with a 6 man auxiliary cage. All conveyances are in a 6.7m diameter by 1,530 meter deep concrete lined shaft that runs from surface to the 1,508m level. Refer to Figure 16.5 for a generalized cross section.

Figure 16.5 777 Mine Generalized Cross Section



16.9 Surface Infrastructure

Surface infrastructure has been long established at the 777 Mine with some minor additions made for the construction of the 777 North expansion. Surface infrastructure at the 777 Mine includes:

- Headframe and collar house
- Ore/waste loadout
- Hoisthouse
- 240 workforce office / dry complex
- Electrical substations and compressor rooms
- Mine air intake and heaters
- Exhaust fans
- Warehouse
- Yard storage
- Utilidor (underground access to headframe)
- Two overhead 13.8kV distribute power to the site

Surface infrastructure at the 777 North expansion includes:

- Quonset building that provides covered storage for mining supplies
- Laydown area
- Office trailer
- Contractor surface crusher
- Ore / waste surface storage
- Air compressor building
- Surface power transformer
- Diesel fuel storage
- Equipment surface parking
- Equipment mechanical shop

16.10 Geotechnical

Geotechnical modelling was completed by Golder Associates Ltd. (Golder) for the 777 Mine feasibility study that was completed in 1999. They reviewed the mining plan to assess:

- Mining dilution and recoveries to be expected for the various stoping methods and stope geometries
- Ground support requirements for the proposed stoping methods
- Backfill strength requirements for pillar extraction
- Shaft pillar size
- Stope extraction sequencing based on the analysis of stress distribution using numerical modelling

The study was based on the geometries of the 1998 historic geological resource (non 43-101 compliant) as well as geotechnical information supplied by Hudbay. At the time of that resource estimate the 777 Mine was interpreted to have continuous mineralization between the north and south troughs with two solid sulphide lenses (No. 1 and No. 2) in the hanging wall with a stringer mineralization in the footwall. A summary of the geotechnical information supplied to Golder is shown in Table 16.1. The numbers in brackets represent an interval of plus or minus one standard deviation (Simons, 1999).

Table 16.1 Preliminary Assessment of Rock Mass Quality from the 1999 Feasibility Study

Factors Considered	Hangingwall Rock (No. 1 Lens QP)	Hanging Wall Rock (No. 2 Lens Schist)	Ore (No. 1 Lens Solid Sulphide)	Ore (No. 2 Lens Solid Sulphide)
UCS (MPa)	120 (80-170)	100 (50-140)	250 (200-300)	200 (130-270)
RQD (%)	88 (84-92)	80 (72-89)	79 (75-84)	87 (81-93)
Joint Number (Jn)	9	9	6	6
Joint Roughness (Jr)	1.5	1.5	1.5	1.5
Joint Alteration (Ja)	2.0	3.0	1.0	1.0
Q'	7.0	4.0	20	20

The Golder modelling was based on preliminary understanding of the geology, orebody and in-situ rock stresses at the time and was used to determine expected ground support, backfill strength, shaft pillar and shaft station design measurements. Geotechnical information has been collected and evaluated since 777 has been in production and used to prepare standard support policies.

A summary of the various rock mass measurements and tests that have been conducted on the Property, is tabulated in Table 16.2.

Table 16.2 Assessments of Rock Mass Quality for Callinan and 777 Mines

Mine	Rock Type	Average UCS (MPa)	UCS Strength ISRM	RQD %	RQD Classification	Specific Gravity	Young's Modulus (GPa)	Poisson Ratio	No. Of Specimens
Callinan	Mineralized to Disseminated Fragmental Andesite	-	-	-	-	3.74	12.60	0.24	1
	Sericite Quartz Porphyry & Chlorite Biotite Andesite	-	-	-	-	2.76	74.50	0.19	2
	Sericite Chlorite Andesite	71	Strong	80	Good	2.82	89.80	0.21	2
	Chlorite Biotite Andesite	103	Very Strong	90	Very Good	2.79	64.20	0.20	3
	Andesite	187	Very Strong	90	Very Good	2.89	73.90	0.18	2
	Chlorite Talc Biotite Schist	62	Strong	67	Fair	2.81	75.40	0.28	2
	Solid Sulphides to Near Solid Sulphides	149	Very Strong	90	Very Good	3.77	119.70	0.25	1
	Chlorite Talc Schist (Maybe disseminated)	45	Medium Strong	50	Poor	2.79	71.00	0.25	2
	Quartz Porphyry / Fragmental Andesite	66	Strong	71	Fair	2.79	86.60	0.21	2
	Porphyritic Diorite	85	Strong	80	Good	2.88	89.80	0.30	1
	Solid Sulphides	115	Very Strong	90	Very Good	3.67	91.50	0.22	1
	Solid Sulphides	202	Very Strong	100	Very Good	4.19	138.40	0.16	1
	Fragmental Quartz Porphyry	88	Strong	80	Good	2.73	78.20	0.17	1
	Footwall & Hanging Wall - East Zone	77	Strong	80	Good	2.75	82.00	0.19	-
	Ore zone	155	Very Strong	90	Very Good	3.87	117.00	0.21	-
	Hanging Wall - North Zone	55	Strong	60	Fair	2.75	82.00	0.19	-
777	Basalt	133	Very Strong	91	Very Good	2.91	62.93	0.29	13
	Diorite	168	Very Strong	91	Very Good	2.93	64.57	0.27	5
	Quartz Porphyry - #1HW	118	Very Strong	93	Very Good	2.79	57.90	0.17	5
	Chlorite QP - #1fw/#2hw	61	Strong	69	Fair	2.89	45.32	0.25	4
	Sericitic QP - #1hw	80	Strong	87	Good	2.74	50.30	0.13	1
	Chlorite Schist - #2fw	60	Strong	89	Good	2.82	36.10	0.32	7
	#1 ORE (Sphalerite - Zinc)	249	Very Strong	87	Good	4.51	109.41	0.22	6
	#2 ORE (Chalcopyrite - Solid Sulphides)	170	Very Strong	92	Very Good	3.96	63.96	0.22	9
	#2 ORE (Disseminated Sulphides)	43	Medium Strong	66	Fair	3.01	46.68	0.19	1

16.11 Ground Support

The standard support policy has a minimum level of support that is automatically installed throughout the mine as development progresses. Additional support above this standard is typically installed in areas as needed based on recommendations by supervisors, crews, engineering or geology. Additional support is installed typically when poor ground is encountered, larger than normal spans, large intersections, or when permanent structures are being installed. This typically consists of one or more of cablebolts, shotcrete, and additional screening support.

The minimum level of support is automatically required in all areas regardless of ground conditions. In the upper portion of the mine this generally involves the use of 1.8m long #6 resin rebar installed on a 1.2m by 1.2m pattern along the back and down the walls within 1.8m of the sill. For areas below the 860 meter level, screen is attached with the same bolt pattern along the back and down the walls to within 1.8m of the sill. Screen consists of 6/6 gauge galvanized welded wire mesh with a mesh spacing of 0.1m by 0.1m that has a minimum weld strength of 921kg shear. All back support is installed within 1.0m of the face before further development can continue. Also, the walls must be screened to within one round and bolted within 1.0m of the face.

Ground support for longhole stoping typically entails the installation of cable bolts, strandlok or garford. Cablebolts are constructed with a seven-wire steel strand, 1.5cm diameter, are grouted into place and can take pressures up to 270,000psi. Strandlok steel cables, constructed with a seven-wire steel strand with a 1.5cm diameter, are also used as required taking up to 27 tonnes of ultimate breaking strength after they are resin grouted in place.

For stopes with full length hanging wall drifting double garfords, typically 6.1m to 9.1m long are, fanned on a 2.1m by 2.1m toe pattern in the hanging wall of the stope below. Inclination angles range from vertical to perpendicular to the hanging wall ore contact. For stopes with a single hanging wall entrance, cablebolting is installed from the final brow of the stope above back to the hanging wall of the stope below. For brows normal support is acceptable as long as the brow is temporary in nature, less than 30 days, or involves the use of remote operation of scoops. Otherwise brows must contain a minimum of two rows of cablebolts greater than 4.6m in length, in addition to the minimum support level that was already installed.

An optimum stope size is based on an analysis using the Mathews stability chart and also based on previous experience in the area. Typically a maximum hydraulic radius of 6.0 for the hanging wall is used as a guide.

Generally, all stopes are filled with backfill as soon as possible after mucking is complete. Paste is the preferred fill at 777 Mine, as it provides effective hanging wall support and adjacent stoping can be located immediately beside the paste. Waste rock fill is deemed acceptable for terminal stopes with no adjacent mining and for regular stope blocks where pillar ribs are left between them.

16.12 Water

Water for mining activities is supplied from a reservoir located adjacent to 777 Mine site across Provincial Trunk Highway #10. Approximately 220,000 gallons of fresh water is required per day for rock drilling, dust suppression, washing of muckpiles and for active mining areas. Potable water is delivered to the site in five gallon containers and distributed to the various offices, lunchrooms and refuge stations.

Water flows from the South Main shaft (of Callinan Mine) have been monitored on a regular basis since 1996 until the shaft was decommissioned in 2009. In 1998 the mine indicated that approximately 112 USgpm of fresh water was being pumped into the mine each month. The average discharge from the South Main Shaft at this time was calculated to be 568 USgpm. This indicated that the water inflows from underground openings into the Callinan Mine were approximately 450 to 500 USgpm.

Water mainly stems from three areas, the nearby Open Pit (see Figure 5.2), the old Flin Flon Mine workings, as well as from the previous Callinan Mine operations. It was estimated that water generated from the Callinan Mine operations is approximately 50% of the total inflow, i.e. 250 USgpm. In 2011 water inflows into the 777 mine is approximately 916,000 US gallons per day in addition to the water inflows from the South Main side.

Water inflow during mining 777 project was estimated by using an analytical model and current water flows experienced in Callinan Mine and exploration drill hole information. At the time the 777 shaft pilot hole was being drilled a series of seven surrounding diamond drillholes were used to measure the water table with a multi-parameter geophysical probe which indicated that the average water table depth to be 119 meters (Vowles, 1999).

In anticipation of the decommissioning of the South Main shaft bulkheads were placed at the entrance drifts from the South Main shaft at the 840m level and 690m level. The intent was to prevent water from old workings from entering the mine while also reducing the vertical extent that would be needed to pump the water to surface. Water was intended to fill past the 840m level up to the 690m level where it was to be pumped to surface. However, water inflows into 777 increased shortly after the bulkheads were installed through what is predicted to be an open drill hole above the lower bulkhead at the 840m level. Attempts were made to pressure grout this inflow from 777, however pressures were found to be high making this difficult and expensive. The grouting program was temporarily abandoned until the water pressure can be dropped. Plans to address this problem involve pumping down the water level below this point before the next grouting program will be attempted.

Water is currently being pumped from behind the 840m level bulkhead up a drill hole to a staging pond/dam on the 690m level near the bulkhead. From there, a stainless steel pump sends the water up a stainless steel lined pipe to surface. Currently this is pumped at a rate of 350,000 to 400,000 US gallons per day. Currently water level behind the bulkheads is decreasing as pumping rates are currently exceeding inflow.

Mine de-watering requirements for the 777 North expansion is expected to be 100 USgpm (6.3 liters/ second), the pumping system will be designed for 200 US gpm (12.6 liters/ second), with the ability to handle peak flow rates of 400 US gpm (25.2 liters/ second), for short durations.

16.13 Lateral Development

Drifts and ramps are developed using modern drill jumbos, by dedicated mine development crews, using the following equipment:

- Drilling - 2 boom electric/hydraulic drill jumbos equipped with 4.88m feeds and AC1838 or equivalent rockdrills. Drill advance of approximately 4.0m per round.
- Bolting – Maclean Engineering roofbolter or equivalent, equipped with a scissor deck and bolting boom. Bolters come with rod adding systems to allow cablebolt and testhole drilling. The units are equipped with AC1838/equivalent rockdrills and screen handling features.
- Mucking – Caterpillar 2900G or Sandvik LH517 (production) or equivalent LHDs equipped with a 7.6m^3 bucket and Toro 1400 or Caterpillar 1700 or equivalent (service/development) LHDs equipped with 6.1m^3 buckets
- Trucking – Toro 40D/50D or equivalent haul trucks, equipped with an 18m^3 box, with an approximate haul capacity of 42 tonnes.
- Charging Rounds – Rounds will be charged with explosives using a scissor lift equipped with a 450kg ANFO loading pot. If emulsion explosives are required, the truck will be equipped to handle a 1.0 to 1.5m^3 emulsion cube.

16.14 Underground Development Requirements

Based on the 2012 LOM the underground development requirements to the end of mine life for the reserves are:

- 777 Mine – Sustaining capital of 14,168m and operating of 28,863m (lateral only)
- 777 North expansion – Sustaining capital of 3,460m and operating of 3,055m (lateral only)

16.15 Dilution and Recovery

The LOM dilution is estimated to be 26% and recovery 82% at 777 Mine and estimated to be 29% dilution and 77% recovery at 777 North expansion based on the mineral resource. The average reconciled 2011 dilution was 14% with a 90% recovery, based on several Cavity Monitoring System (CMS) 3D surveys completed and compared to the mineral resource.

The expected LOM dilution and recovery factors used to dilute and recover the resource are less favourable than those reconciled in 2011. This is due to mining a large portion of primary low dilution stopes with high recoveries in 2011.

16.16 Mining Fleet

The mining fleet, as of December 2011 is shown in Table 16.3 and was established after several years of mining. The 777 and contractor supplied equipment is currently used for mining the 777 portion of the deposit but is also utilized for Callinan mineralization as required. Minor additions and replacements to the fleet are expected to take place over the remainder of mine life, but are generally expected to remain at current levels.

Table 16.3 Mining Fleet at 777 Mine and 777 North Expansion

Equipment	777 Mine	777 North Mine	Contractor Supplied	Total
Jumbo	7	2		9
Scoop	15	4		19
Ore Truck	7	6		13
Bolter	5			5
Man Carrier	28	6	7	41
Scissor Truck	6	2		8
Explosives Equipment	4	2		6
Backhoe	2	1		3
Scalar	1			1
Front End Loader	2	2		4
Forklift	5		2	7
Bobcat	4			4
Lift Truck	2			2
Grader	2			2
Alimak			1	1
Raise Bore			1	1
Diamond Drill			4	4
Long Hole Drill	1		2	3
Cement Truck	2			2
Total	**93**	**25**	**17**	**135**

As part of the mobile equipment fleet management plan, Major Mobile equipment has planned rebuilds at mid life (approximately 15,000 operating hours).

16.17 Production Schedules

The LOM mine production and concentrate schedules are tabulated in Tables 16.4 and 16.5.

Table 16.4 LOM Production Schedule

777 Mine	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Ore Milled - Total Tonnes	1,500,000	1,451,620	1,451,620	1,451,620	1,451,620	1,451,620	1,341,620	1,020,000	717,883	11,837,603
Au (g/tonne)	1.95	1.93	1.98	1.86	1.83	1.85	1.89	1.90	1.91	1.90
Ag (g/tonne)	27.43	29.30	27.50	23.44	22.15	25.90	28.76	35.55	35.17	27.66
Cu (%)	2.38%	2.30%	2.47%	2.32%	1.95%	1.91%	1.25%	1.20%	1.20%	1.96%
Zn (%)	4.25%	4.30%	4.34%	4.16%	4.25%	4.33%	4.57%	4.67%	4.67%	4.36%

777 North Expansion	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Ore Milled - Total Tonnes	52,617	120,039	120,449	120,720	120,198	13,238				547,261
Au (g/tonne)	0.95	1.44	1.59	1.70	1.48	1.35				1.49
Ag (g/tonne)	40.80	20.46	21.93	22.62	16.98	18.66				22.41
Cu (%)	0.72%	1.16%	0.98%	1.09%	1.03%	1.11%				1.03%
Zn (%)	6.25%	3.61%	3.64%	3.26%	2.72%	2.56%				3.57%

Table 16.5 LOM Concentrate Production by Year

777 Mine	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Cu Conc Produced:	135,190	126,220	135,549	127,318	106,991	104,818	63,400	46,273	32,567	878,327
Au (g/tonne)	15.72	16.05	15.36	15.38	18.00	18.57	29.00	30.35	30.52	18.56
Ag (g/tonne)	194.78	215.66	188.48	171.01	192.30	229.56	389.50	501.52	496.16	238.60
Cu (%)	24.60%	24.60%	24.60%	24.60%	24.60%	24.60%	24.60%	24.60%	24.60%	24.60%
Zn (%)	3.07%	3.21%	3.02%	3.08%	3.75%	3.89%	6.28%	6.68%	6.68%	3.82%
Zn Conc Treated:	105,466	103,265	104,226	99,903	102,064	103,866	101,344	78,720	55,404	854,257
Au (g/tonne)	1.95	1.89	1.93	1.89	1.82	1.81	1.75	1.72	1.73	1.84
Ag (g/tonne)	42.91	45.31	42.13	37.46	34.65	39.82	41.88	50.67	50.13	42.16
Cu (%)	0.85%	0.81%	0.86%	0.84%	0.69%	0.67%	0.41%	0.39%	0.39%	0.68%
Zn (%)	51.50%	51.50%	51.50%	51.50%	51.50%	51.50%	51.50%	51.50%	51.50%	51.50%

777 North Expansion	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Cu Conc Produced:	1,376	5,048	4,301	4,797	4,510	535				20,568
Au (g/tonne)	20.81	19.47	25.37	24.38	22.41	19.08				22.57
Ag (g/tonne)	702.00	218.94	276.31	256.11	203.63	207.69				268.28
Cu (%)	23.40%	23.40%	23.40%	23.40%	23.40%	23.40%				23.40%
Zn (%)	3.11%	1.11%	1.33%	1.07%	0.94%	0.82%				1.24%
Zn Conc Treated:	5,591	7,360	7,462	6,698	5,561	575				33,248
Au (g/tonne)	0.90	2.34	2.57	3.06	3.19	3.11				2.45
Ag (g/tonne)	57.60	50.06	53.09	61.14	55.04	64.40				55.32
Cu (%)	0.34%	0.94%	0.79%	0.99%	1.12%	1.28%				0.85%
Zn (%)	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%				50.00%

16.18 Production Rates

Current production rates are expected to be approximately 4,000 tonnes per day for the 777 Mine and 330 tonnes per day at the 777 North expansion based on 363 days of production per year. This yields an expected mine life through to 2020 for the 777 Mine, while 777 North expansion is expected to end production in 2017.

16.19 Mine Ventilation

The 777 Mine is supplied with approximately 650,000 cfm by two 350HP 2.6m Vane Axial fans with a propane heater pushing air down the shaft. This is augmented by one Centrifugal 2.1m 900HP fan in parallel with a Vane Axial 1.2m 250HP fan providing approximately an additional 300,000 cfm from the 2.7m x 3.7m Callinan downcast system which has its own propane air heater. The Callinan downcast raise is also connected to, and supplies air to, the 777 North expansion. Air is brought underground via fresh air raises and distributed to the levels with a series of 200HP booster fans and other smaller auxiliary fans using 54” vent tubing and various bulkheads. Exhaust raises bring exhaust air back to surface aided by a centrifugal 4.3m 3,500HP fan on surface.

The 777 North expansion is supplied by one Centrifugal 2.1m diameter 900HP fan in parallel with a Vane Axial 1.2m diameter 250HP fan providing approximately 120,000 cfm from the 2.7m x 3.7m Callinan downcast system which has its own propane air heater to the 120m level. Air is then brought to the workings via 54" rigid fibreglass ducting with exhaust being carried out the main decline to the portal.

16.20 Mine Power

The 777 Mine is supplied by two 13.8kV overhead lines. The first 13.8kV line has five 13.8kV distribution breakers going to:

- ventilation exhaust fan
- capacitor banks for power correction factor
- 600V transformer to supply surface complex,
- Service hoist
- Underground feeder #2, which supplies various underground 750kVA substations as required

The Second 13.8kV line has five 13.8kV distribution breakers going to:

- production hoist
- capacitor banks for power correction factor
- 600V transformer to supply surface complex
- Underground feeder #1, which supplies various underground 750kVA substations as required
- 4160V transformer on surface to supply downcast fans and surface compressors

The 777 North expansion power is supplied by two 4160V feeders, sourced from the Callinan downcast surface substation. The first 4160V line runs down to a 750kVA substation at 40m level and the second runs underground via a 0.23m borehole that parallels the ventilation raise to the 120m level where it connects to a second 750kVA substation and also continues down ramp to feed additional substations.

16.21 Workforce

Workforce as at the end of 2011 is tabulated in Table 16.6 and 16.7 below for 777 Mine and 777 North expansion. The 777 Mine workforce is expected to remain constant throughout the life of mine and 777 North expansion is expected to increase once mining commences to approximately 32.

Table 16.6 777 Mine Workforce

Discipline	Personnel
Mine	147
Electrical	13
Mechanical	29
Electrical Apprentices	1
Mechanical Apprentices	3
Welders	3
	196
Staff	29
Executive	6
	35
subtotal	**231**
Modified	**6**
Total	**237**

as of December 31, 2011

Table 16.7 777 North Expansion Workforce

Discipline	Personnel
Mine	17
Electrical	1
Mechanical	5
	23
Staff	1
Executive	2
	3
Total	**26**

as of December 31, 2011

16.22 Mine Safety & Health

Contractor and Hudbay personnel are required to work under the applicable laws of the province of Manitoba, Canada. All contractors working on site will be required to have an approved health and safety program in place and have on site representation. Hudbay Plant Safety Rules and Regulations include, but are not limited to:

- Positive Attitude Safety System (PASS) safety program
- Health monitoring programs (hearing and lung)
- Dust monitoring
- Ongoing water and environmental monitoring
- Personal Protective Equipment (ie. reflective outerwear, eye protection, hearing protection, respirators)
- Task analysis and job procedures.

16.23 Refuge Stations

Refuge stations are required at the 777 Mine and 777 North expansion and as such have been incorporated into the mine design. Hudbay's standard refuge station is excavated from rock and requires two ventilation bulkheads, compressed air and a backup oxygen generator, potable water, stretcher kit and first aid supplies, as well as supplies to seal off the bulkheads.

As new development is driven, a portable refuge station is utilized until it is practical to develop a permanent refuge station. The 777 North expansion currently has 1 permanent and 1 portable refuge station. There are 21 permanent and 1 portable refuge stations underground at 777 Mine. Refuge stations are to be located in intervals that do not exceed 100m vertically or 1,000m horizontal from an underground working area.

16.24 Second Egress

Underground mines require a second means of egress. The primary route in and out of the 777 Mine is the production shaft equipped with a service cage. The shaft is equipped with a small auxiliary hoist and six person cage. In case of power failure, the auxiliary hoist can be operated by an emergency diesel generator to evacuate the miners from the mine.

In the case that the production shaft is not usable, the second egress from the 777 Mine is via an escapeway to surface from the 440m level. It is expected that the 777 North expansion ramp will connect to the 777 Mine workings in late 2013, providing ramp access to surface, at which point the escapeway will no longer be required.

During the development phase at 777 North expansion prior to the connection with the 440m level of 777 Mine there will only be one means of egress, via the ramp to surface.

17. RECOVERY METHODS

17.1 Introduction

The 777 Mine run of mine material is transported by truck either directly to the Flin Flon Concentrator or to the nearby ore storage area. Run of mine material from the 777 North expansion is first crushed on surface to minus 6” prior to being transported to the concentrator. At the concentrator, the ore is crushed to less than 150mm before it is blended with ore from the other mining operations in the area including Trout Lake and Chisel North copper ores when available. Mineralized material from the upcoming Reed Copper Project will also be run through the same facility; however this material is expected to be batched independently.

The Flin Flon Concentrator is capable of producing two concentrates, a zinc concentrate and a copper concentrate with gold and silver credits.

17.2 Flin Flon Concentrator

The Flin Flon Concentrator typically processes approximately two million tonnes of ore annually. In 2011, the mill processed 2,266,200 tonnes of ore, of which the 777 Mine contributed 1,491,700 tonnes. During 2011, the mill produced 222,900 tonnes of copper concentrate and 119,200 tonnes of zinc concentrate.

Typically the crushed ore is trucked to the concentrator where each specific mine ore is stored individually and reduced to 20mm in a two stage closed circuit crushing plant.

The grinding circuit consists of two 1,200HP open circuit rod mills in parallel and one 5,000HP ball mill. The ball mill operates in closed circuit with 6x500mm cyclones to produce a final product size of 80% passing 70 microns.

Copper and zinc minerals are recovered in sequential flotation circuits. Refer to Figure 17.1 for the detailed Flin Flon concentrator flowsheet. The copper circuit consists of roughing (flotation cell sizes: 40m^3 x 5), scavenging (40m^3 x 1), and two stages of cleaning (16m^3 x 4; 8m^3 x 4). Scavenger concentrate and first cleaner tailings report back to the ball mill for regrinding. Lime is added to maintain a pH of 10.5 in the roughers. The primary copper collector is TNC 312, and Aerophine 3418A is used to enhance gold recovery. MIBC is used as frother.

Tailings from the copper circuit report to conditioner tanks at the head of the zinc flotation circuit. Additional lime is added to increase the pH to 11.5, and copper sulphate is added to the slurry to activate the sphalerite and make it available for flotation. X541 is used as collector and MIBC is used as frother. The zinc circuit consists of roughing (30 – 40m^3 x 7), scavenging (38m^3 x 2), and three stages of cleaning (16m^3 x 4; 16m^3 x 3; 16m^3 x 2).

Target concentrate grades are approximately 24.5% copper and 51.5% zinc. Both concentrates are dewatered with high capacity thickeners. The copper concentrate is filtered by a Larox pressure filter, achieving a moisture content of 8%, while the zinc concentrate is filtered by vacuum disc filters.

Final tailings from the flotation circuit are used to produce paste backfill that is used in the 777 Mine. The paste process consists of classification with cyclones to remove excess fines, thickening, filtration, and repulping the classified tailings with cement and water to ratios specified by the mine. A Schwing pump is used to send paste to the mine via one of two boreholes adjacent to the concentrator. Any tailings material not used in producing paste reports to the tailings management facility.

Demand load at the concentrator is about 9 to 10MW for the crushing, grinding, flotation, and dewatering.

An estimate of water consumption by operating area for the Flin Flon Concentrator for throughput of 250 tonnes/hour is summarized in Table 17.1 below.

Table 17.1: Estimated Water Consumption

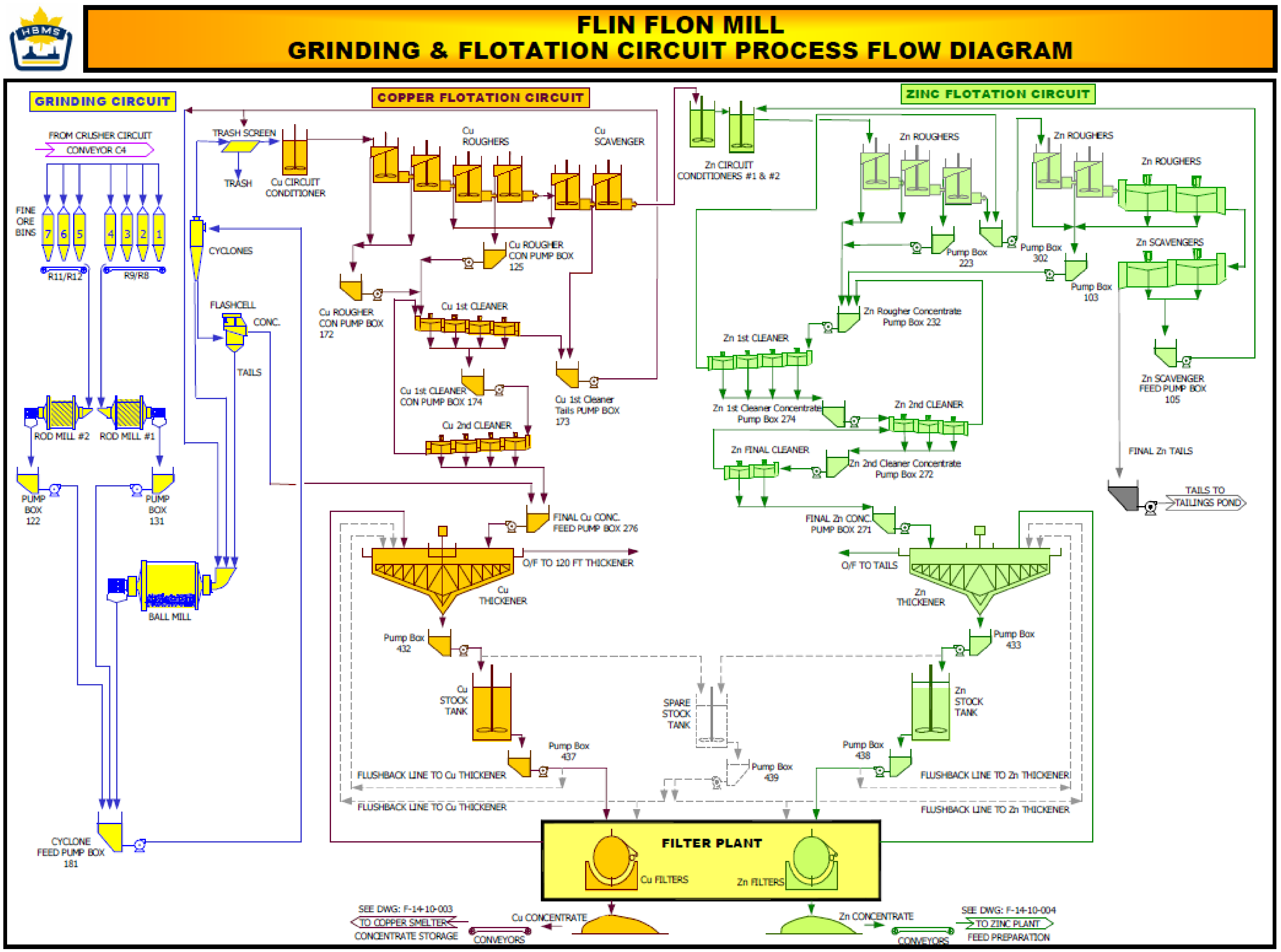
Operating Area	US GPM
Crushing Plant	150
Grinding Circuit	1300
Flotation Circuit	1700
Dewatering and Filtration	300
Paste Plant	250

An estimate of grinding media and reagent consumption for the 777 Mine copper and zinc concentrate production is shown in Table 17.2 below.

Table 17.2: Estimated Grinding Media and Reagent Consumption

Operating Area	g/tonne
Grinding Media	1150
Collector	45
Activator	75
Frother	5
Flocculant	5
Lime	1550

Figure 17.1 Flin Flon Concentrator Flowsheet



18. PROJECT INFRASTRUCTURE

777 Mine is located within the City of Flin Flon, Manitoba. The property is accessed from a paved highway, Provincial Trunk Highway (PTH) #10. General area infrastructure used by the 777 Mine includes provincial roads, privately owned rail lines, 115kV Manitoba Hydro grid power and Manitoba Telecom Services land line and cellular phone service. In 2011, the 777 Mine used approximately 90,160,000 Kwh of electricity for the mining operation. Other energy requirements for the 777 Mine included the use of approximately 7,570,000 liters of propane in 2012. This is mainly used for heating the downcast air, with the vast majority of this being consumed in the winter months.

The City of Flin Flon is a full service community with available housing, hospital, police, fire department, potable water system, sewage treatment, restaurants, stores and sporting facilities. The community has a municipal paved airstrip located at Baker's Narrows serviced by two commercial airlines with daily flights to Winnipeg, Manitoba.

Hudbay infrastructure within or near the Flin Flon metallurgical complex used by 777 Mine includes:

- Zinc plant
- Flin Flon concentrator
- Paste backfill plant
- Water retention pond that supplies fresh and process water to the 777 Mine
- Administration office
- Assay laboratory
- Central maintenance shops
- Hudbay Flin Flon tailings impoundment system

The 777 Mine and 777 North expansion are designed to produce approximately 4,300 tonnes per day of ore. Primary access to 777 Mine is by a production shaft. Secondary ramp access via 777 North expansion is under construction. Ore is hoisted to surface via the 777 production shaft and milled at the Flin Flon Concentrator using a rod/ball mill, producing zinc and copper concentrates. A general longsection of the 777 Mine and 777 North expansion is shown in Figure 16.1.

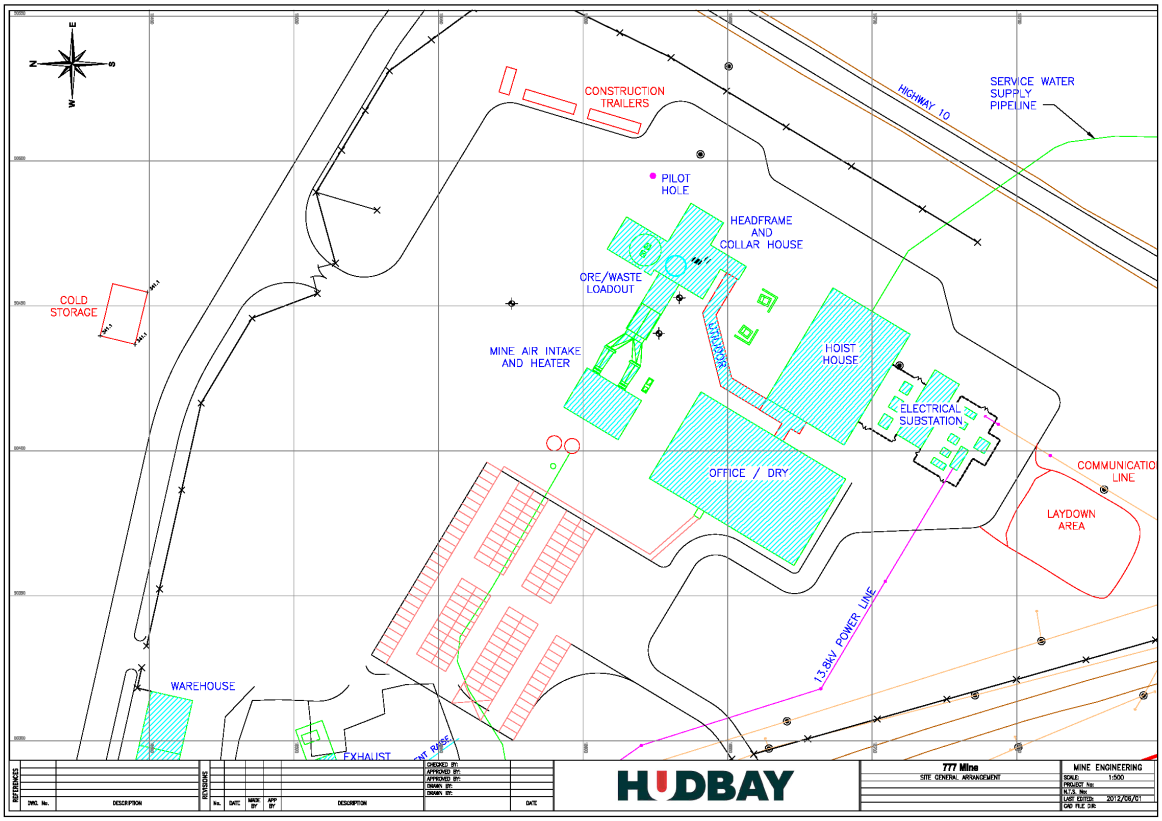
The 777 Mine produces approximately 1,500,000 tonnes per year of ore with excess hoisting capacity utilized for waste skipping. The main shaft is 1,540m deep and is 6.7m in diameter. The shaft has seven shaft stations located at 300m level, 690m level, 1082m level, 1262m level, 1412m level, 1465m level and 1508m level. The 300m level, 1465m level and 1508m level shaft stations are accessible from the shaft only. An internal ramp links underground infrastructure between the 440m level and the 1460m level. Currently, secondary egress is via an escape raise from the 440m level to surface.

Mine site infrastructure at the 777 Mine site, and within the Hudbay complex, specifically constructed for 777 Mine includes:

- Haul roads to ore storage areas and the Flin Flon concentrator
- On site powerlines and a 115kV/13.8kV electrical substation
- Two 13.8kV overhead powerlines from the main substation to the 777 surface substation
- Two electrical feeders (13.8kV each) to the shaft that distribute power to various parts of the mine. Power for surface operations and services (upcast fan, downcast fan, hoists, compressors etc.) are also supplied from the 777 surface substation via separate powerlines.
- Process water, fresh water and mine discharge water pipelines
- Sewage holding tanks
- Hoisthouse with 1,750HP service and 5,500HP production hoists installed. The building includes cranes, electrical switchgear and hoist controls.
- Headframe with sheaves and ore bin. Includes an 1,100HP auxiliary hoist and cage.
- Fresh air ventilation system including plenum, mine direct fired propane air heaters, and 2 x 350HP fans. Propane is stored on surface in two 30,000USG tanks where it is distributed via buried pipes to both mine air heaters.
- 3,500HP exhaust fan
- Sub-grade utilidor for pipe and power distribution to the hoisthouse, headframe and office/changehouse complex
- Mine office and changehouse
- Warehouse and core logging facility

For a general site arrangement of the 777 Mine, refer to Figure 18.1.

Figure 18.1 777 Mine Site General Arrangement



The 777 North expansion project is currently under construction. This project will provide ramp access from surface to the existing workings at the 440m level and be used to truck 330 tonnes per day of production. Mining of this portion of the mine is expected to be completed in 2017.

Ore at the 777 Mine is hauled by LHD or haul truck from stopes to ore passes that transfer the ore to the 1412m level. Ore is loaded to haul trucks from chutes and hauled to rockbreaker stations located near the production shaft. Ore is sized to -0.41m through grizzlies and passed to the 1465m level crusher where the muck is crushed down to -0.15m. Crushed ore is conveyed to an underground fine ore bin and passes to 1508m level where it is conveyed to the shaft loadout measuring bins for automated skipping to surface. Ore is trucked directly to the Flin Flon Concentrator for milling, or stockpiled at a designated area. Run of mine ore from 777 North expansion is hauled to surface via the haul ramp. Ore is then crushed to -0.15m and hauled to the Flin Flon Concentrator or stockpile. The ore stockpile is located nearby, in proximity, to the tailings facility and has a capacity in excess of 200,000 tonnes.

Waste rock from mine development is used, when possible, for fill and cemented rock fill underground. The remainder is hoisted to surface and stored near the tailings pond to be used for civil construction projects such as tailings dam walls, road construction and other mining related purposes.

The Flin Flon Concentrator produces copper and zinc concentrates. Copper concentrates are sold to third party smelters. Copper concentrate from the mill is filtered (dewatered) and conveyed to bedding bins. The concentrate is weighed before being scraped off of the belt and stockpiled at floor level. The concentrate is loaded into gondola rail cars by a front end loader in the load out facility where concentrate is weighed and sampled for moisture. Following weighing and sampling, lids are placed on the gondola railcars for transport to thrid party smelters. Concentrate storage capacity is 10,900 tonnes (4,550 tonnes in the bedding bins and 6,350 tonnes in the former backfill shed).

Zinc concentrates are conveyed from the concentrator to the Hudbay zinc pressure leach (ZPL) facility at the Flin Flon metallurgical complex. The ZPL process ensures minimal discharge to the environment. The concentrate is treated in a two stage autoclave leaching and thickening process, followed by removal of sulphur, gypsum, copper and iron. Following purification, solutions from the ZPL plant are electroplated on aluminium cathode sheets in electrolytic cells. The zinc cathodes are stripped, melted, alloyed and poured into slabs for the market. Refined special high grade zinc is shipped to customers in one of three ingot shapes: continuous galvanizing grade, slabs, and ASTM blocks. Zinc can be alloyed with aluminium, lead, or cadmium. When zinc casting is complete, the zinc metal is placed in storage to cool before being loaded into boxcars or trucks and shipped to customers. Hudbay's casting operation is certified to ISO 9001, ISO 14001, and OHSAS 18001 management systems for quality, environment, and safety.

Tailings from milling are sent to the Paste Backfill Plant located at the lower level of the mill building. The tails are classified by cyclones to remove excess fines, then thickened, filtered and mixed with cement in a ratio specified by the mine. Mixed paste backfill is pumped to one of two lined boreholes adjacent to the mill, where paste is gravity fed to 1082m level for distribution to mined out stopes. The plant operates between 40 to 50% of the time, and on average, utilizes approximately 22% of the total tailings tonnage.

Tailings not used in paste production are pumped to the Flin Flon Tailings Impoundment System (FFTIS). Discharge water from the mining operations reports via a pipeline into an internal drainage channel where it flows to the Lake Bottom sump along with other surface infrastructure run-off water. The water is treated by the addition of lime before being pumped into the FFTIS where it is further treated before final discharge to the environment. The FFTIS, owned and operated by Hudbay is located in Saskatchewan approximately 500m to the west of the Flin Flon Metallurgical Complex. The system has been used for storage of tailings and other waste products generated by the mining and metallurgical processes in Flin Flon since operations began in 1929.

The FFTIS consists of five ponds, the Oxide Pond, Primary Pond, Secondary Pond, Zinc Pressure Leach (ZPL) Pond, and the Clarification Pond. Surface drainage moves northwards through the FFTIS, exiting from the North Weir into Flin Flon Creek, which drains into Ross Lake. The Oxide Pond, now inactive, was used for the deposition of Zinc residues, produced at the mill, where the solids were stored with a limited volume of water for future metal reclamation. Outflows from the Oxide Pond occur on an emergency overflow basis only. The ZPL Pond takes the decant water from the Zinc Plant, stores the tailing solids and retains a limited volume of water for process reclamation after being pumped back into the plant. The Primary Pond has the function of storing the tailings solids as well as retains a limited volume of water for effluent quality control and dust migration. Effluent is discharged through a causeway to the Secondary Pond. The Secondary Pond functions similarly and discharges through a spillway into the Clarification Pond. The Clarification Pond is the final step before the discharge of effluent to the environment via the Flin Flon Creek.

The FFTIS provides two basic objectives prior to water discharge to the environment; removal and storage of solids, and the removal and storage of heavy metals. Solids are removed by deposition, which occurs mainly within the Primary and Secondary Ponds as suspended solids fall out of suspension. Heavy metals are removed by maintaining an elevated pH within the facility and promoting the creation of hydroxide precipitates. This is achieved by first discharging a tailings slurry with a high pH followed by the addition of a lime slurry to the effluent.

Legal requirements issued by the Federal Government and Provinces of Manitoba and Saskatchewan are relevant to the FFTIS. Both Manitoba and Saskatchewan govern the physical integrity of the FFTIS. Saskatchewan and the Federal Fisheries Act regulate the quality of water discharged from the FFTIS. Saskatchewan Environment issues a permit to discharge water from the FFTIS. The FFTIS covers an area approximately 365Ha in size with approximately 100 million tonnes of tailings.

Propane is stored on surface in two 30,000USG tanks where it is distributed via underground pipes to the 777 Mine headframe downcast and the former Callinan Mine downcast fan, where it is used in the burners to heat the air before it enters the mine. Propane is also distributed, via underground pipelines, to all other surface infrastructure (hoistroom, office, warehouse, etc) where it also utilized for heating.

19. MARKET STUDIES AND CONTRACTS

19.1 Market Studies

The 777 Mine is fully owned and operated by Hudbay. Hudbay processes the 777 run of mine material at their Flin Flon metallurgical complex where they are also currently processing feed from their other mining operations. Ore will be processed into two concentrates; a copper concentrate with gold and silver credits, as well as a zinc concentrate. The 777 copper concentrate that is produced follows a general contact agreement that Hudbay has in place with Xstrata Copper until December 31, 2019. The zinc concentrate is refined at the wholly owned Hudbay zinc plant located in the Flin Flon Metallurgical complex.

There are no expected, or negligible if any, penalties from the sale of Hudbay copper concentrate, as our average copper concentrate currently does not incur any penalties. Payable metal market prices are based on the settlement price averaged for the actual quotation period.

As Hudbay refines all zinc concentrate produced from the 777 Mine, no concentrate penalties are incurred. The zinc metal is cast in three different shapes and is usually sold at a premium to market price.

Hudbay conducts ongoing research of metal prices and sales terms as part of normal business and long range planning process.

19.2 Contracts

Hudbay has a precious metals stream agreement for 100% of payable gold and silver from 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver with Silver Wheaton Corp. Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Summary

The 777 Mine site did not require any environmental impact studies for approval in 2001, as the mine site was on Hudbay property and part of the existing Flin Flon Metallurgical Complex (FFMC). The 777 Mine site was described as an "alteration to process" under the FFMC Manitoba Environment Act Licence, and did not require any additional environmental investigation during the approval process.

20.2 Tailings Disposal

Tailings generated will be disposed of in the existing FFTIS.

20.3 Site Monitoring & Water Management

All water from the 777 Mine is discharged to an internal drainage channel, which drains to the Lake Bottom Reservoir. Water from the reservoir is pumped to the FFTIS for treatment, and then discharged at our licensed discharge location at the North Weir. Water quality samples from the 777 Mine discharge are collected on a weekly basis and analysed for metals and suspended solids. Water quality at the FFTIS North Weir final discharge is analysed on a daily basis to ensure it complies with environmental regulations for effluent discharge.

20.4 Waste Rock

Details of the final usage are laid out in the FFMC Closure Plan. Waste rock will be used to contour the area with the FFMC to promote drainage to the Lake Bottom Reservoir for future treatment of potentially contaminated water.

20.5 Permitting

The 777 Mine site was described as an "alteration to process" of the existing FFMC Manitoba Environmental Act Licence, and did not require any additional environmental investigation during the approval process. The 777 North expansion received Construction Approval PC10-147 from Saskatchewan Ministry of Environment in October of 2010.

Hudbay obtained an Alteration to Process License CEC Order No. 1013VC in May 1999 from Manitoba Environment. The mine effluent reporting to the surface drainage system, and ultimately Lake Bottom Reservoir in Saskatchewan, gained approval from Saskatchewan Environment under Approval No. IC-391 in June 2000.

20.6 Bonding

Performance and reclamation bonds for the 777 Mine site are included in the Closure Plans for the 777 Mine. The 777 North expansion will be included in the future 2015 site and the Flin Flon Metallurgical Complex Closure Plan. Presently, closure plans are updated yearly as part of an Asset Retirement Obligation (ARO) as development progresses.

20.7 Social and Community Requirements

Hudbay has a close relationship to the neighboring communities of Flin Flon and Creighton. Ongoing communications with these communities provides for continued good relations.

20.8 Mine Closure

Closure and remediation plans including detailed costs associated with the 777 North expansion will be incorporated in future FFMC Closure Plans. Orders of magnitude costs associated with mine openings and waste rock would be $200,000. Only one new vent raise and the portal will require decommissioning. All other openings already exist and are covered under the 777 Mine closure plan.

From the 777 Mine Closure Plan and Cost Estimate (Saskatchewan and Manitoba), 2010 Update:

> The 777 Mine closure plan addresses surface infrastructure only. It is assumed that the underground will be decommissioned prior to completion of production. All buildings will be demolished, as well as the vent raise and backfill raise huts. The shaft, vent raises and exhaust will be capped. Contaminated soils will be excavated and disposed of. The final surface will be graded to direct surface run-off towards the Lake Bottom Reservoir at the FFMC. The access road will be scarified as part of the FFMC area closure plan. Growth medium will be placed, seeded and fertilized.

A limited period of post-closure monitoring of the revegetated area will be required at the 777 Mine site.

The cost estimate from the two closure reports (Saskatchewan and Manitoba), which includes $78,479 in post-closure costs, comes to a total of $1,222,121. The cost estimate was calculated in January 1, 2010 dollars. This closure plan was developed by SRK and submitted to both provinces regulatory agencies in 2010.

21. CAPITAL AND OPERATING COSTS

Capital and operating costs are estimated in constant 2012 Canadian dollars. The 777 Mine has been in commercial production since 2004 and the original project capital has already been paid back and ongoing capital is defined as sustaining capital.

Capital and operating costs are based on actual costs from the last several years of mining at 777 Mine and were used in preparation of the 2012 budgets for 777 Mine and 777 North expansion.

21.1 Capital Costs

The LOM sustaining capital costs are estimated to be $162.12M as summarized in Table 21.1. The sustaining capital cost estimates are determined to have a level of accuracy in the range of +/-15%.

Table 21.1 LOM Sustaining Capital Cost Estimate

	Sustaining Capital (C$ 000's)
Surface Construction and Equipment Repairs	16,320
Underground Installations	5,755
Replacement Mine Equipment	32,202
Mine Equipment	2,890
Underground Development	71,905
General Mine Expense	33,047
Total Sustaining Capital	**162,120**

21.2 Operating Costs

The operating costs were estimated based on actual costs from the last several years of mining at 777 Mine and were used in preparation of the 2012 budgets for 777 Mine and 777 North expansion. Operating costs include onsite operating development, ore production, ore removal, concentrating, share of general mine expense costs, processing and refining and G & A. The total operating LOM costs are estimated to be $115.47/tonne milled or $1,430.1M for the life of mine, shown in Table 21.2.

Table 21.2 LOM Operating Costs

	Total (C$ 000's)	Unit Cost (C$/tonne)
Ore Extraction and Removal	231,702	18.71
Operating Development	98,282	7.94
General Mine Expense	165,263	13.34
Concentrating	165,709	13.38
Total Mine/Mill Operating Cost	**660,957**	**53.37**
Processing & Refining	355,767	28.73
G & A	413,360	33.38
Total Operating Cost	**1,430,083**	**115.47**

22. ECONOMIC ANALYSIS

As Hudbay is a producing issuer, it has excluded information required by Item 22 of Form 43-101F1 as the 777 North expansion does not represent a material expansion of current production at the 777 Mine.

23. ADJACENT PROPERTIES

There is no confirmed economic mineralization on adjacent properties to the 777 Mine. There are two properties of interest within the immediate area that could have an impact of potential merit. These are namely the War Baby claim, owned by Callinan Royalties Corporation, as well as the Smelter Claims, owned by Copper Reef Mining Corporation.

The War Baby claim, also known as 777 Deeps, is 17 Ha in size (Manitoba Science, Technology, Energy and Mines – Geological Survey) and located in an area that has potential to envelop some of the down trend portion of the 777 Mine. Drilling on the property was conducted between late 1995 and 2000, which consisting of a deep pilot hole with a series of 23 wedge holes as well as one hole that was abandoned near surface. Of these 23 wedge holes, nine were completed and 15 were lost due to wedging problems. Drilling during this period totalled 7,479 meters with several reported mineralized intercepts of varying sizes and grade similar to those from the 777 Mine. Reported mineralized intercepts graded up to 3.64% copper over 9.9 meters (Callinan Mines Limited Form 44-101F1 Annual Information Form, March 18, 2003).

The Smelter Claims (WAX 952, WAX 953, and WAX 972) are located approximately one kilometre north of the 777 Mine encompassing an area about 276 Ha in size (Manitoba Science, Technology, Energy and Mines – Geological Survey). Historical drilling on the property consisted of one hole drilled to a depth of 490.1 meters drilled by Granges Inc. beginning in late 1991 (Manitoba Science, Technology, Energy and Mines – Geological Survey assessment report 72487). Also, a recent diamond drill hole from 2011, was completed on the property by Copper Reef Mining Corporation. The hole was drilled to a depth of 2,582 meters, approximately 2,155 meters vertically, and intersected a 5.1 meter zone of stringer sulphides at a vertical depth of approximately 1,850 meters (Copper Reef Mining Corporation, 2011)

24. OTHER RELEVANT DATA AND INFORMATION

24.1 Taxes, Royalties and Agreements

777 Mine will be subject to federal and provincial income taxes, as well as the Manitoba mining tax. The combined federal and provincial tax rates are assumed to be approximately 27% for the LOM. The Manitoba mining tax rates are shown in Table 22.11.

Table 22.11 Manitoba Mining Tax Rates

Taxable Income ($)	Tax Rate
0 to 50 million	10%
50 to 55 million	65%
55 to 100 million	15%
100 to 105 million	57%
>105 million	17%

Hudbay's wholly owned business unit HBMS acquired claims from Consolidated Callinan Flin Flon Mines Ltd., referred to now as Callinan Royalties Corporation for a net profits interest (NPI) and royalty in respect of production from the Callinan claims. Mineral production from the property is subject to a 6 2/3% NPI and a $0.25 per short ton royalty payable to Callinan Royalties Corporation.

The NPI is calculated as 6 2/3% of the NPI cash flow which is defined as follows:

- Revenue from sale of copper and zinc concentrate, less:
    - Mining costs (operating and capital)
    - Milling costs (share of Flin Flon concentrator)
    - Administration charge (11% of mining and milling costs)
    - Mill Stay-In-Business charge (4% of milling)

Revenue from sale of concentrate was originally done using prevailing Trout Lake concentrate terms (as per the concentrate agreements between HBMS and its joint venture partners). After HBMS acquired 100% of Trout Lake Mine, the Callinan NPI continued to be calculated using the Trout Lake Mine terms with various escalators to reflect inflation.

Milling costs reflect the 777 Mine's pro-rata share of the Flin Flon concentrator operating costs. Administration and mill Stay-In-Business charges were negotiated in lieu of an allocation of actual costs.

Hudbay has a precious metals stream agreement for 100% of payable gold and silver from 777 Mine until the latter of December 31, 2016 and satisfaction of a completion test at its Constancia project in Peru and thereafter 50% payable gold and 100% payable silver with Silver Wheaton Corp. Hudbay will receive cash payments equal to the lesser of the market price and US$400 per ounce for gold and US$5.90 per ounce for silver, subject to 1% annual escalation after three years.

Hudbay is not aware of any other information that would materially impact the reported estimate of mineral resources and reserves for the 777 Mine and 777 North expansion.

25. INTERPRETATION AND CONCLUSIONS

This technical report has used investigation and analysis that are considered appropriate to estimate mineral reserves for the 777 Mine and 777 North expansion.

The following presents the interpretations and conclusions of this technical report:

Geology

The 777 and Callinan deposits occur within an east-facing sequence of volcanic rocks documented as tholeiitic and basalt-dominated. The rocks immediately hosting the mineralization, however, consist of quartz-phyric and quartz-feldspar-phyric volcaniclastic rhyolite flows. The 777 deposit can be divided into two main southeast plunging trends, the North Limb and the South Limb, as well as the West Zone. All three zones lie within the same stratigraphic sequence with the same lithofacies as described above. The West Zone lies in the footwall in what is interpreted to be a lower thrust slice. Horizontal widths throughout the deposit range from 2.5 meters to 70 meters in thickness, and can be thicker when two or more zones overlap. There are a total of eight distinct sulphide lenses contained within the 777 deposit. Each of the lense is distinguished based on grade and ore type as well as their spatial location. Lenses in general are fairly continuous with the exception of scattered diorite intrusions. The Callinan deposit is subdivided into two rhyolite horizons termed the East-QP and the West-QP. The East-QP is host to the lenses of the North Zone, East Zone and is on the same horizon as the 777 mineralization. The West-QP hosts the South Zone and its associated lenses. Each of these zones is further subdivided into a number of mineralized lenses. The subdivision of Zones into lenses was based on the spatial distribution of the mineralization. There are a total of 20 sulphide lenses contained within the three broad zones of the Callinan deposit. The Callinan mineralization is a distal deposit that has a matrix supported breccia with variable amounts of wallrock fragments in a fine to medium grained sulphide matrix. The wallrock fragments are intensely altered with chlorite, talc and sericite with some degree of pyritization and carbonation. These lenses contain variable amounts of pyrite, sphalerite, chalcopyrite and minor pyrrhotite.

Mineral Resource

Mineral resources have been separated into the 777 and Callinan portions of the deposit. This has been done for mining and planning purposes as the Callinan lenses represent the upper, and more historic, portion of the mineralization and the 777 Zones represent the lower more recently drilled and identified mineralization. The interpreted lenses of the 777 Zones as well as the 1 North, 2 North, 1 South, 2 East, 7 East, and 9 East Callinan lenses were built by digitizing polylines around the mineralization. Polylines were then linked with tag strings and triangulated in order to create three-dimensional wireframe solids. The remainder of the mineralization was interpreted by digitizing polylines in a 2D plane around mineralized intercepts. The average strike and dip of the zone was estimated and utilized to calculate the horizontal width of the mineralization for both the 2D Gridded Seam Model and the polygonal interpretations. The mineral resource for the 777 Zones were estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation, for Zones 20 and 70, or with relative ordinary kriging used for the remaining zones at the 777 Mine. Mineral resource estimates for the Callinan lenses were interpolated using a variety of methods over the years, depending mainly on how recently the lenses underwent diamond drilling or mine production. The mineral resource for the Callinan lenses was estimated using a block model constrained by a 3D wireframe grade-shell model, with ordinary kriging interpolation for North 1, North 2, North 3, North 5, East 2, East 7, and the East 9 lenses. Several lenses were also calculated with ordinary kriging using 2D GSM interpretations. This was utilized for the North 4, South 2, South 4, South 7, South 9, East 1, and East 3 lenses. Polygonal resource calculations were carried out for South 3 as well as the Dan Zone. The South 1 lens was calculated using inverse distance squared methodology. The Dan Zone mineralization, accessed from the 777 North expansion, is included with the Callinan resource in the inferred category.

Processing

Concentrating and processing of the mineral resource will be done at the Flin Flon Concentrator, which is capable of producing two concentrates; a zinc concentrate and a copper concentrate with gold and silver credits. The actual metallurgical results from the Flin Flon Concentrator for 777 Mine and former Callinan Mine were used to generate projected plant performance data for the 777 Mine and 777 North expansion production. The Flin Flon Concentrator typically processes approximately two million tonnes of ore annually.

Infrastructure

777 Mine is located within the City of Flin Flon, Manitoba. The property is accessed from a paved highway, Provincial Trunk Highway #10. General area infrastructure used by the 777 Mine includes provincial roads, privately owned rail lines, 115kV Manitoba Hydro grid power and Manitoba Telecom Services land line and cellular phone service. The City of Flin Flon is a full service community with available housing, hospital, police, fire department, potable water system, sewage treatment, restaurants, stores and sporting facilities. The community has a municipal paved airstrip located at Baker’s Narrows serviced by two commercial airlines with daily flights to Winnipeg, Manitoba. Hudbay infrastructure within or near the Flin Flon metallurgical complex used by 777 Mine includes: zinc plant, Flin Flon concentrator, paste backfill plant, water retention pond that supplies fresh and process water to the 777 Mine, administration office, assay laboratory, central maintenance shops and tailings impoundment system. The 777 Mine and 777 North expansion are designed to produce approximately 4,300 tonnes per day of ore. Primary access to 777 Mine is by a production shaft. Secondary ramp access via 777 North expansion is under

development. Ore is hoisted to surface via the 777 production shaft and milled at the Flin Flon Concentrator using a rod/ball mill and froth flotation circuit, producing zinc and copper concentrates. The 777 North expansion project is currently under construction. This project will provide ramp access from surface to the existing workings at the 440m level and be used to truck 330 tonnes per day of production. Mining of this portion of the mine is expected to be completed in 2017. Copper concentrate from the mill is filtered (dewatered) and conveyed to bedding bins. The concentrate is loaded into gondola rail cars by a front end loader in the load out facility where concentrate is weighed and sampled for moisture. Following weighing and sampling, lids are placed on the gondola railcars for transport to 3rd party smelters. Bedding bin capacity is 10,900 tonnes (4,550 tonnes in the bedding bins and 6,350 tonnes in the backfill shed). Zinc concentrate is conveyed from the concentrator to the Hudbay zinc pressure leach (ZPL) facility at the Flin Flon metallurgical complex. Following purification, solutions from the ZPL plant are electroplated on aluminium cathode sheets in electrolytic cells. The zinc cathodes are stripped, melted, alloyed and poured into slabs for the market. Refined special high grade zinc is shipped to customers in one of three ingot shapes: continuous galvanizing grade, slabs, and ASTM blocks. Tailings from milling are sent to the Paste Backfill Plant located at the lower level of the mill building. Mixed paste backfill is pumped to one of two lined boreholes adjacent to the mill, where paste is gravity fed to 1082m level for distribution to mined out stopes. The plant operates between 40 to 50% of the time, and on average, utilizes approximately 22% of the total tailings tonnage. Tailings not used in paste production are pumped to the Flin Flon Tailings Impoundment System (FFTIS). The FFTIS, owned and operated by Hudbay is located in Saskatchewan approximately 500m to the west of the Flin Flon Metallurgical Complex. The system has been used for storage of tailings and other waste products generated by the mining and metallurgical processes in Flin Flon since operations began in 1929.

Environmental Permitting

The 777 Mine site did not require any environmental impact studies for approval in 2001, as the mine site was on Hudbay property and part of the existing Flin Flon Metallurgical Complex (FFMC). The 777 Mine site was described as an “alteration to process” under the FFMC Manitoba Environment Act Licence, and did not require any additional environmental investigation during the approval process. The 777 North expansion received Construction Approval PC10-147 from Saskatchewan Ministry of Environment in October of 2010. Hudbay obtained an Alteration to Process License CEC Order No. 1013VC in May 1999 from Manitoba Environment. The mine effluent reporting to the surface drainage system, and ultimately Lake Bottom Reservoir in Saskatchewan, gained approval from Saskatchewan Environment under Approval No. IC-391 in June 2000.

Mineral Reserves

Mining, processing and economic parameters were applied to the block model to form the basis of the reserve estimate. The measured resources were used to estimate the proven mineral reserves and the indicated resources were used to estimate the probable mineral reserve. For mining purposes, there are eight active mining areas in the mine to allow for a blended product with the end goal to send a blended grade to the mill. Mining methods were established for each mining area and a net smelter return (NSR) was calculated to determine the economic viability. The NSR payables consisting of mining areas comprised of blocks from the block model using assumed metallurgical recoveries, long term metal prices, onsite operating costs, capital development and offsite costs were estimated to determine the 777 Mine and 777 North expansion mineral reserves.

Mine Plan

777 Mine is a multi-lens orebody with shaft access down to the 1508m level. The mine consists of an internal ramp that provides access to each mining level. Mobile tired diesel equipment is utilized. Load haul dumps units vary from $6.1m^3$ to $7.6m^3$. Trucks are 40 to 50 ton units feeding an ore pass system or direct to rockbreakers which feed an underground crusher and ore is skipped to surface via the shaft. The 777 Mine began initial production in 2003 and steadily increased to full production in 2006, mining approximately 1.4 to 1.5 million tonnes per year since. A ramp access from surface is currently being developed to the 440m level of the Callinan North lens for mining purposes. This ramp will provide access to the ore of the upper Callinan lenses termed the 777 North expansion project, which is operated, and to an extent, serviced independently from the 777 Mine. The ramp will also have the added benefit of providing the 777 Mine with ramp access after completion, in late 2013 to the 440m level. The 777 Mine shaft will hoist production from both the 777 Zones as well as the lower Callinan lenses. The upper portion of the Callinan lenses production will be trucked up the 777 North expansion ramp. Both the 777 Mine and the 777 North expansion utilize a longhole open stoping mining method. Longhole mining is a non-entry bulk mining method requiring minimal ground support with high productivity and low cost per tonne. Current production rates are expected to be approximately 4,000 tonnes per day for the 777 Mine and 330 tonnes per day at the 777 North expansion based on 363 days of production per year. This yields an expected mine life through to 2020 for the 777 Mine and 2017 for the 777 North expansion.

While there can be risks with mining projects, many of those risks are mitigated with 777 Mine being in full production since 2004 and required surface infrastructure already in place and operating for many years. The author summarizes main risks associated with the 777 Mine as follows:

- Ability to achieve operating and capital costs estimates
- Forecasted metal commodity price and exchange rate

The author summarizes the following opportunities for improvement with the 777 Mine:

- Extension of mine life through upgrading of the inferred resource to higher confidence categories and the discovery of additional resources

- Ability to increase mine ore production by reducing waste tonnes hoisted at 777 Mine and increase ore production up the 777 North expansion ramp

26. RECOMMENDATIONS

As the 777 Mine is in production, and some early ore already mined at 777 North expansion and with most material exploration activities and engineering studies largely concluded, it is recommended that Hudbay continue its annual exploration and definition drilling programs and follow up on any positive results.

27. REFERENCES

Bailes, A.H. and Galley, A.G. 1999. Evolution of the Paleoproterozoic Snow Lake arc assemblage and geodynamic setting for associated volcanic-hosted massive sulphide deposits, Flin Flon Belt, Manitoba, Canada. Canadian Journal of Earth Sciences, 36, 1789-1805.

Callinan Mines Limited Form 44-101F1 Annual Information Form, March 18, 2003

Copper Reef Mining Corporation November 16, 2011 press release; Copper Reef Finishes Drilling on Smelter Claim.

David, J., Bailes, A.H., and Machado, N., 1996: Evolution of the Snow Lake portion of the Paleoproterozoic Flin Flon and Kisseynew belts, Trans-Hudson Orogen, Manitoba, Canada. Precambrian Research, 80, pp. 107-124.

Devine, C.A., Gibson, H.L., Bailes, A.H., MacLachlan, ., Gilmore, K. and Galley, A.G. 2002. Stratigraphy of volcanogenic massive sulphide–hosting volcanic and volcaniclastic rocks of the Flin Flon formation, Flin Flon (NTS 63K12 and 13), Manitoba and Saskatchewan; in Report of Activities 2002, Manitoba Industry, Trade and Mines, Manitoba Geological Survey, 9–19.

DeWolfe, Y.M. and Gibson, H.L. 2006. Stratigraphic subdivision of the Hidden and Louis formations, Flin Flon, Manitoba (NTS 63K16SW); in Report of Activities 2006, Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, 22–34.

Ecological Stratification Working Group. 1995. A National Ecological Framework for Canada. Agriculture and Agri-Food Canada, Research Branch, Centre for Land and Biological Resources Research and Environment Canada, State of the Environment Directorate, Ecozone Analysis Branch, Ottawa/Hull. Report and national map at 1:7500 000 scale.

Environment Canada
http://www.climate.weatheroffice.ec.gc.ca/climate_normals/index_e.html

Franklin, J.M., Gibson, H.L., Jonasson, I.R., and Galley, A.G. 2005. Volcanogenic Massive Sulfide Deposits, in Hedenquist, J. W., Thompson, J. F. H., Goldfarb, R. J., and Richards, J. P., eds., Economic Geology 100th Anniversary Volume: Littleton, CO, Society of Economic Geologists, 523-560.

Froese, E. and Moore, J.M. 1980. Metamorphism in the Snow Lake area, Manitoba; Geological Survey of Canada, Paper 78-27, p. 16.

Gibson, H., Pehrsson, S., Lafrance, B., DeWolfe, M., Syme, R., Bailes, A., Gilmore, K., Devine, C., Simard, R-L., MacLachlan, K., and Pearson, B., 2011. The volcanological and structural evolution of the Paleoproterozoic Flin Flon and Snow Lake mining districts; Geological Association of Canada – Mineralogical Association of Canada – Society of Economic Geologists – Society for Geology Applied to Mineral Deposits Joint Annual Meeting, Ottawa 2011, Guidebook to Field Trip 3B, 76 p.

Malinowski, M., White, D.J., Mwenifumbo, C.J., Salisbury, M., Bellefleur, G., Schmitt, D., Dietiker, B., Schetselaar, E., and Duxbury A., 2008: Seismic Exploration for VMS Deposits within the Paleoproterozoic Flin Flon Belt, Trans-Hudson Orogen, Canada; in Geophysical Research Abstracts, EGU General Assembly 2008.

Manitoba Science, Technology, Energy and Mines – Manitoba Geological Survey *http://www.gov.mb.ca/stem/mrd/geo/index.html*

MRDI Canada – A Division of H.A. Simons Ltd., 1999. Geological Resources Audit, 777 Project. Unpublished report.

Natural Resources Canada, The Atlas of Canada
http://atlas.nrcan.gc.ca

Simons, H.A., 1999: Project 2012, 777 Project Feasibility Study. Unpublished report.

Syme, E.C. and Bailes, A.H. 1993. Stratigraphic and tectonic setting of volcanogenic massive sulfide deposits, Flin Flon, Manitoba; Economic Geology, 88, 566–589.

Syme, E.C., Lucas, S.B., Zwanzig, H.V., Bailes, A.H., Ashton, K.E., and Haidl, F.M., 1998: Geology, NATMAP Shield Margin Project area, Flin Flon Belt, Manitoba – Saskatchewan; Manitoba Energy and Mines, Geological Services, Map A-98-2, scale 1:100 000 and 1:350 000, with accompanying notes, 54 p.

Toffan, J., 2012. Email to Trevor Allen, Hudbay, Ens Land Management, Creighton, Saskatchewan.

Vowles, A. 1999. Water Table Measurements – “777” Deposit; Unpublished Internal Document.

White, D.J., Mwenifumbo, C.J., Sailisbury, M., Bellefleur, G., Schmitt, D., and Dietiker, B., 2007: Seismic Exploration within the Flin Flon VMS Mining Camp, Manitoba, Canada; in "Proceedings of Exploration 07: Fifth Decennial International Conference on Mineral Exploration" edited by B. Milkereit, 2007, p. 1185-1189

Yao, M. 1998. Rock Quality Assessment – 777 Feasibility Study; Unpublished Internal Document.

Yao, M. 1998. 777 Feasibility Study – Geotechnical Study on the Layout of the Shaft and the Crusher Station; Unpublished Internal Document.

28. SIGNATURE PAGE

This report titled “Technical Report 777 Mine, Flin Flon, Manitoba, Canada”, dated October 15, 2012 was prepared under the supervision and signed by the following authors:

Dated this 15th day of October, 2012.

(signed) Robert Carter

”Sealed”
Signature of Qualified Person

Robert Carter, P. Eng.
Director, Technical Services
Hudbay

Dated this 15th day of October, 2012.

(signed) Brett Pearson

”Sealed”
Signature of Qualified Person

Brett Pearson, P. Geo.
777 Mine Senior Geologist
Hudbay

Dated this 15th day of October, 2012.

(signed) Darren Lyhkun

”Sealed”
Signature of Qualified Person

Darren Lyhkun, P. Eng.
777 Mine Senior Mine Engineer
Hudbay

Dated this 15th day of October, 2012.

(signed) Cassandra Spence

_______________________"Sealed"
Signature of Qualified Person

Cassandra Spence, P. Eng.
Senior Mill Metallurgist
Hudbay

Dated this 15th day of October, 2012.

(signed) Stephen West

_______________________"Sealed"
Signature of Qualified Person

Stephen West, P. Eng.
Superintendent, Environmental Control
Hudbay

29. CERTIFICATES OF QUALIFIED PERSONS

CERTIFICATE OF ROBERT CARTER

I, Robert Carter, P. Eng., of Burlington, Ontario, do hereby certify that:

1. I am currently employed as Director, Technical Services with HudBay Minerals Inc. (the “Issuer”), 25 York Street, Suite 800, Toronto, Ontario, Canada, M5J 2V5

2. I graduated from University of Manitoba with a Bachelor of Sciences in Geological Engineering in 1997.

3. I am a member in good standing of the Association of Professional Engineers & Geoscientists of the Province of Manitoba, Registration #21836.

4. I am a member in good standing of the Association of Professional Engineers of Ontario, Registration #100089189.

5. I have practiced my profession continuously for over 15 years and have been involved in mineral exploration, mine site engineering and geology, mineral resource and mineral reserve estimations and economic studies on base metal deposits and operations in Canada, United States, and Ireland.

6. I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purpose of NI 43-101.

7. I have prepared, with the assistance of other contributing colleagues, and am responsible for sections 1 to 6, 11, 12, 18, 19, 21-26 of the technical report titled “Technical Report 777 Mine, Flin Flon, Manitoba, Canada”, dated October 15, 2012 (the “Technical Report”). I last visited the property on June 5, 2012 and numerous times prior to this date.

8. I have been involved with the mineral resource and mineral reserve estimations at 777 Mine since 2009.

9. As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

10. I am not independent of the Issuer. Since I am an employee of the Issuer, a producing issuer, I fall under subsection 5.3 (3) of NI 43-101 where "A technical report required to be filed by a producing issuer is not required to be prepared by or under the supervision of an independent qualified person."

11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with the instrument and form.

12. I consent to the filing of the Technical Report with any stock exchange, securities commission or other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 15th day of October, 2012.

(signed) Robert Carter

"Sealed"
Signature of Qualified Person

Robert Carter, P. Eng.
Director, Technical Services
Hudbay

CERTIFICATE OF BRETT PEARSON

I, Brett Pearson, P. Geo., of Flin Flon, Manitoba, do hereby certify that:

1. I am currently employed as 777 Mine Senior Geologist with HudBay Minerals Inc. (the “Issuer”), P.O. Box 1500, Flin Flon, Manitoba, Canada, R8A 1N9.

2. I graduated from University of Saskatchewan with a Bachelor of Sciences in Geology.

3. I am a member in good standing of the Association of Professional Engineers & Geoscientists of the Province of Manitoba, Registration #32607

4. I am a member in good standing of the Association of Professional Engineers & Geoscientists of Saskatchewan Registration #13130.

5. I have practiced my profession continuously for over 10 years and have been involved in mineral exploration, mine site geology, and mineral resource estimations on base metal deposits and operations in Canada.

6. I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purpose of NI 43-101.

7. I have prepared, with the assistance of other contributing colleagues, and am responsible for sections 7 to 10, and 14 of the technical report titled “Technical Report 777 Mine, Flin Flon, Manitoba, Canada”, dated October 15, 2012 (the “Technical Report”). I last visited the property on June 5, 2012 and numerous times prior to this date.

8. I have been involved with the mineral resource estimations at 777 Mine since 2009.

9. As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical not misleading.

10. I am not independent of the Issuer. Since I am an employee of the Issuer, a producing issuer, I fall under subsection 5.3 (3) of NI 43-101 where “A technical report required to be filed by a producing issuer is not required to be prepared by or under the supervision of an independent qualified person.”

11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with the instrument and form.

12. I consent to the filing of the Technical Report with any stock exchange, securities commission or other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 15th day of October, 2012.

(signed) Brett Pearson

"Sealed"
Signature of Qualified Person

Brett Pearson, P. Geo.
777 Mine Senior Geologist
Hudbay

CERTIFICATE OF DARREN LYHKUN

I, Darren Lyhkun, P. Eng., of Creighton, Saskatchewan, do hereby certify that:

1. I am currently employed as 777 Mine Senior Mine Engineer with HudBay Minerals Inc. (the “Issuer”), P.O. Box 1500, Flin Flon, Manitoba, Canada, R8A 1N9.

2. I graduated from Queen’s University with a Bachelor of Sciences in Engineering in 1993.

3. I am a member in good standing of the Association of Professional Engineers & Geoscientists of the Province of Manitoba, Registration #10204.

4. I have practiced my profession continuously for over 17 years and have been involved in mine site engineering, mineral reserve estimations and economic studies on mineral deposits in Canada.

5. I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purpose of NI 43-101.

6. I have prepared, with the assistance of other contributing colleagues, and am responsible for sections 15 and 16 of the technical report titled “Technical Report 777 Mine, Flin Flon, Manitoba, Canada”, dated October 15, 2012 (the “Technical Report”). I last visited the property on June 5, 2012 and numerous times prior to this date.

7. I have been involved with mine engineering and mineral reserve estimations at 777 Mine since 2009.

8. As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

9. I am not independent of the Issuer. Since I am an employee of the Issuer, a producing issuer, I fall under subsection 5.3 (3) of NI 43-101 where “A technical report required to be filed by a producing issuer is not required to be prepared by or under the supervision of an independent qualified person.”

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with the instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange, securities commission or other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 15th day of October, 2012.

(signed) Darren Lyhkun

"Sealed"
Signature of Qualified Person

Darren Lyhkun, P. Eng.
777 Mine Senior Mine Engineer
Hudbay

CERTIFICATE OF CASSANDRA SPENCE

I, Cassandra Spence, P. Eng., of Flin Flon, Manitoba, do hereby certify that:

1. I am currently employed as Senior Mill Metallurgist with HudBay Minerals Inc. (the “Issuer”), P.O. Box 1500, Flin Flon, Manitoba, Canada, R8A 1N9.

2. I graduated from Queen’s University with a Bachelor of Sciences in Engineering in 2000.

3. I am a member in good standing of the Association of Professional Engineers & Geoscientists of the Province of Manitoba, Registration #23055.

4. I have practiced my profession continuously for over 12 years and have been involved in mineral processing with base metal ores, including process development, flow sheet design and plant optimization and management.

5. I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purpose of NI 43-101.

6. I am responsible for sections 13 and 17 of the technical report titled “Technical Report 777 Mine, Flin Flon, Manitoba, Canada”, dated October 15, 2012 (the “Technical Report”). I am involved with processing of the ore from the property on a daily basis and was last underground at 777 Mine on December 13, 2011.

7. As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

8. I have been involved with mineral processing of the 777 and Callinan deposits since 2004.

9. I am not independent of the Issuer. Since I am an employee of the Issuer, a producing issuer, I fall under subsection 5.3 (3) of NI 43-101 where “A technical report required to be filed by a producing issuer is not required to be prepared by or under the supervision of an independent qualified person.”

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with the instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange, securities commission or other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 15th day of October, 2012.

(signed) Cassandra Spence

"Sealed"
Signature of Qualified Person

Cassandra Spence, P. Eng.
Senior Mill Metallurgist
Hudbay

CERTIFICATE OF STEPHEN WEST

I, Stephen West, P. Eng., of Flin Flon, Manitoba, do hereby certify that:

1. I am currently employed as Superintendent, Environmental Control with HudBay Minerals Inc. (the "Issuer"), P.O. Box 1500, Flin Flon, Manitoba, Canada, R8A 1N9.

2. I graduated from University of Guelph with a Bachelor of Science in Water Resource Engineering in 1978.

3. I am a member in good standing of the Association of Professional Engineers & Geoscientists of the Province of Manitoba, Registration #5945.

4. I have practiced my profession continuously for almost 34 years and have been involved with environmental programs related to all aspects of mine and mill tailing impoundment operations.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purpose of NI 43-101.

6. I have prepared, with the assistance of other contributing colleagues, and am responsible for section 20 of the technical report titled "Technical Report 777 Mine, Flin Flon, Manitoba, Canada", dated October 15, 2012 (the "Technical Report"). I visited the mill tailings impoundment area and monitored the waste water from the 777 Mine on May 8, 2012.

7. As of the date of this certificate, to the best of my knowledge, information and belief, the parts of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

8. I have been involved with the Flin Flon tailings impoundment area and waste water monitoring since 1981.

9. I am not independent of the Issuer. Since I am an employee of the Issuer, a producing issuer, I fall under subsection 5.3 (3) of NI 43-101 where "A technical report required to be filed by a producing issuer is not required to be prepared by or under the supervision of an independent qualified person."

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with the instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange, securities commission or other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 15th day of October, 2012.

(signed) Stephen West

“Sealed”
Signature of Qualified Person

Stephen West, P. Eng.
Superintendent, Environmental Control
Hudbay