

## 1.0 EXECUTIVE SUMMARY

Red Chris Development Company Ltd. (RCDC), a wholly owned subsidiary of Imperial Metals Corporation (Imperial), is proposing to develop the Red Chris mine, located 18 km south of Iskut, British Columbia (Figure 1.1). This Feasibility Study Update 2010 has been prepared by Imperial on behalf of RCDC as an update to the *Red Chris Copper-Gold Feasibility Study Report* of March 2005 prepared by AMEC on behalf of bcMetals Corporation (bcMetals), the previous owner of RCDC. A National Instrument NI 43-101 Technical Report associated with the Feasibility Study Report of March 2005, titled *Technical Report on the Red Chris Copper-Gold Project* was published on December 16, 2004.

The focus of this 2010 update is the revision of the operating and capital costs included in the March 2005 study. The pit and plant design remain virtually the same as in the 2005 study. This Feasibility Study Update uses the mineral resource estimates for the Red Chris project, contained in the report titled *Red Chris Deposit Technical Report: 2010 Exploration, Drilling and Mineral Resource Update*, dated May 19, 2010. This report was prepared in accordance with National Instrument 43-101.

Both the December 16, 2004 and the May 19, 2010 technical reports can be found on the Imperial's website and on SEDAR. On the Imperial website the report is available at <http://www.imperialmetals.com/s/RedChris.asp>. On SEDAR (<http://www.sedar.com>) the reports are available under Company Documents for bcMetals and Imperial.

The project is based on conventional shovel and truck open pit copper/gold mine with a 30,000t/d processing plant using standard mineral flotation technology, to produce an average of 337t/d of concentrate over LOM. Mine life is estimated to be approximately 28 years.

### 1.1 Financial Conclusions

Key financial conclusions are predicated on the following base case assumptions as shown in Table 1-1.

**Table 1-1: Base Case Price and Exchange Rate Assumptions**

Description	Assumption
Copper price	US\$2.20/lb
Gold price	US\$900.00/oz
Silver price	US\$12.00/oz
Cdn\$	US\$0.90

Table 1-2 shows the key economic findings derived from the financial model. The financial model uses the information on reserves, mining costs, capital costs, and base case assumptions developed in this report. This table also demonstrates the financial performance of the project after tax at October 2010 monthly average metal prices and exchange rates.

**Table 1-2: Financial Analysis for Base Case and October 2010 Metal Prices & Exchange Rate**

Economic Parameters	BASE CASE		OCTOBER 2010 AVERAGE	
	Copper Price	US\$2.20/lb	Copper Price	US\$3.76/lb
Gold Price	US\$900/oz	Gold Price	US\$1,342.60/oz	
Silver Price	US\$12/oz	Silver Price	US\$23.39/oz	
Cdn\$ =	US\$0.90	Cdn\$ =	US\$0.982	
Capital Cost	Cdn\$443.633 M		Cdn\$443.633 M	
Post Tax IRR	15.7%		37.9%	
Post Tax NPV				
@0%	Cdn\$1.214 B		Cdn\$3.561 B	
@5%	Cdn\$423.24 M		Cdn\$1.519 B	
@10%	Cdn\$133.92 M		Cdn\$743.97 M	
Project Payback	4.58 yrs		1.87 yrs	
LOM Production Cost of per lb of Cu with credits from Au and Ag	US\$1.22		US\$1.15	

**Table 1-3: Summary of Financial, Reserve, Operating, and Capital Information**

<b>Project Finance (100% Equity)</b>		
Internal rate of return (post-tax):		15.7%
Net present value	- 0% disc.:	\$1.214 B
	- 5% disc.:	\$ 423.24 B
	- 10% disc.:	\$133.92 M
Payback:		4.58 years
Total Mineable Reserves		301.549 M tonnes
Copper grade		0.359% (avg)
Gold grade		0.274 g/t (avg)
In situ metal	- Copper	2.380 B lbs
	- Gold	2.67 M oz
In Concentrate metal	- Copper	2.080 B lbs
	- Gold	1.32 M oz
<b>Production Rate and Mine Life</b>		
Production rate	-ore milled	10.95 Mt/a
Life of mine (LOM): including reprocessing of stockpiled material in years 24 to 28.3		28.3 years
LOM strip ratio:		1.25:1
Copper Recovery		87.0% (avg)
Gold Recovery		49.3% (avg)
Concentrate grade		27% Copper
Concentrate production		337 dmt/d (avg)
Concentrate production		183,000 dmt/a peak
Concentrate production		123,000 dmt/a (avg)
<b>Capital Costs</b>		
Initial capital costs, including indirects and contingency @10%.		\$ 443.633 M
Working capital		\$ 26.75 M
Sustaining capital (LOM)		\$ 238.25 M
<b>Net Revenue at Mine Gate</b>	<b>Cdn \$/t ore</b>	<b>\$17.79</b>
Less Mining Cost	\$/t ore	\$4.45
Less Milling Cost	\$/t ore	\$3.87
Less Royalty	\$/t ore	\$0.18
Less Reclamation Expenditure	\$/t ore	\$0.04
Less Project Overhead	\$/t ore	\$1.09
Less Head Office costs	\$/t ore	\$0.33
<b>Total Operating Costs</b>	<b>\$/t ore</b>	<b>\$9.96</b>
<b>Net Current Proceeds before Capital cost</b>	<b>Cdn \$/t ore</b>	<b>\$7.84</b>

The base case economic analysis has been run with no inflation (constant dollar basis). Capital and operating costs are expressed in 2010 Canadian dollars, unless otherwise noted.

## **1.2 Recommendations**

Based on the findings of this Feasibility Study Update 2010, it is concluded that the project has robust economic viability. It is recommended that depending on the environmental approval and construction of the Northwest Transmission Line (NTL), RCDC proceed with detailed engineering, procurement, construction, and commissioning to target commercial production in the first quarter of 2014, contingent on the completion of the NTL in December 2013.

## **1.3 Key Updates Since the Feasibility Study of 2005**

- Provincial Environmental Assessment process completed and Environmental Assessment Certificate obtained.
- Federal approval for the Red Chris project under the Canadian Environmental Assessment Act (CEAA) completed.
- SRK completed a due diligence study on the earlier published Feasibility Study of March 2005 on behalf of potential financiers of the Red Chris project, then owned and operated by bcMetals. SRK's due diligence study was completed in March 2006.
- Ownership changed from bcMetals to Imperial as of February 2007.
- Continued onsite exploration since 2007, updated the mineral resources at varying cut-off grades as reported in Technical Report: 2010 Exploration, Drilling and Mineral Resources Update.
- As a follow-up on SRK findings of 2006, completed additional field geotechnical investigation for the plant site and for the tailings impoundment area and accordingly revised the plant site location and overall site layout.
- With the continued on-site climatic data gathering, revised the average precipitation and other climatic considerations.
- Updated mineable mineral reserves within the pit design to reflect the current economic environment.
- Mineable mineral reserves are now based on mill head values rather than based on NSR.
- Capital cost updated to reflect the current economic environment and also to include the construction of a power transmission extension line from Bob Quinn to the mine site.
- Operating costs updated to reflect the current economic environment and also with references to other mines owned and operated by Imperial.
- Updated the financial model with the revised capital and operating costs.

## **1.4 Project Description**

### **1.4.1 Location and Access**

The Red Chris property is located about 18 km south of the village of Iskut and 80 km south of Dease Lake on the north-facing Todagin Plateau between Ealue and Kluea lakes in northwest British Columbia, Canada. The property is located within the designated area for mineral resource development in the Cassiar Iskut-Stikine Land and Resource Management Plan. A deep-sea port is situated at Stewart, about 320 km to the south by road from the mine site.

**Figure 1-1: Location Map**

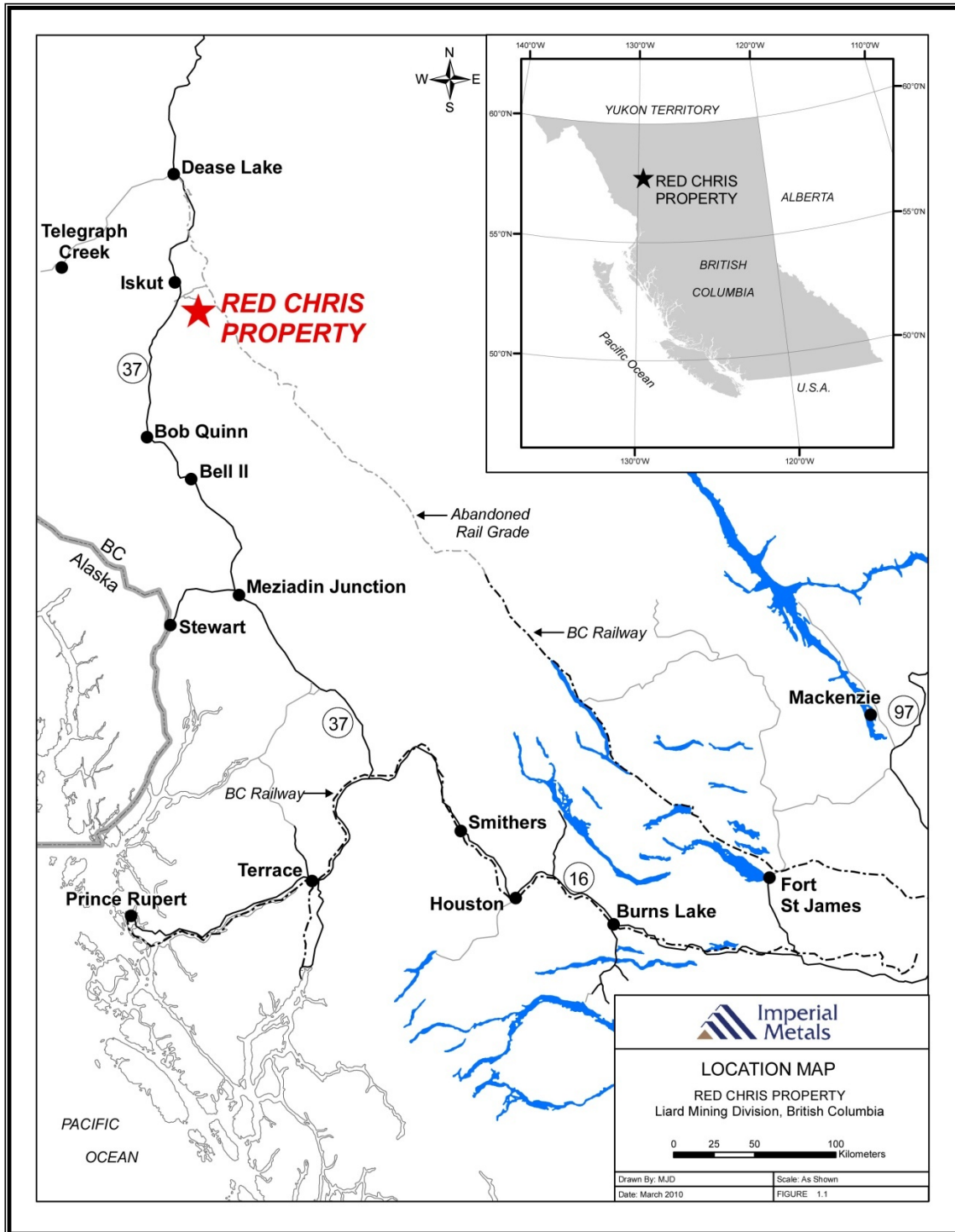
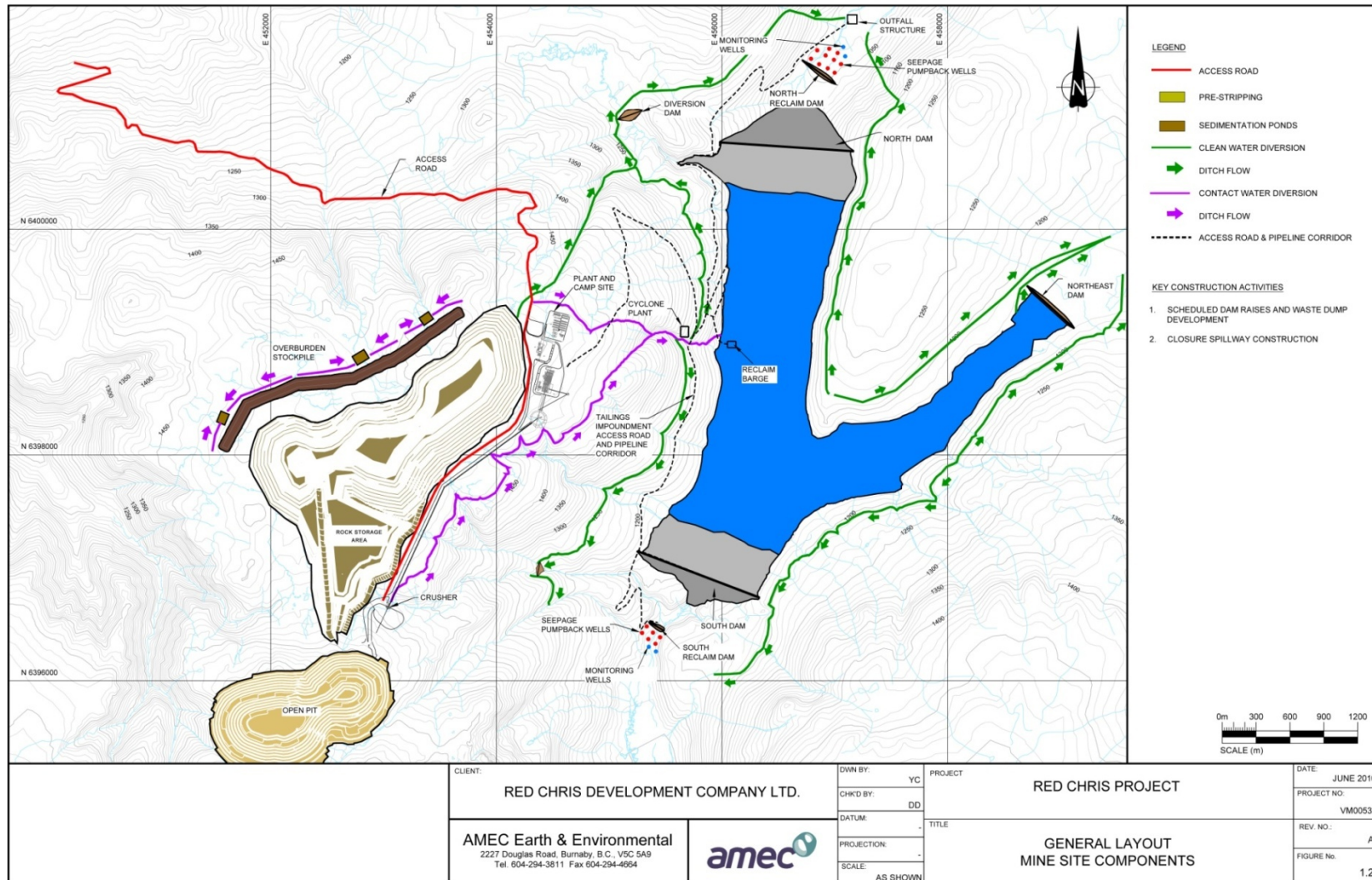






Figure 1-2: Overall Site Layout



S:\PROJECTS\VM00532 - Red Chris\Drawings\Tailings Storage\RC-FIGURE 1 YEAR 29.dwg - Figure 1.2 - Jun. 29, 2010 12:25pm - yuon.chen

A temporary road to the mine site was constructed in 2008 from the Ealue Lake Road to service continued exploration and geotechnical investigation under an Exploration Permit. For permanent use, the mine site will be accessed either by upgrading the existing temporary road or by upgrading and extending it to form a new access road, which will intersect Highway 37 on the south side of Coyote Creek. Most of this road will follow the existing temporary road alignment.

#### **1.4.2 Ownership and Agreements**

RCDC will operate the Red Chris mine. Imperial acquired bcMetals, the previous owner of RCDC, in February 2007 and as a result RCDC is now a wholly owned subsidiary of Imperial.

RCDC has a 100% interest in the Red Chris Claims subject to a 24% reversionary carried ownership interest (RCOI) held by American Bullion Minerals Ltd. (ABML) and a 1.8% NSR royalty by Falconbridge Limited. The 1.8% NSR can be bought down to 1% at any time prior to commencement of commercial production in consideration of \$1,000,000.

#### **1.4.3 Mineral Resources and Mineable Reserves**

Red Chris copper/gold deposit has several identified mineralized zones.

Estimated mineable reserves from the Main and East zones within the pit designed in 2005 are shown in Table 1-4.

**Table 1-4: Mineable Reserves**

<b>ITEM DESCRIPTION</b>	<b>2010 FEASIBILITY STUDY UPDATE</b>
Tonnes milled	301.549 M
Cu %	0.359
Au g/t	0.274
Contained pounds of copper	2.380 B
Contained ounces of gold	2.67 M

Projected mine life with the currently defined mineable reserves is approximately 28 years. Maximum mining production rate will be about 40 million tonnes per annum with the LOM strip ratio of 1.25:1.0. Mineable reserves include only proven and probable categories.

The property hosts the mineral resources at a copper cut-off grade of 0.10%, as noted in Table 1-5. The resources at other cut-off grades can be found in the Technical Report of May 2010.

**Table 1-5: Mineral Resources**

ITEM DESCRIPTION	TECHNICAL REPORT OF MAY 2010
<b>Measured and Indicated</b>	
Tonnes	619.42 M
Cu %	0.38
Au g/t	0.36
Contained pounds of copper	5.14 B
Contained ounces of gold	7.16 M
<b>Inferred Mineral Resource</b>	
Tonnes	619.13 M
Cu %	0.30
Au g/t	0.32
Contained pounds of copper	4.12 B
Contained ounces of gold	6.43 M

#### 1.4.4 Mine Plan

Red Chris mine consists of two open pits, the Main and East zone pits, that eventually merge into one larger pit.

The mining operation is a conventional shovel and truck, open pit porphyry copper/gold mine, feeding a 30,000 tpd processing plant using standard mineral flotation technology. The mine has been phased and scheduled to maximize the production of high-grade ore, especially during the first five years, to minimize the capital payback period.

Waste rock, depending on the neutralizing potential to acid generating potential (NP/AP) ratio, will be stockpiled as potentially acid generating (PAG) or non acid generating waste rock (NAG). NAG waste rock will generally be used as base below the PAG rock storage area, as road topping material or as general construction material. Depending on the available quantity of NAG rock, the base below the PAG waste will be designed from one to five metres thick.

On-site components will include the open pit mine, process plant, TSF, rock storage area, low grade ore stockpile, mine camp and associated works, new access/haul roads and related infrastructure including upgrades to existing access roads from mine site to Highway 37, water supply and associated works, power supply and related infrastructure from the mine site to Highway 37, maintenance shop, explosives storage and/or manufacturing facility and other related works. All these facilities are located on RCDC mineral tenures.

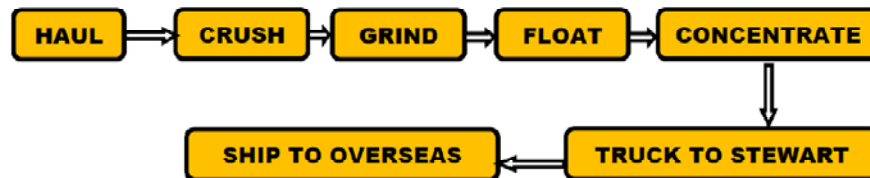
Off-site components will include the power transmission line extension along Highway 37, concentrate storage and ship-loading facilities at the Port of Stewart, and the fisheries compensation works.

The mine will operate 365 days per year as a remote camp.



#### 1.4.5 Processing

The ore will be processed through a concentrator that will produce a copper/gold flotation concentrate. The concentrate will be trucked to concentrate storage and ship-loading facilities at the Port of Stewart and shipped to smelters overseas. The nominal milling rate will be 30,000 tonnes per day. Processing will be based on a conventional copper/gold porphyry flowsheet, with a semi-autogenous grinding (SAG) mill, pebble crusher and ball mill grinding, rougher/cleaner flotation and concentrate dewatering. A simplified process flow-sheet is shown below:



#### 1.4.6 Tailings Storage Facility and Associated Structures

The site of the proposed TSF is in a Y-shaped valley, approximately 3.5 km northeast of the Red Chris ore deposit (see Figure 1.2). The TSF straddles the watershed divide between Trail Creek and Quarry Creek. Construction of three dams for the TSF will be required with one located at each of the south, north and northeast arms of the valley. These dams are designated as the South, North, and Northeast Dams respectively. The South and Northeast Dams will not be required at the start-up of the operation.

The proposed TSF will affect the headwaters of Trail Creek, which is considered a natural water body frequented by fish. After consideration of options for placement of the TSF dams to avoid or minimize impact to fish habitat, the TSF dams were located as described above. This option includes a Fish Habitat Compensation Plan (FHCP) with the compensation works exceeding a 2:1 ratio to compensate for fish habitat losses in Trail Creek.

#### 1.4.7 Ancillary Facilities

Off-site components will include the powerline extension along Highway 37 and the use of concentrate storage and ship-loading facilities at the Port of Stewart.

## 1.5 Permitting Status Update

- The Red Chris BC Environmental Assessment Act (BCEAA) Certificate (M05-02) was issued in August 2005.
- The certificate extension was obtained on July 9, 2010.
- Federal approval for the Red Chris project under the *Canadian Environmental Assessment Act* (CEAA) was received in May 2006. The Federal approval was subsequently challenged by a third party, however a subsequent decision by the Supreme Court of Canada, on January 21, 2010, upheld the Federal approval, which has allowed mine permitting and development to proceed.
- A joint Mines' Act and Environmental Management Act Permit Application was submitted on July 23, 2010 to the North West Mine Development Review Committee (NWMDRC).
- Considering the proposed coordinated permitting approach by the NWMDRC it is anticipated that all permits for the project development and construction will be obtained by the spring of 2011.
- Development of the Red Chris mine will be contingent upon the availability of electric power from BC Hydro at Highway 37 near Tatogga at standard industrial rates, or other form feasible for the viability of the project, or an alternative viable power source including all necessary approvals as may be required under the BCEAA.
- The Provincial and Federal governments have committed to provide funding for a 287 kV power transmission line from Terrace to Bob Quinn, the Northwest Transmission Line (NTL) , which is now under environmental assessment review through the BC environmental assessment process.
- Assuming that the NTL is approved and constructed, RCDC will be responsible for extending powerline service, sufficient to meet its needs, from Bob Quinn to Tatogga and from there to the Red Chris mine.
- The power transmission line extension along Highway 37 requires approval through an amendment of the Red Chris Environmental Assessment (EA) Certificate and will also require a permit from the BC Ministry of Transportation and Infrastructure (MOTI) to allow development within the Highway 37 Right-of-Way (ROW).
- RCDC has applied for an amendment of the Red Chris EA Certificate in this regard.

## 1.6 First Nations

The Red Chris property is located in a sparsely populated area of the northwest region of British Columbia, and within the Tahltan Nation traditional territory. The communities in the area are considered remote and include Iskut, Dease Lake, and Telegraph Creek.

Dease Lake is unincorporated and is not within any Regional District, while Iskut and Telegraph Creek are within the Kitimat-Stikine Regional District. The District Municipality of Stewart (SDM) is included in the study as concentrate from the mine will be trucked to the Port of Stewart for shipment overseas. SDM is within the Kitimat-Stikine Regional District.

Two First Nations bands, each with an elected council, represent the Tahltan people. The Tahltan Band has its office in Telegraph Creek and the Iskut Band has its office in Iskut. The Tahltan Central Council (TCC) represents both bands on issues of joint concern and is comprised of a Chief and council of both bands. The TCC has its office in Dease Lake.

RCDC has a Memo of Understanding with the TCC indicating in general their support for the development of the Red Chris project.

## 1.7 Capital Cost Summary

Capital costs have been re-estimated to reflect the current economic environment.

All costs are 2010 Canadian dollars.

**Table 1-6: Capital Costs**

Item	Cdn\$1,000
<b>Direct Capital Costs</b>	
Mine Preproduction Development	2,646
Mine Equipment	72,185
Mine Dewatering	538
Crushing	6,990
Conveyors	18,758
Coarse Ore Storage	5,060
Grinding	41,915
Flotation and Regrinding	21,607
Concentrate Dewatering	4,306
In Plant Tailings System	2,018
Reagents Handling and Storage	4,061
Process Building	16,430
General Site Development	5,939
Access Roads	1,761
Power Generation or Supply	29,713
Power Distribution	8,308
Fuel Supply, Storage & Distribution	531
Fresh Water Supply & Distribution	3,625
Fire Protection and Prevention	612
Waste Disposal	59
Control and Communications Systems	1,850
Warehouse and Maintenance	13,279
Administration Building	1,997
Laboratory Facilities	2,112
Cold Storage Building	284
Gate House	59

Plant Mobile & Utility Equipment	4,583
Explosives Handling and Storage	100
Tailings Management Facility	30,738
Tailings and Sands Pipelines	8,093
Reclaim System	10,688
<b>Total Direct Costs</b>	<b>\$320,845</b>

**Indirect Capital Costs**

RCDC's Costs including allowance for a concentrate storage shed	11,450
Engineering Procurement Construction Mgmt	25,294
Construction Indirects	12,996
Construction Camp and Catering with allowance for conversion to permanent camp	13,735
Capital Spares	5,587
Freight	12,106
Vendor Reps	150
Start-up & Commissioning	1,140
<b>Total Indirects</b>	<b>\$82,458</b>
<b>Total Capital Cost without Contingencies</b>	<b>\$403,303</b>
Contingencies @10%	40,330
<b>Total Capital Cost with Contingencies</b>	<b>\$443,633</b>

## 1.8 Operating Cost Summary

The operating cost update is based on RCDC operating the mine itself including all mining, processing and maintenance. Cost estimates include experience drawn from Imperial's open pit operations located in British Columbia. The average operating costs over the LOM are shown in the following table.

**Table 1-7: Operating Cost Summary**

<b>Area</b>	<b>Per Tonne Milled (LOM)</b>
Mining	\$4.45
Milling	\$3.87
Royalty	\$0.18
Reclamation Expenditure	\$0.04
Project Overhead (G&A)	\$1.09
Head Office Costs	\$0.33
<b>TOTAL OPERATING COST</b>	<b>\$9.96</b>

## 1.9 Schedule

Red Chris mine's development is contingent on the approval and construction of the NTL project which is currently in its EA process. Assuming that the EA Certificate for the NTL is obtained late this year, the NTL will need three construction years and is anticipated to be operational by December 2013. RCDC will continue monitoring the NTL's approval and construction schedule and plans to complete mine development to coincide with the powerline completion. Based on completion of NTL by the end of December 2013, RCDC proposes the following permitting, development, construction and operation schedule:

**Table 1-8: Schedule**

<b>Activity</b>	<b>Target Date</b>
Apply for the Mines' Act Permit	July 2010
Request DFO to initiate MMER Schedule 2 Process	June 2010 (See note below)
Feasibility Study Update	November 2010
Site Clearing for the Plant Site, Mobile Equipment Shop Area and the Camp Area	Summer of 2011
Commence Detailed Engineering and Procurement	November 2010
Complete MMER Schedule 2 Process and Obtain DFO Authorization for TSF construction commencement	Summer of 2011
Commence Foundation Preparation for the North Dam (TSF)	Summer / Fall of 2011
Commence Major Construction at the Red Chris	Late Summer / Fall of 2011
Commence Construction of Power line Extension	Late Summer / Fall of 2012
Complete Construction	End of 2013
Power-line hook-up at Bob Quinn	End of 2013
Commission and Start-up	<b>January to March 2014</b>
Production Start-up	April 2014
Production Operation	2014 to 2041
Commence Closure and Reclamation	Early 2042
Complete Closure and Reclamation	Late 2043
Post-closure Monitoring and Surveillance	2043 to 2048



## **1.10 Financial Analysis**

### **1.10.1 Valuation Methodology**

The Red Chris project has been valued using a discounted cash flow approach.

The analysis includes sensitivity to variation in copper and gold prices, head grades, metallurgical recoveries, operating costs, capital costs, concentrate transportation costs, and smelting and refining charges.

The base case economic analysis has been run with no inflation (constant dollar basis). Capital and operating costs are expressed in 2010 Canadian dollars, unless otherwise noted.

Financial model parameters incorporated in the analysis, include:

- ore reserves
- metallurgical balance
- smelter terms
- concentrate transportation costs
- markets and contracts
- metal prices
- exchange rate
- operating costs: mine, process and G&A
- head office costs
- capital costs over LOM
- royalties
- taxes

Estimated annual net cash flows were discounted to the beginning of project (Year -4) at real discount rates of 5% and 10%.

### 1.10.2 Sensitivity Analysis

The results of the base case and sensitivity analysis are summarized in Table 1-9, and Figures 1-3 and 1-4.

The estimated base case IRR based on 100.0% equity is 15.7% after tax and the project cashflows a total of \$1.214 billion, after capital costs and taxes. Payback of the total construction cost of \$443.633 million is achieved within 4.58 years of start up at the base case prices. LOM cost per pound of copper, for the base case, taking silver and gold as a credit is US\$1.22 per pound of copper.

At October 2010 monthly average metal prices and exchange rate (Cu = US\$3.76/lb, Au = US\$1,342.60/oz, Ag = US\$23.39/oz, and exchange rate as Cdn\$1 = US\$0.982), the estimated IRR increases to 37.9% post tax and the project cashflows a total of Cdn\$3.561 billion, after capital costs and taxes. Payback of the total construction cost of Cdn\$443.633 million is achieved within 1.87 years of start up at October 2010 average prices. LOM cost per pound of copper, at October 2010 monthly average metal prices, taking silver and gold as a credit is US\$1.15 per pound of Copper.

**Table 1-9: Financial Analysis for Base Case and October 2010 Metal Prices & Exchange Rate**

Economic Parameters	BASE CASE		OCTOBER 2010 AVERAGE PRICES	
	Copper Price	US\$2.20/lb	Copper Price	US\$3.76/lb
	Gold Price	US\$900/oz	Gold Price	US\$1,342.60/oz
	Silver Price	US\$12/oz	Silver Price	US\$23.39/oz
	Cdn\$ =	US\$0.90	Cdn\$ =	US\$0.982
Capital Cost	Cdn\$443.633 M		Cdn\$443.633 M	
Post Tax IRR	15.7%		37.9%	
Post Tax NPV				
@0%	Cdn\$1.214 B		Cdn\$3.561 B	
@5%	Cdn\$423.24 M		Cdn\$1.519 B	
@10%	Cdn\$133.92 M		Cdn\$743.97 M	
Project Payback	4.58 yrs		1.87 yrs	
LOM Production Cost of per lb of Cu with credits from Au and Ag	US\$1.22		US\$1.15	

Figure 1-3: Project Sensitivity to Operating Cost Variables

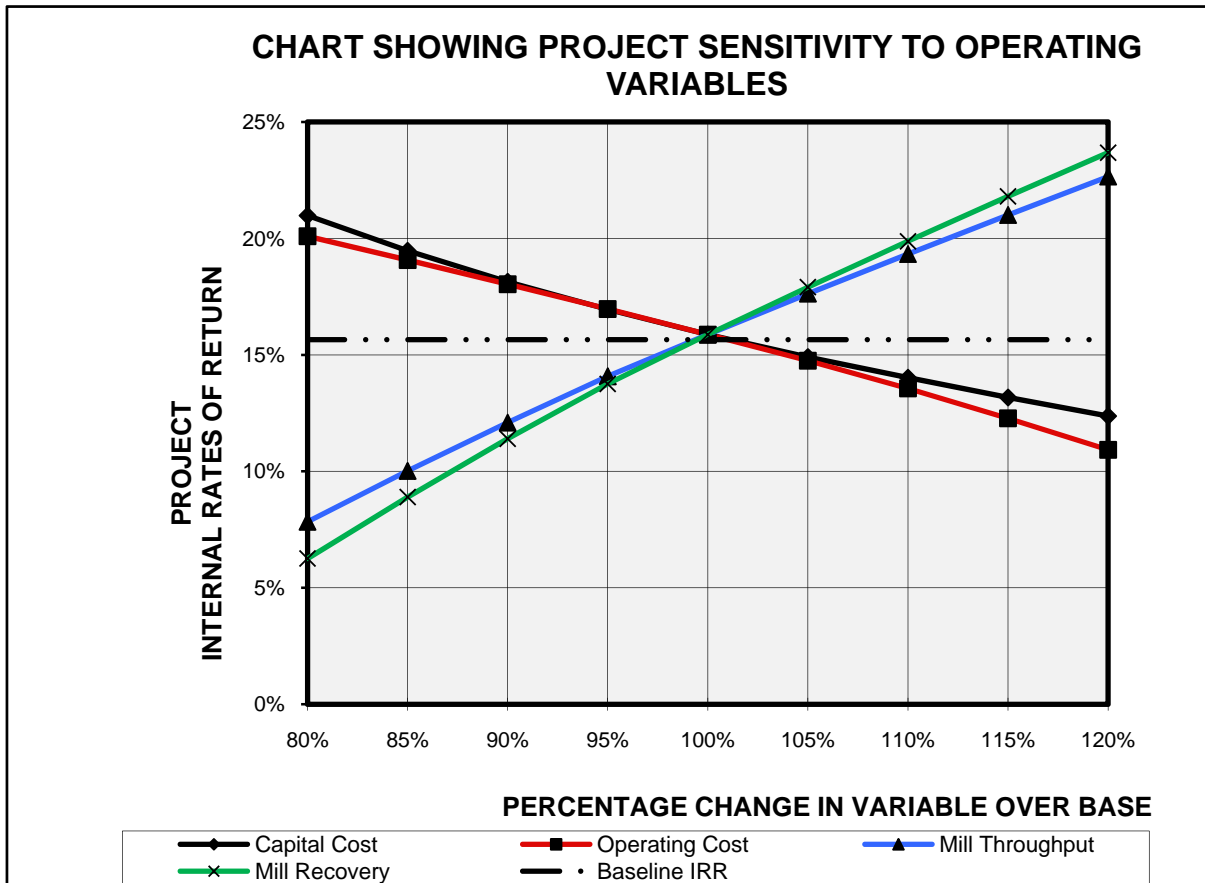


Figure 1-4: Project Sensitivity to Economic Variables

