

## **Work Package A2(a) Traffic Data Development for Mineral Resources**



Prepared for  
**ALCAN RaiLink Inc.**

Submitted by  
**Gartner Lee Limited**

April 2006

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**4 ALCAN RaiLink Inc.**  
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Gartner Lee Limited

April 5, 2006

Kells Boland, Project Manger  
Alaska-Yukon Railway Feasibility Study  
210-212 Main St.  
Whitehorse, Yukon, Y1A 2A9  
Canada

Dear Mr. Boland:

**Re: WPA2a – Traffic Data Development for Mineral Resources**

The final report on the above-noted work package is attached for your records. A copy of this report, as well as supporting documentation, has also been posted on the Gartner Lee Data Warehouse.

I want to take this opportunity to thank you for inviting Gartner Lee Limited to contribute to this important study. If you have any questions, please do not hesitate to contact me directly.

Yours very truly,  
GARTNER LEE LIMITED

Jesse L. Duke P. Geo.  
Mining Practice Leader (West)

# Executive Summary

Gartner Lee Limited was asked to review and analyze mineral resources that that may contribute outbound freight for a railway connecting existing rail lines in British Colombia to the existing rail network in Alaska. The focus of this work is on resources that provide significant shippable bulk concentrates such as base-metals, iron ore, and coal.

A list of priority deposits for evaluation was identified. Criteria for selection included size (ore reserves greater than 40 million tonnes; and advanced projects nearing development. The priority deposit list consists of approximately 30 deposits in the Yukon and 21 in British Columbia.

Utilizing the best information available, an estimate of shippable commodities was developed for each deposit. A total of 37.45 million tonnes per year of potential shippable commodities (for Yukon and B.C.) were identified. The Crest Iron deposit represents 57% of this total. If developed, it would ship on the order of 23 million tonnes on an annual basis. While coal is the second most significant commodity, only two deposits in Yukon have been assessed in sufficient detail to determine a realistic shippable quantity. Base metals (lead, zinc, copper, etc.) account for only 5% of the potential bulk shippable commodity.

The probability of these various deposits going into production over the next 30 years was calculated using industry-standard assessment criteria when conducting preliminary deposit evaluations:

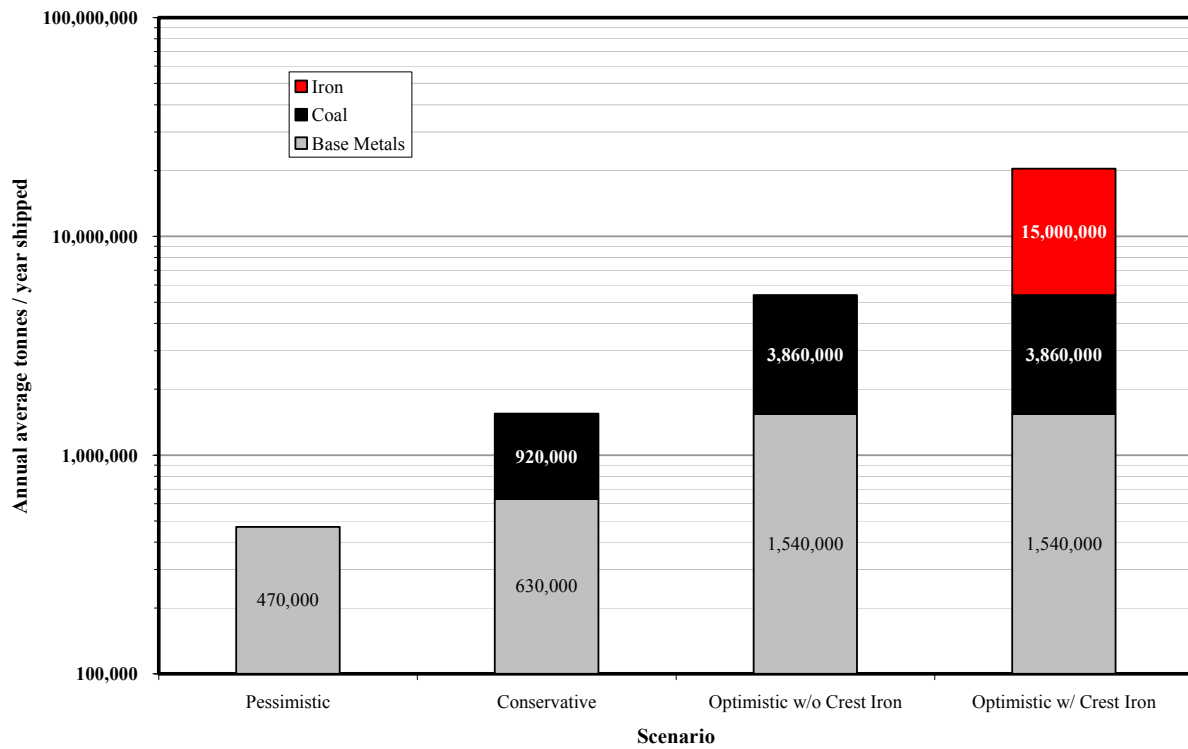
$$\text{Net Ore Value} > 2 \text{ X Mine Operating Costs}$$

Mine Operating Costs were calculated from feasibility or pre-feasibilities studies wherever possible. Otherwise industry standard formulas were used to estimate these costs.

Metal prices used to calculate net ore values included three scenarios based on three long-term commodity price scenarios: Pessimistic, Conservative and Optimistic. These scenarios were based on long-term historical price trends and a review of current global commodity economics.

Based on the above analysis, shippable mineral commodities are summarized below:

## Potential Tonnes of Mineral Commodities Shipped Annually



 Gartner Lee Limited

Annual commodity shipments from mines have been averaged over 30 years. This reflects the uncertainty of when mines may come into production. Furthermore, it recognizes the fact that not all mines will come into production simultaneously, rather mines will go into and out of production at various different schedules.

Iron ore shipments from the Crest iron deposit, if developed, would far outweigh all other mineral commodity shipments combined. For example, under the Optimistic metal price scenario, the combined mineral commodities shipped (not including Crest) is on the order of 5.5 million tonnes annually. Crest alone would ship on the order of 23 million tonnes annually. Furthermore, the remote location and long haulages required to exploit the Crest deposit make transportation cost one of the most significant factors in the property's potential viability. Given these considerations, for the purposes of this analysis, the Optimistic scenario is divided into a "with Crest iron" and a "without Crest iron" scenarios. This is illustrated on the above figure (also found in the report as Figure 4-1).

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- B. Property Detail Sheets
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  - 1. Historical Metal Prices and Forecasts
  - 2. Review of Historical Metal Trends
- D. Alaska Candidate Mineral Deposits for Railroad Study. Prepared by Pacific Rim Geological Consulting, Inc.

# 1. Introduction

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## 1.1 Scope of Work

The governments of Yukon and Alaska have commissioned a study to assess the feasibility of a rail link from the existing rail lines in northern British Columbia to connect with the rail system in Alaska. Various routing options are under consideration as part of this study.

Gartner Lee Limited (Gartner Lee) was asked to review and analyze mineral resources that that may contribute outbound freight for a railway in the future. The focus of this work was to be on resources that provide significant shippable bulk concentrates such as base-metals, iron ore, and coal.

The results of this analysis have been provided to QGI Consulting of Edmonton, Alberta. QGI will use this data to estimate revenues to a railway from expected future mining activity.

## 1.2 Tasks

In order to conduct this analysis, the following tasks were completed:

1. Development of assessment methodology.
2. Identification and inventory of mineral deposits in the BC/Yukon study area. Deposits are identified and spatially (mapped).
3. Selection of priority deposits for more detailed evaluation. Priority deposits consist of advanced deposits/projects and the largest known deposits (e.g., those most likely or significant to contribute to railway commodity haulage).
4. Review of historical feasibility studies and compilation of deposit economic data (tonnage, grade, cost of production, etc.) completed for Yukon, including an inventory of “shippable” commodity quantities.
5. Compilation of haulage distance from deposit to railway alignment(s).
6. Assessment of potential for mineral deposit development based on production cost and mineral price forecast criteria.
7. Mineral commodity market analysis and forecasts.
8. Cost of production modeling (a combination of modeling and data from feasibility studies).
9. Estimation of shippable mineral commodities annually under various metal price scenarios.

This report summarizes the results of this work, as outlined below. Background and supporting documents are found in the appendixes.

## 2. Assessment Methodology

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A step-wise assessment methodology has been developed to complete this work, and generally consists of:

- Phase 1: Identification of deposits for consideration within the study area;
- Phase 2: Determination of likely quantities of shippable mineral commodities for said mineral deposits; and
- Phase 3: Assessment of likelihood of development of said deposits under various metal price scenarios.

A detailed description of the assessment methodology is provided on the following diagrams.

Note that this methodology is generally considered conservative for the following reasons:

1. The assessment only considers mineral *deposits*, that is mineral occurrences with *known* quantities of minerals. Therefore, it does not include potential new discoveries that are not known at the time of this assessment. New deposits will be found over the life cycle of the railway, but as they are unknown at this time they are not included in this assessment. It is important to note there is significant potential for new mineral discoveries in the project area.
2. The assessment methodology assumes long-term economically viable deposits only are to be included in the final commodity inventory. There are smaller or marginal deposits that will come into production during periods of high metal prices in the metal price cycles. However, it has been assumed, for the purposes of this assessment that these short-lived mines are not to be included in the shippable mineral commodity inventory. The basis for this assumption is that a railway is a long-term investment and requires long-term stable customers. Short-lived mines that rely on metal price cycles, although they will ship a commodity for a short duration, are not expected to provide significant freight to the railway.

# Overview of Assessment Methodology

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## Phase 1: Mineral Deposit Inventory

Determine where and what type of mineral deposits are likely to export a bulk commodity (e.g., concentrate, ore, or coal).

Further Phases of the assessment will be based on a “priority deposit” subset that will allow the assessment to focus on deposits most likely to have a significant impact (if developed) on the railway.



## Phase 2: Shippable Commodity Inventory

Determines for each of the priority deposits what the potential quantities of product (e.g., concentrate, ore, or coal) each deposit would be likely to produce on an annual basis (if developed) and for how long that deposit/mine would operate.

Also includes determination of distances from priority deposits to the railway alignment option and where the mines' commodities could be loaded on to the given railway alignment.



## Phase 3: Probability of Mine Development & Shipment Quantities

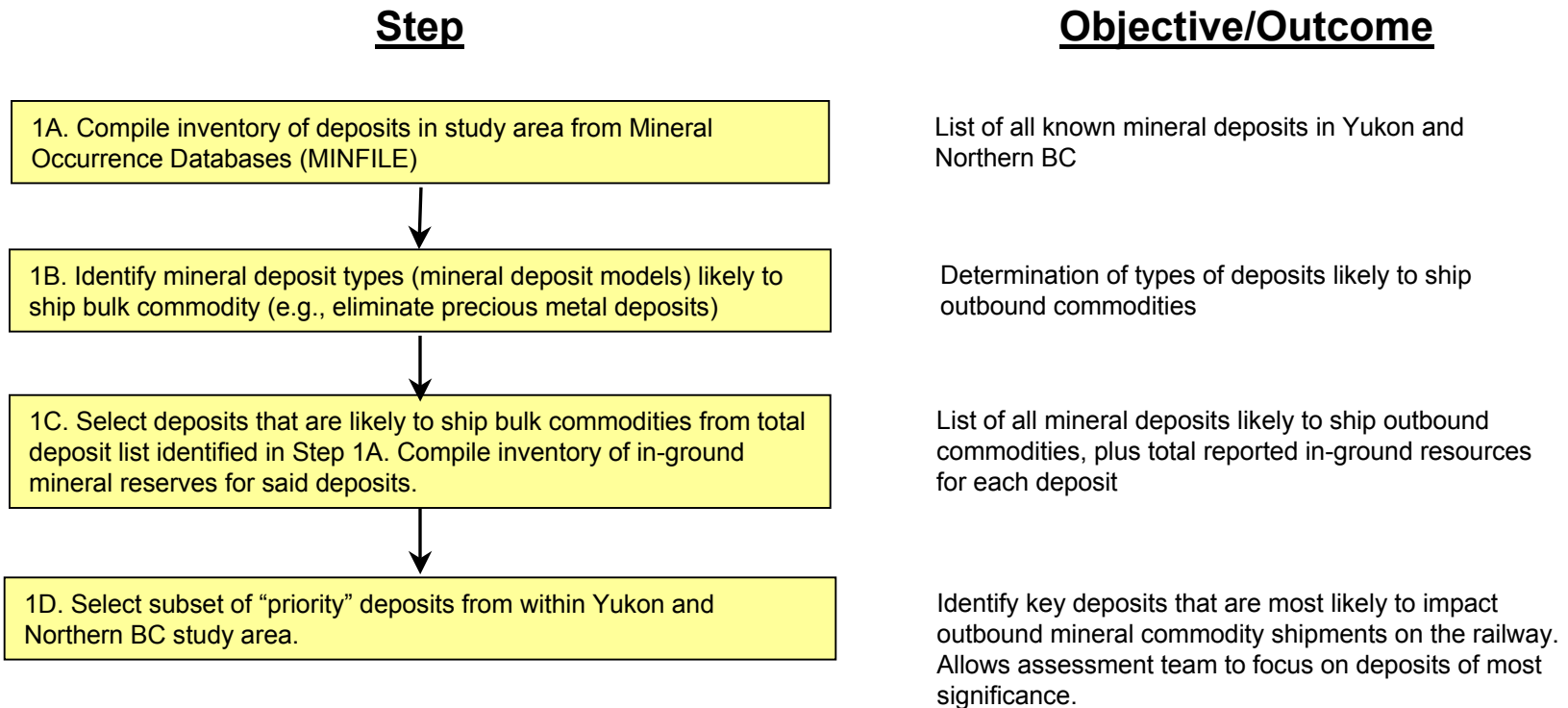
Determines probability of mines going into production over the next 30 years (and thereby shipping outbound commodities) for three scenarios controlled by mineral prices:

- Optimistic
- Conservative
- Pessimistic

Under each scenario, an annual potentially shippable tonnage will be reported.

## *Phase 1: Mineral Deposit Inventory*

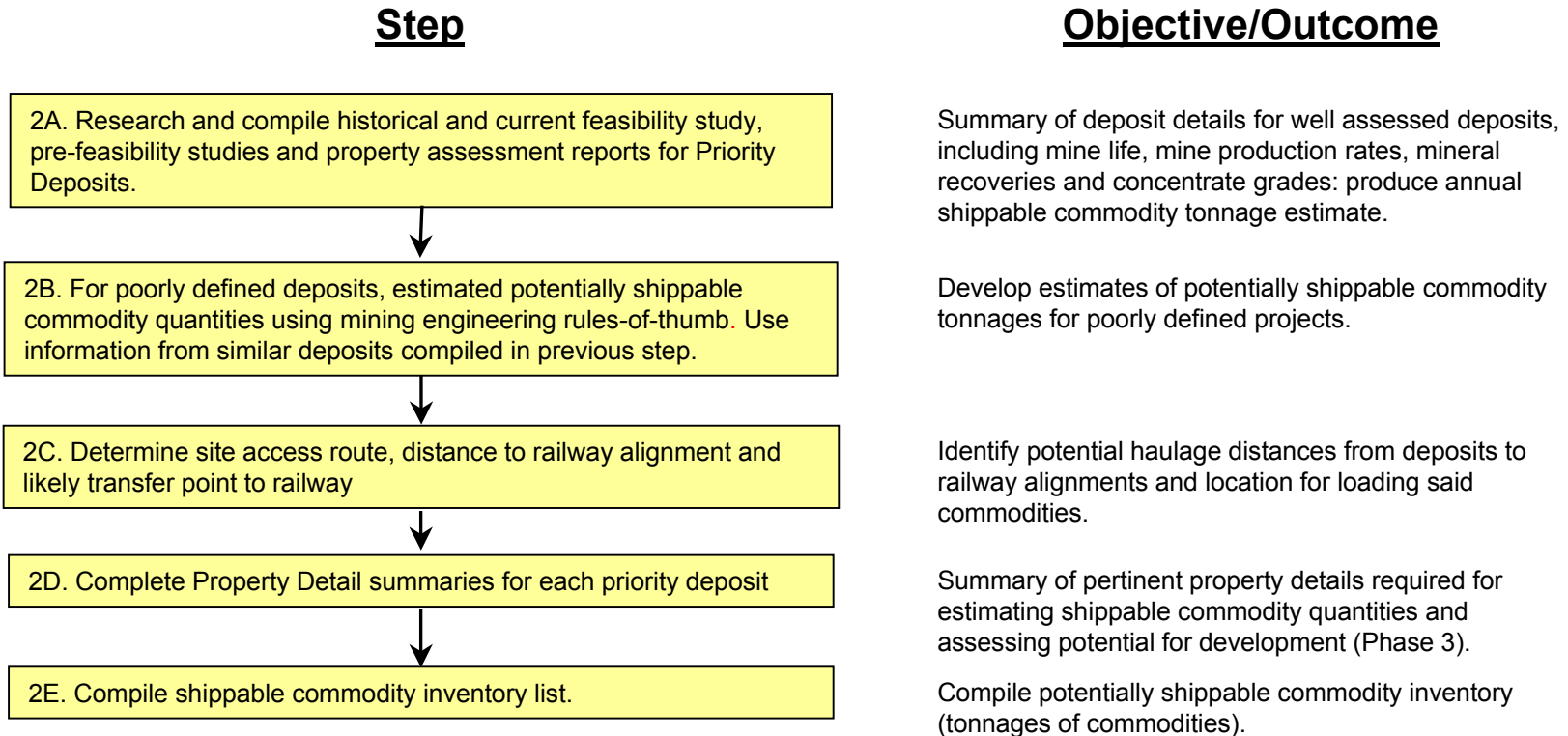
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**Phase 1 Outcome:**  
**Inventory of Priority Deposits to be Carried forward to Further Assessment**

## *Phase 2: Shippable Commodity Inventory*

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**Phase 2 Outcome:**  
**Estimate of *total* potentially shippable mineral commodity tonnages**

# Phase 3: Probability of Mine Development & Shipment Quantities

## Step

## Objective/Outcome

3A. Estimate Mine Operating Costs. Compile from existing feasibility studies (if completed).

For poorly defined deposits, estimate mine operating costs using preliminary mining engineering costing guidelines. Use information from similar deposits compiled in previous step where possible.

Determination of mine operating costs for each priority deposit. Used for evaluation of probability of development (see step 3D.)

3B. Compile long-term average mineral commodity price forecasts for three economic scenarios: Pessimistic, Conservative and Optimistic

Assessment of potential long-term range of commodity prices. Used for evaluation of probability of development (see step 3D.)

3C. Calculate Net Ore Value under for each of the three economic scenarios. Ore value is net of recovery losses and smelting/refining charges.

Determination of ore value for each deposit based on range of mineral prices determined in previous step.

3D. Determine likelihood of mine/deposit development: Net Ore Value >2x mine operating cost.

Determination of probability of mine development under various mineral price scenarios.

3E. Qualitatively re-assess deposits for socio-environmental issues where economic feasibility is within 20% (e.g. margin of error)

Re-evaluation of probability of mine development where economics are marginal. Allows for consideration of non-economic factors that may influence mine development.



## Phase 3 Outcome - Project Completion:

Potential quantities of shippable mineral resources under three economic scenarios

## **3. Assessment Results**

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### **3.1 Phase 1. Mineral Deposit Inventory**

The initial phase of the rail traffic data development for mineral resources assessment consists of identifying mineral deposits likely to ship a bulk commodity (concentrate) or product. From this, a priority deposit subset is selected to focus the further assessment work on key deposits that are likely to make the most impact on the railway.

#### **3.1.1 Step 1A. Overall Deposit Inventory**

A listing of mineral deposits identified in the Yukon and British Columbia Mineral Occurrence databases (known as MINFILE) was extracted for this assessment. Deposits are defined in the MINFILE as mineral occurrences having a published quantity (tonnage) of resources with a known grade.

In the Yukon, the study area was assumed to include all portions of the Yukon: a total of 118 deposits are listed in the Yukon MINFILE (including past producing mines). In British Columbia, the study area is assumed to be those portions of Northern British Columbia not already serviced by a railroad: a total of 65 deposits are listed in the BC MINFILE for this area. As these deposit lists are rather lengthy, they are not reproduced in this document; however, they are readily available on-line from the respective mineral databases.

#### **3.1.2 Step 1B. Determination of Deposit Types Likely to Produce Bulk Commodities**

Table 1B provides a list of the deposit types found in the study area. This table identifies the deposit types likely to produce a bulk mineral commodity.

**Table 1B. Mineral Deposits Types Evaluated for Bulk Commodity Potential**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development For Mineral Resources**

Deposit Group	BC & Yukon Deposit Profile*	Deposit Profile No.	Included In Assessment?	Comment
Organic (Coal)	Sub-bituminous coal	A03	Yes	
	Bituminous Coal	A04	Yes	
	Anthracite - Coal	A05	Yes	
Placer	Surficial Placers	C01	No	Gold deposits, unlikely to produce bulk commodity
Continental Sediments and Volcanic	Volcanic redbed Cu	D03	Yes	
	Wernecke Breccia	D07	Yes	Pagisteel (106D 049) 1.0 Mt
Sediment Hosted	Kipushi Cu-Pb-Zn	E02	Yes	Only one deposit, JAN 1-2 (104G 027) at 272,130t
	Carbonate Hosted Barite	E10	Yes	Primarily Muncho Lake (094N 008 and 094N 002)
	Mississippi Valley-type Pb-Zn	E12	Yes	Two deposits, Goz (106C 020) at 2.4 Mt and Craig (106C 073) at 0.9 Mt
	Irish-type carbonate-hosted Zn-Pb	E13	Yes	Only one, Beverly (094C 023) at 2.7 Mt
	Sedex	E14	Yes	
	Stratiform Barite	E17	Yes	
Chemical Sediment	Bedded gypsum	F02	Yes	O'conner River (1104P 005) at 2.5 Mt
	Playa and Alkaline Lake Evaporites	F09	Yes	Only one deposit, Atlin (104N 079) at 107,037t
Marine Volcanic Association	Ironstone (Alogma-type)	G01	Yes	inc. Crest (106F 008) at 3.1 kt
	Besshi Cu-(Zn)	G04	Yes	Finlayson District
	Cyprus (Cu)	G05	Yes	Finlayson District
	Kuroko Cu-Pb-Zn-(Ag)	G06	Yes	Finlayson District
	Subaqueous hot spring Ag-Au	G07	No	Gold deposits, unlikely to produce bulk commodity
Epithermal	Epithermal - High sulphidation	H04	No	Gold deposits, unlikely to produce bulk commodity
	Epithermal - Low sulphidation	H05	No	Gold deposits, unlikely to produce bulk commodity
Vein, Breccia and Stockwork	Au-quartz veins	I01	No	Gold deposits, unlikely to produce bulk commodity
	Intrusion-related Au pyrrhotite veins	I02	No	Primarily high-grade gold - Snip (104B 250) is primary example.
	Polymetallic veins Ag-Pb-Zn +/-Au	I05	Yes	Deposit Type includes Logan (13 Mt) and Blende (15.3 Mt).
	Cu +/-Ag veins	I06	Yes	
	Stibnite veins	I09	No	Only one deposit, Becker-Cochran (105D 027) at 127,000t
	Vein Barite	I10	Yes	
	Vein W	I12	No	Only one small deposit (Red Rose: 093M 067) at 13,606t
	Sn (Ag) veins	I13	Yes	
Manto	Polymetallic Manto Ag-Pb-Zn	J01	Yes	Includes Sa Dena Hes
Skarn	Skarn Cu	K01	Yes	Consists of Whitehorse Copper Belt
	Skarn Pb-Zn	K02	Yes	
	Skarn Fe	K03	Yes	One deposit, Max (104B 013), 11 Mt
	Skarn W	K05	Yes	Includes Mactung
	Skarn Au (Cu)	K04	No	
	Wollastonite skarn	K09	Yes	
Porphyry	Subvolcanic Cu-Au	L01	Yes	
	Intrusion related Au	L02	No	Gold deposits, unlikely to produce bulk commodity
	Alkalic porphyry Cu-Au	L03	Yes	Potential to produce Cu product on site
	Porphyry Cu +/-Mo +/-Au	L04	Yes	Casino, Red Mountain, etc. Gold only porphyries will not be included
	Porphyry Mo	L05	Yes	
	Porphyry W	L07	Yes	Logtung (105B 039) at 162 Mt
Ultramafic / Mafic	Tholeiitic intrusion-hosted Ni-Cu	M02	Yes	Gabbroid Cu-Ni: Wellgreen (115G 024) and Nickel Mountain (104B 006)
	Ultramafic-hosted asbestos	M06	Yes	
Carbonates	Carbonate Hosted Deposits	N01	Yes	Aley (094B 027) - 5% P2O5
Industrial Rocks	Silica Sandstone	R07	Yes	Only one deposit, Win (093O 014) at 4.5Mt
	Limestone	R09	Yes	
Gems & Semi-Precious Stones	Rhodonite	Q02	No	Rhodonite
	Jade	Q01	No	

Notes

\* British Columbia Deposit Profiles, Version 2.1 (Geological Survey Branch 1995 and 1999): <http://www.em.gov.bc.ca/mining/Geosurv/MetallicMinerals/MineralDepositProfiles/default.htm>  
<http://www.em.gov.bc.ca/mining/Geosurv/MetallicMinerals/MineralDepositProfiles/default.htm>

Yukon Mineral Deposit Profiles, Yukon Geological Survey Open File 2005-5 (Fonseca and Bradshaw 2005):  
[http://www.geology.gov.yk.ca/metallogeny/mineral\\_deposit\\_profiles/](http://www.geology.gov.yk.ca/metallogeny/mineral_deposit_profiles/)

### 3.1.3 Step 1C. Selection of Deposits Likely to Ship Bulk Commodities

Based on the deposit types identified in Step 1B, a subset of the mineral deposits in the Yukon and Northern BC likely to ship a bulk commodity (if developed) has been created. This deposit list is found in Appendix A and their locations are shown on Figure 1.

- Each deposit identified on the attached list has had a cursory review to confirm its validity as a mineral occurrence with a published quantity of commodity in the ground.
- The table lists the total reported volume of mineral resources in the ground; therefore this does *not* represent the shippable commodity. That is to be determined in a subsequent step of the project.

Table 1C provide a summary of Total Mineral Reserves in Study Area summarized by deposit type.

Below is a summary of total reported quantities of resources reported in ground, in the study area:

Commodity	Total Tonnage (in ground)	Comment
Iron	>6,000,000,000	Varying grade, does not include v. low grade N. Yukon "deposits"
Cu +/- Mo	2,999,642,704	
Coal	2,303,272,017	
Moly	617,995,050	
Polymetallic	424,043,662	Without Windy Craggy, this is only 127 Mt
Pb-Zn	326,248,461	
Tungsten (W)	289,313,635	
Barite	149,200,573	
Copper	118,382,127	
Asbestos	66,701,230	
Ni-Cu	51,733,067	
Other	8,025,285	



**LEGEND**

**Commodity**

- ▲ Asbestos
- ◆ Barite
- Coal
- Copper
- Cu +/- Mo
- ✚ Iron
- Moly
- ▲ Ni-Cu
- ◇ Pb-Zn
- ▼ Polymetallic
- Tungsten
- Other

--- Railway  
 - - - Proposed Railway Corridor  
 + Y.T. First Nation Settlement / Interim Protected Lands

Scale 1:2,000,000

0 75 150 300  
 Kilometres

0 25 50 100  
 Miles

Projection: Yukon Albers

Project: 50854 Prepared / Reviewed By: GS/FPK Date: Feb 22, 2006 File: P50854\_W1\_06Feb22\_min\_dep

ALASKA / CANADA  
 Rail Link Feasibility Study

**Mineral Deposits  
 Yukon & Northern British Columbia**

Gartner Lee Limited FIGURE No. 1 (ver 2)



**Table 1C. Total Mineral Reserves in Study Area - By Deposit Type**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development For Mineral Resources**

BC & Yukon Deposit Profile*	Deposit Profile No.	General Commodity Type	Included In Assessment?	Reserves (tonnes)			Comment
				Yukon	Northern BC	Total in Study Area	
Ironstone (Alogma-type)	G01	Iron	Yes	3,175,147,000		3,175,147,000	inc. Crest (106F 008) at 3.1 kt. Massive low grade Fe deposits not include in reserve (e.g.
Porphyry Cu +/-Mo +/-Au	L04	Cu +/- Mo	Yes	1,000,290,000	1,999,352,704	2,999,642,704	Casino etc. Gold only porphyries will not be included
Bituminous Coal	A04	Coal	Yes	714,690,633	435,500,000	1,150,190,633	
Anthracite - Coal	A05	Coal	Yes	2,381,384	988,700,000	991,081,384	
Porphyry Mo	L05	Mo	Yes	187,270,000	430,725,050	617,995,050	Red Mt. Etc.
Alkalic porphyry Cu-Au	L03	Cu	Yes	24,368,000	316,400,000	340,768,000	Potential to produce Cu product on site
Besshi Cu-(Zn)	G04	Polymetallic	Yes	8,723,849	308,228,029	316,951,878	Finlayson District, Note, Windy Craggy (114P 002) comprises 297 Mt alone
Sedex	E14	Pb-Zn	Yes	189,307,814	78,355,000	267,662,814	
Porphyry W	L07	W	Yes	162,000,000		162,000,000	Logtung (105B 039) at 162 Mt
Sub-bituminous coal	A03	Coal	Yes	67,000,000	63,000,000	130,000,000	
Carbonate Hosted Barite	E10	Ba	Yes		106,900,000	106,900,000	Primarily Muncho Lake (094N 008 and 094N 002)
Kuroko Cu-Pb-Zn-(Ag)	G06	Polymetallic	Yes	27,901,430	38,799,800	66,701,230	Finlayson District
Ultramafic-hosted asbestos	M06	Asbestos	Yes	4,299,666	47,433,401	51,733,067	
Tholeiitic intrusion-hosted Ni-Cu	M02	Ni-Cu	Yes	42,720,235	2,927,485	45,647,720	Gabbroid Cu-Ni: Wellgreen (115G 024) and Nickel Mountain (104B 006)
Polymetallic veins Ag-Pb-Zn +/-Au	I05	Polymetallic	Yes	31,485,853	724,478	32,210,331	Deposit Type includes Logan (13 Mt) and Blende (15.3 Mt).
Ironstone	F11	Iron	Yes	27,200,000		27,200,000	One deposit, Alto (116K 005), 27 Mt
Skarn W	K05	W	Yes	21,650,821		21,650,821	Includes Mactung
Stratiform Barite	E17	Ba	Yes	13,100,146	181,000	13,281,146	
Skarn Fe	K03	Iron	Yes		11,176,550	11,176,550	One deposit, Max (104B 013), 11 Mt
Wernecke Breccia	D07	Iron	Yes	9,100,000		9,100,000	Pagisteel (106D 049) 1.0 Mt
Vein Barite	I10	Ba	Yes	230,427	5,689,000	5,919,427	
Volcanic redbed Cu	D03	Cu	Yes		4,989,050	4,989,050	
Cyprus (Cu)	G05	Polymetallic	Yes	4,561,863		4,561,863	Finlayson District
Mississippi Valley-type Pb-Zn	E12	Pb-Zn	Yes	3,369,738		3,369,738	Two deposits, Goz (106C 020) at 2.4 Mt and Craig (106C 073) at 0.9 Mt
Skarn Cu	K01	Cu	Yes	3,059,000	100,900	3,159,900	Consists of Whitehorse Copper Belt
Cu+/-Ag veins	I06	Cu	Yes	300,000	2,853,177	3,153,177	
Skarn Pb-Zn	K02	Pb-Zn	Yes		3,105,764	3,105,764	
Wollastonite skarn	K09	Other	Yes		3,020,000	3,020,000	
Irish-type carbonate-hosted Zn-Pb	E13	Pb-Zn	Yes		2,821,081	2,821,081	Only one, Beverly (094C 023) at 2.7 Mt
Bedded gypsum	F02	Other	Yes		2,500,000	2,500,000	O'conner River (1104P 005) at 2.5 Mt
Sn (Ag) veins	I13	Sn	Yes	98,248	2,300,000	2,398,248	
Polymetallic Manto Ag-Pb-Zn	J01	Polymetallic	Yes		583,618	583,618	Includes Sa Dena Hes
Kipushi Cu-Pb-Zn	E02	Polymetallic	Yes		272,130	272,130	Only one deposit, JAN 1-2 (104G 027) at 272,130t
Subvolcanic Cu-Au	L01	Cu	Yes		180,000	180,000	
Playa and Alkaline Lake Evaporites	F09	Other	Yes		107,037	107,037	Only one deposit, Atlin (104N 079) at 107,037t
Surficial Placers	C01	Au	No			0	Gold deposits, unlikely to produce bulk commodity
Carbonate-hosted disseminated Au-Ag	E03	Au	No			0	Only one small deposit (FLEECE BOWL: 104K 087) at 13,606t
Subaqueous hot spring Ag-Au	G07	Au	No			0	Gold deposits, unlikely to produce bulk commodity
Epithermal - High sulphidation	H04	Au	No			0	Gold deposits, unlikely to produce bulk commodity
Epithermal - Low sulphidation	H05	Au	No			0	Gold deposits, unlikely to produce bulk commodity
Au-quartz veins	I01	Au	No			0	Gold deposits, unlikely to produce bulk commodity
Intrusion-related Au pyrrhotite veins	I02	Au	No			0	Primarily high-grade gold - Snip (104B 250) is primary example.
Stibnite veins	I09	Other	No			0	Only one deposit, Becker-Cochran (105D 027) at 127,000t
Vein W	I12	W	No			0	Only one small deposit (Red Rose: 093M 067) at 13,606t
Skarn Au (Cu)	K04	Au	No			0	
Intrusion related Au	L02	Au	No			0	Gold deposits, unlikely to produce bulk commodity
Jade	Q01	Other	No			0	
Rhodonite	Q02	Other	No			0	Rhodonite

10,577,181,361

\* British Columbia Deposit Profiles, Version 2.1 (Geological Survey Branch 1995 and 1999): <http://www.em.gov.bc.ca/mining/Geosurv/MetallicMinerals/MineralDepositProfiles/default.htm>  
<http://www.em.gov.bc.ca/mining/Geosurv/MetallicMinerals/MineralDepositProfiles/default.htm>

Yukon Mineral Deposit Profiles, Yukon Geological Survey Open File 2005-5 (Fonseca and Bradshaw 2005):  
[http://www.geology.gov.yk.ca/metallogeny/mineral\\_deposit\\_profiles/](http://www.geology.gov.yk.ca/metallogeny/mineral_deposit_profiles/)

### 3.1.4 Step 1D. Priority Deposits Selection

To focus the assessment of the deposits that are most likely to impact the outbound rail traffic, a priority deposit list was selected from the complete deposit list presented in the previous step. The purpose of the priority deposit list was to allow the project team to focus and expend assessment effort on major deposits of significance. This priority deposit list consists of:

1. Large deposits with total mineral resources estimated at greater than 40 million tonnes; or
2. Advanced projects that are near development (Indicated or better reserve certainty)

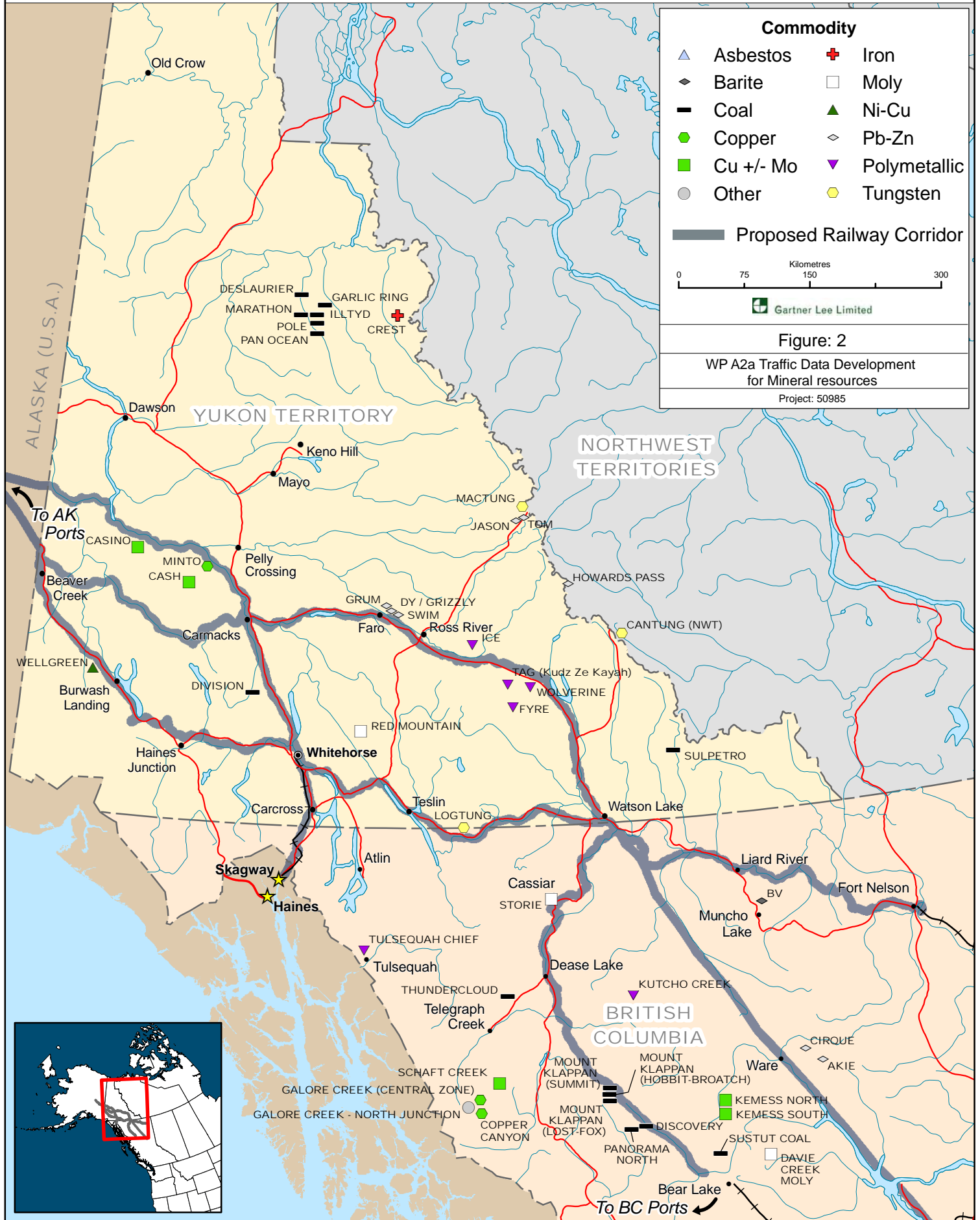
Some deposits meeting the above criteria have been removed from the priority list for a variety of reasons such as:

- ♦ insurmountable technical or social issues that are unlikely to change in the foreseeable future (such as location within an environmentally sensitive area);
- ♦ deposits with low grades that preclude them from any reasonable chance of development;
- ♦ deposits that are too far from the proposed rail alignments, such that they are too remote or would more likely go to tide-water directly; or
- ♦ small deposits that are unlikely to have a significant impact on outbound traffic (e.g., those with less than 2 million tonnes of resources).

Table 1D list the priority deposits selected, and the location of these is shown on Figure 2. Where several deposits are located in proximity to each other, these have been loosely grouped in a “Mineral Camp” which allows for inclusion of smaller or lower grade deposits that would normally be included in the assessment on their own. This recognizes the fact that mineral deposits are more likely to be developed if they are in proximity to an operating mine.

The priority deposit list consists of approximately 30 deposits (in 13 Mineral Camps or locations) in the Yukon and 21 deposits (in 13 Mineral Camps or locations) in British Columbia. These 51 deposits constitute the most likely deposits to be developed over the rail lifecycle and represent approximately 50% of the total known mineral resources in northern BC and Yukon.

# Priority Mineral Deposits Yukon & Northern British Columbia



Commodity	
△ Asbestos	✚ Iron
◊ Barite	□ Moly
— Coal	▲ Ni-Cu
⬢ Copper	◇ Pb-Zn
■ Cu +/- Mo	▼ Polymetallic
● Other	⬡ Tungsten

Proposed Railway Corridor

0 75 150 300  
 Kilometres

Gartner Lee Limited

**Figure: 2**  
 WP A2a Traffic Data Development  
 for Mineral resources  
 Project: 50985

**Table 1D. Priority Mineral Deposits of Yukon Territory**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development For Mineral Resources**

Mineral Camp	Property Name	Minfile No.	Property Owner	Deposit Profile No.*	Deposit Type	Commodity	Total Reserve Reported	Type of Reserve	Reserve Certainty <sup>1</sup>	Comment
Dawson Range	CREST	106F 008	Chevron Resources Canada	G01	Iron Formation	Iron	3,175,147,000	Indicated	4	
	CASINO	115J 028	Great Basin Gold Ltd / Lumina Copper Corp.	L04	Porphyry Cu-Mo-Au	Cu +/- Mo	964,000,000	Measured & Indicated	3	
	CASH	115I 037	none (Selkirk First Nation)	L04	Porphyry Cu-Mo-Au	Cu +/- Mo	36,290,000	Historical	6	
	RED MOUNTAIN	105C 009	Tintina Mines Ltd.	L05	Porphyry Cu-Mo-Au	Cu +/- Mo	187,270,000	Inferred	5	
Bonnet Plume Coal Field	LOGTUNG	105B 039	Strategic Metals Ltd.	L07	Porphyry W	Tungsten	162,000,000	Historical	6	
	ILLTYD (Bonnet Plume Coal)	106E 035	Philip Wheelton	A04	Bituminous Coal	Coal	183,640,000	Measured	3	
	SPACESHIP	106E 038	Philip Wheelton	A04	Bituminous Coal	Coal	157,950,000	Inferred	5	
	POLE	106E 021	Philip Wheelton	A04	Bituminous Coal	Coal	133,580,000	Inferred	5	
	DESLAURIER	106E 037	Philip Wheelton	A04	Bituminous Coal	Coal	104,630,000	Indicated	4	
	MARATHON	106E 013	Philip Wheelton	A04	Bituminous Coal	Coal	18,400,000	Inferred	5	
	PAN OCEAN	106E 036	Philip Wheelton	A04	Bituminous Coal	Coal	47,560,000	Inferred	5	
Howard's Pass	GARLIC RING	106E 032	Philip Wheelton	A04	Bituminous Coal	Coal	14,150,000	Indicated	4	
	ANNIV	105I 037	Placer Dome (CLA) Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	61,000,000	Inferred	5	
	HOWARDS PASS	105I 012	Placer Dome (CLA) Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	59,000,000	Inferred	5	
MacPass	SULPETRO	095D 026	Duane Poliquin	A03	Sub-bituminous coal	Coal	67,000,000	Historical	6	
	MACTUNG	105O 002	North American Tungsten Corp. Ltd.	K05	W Skarn	Tungsten	13,669,000	Measured & Indicated	4	
	TOM	105O 001	Hudson Bay Exploration and Development Co Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	9,283,700	Indicated	4	
	JASON	105O 019	Mac Pass Resources Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	14,100,000	Historical	6	
Faro	DY / GRIZZLY	105K 101	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	17,240,000	Indicated	4	
	GRUM	105K 056	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	18,649,000	Probable	2	
	SWIM	105K 046	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	4,300,000	Geological Reserve	5	
Finlayson	FETISH (Wolverine)	105G 072	Expatriate Resources Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	4,941,000	Indicated	3	
	TAG (Kudz Ze Kayah)	105G 117	Teck Cominco Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	11,300,000	Indicated	4	
	FYRE	105G 034	Pacific Ridge Exploration Ltd	G04	Besshi Massive Sulphide Cu-Zn	Polymetallic	8,200,000	Indicated	4	
	ICE	105G 118	Expatriate Resources Ltd	G05	Cyprus Massive Sulphide Cu-Zn	Polymetallic	4,561,863	Indicated	4	
	GP4F	105G 143	Teck Cominco Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	1,500,000	Inferred	5	
Def/Minto	DIVISION	115H 013	Cash Minerals Ltd	A04	Bituminous Coal	Coal	52,900,000	Indicated	4	
	WELLGREEN	115G 024	Northern Platinum Ltd	M02	Gabbroid Cu-Ni-PGE	Ni-Cu	42,330,000	Inferred	5	
	MINTO ??	115I 021	Minto Exploration Ltd.	L03	Alkalic porphyry Cu-Au	Copper	8,818,000	Not Defined	4	Includes reserve from Def (115I 022). May produce copper on site, not concentrate, need to check
	DEF	115I 022	Minto Exploration Ltd.	L03	Alkalic porphyry Cu-Au	Copper		Not Defined	4	Reserve is included with Minto (115I 021)

Notes:

Data Source: MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005

\* British Columbia Deposit Profiles, Version 2.1 (Geological Survey Branch 1995 and 1999): <http://www.em.gov.bc.ca/mining/GeolSurv/MetallicMinerals/MineralDepositProfiles/default.htm>

Yukon Mineral Deposit Profiles, Yukon Geological Survey Open File 2005-5 (Fonseca and Bradshaw 2005):

[http://www.geology.gov.yk.ca/metallogeny/mineral\\_deposit\\_profiles/](http://www.geology.gov.yk.ca/metallogeny/mineral_deposit_profiles/)

<sup>1</sup> 1 = proven, 2 = probable, 3 = measured, 4 = indicated, 5 = inferred, 6 = other NOT COMPLETE AT THIS TIME

**Table 1D. Priority Mineral Deposits of Northern British Columbia**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development For Mineral Resources**

Mineral Camp	Property Name	Minfile No.	Deposit Profile No.*	Deposit Type	Commodity	Total Reserve Reported	Type of Reserve	Reserve Certainty <sup>1</sup>	Comment
Schaft Cr.	SCHAFT CREEK	104G 015	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	971,495,000	Combined	2	Proven and probable open pit resource (0.033 per cent MoS <sub>2</sub> ).
	NABS 30 FR	104G 032	L04	Porphyry Cu +/- Mo +/- Au	Cu +/- Mo	90,700,000	Measured	3	This figure is probably part of the overall reserve for the Schaft Creek Deposit (104G 015).
Kemess	KEMESS NORTH	094E 021	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	407,000,000	Indicated	4	These values are National Instrument 43-101 compliant.
	KEMESS SOUTH	094E 094	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	114,155,154	Indicated	4	These values are National Instrument 43-101 compliant.
Mt Klappan Coalfield	MOUNT KLAPPAN (HOBBIT-BROATCH)	104H 020	A05	Anthracite	Coal	405,700,000	Combined	4	Measured, indicated and inferred resources contained within 15 seams >0.5 metre in true thickness to a depth of 500 m below surface.
	MOUNT KLAPPAN (LOST-FOX)	104H 021	A04	Bituminous coal	Coal	194,100,000	Combined	6	Measured, indicated and inferred resources. There is a further speculative resource of 794.9 million tonnes.
	MOUNT KLAPPAN (SUMMIT)	104H 022	A04	Bituminous coal	Coal	41,400,000	Inferred	5	Inferred resource. There is a further speculative resource of 1,860,100,000 tonnes.
Groundhog Coal Field	DISCOVERY	104A 078	A05	Anthracite	Coal	343,000,000	Inferred	5	Combined surface (53,000,000 tonnes) and underground (290,000,000 tonnes) accessible inferred reserve.
	PANORAMA NORTH	104A 085	A05	Anthracite	Coal	240,000,000	Includes reserves from Panorama North (104A 082)	5	The above estimate is based on combined inferred reserves for the Panorama North and South (104A 082).
Galore Creek	GALORE CREEK (CENTRAL ZONE)	104G 090	L03	Alkalic porphyry Cu-Au	Copper	284,000,000	Indicated	4	Includes Central, Southwest (104G 095) and North Junction (104G 092).
	GALORE CREEK - SOUTHWEST	104G 095	L03	Alkalic porphyry Cu-Au	Copper	0	Indicated	4	Silver is estimated. Cut-off is 0.27 per cent copper equivalent.
	GALORE CREEK - NORTH JUNCTION	104G 092	H08	Alkalic intrusion-associated	Other	0	Indicated	4	Cut-off is 0.40 per cent copper.
	RED CHRIS	104H 005	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	276,000,000	Probable	3	Total proven & probable reserves including 90,600,000 tonnes recovered from stockpile.
	THUNDERCLOUD	104J 043	A04	Bituminous coal	Coal	200,000,000	Inferred	5	A potential of surface mineable coal to a depth of 500 metres.
	BV	094N 002	E10	Carbonate-hosted barite	Barite	103,500,000	Inferred	5	Indicated 'resource' over a down-dip distance of 180 metres. Grade is not given, so assumed to be 8.9%.
	STORIE	104P 069	L05	Porphyry Mo (Low F-type)	Moly	100,500,000	Unclassified	6	Mineable by open pit. Grade given was 0.129 per cent MoS <sub>2</sub> ; conversion to Mo using the factor 1.6681.
	DAVIE CREEK MOLY	094D 113	L05	Porphyry Mo (Low F-type)	Moly	100,000,000	Unclassified	6	Tabular, potassically altered zone.
	SUSTUT COAL	094D 039	A03	Sub-bituminous coal	Coal	63,000,000	Inferred	5	The resource potential of raw coal.
Cirque	CIRQUE	094F 008	E14	Sedimentary exhalative Zr-Pb-Ag	Pb-Zn	43,200,000	Indicated	4	Mine Development Certificate issued to Curragh Inc., December 1992.
	AKIE	094F 031	E14	Sedimentary exhalative Zr-Pb-Ag	Pb-Zn	12,000,000	Inferred	5	Estimated geological resource.
	TULSEQUAH CHIEF	104K 002	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	7,910,000	Measured	3	An initial mineable reserve which is part of the overall geological reserve of 8.9 million tonnes.

Notes:

Data Source: MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005

\* British Columbia Deposit Profiles, Version 2.1 (Geological Survey Branch 1995 and 1999): <http://www.em.gov.bc.ca/mining/GeolSurv/MetallicMinerals/MineralDepositProfiles/default.htm>  
<http://www.em.gov.bc.ca/mining/GeolSurv/MetallicMinerals/MineralDepositProfiles/default.htm>

Yukon Mineral Deposit Profiles, Yukon Geological Survey Open File 2005-5 (Fonseca and Bradshaw 2005):  
[http://www.geology.gov.yk.ca/metallogeny/mineral\\_deposit\\_profiles/](http://www.geology.gov.yk.ca/metallogeny/mineral_deposit_profiles/)

<sup>1</sup> 1 = proven, 2 = probable, 3 = measured, 4 = indicated, 5 = inferred, 6 = other

## 3.2 Phase 2. Shippable Commodity Inventory

The second phase of the rail traffic data development for mineral resources assessment consists of determining for each of the priority deposits what the potential quantities of product (e.g. concentrate, ore, or coal) each deposit would be likely to produce on an annual basis (if developed) and for how long that deposit/mine would operate.

Also included in this phase is a determination of distances from priority deposits to the railway alignment options and where the mines' commodity could be loaded on to the given railway alignment.

### 3.2.1 Step 2A. Research Existing Feasibility Studies for Priority Deposits

To compile deposit information and assess the potentially shippable commodities, historical pre-feasibility and feasibility studies were researched and compiled for the priority deposits. The quality of existing data and assessment work varies widely with deposits. Some deposits have very current (2005) detailed feasibility studies, where other have almost no information and have only been crudely assessed years ago. Generally, sources of information were:

- Published reports on property owner's websites.
- Publicly available documents on Canadian Securities Administrators' SEDAR website (an on-line filing system for documents associated with publicly traded companies).
- Yukon Mineral Assessment Report (available at the Department of Energy, Mines and Resources library).
- Interviews with property geologists and property owners.
- Other reports at the Department of Energy, Mines and Resources library.

These data were used to complete the Property Detail sheets prepared in Step 2D.

### 3.2.2 Step 2B. Estimation of Shippable Commodities for Poorly Defined Deposits

For some deposits, limited or no feasibility study information could be found. For these, estimates of the potentially shippable commodities and other mining related parameters were prepared either from examples at similar mineral deposits or preliminary mining engineering estimating techniques. These estimates were then used to complete the Property Detail sheets prepared in Step 2D. It is noted on the Property Detail sheets and associated tables where values have been estimated.

Key parameters for estimating shippable commodities include:

1. Mining rate: rate of mining a deposit was estimated base on the optimum mining rate formulae presented in the SME Mining Engineering Handbook (Hartman 1992).
2. Concentrate quantities were estimated based on metal recovery and typical concentrate grades provided in O'Hara's 1980 CIM Bulletin paper entitled *Quick guide to the evaluation of ore bodies*.
3. For coal, mineable and shippable coal quantities were assumed based on values reported in feasibility studies of neighboring or similar coal deposits.

### **3.2.3 Step 2C. Distances to Railway Alignments**

Table 2C lists the likely distances from the priority mineral deposits to the various railway alignment options. Many of the deposits do not have existing access roads, and for these deposits the project team used best judgment and known access road options to estimate the length of access roads.

**Table 2C. BC & Yukon Priority Deposits: Distance to Railway Alignments**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**

Property Name		Minfile No.	Distance From and Connection Point to Railway Alignment*			Length of New Access Road Required (km)
			3A- Tintina Trench & 6 - Rocky Mt. Trench	3B - Taylor Route & 2 -Dease Lake	1 & 4 Alaska Highway	
<b>Yukon Territory</b>						
Crest		106F 008	530	600	780	330
			Minto	Carmacks	Whitehorse	
Bonnet Plume Coal Field	Illtyd Creek	106E 035	420	490	670	220
	Spaceship	106E 035	420	490	670	220
	Pole	106E 021	415	485	665	215
	Deslaurier	106E 037	440	510	690	240
	Marathon	106E 013	405	475	655	205
	Pan Ocean	106E 036	405	475	655	205
	Garlic Ring	106E 032	405	475	655	205
			Minto	Carmacks	Whitehorse	
Rock River Coal - Sulpetro		095D 026	135	175	90	90
			Lower Post	Hwy 37 Jct.	Irons Cr. (km 975)	
Division Mt.		115H 013	205	20	130	20
			Carmacks	Braeburn	Whitehorse	
Howard's Pass		105I 012	355	355	355	75
			Watson L.	Watson Lake	Watson Lake	
Faro Camp	Grizzly / Dy	105K 101	27	205	208	none
	Grum	105K 056	27	205	208	
	Swim	105K 046	27	205	208	
			Faro	Carmacks	Whitehorse	
Finlayson Lake District	Wolverine	105G 072	200	200	200	15
			Watson Lake	Watson Lake	Watson Lake	
	Kudz Ze Kayah	105G 117	75	240	240	0 - 75
			Ings R. (km 730)	Watson Lake	Watson Lake	
	Fyre (Kona)	105G 034	20	275	275	20
			Ings R. (km 730)	Watson Lake	Watson Lake	
Ice	105G 118	200	200	200	15	
			Watson Lake	Watson Lake	Watson Lake	
Tom & Jason		105O 001 & 105O 019	210	445	575	225 Upgrade N. Canol Rd.
			Ross River	Carmacks	Whitehorse	
Wellgreen		115G 024	325	160	13	none
			Whitehorse	Snag	Quill Cr. (km 275)	
Dawson Range	Casino	115J 028	26	75	140	26 to 115
			Issac Cr. (km 250)	Nisling R. (km 110)	Snag Jct. (km 275)	
	Cash	115I 037	60 or 90	38 or 90	270	90 Upgrade Freegold Rd.
			Selwyn or Carmacks	Kalza Cr. or Carmacks	Whitehorse	
	Minto	115I 021 (115I 022)	22	100	275	
			Minto	Carmacks	Whitehorse	none
Logtung		105B 039	205	13	13	13
			Watson Lake	Swan River	Swan River	
Red Mountain		105C 009	220	105	105	60
			Ross River	Johnson Crossing	Johnson Crossing	

**Table 2C. BC & Yukon Priority Deposits: Distance to Railway Alignments**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**

Property Name	Minfile No.	Distance From and Connection Point to Railway Alignment*			Length of New Access Road Required (km)
		3A- Tintina Trench & 6 - Rocky Mt. Trench	3B - Taylor Route & 2 -Dease Lake	1 & 4 Alaska Highway	
Mactung	105O 002	225	460	590	225 Upgrade N. Canol Rd.
		Ross River	Carmacks	Whitehorse	
<b>British Columbia</b>					
Shaft Creek	104G 015	140	Railway would not be used		70
Kemess North & South	094E 021 & 094E 094	Eddontenajon L/Klappan Rd.	Railway would not be used		60
		Minaret/Bear L	Railway would not be used		
Galore Creek	104G 090, 092 & 094	105	Railway would not be used		0
		Eddontenajon L/Klappan Rd.	Railway would not be used		
Copper Canyon	104G 017	105	Railway would not be used		0
		Eddontenajon L/Klappan Rd.	Railway would not be used		
Red Chris	104H 005	20	Railway would not be used		5
		Eddontenajon L/Klappan Rd.	Railway would not be used		
Adanac	104N 052	125 Jakes Corner		Railway would not be used	25 km upgrade
Storie	104P 062	15	Railway would not be used		10
		Cassiar	Railway would not be used		
Davey Creek Moly	094D 113	95	Railway would not be used		95
		Minaret/Bear L	Railway would not be used		
Cirque	094F 008	280	45	Railway would not be used	50-100
		Takla L.	Ware - Williston L.		
Tulsequah Chief	104K 002	260		Railway would not be used	160
		Jakes Corner			
Mount Klappan	Lost Fox	104H 021	3	Railway would not be used	3
	Hobbit-Broatch	104H 020	Little Klappan R.		
	Summit	104H 022			
Groundhog Coalfield	104A 078, 082 & 085	12	Railway would not be used		12
		Jackson Flats	Railway would not be used		
Thundercloud	104J 043	55	Railway would not be used		5
		Dease Lake	Railway would not be used		
Sustut Coal	094D 039	30	Railway would not be used		30
		Minaret/Bear L	Railway would not be used		
Kutcho Creek	104I 060	110	Railway would not be used		110
		Dease Lake	Railway would not be used		

Notes

\* See Figure 1 for railway alignment distances/ mileages.

### 3.2.4 Step 2D. Property Detail Summaries

From the feasibility studies and estimates made for the priority deposits, individual Property Detail sheets have been compiled and are found in Appendix B. These sheets summarize all pertinent information on the deposit resources and likely mining scenarios, including references and assumptions where required.

### 3.2.5 Step 2E. Potentially Shippable Commodity Inventory

Table 2E provides a summary of the potentially shippable commodities from the priority deposits. This table is a synthesis of the details provided on the individual Property Detail sheets (Appendix B).

*Please note that the summaries shown on Table 2E are total potential shippable commodities from known mineral deposits. These summaries do not address the criteria that will likely be required for these deposits actually to go into production. Likelihood of production is assessed in Phase 3 of this project.*

Figure 3 provides a summary of the total potential annual commodity shipment (if all deposits were in production simultaneously). This is the total mineral industry related commodities averaged over thirty years (see table below). Although this figure does not portray a realistic development scenario, it does highlight the relative significance of key commodities, specifically coal and iron. It should be noted that the feasibility of developing these types of deposits has been limited to date due to lack of low-cost, bulk commodity transportation (e.g., a railway). Therefore, the potential viability of the coal and iron deposits may be substantially different, should a railway be present.

**Table 2D. Summary of Potentially Shippable Bulk Mineral Commodities**

Deposit Type	Total over 30 years		Average over 30 years		
	Yukon	BC	Yukon	BC	Total
Iron (Crest)	450	-	15	0	15
Coal (15)	132	293	4.4	9.8	14.2
Pb-Zn (6)	22.0	3.0	0.73	0.10	0.83
Polymetallic (6)	4.10	2.52	0.14	0.08	0.22
Porphyry Copper (9)	2.95	20.5	0.10	0.68	0.78
Other (6)	0.54	0.50	0.02	0.02	0.03
Totals	611	319	20.4	10.6	31.0

**Table 2E. BC & Yukon Mineral Resource Shippable Commodity Summary**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**

Property Name	Minfile No.	Commodity	Total reported In ground Resource (tonnes)	Mineable Resources, if known or reported (tonnes)	Commodity Grade(s)								Quality of Shippable Commodity Estimate**	Likely Shippable Commodity				Key Data Source(s)
					Cu (%)	Mo (%)	Au (g/t)	Pb (%)	Zn (%)	Other (%)	Other Type	Total Shippable Commodity (tonnes)		Optimum Mining Rate (calc - tpd)	Project Life	Annual Shipment (tonnes)		
<b>Yukon Territory</b>																		
Crest	106F 008	Iron	3,175,147,000	3,016,389,650							43.8%	Fe	3 - Inferred resource only. Pre-feasibility completed in early 1980's	1,219,500,000	15,500	>>30	23,076,923	Canadian Bechtel Ltd (1963) propose 3.5 to 5.0 Mt/yr export. However, modern iron mines frequently ship 15 Mt/yr
Bonnet Plume Coal Field	Illyd Creek	106E 035	Coal	194,325,447	11,904,762								3 - Pre-feasibility completed in early 1980's	10,119,048	2,826	12	840,677	Wright Engineers 1981: Preliminary Feasibility Mining Study.
	Spaceship	106E 035	Coal	157,950,000	23,692,500								5 - 2 holes only, no feasibility	20,138,623	4,735	14	1,408,630	Assumptions based on Illyd Creek pre-feasibility study parameters
	Pole	106E 021	Coal	133,580,000	20,037,000								5 - 2 holes only, no feasibility	17,031,450	4,176	14	1,242,262	Assumptions based on Illyd Creek pre-feasibility study parameters
	Deslaurier	106E 037	Coal	104,630,000	15,694,500								5 - 3 holes only, no feasibility	13,340,325	3,477	13	1,034,307	Assumptions based on Illyd Creek pre-feasibility study parameters
	Marathon	106E 013	Coal	18,400,000	2,760,000								5 - 2 holes only, no feasibility	2,346,000	944	8	280,880	Assumptions based on Illyd Creek pre-feasibility study parameters
	Pan Ocean	106E 036	Coal	47,560,000	7,134,000								5 - 2 holes only, no feasibility	6,063,900	1,925	11	572,583	Assumptions based on Illyd Creek pre-feasibility study parameters
	Garlic Ring	106E 032	Coal	14,150,000	2,122,500								5 - 2 holes only, no feasibility	1,804,125	775	8	230,661	Assumptions based on Illyd Creek pre-feasibility study parameters
Rock River Coal - Sulpetro	095D 026	Sub-bituminous to Lignite Coal	67,000,000	56,000,000									5 - 5 holes only, no feasibility	33,600,000	9,026	18	1,895,449	Primarily calculated from SME Handbook (1992). Assumed washing recovers 60% saleable coal.
Division Mt.	115H 013	Bituminous B Coal	51,595,000	45,826,000	Assume 75% is PCI coal substitute for metallurgical coal						Coal	3 - Project has scoping study complete.	27,500,000		22	1,250,000	Northwest Corp. 2005: Division Mountain Scoping Study.	
Howard's Pass	105I 012	Lead-Zinc	491,500,000	115,500,000				2.08%	5.38%	16	g/t Ag	3 - Inferred resource only. Pre-feasibility completed in early 1980's	14,009,249	15,534	21	659,461	Primarily calculated from O'Hare (1982) and SME Handbook (1992)	
Faro Camp	Grizzly / Dy	105K 101	Lead-Zinc	17,240,000	14,860,000			5.03%	6.49%	74	g/t Ag	3 - Economic study completed in 2002	2,330,889		11.5	202,686	Micom Int'l Ltd. 2002. Economic Study of Faro	
	Grum	105K 056	Lead-Zinc	18,649,000	19,630,000			2.56%	4.27%	43	g/t Ag	2 - Mine previously in production.	1,837,500	4,112	5	367,500	Micom Int'l Ltd. 2002. Economic Study of Faro	
	Swim	105K 046	Lead-Zinc	4,300,000	4,300,000			3.80%	4.70%	42	g/t Ag	4 - Indicated resource, no known feasibility study	490,773	1,317	9	52,594	Primarily calculated from SME Handbook (1992) with actual recoveries from Faro Mill	
Finlayson Lake District	Wolverine	105G 072	Polymetallic	4,989,000	6,400,000	1.33%	1.76	1.55%	12.66%	371	g/t Ag	1 - Environmental Assessment filed	1,400,000	1,472	12	116,667	Yukon Zinc and AXYS Consulting 2005: Environmental Assessment Report	
	Kudz Ze Kayah	105G 117	Polymetallic	11,300,000	9,400,000	0.9%	1.3	1.5%	5.9%	137	g/t Ag	1 - Project permitted	1,492,650		9	165,850	Water Licence Application (Cominco Ltd. 1997)	
	Fyre (Kona)	105G 034	Polymetallic	8,200,000	8,200,000	2.1%	0.73				0.11%	Co	4 - Indicated resource, scoping study done	711,600		4	177,900	Primarily scoping study based on 20 Mt. Reserve (Pacific Ridge Exploration / Columbia Gold website)
	Ice	105G 118	Copper	4,561,863	3,400,000	1.48%							4 - Indicated resource only.	152,740	1,250	8	19,654	Primarily calculated from O'Hare (1982) and using Wolverine milling rate (1,250 tpd)
Tom & Jason	105O 001 & 105O 019	Lead-Zinc	19,835,900	18,366,627				6.91%	7.76%	79	g/t Ag	3 - Pre-feasibility completed in 1985	3,289,635	4500	14	234,974	HBM&S and Aberford Resources feasibility study (1985)	
Wellgreen	115G 024	Ni-Cu	46,700,000	36,500,000	0.350%						0.36%	Ni	3 - Project has 1989 pre-feasibility	500,000	10,000	10	50,000	Watts, Griffis and McQuat 1989: Pre-feasibility Study
Dawson Range	Casino	115J 028	Copper, Gold, Mo	964,000,000	178,200,000	0.303%	0.028%	0.376					3 - Pre-feasibility completed in 1997	2,421,004		25	96,840	Lumina Resources Corp. 2005 website and press releases
	Cash	115I 037	Copper, Mo	36,290,000	34,475,500	0.170%	0.018%						5 - 16 holes only, no feasibility	201,772	6,273	16	12,850	Primarily calculated from O'Hare (1982) and SME Handbook (1992)
	Minto	115I 021 (1)	Copper	8,340,000	7,500,000	1.830%	0.48						1 - mine in permitting & partially constructed	322,800		12	26,900	Orequest 2005: Technical report
Logtung	105B 039	Tungsten, Mo	162,000,000	162,000,000			0.035%				0.13%	WO <sub>3</sub>	3 - Pre-feasibility completed in early 1980's	293,700		30	9,790	D. Eaton (2005), pers. comm. Strategic Metals Ltd.
Red Mountain	105C 009	Molybdenum	187,270,000	46,000,000 (assuming high grade core only)			0.153%						4 - Inferred resource, no feasibility	102,098	7,788	17	6,049.89	Primarily calculated from O'Hare (1982) and SME Handbook (1992)
Mactung	105O 002	Tungsten	13,699,000	12,985,550							0.95%	WO <sub>3</sub>	3 - Measured & indicated resource, no feasibility	140,986		30	4,700	Pers. Comm. With D. Tenney, North American Tungsten Corp (2005)
<b>British Columbia</b>																		
Shaft Creek	104G 015	Copper, Gold, Mo	670,611,000	407,272,000	0.316%	0.021%	0.22						3 - Indicated resource, preliminary assessments	4,109,374	39972.85725	20	205,469	Based on assumptions provided by AMCL, 2004

**Table 2E. BC & Yukon Mineral Resource Shippable Commodity Summary**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**

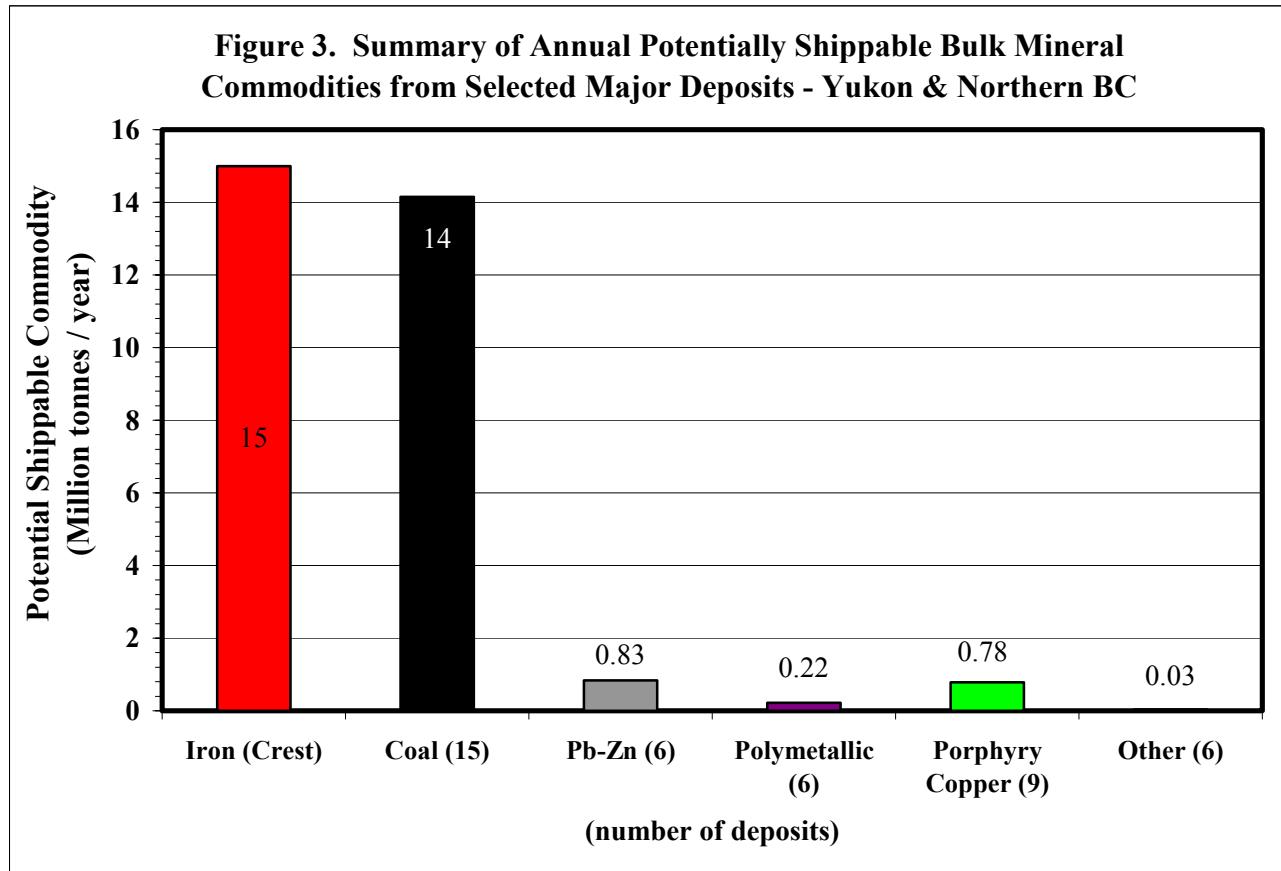
Property Name	Minfile No.	Commodity	Total reported In ground Resource (tonnes)	Mineable Resources, if known or reported (tonnes)	Commodity Grade(s)							Quality of Shippable Commodity Estimate**	Likely Shippable Commodity				Key Data Source(s)	
					Cu (%)	Mo (%)	Au (g/t)	Pb (%)	Zn (%)	Other (%)	Other Type		Total Shippable Commodity (tonnes)	Optimum Mining Rate (calc - tpd)	Project Life	Annual Shipment (tonnes)		
Kemess North & South	094E 021 & 094E 094	Copper, Gold	509,700,906	346,904,000	0.160%		0.35						1 - Kemess South mine in production, Kemess North in permitting	2,042,557		15	136,170	Klohn Crippen 2005 Project Description
Galore Creek	104G 090, 092 & 094	Copper, Gold	516,700,000	475,000,000	0.650%		0.36				4.76	Ag	2 - Mine in environmental assessment	9,924,107		20	496,205	Hatch, 2005. Preliminary economic assessment
Copper Canyon	104G 017	Copper, Gold	146,800,000	132,120,000	0.350%		0.54				7.15	Ag	4 - Inferred reserve only	1,350,266	17182.17751	6	225,044	Assumed similar parameters to Galore Cr.
Red Chris	104H 005	Copper, Gold	871,400,000	276,000,000	0.349%		0.27						2 - Mine in environmental assessment	3,103,773		25	124,151	bcMetals Corp. presentation Sept. 2005
Adanac	104N 052	Molybdenum	225,800,000	150,797,000		0.061%							3 - Bankable feasibility in progress.	171,478		22	7,794	Wardrop 2005
Storie	104P 062	Molybdenum	100,500,000	100,500,000		0.077%							5 - Unclassified reserve only	145,097	13995.11025	21	7,072	Primarily calculated from SME Handbook (1992) and assumed similar parameters to Adanac
Davey Creek Moly	094D 113	Molybdenum	100,000,000	100,000,000		0.100%							5 - Unclassified reserve only	187,500	13942.85714	20	9,150	Primarily calculated from SME Handbook (1992) and assumed similar parameters to Adanac
Cirque	094F 008	Lead-Zinc	24,700,000	18,500,000				2.20%	8.10%	50.50		Ag	2 - Mine development permit issued, but not developed	3,040,280	3500	15	201,316	BC Minfile - feasibility studies could not be located
Tulsequah Chief	104K 002	Polymetallic	6,920,000	6,920,000	1.410%		2.73	1.32%	6.73%	100.8		Ag	1 - Environmental Approval issued	1,200,000	2500	8	150,000	T. Chandler, pers. comm. 2006
Mount Klappan	Lost Fox	104H 021	Anthracite Coal	159,000,000	106,300,000	Metallurgical grade						Coal	3 - Feasibility study complete	60,000,000	14,597	20	3,000,000	Marston 2005.
	Hobbit-Broatch	104H 020	Anthracite Coal	405,700,000	223,000,000	Metallurgical grade						Coal	4 - Reserve only	115,960,000	25,444	25	4,630,755	Assumed similar parameters to Mt. Klappan - Lost Fox
	Summit	104H 022	Anthracite Coal	41,400,000	22,770,000	Metallurgical grade						Coal	4 - Reserve only	11,840,400	4,596	14	836,461	Assumed similar parameters to Mt. Klappan - Lost Fox
Groundhog Coalfield	104A 078, 082 & 085	Anthracite Coal	48,187,685	26,503,227	Metallurgical grade						Coal	5 - Inferred Reserve only	18,022,194	5,150	15	1,225,753	Wedman 2005 property report and assumed parameters similar to Mt. Klappan	
Thundercloud	104J 043	Bituminous Coal	200,000,000	110,000,000	Thermal grade						Coal	5 - Inferred Reserve only	66,000,000	14,976	21	3,144,963	Primarily calculated from SME Handbook (1992) and assumptions from other coal projects	
Sustut Coal	094D 039	Sub-Bituminous Coal	63,000,000	34,650,000	Thermal grade						Coal	5 - Inferred Reserve only	20,790,000	6,297	16	1,322,356	Primarily calculated from SME Handbook (1992) and assumptions from other coal projects	
Kutcho Creek	104I 060	Polymetallic	15,181,000	14,200,000	1.750%		0.34		2%	28.9		Ag	3 - Old pre-feasibility only, new feasibility in progress	1,320,000	4000	10	132,000	2004 Technical report that summarizes 1985 pre-feasibility.

Notes:

*Italics indicated no feasibility or pre-feasibility study data available; values are calculated for this study using SME Handbook (Hartman 1992) and O'Hare (1980):*

\*\* Quality of Resource Estimate / Advancement of project codes as follows:

- 1 Mine in permitting or construction
- 2 Project has feasibility study completed
- 3 Project has pre-feasibility study complete or old/limited feasibility study
- 4 Project has well defined reserve, but no feasibility study
- 5 Deposit is poorly defined and not an advanced project.



### 3.2.5.1 Iron

The Crest Iron deposit is by far the most significant commodity from a potential tonnage shipped perspective. Historical feasibility studies (1965) on the Crest have suggested shipping on the order of 3,500,000 to 5,000,000 tonnes of iron ore concentrate annually. However, this low a production rate would be unlikely under modern day economic conditions. By way of context, modern iron mines in Labrador ship on the order of 15 Mt annually. Therefore, for this study, we have assumed that the Crest iron deposit, if developed, would ship on the order of 15,000,000 tonnes of iron ore concentrate on an annual basis. Given this, the Crest iron represents almost 50% of the potentially shippable mineral commodities from Yukon and Northern BC.

### **3.2.5.2 Coal**

Coal represents the second most significant commodity that could be shipped via the railway. In the Yukon, only the Division Mt. (near Braeburn) and the Illtyd Creek deposits (Bonnet Plume) have been assessed in sufficient detail to determine realistic shippable coal quantities. The remaining coal deposits (Bonnet Plume Basin and Rock River Basin) all have had extremely low levels of evaluation, and as such, shippable quantities of coal emanating from these deposits should be viewed with caution. This situation is true in Northern B.C. where the Mt. Klappan-Lost Fox deposit is the only coal deposit assessed at any reasonable level of detail. Furthermore, it is not realistic to assume that *all* coal deposits (as suggested by Figure 1) would be developed simultaneously even if a railway were present. Therefore, actual coal shipped, should the railway be built and the mines be economically viable, would be less than 15 Mt/yr: 3 to 5 Mt/yr in-aggregate would likely be more realistic.

### **3.2.5.3 Base Metals**

Base metals (lead, zinc, copper, etc) only account for 5% of the total potentially shippable mineral commodities from the Yukon. Therefore, relative to iron and coal, base metals do not represent a significant quantity of bulk shippable commodity.

### 3.3 Phase 3. Probability of Mine Development and Shipment Quantities

The last phase of the rail traffic data development for mineral resources assessment consists of determining the probability of mines going into production over the next 30 years (and thereby shipping outbound commodities) for three scenarios controlled by mineral prices

- Pessimistic
- Conservative
- Optimistic

Under each scenario, an annual potentially shippable tonnage is reported.

The criterion for potential economic feasibility<sup>1</sup> (e.g., probability of mine development) is the following simple mining engineering rule-of-thumb. This assessment criterion is used by many in the mineral industry when conducting preliminary or high-level deposit evaluation:

$$\text{Net Ore Value} > 2 \times \text{Mine Operating Cost}$$

This relationship assumes that the difference between the operating cost and the net ore value must be sufficient to cover transportation, recuperation of capital and profits. Net ore value is the value of the ore *in-situ*, after mining and milling recovery losses and smelting charges are deducted (see Tables 3C).

#### 3.3.1 Step 3A. Compile Likely Mine Operating Costs

Mine operating costs consist of mining, milling and general and administration (including power) costs for mine operation. They do not include transportation, smelting or recovery of capital costs. Operating costs were compiled from pre-feasibility or feasibility studies of the various deposits, if such studies existed. These costs were updated to 2005 Canadian dollars.

For deposits where feasibility studies do not exist or could not be located, mine operating costs were estimated using mining engineering costing guidelines. Specifically, mining and mill operating costs

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<sup>1</sup> *DISCLAIMER: The information presented in these tables does not represent a comprehensive feasibility assessment of any mineral deposit. These data are presented as a long-term planning exercise for estimating potential shippable mineral commodities as part of the railway feasibility traffic assessment. Results of this assessment in no way indicate the feasibility of any particular given deposit.*

were estimated using the SME Mining Engineering Handbook (Hartman 1992)<sup>2</sup>. General, administration and power costs were estimated using the methods presented by O'Hara, 1980.<sup>3</sup>

An analysis of the mine operating costs predicted by these methods relative to mine operating costs reported in pre-feasibility and feasibility studies showed that the estimating method presented in the SME Handbook gave a better match for mining and milling costs; where the general, administration and power operating cost estimates matched better using the O'Hara methods. Mine operating costs were estimated for eight properties (six open-pit, two underground mines) in the study area where operating costs have already been reported in various feasibility studies. On average, it was found that the operating costs estimated using the method outlined above was within 5% of the reported operating costs. This provides confidence that the operating cost estimates developed for this assessment should be within the overall project margin of error.

Specific details on the assumptions used or data sources regarding the mine operating costs are provided on the individual Property Details sheets found in Appendix B.

### 3.3.2 Step 3B. Long Term Metal Price Forecasts

Metal price forecasts used to estimate net ore value varies for each of the three metal price scenarios. The metal price used is the median price over the planning period (e.g., 30 years) for each of the three price projection scenarios. The discussions of the historical metal prices and price forecasts are presented in Appendix C2. *It should be noted that the price forecasts presented for this study do not represent a comprehensive market analysis; rather they are a simple regression of historical price trends projected into the future.* The review of historical metal prices and global commodity economics support this approach as reasonable for a long-term planning.

It is recommended that a more rigorous price forecast prepared by groups specializing in commodity forecasts be completed as part of any future feasibility assessment work. This work would examine the likelihood of production based on a given deposit's estimated position on the cost curve at the time of proposed production, a much better indicator of likely production. Such a study was outside the scope of this report.

For each metal price forecast, a simple regression through the historical data is projected forward 30 years. This is assumed to represent the "Conservative" price scenario. The historical standard deviation from this regression is used to determine the "Pessimistic" and "Optimistic" price scenarios: one standard

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<sup>2</sup> O'Hara, T.A. and S.C. Suboleski, 1992: *Cost and Cost Estimation, Chapter 6.3.* in *SME Mining Engineering Handbook, 2nd Edition.* H.L. Hartman (ed.). Society for Mining, Metallurgy and Exploration Inc., Littleton, CO.

<sup>3</sup> O'Hara, T.A. 1980: *Quick guides to the evaluation of orebodies. Risk analysis in mining.* In *CIM Bulletin, February 1980.*

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deviation *below* the extrapolated regression is the “Pessimistic” metal price scenario; and one standard deviation *above* the extrapolated regression is the “Optimistic” price scenario.

A review of historical metal prices and global commodity economics is provided in Appendix C1.

The conclusion, based on this review is that market fundamentals as they relate to mineral development in the past will be a useful guide to the future.

### 3.3.3 Step 3C. Net Ore Value

Table 3C provides summaries of deposit details utilized for the assessment of likelihood of mine development. The tables contain the following information:

- Commodity Grades
- Mine Operating Costs
- Commodity Recovery
- Net Ore Value

Three version of the deposit summaries tables are provided representing the three metal price scenarios discussed above: Pessimistic, Conservative and Optimistic.

Net ore value is the dollar value of a unit of ore mined, after recovery losses and smelter charges. Specifically, the formula used to estimate net ore value is as follows:

$$\text{Ore Value} = \text{Metal Price (\$/tonne)} \times \text{commodity grade (\%)} \times \text{recovery (\%)} \times (1 - \text{Smelter Charge (\%)})$$

If multiple metals are contained in the ore concentrate, the net ore value is the sum of the above formula for each metal.

- ***Metal Price***

Metal price used to estimate net ore value varies for each of the three metal price scenarios. The metal prices used for each scenario is presented in the sub-table at the top of each summary table.

- ***Commodity Grade and Milling Recovery***

Commodity grades and milling recovery are summarized for each metal and are deposit specific. Details on commodity grades and recoveries are from the individual Property Details sheets provided in Appendix B.

- ***Smelter Charges***

Smelting charges for metals are complex and include a variety of factors including base charges, refining fees, penalties and payments for various impurities, grades and contained metals. The net smelting charges (if mined) vary from deposit to deposit, but can be generalized on a metal and deposit type basis. The smelting charges have been simplified to a percentage of the ore value. The simplified smelting charges have been compiled from those reported in various feasibility studies and are presented in the sub-table at the top of each summary table.



**Table 3C. Mineral Deposit Potential Value - Conservative Price Scenario**  
Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



**Assumed Forecast Commodities Prices - Conservative Case**

Assumed US-Cdn Exchange Rate: 0.8

Prices	Metric	Unit	Conventional	Unit	Comment		
Iron Pellets (Fe)	\$	53.00	SC/tonne	\$	42.40	US/tonne	Note: Pellet prices typically 38% higher than "total" iron ore price. Price is F.O.B.
Coal (Total)	\$	28.03	SC/tonne	\$	22.42	US/tonne	All coal prices at mine gate.
Coal - Lignite (37%)	\$	10.37	SC/tonne	\$	8.30	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Sub-bituminous (46%)	\$	12.89	SC/tonne	\$	10.31	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Bituminous (124%)	\$	34.75	SC/tonne	\$	27.80	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Anthracite (179%)	\$	50.16	SC/tonne	\$	40.13	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Metallurgical (165%)	\$	45.40	SC/tonne	\$	36.32	US/tonne	Average difference between thermal and metallurgical coal in BC:1973-2000
Cu	\$	2,423.75	SC/tonne	\$	0.88	US/lb	Price at smelter.
Mo	\$	6,310.00	SC/tonne	\$	5.05	US/kg	Price at smelter.
Au	\$	12.17	SC/gram	\$	302.79	US/oz	
Pb	\$	835.00	SC/tonne	\$	0.30	US/lb	Price at smelter.
Zn	\$	1,537.50	SC/tonne	\$	0.56	US/lb	Price at smelter.
WO3	\$	10,427.50	SC/tonne	\$	91.95	US/short ton	Conventionally priced as 1% WO3. Price at smelter.
Ni	\$	9,156.25	SC/tonne	\$	3.33	US/lb	Price at smelter.
Pd	\$	5.06	SC/gram	\$	125.85	US/oz	Assumed value
Pt	\$	17.70	SC/gram	\$	440.48	US/oz	Assumed value
Ag	\$	0.20	SC/gram	\$	4.98	US/oz	

Assumed Smelting/Refining Charges	Data Source
Cu (in massive sulfide ores)	29% Finlayson Project - Hatch 2000
Cu (in porphyry ores)	16% Hatch 2005 (Galore Cr.)
Mo	9% Wardrop 2005 (Adanac)
Pb	30% Finlayson Project - Hatch 2000
Zn	48% Finlayson Project - Hatch 2000
Ni	16% Wellgreen - Watts, Griffiths and McQuat 1989
WO3	5% Unknown, assumed

\* Ore Value = Metal Price (\$/tonne) x commodity grade (%) x recovery (%) x (1 - Smelter Charge (%))

Property Name	Minfile No.	Commodity	Commodity Grade(s)							Mining & Milling Opex			Recovery					Ore Value / Tonne Mined - Conservative Scenario*											
			Cu (%)	Mo (%)	Au (g/t)	Pb (%)	Zn (%)	Other (%)	Other Type	Opex (\$/tonne)	Mine Type	Source	Cu	Mo	Au	Pb	Zn	Other	Other Type	Cu	Mo	Au	Pb	Zn	Other	Other Type	Net Ore Value		
Crest (Modern Costing)	106F 008	Iron	0	0	0	0	0	44%	Fe	\$ 8.30	open pit	Calculated					60%	Fe							\$ 13.93	Fe	\$ 13.93		
Crest (1965 Feasibility Study)	106F 008	Iron	0	0	0	0	0	44%	Fe	\$ 16.76	open pit	Canadian Bechtel Corp. 1965					60%	Fe							\$ 13.93	Fe	\$ 13.93		
Bonnet Plume Coal Field	Illtyd Creek	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
	Spaceship	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
	Pole	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
	Deslaurier	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
	Marathon	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
	Pan Ocean	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
	Garlic Ring	Coal	0	0	0	0	0	0	0	\$ 22.80	open pit	Assumed					85%	Coal							\$ 29.54	Coal	\$ 29.54		
Rock River Coal - Sulpetro	095D 026	Sub-bituminous to L	0	0	0	0	0	0	0	\$ 18.18	open pit	Assumed					60%	Coal							\$ 7.73	Coal	\$ 7.73		
Division Mt.	115H 013	Bituminous B Coal	Assume 75% is PCI coal substitute for metallurgical coal							\$ 10.40	open pit	Northwest Corp., 2005					60%	Coal							\$ 25.64	Coal	\$ 25.64		
Howard's Pass	1051 012	Lead-Zinc	0	0	0	2.08%	5.4%	16	g/t Ag	\$ 13.94	open pit	Calculated			87%	86%	76%	Ag (Assumed from Tom & Jason)			\$10.58	\$ 36.99	\$ 1.73			\$ 13.93	Ag	\$ 49.30	
Faro Camp	Grizzly / Dy	Lead-Zinc	0	0	0	5.03%	6.5%	74.3	g/t Ag	\$ 59.37	u/g	Calculated			77%	71%	76%	from Tom & Jason			\$22.55	\$ 37.00	\$ 8.03			\$ 67.57		\$ 67.57	
	Grum	Lead-Zinc	0	0	0	2.56%	4.3%	43.3	g/t Ag	\$ 18.30	open pit	Calculated			77%	71%	76%				\$11.48	\$ 24.34	\$ 4.68			\$ 40.50		\$ 40.50	
	Swim	Lead-Zinc	0	0	0	3.80%	4.7%	42	g/t Ag	\$ 30.00	open pit	Calculated			77%	71%	76%				\$17.04	\$ 26.79	\$ 4.54			\$ 48.36		\$ 48.36	
Finlayson Lake District	Wolverine	Polymetallic	1.33%	0	1.76	1.55%	12.7%	371	g/t Ag	\$ 61.26	u/g	Hatch 2000	78%	65%	48%	87%	82%	Ag	\$17.85	\$ 9.75	\$ 4.35	\$ 88.06	\$ 43.24			\$ 163.25	Ag	\$ 163.25	
	Kudz Ze Kayah	Polymetallic	0.90%	0	1.3	1.50%	5.9%	137	g/t Ag	\$ 38.00	open pit	Hatch 2000	82%	67%	75%	91%	80%	Ag	\$12.70	\$ 7.42	\$ 6.58	\$ 42.93	\$ 15.58			\$ 85.20	Ag	\$ 85.20	
	Fyre (Kona)	Polymetallic	2.10%	0	0.73	0	0	0.11%	Co	\$ 27.11	o/p (+ u/g)	Calculated	90%	65%			80%	Co	\$32.52	\$ 4.04					\$ 12.94	Co, assumed SC 21/kg	\$ 49.50		
	Ice	Copper	1.48%	0	0	0	0	0	0	\$ 34.50	open pit	Calculated	89%						\$22.67							\$ 22.67		\$ 22.67	
Tom & Jason	1050 001 & 1050 002	Lead-Zinc	0.0%	0	0	6.91%	7.8%	78.514253	g/t Ag	\$ 70.22	u/g	HBM&S & Aberford Resources 1985			91%	79%	76%	Ag			\$36.75	\$ 49.01	\$ 8.48			\$ 94.25		\$ 94.25	
Wellgreen	115G 024	Ni-Cu	0.35%	0	0	0	0	0.36%	Ni	\$ 26.69	open pit	Watts, Griffiths and McQuat Limited. 1989	92%				82%	0	\$ 6.56					\$ 28.84	Ni, inc. PGE (not shown)	\$ 35.40			
Dawson Range	Casino	Copper, Gold, Mo	0.30%	0.028%	0.376	0	0	0	0	\$ 8.66	open pit	Calculated	80%	62%	72%				\$ 4.94	\$ 1.00	\$ 2.77					\$ 8.70		\$ 8.70	
	Cash	Copper, Mo	0.17%	0.018%	0.2	0	0	0	0	\$ 16.29	open pit	Calculated	71%	62%	72%				\$ 2.46	\$ 0.64	\$ 1.47					\$ 4.57		\$ 4.57	
	Minto	Copper	1.83%	0	0.48	0	0	0	0	\$ 25.82	open pit	Hatch 2000	94%		91%				\$35.02	\$ 4.47						\$ 39.49		\$ 39.49	
Logtung	105B 039	Tungsten, Mo	0%	0.035%	0	0	0	0.13%	WO3	\$ 14.06	open pit	Calculated		77%			75%	WO3		\$ 1.55				\$ 9.66	WO3	\$ 11.21			
Red Mountain	105C 009	Molybdenum	0%	0.153%	0	0	0	0	0	\$ 10.30	open pit	Calculated		87%					\$ 7.64							\$ 7.64		\$ 7.64	
Mactung	105O 002	Tungsten	0%	0	0	0	0	0.95%	WO3	\$ 79.90	u/g	Cantung costs					80%	WO3					\$ 75.29	WO3	\$ 75.29		\$ 75.29		
Shaft Creek	104G 015	Copper, Gold, Mo	0.32%	0.021%	0.223	0	0	0	0	\$ 6.20	open pit	AMCL 2004	93%	70%	70%				\$ 5.98	\$ 0.84	\$ 1.60					\$ 8.42		\$ 8.42	
Kemess North & South	094E 021 & 094E 022	Copper, Gold	0.16%	0	0.353	0	0	0	0	\$ 4.80	open pit	Klohn Crippen 2005	89%		65%				\$ 2.90		\$ 2.35					\$ 5.24		\$ 5.24	
Galore Creek	104G 090, 092 & 092 093	Copper, Gold	0.65%	0.000%	0.36	0	0	4.76	Ag	\$ 7.98	open pit	Hatch 2005	90%		60%		70.00%	Ag	\$11.91		\$ 2.21			\$ 0.56	Ag	\$ 14.68		\$ 14.68	
Copper Canyon	104G 017	Copper, Gold	0.35%	0.000%	0.54	0	0	7.15	Ag	\$ 7.98	open pit	Assumed from Galore Cr.	90%		70%		70.00%	Ag	\$ 6.41		\$ 3.86			\$ 0.84	Ag	\$ 11.12		\$ 11.12	
Red Chris	104H 005	Copper, Gold	0.35%	0	0.266	0	0	0.00%	0	\$ 6.79	open pit	bcMetals 2005	73%		59%		54%	Ag	\$ 5.19		\$ 1.60					\$ 6.79		\$ 6.79	
Adanac	104N 052	Molybdenum	0.00%	0.061%	0	0	0	0.00%	0	\$ 10.39	open pit	Wardrop 2005		90%					\$ 3.15							\$ 3.15		\$ 3.15	
Storie	104P 062	Molybdenum	0.00%	0.077%	0	0	0	0	0	\$ 12.23	open pit	Calculated		90%					\$ 3.98							\$ 3.98		\$ 3.98	
Davey Creek Moly	094D 113	Molybdenum	0.00%	0.100%	0	0	0	0	0	\$ 12.07	open pit	Calculated		90%					\$ 5.17							\$ 5.17		\$ 5.17	
Cirque	094F 008	Lead-Zinc	0.00%	0	0	2%	8%	50.5	Ag	\$ 31.85	open pit	Calculated				91%	79%	76%	Ag			\$11.70	\$ 51.16	\$ 5.46			\$ 68.32		\$ 68.32
Tulsequah Chief	104K 002	Polymetallic	1%		2.73	1%	7%	100.8	Ag	\$ 59.40	u/g	Calculated	88%	65%	51%	88%	82%	Ag	\$21.35		\$ 15.12	\$ 3.93	\$ 47.35	\$ 11.75	Ag	\$ 99.50		\$ 99.50	
Mount Klappan	Lost Fox	Anthracite Coal	Metallurgical grade							Coal	\$ 37.16	open pit	Calculated					52%	Coal					\$ 23.61	Coal	\$ 23.61			
	Hobbit-Broatch	Anthracite Coal	Metallurgical grade							Coal	\$ 37.16	open pit	Assumed					52%	Coal					\$ 23.61	Coal	\$ 23.61			
	Summit	Anthracite Coal	Metallurgical grade							Coal	\$ 37.16	open pit	Assumed					52%	Coal					\$ 23.61	Coal	\$ 23.61			
Groundhog Coalfield	104A 078, 082 & 082 083	Anthracite Coal	Metallurgical grade	0.000%	0	0	0	0	0	\$ 28.50	open pit	Assumed					68%	Coal						\$ 30.87	Coal	\$ 30.87			
Thundercloud	104J 043	Bituminous Coal	Thermal grade	0.000%	0	0	0	0	0	\$ 32.00	open pit	Assumed					60%	Coal						\$ 20.85	Coal	\$ 20.85			
Sustut Coal	094D 039	Sub-Bituminous Coal	Thermal grade	0	0	0	0	0	0	\$ 32.00	open pit	Assumed					60%	Coal					\$ 7.73	Coal	\$ 7.73				
Kutcho Creek	104I 060	Polymetallic	2%		0.34	0	2%	28.9	Ag	\$ 29.40																			

**Table 3C. Mineral Deposit Potential Value - Optimistic Price Scenario**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**



**Assumed Forecast Commodities Prices - Optimistic Price Case**

Assumed US-Cdn Exchange Rate: 0.8

Prices	Metric	Unit	Conventional	Unit	Comment
Iron Pellets (Fe)	\$ 63.00	SC/tonne	\$ 50.40	US/tonne	Note: Pellet prices typically 38% higher than "total" iron ore price. Price is F.O.B.
Coal (Total)	\$ 47.76	SC/tonne	\$ 38.21	US/tonne	All coal prices at mine gate.
Coal - Lignite (37%)	\$ 17.67	SC/tonne	\$ 14.14	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Sub-bituminous (46%)	\$ 21.97	SC/tonne	\$ 17.58	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Bituminous (124%)	\$ 59.23	SC/tonne	\$ 47.38	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Anthracite (179%)	\$ 85.49	SC/tonne	\$ 68.40	US/tonne	Correlation with "Total" coal price since 1960 (EIA 2005). Price at mine gate.
Coal - Metallurgical (165%)	\$ 77.38	SC/tonne	\$ 61.90	US/tonne	Average difference between thermal and metallurgical coal in BC:1973-2000
Cu	\$ 3,483.75	SC/tonne	\$ 1.27	US/lb	Price at smelter.
Mo	\$ 18,351.25	SC/tonne	\$ 14.68	US/kg	Price at smelter.
Au	\$ 22.11	SC/gram	\$ 550.08	US/oz	
Pb	\$ 1,308.75	SC/tonne	\$ 0.48	US/lb	Price at smelter.
Zn	\$ 2,091.25	SC/tonne	\$ 0.76	US/lb	Price at smelter.
WO3	\$ 25,576.25	SC/tonne	\$ 225.54	US/short ton	Conventionally priced as 1% WO3. Price at smelter.
Ni	\$ 13,562.50	SC/tonne	\$ 4.93	US/lb	Price at smelter.
Pd	\$ 6.32	SC/gram	\$ 157.31	US/oz	Assumed value
Pt	\$ 22.76	SC/gram	\$ 566.33	US/oz	Assumed value
Ag	\$ 0.51	SC/gram	\$ 12.75	US/oz	

Assumed Smelting/Refining Charges	Data Source
Cu (in massive sulfide ores)	29% Finlayson Project - Hatch 2000
Cu (in porphyry ores)	16% Hatch 2005 (Galore Cr.)
Mo	9% Wardrop 2005 (Adanac)
Pb	30% Finlayson Project - Hatch 2000
Zn	48% Finlayson Project - Hatch 2000
Ni	16% Wellgreen - Watts, Griffiths and McQuat 1989
WO3	5% Unknown, assumed

\* Ore Value = Metal Price (\$/tonne) x commodity grade (%) x recovery (%) x (1 - Smelter Charge (%))

Property Name	Minfile No.	Commodity	Commodity Grade(s)							Mining & Milling Opex				Recovery						Ore Value / Tonne Mined - Optimistic Scenario*								
			Cu (%)	Mo (%)	Au (g/t)	Pb (%)	Zn (%)	Other (%)	Other Type	Opex (\$/tonne)	Mine Type	Source	Cu	Mo	Au	Pb	Zn	Other	Other Type	Cu	Mo	Au	Pb	Zn	Other	Other Type	Net Ore Value	
Crest (Modern Costing)	106F 008	Iron	0	0	0	0	0	44%	Fe	\$ 8.30	open pit	Calculated					60%	Fe							\$ 16.56	Fe	\$ 16.56	
Crest (1965 Feasibility Study)	106F 008	Iron	0	0	0	0	0	44%	Fe	\$ 16.76	open pit	Canadian Bechtel Corp. 1965					60%	Fe							\$ 16.56	Fe	\$ 16.56	
Bonnet Plume Coal Field	Illtyd Creek	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
	Spaceship	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
	Pole	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
	Deslaurier	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
	Marathon	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
	Pan Ocean	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
	Garlic Ring	Coal	0	0	0	0	0	0		\$ 22.80	open pit	Assumed					85%	Coal							\$ 50.34	Coal	\$ 50.34	
Rock River Coal - Sulpetro	095D 026	Sub-bituminous to L	0	0	0	0	0	0		\$ 18.18	open pit	Assumed					60%	Coal							\$ 13.18	Coal	\$ 13.18	
Division Mt.	115H 013	Bituminous B Coal	Assume 75% is PCI coal substitute for metallurgical coal							Coal	\$ 10.40	open pit	Northwest Corp., 2005					60%	Coal						\$ 43.70	Coal	\$ 43.70	
Howard's Pass	105I 012	Lead-Zinc	0	0	0	2.08%	5.4%	16	g/t Ag	\$ 13.94	open pit	Calculated					87%	Ag	(Assumed						\$16.58	\$ 50.31	\$ 4.42	\$ 71.32
Faro Camp	Grizzly / Dy	Lead-Zinc	0	0	0	5.03%	6.5%	74.3	g/t Ag	\$ 59.37	u/g	Calculated					77%	Ag	from Tom &						\$35.34	\$ 50.32	\$ 20.55	\$ 106.21
	Grum	Lead-Zinc	0	0	0	2.56%	4.3%	43.3	g/t Ag	\$ 18.30	open pit	Calculated					77%	Ag	Jason)						\$17.99	\$ 33.11	\$ 11.97	\$ 63.07
	Swim	Lead-Zinc	0	0	0	3.80%	4.7%	42	g/t Ag	\$ 30.00	open pit	Calculated					77%	Ag							\$26.70	\$ 36.44	\$ 11.61	\$ 74.76
Finlayson Lake District	Wolverine	Polymetallic	1.33%	0	1.76	1.55%	12.7%	371	g/t Ag	\$ 61.26	u/g	Hatch 2000	78%		65%	48%	87%	82%	Ag	\$25.66	\$ 17.71	\$ 6.82	\$ 119.77	\$ 110.70	Ag	\$ 280.65		
	Kudz Ze Kayah	Polymetallic	0.90%	0	1.3	1.50%	5.9%	137	g/t Ag	\$ 38.00	open pit	Hatch 2000	82%		67%	75%	91%	80%	Ag	\$18.25	\$ 13.48	\$10.31	\$ 58.39	\$ 39.88	Ag	\$ 140.31		
	Fyre (Kona)	Polymetallic	2.10%	0	0.73	0	0	0.11%	Co	\$ 27.11	o/p (+ u/g)	Calculated	90%		65%			80%	Co	\$46.75	\$ 7.34			\$ 12.94	Co, assumed	\$ 67.03		
	Ice	Copper	1.48%	0	0	0	0	0		\$ 34.50	open pit	Calculated	89%							\$32.58							\$ 32.58	
Tom & Jason	105O 001 & 105	Lead-Zinc	0.0%	0	0	6.91%	7.8%	78.514253	g/t Ag	\$ 70.22	u/g	HBM&S & Aberford Resources 1985					91%	79%	76%	Ag					\$57.61	\$ 66.67	\$ 21.71	\$ 145.98
Wellgreen	115G 024	Ni-Cu	0.35%	0	0	0	0	0.36%	Ni	\$ 26.69	open pit	Watts, Griffiths and McQuat Limited. 1989	92%					82%	0	\$ 9.42					\$ 41.49	Ni, inc. PGE (not shown)	\$ 50.91	
Dawson Range	Casino	Copper, Gold, Mo	0.30%	0.028%	0.376	0	0	0		\$ 8.66	open pit	Calculated	80%	62%	72%					\$ 7.09	\$ 2.90	\$ 5.03					\$ 15.02	
	Cash	Copper, Mo	0.17%	0.018%	0.2	0	0	0		\$ 16.29	open pit	Calculated	71%	62%	72%					\$ 3.53	\$ 1.86	\$ 2.67					\$ 8.07	
	Minto	Copper	1.83%	0	0.48	0	0	0		\$ 25.82	open pit	Hatch 2000	94%		91%					\$50.34	\$ 8.11						\$ 58.45	
Logtung	105B 039	Tungsten, Mo	0%	0.035%	0	0	0	0.13%	WO3	\$ 14.06	open pit	Calculated			77%			75%	WO3	\$ 4.50				\$ 23.69	WO3	\$ 28.19		
Red Mountain	105C 009	Molybdenum	0%	0.153%	0	0	0	0		\$ 10.30	open pit	Calculated			87%					\$22.23							\$ 22.23	
Mactung	105O 002	Tungsten	0%	0	0	0	0	0.95%	WO3	\$ 79.90	u/g	Cantung costs						80%	WO3					\$ 184.66	WO3	\$ 184.66		
Shaft Creek	104G 015	Copper, Gold, Mo	0.32%	0.021%	0.223	0	0	0		\$ 6.20	open pit	AMCL 2004	93%	70%	70%					\$ 8.60	\$ 2.45	\$ 2.90					\$ 13.95	
Kemess North & South	094E 021 & 094	Copper, Gold	0.16%	0	0.353	0	0	0		\$ 4.80	open pit	Klohn Crippen 2005	89%		65%					\$ 4.17		\$ 4.26					\$ 8.43	
Galore Creek	104G 090, 092 &	Copper, Gold	0.65%	0.000%	0.36	0	0	4.76	Ag	\$ 7.98	open pit	Hatch 2005	90%		60%			70.00%	Ag	\$17.12		\$ 4.01		\$ 1.43	Ag	\$ 22.57		
Copper Canyon	104G 017	Copper, Gold	0.35%	0.000%	0.54	0	0	7.15	Ag	\$ 7.98	open pit	Assumed from Galore Cr.	90%		70%			70.00%	Ag	\$ 9.22		\$ 7.02		\$ 2.15	Ag	\$ 18.39		
Red Chris	104H 005	Copper, Gold	0.35%	0	0.266	0	0	0.00%		\$ 6.79	open pit	bcMetals 2005	73%		59%			54%	Ag	\$ 7.46		\$ 2.91					\$ 10.37	
Adanac	104N 052	Molybdenum	0.00%	0.061%	0	0	0	0.00%		\$ 10.39	open pit	Wardrop 2005			90%					\$ 9.17							\$ 9.17	
Storie	104P 062	Molybdenum	0.00%	0.077%	0	0	0	0		\$ 12.23	open pit	Calculated			90%					\$11.57							\$ 11.57	
Davey Creek Moly	094D 113	Molybdenum	0.00%	0.100%	0	0	0	0		\$ 12.07	open pit	Calculated			90%					\$15.03							\$ 15.03	
Cirque	094F 008	Lead-Zinc	0.00%	0	0	2%	8%	50.5	Ag	\$ 31.85	open pit	Calculated						91%	79%	76%	Ag			\$18.34	\$ 69.59	\$ 13.97	\$ 101.89	
Tulsequah Chief	104K 002	Polymetallic	1%		2.73	1%	7%	100.8	Ag	\$ 59.40	u/g	Calculated	88%		65%	51%	88%	82%	Ag	\$30.69	\$ 27.46	\$ 6.17	\$ 64.40	\$ 30.08	Ag	\$ 158.80		
Mount Klappan	Lost Fox	Anthracite Coal	Metallurgical grade							Coal	\$ 37.16	open pit	Calculated						52%	Coal					\$ 40.24	Coal	\$ 40.24	
	Hobbit-Broach	Anthracite Coal	Metallurgical grade							Coal	\$ 37.16	open pit	Assumed						52%	Coal					\$ 40.24	Coal	\$ 40.24	
	Summit	Anthracite Coal	Metallurgical grade							Coal	\$ 37.16	open pit	Assumed						52%	Coal					\$ 40.24	Coal	\$ 40.24	
Groundhog Coalfield	104A 078, 082 &	Anthracite Coal	Metallurgical	0.000%	0	0	0	0	0	\$ 28.50	open pit	Assumed							68%	Coal					\$ 52.62	Coal	\$ 52.62	
Thundercloud	104J 043	Bituminous Coal	Thermal grade	0.000%	0	0	0	0	0	\$ 32.00	open pit	Assumed							60%	Coal					\$ 35.54	Coal	\$ 35.54	
Sustut Coal	094D 039	Sub-Bituminous Coal	Thermal grade	0	0	0	0	0	0	\$ 32.00	open pit	Assumed							60%	Coal					\$ 13.18	Coal	\$ 13.18	
Kutcho Creek	104I 060	Polymetallic	2%		0.34	0	2%	28.9	Ag	\$ 29.40	open pit	Marr and Holbek 2004	85%		35%		80%	53%	Ag	\$36.79	\$ 1.84	\$ -	\$ 21.49	\$ 5.57	Ag	\$ 65.70		

Notes: \* Ore Value = Metal Price (\$/tonne) x commodity grade (%) x recovery (%) x (1 - Smelter Charge (%))

### **3.3.4 Step 3D. Simple Potential Economic Feasibility**

Table 3D provides simple potential economic feasibility for each deposit of the three metal price scenarios: Pessimistic, Conservative and Optimistic. A discussion of the derivation of metal price scenarios is provided in Appendix C.

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**Table 3D. Potential Feasibility of Mine Development**  
Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources

*DISCLAIMER: The information presented on this table does not represent a comprehensive feasibility assessment of any mineral deposit. These data are presented as a long-term planning exercise for estimating potential shippable mineral commodities as part of the railway feasibility traffic assessment. Results of this assessment in no way indicate the feasibility of any particular given deposit.*

**Assumed Criteria for Mine Feasibility is: Net Ore Value >2x Mining Operating Cost**

Property Name	Minfile No.	Commodity	Mining & Milling Opex			Ore Value Under Scenario:			Potential Development?			
			Opex (\$/tonne)	Mine Type	Source	Pessimistic	Conservative	Optimistic	Pessimistic	Conservative	Optimistic	
Crest (Modern Costing)	106F 008	Iron	\$ 8.30	open pit	Calculated	\$ 11.69	\$ 13.93	\$ 16.56	No	No	No	
Crest (1965 Feasibility Study)	106F 008	Iron	\$ 16.76	open pit	Canadian Bechtel Corp. 1965	\$ 11.69	\$ 13.93	\$ 16.56	No	No	No	
Bonnet Plume Coal Field	Illtyd Creek	106E 035	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
	Spaceship	106E 035	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
	Pole	106E 021	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
	Deslaurier	106E 037	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
	Marathon	106E 013	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
	Pan Ocean	106E 036	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
	Garlic Ring	106E 032	Coal	\$ 22.80	open pit	Assumed	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES
Rock River Coal - Sulpetro	095D 026	Sub-bituminous to L	\$ 18.18	open pit	Assumed	\$ 2.29	\$ 7.73	\$ 13.18	No	No	No	
Division Mt.	115H 013	Bituminous B Coal	\$ 10.40	open pit	Northwest Corp., 2005	\$ 7.58	\$ 25.64	\$ 43.70	No	YES	YES	
Howard's Pass	105I 012	Lead-Zinc	\$ 13.94	open pit	Calculated	\$ 28.93	\$ 49.30	\$ 71.32	YES	YES	YES	
Faro Camp	Grizzly / Dy	105K 101	Lead-Zinc	\$ 59.37	u/g	Calculated	\$ 37.07	\$ 67.57	\$ 106.21	No	No	No
	Grum	105K 056	Lead-Zinc	\$ 18.30	open pit	Calculated	\$ 22.69	\$ 40.50	\$ 63.07	No	YES	YES
	Swim	105K 046	Lead-Zinc	\$ 30.00	open pit	Calculated	\$ 26.50	\$ 48.36	\$ 74.76	No	No	YES
Finlayson Lake District	Wolverine	105G 072	Polymetallic	\$ 61.26	u/g	Hatch 2000	\$ 95.60	\$ 163.25	\$ 280.65	No	YES	YES
	Kudz Ze Kayah	105G 117	Polymetallic	\$ 38.00	open pit	Hatch 2000	\$ 49.54	\$ 85.20	\$ 140.31	No	YES	YES
	Fyre (Kona)	105G 034	Polymetallic	\$ 27.11	o/p (+ u/g)	Calculated	\$ 33.62	\$ 49.50	\$ 67.03	No	No	YES
	Ice	105G 118	Copper	\$ 34.50	open pit	Calculated	\$ 12.74	\$ 22.67	\$ 32.58	No	No	No
Tom & Jason	105O 001 & 105	Lead-Zinc	\$ 70.22	u/g	HBM&S & Aberford Resources 1985	\$ 50.90	\$ 94.25	\$ 145.98	No	No	YES	
Wellgreen	115G 024	Ni-Cu	\$ 26.69	open pit	Watts, Griffis and McQuat Limited. 1989	\$ 20.62	\$ 35.40	\$ 50.91	No	No	No	
Dawson Range	Casino	115J 028	Copper, Gold, Mo	\$ 8.66	open pit	Calculated	\$ 4.92	\$ 8.70	\$ 15.02	No	No	No
	Cash	115I 037	Copper, Mo	\$ 16.29	open pit	Calculated	\$ 2.58	\$ 4.57	\$ 8.07	No	No	No
	Minto	115I 021 (115I)	Copper	\$ 25.82	open pit	Hatch 2000	\$ 22.34	\$ 39.49	\$ 58.45	No	No	YES
Logtung	105B 039	Tungsten, Mo	\$ 14.06	open pit	Calculated	\$ 5.60	\$ 11.21	\$ 28.19	No	No	YES	
Red Mountain	105C 009	Molybdenum	\$ 10.30	open pit	Calculated	\$ 3.82	\$ 7.64	\$ 22.23	No	No	YES	
Mactung	105O 002	Tungsten	\$ 79.90	u/g	Cantung costs	\$ 37.64	\$ 75.29	\$ 184.66	No	No	YES	
Shaft Creek	104G 015	Copper, Gold, Mo	\$ 6.20	open pit	AMCL 2004	\$ 4.73	\$ 8.42	\$ 13.95	No	No	YES	
Kemess North & South	094E 021 & 094	Copper, Gold	\$ 4.80	open pit	Klohn Crippen 2005	\$ 3.02	\$ 5.24	\$ 8.43	No	No	No	
Galore Creek	104G 090, 092 &	Copper, Gold	\$ 7.98	open pit	Hatch 2005	\$ 8.29	\$ 14.68	\$ 22.57	No	No	YES	
Copper Canyon	104G 017	Copper, Gold	\$ 7.98	open pit	Assumed from Galore Cr.	\$ 6.32	\$ 11.12	\$ 18.39	No	No	YES	
Red Chris	104H 005	Copper, Gold	\$ 6.79	open pit	bcMetals 2005	\$ 3.87	\$ 6.79	\$ 10.37	No	No	No	
Adanac	104N 052	Molybdenum	\$ 10.39	open pit	Wardrop 2005	\$ 1.58	\$ 3.15	\$ 9.17	No	No	No	
Storie	104P 062	Molybdenum	\$ 12.23	open pit	Calculated	\$ 1.99	\$ 3.98	\$ 11.57	No	No	No	
Davey Creek Moly	094D 113	Molybdenum	\$ 12.07	open pit	Calculated	\$ 2.58	\$ 5.17	\$ 15.03	No	No	No	
Cirque	094F 008	Lead-Zinc	\$ 31.85	open pit	Calculated	\$ 40.33	\$ 68.32	\$ 101.89	No	YES	YES	
Tulsequah Chief	104K 002	Polymetallic	\$ 59.40	u/g	Calculated	\$ 58.80	\$ 99.50	\$ 158.80	No	No	YES	
Mount Klappan	Lost Fox	104H 021	Anthracite Coal	\$ 37.16	open pit	Calculated	\$ 6.98	\$ 23.61	\$ 40.24	No	No	No
	Hobbit-Broatch	104H 020	Anthracite Coal	\$ 37.16	open pit	Assumed	\$ 6.98	\$ 23.61	\$ 40.24	No	No	No
	Summit	104H 022	Anthracite Coal	\$ 37.16	open pit	Assumed	\$ 6.98	\$ 23.61	\$ 40.24	No	No	No
Groundhog Coalfield	104A 078, 082 &	Anthracite Coal	\$ 28.50	open pit	Assumed	\$ 9.13	\$ 30.87	\$ 52.62	No	No	No	
Thundercloud	104J 043	Bituminous Coal	\$ 32.00	open pit	Assumed	\$ 6.17	\$ 20.85	\$ 35.54	No	No	No	
Sustut Coal	094D 039	Sub-Bituminous Coal	\$ 32.00	open pit	Assumed	\$ 2.29	\$ 7.73	\$ 13.18	No	No	No	
Kutcho Creek	104I 060	Polymetallic	\$ 29.40	open pit	Marr and Holbek 2004	\$ 26.19	\$ 44.59	\$ 65.70	No	No	YES	

Notes:

All costs and prices are in 2005 Canadian dollars.

### 3.3.5 Step 3E – Qualitative Re-assessment of Marginal Deposits

Table 3E provides the results of the qualitative re-assessment of marginal deposits. For the purposes of this assessment, “marginal” means that a +/- 20% change in mine operating costs changes the results of the simple potential economic viability as determined previously in Step 3D. 20% is considered the general level of uncertainty associated with this assessment.

If a deposit is deemed “marginal” under one of the price scenarios, then it is qualitatively re-assessed giving consideration to other factors such as current level of deposit development, proximity to existing infrastructure, social issues and/or environmental issues. These re-assessments allows for the integration of more complex costs and issues associated with the project. Where a qualitative re-assessment of a given deposit’s scenario has been completed, it is highlighted in red on Table 3D. An explanation of the re-assessment (either why or why not a deposit’s potential viability has been changed), is provided for each deposit.

Table 3E. Re-assessment of Marginal Deposits  
Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources

DISCLAIMER: The information presented on this table does not represent a comprehensive feasibility assessment of any mineral deposit. These data are presented as a long-term planning exercise for estimating potential shippable mineral commodities as part of the railway feasibility traffic assessment. Results of this assessment in no way indicate the feasibility of any particular given deposit.

When potential economic feasibility is marginal, likelihood of mine development qualitatively re-assessed based on additional social and economic consideration  
Marginal feasibility assumed when +/- 20% change in mining costs changes potential economic feasibility. Qualitative re-assessment highlighted in bold, red text.

Property Name	Minfile No.	Commodity	Mining & Milling Opex			Ore Value Under Scenario:			Re-assessed Feasibility of Development			Comment/Discussion	
			Opex (\$/tonne)	Mine Type		Pessimistic	Conservative	Optimistic	Pessimistic	Conservative	Optimistic		
Crest (Modern Costing)	106F 008	Iron	\$ 8.30	open pit	\$ 11.69	\$ 13.93	\$ 16.56	No	No	YES	Marginal under both Conservative and Optimistic scenarios: Development potential unchanged as "unfeasible" for Conservative scenario given social and environmental issues associate with the remote nature of the deposit.		
Crest (1965 Feasibility Study)	106F 008	Iron	\$ 16.76	open pit	\$ 11.69	\$ 13.93	\$ 16.56	No	No	No	Development potential changed to "feasible" for Optimistic given importance of the deposit from a global and strategic consideration, even in light of remote location of site.		
Bonnet Plume Coal Field	Illyd Creek	106E 035	Coal	\$ 22.80	open pit	\$ 8.74	\$ 29.54	\$ 50.34	No	No	YES	Marginal under Optimistic scenario: Development potential changed to "feasible" given level of deposit assessment and assuming coal required for power generation at Crest	
		Spaceship	106E 035	Coal	\$ 22.80	open pit	\$ 8.74	\$ 29.54	\$ 50.34	No	No	No	Marginal under Optimistic scenario: Development potential changed to "unfeasible" given remote nature of site and social value of area.
	Pole	106E 021	Coal	\$ 22.80	open pit	\$ 8.74	\$ 29.54	\$ 50.34	No	No	No		
	Deslaurier	106E 037	Coal	\$ 22.80	open pit	\$ 8.74	\$ 29.54	\$ 50.34	No	No	No		
	Marathon	106E 013	Coal	\$ 22.80	open pit	\$ 8.74	\$ 29.54	\$ 50.34	No	No	No		
	Pan Ocean	106E 036	Coal	\$ 22.80	open pit	\$ 8.74	\$ 29.54	\$ 50.34	No	No	No		
Rock River Coal - Sulphuro	095D 026	Sub-bituminous to L	\$ 18.18	open pit	\$ 2.29	\$ 7.73	\$ 13.18	No	No	No			
	Division Mt.	115H 013	Bituminous B Coal	\$ 10.40	open pit	\$ 7.58	\$ 25.64	\$ 43.70	No	YES	YES		
Howard's Pass	105I 012	Lead-Zinc	\$ 13.94	open pit	\$ 28.93	\$ 49.30	\$ 71.32	YES	YES	YES	Marginal under Pessimistic scenario: Development potential unchanged as "feasible" in recognition of global significance of deposit. Furthermore, recognition that even under "conservative" scenario, some mining in study area is likely.		
Faro Camp	Grizzly / Dy	105K 101	Lead-Zinc	\$ 59.37	u/g	\$ 37.07	\$ 67.57	\$ 106.21	No	No	YES	Marginal under Optimistic scenario: Development potential changed to "feasible" due to potential proximity to railway, existing infrastructure and possible future attractiveness of underground deposits	
		Grum	105K 056	Lead-Zinc	\$ 18.30	open pit	\$ 22.69	\$ 40.50	\$ 63.07	No	No	YES	Marginal under Conservative scenario: Development potential changed to "unfeasible" given site history, status of receivership and impending site closure and reclamation
	Swim	105K 046	Lead-Zinc	\$ 30.00	open pit	\$ 26.50	\$ 48.36	\$ 74.76	No	No	YES	Marginal under Conservative scenario: Development potential left as "unfeasible" given site history, status of receivership and environmental concerns due to proximity to Blind Cr.	
Finlayson Lake District	Wolverine	105G 072	Polymetallic	\$ 61.26	u/g	\$ 95.60	\$ 163.25	\$ 280.65	No	YES	YES		
		Kudz Ze Kayah	105G 117	Polymetallic	\$ 38.00	open pit	\$ 49.54	\$ 83.20	\$ 140.31	No	YES	YES	Marginal under Conservative scenario: Development potential changed to "feasible" given current existing permitted project
		Pyre (Kona)	105G 034	Polymetallic	\$ 27.11	o/p (+ u/g)	\$ 33.62	\$ 49.50	\$ 67.03	No	YES	YES	Marginal under Optimistic scenario: Development potential left as "feasible" assuming neighboring mine development
	Ice	105G 118	Copper	\$ 34.50	open pit	\$ 12.74	\$ 22.67	\$ 32.58	No	No	No		
Tom & Jason	105O 001 & 105O	Lead-Zinc	\$ 70.22	u/g	\$ 50.90	\$ 94.25	\$ 145.98	No	No	No	Marginal under Optimistic scenario: Development potential changed to "unfeasible" due to remote nature of site and socio-environmental values assoc. with Macmillan Pass.		
Wellgreen	115G 024	Ni-Cu	\$ 26.69	open pit	\$ 20.62	\$ 35.40	\$ 50.91	No	No	No	Marginal under Optimistic scenario: Development potential left to "unfeasible" due to size and potential environmental issues (ARD).		
Dawson Range	Casino	115J 028	Copper, Gold, Mo	\$ 8.66	open pit	\$ 4.92	\$ 8.70	\$ 15.02	No	No	No	Marginal under Optimistic scenario: Development potential left as "unfeasible" due to low grade and competing, more attractive copper porphyry deposits in BC.	
		Cash	115I 037	Copper, Mo	\$ 16.29	open pit	\$ 2.58	\$ 4.57	\$ 8.07	No	No	No	
	Minto	115I 021 (115I 02)	Copper	\$ 25.82	open pit	\$ 22.34	\$ 39.49	\$ 58.45	No	No	YES	Marginal under Optimistic scenario: Development potential left as "feasible" due to existing site development and advancement of project.	
Logtung	105B 039	Tungsten, Mo	\$ 14.06	open pit	\$ 5.60	\$ 11.21	\$ 28.19	No	No	YES	Marginal under Optimistic scenario: Development potential left as "feasible" due to high variability in tungsten prices and proximity to Alaska Highway		
Red Mountain	105C 009	Molybdenum	\$ 10.30	open pit	\$ 3.82	\$ 7.64	\$ 22.23	No	No	YES	Marginal under Optimistic scenario: Development potential left as "feasible" due to lack of significant known socio-environmental issues.		
Mactung	105O 002	Tungsten	\$ 79.90	u/g	\$ 37.64	\$ 75.29	\$ 184.66	No	No	YES	Marginal under Optimistic scenario: Development potential left as "feasible" due to global significance of deposit.		
Shaft Creek	104G 015	Copper, Gold, Mo	\$ 6.20	open pit	\$ 4.73	\$ 8.42	\$ 13.95	No	No	YES	Marginal under Optimistic scenario: Development potential left as "feasible" due to development of neighboring mines.		
Kemess North & South	094E 021 & 094	Copper, Gold	\$ 4.80	open pit	\$ 3.02	\$ 5.24	\$ 8.43	No	YES	YES	Development potential changed to "feasible" due to existing mine (Kemess South)		
Galore Creek	104G 090, 092 &	Copper, Gold	\$ 7.98	open pit	\$ 8.29	\$ 14.68	\$ 22.57	No	YES	YES	Marginal under Conservative scenario: Development potential changed to "feasible" due to advanced state of project.		
Copper Canyon	104G 017	Copper, Gold	\$ 7.98	open pit	\$ 6.32	\$ 11.12	\$ 18.39	No	No	YES	Marginal under Optimistic scenario: Development potential changed to "feasible" due to likely development of Galore Cr.		
Red Chris	104H 005	Copper, Gold	\$ 6.79	open pit	\$ 3.87	\$ 6.79	\$ 10.37	No	No	No			
Adanac	104N 052	Molybdenum	\$ 10.39	open pit	\$ 1.58	\$ 3.15	\$ 9.17	No	No	No			
Storie	104P 062	Molybdenum	\$ 12.23	open pit	\$ 1.99	\$ 3.98	\$ 11.57	No	No	No			
Davey Creek Moly	094D 113	Molybdenum	\$ 12.07	open pit	\$ 2.58	\$ 5.17	\$ 15.03	No	No	No			
Cirque	094F 008	Lead-Zinc	\$ 31.85	open pit	\$ 40.33	\$ 68.32	\$ 101.89	No	No	YES	Marginal under Conservative scenario: Development potential left as "unfeasible" due to remote nature of site and potential issues with past ownership.		
Tulsequah Chief	Mount Klappan	104K 002	Polymetallic	\$ 59.40	u/g	\$ 58.80	\$ 99.50	\$ 158.80	No	YES	YES	Marginal under Conservative scenario: Development potential changed to "feasible" due to advanced state of project.	
		104H 021	Anthracite Coal	\$ 37.16	open pit	\$ 6.98	\$ 23.61	\$ 40.24	No	No	YES	Development potential changed to "feasible" due to interest in project and high variability in metallurgical coal market. Assumes railway at mine gate will make project feasible	
	Hobbit-Broath	104H 020	Anthracite Coal	\$ 37.16	open pit	\$ 6.98	\$ 23.61	\$ 40.24	No	No	No		
Groundhog Coalfield	Summit	104H 022	Anthracite Coal	\$ 37.16	open pit	\$ 6.98	\$ 23.61	\$ 40.24	No	No	No		
		104A 078, 082 &	Anthracite Coal	\$ 28.50	open pit	\$ 9.13	\$ 30.87	\$ 52.62	No	No	YES	Development potential changed to "feasible" due to high variability in metallurgical coal market and potential proximity to railway alignment (at mine gate)	
Thundercloud	104J 043	Bituminous Coal	\$ 32.00	open pit	\$ 6.17	\$ 20.85	\$ 35.54	No	No	No			
Sastui Coal	094D 039	Sub-Bituminous Co	\$ 32.00	open pit	\$ 2.29	\$ 7.73	\$ 13.18	No	No	No			
Katcho Creek	104I 060	Polymetallic	\$ 29.40	open pit	\$ 26.19	\$ 44.59	\$ 65.70	No	No	YES	Marginal under Optimistic scenario: Development potential left as "feasible" due to advanced state of project.		

## 4. Discussion and Summary Results

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### 4.1 Discussion of Crest Iron Deposit

The Crest Iron deposit located in northern Yukon represents the single most significant potential impact on outbound shippable commodities. Based on the assessment completed as part of this project, under a reasonable, optimistic metal price scenario, the Crest could ship on the order of 15 Mt of iron ore pellets annually. By comparison, under the same scenario all other mines in the study area (Yukon and Northern BC) would ship on the order of 5.3 Mt annual *in aggregate*. Given this, the following presents a more in-depth review of the potential economic conditions required for the Crest deposit potentially viable.

For the purposes of the current assessment, the following assessment criterion has been assumed to determine mineral deposit viability:

$$\text{Net Ore Value} > 2 \times \text{Mine Operating Cost}$$

This relationship assumes that the difference between the operating cost and the net ore value must be sufficient to cover transportation, recuperation of capital and profits. Given that the Crest deposit is more than 960km from the nearest port (Skagway, AK), and that the focus of the current study is one of transportation, the transportation issue should not be simplified in the context of this deposit's potential viability.

#### 4.1.1 Crest Mine Operating Costs

The only feasibility study that has been completed on the Crest deposit was conducted in 1965 (Canadian Bechtel Corp.), and as of this time, is not available to the study team. Given the dated nature of that study, it is unlikely that the mining costs presented at that time would be relevant. Therefore, mine operating costs have been assumed based on experience elsewhere and costs associated with equivalently sized mining operations.

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It is assumed that:

- The deposit would be mined at a rate to produce 15,000,000 tonnes of concentrate per year.
- Given the grade of the deposit, this represents a mining rate of approximately 162,000 tpd. At this rate, the deposit life of over 100 years.
- A 0.2:1 stripping ratio would be required; however, a significant quantity of the deposit has a much lower stripping ratio, or does not require any stripping. Therefore, early mining costs could be reduced by not requiring significant stripping.
- The metallurgy of this deposit is more complex than that of many iron deposits, and as such the exact type of processing required is uncertain. However, for the purposes of the current assessment, it is assumed milling would consist of gravity pre-concentration followed by some type of flotation or other beneficiation to reduce phosphorus concentration and bring the product grade to +60% iron.
- It is assumed the ore would be pelletized off-site (possibly at the port).

Mine operating costs consists of three broad components: 1) Mining costs, 2) Milling costs; and 3) General and administrative costs.

Costs for these components are estimated as follows. For comparative purposes, estimated mine operating costs from similar sized proposed mines are presented on the following table.

**Table 4-1. Estimated Mine Operating Costs at Crest and Other Large Mines**

Component	Crest – Low	Crest - High	Galore Cr. (BC)	Kemess N&S (BC)	Pebble (AK)	Cu- Peer Group Average*
Total (Ore & Waste) Mining Rate (tpd)	194,000	194,000	193,000	192,000	246,000	340,000
Strip Ratio	0.2:1	1:1	2.06:1	1:1	0.23:1	2.2:1
Mining (\$/tonne milled)	\$1.02	\$2.20	\$4.04	\$1.06	\$1.35	\$1.79
Milling	\$2.14	\$5.60	\$2.70	N/a	\$3.18	\$2.80
G & A	\$0.32	\$0.49	\$0.65	N/a	\$1.00	\$1.30
<b>Total</b>	<b>\$3.48</b>	<b>\$8.29</b>	<b>\$7.39</b>	<b>N/a</b>	<b>\$5.53</b>	<b>\$5.89</b>

Notes: all in 2005 Canadian Dollars

\* Peer group average for Copper porphyry deposits, from Pebble Project Preliminary Assessment, Northern Dynasty Minerals Ltd., 2004

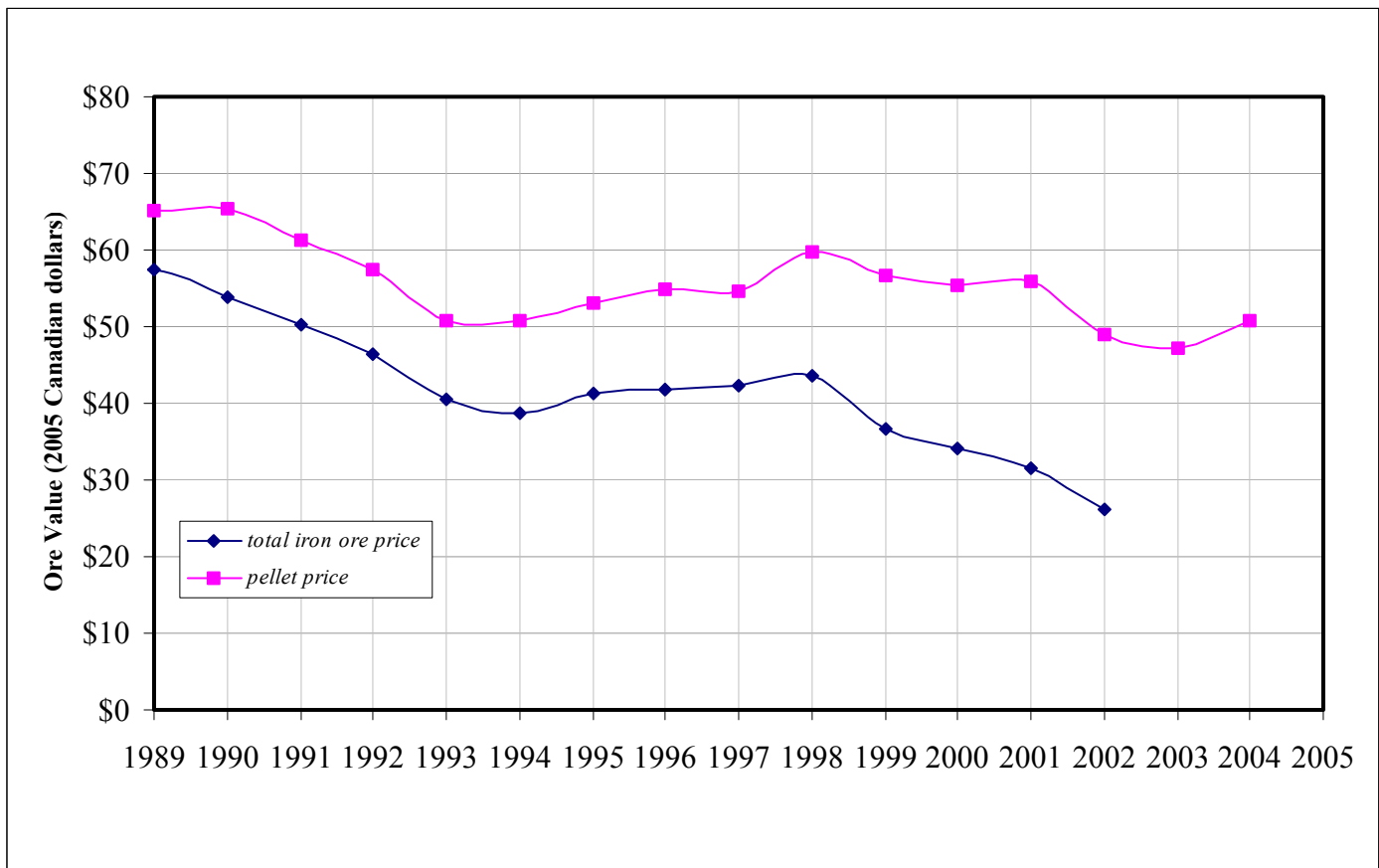
From the above table, it can be seen that it should be reasonable to expect a mine operating cost at Crest to be between \$3.50 and \$8.30 / tonne of ore milled.

If we use the simplistic assumption that the net ore value must be twice the mine operating cost, the above cost translate to a required net ore value, for potential mine viability of between \$27 /tonne and \$64 / tonne at the mine gate.

**Iron Ore Prices**

Historical iron ore price data has been compiled by the Mineral Information section of the U.S. Geological Survey and has been the primary data source for this assessment. The USGS reports a “total” annual average iron ore price since the turn of the last century. This price is a weighted average value of all iron ore products exported from and imported to the United States. This includes iron ore concentrates, iron ore fines, lump ore and iron ore pellets. Typically, iron ore pellets have a higher value than other iron ore products. Figure 3 below provides a historical summary of “total” iron prices and iron pellet prices since 1989. From this figure, it is apparent that iron ore pellets have similar trends to the “total” iron prices, but tend to be on average worth 38% more than the “total” iron ore price.

**Figure 3 . "Total" Iron Ore and Pellet Ore Prices**



Source: Minerals Years Book, 1989-2004. U.S. Geological Survey. [http://minerals.usgs.gov/minerals/pubs/commodity/iron\\_ore/](http://minerals.usgs.gov/minerals/pubs/commodity/iron_ore/)

Simple iron ore price projections completed for the current project estimate iron ore prices between \$17 and \$53 with a conservative price estimate of \$35. This is for the year 2020, which is half way through the planning period selected for this assessment (30 years). This agrees well with the 2015 forecast presented by the World Bank of \$34.30 (again, all in 2005 Canadian dollars).

Table 4.2 provides a summary of the estimated iron prices derived for this study, along with projected iron ore price provided by the World Bank.

**Table 4-2. Summary of Iron Ore Price Projections**

<b>Projected Total Ore Price</b>	<b>Projected Average Iron Ore Pellet Price*</b>	<b>World Bank Forecast (Total ore – 2015)</b>
Conservative - \$35	\$53	\$34
Optimistic - \$53	\$61	

*\* Estimated based on relationship between “total” iron price and pellet iron price as illustrated in Figure 1.*

Note that all prices are F.O.B. at the mine’s port. Given these price and operating scenarios, the following summary is presented:

**Table 4-3. Summary of Iron Ore Mining Costs and Ore Pellet Values**

<b>Mine Operating Cost (\$/tonne ore mined)</b>	<b>“Minimum” Net Ore Value (2x Opex)</b>	<b>Iron Pellet Price Required to Produce “Minimum” Net Ore Value</b>	<b>Projected Iron Ore Pellet Price</b>	
			<b>Conservative</b>	<b>Optimistic</b>
\$3.50	\$7.00	\$27	<b>\$53</b>	<b>\$61</b>
\$8.30	\$16.60	\$64	\$53	\$61

Table 4-3 illustrates that the Crest iron deposit is potentially economically feasible with mine operating costs on the order of \$8.00 / tonne or less. Given the example of other large mines, this is not an unachievable goal. Furthermore, if mine operating costs were on the order of \$5.00 / tonne, Crest may be potentially economically viable under both Conservative and Optimistic iron ore price scenarios.

With the lower mining operating costs, this allows for an additional margin of \$22 to \$34 per tonne for transportation and ship loading. Overall, these price and cost data suggest that economically feasible development of the Crest iron deposit is not impossible.

#### 4.1.2 Additional considerations

The above discussion is simplistic in that it only addresses simple costs and ore values. However, there are a number of other significant issues that must be considered before assuming the Crest iron deposit is or is not feasible. These additional considerations are beyond the scope of this project. It is recommended that the following be considered in subsequent analysis:

1. The Crest is a very large resource of global significance. It has a potential mine life of a minimum of 80 years. Conventional mine economics may be different when viewing such a long project life.
2. The Crest is the largest iron resource in North America, and as such may have strategic importance to Canada and its partners. In the context of the long-term, global economy, this may at some point influence the simple economics of the deposit.
3. The deposit has complex metallurgy; for example, phosphate and fine silica content present technical challenges that are not insurmountable, but must be taken into consideration. To a limited degree, this has been included in the mine operating cost assessment completed as part of the current project.
4. The remote, northern nature of the site will make development and operation of the site more difficult and costly. However, operation of a large iron mine in hard northern climates is quite feasible as demonstrated by the Iron Ore Company of Canada's operations in northern Quebec and Labrador.
5. The impact of supplying an additional 15 million tonnes of iron ore annually to the global demand is not known and should be considered.
6. There are other competitive iron ore deposits world wide. Potential developers of the Crest deposit may have the opportunity to develop other iron deposits that may be as economically attractive, but maybe easier to develop and/or less remote.
7. The deposit is located in the Bonnet Plume/Snake River area (Peel River watershed). These areas are subject to ongoing land use planning, and are considered by some interest groups to have high wilderness and ecological values. The relative importance of these considerations should not be dismissed or undervalued.

## 4.2 Summary of Shippable Mineral Commodities

Table 4-4 provides a summary of the potentially shippable bulk mineral commodities from Northern BC and Yukon. The commodity summary is presented initially as three long-term metal price scenarios: Pessimistic, Conservative and Optimistic metal prices.

Some explanatory comments on these assessment results are given below:

- Long-term nature of price trends: It is important to stress that the prices used in these scenarios are long-term average price trend forecasts. In reality, prices will fluctuate above and below these forecasts. During these periods, mines will come into and out of operation for short durations. However, given the long-term investment represented by the railway, only long-term *average* price trends are shown. Under the various price scenarios, mines will need to be viable on these long-term averages, not short-term price spikes. During these metal price spikes (such as possibly being experienced currently), additional mines will come into production for the duration of the elevated price period. These mines may ship additional commodities: these should be viewed as an “extra” or “bonus” to the railway traffic and cannot be relied up for long-term railway feasibility.
- Averaged commodity shipments: Note that on Table 4-4, the mine lives are shown for the various deposits. For simplicity, these annual commodity shipments from the mines have been averaged over the 30 year assessment period. This reflects the uncertainty of when mines may come into production. Furthermore, it recognizes the fact that not all mines will come into production simultaneously, rather mines will go into and out of production at various different schedules. The net results should be somewhat averaged out as presented.
- Assumption of railway: As per the scope of this project, it is assumed all deposits will have access to and utilize the railway as the most cost-effective form of transportation. For example, some coal deposits simply will not be developed without the access to a railway.
- Crest Iron deposit: Iron ore shipments from the Crest iron deposit, if developed, would far outweigh all other mineral commodity shipments combined. For example, under the Optimistic metal price scenario, the combined mineral commodities shipped (not including Crest) is on the order of 5.5 million tonnes annually. Crest alone would ship on the order of 15 million tonnes annually. The Crest deposit, as has been discussed in further detail in an earlier section of this report, can almost be viewed independently of all other bulk mineral resources in the study area. Furthermore, the remote location and long haulages required to exploit the Crest deposit make transportation cost one of the most significant factors in the property’s potential viability. Given these considerations, for the purposes of this analysis, the Optimistic scenario is divided into a “with Crest iron” and a “without Crest iron” scenarios. This is illustrated on Figure 4-1.

**Table 4-4. BC & Yukon Mineral Resource Shippable Commodity Summary**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**

*DISCLAIMER: The information presented on this table does not represent a comprehensive feasibility assessment of any mineral deposit. These data are presented as a long-term planning exercise for estimating potential shippable mineral commodities as part of the railway feasibility traffic assessment. Results of this assessment in no way indicate the feasibility of any particular given deposit.*

Property Name	Minfile No.	Commodity	Quality of Shippable Commodity Estimate**	Likely Shippable Commodity			Key Data Source(s)	Average Quantity of Commodity Shipped (tonnes / yr)			
				Total Shippable Commodity (tonnes)	Project Life	Annual Shipment (tonnes)		Pessimistic	Conservative	Optimistic	
<b>Yukon Territory</b>											
Crest	106F 008	Iron	3 - Inferred resource only. Pre-feasibility completed in early 1980's	1,219,500,000	>>>30	23,076,923	Canadian Bechtel Ltd (1963) propose 3.5 to 5.0 Mt/yr export. However, modern iron mines frequently ship 15 Mt/yr	0	0	23,076,923	
Bonnet Plume Coal Field	Illtyd Creek	106E 035	Coal	3 - Pre-feasibility completed in early 1980's	10,119,048	12	840,677	Wright Engineers 1981: Preliminary Feasibility Mining Study.	0	0	337,000
	Spaceship	106E 035	Coal	5 - 2 holes only, no feasibility	20,138,625	14	1,408,630	Assumptions based on Illtyd Creek pre-feasibility study parameters	0	0	0
	Pole	106E 021	Coal	5 - 2 holes only, no feasibility	17,031,450	14	1,242,262	Assumptions based on Illtyd Creek pre-feasibility study parameters	0	0	0
	Deslaurier	106E 037	Coal	5 - 3 holes only, no feasibility	13,340,325	13	1,034,307	Assumptions based on Illtyd Creek pre-feasibility study parameters	0	0	0
	Marathon	106E 013	Coal	5 - 2 holes only, no feasibility	2,346,000	8	280,880	Assumptions based on Illtyd Creek pre-feasibility study parameters	0	0	0
	Pan Ocean	106E 036	Coal	5 - 2 holes only, no feasibility	6,063,900	11	572,583	Assumptions based on Illtyd Creek pre-feasibility study parameters	0	0	0
	Garlic Ring	106E 032	Coal	5 - 2 holes only, no feasibility	1,804,125	8	230,661	Assumptions based on Illtyd Creek pre-feasibility study parameters	0	0	0
Rock River Coal - Sulpetro	095D 026	Sub-bituminous to Lignite Coal	5 - 5 holes only, no feasibility	33,600,000	18	1,895,449	Primarily calculated from SME Handbook (1992). Assumed washing recovers 60% saleable coal.	0	0	0	
Division Mt.	115H 013	Bituminous B Coal	3 - Project has scoping study complete.	27,500,000	22	1,250,000	Northwest Corp. 2005: Division Mountain Scoping Study.	0	917,000	917,000	
Howard's Pass	105I 012	Lead-Zinc	3 - Inferred resource only. Pre-feasibility completed in early 1980's	14,009,249	21	659,461	Primarily calculated from O'Hare (1982) and SME Handbook (1992)	467,000	467,000	467,000	
Faro Camp	Grizzly / Dy	105K 101	Lead-Zinc	3 - Economic study completed in 2002	2,330,889	11.5	202,686	Micom Int'l Ltd. 2002. Economic Study of Faro	0	0	78,000
	Grum	105K 056	Lead-Zinc	2 - Mine previously in production.	1,837,500	5	367,500	Micom Int'l Ltd. 2002. Economic Study of Faro	0	0	61,000
	Swim	105K 046	Lead-Zinc	4 - Indicated resource, no known feasibility study	490,773	9	52,594	Primarily calculated from SME Handbook (1992) with actual recoveries from Faro Mill	0	0	16,000
Finlayson Lake District	Wolverine	105G 072	Polymetallic	1 - Environmental Assessment filed	1,400,000	12	116,667	Yukon Zinc and AXYS Consulting 2005: Environmental Assessment Report	0	47,000	47,000
	Kudz Ze Kayah	105G 117	Polymetallic	1 - Project permitted	1,492,650	9	165,850	Water Licence Application (Cominco Ltd. 1997)	0	50,000	50,000
	Fyre (Kona)	105G 034	Polymetallic	4 - Indicated resource, scoping study done	711,600	4	177,900	Primarily scoping study based on 20 Mt. Reserve (Pacific Ridge Exploration / Columbia Gold website)	0	24,000	24,000
	Ice	105G 118	Copper	4 - Indicated resource only.	152,740	8	19,654	Primarily calculated from O'Hare (1982) and using Wolverine milling rate (1,250 tpd)	0	0	0
Tom & Jason	105O 001 & 105O 019	Lead-Zinc	3 - Pre-feasibility completed in 1985	3,289,635	14	234,974	HBM&S and Aberford Resources feasibility study (1985)	0	0	0	
Wellgreen	115G 024	Ni-Cu	3 - Project has 1989 pre-feasibility	500,000	10	50,000	Watts, Griffiths and McQuat 1989: Pre-feasibility Study	0	0	0	
Dawson Range	Casino	115J 028	Copper, Gold, Mo	3 - Pre-feasibility completed in 1997	2,421,004	25	96,840	Lumina Resources Corp. 2005 website and press releases	0	0	0
	Cash	115I 037	Copper, Mo	5 - 16 holes only, no feasibility	201,772	16	12,850	Primarily calculated from O'Hare (1982) and SME Handbook (1992)	0	0	0
	Minto	115I 021 (1)	Copper	1 - mine in permitting & partially constructed	322,800	12	26,900	Orequest 2005: Technical report	0	0	11,000
Logtung	105B 039	Tungsten, Mo	3 - Pre-feasibility completed in early 1980's	293,700	30	9,790	D. Eaton (2005), pers. comm. Strategic Metals Ltd.	0	0	10,000	
Red Mountain	105C 009	Molybdenum	4 - Inferred resource, no feasibility	102,098	17	6,049.89	Primarily calculated from O'Hare (1982) and SME Handbook (1992)	0	0	3,000	
Mactung	105O 002	Tungsten	3 - Measured & indicated resource, no feasibility	140,986	30	4,700	Pers. Comm. With D. Tenney, North American Tungsten Corp (2005)	0	0	5,000	

**Table 4-4. BC & Yukon Mineral Resource Shippable Commodity Summary**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources**

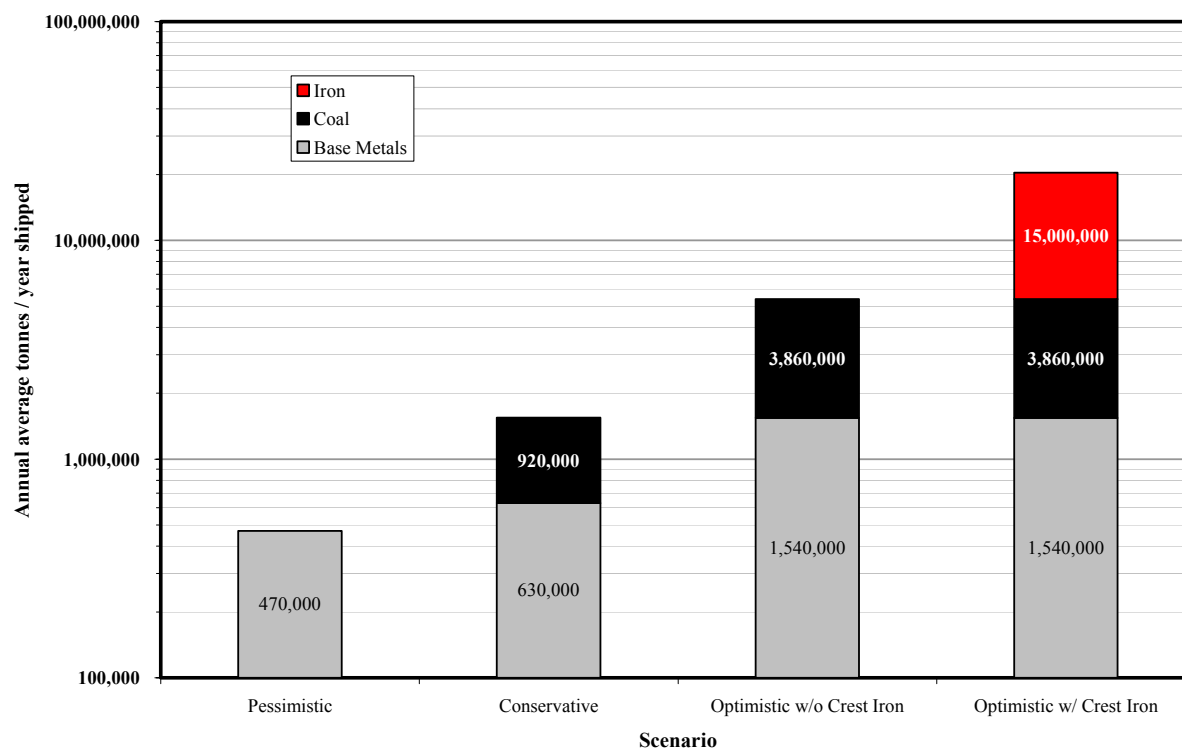
*DISCLAIMER: The information presented on this table does not represent a comprehensive feasibility assessment of any mineral deposit. These data are presented as a long-term planning exercise for estimating potential shippable mineral commodities as part of the railway feasibility traffic assessment. Results of this assessment in no way indicate the feasibility of any particular given deposit.*

Property Name	Minfile No.	Commodity	Quality of Shippable Commodity Estimate**	Likely Shippable Commodity			Key Data Source(s)	Average Quantity of Commodity Shipped (tonnes / yr)			
				Total Shippable Commodity (tonnes)	Project Life	Annual Shipment (tonnes)		Pessimistic	Conservative	Optimistic	
<b>British Columbia</b>											
Shaft Creek	104G 015	Copper, Gold, Mo	3 - Indicated resource, preliminary assessments	4,109,374	20	205,469	Based on assumptions provided by AMCL, 2004	0	0	137,000	
Kemess North & South	094E 021 & 094E 094	Copper, Gold	1 - Kemess South mine in production, Kemess North in permitting	2,042,557	15	136,170	Klohn Crippen 2005 Project Description	0	68,000	68,000	
Galore Creek	104G 090, 092 & 094	Copper, Gold	2 - Mine in environmental assessment	9,924,107	20	496,205	Hatch, 2005. Preliminary economic assessment	0	331,000	331,000	
Copper Canyon	104G 017	Copper, Gold	4 - Inferred reserve only	1,350,266	6	225,044	Assumed similar parameters to Galore Cr.	0	0	45,000	
Red Chris	104H 005	Copper, Gold	2 - Mine in environmental assessment	3,103,773	25	124,151	bcMetals Corp. presentation Sept. 2005	0	0	0	
Adanac	104N 052	Molybdenum	3 - Bankable feasibility in progress.	171,478	22	7,794	Wardrop 2005	0	0	0	
Storie	104P 062	Molybdenum	5 - Unclassified reserve only	145,097	21	7,072	Primarily calculated from SME Handbook (1992) and assumed similar parameters to Adanac	0	0	0	
Davey Creek Moly	094D 113	Molybdenum	5 - Unclassified reserve only	187,500	20	9,150	Primarily calculated from SME Handbook (1992) and assumed similar parameters to Adanac	0	0	0	
Cirque	094F 008	Lead-Zinc	2 - Mine development permit issued, but not developed	3,040,280	15	201,316	BC Minfile - feasibility studies could not be located	0	0	101,000	
Tulsequah Chief	104K 002	Polymetallic	1 - Environmental Approval issued	1,200,000	8	150,000	T. Chandler, pers. comm. 2006	0	40,000	40,000	
Mount Klappan	Lost Fox	104H 021	Anthracite Coal	3 - Feasibility study complete	60,000,000	20	3,000,000	Marston 2005.	0	0	2,000,000
	Hobbit-Broatch	104H 020	Anthracite Coal	4 - Reserve only	115,960,000	25	4,630,755	Assumed similar parameters to Mt. Klappan - Lost Fox	0	0	0
	Summit	104H 022	Anthracite Coal	4 - Reserve only	11,840,400	14	836,461	Assumed similar parameters to Mt. Klappan - Lost Fox	0	0	0
Groundhog Coalfield	104A 078, 082 & 085	Anthracite Coal	5 - Inferred Reserve only	18,022,194	15	1,225,753	Wedman 2005 property report and assumed parameters similar to Mt. Klappan	0	0	601,000	
Thundercloud	104J 043	Bituminous Coal	5 - Inferred Reserve only	66,000,000	21	3,144,963	Primarily calculated from SME Handbook (1992) and assumptions from other coal projects	0	0	0	
Sustut Coal	094D 039	Sub-Bituminous Coal	5 - Inferred Reserve only	20,790,000	16	1,322,356	Primarily calculated from SME Handbook (1992) and assumptions from other coal projects	0	0	0	
Katcho Creek	104I 060	Polymetallic	3 - Old pre-feasibility only, new feasibility in progress	1,320,000	10	132,000	2004 Technical report that summarizes 1985 pre-feasibility.	0	0	44,000	
<b>Total Potential Annual Average Commodity Shippments - Yukon</b>								<b>470,000</b>	<b>1,505,000</b>	<b>25,102,923</b>	
<b>Total Potential Annual Average Commodity Shippments - Northern British Columbia</b>								<b>0</b>	<b>440,000</b>	<b>3,370,000</b>	
<b>Total Potential Annual Average Commodity Shippments - Yukon and Northern British Columbia</b>								<b>470,000</b>	<b>1,940,000</b>	<b>28,470,000</b>	

Notes:

*Italics indicated no feasibility or pre-feasibility study data available; values are calculated for this study using SME Handbook (Hartman 1992) and O'Hare (1980):*

**\*\* Quality of Resource Estimate / Advancement of project codes as follows:**



### 4.2.1 Price Scenarios

As noted in the “Metal Price Forecasts” memorandum in Appendix C, the price forecast methodology employed by Gartner Lee is very conventional and is driven by simple regression techniques based on historical price trends. These were then compared with publicly available price forecasts (e.g., World Bank) to check for consistency. The scope of the project did not allow for detailed price forecasts or estimates of the likelihood of production using comparative cost analysis such as those provided by specialist firms in the forecasting field.

The memorandum on “Analysis of Future Economic Prospects for Selected Mineral Commodities” in Appendix C presents a synthesis of factors influencing price forecasts. It concludes “the global market for mineral commodities will likely trade within a range consistent with long-term historical prices”.

The three scenarios presented here were based upon a statistical measure (one standard deviation) around the historical trend analysis, largely for purposes of simplicity. Some comments on each scenario follow.

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Pessimistic Scenario: The metal prices used in this scenario are extremely low and, as mentioned above, are derived simply as one standard deviation below the median price trend. This results in potential metal prices that are well below historical low prices, and as such would only represent an unrealistic major downturn in long-term world economics. The Pessimistic scenario should be viewed as a “worst possible case”, and Gartner Lee recommends that the Pessimistic price scenario not be used for the railway assessment.

Conservative Scenario: This scenario is based on the median price trend line, and is therefore the closest to a direct projection of historical trends. In that sense it could be called a “Base Case”. It represents a scenario under which prices are unlikely to fall much below the trend line for any appreciable length of time. Gartner Lee feels comfortable in using this scenario, as it is directly related to the historical trends and is supported by external price forecasts.

Optimistic Scenario: As noted, the optimistic scenario is simply a statistical derivative of the conservative case, rather than a forecast on its own. With respect to the two commodities that would have the most impact upon the freight traffic over the proposed railway, coal and iron ore, the development of very large operations such as these would undoubtedly be predicated upon firm delivery contracts with consumers for at least the project payback period. The prices set out in such contracts would certainly track the then current prices in some manner, modified to some extent dependent upon perceived strategic needs and other factors. Gartner Lee would be surprised if prices exceeded the optimistic price scenario for appreciable lengths of time, and accepts this scenario as a reasonable upside case.

## 5. Closure

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This report was prepared for Alaska-Canada Rail Inc. The report, which specifically includes all text, tables and appendices, is based on data and information collected during the research conducted by Gartner Lee, as described in this report.

The work described in this report was conducted in a manner consistent with the level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibility of such third parties. Gartner Lee Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on the information contained in this report.

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# Appendices

# **Appendix A**

## **Yukon and Northern BC Deposit Inventory**

**Mineral Deposits of Northern British Columbia**  
**Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development For Mineral Resources**

Property Name	Minfile No.	Deposit Profile No.*	Deposit Type	Commodity	Total Reserve	Type of Reserve	Reserve Certainty <sup>1</sup>
SCHAFT CREEK	104G 015	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	971,495,000	Combined	2
KEMESS NORTH	094E 021	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	407,000,000	Indicated	4
MOUNT KLAPPAN (HOBBIT-BROATCH)	104H 020	A05	Anthracite	Coal	405,700,000	Combined	4
DISCOVERY	104A 078	A05	Anthracite	Coal	343,000,000	Inferred	5
WINDY CRAGGY	114P 002	G04	Besshi massive sulphide Cu-Zn	Polymetallic	297,440,000	Measured	3
GALORE CREEK (CENTRAL ZONE)	104G 090	L03	Alkalic porphyry Cu-Au	Copper	284,000,000	Indicated	4
RED CHRIS	104H 005	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	276,000,000	Probable	3
PANORAMA NORTH	104A 085	A05	Anthracite	Coal	240,000,000	Includes reserve	5
MT. OGDEN (MOLY-TAKU)	104K 013	L05	Pb-Zn skarn	Pb-Zn	217,704,000	Unclassified	6
THUNDERCLOUD	104J 043	A04	Bituminous coal	Coal	200,000,000	Inferred	5
MOUNT KLAPPAN (LOST-FOX)	104H 021	A04	Bituminous coal	Coal	194,100,000	Combined	6
KEMESS SOUTH	094E 094	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	114,155,154	Indicated	4
BV	094N 002	E10	Carbonate-hosted barite	Barite	103,500,000	Inferred	5
STORIE	104P 069	L05	Porphyry Mo (Low F- type)	Moly	100,500,000	Unclassified	6
DAVIE CREEK MOLY	094D 113	L05	Porphyry Mo (Low F- type)	Moly	100,000,000	Unclassified	6
NABS 30 FR	104G 032	L04	Porphyry Cu +/- Mo +/- Au	Cu +/- Mo	90,700,000	Measured	3
BRONSON SLOPE	104B 077	L04	Epithermal Au-Ag-Cu: high sulphidation	Polymetallic	79,000,000	Indicated	4
SUSTUT COAL	094D 039	A03	Sub-bituminous coal	Coal	63,000,000	Inferred	5
CIRQUE	094F 008	E14	Sedimentary exhalative Zn-Pb-Ag	Pb-Zn	43,200,000	Indicated	4
MOUNT KLAPPAN (SUMMIT)	104H 022	A04	Bituminous coal	Coal	41,400,000	Inferred	5
COPPER CANYON	104G 017	L03	Alkalic porphyry Cu-Au	Copper	32,400,000	Indicated	4
GNAT PASS	104I 001	L04	Porphyry Cu +/- Mo +/- Au	Cu +/- Mo	30,387,850	Indicated	4
EAGLEHEAD	104I 008	L04	Porphyry Cu +/- Mo +/- Au	Cu +/- Mo	30,000,000	Inferred	5
KUTCHO CREEK	104I 060	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	28,000,000	Unclassified	6
DRIFTPILE CREEK	094K 066	E14	Sedimentary exhalative Zn-Pb-Ag	Pb-Zn	20,585,000	Indicated	4
MCDAME	104P 084	M06	Ultramafic-hosted asbestos	Asbestos	19,940,000	Unclassified	6
LETAIN	104I 006	M06	Ultramafic-hosted asbestos	Asbestos	15,700,000	Inferred	5
JOEM	104P 059	L05	Pb-Zn skarn	Pb-Zn	12,521,050	Indicated	4
AKIE	094F 031	E14	Sedimentary exhalative Zn-Pb-Ag	Pb-Zn	12,000,000	Inferred	5
ACE	104K 025	M06	Ultramafic-hosted asbestos	Asbestos	11,793,401	Inferred	5
MAX	104B 013	K03	Fe skarn	Iron	11,176,550	Indicated	4
GRANDUC	104B 021	G04	Besshi massive sulphide Cu-Zn	Polymetallic	9,890,000	Indicated	4
TULSEQUAH CHIEF	104K 002	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	7,910,000	Measured	3
FIRESIDE	094M 003	I10	Vein barite	Barite	5,239,000	Measured	3
RED (SPING)	094D 104	D03	Volcanic redbed Cu	Copper	4,989,050	Indicated	4
MO	094N 008	E10	Carbonate-hosted barite	Barite	3,400,000	Inferred	5
ISKUT WOLLASTONITE	104B 384	K09	Wollastonite skarn	Other	3,020,000	Inferred	5
E & L	104B 006	M02	Tholeiitic intrusion-hosted Ni-Cu	Ni-Cu	2,927,485	Combined	5
BEVELEY	094C 023	E13	Irish-type carbonate-hosted Zn-Pb	Pb-Zn	2,821,081	Inferred	5
SILVERTIP	104O 038	E14	Sedimentary exhalative Zn-Pb-Ag	Pb-Zn	2,570,000	Combined	5
O'CONNOR RIVER	114P 005	F02	Bedded gypsum	Other	2,500,000	Inferred	5
KLIYUL	094D 023	I13	Sn veins and greisens	Other	2,300,000	Indicated	4
HASKIN MOUNTAIN SE	104P 038	K02	Pb-Zn skarn	Pb-Zn	1,723,652	Combined	5
BIG MISSOURI	104B 046	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	1,685,200	Measured	3
TORO	094K 050	I06	Cu+/-Ag quartz veins	Copper	1,423,860	Combined	2
EAGLE	094K 012	I06	Cu+/-Ag quartz veins	Copper	1,247,897	Measured	3
ERICKSEN-ASHBY	104K 009	K02	Pb-Zn skarn	Pb-Zn	907,100	Indicated	4
S-1	104B 084	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	800,000	Inferred	5
SPECTRUM	104G 036	L04	Porphyry Cu ± Mo ± Au	Cu +/- Mo	614,700	Indicated	4
ROCK AND ROLL	104B 377	G04	Besshi massive sulphide Cu-Zn	Polymetallic	580,544	Indicated	4
MAGNO	104P 006	J01	Polymetallic manto Ag-Pb-Zn	Pb-Zn	488,510	Inferred	5
NONDA CREEK	094K 001	I10	Vein barite	Barite	450,000	Inferred	5
KUHN	104P 071	K02	Pb-Zn skarn	Pb-Zn	409,300	Combined	6
INEL	104B 113	G04	Besshi massive sulphide Cu-Zn	Polymetallic	317,485	Indicated	4
JAN 1-2	104G 027	E02	Kipushi Cu-Pb-Zn	Polymetallic	272,130	Unclassified	6
HANK	104G 107	I05	Polymetallic veins Ag-Pb-Zn±Au	Polymetallic	226,775	Indicated	4
EWEN BARITE	104O 050	E17	Sediment-hosted barite	Barite	181,000	Inferred	5
GEORGE GOLD-COPPER UPPER	104A 129	L01	Subvolcanic Cu-Ag-Au (As-Sb)	Polymetallic	180,000	Unclassified	6
INDEPENDENCE	104A 038	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	177,809	Inferred	5
DAGO HILL	104B 045	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	150,000	Inferred	5
ATLIN RUFFNER	104N 011	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	113,638	Unclassified	6
ATLIN	104N 079	F09	Playa and Alkaline Lake Evaporites	Other	107,037	Unclassified	6
DEAD GOAT	104P 079	K01	Cu skarn	Copper	100,900	Indicated	4
HOPE-POWER	104B 154	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	100,000	Measured	3
PROVINCE	104B 147	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	100,000	Inferred	5
MAGNUM	094K 003	I06	Cu+/-Ag quartz veins	Copper	90,710	Inferred	5
TOAD	094K 002	I06	Cu+/-Ag quartz veins	Copper	90,710	Indicated	4
SPOKANE	104M 006	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	77,216	Inferred	5
AMY	104O 004	J01	Polymetallic manto Ag-Pb-Zn	Pb-Zn	72,431	Combined	6
NORTHSTAR - LINDEBORG	104B 146	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	47,100	Measured	3
HOLLIDAY-DISCOVERY	104O 001	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	36,287	Inferred	5
JOE REED	104P 021	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	36,284	Indicated	4
FIRESTEEL	094E 002	K02	Pb-Zn skarn	Pb-Zn	33,060	Unclassified	6
MCDAME BELLE	104P 022	K02	Pb-Zn skarn	Pb-Zn	32,652	Indicated	4
FERGUSON	094C 002	J01	Polymetallic manto Ag-Pb-Zn	Pb-Zn	22,677	Unclassified	6
RED CLIFF (L. 75)	104A 037	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	18,856	Unclassified	6
SILVER TIP	104B 043	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	12,111	Indicated	4
HAWK	104G 005	I05	Polymetallic veins Ag-Pb-Zn±Au	Polymetallic	11,520	Indicated	4
GOAT	104A 002	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	8,800	Combined	6
CREEK	104B 086	G06	Noranda/Kuroko massive sulphide Cu-Pb-Zn	Polymetallic	7,500	Measured	3
TERMINUS	104A 016	I05	Polymetallic veins Ag-Pb-Zn+/-Au	Polymetallic	5,182	Unclassified	6
PANORAMA SOUTH	104A 082	A05	Anthracite	Coal	0	Reserves are in	5
GALORE CREEK - SOUTHWEST	104G 095	L03	Alkalic porphyry Cu-Au	Copper	0	Indicated	4
GALORE CREEK - NORTH JUNCTION	104G 092	H08	Alkalic intrusion-associated Au	Other	0	Indicated	4

**Notes:**

Data Source: MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005

\* British Columbia Deposit Profiles, Version 2.1 (Geological Survey Branch 1995 and 1999): <http://www.em.gov.bc.ca/mining/Geolsurv/MetallicMinerals/MineralDepositProfiles/default.htm>  
<http://www.em.gov.bc.ca/mining/Geolsurv/MetallicMinerals/MineralDepositProfiles/default.htm>

Yukon Mineral Deposit Profiles, Yukon Geological Survey Open File 2005-5 (Fonseca and Bradshaw 2005):

[http://www.geology.gov.yk.ca/metallogeny/mineral\\_deposit\\_profiles/](http://www.geology.gov.yk.ca/metallogeny/mineral_deposit_profiles/)

<sup>1</sup> 1 = proven, 2 = probable, 3 = measured, 4 = indicated, 5 = inferred, 6 = other

**Mineral Deposits of Yukon Territory**  
Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development For Mineral Resources

Property Name	Minfile No.	Property Owner	Deposit Profile No.*	Deposit Type	Commodity	Total Reserve Reported	Type of Reserve	Reserve Certainty <sup>1</sup>	Comment
CREST	106F 008	Chevron Resources Canada	G01	Iron Formation	Iron	3,175,147,000			
CASINO	115J 028	Great Basin Gold Ltd / Lumina Copper Corp.	L04	Porphyry Cu-Mo-Au	Cu +/- Mo	964,000,000			
RED MOUNTAIN	105C 009	Tintina Mines Ltd.	L05	Porphyry Cu-Mo-Au	Cu +/- Mo	187,270,000			
ILLTYD (Bonnet Plume Coal)	106E 035	Philip Wheelton	A04	Bituminous Coal	Coal	183,640,000	Measured	3	
LOGTUNG	105B 039	Strategic Metals Ltd.	L07	Porphyry W	Tungsten	162,000,000			
SPACESHIP	106E 038	Philip Wheelton	A04	Bituminous Coal	Coal	157,950,000	Inferred	5	
POLE	106E 021	Philip Wheelton	A04	Bituminous Coal	Coal	133,580,000	Inferred	5	
DESLAURIER	106E 037	Philip Wheelton	A04	Bituminous Coal	Coal	104,630,000	Indicated	4	
SULPETRO	095D 026	Duane Poliquin	A03	Sub-bituminous coal	Coal	67,000,000			
ANNIV	105I 037	Placer Dome (CLA) Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	61,000,000			
HOWARDS PASS	105I 012	Placer Dome (CLA) Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	59,000,000			
DIVISION	115H 013	Cash Minerals Ltd	A04	Bituminous Coal	Coal	52,900,000	Indicated	4	
PAN OCEAN	106E 036	Philip Wheelton	A04	Bituminous Coal	Coal	47,560,000	Inferred	5	
WELLGREEN	115G 024	Northern Platinum Ltd	M02	Gabbroid Cu-Ni-PGE	Ni-Cu	42,330,000			
CASH	115I 037	none (Selkirk First Nation)	L04	Porphyry Cu-Mo-Au	Cu +/- Mo	36,290,000			
ALTO	116K 005	Eagle Plains Resources Ltd	F11	Iron Formation / Statiform Phosphate	Iron	27,200,000			Massive oolitic magnetite
GRUM	105K 056	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	18,649,000	Probable	2	
MARATHON	106E 013	Philip Wheelton	A04	Bituminous Coal	Coal	18,400,000			
DY / GRIZZLY	105K 101	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	17,240,000	Indicated	4	
KETZA	105F 019	YGC Resources Ltd	J01	Polymetallic Manto Ag-Pb-Zn	Pb-Zn	16,051,000			
WILLIAMS CREEK	115I 008	Western Silver Corp	L03	Alkalic porphyry Cu-Au	Copper	15,550,000			May produce copper on site, not concentrate
BLLENDE	106D 064	Eagle Plains Resources Ltd	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	15,300,000			
GARLIC RING	106E 032	Philip Wheelton	A04	Bituminous Coal	Coal	14,150,000	Indicated	4	
JASON	105O 019	Mac Pass Resources Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	14,100,000			
MACTUNG	105O 002	North American Tungsten Corp. Ltd.	K05	W Skarn	Tungsten	13,669,000			
LOGAN	105B 099	Expatriate Resources Ltd and Almaden Minerals Ltd.	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	13,080,000			
TAG (Kudz Ze Kayah)	105G 117	Teck Cominco Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	11,300,000			
TOM	105O 001	Hudson Bay Exploration and Development Co Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	9,283,700	Indicated	4	
PAGISTEEL	106D 049	Strategic Metals Ltd.	D07	Iron Oxide Breccias & Veins (Wernecke Breccias)	Iron	9,100,000			
MINTO	115I 021	Minto Exploration Ltd.	L03	Alkalic porphyry Cu-Au	Copper	8,818,000			Includes reserve from Def (115I 022)
FYRE	105G 034	Pacific Ridge Exploration Ltd	G04	Besshi Massive Sulphide Cu-Zn	Polymetallic	8,200,000			
MEL	095D 005	International Barytex Resources Ltd	E17	Sediment-Hosted Barite	Barite	6,800,000			
CLEAR LAKE	105L 045	Energold Mining Ltd	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	5,570,114			
MARG	106D 009	Atna Resources Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	5,527,000			
FETISH (Wolverine)	105G 072	Expatriate Resources Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	4,941,000			
RAY GULCH	106D 027	StrataGold Corp.	K05	W Skarn	Tungsten	4,861,593			
ICE	105G 118	Expatriate Resources Ltd	G05	Cyprus Massive Sulphide Cu-Zn	Polymetallic	4,561,863			
SWIM	105K 046	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	4,300,000			
HASSELBERG (Wolf)	105G 008	Atna Resources Ltd and YGC Resources Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	4,100,000			
REX	115A 032	unknown	M06	Ultramafic-hosted asbestos	Asbestos	3,628,739			
WHITEHORSE COPPER	105D 053	H. Coyne and Sones Ltd, Northwest Enterprises, Klwane Drilling	K01	Cu Skarn	Copper	3,059,000			
RACICOT	105O 013	unknown	E17	Sediment-Hosted Barite	Barite	2,721,554			Likely same reserve as Gary (105O 027)
GARY	105O 027	unknown	E17	Sediment-Hosted Barite	Barite	2,721,554			Likely same reserve as Racicot (105O 013)
RISBY	105F 034	Ron Berdahl	K05	W Skarn	Tungsten	2,700,000			
GOZ	106C 020	Almaden Minerals Ltd	E12	Mississippi Valley-Type Pb-Zn (MVT)	Pb-Zn	2,494,758			
WHITEHORSE COAL	105D 042	Whitehorse Coal Corp	A05	Anthracite - Coal	Coal	2,381,384			Underground production reserves
MT. HUNDERE	105A 012	Teck Cominco and Korea Zinc Co Ltd	J01	Polymetallic Manto Ag-Pb-Zn	Pb-Zn	2,190,000			
GP4F	105G 143	Teck Cominco Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	1,500,000			
WHISKEY LAKE	105F 048	Archer, Cathro and Associates (1981) Ltd	A04	Bituminous Coal	Coal	1,100,000			Based on 1 - 150m of cover
MCMILLAN	095D 006	American Smelting and Refining Co	J01	Polymetallic Manto Ag-Pb-Zn	Pb-Zn	1,100,000			
CRAIG	106C 073	Falconbridge Ltd.	E12	Mississippi Valley-Type Pb-Zn (MVT)	Pb-Zn	874,980			
UNITED KENO HILL	105M 001	Federal gov't & YTG	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	856,382			
TINTA HILL	115I 058	Midnight Mines Ltd	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	843,000			
SOUTH TANTALUS	115I 001	Archer, Cathro and Associates (1981) Ltd	A04	Bituminous Coal	Coal	780,633	Inferred	5	
CALEY	116C 033	unknown	M06	Ultramafic-hosted asbestos	Asbestos	670,927			
MATT BERRY	105H 021	International Barytex Resources Ltd	G06	Kuroko Massive Sulphide Cu-Pb-Zn	Polymetallic	533,430			
HART RIVER	116A 009	Calypso Developments Ltd	G04	Besshi Massive Sulphide Cu-Zn	Polymetallic	523,849			
PLATA	105N 003	Big Blackfoot Resources Ltd	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	453,592			
WALT	105O 021	Jim Coyne	E17	Sediment-Hosted Barite	Barite	450,000	Inferred	5	
BAILEY	105A 017	North American Tungsten Corp. Ltd.	K05	W Skarn	Tungsten	404,600			
CANALASK	115F 045	StrataGold Corp.	M02	Gabbroid Cu-Ni-PGE	Ni-Cu	390,235			
SAMOVAR (Tea)	105O 020	H. Coyne and Sons Ltd	E17	Sediment-Hosted Barite	Barite	377,038			
VERA	106C 083	Manson Creek Resources Ltd.	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	352,695			
CLARK	106D 011	Tanana Exploration Inc.	J01	Polymetallic Manto Ag-Pb-Zn	Pb-Zn	327,373			
PIKE	105J 003	P. Risby?	I06	Cu+/-Ag Quartz Veins	Copper	300,000			Very rough calculation
BARITE MOUNTAIN	105F 038	A. Matovich	I10	Barite-Fluorite Veins	Barite	230,427			
GROUNDHOG	105F 029	St. Cyr Range Minerals Exploration	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	200,950			
WANGORDA	105K 055	Federal gov't & YTG	E14	Sedimentary Exhalative Zn-Pb-Ag (Sedex)	Pb-Zn	165,000	Proven	1	
PESO	106D 021	M.J. Moreau	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	139,371			
BECKER-COCHRAN	105D 027	Tagish Lake Gold Corp?	I09	Stibnite Veins & Disseminations	Other	127,007			
ZETA	115P 047	Ron Berdahl	I13	Sn Veins and Greisens	Other	98,248			
HART	105B 021	Wally Hyde	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	97,370			
TINTINA	105G 006	Tintina Silver Mines Ltd	J01	Polymetallic Manto Ag-Pb-Zn	Pb-Zn	90,719			
LOGJAM	105B 038	Farrell Andersen	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	70,144			
VENUS	105D 005	Ron Berdahl	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	61,689			
OMEGA	115P 045	unknown	E17	Sediment-Hosted Barite	Barite	30,000			
VAL	106C 085	Prism Resources Inc	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	19,958			
STORMY	105F 011	Deborah Moreau	K05	W Skarn	Tungsten	15,628			
KETZKEY	105F 057	R. Berdahl?	I05	Polymetallic Veins Ag-Pb-Zn+/-Au	Pb-Zn	10,702			
TANTALUS MINE	115I 002	Archer, Cathro and Associates (1981) Ltd	A04	Bituminous Coal	Coal	0			No reserves figures available due to structural complexity of deposit
BOUNDARY	117A 072	n/a	G01	Iron Formation / Statiform Phosphate	Iron	0			Area withdrawn from staking for National Park.
RITCO	105A 013	Teck Cominco and Korea Zinc Co Ltd	K02	Pb-Zn Skarn	Pb-Zn	0			Reserve is included with Mt. Hundare (105A 012)
BIG FISH	117A 038	n/a	G01	Iron Formation / Statiform Phosphate	Iron				Very low grade. Area withdrawn from staking for National Park. 15% Phosphate as well
RAPID	117A 027	n/a	G01	Iron Formation / Statiform Phosphate	Iron				Very low grade. Area withdrawn from staking for National Park. Fe, MnO and P205
DEF	115I 022	Minto Exploration Ltd.	L03	Alkalic porphyry Cu-Au	Copper				Reserve is included with Minto (115I 021)

**Notes:**

Data Source: MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005

\* British Columbia Deposit Profiles, Version 2.1 (Geological Survey Branch 1995 and 1999): <http://www.em.gov.bc.ca/mining/Geosurv/MetallicMinerals/MineralDepositProfiles/default.htm>  
<http://www.em.gov.bc.ca/mining/Geosurv/MetallicMinerals/MineralDepositProfiles/default.htm>

Yukon Mineral Deposit Profiles, Yukon Geological Survey Open File 2005-5 (Fonseca and Bradshaw 2005):  
[http://www.geology.gov.yk.ca/metallogeny/mineral\\_deposit\\_profiles/](http://www.geology.gov.yk.ca/metallogeny/mineral_deposit_profiles/)

<sup>1</sup> 1 = proven, 2 = probable, 3 = measured, 4 = indicated, 5 = inferred, 6 = other NOT COMPLETE AT THIS TIME

# Appendix B

## Property Detail Sheets

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>		<b>MINFILE NO.:</b>			
Crest		106F 008			
<b>Owner:</b>		<b>Website:</b>			
Chevron Canada Limited		Not relevant			
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>			
Ironstone (Alogma-type)		G01			
<b>Commodities:</b>					
Iron					
<b>Reserves (tonnes):</b>		>3,175,147,000	Historical calculation		
<b>Grades of Mineable Reserve:</b>		43.8% Fe			
<b>Project Status:</b>		Dormant			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Feasibility study completed in 1962 by Canada Bechtel Corp suggesting iron ore production rate of 3.5 to 5.0 Mt/year. Hatch (2002) completed a high-level evaluation for Promithian Inc. proposing a production of 1.5 Mt to supply a smelter facility located at the Bonnet Plume Coalfield. However, based on modern scale and demand, new iron mines (e.g. Labrador) are shipping on the order of 15 Mt of iron per year. Therefore, for the purposes of this study, we have assumed this figure.			
<b>Proposed Mineable Reserve (tonnes):</b>	3,175,147,000	<b>Project Life (years):</b>	>>30	<b>Milling Rate (tonnes/day):</b>	Assumed 162,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Gravity concentration +/-Conventional floatation		
<b>Commodity:</b>	<b>Iron Pellets</b>				
<b>Recovery:</b>	60%				
<b>Concentrate Grade:</b>	65%				
<b>Concentration Production:</b>	23,000,000 tonnes / year				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road/rail access – 3300 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		530 (inc. 200km on existing highway)	600 (inc. 270km on existing highway)	780 (inc. 450km on existing highway)	
<b>Connection Location to Railway*:</b>		Minto (km 325)	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Snake River area. Area undeveloped and has high ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Operating costs for basic gravity concentration estimated at \$16.76/tonne of concentrate (\$2.64/ton in 1965) dollar, or for floatation, leaching and pelletizing \$41.23 /tonne of concentrate (\$6.20/ton in 1965 dollars) (Canada Bechtel Corp 1965). These costs not current and should not be used.			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Wahl, W. 1962. Summary report of work conducted on Yukon Iron &amp; Mica claims. Snake River area. Yukon Territory. Prepared for Crest Exploration Limited. Assessment Report 091697</li> <li>2. Charles, J. L., 1965. Yukon iron or railway feasibility. Prepared by Canadian National Railways and Crest Exploration Company Ltd. for the Government of Canada. Winipeg, MB.</li> <li>3. Hatch, 2002. Promithian Inc. High Level Evaluation. Prepared for Promithian Inc. Vancouver, B.C.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Bonnet Plume Coalfield – Iltyd Creek			106E 035		
<b>Owner:</b>		<b>Website:</b>			
Philip Wheelton / Promithian Inc.		www.promithian.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Measured</b>	<b>Indicated</b>	<b>Inferred</b>			
132,556,895	28,268,552	33,500,000			
<b>Grades of Mineable Reserve:</b>		CV = 22,097 kJ/kg			
<b>Project Status:</b>		Pre-feasibility competed in 1981. Co			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Mine plan calls for underground mining. However, based on modern mining costs, have assumed deposit would be mined open pit with 6:1 stripping ratio as per 1979 reserve report (Pan Ocean Oil Ltd)			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Proposed Recoverable Reserve (tonnes):</b>	11,904,762	<b>Project Life (years):</b>	12**	<b>Milling Rate (tonnes/day):</b>	2,800**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	840,700 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	420 (inc. 200km on existing highway)	490 (inc. 270km on existing highway)	670 (inc. 450km on existing highway)		
<b>Connection Location to Railway*:</b>	Minto (km 325)	Carmacks	Whitehorse		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$22.80 in 2005 dollars based on 6:1 stripping ratio and 60% coal recovery from wash plant.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Wright Engineers Ltd., 1981. Preliminary feasibility mining study, Iltyd Creek Deposit, Bonnet Plume Coalfield. Assessment Report 062114. Prepared for Pan Ocean Oil Ltd. Vancouver, B.C.</li> <li>2. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>3. Hatch, 2002. Promithian Inc. High Level Evaluation. Prepared for Promithian Inc. Vancouver, B.C.</li> <li>4. Pan Ocean Oil Ltd., 1979. Bonnet Plume Project. Report reserves and grade of coal in the bonnet plume basin, Yukon Territory. Assessment Report 061887. Vancouver, B.C.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/mileages.  
 \*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>		<b>MINFILE NO.:</b>			
Bonnet Plume Coalfield – Spaceship		106E 038			
<b>Owner:</b>		<b>Website:</b>			
Anderson Mining Company		N/a			
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>			
Bituminous Coal		A04			
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Inferred</b>		Only two boreholes drilled. Defined from geological mapping			
157,950,000					
<b>Grades of Mineable Reserve:</b>		CV = 23,297 kJ/kg. Coal horizons among best encountered in Bonnet Plume basin with aggregate thickness of 30 m of seams greater than 1.5 m thick.			
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Illyd Cr. pre-feasibility. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	31,590,000 (assumed 15% of reserve is recoverable as per Illyd Cr.)	<b>Project Life (years):</b>	15**	<b>Milling Rate (tonnes/day):</b>	5,875**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	1,748,000 tpy**				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	420 (inc. 200km on existing highway)	490 (inc. 270km on existing highway)	670 (inc. 450km on existing highway)		
<b>Connection Location to Railway*:</b>	Minto (km 325)	Carmacks	Whitehorse		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$22.80 in 2005 dollars based on 6:1 stripping ratio and 60% coal recovery from wash plant.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Bonnet Plume Coalfield – Pole			106E 021		
<b>Owner:</b>		<b>Website:</b>			
Anderson Mining Company		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Indicated</b>	<b>Inferred</b>	Only two boreholes drilled.			
28,930,000	104,650,000				
<b>Grades of Mineable Reserve:</b>		CV = 23,297 kJ/kg.			
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Illyd Cr. pre-feasibility. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	26,716,000 (assumed 20% of reserve is recoverable as per Illyd Cr.)	<b>Project Life (years):</b>	15**	<b>Milling Rate (tonnes/day):</b>	5,200**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	1,541,500 tpy**				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		415 (inc. 200km on existing highway)	485 (inc. 270km on existing highway)	665 (inc. 450km on existing highway)	
<b>Connection Location to Railway*:</b>		Minto (km 325)	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$22.80 in 2005 dollars based on 6:1 stripping ratio and 60% coal recovery from wash plant.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Bonnet Plume Coalfield – Deslaurier			106E 037		
<b>Owner:</b>		<b>Website:</b>			
Philip Wheelton / Promithian Inc.		www.promithian.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Indicated</b>	<b>Inferred</b>	Only three boreholes drilled.			
60,830,000	43,800,000				
<b>Grades of Mineable Reserve:</b>		CV = 24,888 kJ/kg.			
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Illyd Cr. pre-feasibility. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	20,926,000 (assumed 20% of reserve is recoverable as per Illyd Cr.)	<b>Project Life (years):</b>	14**	<b>Milling Rate (tonnes/day):</b>	4,300**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	1,283,000 tpy**				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		440 (inc. 200km on existing highway)	510 (inc. 270km on existing highway)	690 (inc. 450km on existing highway)	
<b>Connection Location to Railway*:</b>		Minto (km 325)	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$22.80 in 2005 dollars based on 6:1 stripping ratio and 60% coal recovery from wash plant.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Bonnet Plume Coalfield – Marathon			106E 013		
<b>Owner:</b>		<b>Website:</b>			
Anderson Mining Company		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Inferred</b>		Only two boreholes drilled.			
18,400,000					
<b>Grades of Mineable Reserve:</b>		CV = 23,297 kJ/kg.			
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Illytd Cr. pre-feasibility. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	3,680,000 (assumed 20% of reserve is recoverable as per Illytd Cr.)	<b>Project Life (years):</b>	9**	<b>Milling Rate (tonnes/day):</b>	1,170**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	348,500 tpy**				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	405 (inc. 200km on existing highway)	475 (inc. 270km on existing highway)	655 (inc. 450km on existing highway)		
<b>Connection Location to Railway*:</b>	Minto (km 325)	Carmacks	Whitehorse		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$22.80 in 2005 dollars based on 6:1 stripping ratio and 60% coal recovery from wash plant.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Bonnet Plume Coalfield – Pan Ocean			106E 036		
<b>Owner:</b>		<b>Website:</b>			
Anderson Mining Company		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Inferred</b>		Only two boreholes drilled.			
47,560,000					
<b>Grades of Mineable Reserve:</b>		CV = 23,297 kJ/kg.			
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Illyd Cr. pre-feasibility. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	9,500,000 (assumed 20% of reserve is recoverable as per Illyd Cr.)	<b>Project Life (years):</b>	11**	<b>Milling Rate (tonnes/day):</b>	2,400**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	710,500 tpy**				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	405 (inc. 200km on existing highway)	475 (inc. 270km on existing highway)	655 (inc. 450km on existing highway)		
<b>Connection Location to Railway*:</b>	Minto (km 325)	Carmacks	Whitehorse		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not yet determined.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Bonnet Plume Coalfield – Garlic Ring			106E 032		
<b>Owner:</b>		<b>Website:</b>			
Anderson Mining Company		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
High volatile bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Indicated</b>	<b>Inferred</b>	Only two boreholes drilled.			
8,600,000	5,550,000				
<b>Grades of Mineable Reserve:</b>		CV = 23,297 kJ/kg.			
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Illytd Cr. pre-feasibility. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	2,830,000 (assumed 20% of reserve is recoverable as per Illytd Cr.)	<b>Project Life (years):</b>	8**	<b>Milling Rate (tonnes/day):</b>	960**
<b>Recovery:</b>	85%				
<b>Shippable Coal Production (tonnes/year):</b>	286,000 tpy**				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 220 km road/rail to Elsa required.					
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	405 (inc. 200km on existing highway)	475 (inc. 270km on existing highway)	655 (inc. 450km on existing highway)		
<b>Connection Location to Railway*:</b>	Minto (km 325)	Carmacks	Whitehorse		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site in remote Bonnet Plume Basin. High ecotourism values, likely significant permitting and opposition to project.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not yet determined.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.  
 \*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Rock River Coalfield – Sulpetro			095D 026		
<b>Owner:</b>		<b>Website:</b>			
Almaden Minerals Ltd.		www.almadenminerals.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Sub-Bituminous Coal			A03		
<b>Commodities:</b>					
Lignite A to Sub-bituminous C coal					
<b>Reserves (tonnes):</b>					
<b>Inferred</b>		Very preliminary, only five boreholes drilled. Potential for 1,500,000,000 tonnes.			
67,000,000					
<b>Grades of Mineable Reserve:</b>			CV = 15,456 kJ/kg. Thermal coal.		
<b>Project Status:</b>		Very limited deposit definition, deposit inactive.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No mine plan, assumed some parameters from Division Mt.. pre-feasibility. Mine life estimated based on SME Handbook (1992). Miller (1982) reports minable reserve with 2:1 strip ratio.			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Assumed Recoverable Reserve (tonnes):</b>	56,000,000	<b>Project Life (years):</b>	18**	<b>Milling Rate (tonnes/day):</b>	9,900**
<b>Recovery:</b>	60% (Assumed same as Division Mt.)				
<b>Shippable Coal Production (tonnes/year):</b>	1,895,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access – 90 km road/rail to Alaska Highway required.					
<b>Railway Alignment Option:</b>	<b>Dease Lake</b>	<b>Rocky Mt. Trench</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	175 (inc. 85 km on existing highway)	135 (inc. 45 km on existing highway)	90		
<b>Connection Location to Railway*:</b>	Hwy 37 Jct.	Lower Post	Irons Creek (km 975)		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Site is remote. Coal likely best for mine mouth power plant, not export.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$18.80 in 2005 dollars based on 2:1 stripping ratio and 60% coal recovery from wash plant.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> <li>2. Aurum Geological Consultants Inc. 1984: Yukon Coal Inventory. Prepared for Energy and Mines Branch, Yukon Territorial Government. Whitehorse, Yukon.</li> <li>3. Miller, D.C., 1982. Diamond drilling report. Coal license 118. Prepared for Sulpetro Minerals Limited. Assessment Report # 062134.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/mileages.  
 \*\* Calculated from Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Division Mt.			115H 013		
<b>Owner:</b>		<b>Website:</b>			
Cash Minerals Ltd.		www.cashminerals.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A05		
<b>Commodities:</b>					
Bituminous B coal					
<b>Reserves (tonnes):</b>					
<b>Measured</b>	<b>Indicated</b>	<b>Total</b>			
38,600,000	13,000,000	51,595,000			
<b>Grades of Mineable Reserve:</b>			CV = 31,401 kJ/kg. Thermal coal.		
<b>Project Status:</b>		Scoping study completed, feasibility study in progress, exploration on-going.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Current mine plan assumes 8% of uncovered coal will not be exported, but used in mine-mouth power plant.			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	45,826,000	<b>Project Life (years):</b>	22	<b>Milling Rate (tonnes/day):</b>	5,950
<b>Recovery:</b>	60%				
<b>Shippable Coal Production (tonnes/year):</b>	1,250,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Rough road access to site – 20 km road/rail to Klondike Highway required.					
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	205 km (inc. 85 km on existing highway)	20 km	130 km (inc. 110 km on existing highway)		
<b>Connection Location to Railway*:</b>	Carmacks	Braeburn	Whitehorse		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	\$10.40 Cdn /tonne (2005). Includes mining, washing, administration, stockpiling & loading and royalties. Transportation NOT included, nor revenues from mine-mouth power plant.				
<b>REFERENCES:</b>					
1. Northwest Corporation. 2005: Division Mountain scoping study. Prepared for Cash Minerals Ltd. Salt Lake City, UT.					

*Notes: \* See Figure 1 for railway alignment distances/mileages.*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Howard's Pass (& Anniv)			105I 012 (& 105I 037)		
<b>Owner:</b>		<b>Website:</b>			
Pacifica Resources Ltd.		www.pacifica-resources.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Sedimentary Exhalative Zn-Pb-Ag (Sedex)			E14		
<b>Commodities:</b>					
Lead, Zinc & Silver					
<b>Reserves (tonnes), Indicated and Measured:</b>					
<b>Inferred</b>	<b>Potential</b>	Burgoyne report states Inferred Reserves are National Instrument 41-101 compliant.			
115,500,000	376,000,000				
<b>Grades of Reserve:</b>		2.08% Pb 5.38% Zn			
<b>Project Status:</b>	Old pre-feasibility done in 1981 by Placer Dome. Active exploration on property.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Mine plan assumed open pit with 1:1 strip ratio with gravity pre-concentration. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).			
<b>Proposed Mineable Reserve (tonnes):</b>	115,500,000	<b>Project Life (years):</b>	21**	<b>Milling Rate (tonnes/day):</b>	15,500**
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation with gravity pre-concentration		
<b>Commodity:</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>		
<b>Recovery:</b>	87%	86%			
<b>Concentrate Grade:</b>	53% **	53% **			
<b>Concentration Production (tonnes/year):</b>	187,000 tpy	480,000 tpy	659,000 tonnes / year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access, requires 75 km new road. Road access likely via Cantung					
<b>Railway Alignment Option:</b>		Tintina Trench, Alaska Highway & Taylor Route			
<b>Distance To Rail Alignment (km):</b>		355 km (inc. 280 km on Nahani Range Road & Robert Campbell Highway)			
<b>Connection Location to Railway*:</b>		Watson Lake			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Remote site, requires significant power and site access crossing through NWT.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$13.90 assuming 4:1 strip ratio, gravity pre-concentration, very complex milling and on-site diesel generation of power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Pacifica Resources Ltd. 2005: Website (www.pacifica-resources.com/exp_index.cfm)</li> <li>2. O'Donnell, J. 2005: Personal Communication. Email correspondence between Mr. J.J. O'Donnell, (Exploration Manger, Pacifica Resources Ltd.) and D. Héon .(Project Geologist) in November, 2005</li> <li>3. Burgoyne Geological Inc. 2005: Technical Evaluation Report. The Howard's Pass Project. Prepared for Pacifica Resources Ltd.. North Saanich, B.C.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/mileages.  
\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Grum			105K 056		
<b>Owner:</b>		<b>Website:</b>			
In receivership (Interim Receivers: Deloitte & Touche Inc.)		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Sedimentary Exhalative Zn-Pb-Ag (Sedex)			E14		
<b>Commodities:</b>					
Lead, Zinc and Silver					
<b>Reserves (tonnes):</b>					
<b>Proven</b>		<b>Probable</b>		<b>Total</b>	
1,589,000		17,060,000		18,649,000	
<b>Grades of Mineable Reserve:</b>			2.56% Pb 4.27% Zn 43.3 g/t Ag		
<b>Project Status:</b>		In receivership. Pit partially mined, mine site in care & maintenance, moving towards closure..			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Reserves based on Micom Intl. Ltd. Economic Feasibility Study (2002). Recoveries are from actual mill recoveries in last 14 months of Faro mine operation. Mine life assumed to be 5 years based on historical mining rate.			
<b>Proposed Mineable Reserve (tonnes):</b>	19,630,000	<b>Project Life (years):</b>	5	<b>Milling Rate (tonnes/day):</b>	11,200
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>		
<b>Recovery:</b>	76.7%	71.3%			
<b>Concentrate Grade:</b>	60%	50%			
<b>Concentration Production:</b>	128,500 tpy	239,000 tpy	367,500 tonnes/year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Requires mill to be operational (currently being closed).					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		27	205	380	
<b>Connection Location to Railway*:</b>		Faro	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Mine is in state of closure planning.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$18.30 assuming 6:1 strip ratio, complex milling and utility supplied power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Micom International Ltd 2002, Economic Evaluation of Faro Property, Y.T., prepared for Department of Indian Affairs and Northern Development.</li> <li>2. Pigage, L. 2005: Personal Communication. Email correspondence between Mr. L. Pigage, (former mine geologist at Faro) and D. Héon (Project Geologist) in November, 2005</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Grizzly (Dy)				105K 101	
<b>Owner:</b>			<b>Website:</b>		
In receivership (Interim Receivers: Deloitte & Touche Inc.)			N/a		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Sedimentary Exhalative Zn-Pb-Ag (Sedex)				E14	
<b>Commodities:</b>					
Lead, Zinc and Silver					
<b>Reserves (tonnes):</b>		17,240,000	<b>Indicated</b>		
<b>Grades of Mineable Reserve:</b>		5.03% Pb 6.49% Zn 74.3 g/t Ag			
<b>Project Status:</b>		In receivership. No activity.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Based on Micom Intl. Ltd. Economic Feasibility Study (2002). Recoveries are from actual mill recoveries in last 14 months of Faro mine operation.			
<b>Proposed Mineable Reserve (tonnes):</b>	14,860,000	<b>Project Life (years):</b>	11.5	<b>Milling Rate (tonnes/day):</b>	3,700
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>		
<b>Recovery:</b>	76.7%	71.3%			
<b>Concentrate Grade:</b>	60%	50%			
<b>Concentration Production:</b>	83,086 tpy	119,600 tpy	202,686 tonnes/year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Requires mill to be operational (currently being closed).					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		27	205	380	
<b>Connection Location to Railway*:</b>		Faro	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Mine is in state of closure planning.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$59 assuming longhole stoping with backfill, complex milling and utility supplied power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Micom International Ltd 2002, Economic Evaluation of Faro Property, Y.T., prepared for Department of Indian Affairs and Northern Development.</li> <li>2. Pigage, L. 2005: Personal Communication. Email correspondence between Mr. L. Pigage, (former mine geologist at Faro) and D. Héon (Project Geologist) in November, 2005</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Swim			105K 046		
<b>Owner:</b>		<b>Website:</b>			
In receivership (Interim Receivers: Deloitte & Touche Inc.)		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Sedimentary Exhalative Zn-Pb-Ag (Sedex)			E14		
<b>Commodities:</b>					
Lead, Zinc and Silver					
<b>Reserves (tonnes):</b>		4,300,000	<b>Indicated</b>		
<b>Grades of Mineable Reserve:</b>		3.8% Pb 4.7% Zn 42 g/t Ag			
<b>Project Status:</b>		In receivership. Small deposit.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Mine life estimated based on SME Handbook (1992). Recoveries are from actual mill recoveries in last 14 months of Faro mine operation.			
<b>Proposed Mineable Reserve (tonnes):</b>	4,300,000	<b>Project Life (years):</b>	9	<b>Milling Rate (tonnes/day):</b>	1,300
<b>Mining Method:</b>	Unknown	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>		
<b>Recovery:</b>	76.7%	71.3%			
<b>Concentrate Grade:</b>	60%	50%			
<b>Concentration Production:</b>	23,210 tpy	32,020 tpy	55,230 tonnes/year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Requires mill to be operational (currently being closed).					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		27	205	380	
<b>Connection Location to Railway*:</b>		Faro	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Mine is in state of closure planning.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$30 assuming 2:1 strip ratio (estimated from deposit geometry), very complex milling due to oxidized surface ore and utility supplied power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Micom International Ltd 2002, Economic Evaluation of Faro Property, Y.T., prepared for Department of Indian Affairs and Northern Development.</li> <li>2. Pigage, L. 2005: Personal Communication. Email correspondence between Mr. L. Pigage, (former mine geologist at Faro) and D. Héon (Project Geologist) in November, 2005</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Wolverine				105G 072	
<b>Owner:</b>			<b>Website:</b>		
Yukon Zinc Corporation			www.yukonzinc.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Kuroko Cu-Pb-Zn-(Ag)				G06	
<b>Commodities:</b>					
Polymetallic (Copper, Lead, Zinc, Silver)					
<b>Reserves (tonnes):</b>					
<b>Indicated</b>		<b>Inferred</b>			
4,491,000		498,000			
<b>Grades of Mineable Reserve:</b>			12.66% Zn 1.55% Pb 1.33% Cu 371 g/t Ag 1.76 g/t Au		
<b>Project Status:</b>		Environmental Assessment filed and production planned third quarter 2007			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>			Information primary from Environmental Assessment report and Hatch 2000 pre-feasibility study.		
<b>Proposed Mineable Reserve (tonnes):</b>	6,400,000	<b>Project Life (years):</b>	12	<b>Milling Rate (tonnes/day):</b>	1,250 tpd
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>	
<b>Recovery:</b>	78%	44%	87%		
<b>Concentrate Grade:</b>	22%	22%	55%		
<b>Concentration Production (tonnes/year):</b>	16,790	9,490	87,235	166,600 tonnes / year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
26 km access road to Robert Campbell Highway					
<b>Railway Alignment Option:</b>		Tintina Trench, Taylor Route & Alaska Highway			
<b>Distance To Rail Alignment (km):</b>		200 (inc. 185 km on Robert Campbell Highway)			
<b>Connection Location to Railway*:</b>		Watson Lake			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Costs estimated at \$61 / tonne (2005 dollars) based on Hatch 2000 Pre-feasibility study.				
<b>REFERENCES:</b>					
1. Yukon Zinc Corporation. 2005: Website (www.yukonzinc.com)					
2. Yukon Zinc Corporation and AXYS Environmental Consulting Ltd.. 2005: Wolverine Project. Environmental Assessment Report. <a href="http://www.gov.yk.ca/depts/eco/dap/projects/wolverine/index.html">http://www.gov.yk.ca/depts/eco/dap/projects/wolverine/index.html</a> . Vancouver, B.C.					
3. Hatch. 2000. Pre-feasibility for Finlayson Project. Prepared for Expatriate Resources Ltd. Vancouver, B.C.					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Kudz Ze Kayah				105G 117	
<b>Owner:</b>			<b>Website:</b>		
Teck Cominco Ltd.			www.teckcominco.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Kuroko Cu-Pb-Zn-(Ag)				G06	
<b>Commodities:</b>					
Polymetallic (Copper, Lead, Zinc, Silver)					
<b>Reserves (tonnes):</b>		11,300,000		<b>Measured &amp; Indicated</b>	
<b>Grades of Mineable Reserve:</b>		5.9% Zn 1.5% Pb 0.9% Cu 137 g/t Ag 1.3 g/t Au			
<b>Project Status:</b>		Property fully permitted but not developed			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primary from Environmental Assessment report and Hatch 2000 pre-feasibility study.			
<b>Proposed Mineable Reserve (tonnes):</b>	9,400,000	<b>Project Life (years):</b>	9	<b>Milling Rate (tonnes/day):</b>	2,950 tpd
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>	
<b>Recovery:</b>	82%	75%	91%		
<b>Concentrate Grade:</b>	25.5%	49.5%	53%		
<b>Concentration Production (tonnes/year):</b>	32,300	24,800	108,770	165,850 tonnes / year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
26 km access road to Robert Campbell Highway					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>		<b>Taylor Route &amp; Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		75 km (new road)		240 (inc. 225 km on Campbell Highway)	
<b>Connection Location to Railway*:</b>		Ings River (km 730)		Watson Lake	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Calculated at \$38 (in 2005 dollar) based 2000 pre-feasibility study.			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Cominco Ltd. 1997: Kudz Ze Kayah Water License Application</li> <li>2. Cominco Ltd. 1995: Kudz Ze Kayah Project Draft Feasibility Engineering Study</li> <li>3. Hatch. 2000. Pre-feasibly for Finlayson Project. Prepared for Expatriate Resources Ltd. Vancouver, B.C.</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Fyre (Kona)				105G 034	
<b>Owner:</b>			<b>Website:</b>		
Pacific Ridge Exploration Ltd			www.pacificridgeexploration.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Besshi Cu-(Zn)				G04	
<b>Commodities:</b>					
Polymetallic (Copper, Gold, Cobalt, Silver)					
<b>Reserves (tonnes):</b>		8,200,000		<b>Indicated</b>	
<b>Grades of Mineable Reserve:</b>		2.1% Cu 0.11% Co 0.73 g/t Au			
<b>Project Status:</b>		Scoping study done assuming 20 Mt reserves. Project dormant.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primary from Environmental Assessment report			
<b>Proposed Mineable Reserve (tonnes):</b>	8,200,000	<b>Project Life (years):</b>	4 (scoping study assumed 20 Mt, therefore 8.5 mine life)	<b>Milling Rate (tonnes/day):</b>	6,700 tpd
<b>Mining Method:</b>	Open Pit & Underground	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Pyrite (Co)</b>	<b>Total</b>		
<b>Recovery:</b>	90%	70-90%			
<b>Concentrate Grade:</b>	22%	Unknown, assumed 50%			
<b>Concentration Production (tonnes/year):</b>	176,100	1,804	177,900 tonnes / year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
26 km access road to Robert Campbell Highway					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route &amp; Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>		20 km (new road)	275 (inc. 225 km on Campbell Highway)		
<b>Connection Location to Railway*:</b>		Ings River (km 730)	Watson Lake		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Calculated at \$27 assuming 8:1 strip ratio, very complex milling and on-site diesel supplied power.			
<b>REFERENCES:</b>					
1. Pacific Ridge Exploration Ltd. 2005: Website (www.pacificridgeexploration.com/s/FyreLakeProject-Overview.asp)					
2. Columbia Gold Mines Ltd . 1997: Fyre Lake scoping study completed. Press Release. Vancouver, B.C.					

*Notes: \* See Figure 1 for railway alignment distances/ mileages*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Ice				105G 118	
<b>Owner:</b>			<b>Website:</b>		
Yukon Zinc Corporation			www.yukonzinc.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Cyprus (Cu)				G05	
<b>Commodities:</b>					
Polymetallic (Copper)					
<b>Reserves (tonnes):</b>		4,561,863		<b>Indicated</b>	
<b>Grades of Mineable Reserve:</b>		1.48% Cu			
<b>Project Status:</b>		Project dormant.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Open pit mineable reserve from Yukon Zinc website. Mine life based on same milling rate at Wolverine and commodity recovery estimated based on O'Hare (1980).			
<b>Proposed Mineable Reserve (tonnes):</b>	3,400,000	<b>Project Life (years):</b>	8	<b>Milling Rate (tonnes/day):</b>	1,250 tpd
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	Copper				
<b>Recovery:</b>	89% **				
<b>Concentrate Grade:</b>	28.5% **				
<b>Concentration Production (tonnes/year):</b>	19,654				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Have assumed product will be milled at Wolverine, therefore haulage distances are shown from Wolverine mine. Also, a 17 km access road to Robert Campbell Highway					
<b>Railway Alignment Option:</b>		<b>Tintina Trench, Taylor Route &amp; Alaska Highway</b>			
<b>Distance To Rail Alignment (km):</b>		200 (inc. 185 km on Robert Campbell Highway)			
<b>Connection Location to Railway*:</b>		Watson Lake			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Calculated at \$34.50 assuming 2:1 strip ratio, complex milling and on-site diesel supplied power.			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Yukon Zinc Corporation. 2005: Website (www.yukonzinc.com/ice.htm)</li> <li>2. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/mileages  
 \*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Tom & Jason				1050 001 & 1050 019	
<b>Owner:</b>			<b>Website:</b>		
Hudson Bay Exploration Development Co. Ltd. and Mac Pass Resources Ltd			N/a		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Sedimentary Exhalative Zn-Pb-Ag (Sedex)				E14	
<b>Commodities:</b>					
Lead, Zinc and Silver					
<b>Reserves (tonnes):</b>					
<b>Tom (Proven &amp; probable)</b>		<b>Jason (Probable &amp; Possible)</b>		<b>Combined</b>	
8,969,845		10,866,000		19,835,900	
<b>Average grade of combined mineable reserves:</b>		6.91% Pb 7.76% Zn 78.5 g/t Ag			
<b>Project Status:</b>		No project activity. Combined feasibility study done in 1985			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Mine plan and costs from 1985 feasibility study (HBM&S and Aberford Resources) .			
<b>Proposed Mineable Reserve (tonnes):</b>	18,366,627	<b>Project Life (years):</b>	14	<b>Milling Rate (tonnes/day):</b>	4,500
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>		
<b>Recovery:</b>	91%	79%			
<b>Concentrate Grade:</b>	68%	56%			
<b>Concentration Production:</b>	100,814 tpy	134,160 tpy	235,000 tonnes/year		
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		210 (North Canol)	445 (inc. 236km on Campbell Hwy)	575 (inc. 365 km on Robert Campbell and Klondike Highways)	
<b>Connection Location to Railway*:</b>		Ross River	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Requires upgrade of Canol highway to 4 season road. Remote site.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Operating costs \$70.22 (\$41.17 in 1985 dollars), including mining, concentrating, general and admin, but not transportation nor smelting.				
<b>REFERENCES:</b>					
1. Hudson Bay Mining & Smelting Co. Ltd. and Aberford Resource Ltd. 1985. Feasibility study on Tom/Jason project, Yukon Territory. Assessment Report 062114.					

*Notes: \* See Figure 1 for railway alignment distances/ mileages*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Wellgreen			115G 024		
<b>Owner:</b>		<b>Website:</b>			
Northern Platinum Ltd		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Gabbroid Cu-Ni-PGE			M02		
<b>Commodities:</b>					
Nickel, Copper, Platinum Group Elements					
<b>Reserves (tonnes):</b>					
<b>Inferred</b>	<b>Possible</b>	<b>Total</b>			
46,700,000	8,500,000	55,200,000			
<b>Grades of Mineable Reserve:</b>		0.35% Cu 0.36% Ni 0.51 g/t Pt 0.34 g/t Pd			
<b>Project Status:</b>	Mined shortly in 1970's. Exploration current. Preliminary feasibility study done in 1989.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		1989 feasibility study assumed smelter on-site to produce 40% Ni-Cu matte on site. However, as the railway is proposed to run adjacent to the property, for the purposes of this study, it is assumed a smelter would not be required.			
<b>Proposed Mineable Reserve (tonnes):</b>	36,500,000	<b>Project Life (years):</b>	10	<b>Milling Rate (tonnes/day):</b>	10,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation & smelting to matte on site		
<b>Commodity:</b>	<b>Copper</b>	<b>Nickel</b>	<b>PGE</b>		
<b>Recovery:</b>	92%	82%	68%		
<b>Matte Grade:</b>	40%				
<b>Concentration Production:</b>	50,000 tonnes / year				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Former mill site on highway, existing road to Alaska Highway.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		325	160 km	13 km	
<b>Connection Location to Railway*:</b>		Whitehorse	Snag	Quill Creek (km 275)	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Operating costs \$26.69 (\$18.60 in 1989 dollars), including mining, concentrating, smelting to matte, general and admin.				
<b>REFERENCES:</b>					
1. Watts, Griffis and McQuat Limited. 1989: Preliminary feasibility study of Wellgreen project for All-North Resources Ltd. Toronto, ON.					
2. Northern Platinum Ltd. 2005: Wellgreen deposit Yukon Territory. 2005 exploration program. Press Release. Vancouver, B.C.					

Notes: \* See Figure 1 for railway alignment distances/ mileages

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Casino				115J 028	
<b>Owner:</b>			<b>Website:</b>		
Great Basin Gold Ltd / Lumina Copper Corp			www.luminaresources.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Porphyry Cu +/-Mo +/-Au				L04	
<b>Commodities:</b>					
Copper, Gold, Molybdenum					
<b>Reserves (tonnes), Indicated and Measured:</b>					
<b>Supergene Oxide</b>	<b>Supergene Sulphide</b>	<b>Hypogene</b>			
42,000,000	124,000,000	798,000,000			
<b>Grades of Mineable Reserve:</b>		0.303% Cu 0.376 g/t Au 0.028% Mo			
<b>Project Status:</b>	Feasibility Stage. Pre-feasibility completed in 1997				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Mine plan calls for mining of sulphide ore only.			
<b>Proposed Mineable Reserve (tonnes):</b>	178,200,000	<b>Project Life (years):</b>	25	<b>Milling Rate (tonnes/day):</b>	25,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Gold</b>	<b>Molybdenum</b>	<b>Total</b>	
<b>Recovery:</b>	80%	72%	62%		
<b>Concentrate Grade:</b>	21%	23.6 g/t	53%		
<b>Concentration Production (tonnes/year):</b>	Years 1 – 19: 105,000 tpy Years 20 – 25: 60,196 tpy		31,00 tpy 988 tpy	108,100 tonnes/year 61,184 tonnes/year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access. Possible road access likely via Freegold Rd. to Carmacks (xx km)					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		26 (new road)	75 (new road)	140 (inc. 28km on Snag road)	
<b>Connection Location to Railway*:</b>		Isaac Cr. (km 250)	Nisling R. (km 110)	Snag Junction (km 275)	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$8.66 assuming 1.06:1 strip ratio, simple milling and utility supplied power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>Lumina Resources Corp. 2005: Website (www.luminaresources.com)</li> <li>Floyd, T. 2005: Personal Communication. Telephone conversation between Mr. T. Floyd, (President, Lumina Resources) and D. Héon (Project Geologist) held in November, 2005</li> <li>Pacific Sentinel Gold Corp. 1995: Positive test results at Casio Project. Press Release. Provided by Tony Floyd, Lumina Resources. Vancouver, B.C.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>		<b>MINFILE NO.:</b>	
Cash		115I 037	
<b>Owner:</b>		<b>Website:</b>	
None – Selkirk First Nation		N/a	
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>	
Porphyry Cu +/-Mo +/-Au		L04	
<b>Commodities:</b>			
Copper, Molybdenum			
<b>Reserves (tonnes):</b>			
<b>Historical calculation based on 16 drill holes:</b>		36,290,000 tonnes	
<b>Grades of Reserve:</b>		0.17% Cu 0.018% Mo	
<b>Project Status:</b>	Deposit dormant due to being withdrawn from staking due to location in Selkirk First Nation Class-A settlement land.		
<b>MINING &amp; MILLING:</b>			
<b>Mine Plan Comments:</b>		No feasibility study completed. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980) or assumed from Casino Project pre-feasibility study example.	
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation
<b>Assumed Mineable Reserve (tonnes):</b>	34,475,500**	<b>Project Life (years):</b>	16**
<b>Commodity:</b>	<b>Copper</b>	<b>Molybdenum</b>	<b>Total</b>
<b>Recovery:</b>	71%**	62%***	
<b>Concentrate Grade:</b>	21%***	53%***	
<b>Concentration Production (tonnes/year):</b>	12,400	450	12,850 tonnes/yr
<b>INFRASTRUCTURE REQUIREMENTS:</b>			
90 km gravel road (not maintained) to site from Carmacks.			
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>
<b>Distance To Rail Alignment (km):</b>	60 km to Hayes Cr. or 90 km via Freegold Rd. to Carmacks	38 km to via Magie Cr. or 90 km via Freegold Rd. to Carmacks	270 km (inc. 90 km upgraded Freegold Road)
<b>Connection Location to Railway*:</b>	Selwyn (km 250) or Carmacks	Klaza Cr. (km 200) or Carmacks	Whitehorse
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>			
Deposit lies on Class-A Selkirk First Nation Land, thereby potentially reducing/limiting attractiveness			
<b>MINE ECONOMICS:</b>			
<b>Mining and Milling Cost:</b>	Calculated at \$16.29 assuming 1:1 strip ratio, simple milling and on-site diesel supplied power.		
<b>REFERENCES:</b>			
<ol style="list-style-type: none"> <li>1. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>			

Notes: \* See Figure 1 for railway alignment distances/mileage  
 \*\* Calculated from O'Hare 1980 and/or Hartman 1992  
 \*\*\* Assumed from Casino project pre-feasibility study example..

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b> Minto (& DEF)				<b>MINFILE NO.:</b> 115I 021 (115I 022)	
<b>Owner:</b> Sherwood Copper Corp/ Minto Exploration			<b>Website:</b> www.sherwoodcopper.com		
<b>Deposit Type:</b> Alkalic porphyry Cu-Au				<b>Deposit Profile No.</b> L03	
<b>Commodities:</b> Copper, Gold					
<b>Reserves (tonnes):</b>					
<b>Measured &amp; Indicated</b>		<b>Inferred</b>			
8,340,000		700,000			
<b>Grades of Mineable Reserve:</b>			1.83 % Cu 0.48 g/t Au		
<b>Project Status:</b>		Mine permitted and partially constructed.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>			Feasibility study completed in 1995.		
<b>Proposed Mineable Reserve (tonnes):</b>	7,500,000	<b>Project Life (years):</b>	12	<b>Milling Rate (tonnes/day):</b>	1,723
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	Copper				
<b>Recovery:</b>	94%				
<b>Concentrate Grade:</b>	37%				
<b>Concentration Production :</b>	26,900 tonnes/year				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Current road to Minto (requires barging over Yukon River)					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		22	100 (inc 75 km on highway)	275 (inc 250 km on highway)	
<b>Connection Location to Railway*:</b>		Minto	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	2000 feasibility (Hatch) suggests \$25.82 / tonne (22.94 in 2000 dollars) / tonne operating cost.				
<b>REFERENCES:</b>					
1. Orequest 2005: Technical Report on the Minto Project. Prepared for Sherwood Copper Corp.					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Logtung			105B 039		
<b>Owner:</b>		<b>Website:</b>			
Strategic Metals Ltd.		www.strategicmetalsltd.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry W			L07		
<b>Commodities:</b>					
Tungsten, Molybdenum					
<b>Reserves (tonnes):</b>	<b>High Grade Core</b>	<b>Total</b>			
<b>Inferred:</b>	55,000,000	162,000,000			
<b>Grades:</b>	0.16% WO <sub>3</sub> 0.062% MoS <sub>2</sub>	0.13% WO <sub>3</sub> 0.052% MoS <sub>2</sub>			
<b>Project Status:</b>	Pre-feasibility competed in early 1980's by Amax. Project currently being resurrected and information being re-compiled, to be available Q1 2006.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Original feasibility considered 22km haulage from pit (in Yukon) to mill site (in BC) which negatively impacted total project operations cost.			
<b>Proposed Mineable Reserve (tonnes):</b>	162,000,000	<b>Project Life (years):</b>	30	<b>Milling Rate (tonnes/day):</b>	15,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Unknown, assume conventional floatation		
<b>Commodity:</b>	<b>Tungsten</b>	<b>Molybdenum</b>		<b>Total</b>	
<b>Recovery:</b>	70-80%	70-85%			
<b>Concentrate Grade:</b>	65%	88%**			
<b>Concentration Production (tonnes/year):</b>	7,560 tpy	2,230 tpy		9,790 tonnes/year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Existing trail to site – 13 km to Alaska Highway					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Alaska Highway / Taylor Route</b>		
<b>Distance To Rail Alignment (km):</b>		203 km via. Alaska Hwy.	13 km		
<b>Connection Location to Railway*:</b>		Watson Lake	Swan River (km 800)		
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular known, possible trans-border issues					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$14 / tonne assuming 1:1 strip ratio, gravity concentration and on-site diesel supplied power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>Eaton, D. 2005: Personal Communication. Telephone conversation between Mr. D. Eaton, (Chief Operating Officer, Strategic Metals Ltd) and D. Héon (Project Geologist) held in November, 2005</li> <li>Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/mileages.

\*\* Calculated from O'Hare 1980

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Red Mountain			105C 009		
<b>Owner:</b>		<b>Website:</b>			
Tintina Mines Ltd.		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Mo			L05		
<b>Commodities:</b>					
Molybdenum					
<b>Reserves (tonnes):</b>	<b>High Grade Core</b>	<b>Total</b>			
<b>Inferred:</b>	46,000,000	187,270,000			
<b>Grades:</b>	0.153% Mo	0.1% Mo			
<b>Project Status:</b>	Deposit, project planning to conduct advanced underground exploration and upgrade data to 43-101 Standard.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>	No feasibility study completed: two scenarios assumed 1) underground high grade (most likely) and 2) open pit, lower grade. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980).				
<b>Mining Method:</b>	Underground (high grade core)	<b>Milling:</b>	Conventional floatation		
<b>Assumed Mineable Reserve (tonnes):</b>	46,000,000	<b>Project Life (years):</b>	17**	<b>Milling Rate (tonnes/day):</b>	7,800**
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Assumed Mineable Reserve (tonnes):</b>	177,916,000	<b>Project Life (years):</b>	24**	<b>Milling Rate (tonnes/day):</b>	21,500**
<b>Commodity:</b>	<b>Molybdenum (High grade only)</b>		<b>Molybdenum (Total)</b>		
<b>Recovery:</b>	87%**		83%**		
<b>Concentrate Grade:</b>	88%**		88%**		
<b>Con. Production</b>	6,050 tonnes/yr		11,700 tonnes/yr		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently winter road access only via Sidney Cr.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>		<b>Alaska Highway / Taylor Route</b>	
<b>Distance To Rail Alignment (km):</b>		220 km via Canol Rd. (inc. 60 km new road)		105 km via Canol Rd. (inc. 60 km new road)	
<b>Connection Location to Railway*:</b>		Ross River		Johnson Crossing	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$10.30 / tonne assuming 1:1 strip ratio, simple milling and on-site diesel supplied power.				
<b>REFERENCES:</b>					
1. Tintina Mines Ltd. 2005: Tintina comments on historic estimates and announces plan to upgrade data to 43-101 Standard. Press Release. Toronto, ON.					
2. Traynor, S. (compiler), 2005: Yukon Mineral Deposits 2004. Yukon Geological Survey. Department of Energy, Mines and Resources, Government of Yukon. Whitehorse, Yukon.					
3. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.					

Notes: \* See Figure 1 for railway alignment distances/mileages.  
 \*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Mactung				1050 002	
<b>Owner:</b>			<b>Website:</b>		
North American Tungsten Corp.			www.northamericantungsten.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Tungsten Skarn				K05	
<b>Commodities:</b>					
Tungsten					
<b>Reserves (tonnes):</b>					
	<b>Measured &amp; Indicated</b>	<b>Inferred</b>			
	13,699,000	13,785,000			
<b>Grades:</b>	0.95 % WO <sub>3</sub>	0.84 % WO <sub>3</sub>			
<b>Project Status:</b>	Active exploration.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility studies, assumptions based on conversation with D. Tenney of North American Tungsten			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Gravity concentration		
<b>Assumed Mineable Reserve (tonnes):</b>	4,799,500				
<b>Mining Method:</b>	Open Pit	<b>Project Life (years):</b>	30	<b>Milling Rate (tonnes/day):</b>	1,300
<b>Assumed Mineable Reserve (tonnes):</b>	8,186,000				
<b>Commodity:</b>	<b>Tungsten (WO<sub>3</sub>)</b>				
<b>Recovery:</b>	80%				
<b>Concentrate Grade:</b>	70%				
<b>Concentration Production</b>	4,700 tonnes/year				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Requires upgrade of North Canol Road to 4 season haul road.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		225 (North Canol)	460 (inc. 236km on Campbell Hwy)	590 (inc. 365 km on Robert Campbell and Klondike Highways)	
<b>Connection Location to Railway*:</b>		Ross River	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Requires upgrade of Canol highway to 4 season road. Remote site.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Cantung reports operating cost of \$79.90 (2005 dollars) (North American Tungsten Corp. 2003)				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Tenney, D. 2005: Personal Communication. Telephone conversation between Mr. D. Tenney, (Geologist, North American Tungsten) and D. Héon (Project Geologist) held on 9 December, 2005</li> <li>2. Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/mileages.

**Appendix B: Traffic Data Development for Minerals**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Mactung				1050 002	
<b>Owner:</b>			<b>Website:</b>		
North American Tungsten Corp.			www.northamericatungsten.com		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Tungsten Skarn				K05	
<b>Commodities:</b>					
Tungsten					
<b>Reserves (tonnes):</b>					
	<b>Measured &amp; Indicated</b>	<b>Inferred</b>			
	13,699,000	13,785,000			
<b>Grades:</b>	0.95 % WO <sub>3</sub>	0.84 % WO <sub>3</sub>			
<b>Project Status:</b>	Active exploration.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility studies, assumptions based on conversation with D. Tenney of North American Tungsten			
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Gravity concentration		
<b>Assumed Mineable Reserve (tonnes):</b>	4,799,500				
<b>Mining Method:</b>	Open Pit	<b>Project Life (years):</b>	30	<b>Milling Rate (tonnes/day):</b>	1,300
<b>Assumed Mineable Reserve (tonnes):</b>	8,186,000				
<b>Commodity:</b>	<b>Tungsten (WO<sub>3</sub>)</b>				
<b>Recovery:</b>	80%				
<b>Concentrate Grade:</b>	70%				
<b>Concentration Production</b>	4,700 tonnes/year				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Requires upgrade of North Canol Road to 4 season haul road.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		225 (North Canol)	460 (inc. 236km on Campbell Hwy)	590 (inc. 365 km on Robert Campbell and Klondike Highways)	
<b>Connection Location to Railway*:</b>		Ross River	Carmacks	Whitehorse	
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Requires upgrade of Canol highway to 4 season road. Remote site.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not yet determined.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>Tenney, D. 2005: Personal Communication. Telephone conversation between Mr. D. Tenney, (Geologist, North American Tungsten) and D. Héon (Project Geologist) held on 9 December, 2005</li> <li>Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Shaft Creek (includes NABS 30 FR)			104G 015 (inc. 104G 032)		
<b>Owner:</b>		<b>Website:</b>			
Copper Fox Metals Inc.		www.copperfoxmetals.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Cu +/-Mo +/-Au			L04		
<b>Commodities:</b>					
Copper, Gold, Molybdenum					
<b>Reserves (tonnes):</b> Indicated at 0.35% Cu equivalent cutoff.					
	<b>Indicated</b>	<b>Inferred</b>			
	670,611,000	274,123,000			
<b>Grades of Mineable Reserve:</b>	0.316% Cu 0.223 g/t Au 0.021% Mo	0.309% Cu 0.182 g/t Au 0.023% Mo			
<b>Project Status:</b>	Deposit still in assessment, preliminary pit models and feasibility only.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Assuming largest pit option with 0.68:1 strip ratio. Mining rate & recoveries from AMCL 2004 assumptions.			
<b>Proposed Mineable Reserve (tonnes):</b>	407,272,000	<b>Project Life (years):</b>	20	<b>Milling Rate (tonnes/day):</b>	57,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Gold</b>	<b>Molybdenum</b>	<b>Total</b>	
<b>Recovery:</b>	93%	70%	70%		
<b>Concentrate Grade:</b>	30%	unknown	50%		
<b>Concentration Production (tonnes/year):</b>	199,480 tpy		5,985 tpy	205,470 tonnes / year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Assumed access via grandfathered route through Mt. Edziza					
<b>Railway Alignment Option:</b>	<b>#2 – Dease Lake</b>	<b>#6 – Rocky Mt.</b>	<b>#1- Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	140 (inc. 70km on Hwy 37)	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	Eddontenajon L. (km 300)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$6.20 assuming 0.68:1 strip ratio, simple milling and utility supplied power.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. Copper Fox Metals Inc.. 2005: Website (www.copperfoxmetals.com)</li> <li>2. McCandlish K. 2004, Associated Mining Consultants Ltd.: Preliminary Assessment of the Shaft Creek Deposit, British Columbia, Project Status Report No. 1 prepared for 955528 (Alberta) Ltd. Calgary, Canada;</li> <li>3. Giroux G. and Ostensoe E.A., Giroux Consultants Ltd 2003, amended in 2004: SUMMARY REPORT Status and Resource Estimate, Shaft Creek Property, Northwestern British Columbia, prepared for: 955528 Alberta Ltd.</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Kemess (North and South)			094E 021 & 094E 094		
<b>Owner:</b>		<b>Website:</b>			
Northgate Minerals Corp.		http://www.northgateminerals.com/			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Cu +/-Au			L04		
<b>Commodities:</b>					
Copper, Gold, Molybdenum					
<b>Reserves (tonnes):</b>	<b>Kemess North</b>		<b>Kemess South</b>		
	<b>Proven &amp; Probable</b>	<b>Indicated</b>	<b>Proven &amp; Probable</b>	<b>Indicated</b>	
	423,898,000	407,000,000	85,802,906	21,147,900	
<b>Grades of Mineable Reserve:</b>	0.16% Cu 0.307 g/t Au	0.16% Cu 0.31 g/t Au	0.67% Cu 0.22 g/t Au	0.18% Cu 0.37 g/t Au	
<b>Project Status:</b>	Kamess South mine in production since 1998, Kemess North in permitting, extending total mine production to extend mine life to 2021.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primarily from Klohn Crippen, 2005			
<b>Proposed Mineable Reserve (tonnes):</b>	346,904,000	<b>Project Life (years):</b>	15	<b>Milling Rate (tonnes/day):</b>	96,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Gold</b>			
<b>Recovery:</b>	85-92%	60-70%			
<b>Concentrate Grade:</b>	23-26%	25 – 35 g/t			
<b>Concentration Production (tonnes/year):</b>	199,480 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Existing road to mine. New Steward-Ominica Resources Rd. needed to Minaret Stn. Ore being trucked out directly and not currently loaded on railway at Minaret.					
<b>Railway Alignment Option:</b>	<b>#2 – Dease Lake</b>	<b>#6 – Rocky Mt.</b>	<b>#1- Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	100 (inc. 40km on existing mine road)	200 km on existing Omineca Resources Rd.	Rail would not be used, direct haul via truck instead.		
<b>Connection Location to Railway*:</b>	Minaret/Bear L. (km 560)	Williston Lake			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Mining cost reported at \$1.06, milling and G&A calculated at \$3.74 for a total of estimated mining & milling operating cost of \$4.80 / tonne.				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>Northgate Minerals Corp. 2005: Website (<a href="http://www.northgateminerals.com/frame_kemess_mine.html">http://www.northgateminerals.com/frame_kemess_mine.html</a>)</li> <li>Klohn Crippen, 2005. Kemess Mine expansion environmental impact assessment. Appendix 1 – detailed project description. Prepared for Northgate Minerals Corp.</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Galore Creek (does not include Copper Canyon (104G 017))			104G 090, 092 & 095		
<b>Owner:</b>		<b>Website:</b>			
NovaGold Resources Inc.		www.novagold.net			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Cu +/-Au			L03		
<b>Commodities:</b>					
Copper, Gold					
<b>Reserves (tonnes):</b>					
	<b>Measured &amp; Indicated</b>	<b>Inferred</b>	At cutoff grade of 0.35% CuEq		
	516,700,000	413,500,000			
<b>Grades of Mineable Reserve:</b>	0.65% Cu 0.36 g/t Au 4.76 g/t Ag	0.409% Cu 0.419 g/t Au 4.354 g/t Ag	Copper Canyon (104G 017) assessed separately and removed from Galore Cr. Inferred resource for this assessment		
<b>Project Status:</b>	Project undergoing environmental assessment and permitting.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primarily from Preliminary Economic Assessment, Hatch 2005			
<b>Proposed Mineable Reserve (tonnes):</b>	475,000,000	<b>Project Life (years):</b>	20	<b>Milling Rate (tonnes/day):</b>	65,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Gold</b>	<b>Silver</b>		
<b>Recovery:</b>	90%	60%	70%		
<b>Concentrate Grade:</b>	28%	N/a	N/a		
<b>Concentration Production (tonnes/year):</b>	496,200 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Slurry pipeline proposed to filter plant on Highway #37. Current plan to direct haul to Stewart, therefore railway maybe bypassed.					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	105 km on Hwy 37	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	Eddontenajon L. (km 300)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Mine operating cost reported at \$7.98 / tonne (\$6.39 US).				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>Nova Gold Resources Inc. 2005. Updated Galore Creek Study Demonstrates Increased Cash Flows, Rapid Project Payback and Expanded Low Cost Gold and Copper Production. Press Release. (<a href="http://www.novagold.net/i/pdf/2005-10-25_NR.pdf">http://www.novagold.net/i/pdf/2005-10-25_NR.pdf</a>) Vancouver, B.C.</li> <li>Hatch 2005, UPDATED PRELIMINARY ECONOMIC ASSESSMENT FOR THE GALORE CREEK PROJECT, for Nova Gold Resources Inc.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>				<b>MINFILE NO.:</b>	
Copper Canyon				104G 017	
<b>Owner:</b>			<b>Website:</b>		
Eagle Plains Resources Ltd. (+NovaGold interest)			www.eagleplains.ca		
<b>Deposit Type:</b>				<b>Deposit Profile No.</b>	
Porphyry Cu +/-Au				L03	
<b>Commodities:</b>					
Copper, Gold					
<b>Reserves (tonnes):</b>					
		<b>Inferred</b>	At cutoff grade of 0.35% CuEq		
		146,800,000			
<b>Grades of Mineable Reserve:</b>		0.35% Cu 0.54 g/t Au 7.15 g/t Ag			
<b>Project Status:</b>		Project under active exploration only.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Mining information assumed from Galore Creek. Assumed 90% of reserve is minable.			
<b>Proposed Mineable Reserve (tonnes):</b>	132,120,000	<b>Project Life (years):</b>	6	<b>Milling Rate (tonnes/day):</b>	63,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Gold</b>	<b>Silver</b>	Assumed from Galore Cr. Copper recovery from testing done as part of Galore Cr. Preliminary Economic Assessment (Hatch 2005)	
<b>Recovery:</b>	73%	59%	54%		
<b>Concentrate Grade:</b>	25%	N/a	N/a		
<b>Concentration Production (tonnes/year):</b>	225,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Assumed would use Galore Cr. infrastructure which includes: slurry pipeline proposed to filter plant on Highway #37. Current plan to direct haul to Stewart, therefore railway maybe bypassed.					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	105 km on Hwy 37	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	Eddontenajon L. (km 300)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Have assumed same mine operating cost as reported for Galore Cr. at \$7.98 / tonne (\$6.39 US).				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>Hatch Ltd., G.R. Technical Services Ltd. and Giroux Consultants Ltd., 2005, Geology and Resource Potential of the Copper Canyon Property. Prepared for NovaGold Resources Inc.</li> <li>Hatch 2005, UPDATED PRELIMINARY ECONOMIC ASSESSMENT FOR THE GALORE CREEK PROJECT, Prepared for Nova Gold Resources Inc.</li> </ol>					

Notes: \* See Figure 1 for railway alignment distances/ mileages.

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Red Chris			104H 005		
<b>Owner:</b>		<b>Website:</b>			
BcMetals Corp.		www.bcmetalcorp.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Cu +/-Mo+/-Au			L04		
<b>Commodities:</b>					
Copper, Molybdenum, Gold					
<b>Reserves (tonnes):</b>					
	<b>Proven &amp; Probable</b>	<b>Measured, indicated &amp; inferred</b>	At cutoff grade of 0.2% Cu		
	276,000,000	595,400,000			
<b>Grades of Mineable Reserve:</b>	0.349% Cu 0.266 g/t Au	0.32% Cu 0.29 g/t Au			
<b>Project Status:</b>	Project undergoing environmental assessment and permitting.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>	Information primarily from bcMetals Corp presentation (2005).				
<b>Proposed Mineable Reserve (tonnes):</b>	276,000,000	<b>Project Life (years):</b>	25	<b>Milling Rate (tonnes/day):</b>	30,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Gold</b>			
<b>Recovery:</b>	87%	52%			
<b>Concentrate Grade:</b>	27%	12 gpt			
<b>Concentration Production (tonnes/year):</b>	124,150 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Power line from North American grid required.					
<b>Railway Alignment Option:</b>	<b>#2 – Dease Lake</b>	<b>#6 – Rocky Mt.</b>	<b>#1- Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	20 km on Klappan Rd.	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	Eddontenajon L. (km 300)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Mine operating cost reported at \$6.79 / tonne				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>bcMetals Corp. 2005. Red Chris copper-gold porphyry project. Presentation to CIM luncheon, September 29, 2005. Vancouver, B.C.</li> <li>AMEC Americas Ltd. et al. 2004. Technical report on the Red Chris copper-gold project. Prepared for Red Chris Development Company Ltd., and bcMetals Corp. Vancouver, B.C.</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Adanac (Ruby Creek)			104N 052		
<b>Owner:</b>		<b>Website:</b>			
Adanac Moly Corp		www.adanacmoly.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Mo.			L05		
<b>Commodities:</b>					
Molybdenum					
<b>Reserves (tonnes):</b>					
	<b>Measured &amp; Indicated</b>	<b>Inferred</b>	At cutoff grade of 0.04% Mo		
	205,100,000	20,700,000			
<b>Grades of Mineable Reserve:</b>	0.062% Mo	0.057% Mo			
<b>Project Status:</b>	Project undergoing feasibility assessment				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primarily from Preliminary Economic Assessment, Wardrop 2005			
<b>Proposed Mineable Reserve (tonnes):</b>	150,797,000	<b>Project Life (years):</b>	22	<b>Milling Rate (tonnes/day):</b>	20,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	Molybdenum				
<b>Recovery:</b>	90%				
<b>Concentrate Grade:</b>	48%				
<b>Concentration Production (tonnes/year):</b>	7,790 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Upgraded access road, possible power line tie-in.					
<b>Railway Alignment Option:</b>	4 Alaska Highway or 3B Nisling Route		3A - Tintina Trench		
<b>Distance To Rail Alignment (km):</b>	125 km via. Atlin Rd.		Railway not likely used, likely direct truck haul to Skagway		
<b>Connection Location to Railway*:</b>	Jakes Corner				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Mine operating cost reported at \$10.39 0.8 strip ratio.				
<b>REFERENCES:</b>					
1. Wardrop 2005. Ruby Creek project. Preliminary feasibility. Prepared for Adanac Moly Corp. Vancouver, B.C.					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Storie			104P 069		
<b>Owner:</b>		<b>Website:</b>			
Velocity Resources Inc.		www.greatcanadianmines.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Mo.			L05		
<b>Commodities:</b>					
Molybdenum					
<b>Reserves (tonnes):</b> 100,500,000 Unclassified					
<b>Grades of Mineable Reserve:</b>		0.077% Mo			
<b>Project Status:</b>		Project dormant, no historical feasibility studies found.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility study completed. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980) or assumed from Adanac Project pre-feasibility study example.			
<b>Proposed Mineable Reserve (tonnes):</b>	100,500,000	<b>Project Life (years):</b>	21	<b>Milling Rate (tonnes/day):</b>	13,500
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	Molybdenum			Values assumed from Adanac Project	
<b>Recovery:</b>	90%				
<b>Concentrate Grade:</b>	48%				
<b>Concentration Production (tonnes/year):</b>	7,070 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Unknown – 5 km south of former Cassiar townsite.					
<b>Railway Alignment Option:</b>		#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway	
<b>Distance To Rail Alignment (km):</b>		15 km	Rail would not be used, direct haul via truck instead.		
<b>Connection Location to Railway*:</b>		Cassiar. (km 110)			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Mine operating cost reported at \$12.23 Assuming 1:1 strip ratio, simple milling and on-site diesel supplied power.			
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Davie Creek Moly (Mariposite)			094D 113		
<b>Owner:</b>		<b>Website:</b>			
uncertain		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Porphyry Mo.			L05		
<b>Commodities:</b>					
Molybdenum (+/- Copper & Tungsten)					
<b>Reserves (tonnes):</b> 100,000,000 Unclassified					
<b>Grades of Reserve:</b>		0.1% Mo			
<b>Project Status:</b>		Very poorly defined project, only simple information from Minfile.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility study completed. Mine life estimated based on SME Handbook (1992) and commodity recovery estimated based on O'Hare (1980) or assumed from Adanac Project pre-feasibility study example.			
<b>Proposed Mineable Reserve (tonnes):</b>	100,000,000	<b>Project Life (years):</b>	20	<b>Milling Rate (tonnes/day):</b>	14,000
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Molybdenum</b>			Values assumed from Adanac Project	
<b>Recovery:</b>	90%				
<b>Concentrate Grade:</b>	48%				
<b>Concentration Production (tonnes/year):</b>	9,150 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Unknown					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	95 km	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	Minaret/Bear L. (km 560)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Mine operating cost reported at \$12.07 Assuming 1:1 strip ratio, simple milling and on-site diesel supplied power.				
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					

*Notes: \* See Figure 1 for railway alignment distances/mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>		<b>MINFILE NO.:</b>			
Cirque (Stonsay)		094F 008			
<b>Owner:</b>		<b>Website:</b>			
Uncertain – possibly Teck Cominco and Korea Zinc		N/a			
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>			
Sedimentary Exhalative Zn-Pb-Ag (Sedex)		E14			
<b>Commodities:</b>					
Lead, Zinc and Silver					
<b>Reserves (tonnes):</b> 24,700,000 Indicated					
<b>Grades of Mineable Reserve:</b>		2.2% Pb 8.1% Zn 50.5 g/t Ag			
<b>Project Status:</b>	Mine development permit issued in 1992 to Curragh Resources, however mine not developed. Unable to locate historical feasibility studies.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primarily from Minfile. Recoveries estimated from O'Hare (1980).			
<b>Proposed Mineable Reserve (tonnes):</b>	18,500,000	<b>Project Life (years):</b>	15	<b>Milling Rate (tonnes/day):</b>	3,500
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>		
<b>Recovery:</b>	84% **	86% **			
<b>Concentrate Grade:</b>	53% **	53% **			
<b>Concentration Production:</b>	43,800 tpy	157,520 tpy	201,300 tonnes/year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Uncertain					
<b>Railway Alignment Option:</b>	<b>#2 – Dease Lake</b>	<b>#6 – Rocky Mt.</b>	<b>#1- Alaska Highway</b>		
<b>Distance To Rail Alignment (km):</b>	280 km (inc. 50km new Steward-Ominica Resources Rd.)	45 km	Rail would not be used, direct haul via truck instead.		
<b>Connection Location to Railway*:</b>	Takla L. (km 615)	Ware - Williston Lake (km 325)			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Calculated at \$31.85 assuming 7.3:1 strip ratio, complex milling and on-site diesel supplied power.				
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					

Notes: \* See Figure 1 for railway alignment distances/ mileages.  
\*\* Calculated from O'Hare 1980 and/or Hartman 1992

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Tulsequah Chief			104K 002		
<b>Owner:</b>		<b>Website:</b>			
Redfern Resources Ltd.		www.redfern.bc.ca			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Kuroko Cu-Pb-Zn-(Ag)			G06		
<b>Commodities:</b>					
Polymetallic (Copper, Lead, Zinc, Silver)					
<b>Reserves (tonnes):</b>		<b>Measured &amp; Indicated</b>	<b>Inferred</b>		
		5,380,000	1,540,000		
<b>Reserves (tonnes):</b>		1.41% Cu 1.32% Pb 6.73% Zn 100.8 g/t Ag 2.73 g/t Au	1.13% Cu 1.07% Pb 5.44% Zn 85.1 g/t Ag 2.23 g/t Au		
<b>Project Status:</b>		Environmental Approval issued. Revised ore reserve completed in 2004			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primary from Environmental Assessment report			
<b>Proposed Mineable Reserve (tonnes):</b>	6,920,000	<b>Project Life (years):</b>	8	<b>Milling Rate (tonnes/day):</b>	2,500 tpd
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	<b>Lead</b>	<b>Zinc</b>	<b>Total</b>	
<b>Recovery:</b>	88%	51%	88%		
<b>Concentrate Grade:</b>	23%	52%	59%		
<b>Concentration Production (tonnes/year):</b>	46,000	10,000	89,000	150,000 tonnes / year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
160 km access road to Atlin					
<b>Railway Alignment Option:</b>		<b>4 Alaska Highway or 3B Nisling Route</b>		<b>3A - Tintina Trench</b>	
<b>Distance To Rail Alignment (km):</b>		260 km via. Atlin Rd.		Railway not likely used, likely direct truck haul to Skagway	
<b>Connection Location to Railway*:</b>		Jakes Corner			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None in particular					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not yet determined.				
<b>REFERENCES:</b>					
1. Chandler, T. 2006: Personal Communication. Telephone conversation between Mr. T. Chander, (President, Redcorp Ventures) and F. Pearson (Geological Engineer) held on 16 January, 2006					
2. Redcorp Ventures. 2006: Company website. <a href="http://www.redcorp-ventures.com/">http://www.redcorp-ventures.com/</a>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Mount Klappan – Lost Fox			104H 021		
<b>Owner:</b>		<b>Website:</b>			
Fortune Minerals		www.fortuneminerals.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Anthracite Coal			A04 & A05		
<b>Commodities:</b>					
Metallurgical grade Anthracite coal					
<b>Reserves (tonnes):</b>					
<b>Measured</b>	<b>Indicated</b>	<b>Total Measured &amp; Indicated</b>		<b>Inferred</b>	
120,600,000	22,700,000	143,300,000		15,700,000	
<b>Grades of Mineable Reserve:</b>		CV = 31,078 kJ/kg, low ash (10%) metallurgical coal.			
<b>Project Status:</b>		Feasibility study complete, however mining costs not clearly stated.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Current mine plan assumes production of 3 million tpy.			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	106,300,000	<b>Project Life (years):</b>	20	<b>Milling Rate (tonnes/day):</b>	16,500
<b>Recovery:</b>	52%				
<b>Shippable Coal Production (tonnes/year):</b>	3,000,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Railway					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	3 km	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	L. Klappan R. (km 375)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not stated. Based on open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$37.16 in 2005 dollars based on 6:1 stripping ratio.				
<b>REFERENCES:</b>					
1. Marston Canada Ltd. 2005. Technical report on the Lost-Fox Mine feasibility study. Prepared for Fortune Minerals Ltd. Calgary, AB.					

*Notes: \* See Figure 1 for railway alignment distances/mileages.*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Mount Klappan – Hobbit-Broatch			104H 020		
<b>Owner:</b>		<b>Website:</b>			
Fortune Minerals		www.fortuneminerals.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Anthracite Coal			A04 & A05		
<b>Commodities:</b>					
Metallurgical grade Anthracite coal					
<b>Combined Reserves (tonnes):</b> 405,700,000 (measured, indicated and inferred) plus speculative resource of 405.7 million tonnes (not included in this assessment)					
<b>Grades of Mineable Reserve:</b>		CV = 25,500 kJ/kg, low ash (10%) metallurgical coal.			
<b>Project Status:</b>		Exploration only			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Assumed parameters from Lost-Fox mine. Assumed 55% of combined reserves are open-pit minable as per Lost-Fox. Mining rate estimated from Hartman (1992).			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	223,000,000	<b>Project Life (years):</b>	25	<b>Milling Rate (tonnes/day):</b>	25,500**
<b>Recovery:</b>	52%				
<b>Shippable Coal Production (tonnes/year):</b>	4,631,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Railway					
<b>Railway Alignment Option:</b>		#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway	
<b>Distance To Rail Alignment (km):</b>		3 km	Rail would not be used, direct haul via truck instead.		
<b>Connection Location to Railway*:</b>		L. Klappan R. (km 375)			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown, assumed open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$37.16 in 2005 dollars based on 6:1 stripping ratio.				
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					

Notes: \* See Figure 1 for railway alignment distances/ mileages.  
 \*\* Calculated from Hartman 1992

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Mount Klappan – Summit			104H 022		
<b>Owner:</b>		<b>Website:</b>			
Fortune Minerals		www.fortuneminerals.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Anthracite Coal			A04 & A05		
<b>Commodities:</b>					
Metallurgical grade Anthracite coal					
<b>Combined Reserves (tonnes):</b> 41,400,000 (measured, indicated and inferred) plus speculative resource of 1,860 million tonnes (not included in this assessment)					
<b>Grades of Mineable Reserve:</b>		CV = 25,500 kJ/kg, low ash (10%) metallurgical coal.			
<b>Project Status:</b>	Exploration only				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Assumed parameters from Lost-Fox mine. Assumed 55% of combined reserves are open-pit minable as per Lost-Fox. Mining rate estimated from Hartman (1992).			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	22,770,000	<b>Project Life (years):</b>	14	<b>Milling Rate (tonnes/day):</b>	4,600**
<b>Recovery:</b>	52%				
<b>Shippable Coal Production (tonnes/year):</b>	836,500 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Railway					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	3 km	Rail would not be used, direct haul via truck instead.			
<b>Connection Location to Railway*:</b>	L. Klappan R. (km 375)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown, assumed open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$37.16 in 2005 dollars based on 6:1 stripping ratio.				
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					

Notes: \* See Figure 1 for railway alignment distances/ mileages.  
 \*\* Calculated from Hartman 1992

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Groundhog (inc. Discovery and Panorama North)			105A 078, 802 & 085		
<b>Owner:</b>		<b>Website:</b>			
West Hawk Development Corp		www.westhawkdevelopment.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Anthracite Coal			A05		
<b>Commodities:</b>					
Metallurgical grade Anthracite coal					
<b>Combined Reserves (tonnes):</b> 48,187,685 (inferred) plus speculative resource of 980 million tonnes (not included in this assessment)					
<b>Grades of Mineable Reserve:</b>		CV = 31,360 kJ/kg, low ash (10%) metallurgical coal (after washing)			
<b>Project Status:</b>		Primarily explored in 1980's, no significant work since that time.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Assumed parameters from Lost-Fox mine. Assumed 55% of combined reserves are open-pit minable as per Lost-Fox. Mining rate estimated from Hartman (1992).			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	26,500,000	<b>Project Life (years):</b>	15	<b>Milling Rate (tonnes/day):</b>	5,150**
<b>Recovery:</b>	68%				
<b>Shippable Coal Production (tonnes/year):</b>	1,225,750 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Railway					
<b>Railway Alignment Option:</b>		#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway	
<b>Distance To Rail Alignment (km):</b>		12 km	Rail would not be used, direct haul via truck instead.		
<b>Connection Location to Railway*:</b>		Jackson Flats (km 450)			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Unknown, assumed open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$28.50 in 2005 dollars based on 6:1 stripping ratio.			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li>1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005</li> <li>2. Wedman, D. 2005: Summary report on the Groundhog coal property. Prepared for West Hawk Development Corp. Edmonton, AB.</li> </ol>					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

*\*\* Calculated from Hartman 1992*

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Thundercloud			104J 043		
<b>Owner:</b>		<b>Website:</b>			
Edward Felix Asp		N/a			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Bituminous Coal			A04		
<b>Commodities:</b>					
sub-bituminous B to high-volatile bituminous C rank thermal coal					
<b>Combined Reserves (tonnes):</b> 200,000,000 (inferred)					
<b>Grades of Mineable Reserve:</b>		CV = 18,000 kJ/kg			
<b>Project Status:</b>		Primarily explored in 1980's, no significant work since that time.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Assumed 55% of combined reserves are open-pit minable as per Lost-Fox. Mining rate estimated from Hartman (1992). Assumed 60% recovery from wash plant			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	110,000,000	<b>Project Life (years):</b>	21**	<b>Milling Rate (tonnes/day):</b>	15,500**
<b>Recovery:</b>	60%				
<b>Shippable Coal Production (tonnes/year):</b>	3,150,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Railway					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	55 km (inc. 45 km on Telegraph Cr. Rd.)	Rail would not be used, direct haul via truck instead, if developed at all.			
<b>Connection Location to Railway*:</b>	Dease Lake (km 220)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown, assumed open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$32 in 2005 dollars based on 6:1 stripping ratio, however stripping ratio unknown.				
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					
2. Petro-Canada Coal Division. 1983: Thundercloud coal project, 1981. Coal Assessment Report 244.					

Notes: \* See Figure 1 for railway alignment distances/ mileages.  
 \*\* Calculated from Hartman 1992

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Sustut Coal			094D 039		
<b>Owner:</b>		<b>Website:</b>			
West Hawk Development Corp		www.westhawkdevelopment.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Sub-Bituminous Coal			A03		
<b>Commodities:</b>					
Sub-Bituminous Coal					
<b>Combined Reserves (tonnes):</b> 63,000,000 (inferred)					
<b>Grades of Mineable Reserve:</b>		CV = 3,803 kJ/kg			
<b>Project Status:</b>		Unknown			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Assumed 55% of combined reserves are open-pit mineable as per Lost-Fox. Mining rate estimated from Hartman (1992). Assumed 60% recovery from wash plant			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Wash plant		
<b>Mine Plan Reserves for Export (tonnes):</b>	34,600,000	<b>Project Life (years):</b>	16**	<b>Milling Rate (tonnes/day):</b>	6,300**
<b>Recovery:</b>	60%				
<b>Shippable Coal Production (tonnes/year):</b>	1,322,000 tpy				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Railway					
<b>Railway Alignment Option:</b>	#2 – Dease Lake	#6 – Rocky Mt.	#1- Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	30 km	Rail would not be used, direct haul via truck instead, if developed at all.			
<b>Connection Location to Railway*:</b>	Bear Lake (km 220)				
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Unknown					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Unknown, assumed open pit mining costs for Division Mt. (2004), estimated mining & washing cost are \$32 in 2005 dollars based on 6:1 stripping ratio, however stripping ratio unknown.				
<b>REFERENCES:</b>					
1. MINFILE (2005): BC Ministry of Energy and Mines, MINFILE digital data, posted Sept 29 2005					

Notes: \* See Figure 1 for railway alignment distances/ mileages.  
 \*\* Calculated from Hartman 1992

**Appendix B. Traffic Data Development for Minerals**

**Priority Deposit Details – British Columbia**

<b>PROPERTY NAME:</b>			<b>MINFILE NO.:</b>		
Kutcho Creek			104I 060		
<b>Owner:</b>		<b>Website:</b>			
Western Keltic Mines Inc.		www.keltic.com			
<b>Deposit Type:</b>			<b>Deposit Profile No.</b>		
Kuroko Cu-Pb-Zn-(Ag)			G06		
<b>Commodities:</b>					
Polymetallic (Copper, Lead, Zinc, Silver)					
<b>Reserves (tonnes):</b>		<b>Kutcho</b>	<b>Esso West</b>	<b>Total</b>	
		13,061,000	2,120,000	15,181,000	
<b>Reserves (tonnes):</b>		1.94% Cu	3.26% Cu	2.12% Cu	
		2.59% Zn	5.86% Zn	3.05% Zn	
		33.7 g/t Ag	75.7 g/t Ag	39.6 g/t Ag	
		0.36 g/t Au	5.44 g/t Au	0.41 g/t Au	
<b>Project Status:</b>	Preliminary feasibility done in 1985. New feasibility being prepared.				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Information primary from 2005 Technical report which summarizes 1985 feasibility study.			
<b>Proposed Mineable Reserve (tonnes):</b>	14,200,000	<b>Project Life (years):</b>	10	<b>Milling Rate (tonnes/day):</b>	4,000 tpd
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Conventional floatation		
<b>Commodity:</b>	<b>Copper</b>	Silver / Gold	<b>Zinc</b>	<b>Total</b>	
<b>Recovery:</b>	85%	53% / 35%	80%		
<b>Concentrate Grade:</b>	26%	na	55%		
<b>Concentration Production (tonnes/year):</b>	81,200 tpy		51,000 tpy	132,000 tonnes / year	
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Uncertain					
<b>Railway Alignment Option:</b>		<b>#2 – Dease Lake</b>	<b>#6 – Rocky Mt.</b>	<b>#1- Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>		110 km	Rail would not be used, direct haul via truck instead, if developed at all.		
<b>Connection Location to Railway*:</b>		Dease Lake (km 550)			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Access road to Dease Lake					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Technical report estimates at \$29.40 (\$28.92 in 2004 dollars) based on open pit only.				
<b>REFERENCES:</b>					
1. Marr, J. M., and P.M. Holbek. 2004: Technical report on the Kutcho Creek project. Prepared for Western Keltic Mines Inc. Vancouver, B.C.					

*Notes: \* See Figure 1 for railway alignment distances/ mileages.*

# Appendix C

1. **Historical Metal Prices and Forecasts**
2. **Review of Historical Metal Trends**



# APPENDIX C1: Analysis of Future Economic Prospects For Selected Mineral Commodities

WP A2a: Outbound Traffic Data Development for Mineral Resources

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## 1. Background/Purpose

Gartner Lee Limited has been engaged to examine the outgoing mineral commodities that could contribute to a future railway that connects existing rail infrastructure in Alaska, with railhead in British Columbia, Canada.

This analysis requires an examination of the future prospects for commodity prices, most particularly those that may contribute a bulk shippable commodity to a railway.

Long term commodity price forecasting is a specialized field that is not commonly done or generally available. The purpose of this memo is to outline, in general terms, the current thinking about the long-term demand for mineral commodities and highlight some of the issues. This work is intended to support the scoping-level forecasts provided under separate cover by the Gartner Lee minerals and economic team.

Any reasonable estimate of future commodity prices needs to be informed by a range of factors, and an understanding of the uncertainty and risk associated with forecasting future events. Goldman Sachs offers the following caution with respect to long-term forecasting:<sup>1</sup>

“History also illustrates that any kind of long-term projection is subject to a great deal of uncertainty. The further ahead into the future you look, the more uncertain things become.”

The SME Mining Engineering Handbook<sup>2</sup> adds this caution:

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<sup>1</sup> Goldman Sachs Global Economics Paper #99: Dreaming With BRIC's: the Path to 2050.

<sup>2</sup> SME Mining Engineering Handbook 2<sup>nd</sup> Edition, Volume 1, 1992; Chapter 2.3, Page 81, Pricing and Trading in Metals and Minerals, Simon D. Straus.



“Even the most experienced and sophisticated observer of mineral markets is likely to err in predicting the future course of prices”

The analysis and comments below should be viewed within the context as outlined above.

## **2. The Global Economic Perspective**

It is important to consider mineral commodity prices within a broader economic context. It is global demand for minerals driven by fundamental economic growth that will ultimately shape future prices.

The World Bank<sup>3</sup> offers the following perspective (from 2004) as an overall long-term growth scenario:

“The global economy is currently rebounding from the downturn suffered in 2001 and 2002. Not all regions are benefitting equally from the rebound—Japan and the United States are leading the way among industrial economies—but there is fairly solid progress in all the main developing regions on an aggregate basis. Table 1.3 reflects a plausible long-term scenario for the high-income countries and the World Bank’s six aggregate developing regions. The scenario reflects current views on potential trend growth over the 2006–15 decade. Better policies, an acceleration in investment, and other factors could improve the prospects, particularly for the slower growing regions. There is still a considerable gap in the productivity levels between developing and industrial economies, and a number of developing countries—particularly in Asia—have demonstrated, over the last 20 to 30 years, a sustained ability for rapid growth.”

With respect to the effect of global economic growth on commodity prices, the World Bank<sup>4</sup> states:

“The demand for commodities is projected to continue rising. Partly this reflects the progressive transfer of an increasing proportion of the world's labor-intensive manufacturing activity to these countries. It also reflects faster population growth and rising incomes, which are projected to increase demand for resource-intensive products such as automobiles – placing further pressure

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<sup>3</sup> World Bank, *Prospects for a Global Economy*, April, 2005

<sup>4</sup> *Prospects for a Global Economy*, April, 2005



on commodity markets. Such factors underpin the prediction of the International Energy Agency (IEA, 2004) that by 2030 the demand for oil from economies currently classified as low- and middle-income will more than double to some 50 percent of world demand.”

### **3. Some Fundamental Elements of Market Forecasts for Minerals**

As noted at the beginning, the long-term outlook for minerals requires the analysis and synthesis of a number of complex macroeconomic indicators. Most individual analysts and investment institutions focus on the short-term outlook generally one to two years ahead. The risk and uncertainty for longer-term forecasting is clearly understood.

A common starting point is to look at historical trends, and project these into the future. This is a good starting point, but can only be useful in the context of an understanding of the underlying factors that determine mineral supply and demand. The past is a guide to the future only if the same fundamental conditions that were in place in the past continue to hold true in the future.

The demand for minerals is driven by four factors:<sup>5</sup> These factors, including observations on their implications for the future of commodity prices out outlined below:

1. Population: Worldwide population growth is slowing. After climbing from 1.7 to 6.1 billion over the last 100 years, the U.S. Bureau of Census anticipates a stable world population at just over 9 billion people by the middle of this century. There is a direct relationship between population growth and per capita income, with high income countries experiencing the lowest (or even dropping) population. Based upon this, population should have continued upward pressure on mineral demand that flattens gradually as population stabilizes.
2. Real Per Capita Income: The pattern is for emerging economies to have rapidly rising per capita incomes, leading initially to rapid population growth, which decreases over time as the economy matures. This is expected to be particularly apparent in emerging economies such as China and India where incomes are rising dramatically. This suggests the continued rapid growth in these countries will gradually slow, also slowing the rapid increase in demand for mineral products.

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<sup>5</sup> The work of John E. Tilden of the Colorado School of Mines was used as a guide for this analysis.



3. Mineral Consumption: The consumption of minerals (also referred to as “intensity of use”) has been falling, due to the application of new technologies that result in the more efficient use of metals (such as stronger steels) and the substitution of metal by other products (such as plastics for copper waterlines). In some cases, consumption has increased due to the introduction of new technologies (such as consumer electronics). This general downward trend is expected to continue, tending to place some decreasing pressure on the demand for minerals.
  
4. Recycling: With the exception of energy minerals, recycling can have a major influence. For example 12% of the domestic consumption of copper is recycled in the U.S every year (U.S. Geological Survey 2001). While recycling can be expected to track closely as a percentage of overall production, public policy and recycling technology may play a significant (but unknown) role in the future.

The other critical factor is the supply of minerals are outlined here:

1. Processing Technology: It is the dramatic improvements in mineral processing over the last 40 years that have allowed the price of minerals to remain historically low in spite of the dramatic increase in consumption worldwide. No other factor has had a comparable effect. In practice, the application of new technologies can be expected to continue, with the net effect that cost of production is lowered, or lower quality mineral deposits can be mined in a cost-effective manner.
  
2. Exploration Technology: Most of the easily found resources that are exposed on the earth’s surface were discovered and exploited in the last century. The application of new technology that could aid the search of minerals began as a consequence of military efforts in support of World War II. Over the last 20 years has there been significant progress on the application of these technologies (such as remote satellite sensing) to locate mineral resources. The continued development and successful application of these technologies will determine the quantity and quality of new mineral resources available to meet future demands.
  
3. Geological endowment of “economic” minerals: The supply of minerals in the future is very much a function of what is available in the natural environment. The inventory of minerals in the future is therefore a function of the application of exploration technology to locate these resources, and whether processing technology is available to exploit the resource economically. Essentially, the lower grade of the deposit, the more energy is required to extract minerals. This relationship is further complicated by the need to apply technology on a deposit-specific basis due to the unique characteristics of various mineral deposits.



4. Labour costs: These costs can be very significant, and are more likely to affect the economics of regional development rather than overall supply. Much of the advanced processing technologies are automated systems that have been developed in places like Canada, where labour costs are high. The continued application of new processing technologies is likely to counterbalance increases labour costs in general.
  
5. Environmental and Social costs: The environmental cost of mining was not widely understood until the 1970's. At that time, as the potentially negative impacts of resource extraction became known, public policy began to emerge that placed specific requirements upon mining companies in the form of license requirements, tax or other financial incentives. Decisions to alienate mineral resources from the available inventory have also continued to play a role. Costs associated with compliance have been growing, particularly in developed countries, and can have a significant impact on the cost of production and the availability of the resources. The pattern has been for the development and application of technology to mitigate the rapid growth in these costs. As population pressures and conflict over land uses continue, it is likely that, overall, environmental and social costs will continue to exert a limiting factor on the availability of minerals, and technology will continue to play an important role.

The possible role of governments in establishing cartels or other mechanisms to control supply in order to affect cost has not been considered. With respect to attempts by governments to control metal prices, Simon Strauss notes in the SME Handbook<sup>6</sup>:

“With few exceptions these efforts (to control prices) have ultimately been unsuccessful because market forces have proved more powerful than the most ingeniously contrived stabilization schemes.”

Speculative activity by cartels or individual traders can also have an impact on prices of commodities. These effects in the past have been short term.

## 4. The Immediate (Short Term) Outlook

It is important to distinguish between short-term market cycles and long-term trends based on market fundamentals. Metal prices have increased, on average, 70% over the last three years. A

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<sup>6</sup> SME Mining Engineering Handbook, 2<sup>nd</sup> Edition, 2002. Chapter 2.33.



market analysis and projection published in 1999 by the World Bank Commodities Team<sup>7</sup> did not foresee this short-term event and, at that time, forecast a gradual improvement in prices for the long-term, based on market fundamentals. These longer-term trends are similar to those predicted today by the World Bank, six years later, and at a time of significantly improved market conditions. While the short term changes are noted, the important consideration for the longer term are the fundamentals, as noted above.

Short-term cyclical changes are a function of a complex interplay between supply and demand driven by global economic circumstances, smelter capacity, stockpiles, cost of fuel, and the timing of supply due to mine closures and new discoveries. Most market analysis focuses on these short-term factors to try and predict price movements in the near future, generally for the purpose of informing investment decisions. Historically, metal prices show a cyclical pattern in response to the variety of economic circumstances.

The World Bank offers the following concise analysis of the current situation and immediate outlook:<sup>8</sup>

“Although metals and mineral prices rose during the first months of the year, they have since stabilized, and in October 2005 they were at the same level as in March of that year. Conditions in some metals and minerals markets remain tight, due to low inventories and various supply disruptions. In the case of aluminium, copper and zinc, prices remain elevated (partly reflecting higher energy content in the production of these goods). Demand has weakened markedly for tin and nickel.

Analysis of past non-oil commodity cycles suggests that this one may have run its course. Already, it distinguishes itself from previous episodes by having lasted longer. In part, because energy prices have also been high, which was not always the case during previous episodes.

In so far as high fuel prices increase production costs in both agriculture and metals and minerals, they may have reduced the supply response, keeping prices higher longer.

In line with the projected slowdown in global growth and increased supply, prices of agricultural products and metals and minerals are projected to decline somewhat in 2006.

After several years of rising commodity prices, there are indications of a stabilization and even reversal of gains in the markets for...metals and minerals.”


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<sup>7</sup> Global Commodities Markets: a Comprehensive Review and Price Forecast, World Bank publication Volume 7, 1234, #19880

<sup>8</sup> World Bank Prospects for a Global Economy, 2006, Online Companion, November 16<sup>th</sup>, 2005.



Forecast table, 2003-2007

Annual percentage change, except interest rates and oil price  [Download Forecast table \(35k\)](#)

Global Conditions	2003	2004e	2005f	2006f	2007f
World Trade Volume	5.6	10.3	7.7	7.7	8.0
Consumer Prices					
G-7 Countries <sup>a,b</sup>	1.6	1.8	1.6	1.6	1.6
United States	2.3	2.7	2.0	3.5	3.2
Commodity Prices (USD terms)					
Non-oil commodities	10.2	17.5	4.7	-5.2	-5.4
Oil Price (US \$ per barrel) <sup>c</sup>	28.9	37.7	42.0	36.0	33.0
Oil price (percent change)	15.9	30.6	11.3	-14.3	-8.3
Manufactures unit export value <sup>d</sup>	7.5	7.0	3.0	2.8	1.9
Interest Rates					
\$, 6-month (percent)	1.2	1.6	3.5	4.6	5.0
€, 6-month (percent)	2.3	2.1	2.1	2.8	3.2
Real GDP growth <sup>e</sup>	2003	2004e	2005f	2006f	2007f
World	2.5	3.8	3.1	3.1	3.2
Memo item: World (PPP weights) <sup>f</sup>	3.9	5.0	4.3	4.2	4.3
High income	1.9	3.2	2.4	2.6	2.6
OECD Countries	1.8	3.1	2.3	2.5	2.6
Euro Area	0.5	1.8	1.2	2.2	2.6
Japan	1.4	2.6	0.8	1.9	1.9
United States	3.0	4.4	3.9	3.0	2.6
Non-OECD countries	3.2	6.2	4.4	4.5	4.1
Developing countries	5.3	6.6	5.7	5.2	5.4
East Asia and Pacific	8.0	8.3	7.4	6.9	7.2
Europe and Central Asia	5.9	6.8	5.5	4.9	5.0
Latin America and Caribbean	1.7	5.7	4.3	3.7	3.7
Middle East and N. Africa	5.8	5.1	4.9	4.3	4.3
South Asia	7.8	6.6	6.2	6.4	6.7



Sub-Saharan Africa 3.4 3.8 4.1 4.0 4.1

Memorandum items	2003	2004e	2005f	2006f	2007f
Developing countries					
excluding transition countries	5.2	6.7	5.7	5.3	5.5
excluding China and India	3.9	5.8	4.8	4.4	4.4

#### Forecast Table - Sources and Notes

PPP = purchasing power parity; e = estimate; f= forecast.

<sup>a</sup>. Canada, France, Germany, Italy, Japan, the UK, and the United States.

<sup>b</sup>. In local currency, aggregated using 1995 GDP Weights.

<sup>c</sup>. Simple average of Dubai, Brent and West Texas Intermediate crude oils.

<sup>d</sup>. Unit value index of manufactured exports from major economies, expressed in USD.

<sup>e</sup>. GDP in 1995 constant dollars; 1995 prices and market exchange rates.

<sup>f</sup>. GDP measured at 1995 PPP weights.

The Toronto Dominion Bank offers the following observation, which appears typical of current short-term forecasts by commodity analysts:

“...prospects for Canada’s resource sectors remains bright. Even though commodity prices are expected to pull back moderately in 2006 from this years peak levels, prices will remain historically high.

“World commodity prices are expected to drop by about 15%, on average. Among the groupings, oil and gas and base-metals – two important inputs into the production of many manufactured goods – are expected to record larger than average decreases.”<sup>9</sup>

Note the World Bank is projecting a drop averaging 5.2% in 2006 and 5.4% in 2007. This expected price drop is taking place at a time when metal prices have increased on average 70% over the last three years.

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<sup>9</sup> TD Economics Industrial Outlook, December 13, 2005.



## 5. The Long-term Outlook

As noted above, most of the forecasts for mineral commodities rely on the assumption that the market fundamentals as they relate to mineral development in the past will be a useful guide to the future. The appendix provides historical price data for a number of commodities as reference.

Essentially, commodity prices are a function of supply and demand driven by the factors noted above. Mineral commodities are unique in that this supply of wealth is buried, and requires sophisticated methods of exploration and development to find, extract and market. The quantity, quality and location of mineral commodities is not definitively known. John Tilden, a leading academic in the field of mineral commodities<sup>10</sup> makes the following observations in the context of considering the worldwide supply of minerals in the future:

“While global demand is expected to continue to grow, the reserves for almost all mineral commodities are sufficient to last for at least several decades even at growth rates above those currently prevailing. We also know that reserves are not fixed, but are more appropriately thought of as working inventories. By exploration and other means, companies can and do add to reserves over time, and additions to global reserves have in the recent past occurred on a regular basis. This coupled with the stable or falling production costs and prices for many mineral commodities over the past several decades has produced a widespread consensus among the experts that the threat of mineral depletion is not an immediate concern.”

Tildon goes on to say:

“...the availability of mineral commodities over the long run largely depends on a race between the cost reducing effects of new technology and the cost-increasing effects of resource depletion. While new technology has successfully offset the adverse effects of depletion over the past century, the course of new technology in the future is impossible to predict. This means no one knows for certain the future trends in resource availability.”

The World Bank, in support of its mandate to support investment in developing economies, offers long-term economic outlooks in detail on an annual basis.

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<sup>10</sup> Depletion and Long Term Availability of Mineral Commodities, John E. Tilden, Colorado School of Mines, 2001



## 6. The Role of Emerging Asian Economies

The changes that are taking place in China and other eastern Asian countries are very significant. A recent Organisation for Economic Cooperation and Development (OECD) report<sup>11</sup> notes:

“(In China) the private sector now accounts for more than half of industrial output, compared with barely more than a quarter in 1998, and operates much more efficiently than the public sector. Higher productivity has fed through to profitability, motivating greater regional specialization of production. These changes are consistent with what would be expected in a market-based economy, and suggests that reforms are making rapid progress.”

A recent observation by the OECD<sup>12</sup> highlights the importance of current events in China:

“The pace of economic change in China has been extremely rapid since the start of economic reforms just over 25 years ago. According to official statistics, economic growth has averaged 9.5% over the past two decades and seems likely to continue at that pace for some time. National income has been doubling every eight years. Such an increase in output represents one of the most sustained and rapid economic transformations seen in the world economy in the past 50 years.”

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<sup>11</sup> Organization for Economic Co-operation and Development 16-Dec-2005

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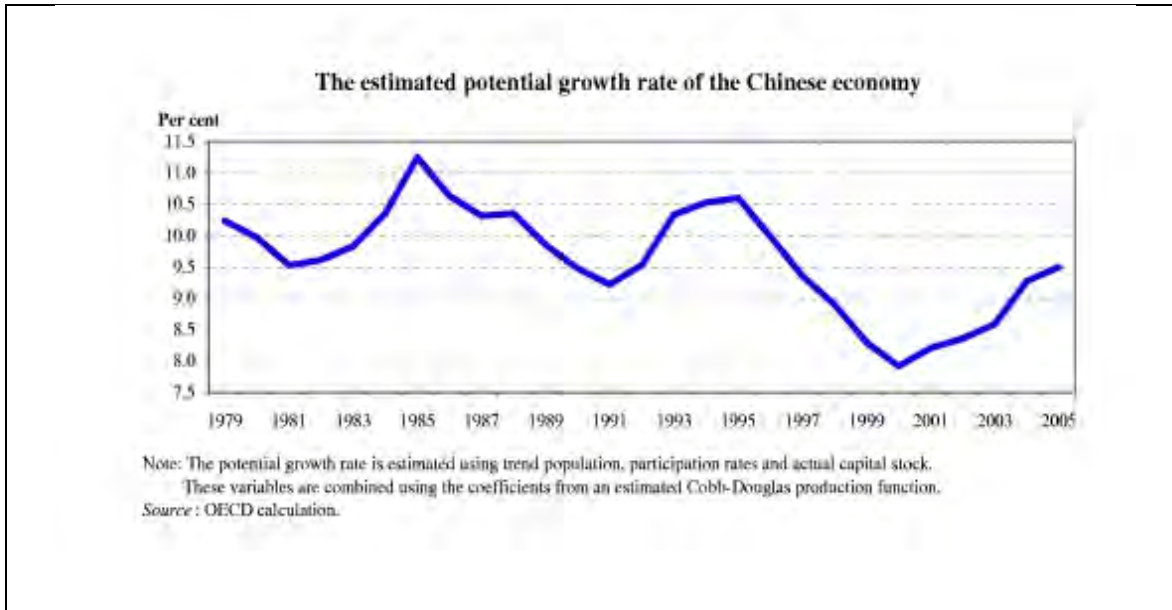
Fast-Falling Barriers and Growing Concentration: the Emergence of a  
Private Economy in China economics department working papers no. 471  
By Sean Dougherty and Richard Herd

<sup>12</sup> Organization for Economic Cooperation and Development OECD Observer, October, 2005.



The graph in Figure 2 also illustrates the recent history of growth in China:

**Figure 2**



China is a major player in most commodities. In terms of scale and magnitude, China's mining industry ranks third in the world, although production statistics are sketchy. Most of China's mineral production is consumed locally by state owned enterprises or banks. The country has about 80,000 state-owned mining enterprises and 200,000 collectively owned mines.



It appears that much of the current pressure on mineral commodities relates to the continued demand within China for mineral products. China is now becoming a net importer, rather than exporter of metals. The following graph illustrates this change.



## 7. Implications for Canada's North and Alaska

The analysis above supports a conclusion that the global market for mineral commodities will likely trade within a range consistent with long-term historical prices. An analysis of known mineral deposits provides a mechanism to estimate the likelihood of development and amount of product a mine would contribute to a railway. While this information is critical to assist in determining the feasibility of a railway, it is conservative as it does not capture the fact that a railway will help drive a new wave of investment that leads to new discoveries and new bulk commodities that will utilize a railroad.

This is particularly important here because the resource inventory in Alaska, Canada and northern B.C. is not well known. Regional investment in exploration is a function of good mineral



potential, and access to infrastructure that provides the ability to move products to market. Most of eastern Alaska, central and northern Yukon and northern B.C. lack the necessary infrastructure to move bulk commodities in a cost-effective way. These areas contain both important deposits and significant mineral potential, but have not been the target of sufficient exploration investment to assess the mineral inventory. The most critical constraint to this investment has been the absence of necessary infrastructure, such as a railway. In many cases, the costs associated with long-distance trucking are not feasible, except for the richest deposits.

This means that any analysis that attempts to quantify the amount of minerals that may contribute to the viability of a railway that is based on the existing mineral inventory, is conservative. It cannot take into consideration new discoveries driven by new investment in the future.

## **8. Conclusions and Recommendations**

Based on the general analysis above, and keeping in mind the uncertainty that accompanies any long-term projection, it is reasonable to conclude that, over the long-term, commodity prices will continue to be affected by a global market driven by global supply and demand. It is reasonable to believe these market forces will continue. A conservative approach provides for commodity prices to remain stable, or increase modestly within a range over the long-term. A number of arguments have been advanced that relate to effect of emerging market economies and continued population growth driving an increase in demand on a sustained basis. No arguments have been offered suggesting any real decrease in commodity prices, beyond normal cyclical changes.

It is reasonable, therefore, to anticipate future commodity prices trading within the upper part of the projected price range as shown in Appendix C.

# Appendix A

## REAL PRICES FOR SELECTED MINERAL COMMODITIES, 1870-1997

by

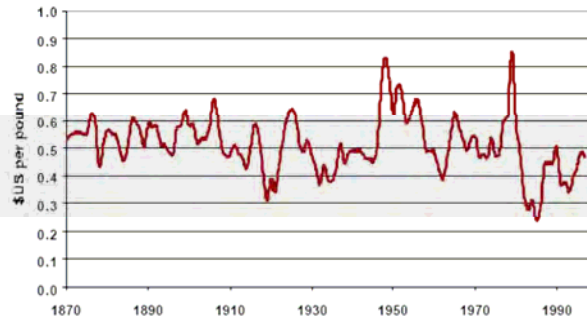
Peter Howie

Colorado School of Mines

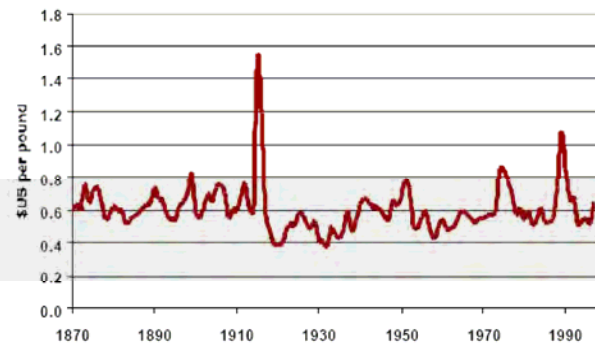
The figures below show the prices for aluminum, copper, pig iron, iron ore, nickel, lead, silver, tin, zinc, petroleum, natural gas, and bituminous coal deflated by the U.S. producer price index over the period 1870 to 1997. They are an update of the price data that Robert S. Manthey provides in his 1978 book, *Natural Resource Commodities—A Century of Statistics*. This book, in turn, updates the 1962 book by Neal Potter and Francis T. Christy, Jr., entitled *Trends in Natural Resource Commodities*. Both volumes, published by Johns Hopkins for Resources for the Future, contain a wealth of other data on mineral output, consumption, trade, and employment. It is important to note that the prices shown are for the United States. Many mineral commodities are sold in global markets, and so trends in U.S. prices closely track prices abroad. However, this is not always the case. For example, the iron ore price shown is for iron ore from the Mesabi Range in northern Minnesota sold at ports on Lake Erie. This price does not fully reflect the decline over the past several decades in the prices of iron ore shipped from Brazil and Australia, which are currently the world's largest producers and exports of iron ore. The section on data sources following the figures identifies the nature of the prices quoted along with their original sources.



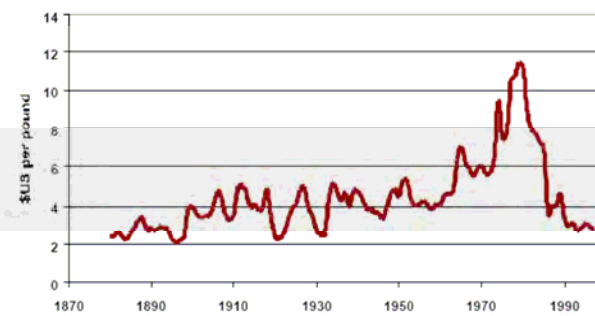
Real Prices Pb (\$US/lb), \$1997



Real Prices Zn (\$US/lb), \$1997



Real Prices Sn (\$US/lb), \$1997

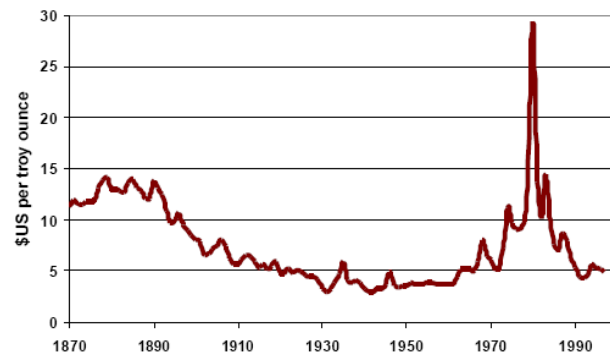




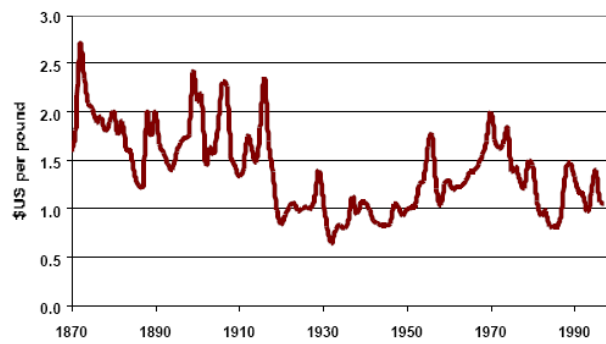
Real Prices Al Ingot (\$US/lb), \$1997



Real Prices Ag (\$US/troy ounce), \$1997

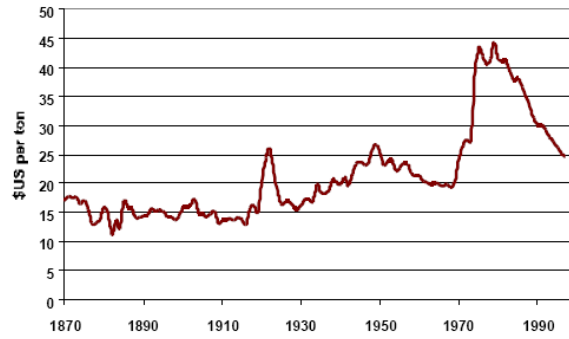


Real Prices Cu (\$US/lb), \$1997

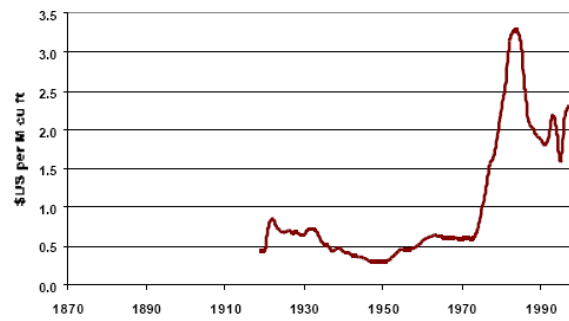




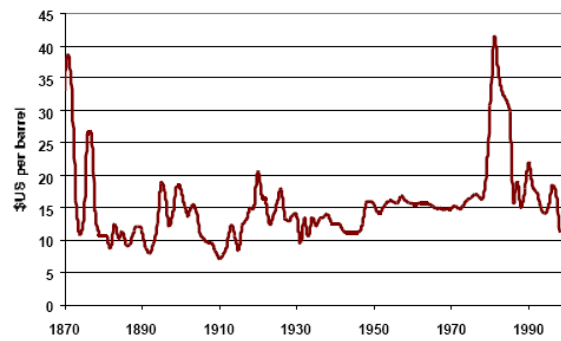
Real Prices Bituminous Coal (\$/ton), \$1997



Real Prices Natural Gas (\$US/ M cu ft), \$1997



Real Prices Petroleum (\$US/barrel), \$1997

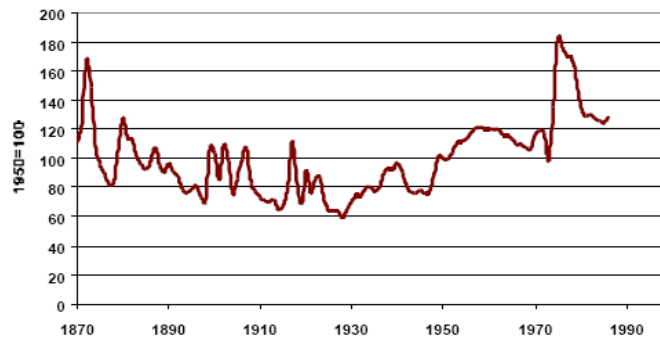




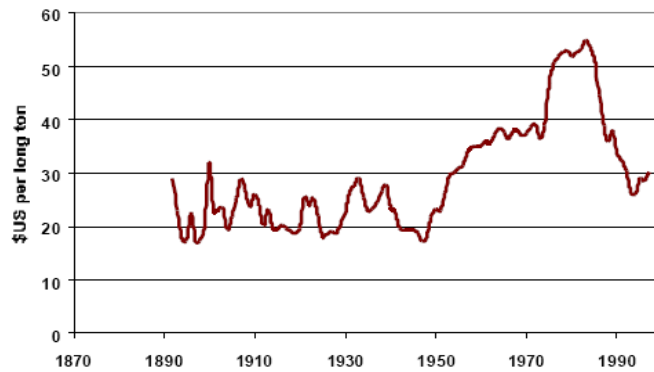
Real Prices Ni (\$US/lb), \$1997



Real Prices Pig Iron (1950=100)



Real Prices Iron Ore (\$US/long ton), \$1997





### **Nature of Data and Sources**

**Aluminum:** New York Prices and Producers Average Price

1870 - 1957: Potter and Christy (1870-1904: *ABMS Yearbook*, American Bureau of Metal Statistics; 1905-1957: *Metal Statistics*, American Metal Market)

1958 - 1983: *Metal Statistics*, American Metal Market

1984 - 1991: *ABMS Yearbook*, American Bureau of Metal Statistics

1992 - 1997: *Metal Statistics*, American Metal Market

**Copper:** United States Ingot and Electrolytic Copper at Refinery

1870 - 1957: Potter and Christy (1870-1889: *Aldrich Report - Wholesale Prices, Wages and Transportation*, U.S. Congress, Senate Committee on Finance; 1890-1905: *BLS Wholesale Prices Bulletin*, U.S.

Department of Labor, Bureau of Labor Statistics; 1906-1957: *ABMS Yearbook*, American Bureau of Metal Statistics)

1958 - 1973: Manthy (1958-1973: *ABMS Yearbook*, American Bureau of Metal Statistics)

1974 - 1997: *ABMS Yearbook*, American Bureau of Metal Statistics

**Pig Iron:** United States Average Value

1870 - 1957: Potter and Christy (1870-89: *Statistical Abstracts of the United States - no.1 foundry at Philadelphia*, U.S. Department of

Commerce, Bureau of the Census; 1890-1957: *BLS Wholesale Prices Bulletin*, U.S. Department of Labor, Bureau of Labor Statistics)

1958 - 1973: Manthy (1958-1973: *BLS Wholesale Prices and Price Indexes*, U.S. Department of Labor, Bureau of Labor Statistics)

1974 - 1986: *BLS Wholesale Prices and Price Indexes*, U.S. Department of Labor, Bureau of Labor Statistics

**Iron Ore:** Mesabi, non-Bessemer Iron Ore at Lake Erie Docks

1895 - 1957: Potter and Christy (1895-57: *Metal Statistics*, American Metal Market)

1958 - 1997: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines and United States Geological Survey - Salient Iron Ore Statistics, Average value at mines

**Nickel:** Average Unit Value Imported for Consumption

1870 - 1957: Potter and Christy (1870-1908: *Mineral Resources of the United States*, U.S. Department of the Interior, Geological Survey; 1909-

1957: *Mineral Resources of the United States and Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)

1958 - 1990: *Nickel Statistical Compendium*, U.S. Department of the Interior, United States Geological Survey



1991 - 1997: *Minerals Yearbook*, U.S. Department of the Interior, United States Geological Survey

Appendix, Version 010720

A-8

**Lead:** United States Average Price at New York

1870 - 1957: Potter and Christy (1870-1955: *Historical Statistics of the United States, Colonial Times to 1957* and *Statistical Abstracts of the*

*United States*, U.S. Department of Commerce, Bureau of the Census;

1956-1957: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)

1958 - 1973: Manthy (1958-1973: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)

1974 - 1987: *ABMS Yearbook*, American Bureau of Metal Statistics - United States Producer Lead Price

1988 - 1997: *ABMS Yearbook*, American Bureau of Metal Statistics - North American Producer Lead Price

**Silver:** New York Price

1870-1957: *Historical Statistics of the United States, Colonial Times to 1957*, U.S. Department of Commerce, Bureau of the Census;

1958-1997: *Metal Statistics*, American Metal Market

**Tin:** Straits Tin Prices in New York:

1880-1997: *Metal Statistics*, American Metal Market

**Zinc:** New York Prices and Prime Western Slab Zinc at New York

1870 - 1957: Potter and Christy (1870-1879: *Aldrich Report - Wholesale Prices, Wages and Transportation*, U.S. Congress, Senate Committee on Finance; 1880-1957: *Metal Statistics*, American Metal Market)

1958 - 1973: Manthy (1958-1973: *Metal Statistics*, American Metal Market)

1974 - 1990: *Metal Statistics*, American Metal Market

1991: Based on average of London Metals Exchange quotes

1992 - 1997: *Metal Statistics*, American Metal Market - Producers U.S. Spot Zinc, Prime Western

**Petroleum:** United States Average Value

1870 - 1957: Potter and Christy (1870-1914: *Mineral Resources of the United States*, U.S. Department of the Interior, Geological Survey; 1915-1953: *Petroleum Facts and Figures*, American Petroleum Institute)

1958 - 1973: Manthy (1958-1969: *Petroleum Facts and Figures*, American Petroleum Institute; 1970-1973: *Mineral Industry Surveys Petroleum Statement*, U.S. Department of the Interior, Bureau of Mines)

1974 - 1997: *Basic Petroleum Data Book, Petroleum Industry Statistics*,



American Petroleum Institute

**Natural Gas:** United States Average Value, Point of Production  
1870 - 1957: Potter and Christy (1919-1921: Barger and Schurr, 1944, *The Mining Industries, 1899-1939: A Study of Output, Employment and Productivity*; 1922-1931: *Mineral Resources of the United States*, Appendix, Version 010720

A-9

U.S. Department of the Interior, Geological Survey and Bureau of Mines; 1932-1953: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)  
1958 - 1973: Manthy (1958-1973: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)  
1974 - 1997: *Basic Petroleum Data Book, Petroleum Industry Statistics*, American Petroleum Institute

**Bituminous Coal:** United States Average Value at Mine  
1870 - 1957: Potter and Christy (1870: *Census of Mineral Industries*, U.S. Department of Commerce; 1871-1879: *Seward's Coal Trade Journal*; 1880-1896: *Mineral Resources of the United States*, U.S. Department of the Interior, Geological Survey; 1897-1955: *Historical Statistics of the United States, Colonial Times to 1957* and *Statistical Abstracts of the United States*, U.S. Department of Commerce, Bureau of the Census; 1956-1957: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)  
1958 - 1973: Manthy (1958-1973: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines)  
1974 - 1997: *Energy Information Administration Annual Energy Review*, Energy Information Administration, U.S. Department of Energy

**Producer Price Index:** All Commodities  
1870 - 1957: Potter and Christy (*Historical Statistics of the United States, 1789-1945*, and *Statistical Abstracts of the United States*, U.S. Department of Commerce, Bureau of the Census)  
1958 - 1973: Manthy (*Statistical Abstracts of the United States*, U.S. Department of Commerce, Bureau of the Census)  
1974 - 1997: *Statistical Abstracts of the United States*, U.S. Department of Commerce, Bureau of the Census



**Table 1.3 Long-term prospects: Forecast growth of world GDP per capita**

*Real GDP per capita, annual average percentage change*

	1980s	1990s	2000-06	2006-15
World total	1.3	1.1	1.6	2.1
High-income countries	2.5	1.8	1.7	2.4
OECD	2.5	1.7	1.7	2.3
United States	2.2	1.9	1.8	2.5
Japan	3.5	1.1	1.7	1.9
European Union	2.1	1.8	1.5	2.3
Non-OECD countries	3.5	4.1	1.6	3.5
Developing countries	0.6	1.5	3.4	3.5
East Asia and the Pacific	5.8	6.3	6.0	5.3
Europe and Central Asia	1.0	-1.8	5.2	3.5
Latin America & the Caribbean	-0.9	1.5	0.8	2.4
Middle East North Africa	-1.6	1.1	2.4	2.6
South Asia	3.3	3.2	4.2	4.1
Sub-Saharan Africa	-1.2	-0.5	1.2	1.6

*Note:* Aggregations are moving averages, reweighted annually after calculations of growth in constant prices.

*Source:* World Bank.



## APPENDIX C2: Metal Price Forecasts and Forecast Methodology

### WP A2a: Outbound Traffic Data Development for Mineral Resources

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To support the assessment of likelihood of mine development, a series of metal price forecasts have been developed. The project scope does not currently include a rigorous assessment of metal prices based on market trends. Therefore, for the purposes of the current project, a simple historical trend analysis was performed. This consists of compiling historical price trends and projecting these trends forward using simple regression techniques. One standard deviation about that trend was then used to develop “optimistic” and “pessimistic” price scenarios. The price histories and projections are shown on the attached charts. All units are in Canadian dollars per metric tonne unless noted otherwise.

For some commodities, price forecasts were obtained from the World Bank. For coal, forecasts were obtained by from the US Energy Information System. Overall, these forecasts agree well with the simple projections based on historical trend extrapolation.

Specific data sources and methodologies for completing the forecasts are as follows:

#### **Coal – Total**

##### **Source of Historic Data and 3<sup>rd</sup> Party Forecasts**

- Historical Data
  - United States Geological Survey Website (<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - Energy Information Administration (<http://www.eia.doe.gov/>)

Note the USGS coal price refers to “total” coal price at mine gate. “Total” is an averaged price based on all coal sales, regardless of coal grade. Most of the coal is thermal grade coal.



Metallurgical grade coal is significantly more valuable as indicated by the historical BC coal price trends (also shown on the coal chart).

### **Forecast Methodology**

- The coal forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of coal (1 / \$ per t) and the year.

## **Copper**

### **Source of Historic Data and 3<sup>rd</sup> Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGLOBPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)

### **Forecast Methodology**

- The Copper forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of copper (1 / \$ per t) and the year.
- GLL Forecast spans between 2006 – 2035.

## **Gold**

### **Source of Historic Data and 3<sup>rd</sup> Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGLOBPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



### **Forecast Methodology**

- The gold forecast was generated by performing a linear regression between the annual price of a tonne of gold (\$ per t) and the historic price of gold (\$ per t). The \$ per t price of gold was then forecast based on the EIA's forecast of gold prices.
- GLL Forecast spans between 2006 – 2035.

### **Iron Ore**

#### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGLOBPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)

Note iron ore is typically priced as F.O.B. at the mine's port. Furthermore, the USGS iron ore prices are for "total iron" which represent the average price of all iron ore sales, regardless of type (e.g. pellets vs. lump ore, etc.).

### **Forecast Methodology**

- The iron ore forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of iron ore (1 / \$ per t) and the year.
- GLL Forecast spans between 2006 – 2035.

### **Lead**

#### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGLOBPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



### **Forecast Methodology**

- The lead forecast was generated by performing a linear regression between the annual price of a tonne of lead (\$ per t) and the year.
- GLL Forecast spans between 2006 – 2035.

### **Molybdenum**

#### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - None available

### **Forecast Methodology**

- The molybdenum forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of molybdenum (1 / \$ per t) and the year
- GLL Forecast spans between 2006 – 2035.

### **Nickel**

#### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGLOBPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)

### **Forecast Methodology**

- The nickel forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of nickel (1 / \$ per t) and the year.
- GLL Forecast spans between 2006 – 2035.



## **Silver**

### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTTBLPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)

### **Forecast Methodology**

- The silver forecast was generated by performing a linear regression between the annual price of a tonne of silver (\$ per t) and the historic price of coal (\$ per t). The \$ per t price of silver was then forecast based on the EIA's forecast of coal prices.
- GLL Forecast spans between 2006 – 2030.

## **Tungsten**

### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)
- 3<sup>rd</sup> Party Forecasts
  - None available

### **Forecast Methodology**

- The tungsten forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of tungsten (1 / \$ per t) and the year.
- GLL Forecast spans between 2006 – 2035.

## **Zinc**

### **Source of Historic Data and 3rd Party Forecasts**

- Historical Data
  - United States Geological Survey Website  
(<http://minerals.usgs.gov/minerals/pubs/of01-006/>)



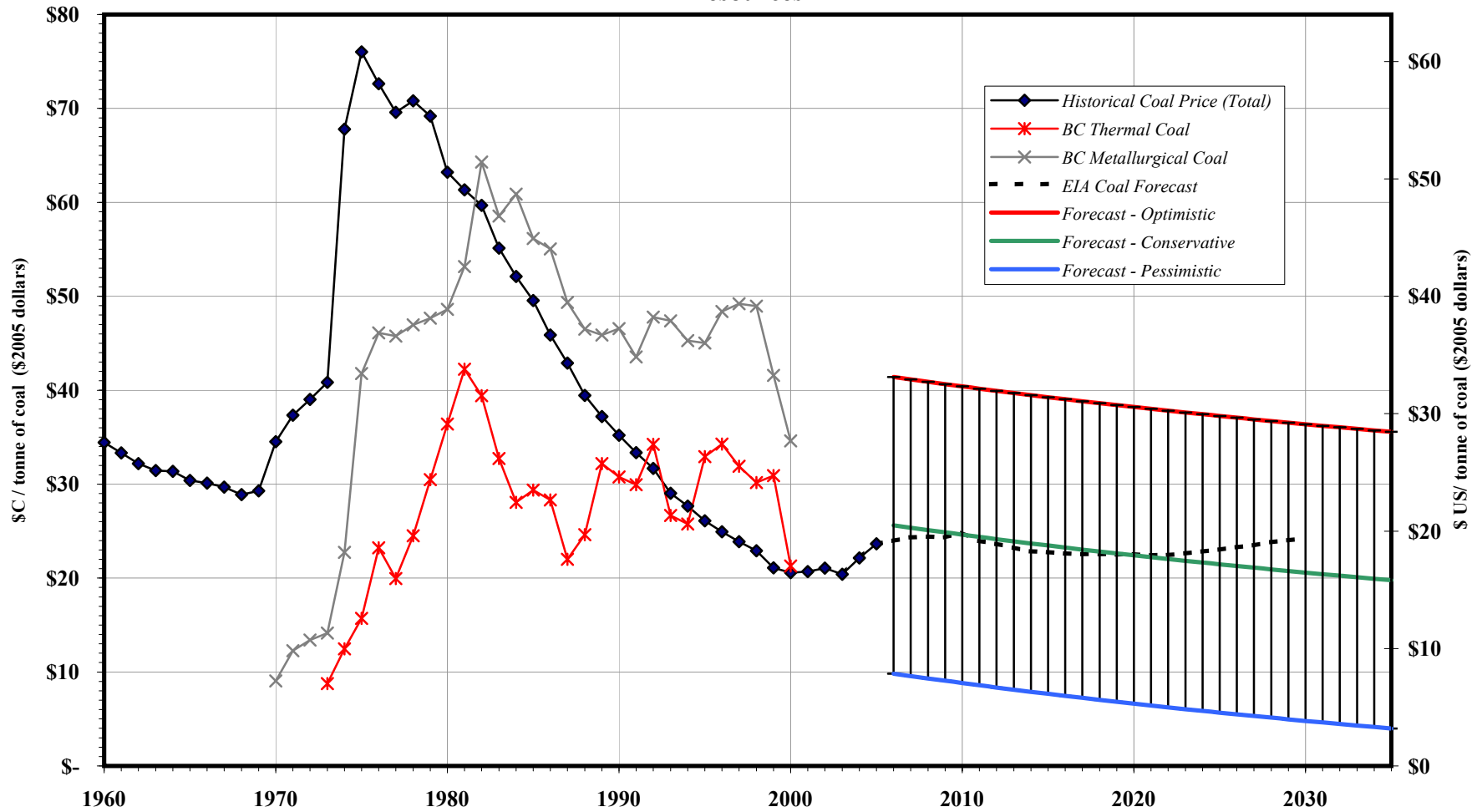
- 3<sup>rd</sup> Party Forecasts
  - The World Bank  
(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGLOBPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)

### **Forecast Methodology**

- The zinc forecast was generated by performing a linear regression between the inverse of the annual price of a tonne of zinc (1 / \$ per t) and the year.
- GLL Forecast spans between 2006 – 2035.

## Historical Coal Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



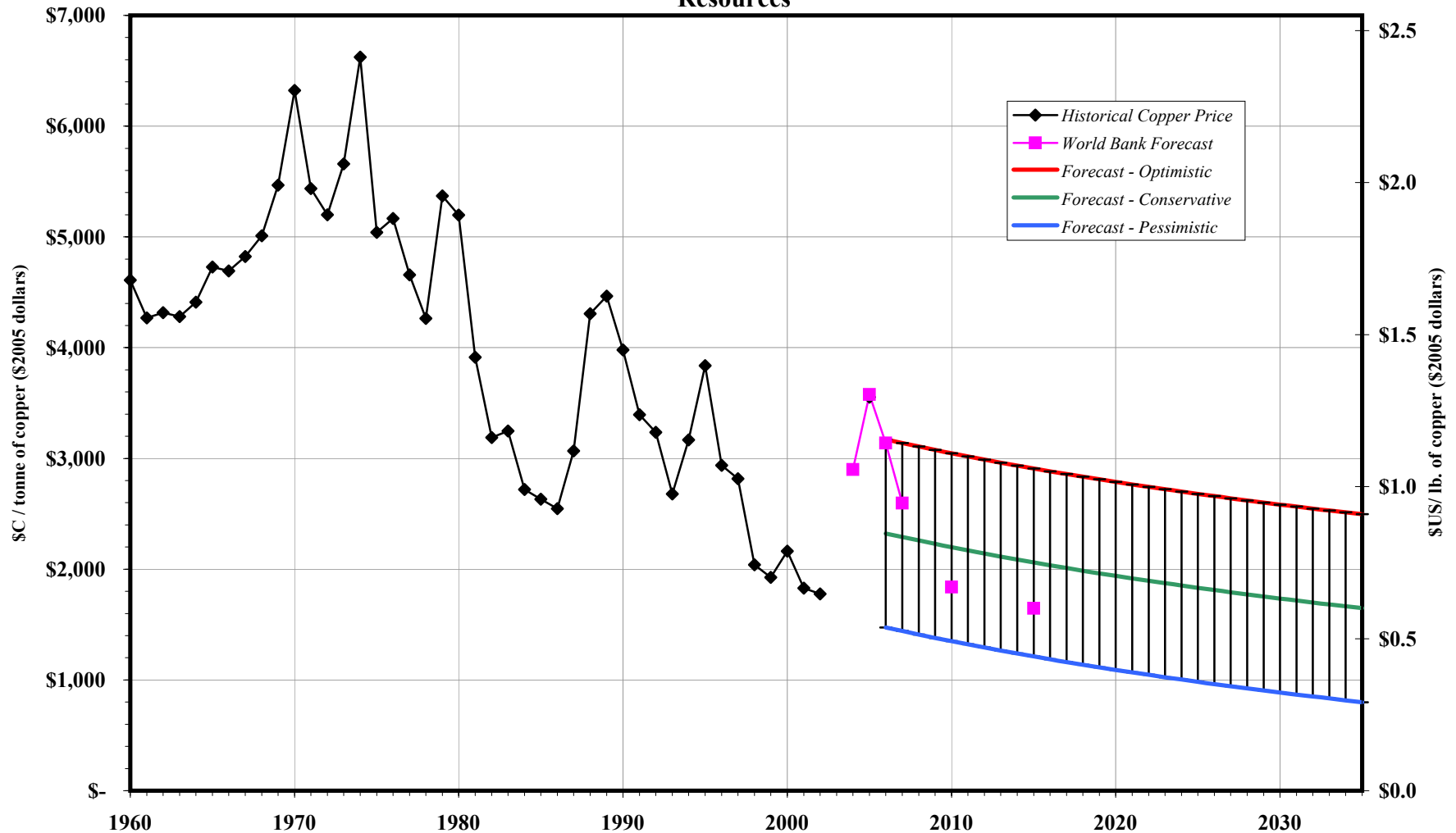
Data Sources:

Historical Coal Prices: Energy Information Administration 2005: US Dept. of Energy Website Table 7.8 Coal Prices, 1949-2004 (<http://www.eia.doe.gov/emew/aer/txt/ptb0708.html>).

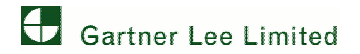
BC Coal Prices: Ministry of Energy, Mines and Petroleum Resources Website, 2001: British Columbia Coal Prices - 1970 to 2000 (<http://www.em.gov.bc.ca/Mining/MiningStats/32pricescoal00.htm>).

## Historical Copper Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources

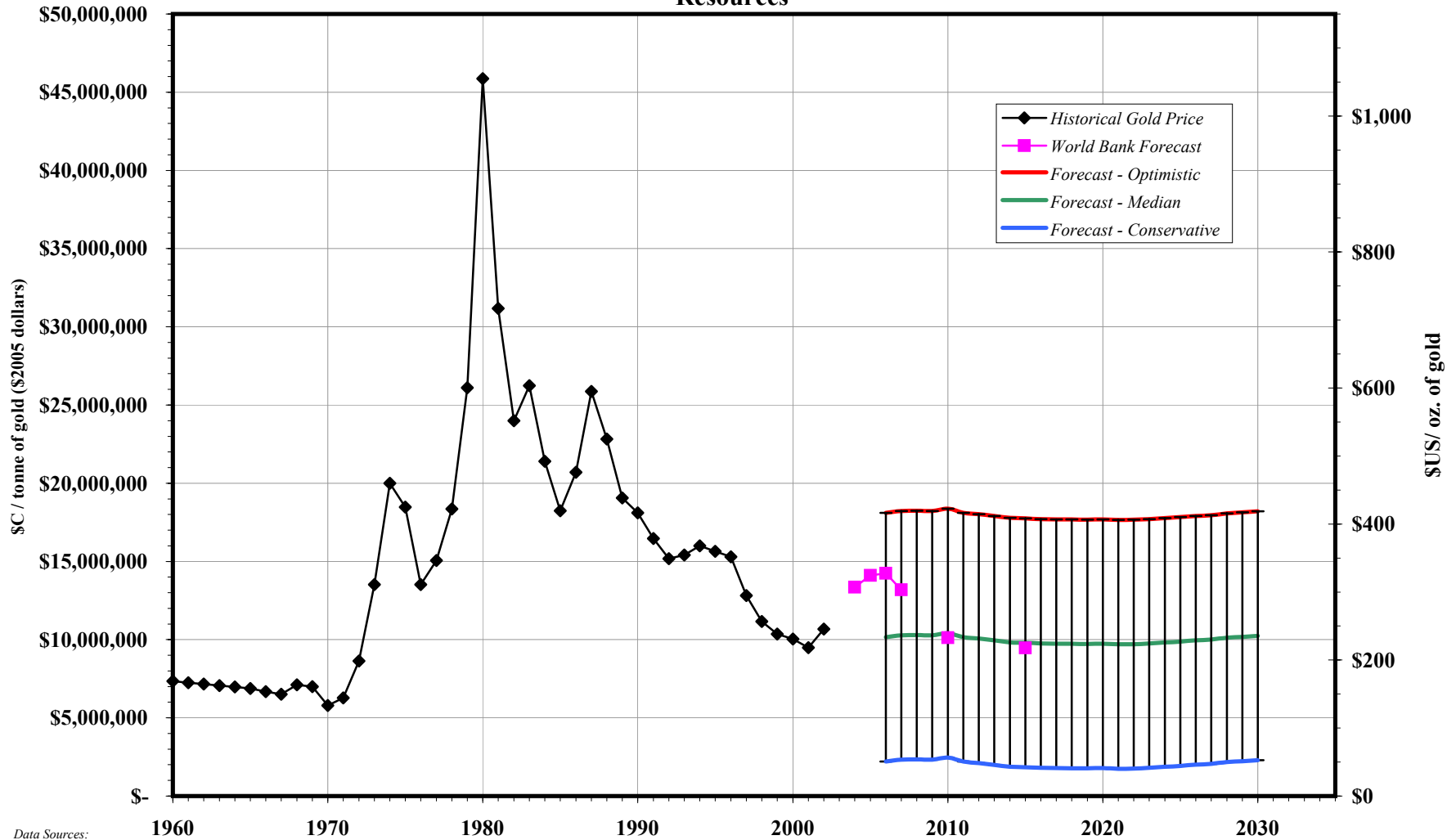


Data Sources:  
 Historical Copper Prices: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).  
 World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts  
 (<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGBLPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



## Historical Gold Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



Data Sources:

Historical Gold Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).

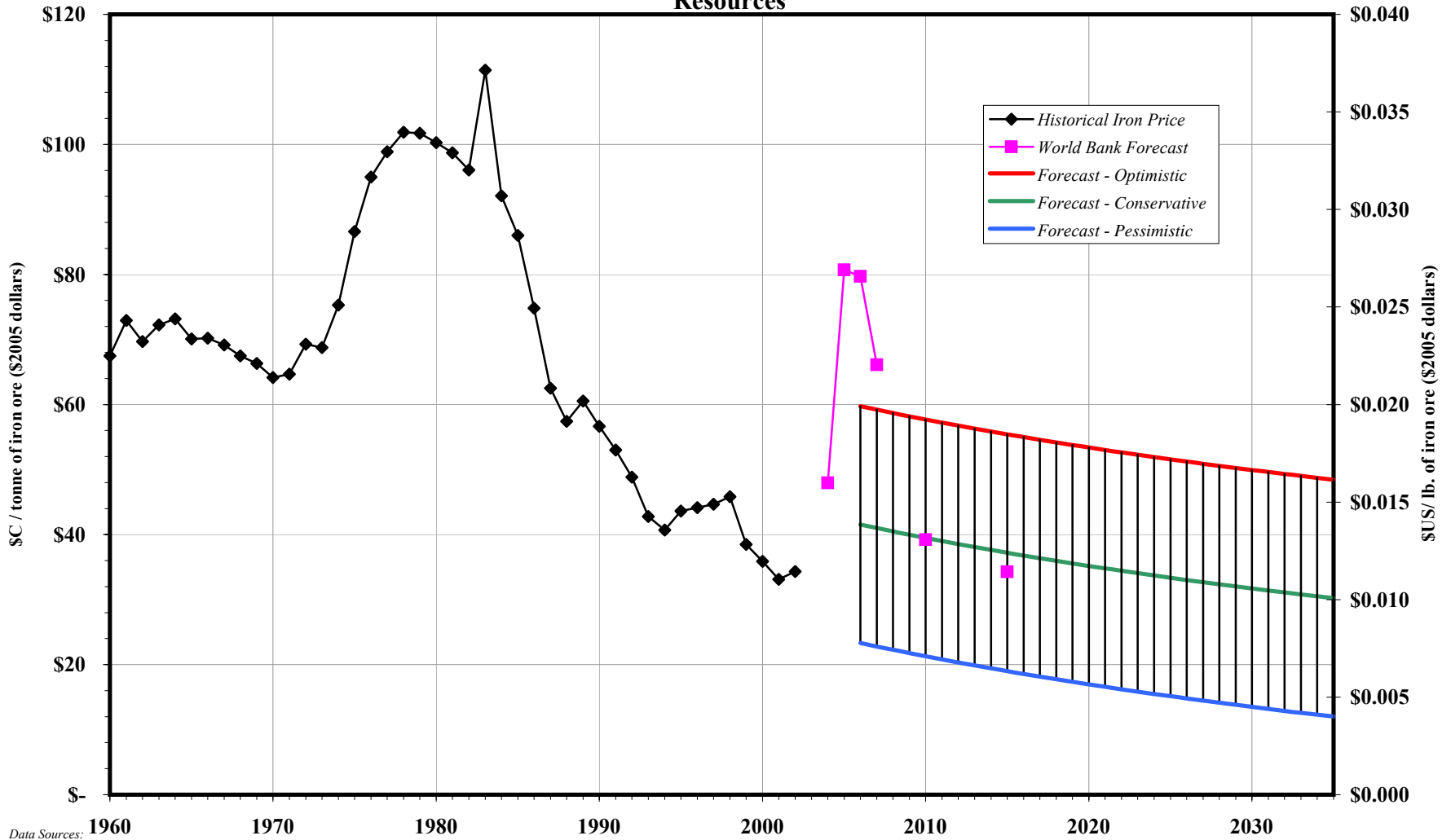
World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts

(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGBLPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



## Historical Iron Ore Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



Data Sources:

Historical Iron Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).

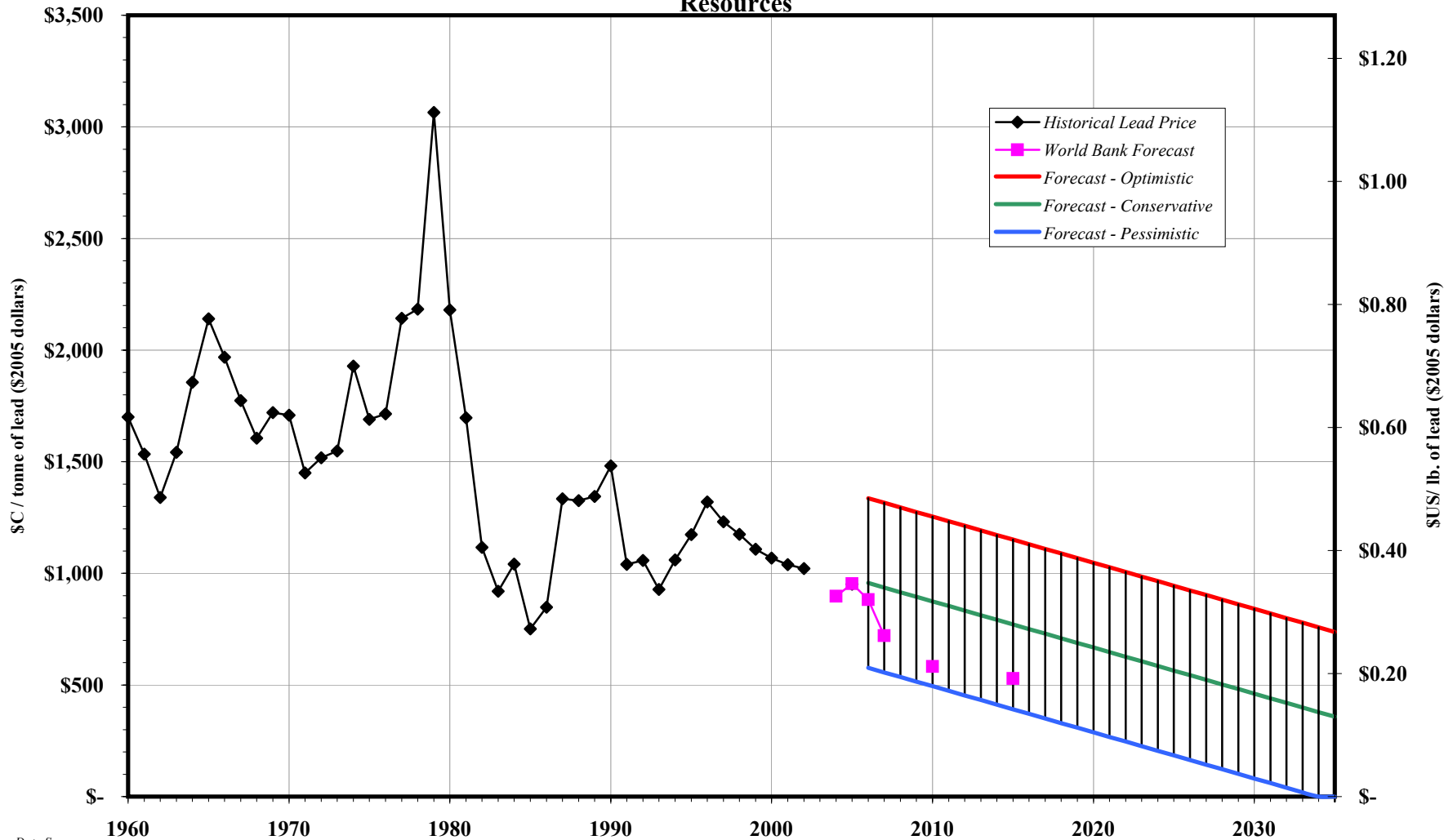
World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts

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## Historical Lead Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



Data Sources:

Historical Lead Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).

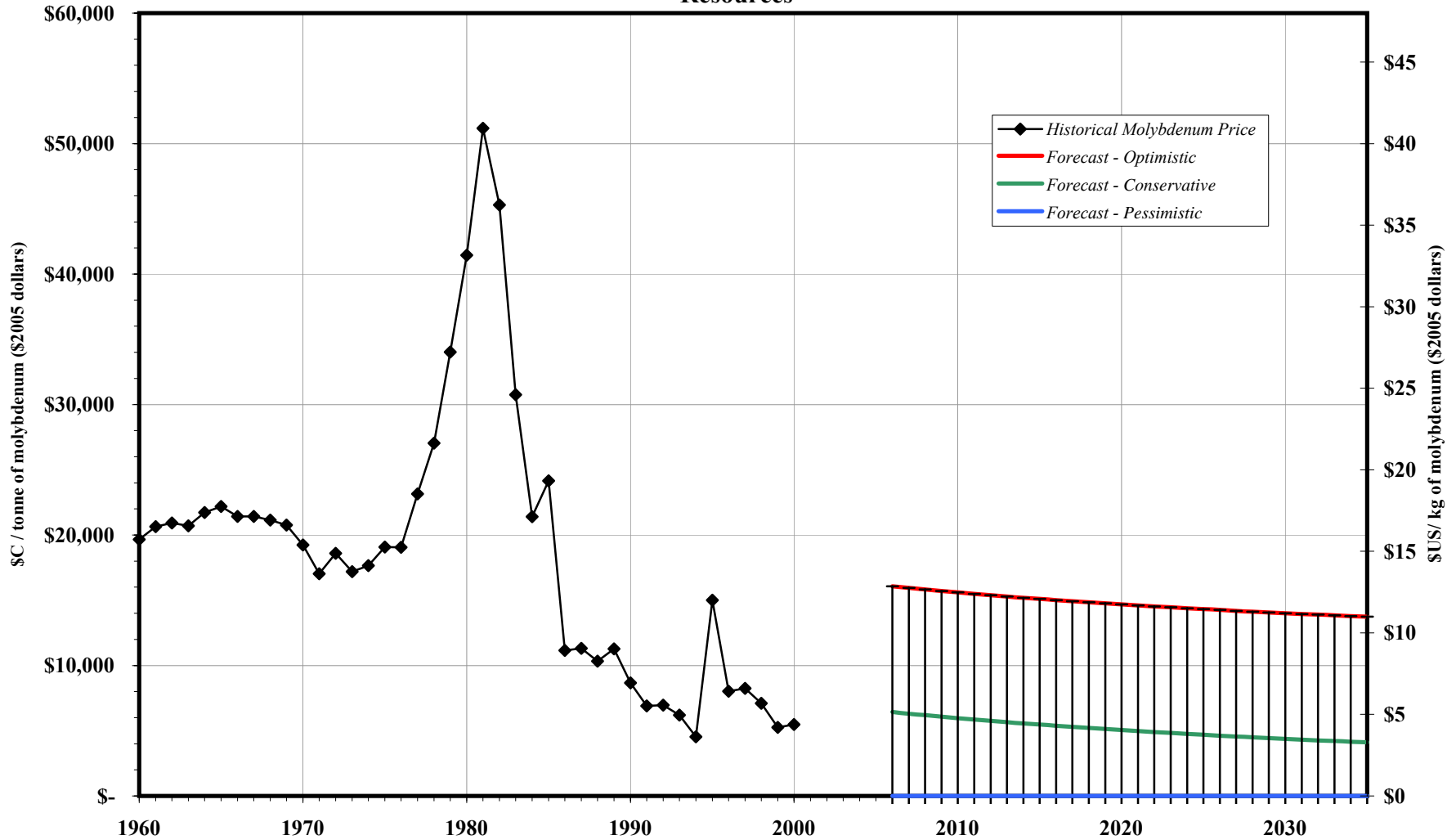
World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts

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## Historical Molybdenum Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



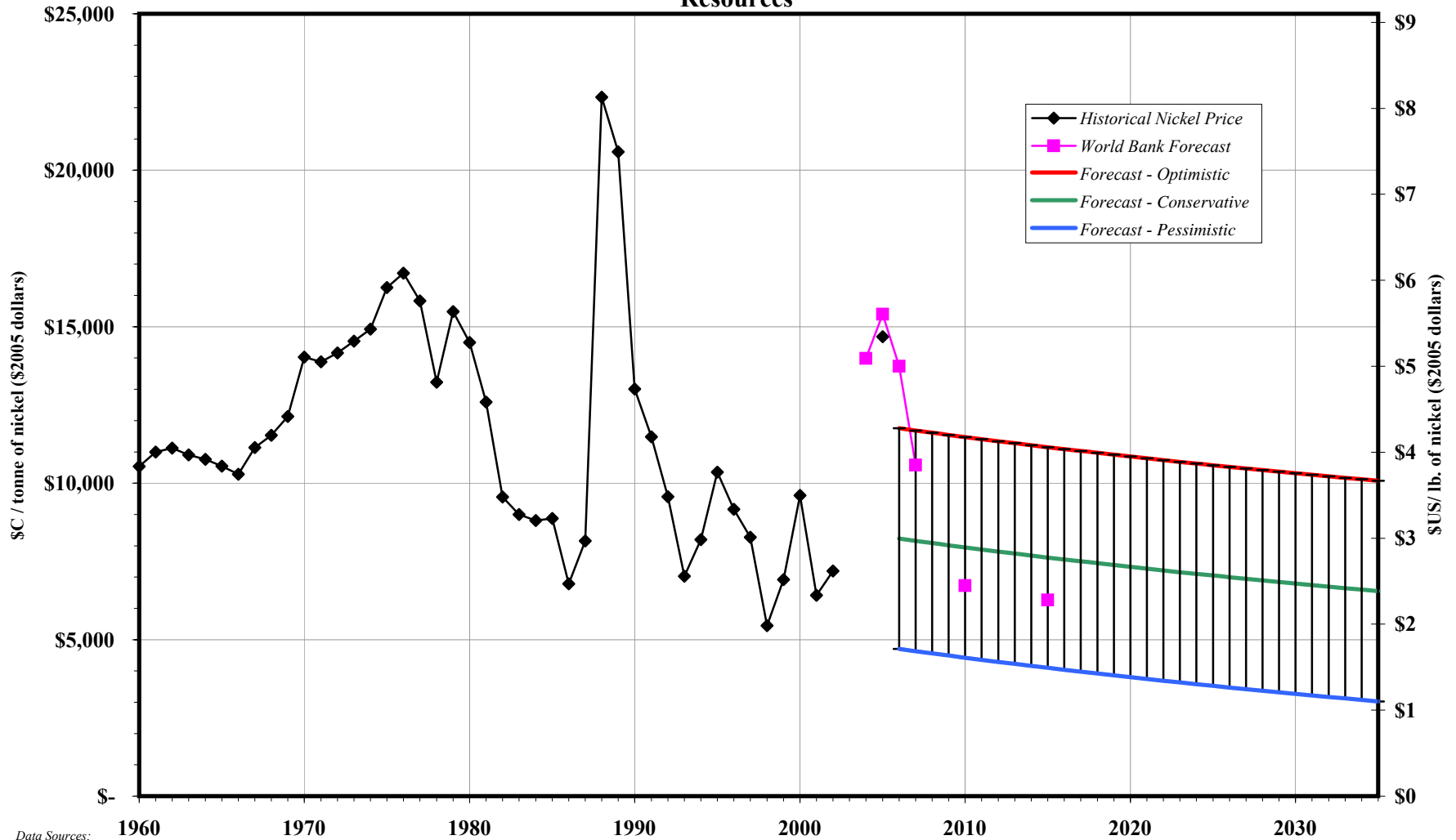
Data Sources:

Historical Molybdenum Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).



## Historical Nickel Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



Data Sources:

Historical Nickel Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).

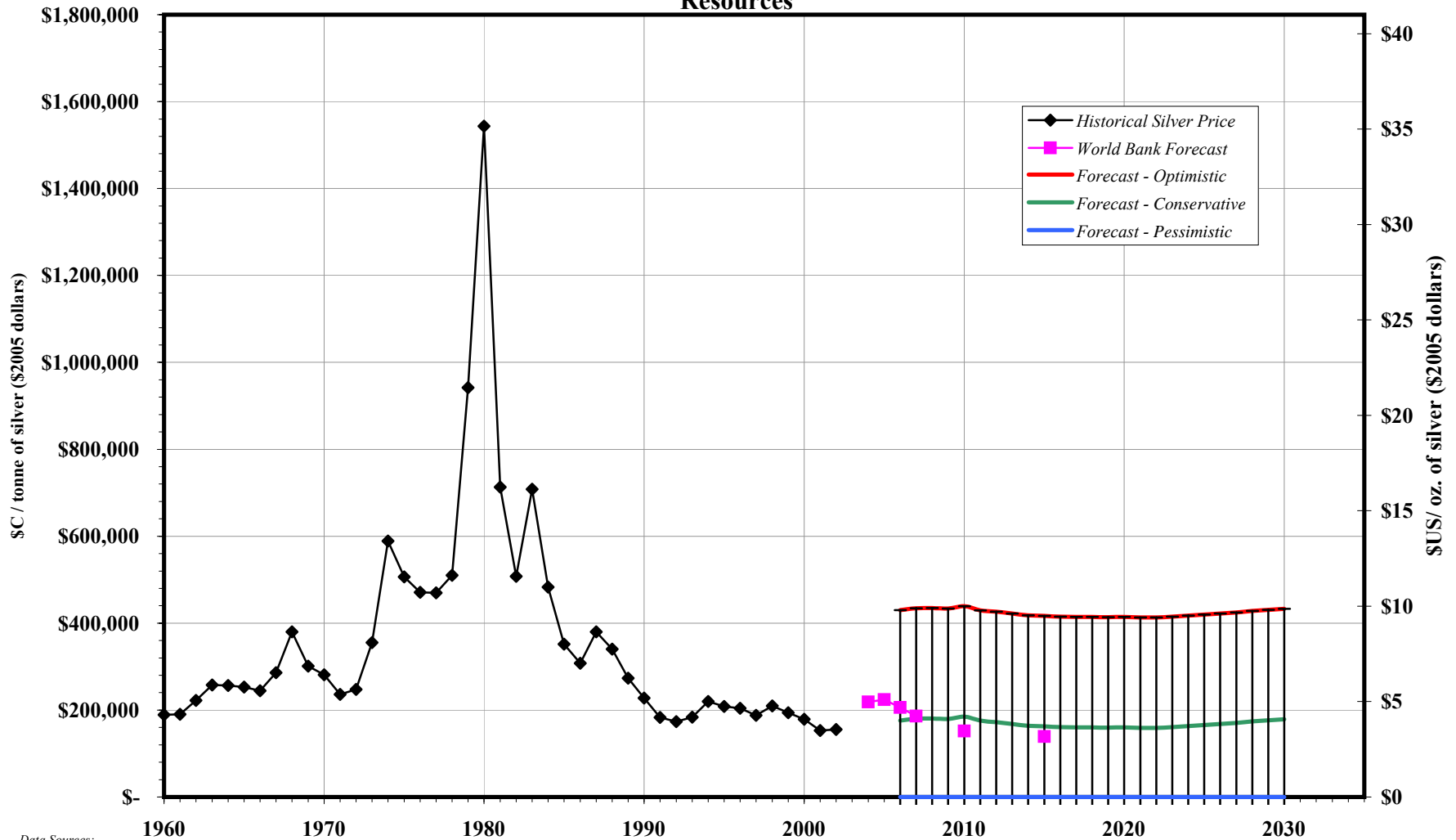
World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts

(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGBLPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



## Historical Silver Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



Data Sources:

Historical Silver Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).

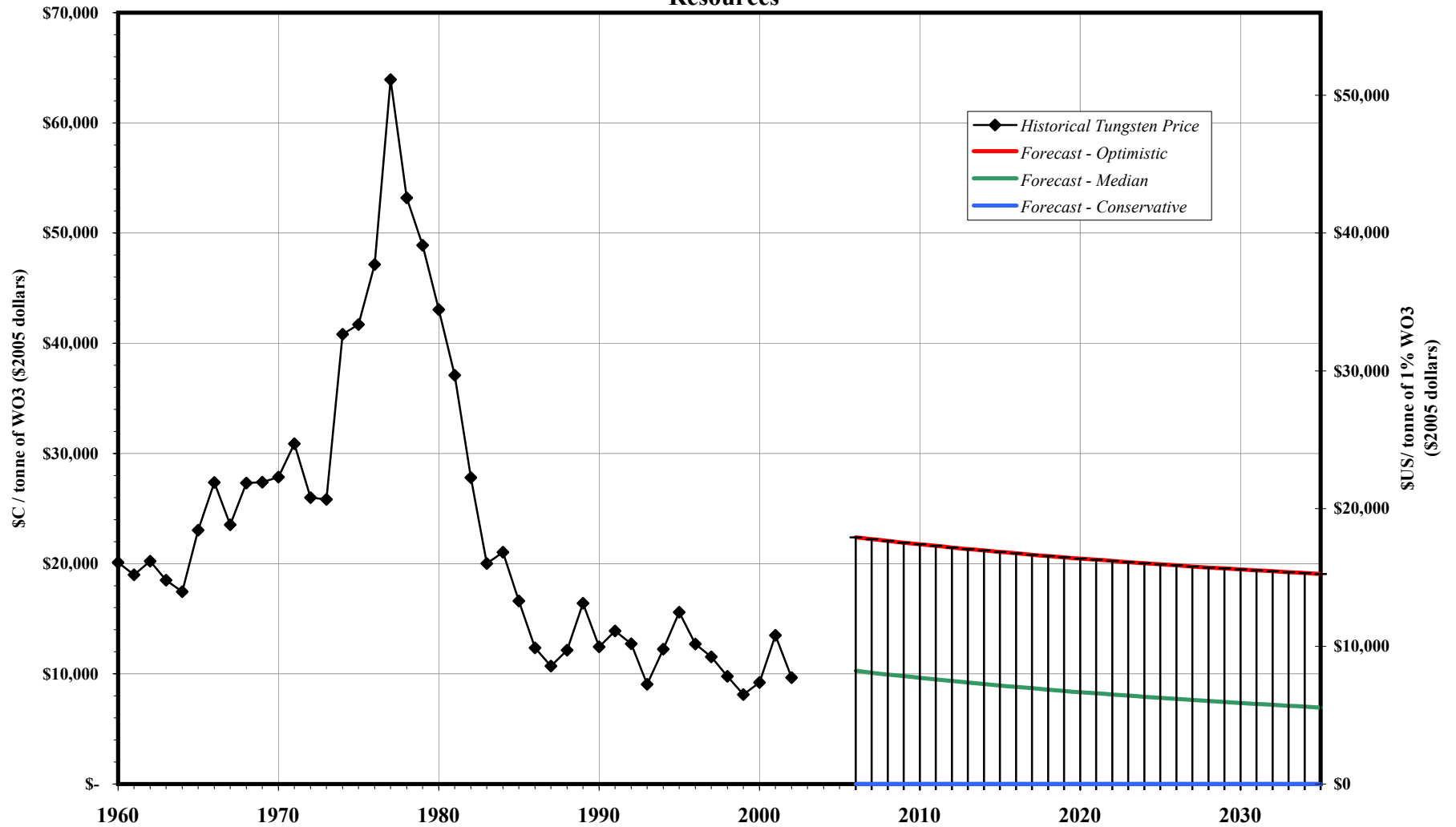
World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts

(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGBLPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



## Historical Tungsten Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



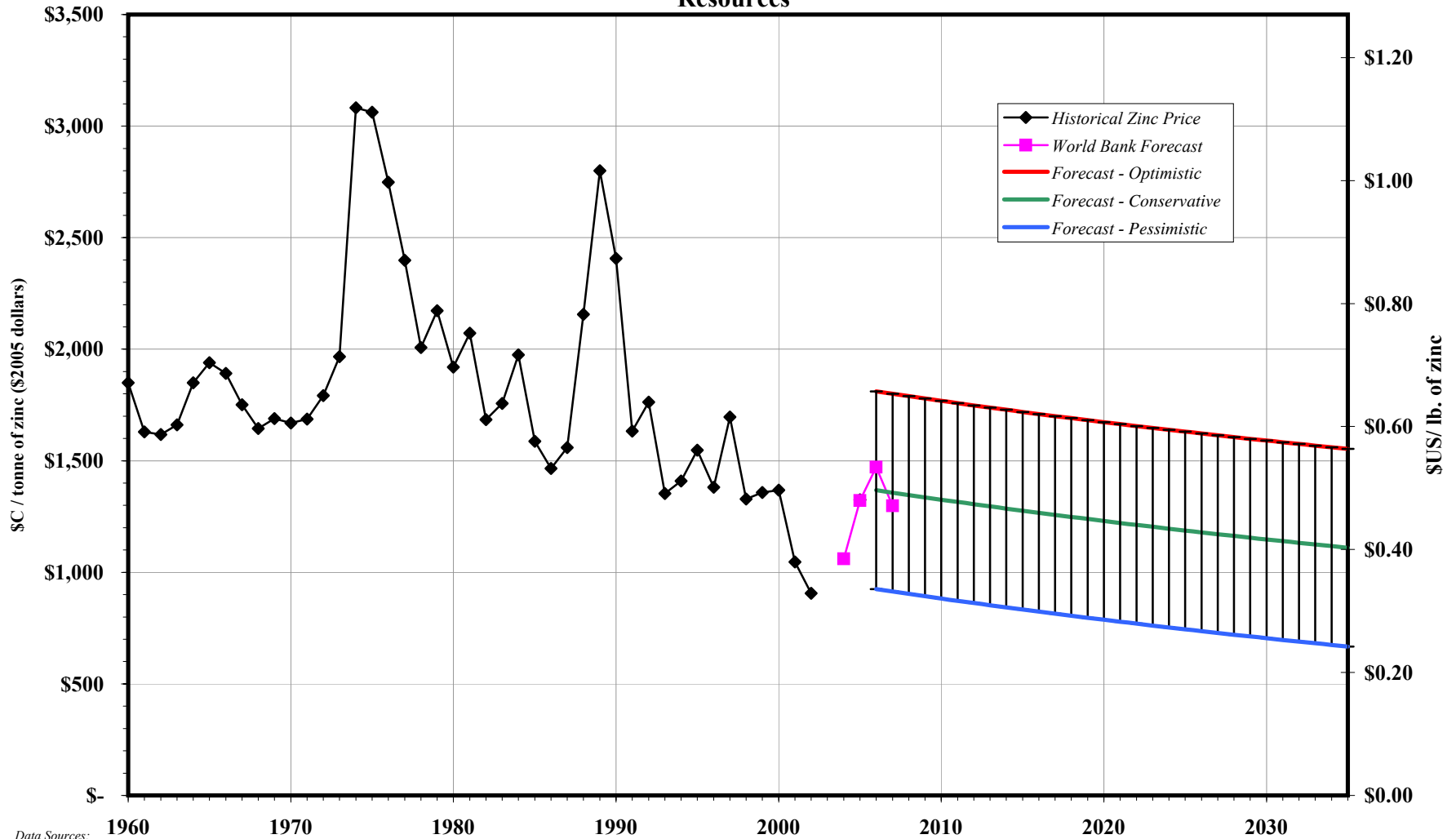
Data Sources:

Historical Tungsten Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).



## Historical Zinc Price & Forecast

### Alaska-Canada Rail Line Feasibility Study – Outbound Traffic Data Development for Mineral Resources



Data Sources:

Historical Zinc Price: United States Geological Survey Website, 2006: Historical Statistics for Mineral and Material Commodities in the United States (<http://minerals.usgs.gov/minerals/pubs/of01-006/>).

World Bank Forecast: The World Bank Website, 2005: Commodity Forecasts

(<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGBLPROSPECTS/0,,contentMDK:20675357~menuPK:627723~pagePK:64218950~piPK:64218883~theSitePK:612501,00.html>)



# Appendix D

## Alaska Candidate Mineral Deposits for Railroad Study

**Draft Summary  
of  
Alaska Candidate Mineral Deposits for Railroad Study**

Prepared for Gartner Lee Limited  
By Tom Bundtzen and Cristina Laird  
Pacific Rim Geological Consulting, Inc.  
February 17, 2006

# Draft Summary of Alaska Candidate Mineral Deposits for Railroad Study, for Gartner Lee Limited

by Tom Bundtzen and Cristina Laird, Pacific Rim Geological Consulting, Inc.

## Introduction

On February 9, 2006, Jesse Duke, mine project coordinator for Gartner Lee Limited (Gartner Lee) in Whitehorse, Yukon, Canada, asked Pacific Rim Geological Consulting, Inc. (PRGCI) to prepare a summary of potential candidate mineral deposits situated along the proposed extension of the Alaska Railroad into Canada that could provide freight tonnage for rail shipment to outside markets. Duke stressed that preliminary results would be needed by February 17, 2006, in order to be incorporated into the companion Yukon, Canada mineral deposit rail study. The following is PRGCI's preliminary draft summary.

Thirteen metallic mineral deposits, one industrial mineral deposit, and one coal deposit were selected from 967 Alaska Resource Data File (ARDF) records of Alaskan mineral occurrences, prospects and mines. The fifteen candidate deposits occur in four (4) of nine (9) U.S. Geological Survey 1:250,000 quadrangles that straddle the railroad extension corridor from Delta Junction to the Yukon, Canada border (table 1).

**Table 1 Alaska Resource Data Files (ARDF) searched for Gartner Lee railroad extension project**

<i>U.S. Geological Survey quadrangle</i>	<i>Number of files analyzed</i>
Big Delta	53
Black River	5
Charley River	40
Eagle	164
Fairbanks	155
Gulkana	46
Mount Hayes	364
Nebesna	109
Tanacross	31
<b>TOTAL</b>	<b>967</b>

In order for deposits to be included in this analysis, they must contain drill-indicated, measured and inferred resources as defined by the U.S. Securities and Exchange Commission. Candidate deposits have not necessarily undergone a pre-feasibility or feasibility tests. After a deposit was judged to contain a potentially viable resource

suitable for the railroad extension transportation model, data from various sources was input into a table format supplied by Gartner Lee Limited. This tabled data appears as a separate attachment.

Table 2 summarizes is a preliminary summary of annual amounts of concentrates and materials that could be reasonably produced from mineral deposit under the assumption that such deposits could be developed into commercially viable mines. Based on this analysis, about 1 million tonnes of materials could conceivably be available for railroad shipment to markets elsewhere in North America.

**Table 2 Summary of annual tonnage potential available for railroad extension, Delta Junction to the Canadian border**

<i>Deposit (s)</i>	<i>Mineral Deposit Type (Cox and Singer, 1986 or Laznicka, 1985 deposit model)</i>	<i>Material Shipped by Rail</i>	<i>Annual Amount available for shipment by rail (in tonnes)</i>
Step Mountain	Mississippi Valley Type Pb-Zn	Zinc-bearing sulfide, oxide, and carbonate minerals	14,000
Slate Creek	Serpentine-hosted asbestos	Asbestos fiber (baled)	200,000
Flanders, Flume Creek	Listwaenite-hosted gold	Sulfide Concentrates	Not calculated
DD North, DD South, DW, LP, LPH, MID, PP2, VAL, NUNATAK ("Delta District")	Kuroko Massive Sulfide (VMS)	Base metal-precious metal-bearing sulfide Concentrates	155,125
Taurus	Porphyry Copper-Molybdenum	Sulfide Concentrates	16,500
Jarvis Creek	Sub-bituminous coal	Water-washed and screened coal	637,500
<b>TOTAL</b>	<b>NA</b>	<b>NA</b>	<b>1,023,125 tonnes</b>

### **Discussion**

The nine (9) Kuroko massive sulfide deposits occur in a tight cluster in the Tanacross quadrangle along the north flank of the Alaska Range about 60 km northwest of Tok. Although many of these would appear to be too small to merit consideration in this analysis, it is assumed that these deposits would be mined as a unit and provide feed to a hypothetical 'district concentrator', which would prepare products for shipment by the proposed railroad. One of us (Bundtzen) has observed the production activities of a VMS district with very similar resources to those that exist in the 'Delta district'. The Skellefte district of north-central Sweden contains nearly twenty (20) productive VMS

deposits. Deposit size ranges from the Holmtarn mine at 250,000 tonnes to the Kristineberg mine at 25 million tonnes. For the last 55 years, all deposits, large and small, have provided feed for concentrate production to two localities: one at Boliden at one end of the district, and one at Kristineberg, at the other end of the district; these localities separated by about 65 kilometers. Although this district is now in decline with only 4 deposits left that provide mill feed, the centralized concentrator arrangement allowed for the successful development of small VMS deposits that would otherwise be non-commercial. Using the Skellefte district as a model, the Delta district VMS deposits are considered as a single concentrate source in table 2 above. In general, Grayd Resources, which controls all of the Delta district deposits, has stated that their properties contain a sulfide potential ranging from 50-100 million tons, with a realistic economic target set at 20-30 million tons. We agree with this assessment, but because such estimates are hypothetical, we did not use them in this analysis.

On the attached Gartner Lee data sheets, the assumption was made that for all Kuroko VMS deposits with less than 1.5 million tonnes of drill-indicated mineralization, the mine life was modeled to last for 7 years, which is considered to be a standard minimum size for investment payback. Kuroko VMS deposits greater than 1.5 million tons were modeled for 10 year mine lives. We understand that the Gartner Lee team has used different assumptions in the mine modeling scenario, and used more specific parameters.

In past years, one of the most potentially economic viable deposits within the Delta-Canadian border corridor with significant freight requirements is the Slate Creek asbestos deposit in the Eagle quadrangle. It is hard to express this to those unfamiliar with Alaska's mineral industry 25 years ago, but most mineral industry observers at the time generally believed that the Slate Creek asbestos deposit, which was being considered for full scale development during the early 1980s, would likely beat both the Red Dog and Greens Creek projects to production. A pre-feasibility analysis was completed by GCO Minerals, a subsidiary of International Paper Company in 1981, and the economics of developing the asbestos resources at Slate Creek looked positive. However, the 'asbestos scare' of the mid-1980s resulted in enactment of crippling new environmental restrictions in the U.S., which effectively shelved the project. Attempts to moderate the current restrictions on asbestos use in the United States have not been successful.

However, potentially viable markets for chrysotile asbestos fibers still exist in Europe, Asia, and even other countries in North America, including Canada.

Forest Pearson of Gartner Lee asked if there were additional gold prospects of significance to be considered in the analysis. The recent construction of the Pogo gold mine east of Fairbanks has spurred exploration interest in east-central Alaska in the search for similar deposits. There have been several new discoveries announced, which include Anglo-Gold Ashanti's LMS prospect near Pogo, Spectrum Resource's Mt. Hajdukovich prospect on the Johnson River, and Doyon's Road Metal project near Northway. However, no resource estimates have been made for these properties; hence they are not included in this analysis.

We looked at the resource data for several large porphyry copper-molybdenum deposits in the Nesbesna Quadrangle of the Northern Wrangell Mountains. These deposits, which include Bond Creek (ARDF #NB051), Orange Hill (ARDF #NB043), Baultoff (ARDF #NB100), and Horsfeld (ARDF #NB099), contain more than 850 million tons of Cu-Mo mineralization, and could be candidate deposits possibly capable of supplying sulfide concentrates to a rail haul. Some feasibility work has been completed at Orange Hill. In particular, the Bond Creek and Orange Hill deposits were considered the highest quality porphyry deposits in Alaska prior to the discovery of the Pebble copper-gold deposit near Iliamna. However, all of the afore-mentioned deposits were included into Wrangell-St. Elias National Park and Preserve by the ANILCA Act of 1980, which precludes mineral development. Hence these deposits were not included in this analysis.

### *Important Caveats*

Several important caveats need to be stated. Firstly, none of the deposits included in this analysis have undergone a complete feasibility study. As such, they cannot be considered measured or indicated reserves as defined by either the U.S. Securities and Exchange Commission or Canadian National Instrument 43-101. Despite proximity to Alaska's existing road transportation corridors, the deposits listed in table 2 have not been developed as mines under present economic conditions, although the Jarvis Creek

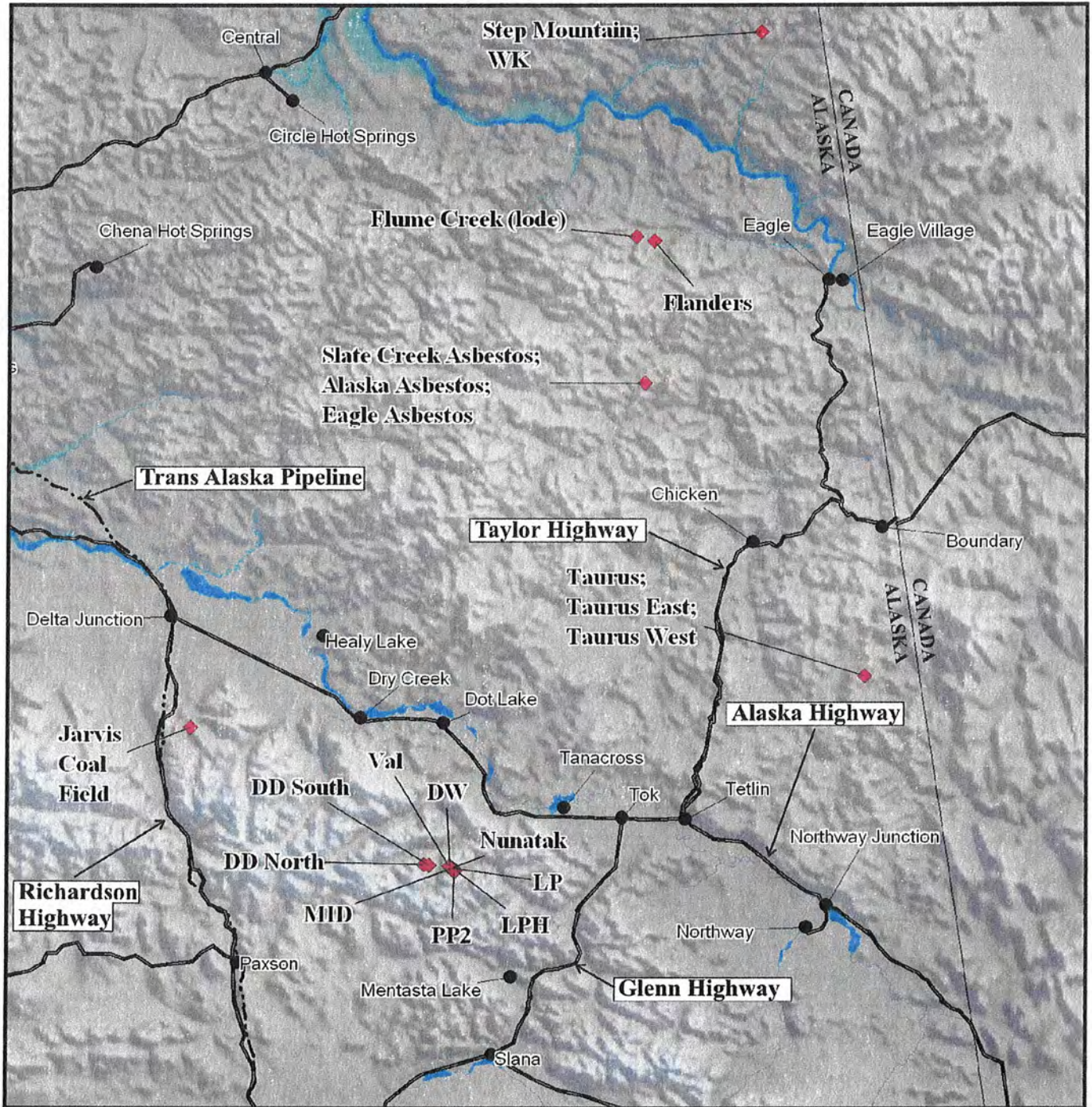
coal deposit supplied small test shipments of coal to local Delta Junction markets during the 1950s.

Virtually of Alaska's metallic mines market their products overseas, and some would question the marketability of metallic concentrates in North America—especially in the United States, where environmental laws have greatly restricted deployment of smelter technologies. Selected candidate deposits are included here because they reflect, through drill-indicated amounts of mineralized material, possible sources of freight haulage for a future railroad extension when markets and economic conditions are different than they are today. The recent upsurge in commodity prices, if sustained, could also change the economics of candidate deposits in the near term.

Although at least two deposits, notably the Taurus Cu-Mo-Au porphyry and Jarvis Creek coal deposits contain much larger hypothetical resources, only measured and inferred resources are used in this analysis. In addition, there are published report discrepancies for the resource estimates for the Jarvis Creek coal deposits. We are in the process of acquiring additional information which could markedly change the estimate provided in this analysis.

Acquisition of new information could significantly change the conclusions in this assessment; hence, this report is to be considered the draft as of 02 16 06. Time constraints precluded preparation of a map showing the locations of the Alaskan candidate deposits. That product will be sent to Gartner Lee upon completion.

**Alaska Railroad Extension, Delta Junction to the Canadian Border  
Showing Mineral Deposit Candidates for Freight Hauls**



WORKING DRAFT

Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME: Step Mountain; WK</b>		<b>Alaska Resource Data File No.:</b>	
<b>LOCATION: 65.524 Lat, 141.405 Long; Charley River C-1 Quadrangle, Alaska</b>		<b>CY030</b>	
<b>Owner:</b> Doyon, Limited	<b>Website:</b> www.doyonlands.com; ardf.wr.usgs.gov		
<b>Deposit Type:</b> SE Missouri Pb-Zn (MVT)		<b>Deposit Profile No.</b> Cox and Singer (1986) model 32A	
<b>Commodities:</b> Lead, Zinc, Silver, Cadmium			
<b>Inferred Resources (tonnes):</b>	850,000 tons zinc ores	4.9 meters of 2.7% Zn 3.6 meters of 18.8% Zn 40 centimeters of 19.7% Zn	
<b>Grades of Mineable Resource:</b>	Estimated 13.7 percent zinc based mainly on a diamond drill program carried out by Pasmaico Exploration Limited in 1990-1991, with follow-up trench sampling in 1998-2000 by North Star Exploration, Inc.		
<b>Project Status:</b>	Owned by Doyon Limited, Fairbanks, Alaska; inactive		
<b>MINING &amp; MILLING:</b>			
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for Step Mountain deposit	
<b>Proposed Mineable Reserve (tonnes):</b>	765,000 tonnes of mineralization	<b>Project Life (years):</b>	10 years
		<b>Milling Rate (tonnes/day):</b>	300 tonnes per day
<b>Mining Method:</b>	Open-pit	<b>Milling:</b>	Flotation designed to recover oxides and carbonates of zinc (smithsonite)
<b>Commodity:</b>	Zinc		
<b>Recovery:</b>	90 percent		
<b>Concentrate Grade:</b>	High >75 percent zinc		
<b>Concentration Production:</b>	104,805 tonnes of zinc in oxide/carbonate minerals or about 140,000 tonnes of cons during life of the mine; 14,000 tonnes of concentrates annually		
<b>INFRASTRUCTURE REQUIREMENTS:</b>			
Currently no road/rail access			
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>
<b>Distance To Rail Alignment (km):</b>		85km from site to Eagle, AK (located on the Taylor Hwy)	335km from site to Tetlin Junction, AK (located on the Alaska Hwy) including 250km on the Taylor Hwy from Eagle, AK to Tetlin Junction, AK.
<b>Connection Location to Railway*:</b>			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>			
May require surface access route through corner of Yukon-Charley National Park Preserve, which is promised to Doyon under terms of 1980 ANILCA Act			
<b>MINE ECONOMICS:</b>			
<b>Mining and Milling Cost:</b>	Not available		
<b>REFERENCES:</b>			

WORKING DRAFT

Priority Deposit Details - Yukon Territory

1. **REFERENCES: (Step Mountain; WK)**
2. Doyon, Limited, 1986, Mines, prospects, and geochemical anomalies on Doyon, Limited regional overselection lands, Alaska: Fairbanks, Alaska, Doyon, Limited, Report 86-01A, v. 1, 150 p.
3. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.
4. Mosher, G., 1990, Step Mountain project - geological exploration and diamond drilling, 1990: Pasmaenco Exploration Ltd. for Doyon, Limited, unpublished report 92-77, 19 p.
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6. Schmidt, J.M., 1997, Strata-bound carbonate-hosted ZN-PB and Cu deposits of Alaska: in Goldfarb, R.J., and Miller, L.D., eds., Mineral Deposits of Alaska, 1997, Economic Geology Monograph 9, p. 90 - 119.
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WORKING DRAFT

Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME: Flume Creek (lode)</b>			<b>Alaska Resource Data File No.:</b>		
<b>LOCATION: 64.9866 Lat, 142.4300 Long ; Eagle D-3 Quadrangle, Alaska</b>			<b>EA009</b>		
<b>Owner:</b> Doyon, Limited		<b>Website:</b> www.doyonlands.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Listwaenite-hosted gold			<b>Deposit Profile No.</b> Laznicka (1985) deposit # 7.10.2		
<b>Commodities:</b> Arsenic, Gold					
<b>Resources (tonnes):</b>					
<b>Measured</b>	<b>Indicated</b>	<b>Inferred</b>	<b>Comments</b>		
		40.0 million tons	Inferred resource is based on limited drilling,—only about 10,000 feet (3,000 m)		
<b>Grades of Mineable Resource:</b>		1.0 g/t gold (Fort Knox Grade)			
<b>Project Status:</b>	Inactive				
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the Flume Creek deposit.			
<b>Mining Method:</b>	Open pit	<b>Milling:</b>	Conventional ball mill		
<b>Proposed Recoverable Reserve (tonnes):</b>	36 million tonnes	<b>Project Life (years):</b>	10 years	<b>Milling Rate (tonnes/day):</b>	13,850 tonnes/day
<b>Recovery:</b>	By gravity and conventional vat-leach; assume 90 percent recovery of bullion				
<b>Shippable Production (tonnes/year):</b>	90,000 ounces (2,799 kilograms) gold annually				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>			65km from site to Eagle, AK (located on the Taylor Hwy)	315 km from site to Tetlin Junction, AK (located on the Alaska Hwy) including 250km on the Taylor Hwy from Eagle, AK to Tetlin Junction, AK	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not available				
<b>REFERENCES:</b>					

## Priority Deposit Details - Yukon Territory

1. **REFERENCES: (Flume Creek [lode])**
2. Prindle, L.M., 1908, Occurrences of gold in the Yukon-Tanana region, *in* Brooks, A.H., ed., Mineral Resources of Alaska, Report on progress of investigations in 1907: U.S. Geological Survey Bulletin 345, p. 179 – 186.
3. Prindle, L.M., 1908, The Fortymile gold-placer district, *in* Brooks, A.H., ed., Mineral Resources of Alaska, Report on progress of investigations in 1907: U.S. Geological Survey Bulletin 345, p. 187 – 197.
4. Saunders, R.H., 1954, Flume Creek, lode gold prospect (Alaska Nickel Co.): Alaska Territorial Department of Mines Property Examination PE 60-4, 9 p.
5. Clark, S.H.B., and Foster, H.L., 1971, Geochemical and geological reconnaissance in the Seventymile River area, Alaska: U.S. Geological Survey Bulletin 1315, 21 p.
6. Cobb, E.H., 1972, Metallic mineral resources map of the Eagle quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-393, 1:250,000 scale, 1 sheet.
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9. Cobb, E.H., 1977, Summary of references to mineral occurrences in the Eagle quadrangle, Alaska: U.S. Geological Survey Open-File Report 77-845, 122 p.
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15. Laznicka, Peter, 1985, Empirical Metallogeny, Elsevier, New York, 1747 p.
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17. Freeman, L.K., and Puchner, C.G., 1990, Geology of the Bonanza and Flume Creek gold occurrences, east-central Alaska – Report prepared for Central Alaska Gold Co.: Doyon, Ltd. Report 90-16. (Report held by Doyon, Ltd., Fairbanks, Alaska).
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WORKING DRAFT

Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME:</b> Slate Creek Asbestos; Alaska Asbestos; Eagle Asbestos		<b>Alaska Resource Data File No.</b>			
<b>LOCATION:</b> 64.5674 Lat, 142.4970 Long; in Eagle C-3 Quadrangle, Alaska		<b>EA043</b>			
<b>Owner:</b> Doyon, Limited		<b>Website:</b> www.doyonlands.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Serpentine Hosted Asbestos		<b>Deposit Profile No.</b> Cox and Singer (1986) deposit model 8D			
<b>Commoities:</b> Asbestos					
<b>Resources (tonnes):</b>					
<b>Measured and Indicated:</b> 55.6 million tons		The reserve includes 60,000 feet (18,292 m) of core drilling with a large diameter core drill (12 inches) specifically aimed at evaluating fiber quality.			
<b>Grades of Mineable Resource:</b>		6.35% commercial grade fiber			
<b>Comments:</b>		Considered to be one of the highest quality, un-mined asbestos deposit in North America. Several other prospects are located near these deposits. Pre-feasibility work was carried out during 1978-1982 by GCO Minerals, a subsidiary of the International Paper Company, on behalf of client Doyon Limited, then the deposit owner.			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Stripping Ratio estimated to range from 1:1 to 6:1 and averages at 3:1 (several deposits)			
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Conventional asbestos type, blower-vacuum recovery		
<b>Assumed Recoverable Reserve (tonnes):</b>	3,252,600 tonnes of asbestos fiber	<b>Project Life (years):</b>	Approximately 20 years	<b>Milling Rate (tonnes/day):</b>	15,000 tonnes/day
<b>Recovery:</b>	Assumed to be 90 percent in pre-feasibility statements				
<b>Shippable Production (tonnes/year):</b>	During pre-feasibility studies, the Slate Creel asbestos joint venture proposed to build a road from the deposit to the Taylor Highway for the purpose of hauling an estimating 100,000 tonnes annually of baled asbestos fiber to market during a 30 year mine life or 200,000 tonnes annually during a 20 year mine life.				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>			60km from site to Chicken, AK (located on the Taylor Hwy)	160 km from site to Tetlin Junction, AK (located on the Alaska Hwy) including 100km on the Taylor Hwy from Chicken, AK to Tetlin Junction, AK	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Use of asbestos fiber has been practically banned in the United States but can still be and is used in industrial applications in Canada, Europe, and Asia (and much of the known world).					
<b>MINE ECONOMICS:</b> Pre-feasibility does not address specific mine economics—mainly conceptual plans					
<b>Mining and Milling Cost:</b>	Unknown				
<b>REFERENCES:</b>					

WORKING DRAFT

Priority Deposit Details - Yukon Territory

1. **REFERENCES: (Slate Creek Asbestos; Alaska Asbestos; Eagle Asbestos)**
2. Foster, H.L., 1969, Asbestos occurrence in the Eagle C-4 quadrangle, Alaska: U.S. Geological Survey Circular 611, 7 p.
3. Keith, T.E.C., and Foster, H.L., 1973, Basic data on ultramafic rocks of the Eagle quadrangle, east-central Alaska: U.S. Geological Survey Open-File Report 73-140, 4 sheets.
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5. Foster, H.L., 1976, Geologic map of the Eagle quadrangle, Alaska: U.S. Geological Survey Miscellaneous Investigations Series, Map 922, 1 sheet, scale 1:250,000.
6. Cobb, E.H., 1977, Summary of references to mineral occurrences in the Eagle quadrangle, Alaska: U.S. Geological Survey Open-File Report 77-845, 122 p.
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14. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.
15. Dashevsky, S.S., Nicol, D.L., and Bond, J., 1986, Mines, prospects and geochemical anomalies on Doyon, Limited regional overselection lands, Alaska, Blocks 1 - 8: Doyon, Ltd. Report 86-01a, 300 p. (Report held by Doyon, Ltd., Fairbanks, Alaska).



**WORKING DRAFT**

**Priority Deposit Details - Yukon Territory**

<b>PROPERTY NAME:</b> Flanders		<b>Alaska Resource Data File No.:</b>	
<b>LOCATION:</b> 64.9680 Lat, 142.3164 Long ; Eagle D-3 Quadrangle, Alaska		EA015	
<b>Owner:</b> Doyon, Limited		<b>Website:</b> www.doyonlands.com; ardf.wr.usgs.gov	
<b>Deposit Type:</b> Listwaenite-hosted gold		<b>Deposit Profile No.</b> Laznicka (1985) deposit # 7.10.2	
<b>Commodities:</b> Gold, Arsenic, Copper, Lead, Zinc			
<b>Resources (tonnes):</b>			
<b>Inferred:</b> 275,000 tons	Resource estimate based on 11 drill holes totaling 6,600 feet (2,012 m) in 1990 and an additional 3,429 feet (1,045 m) in 2000 for total of 10,029 feet (3,057 m); also numerous trenches.		
<b>Grades of Mineable Resource:</b>		16.0 g/t gold	
<b>Project Status:</b>		Inactive; owned by Doyon Limited, Inc.	
<b>MINING &amp; MILLING:</b>			
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the Flume Creek deposit.	
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Standard ball mill, gravity and flotation, cyanide vat leach?
<b>Assumed Recoverable Reserve (tonnes):</b>	233,750 tonne	<b>Project Life (years):</b>	7 years
		<b>Milling Rate (tonnes/day):</b>	130 tonnes/day
<b>Recovery:</b>	Assume 90 percent recovery of gold		
<b>Shippable Production (tonnes/year):</b>	14,035 ounces (436 kg) per year		
<b>INFRASTRUCTURE REQUIREMENTS:</b>			
Currently no road access; secondary road needed; supplies to be shipped from road/rail head			
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>
<b>Distance To Rail Alignment (km):</b>		25km from site to Eagle, AK (located on the Taylor Hwy)	275km from site to Tetlin Junction (located on the Alaska Hwy) including 250km on the Taylor Hwy from Eagle, AK to Tetlin Junction, AK
<b>Connection Location to Railway*:</b>			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>			
<b>MINE ECONOMICS:</b>			
<b>Mining and Milling Cost:</b>	Not available		
<b>REFERENCES:</b>			

WORKING DRAFT

Priority Deposit Details – Yukon Territory

1. **REFERENCES: (Flanders)**
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3. Keith, T.E., Foster, H.L., Foster, R.L., Post, E.V., and Lehmbeck, W.L., 1981, Geology of an alpine-type peridotite in the Mt. Sorensen area, east-central Alaska: U.S. Geological Survey Professional Paper 1170-A, p. A1 – A9.
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7. Rogers, Bob, and Bradley, Laura, 1998, Gold deposits of the Seventymile Belt: Extended Abstracts of the 16<sup>th</sup> Biennial Conference on Alaskan Mining, Second Rush of 98; Alaska Miners Association meeting March 2 – 7, 1998, Fairbanks, Alaska, p. 22.
8. WGM Inc., 1998, Venture Resource Alaska projects, 1997 progress report, Seventymile property exploration, volume 1: Doyon, Ltd. Report 98-19. (Report held by Doyon, Ltd., Fairbanks, Alaska).
9. WGM Inc., 2000, Seventymile property summary, in *Ventures Resource Alaska project overview and properties summary: Ventures Resource Corporation report*.
10. Szumigala, D.J., Swainbank, R.C., Henning, M.W., and Pillifant, F.M., 2001; *Alaska's Mineral Industry 2000: Alaska Division of Geological and Geophysical Surveys Special Report 55*, 66 p.

WORKING DRAFT

Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME: DD North</b>		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION: 63.2686 Lat, 144.2650 Long ; Mount Hayes B-1 quadrangle</b>		<b>MH319</b>			
<b>Owner:</b>		<b>Website:</b>			
Grayd Resource Corporation		www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>			
Kuroko massive sulfide		Cox and Singer (1986) model 28A			
<b>Commodities:</b>					
Gold, Copper, Zinc, Silver, Lead					
<b>Resources (tonnes):</b>					
<b>Inferred:</b>		Resource estimate based on 12 diamond core drill holes totaling 7,055 feet (2151 m), trenches, and surface sampling programs during 1970s-1990s			
1.2 million tons					
<b>Grades of Mineable Resource:</b>		3.1 g/t Gold 1.6% Copper 3.2% Zinc 102 g/t Silver 2.4 % Lead			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the DD North deposit.			
<b>Mining Method:</b>		<b>Milling:</b>		Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.	
Underground					
<b>Assumed Recoverable Reserve (tonnes):</b>		<b>Project Life (years):</b>		<b>Milling Rate (tonnes/day):</b>	
1,020,000 million tonnes		10		400 tonnes per day	
<b>Recovery:</b>		Assume 90 percent recovery of metals in concentrate form			
<b>Shippable Production (tonnes/year):</b>		3,500 tons of zinc concentrates, 2,000 tonnes of copper concentrates, and 2,500 tonnes of lead concentrates for grand total of 8,000 tonnes of concentrates annually (all figures rounded)			
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access; however only 30 km from railroad corridor					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>		<b>Taylor Route</b>	
				<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>				30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
1. <b>REFERENCES: (DD North)</b>					
2. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.					
3. Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 - 376.					
4. Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.					



WORKING DRAFT

Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME: DD South</b>		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION: 63.2645 Lat, 144.2323 Long; Mount Hayes B-1 Quadrangle, Alaska</b>		<b>MH325</b>			
<b>Owner:</b>		<b>Website:</b>			
Grayd Resource Corporation		www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>			
Kuroko massive sulfide		Cox and Singer (1986) model 28A			
<b>Commodities:</b>					
Silver, Gold, Copper, Lead, Zinc					
<b>Resources (tonnes):</b>					
<b>Inferred:</b>		Resource estimate based on 20 diamond core drill holes totaling 14,828 feet (4,520 m), all prior to 2002			
2.3 million tons					
<b>Grades of Mineable Resource:</b>		102 g/t Silver 2.4 g/t Gold 1.1% Copper 2.6% Lead 6.5% Zinc			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the DD South deposit			
<b>Mining Method:</b>		<b>Milling:</b>		Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.	
Underground					
<b>Assumed Recoverable Reserve (tonnes):</b>		<b>Project Life (years):</b>		<b>Milling Rate (tonnes/day):</b>	
1,955,000 tonnes		10 years		750 tonnes per day	
<b>Recovery:</b>		Assume 90 percent recovery of metals in concentrate form			
<b>Shippable Production (tonnes/year):</b>		15,000 tonnes of zinc concentrates, 2,400 tonnes of copper concentrates, and 6,500 tonnes of lead concentrates for a total of 23,900 tonnes of concentrates annually; figures are rounded			
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>		<b>Taylor Route</b>	
				Alaska Highway	
<b>Distance To Rail Alignment (km):</b>				30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
1. <b>REFERENCES: (DD South)</b>					
2. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.					
3. Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 - 376.					
4. Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.					

WORKING DRAFT

Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME: DW</b>		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION: 63.2534 Lat, 144.1038 Long ; Mount Hayes B-1 quadrangle, Alaska</b>		<b>MH338</b>			
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Kuroko massive sulfide		<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A			
<b>Commodities:</b> Lead, Zinc, Silver, Gold, Copper					
<b>Resources (tonnes):</b>					
<b>Inferred:</b> 400,000 tons		Resource estimate based on 11 diamond core drill holes totaling 6,804 feet (2,074 m) plus trenching			
<b>Grades of Mineable Resource:</b>		1.7% Lead 4.8% Zinc 58 g/t Silver 1.4 g/t Gold 0.4% Copper			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the DW deposit			
<b>Mining Method:</b>		Underground		<b>Milling:</b> Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.	
<b>Assumed Recoverable Reserve (tonnes):</b>		340,000 tonnes		<b>Project Life (years):</b> 7 years	
				<b>Milling Rate (tonnes/day):</b> 185 tonnes per day	
<b>Recovery:</b>		Assume 90 percent recovery of metals in concentrate form			
<b>Shippable Production (tonnes/year):</b>		2,500 tonnes of zinc concentrates, 1,000 tonnes of lead concentrates, and 350 tonnes of copper concentrates for a total of 3,850 tonnes of concentrates annually			
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access					
<b>Railway Alignment Option:</b>		Tintina Trench		Taylor Route	
<b>Distance To Rail Alignment (km):</b>				Alaska Highway 30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
None assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
1. <b>REFERENCES: (DW)</b>					
2. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.					
3. Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 - 376.					
4. Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.					

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Priority Deposit Details - Yukon Territory

<b>PROPERTY NAME: LP</b>		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION:</b> 63.2485 Lat, 144.0864 Long; Mount Hayes A-1 quadrangle		<b>MH341</b>			
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Kuroko massive sulfide		<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A			
<b>Commodities:</b> Lead, Zinc, Silver, Gold, Copper					
<b>Resources (tonnes):</b>					
<b>Inferred:</b> 700,000 tons		Resource estimate based on 15 diamond core drill holes totaling 5,657 feet (1,724 m) plus surface sampling and trenching			
<b>Grades of Mineable Reserve:</b>		2.1% Lead 4.9% Zinc 66 g/t Silver 2.2 g/t Gold 0.4% Copper			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the LP deposit			
<b>Mining Method:</b> Underground		<b>Milling:</b> Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.			
<b>Assumed Recoverable Reserve (tonnes):</b> 595,000 tonnes		<b>Project Life (years):</b> 7 years		<b>Milling Rate (tonnes/day):</b> 325 tonnes per day	
<b>Recovery:</b>		Assume 90 percent recovery of metals in concentrate form			
<b>Shippable Production (tonnes/year):</b>		5,000 tonnes of zinc concentrates, 2,000 tons of lead concentrates, and 500 tonnes of copper concentrates for a total of 7,500 tonnes of concentrates annually; figures are rounded.			
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>		<b>Taylor Route</b>	
<b>Distance To Rail Alignment (km):</b>				<b>Alaska Highway</b> 30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li><b>REFERENCES: (LP)</b></li> <li>Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.</li> <li>Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 - 376.</li> <li>Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.</li> </ol>					

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Priority Deposit Details – Yukon Territory

<b>PROPERTY NAME: LPH</b>		<b>Alaska Resource Data File No.</b>			
<b>LOCATION:</b> 63.2426 Lat, 144.0728 Long; Mount Hayes A-1 quadrangle, Alaska		<b>MH346</b>			
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Kuroko massive sulfide		<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A			
<b>Commodities:</b> Lead, Zinc, Silver, Gold, Copper					
<b>Resources (tonnes):</b>					
<b>Inferred:</b> 1.1 million tons		Resource estimate based on extensive surface sampling, and 2 diamond drill holes totaling only 285 feet (90 m); and IP geophysical projections below cirque base.			
<b>Grades of Mineable Resource:</b>		2.5% Lead 5.1% Zinc 73 g/t Silver 1.4 g/t Gold 0.4% Copper			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the LPH deposit			
<b>Mining Method:</b>		<b>Milling:</b>			
Open Pit		Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.			
<b>Assumed Recoverable Reserve (tonnes):</b>		<b>Project Life (years):</b>		<b>Milling Rate (tonnes/day):</b>	
935,000 tonnes		7 years		500 tonnes per day	
<b>Recovery:</b>		Assume 90 percent recovery of metals in concentrate form			
<b>Shippable Coal Production (tonnes/year):</b>		7,500 tonnes of zinc concentrate, 4,500 tonnes of lead concentrate, and 750 tonnes of copper concentrates or a total of 12,750 tonnes of concentrates annually; figures are rounded.			
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Currently no road access					
<b>Railway Alignment Option:</b>		<b>Dease Lake</b>		<b>Rocky Mt. Trench</b>	
				<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>				30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li><b>REFERENCES: (LPH)</b></li> <li>Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.</li> <li>Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 – 376.</li> <li>Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.</li> </ol>					

**WORKING DRAFT**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME: MID</b>		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION: 63.2485 Lat, 144.0965 Long ; Mount Hayes A-1 quadrangle</b>		<b>MH340</b>			
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Kuroko massive sulfide			<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A		
<b>Commodities:</b> Lead, Zinc, Silver, Gold, Copper					
<b>Resources (tonnes):</b>					
<b>Inferred:</b> 7.2 million tons		Inferred resource estimates based on 15 diamond drill holes totaling 11,655 feet (3,553 m) and geophysical and surface geochemical data			
<b>Grades of Mineable Resource:</b>		1.6% Lead 4.5% Zinc 62 g/t Silver 1.6 g/t Gold 0.4% Copper			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the MID deposit			
<b>Mining Method:</b>		Underground?		<b>Milling:</b>	
				Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.	
<b>Mine Plan Reserves for Export (tonnes):</b>		6,120,000 tonnes		<b>Project Life (years):</b>	
				10	
				<b>Milling Rate (tonnes/day):</b>	
				2,400 tonnes per day	
<b>Recovery:</b>		Assume 90 percent recovery of metals in concentrate form			
<b>Shippable Production (tonnes/year):</b>		30,000 tonnes of zinc concentrates, 12,000 tonnes of lead concentrates, and 3,000 tonnes of copper concentrates for a total of 45,000 tonnes of concentrates annually shipped; figures are rounded.			
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Rough road access to site					
<b>Railway Alignment Option:</b>		Tintina Trench		Taylor Route	
				Alaska Highway	
<b>Distance To Rail Alignment (km):</b>				30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
1. <b>REFERENCES: (MID)</b>					
2. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.					
3. Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 – 376.					
4. Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.					

**WORKING DRAFT**

**Priority Deposit Details – Yukon Territory**

<b>PROPERTY NAME: PP2</b>		<b>Alaska Resource Data File No.:</b>	
<b>LOCATION:</b> 63.2390 Lat, 144.0784 Long; Mount Hayes A-1 Quadrangle, Alaska		<b>MH345</b>	
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov	
<b>Deposit Type:</b> Kuroko massive sulfide		<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A	
<b>Commodities:</b> Lead, Zinc, Silver, Gold, Copper			
<b>Resources (tonnes), Indicated and Measured:</b>			
<b>Inferred</b>		Inferred resources based on 14 diamond drill holes totaling 6,703 feet (2,044 m) as well as surface sampling and geophysical projection	
5.9 million tons			
<b>Grades of Resource:</b>		2.1% Lead 4.6% Zinc 71 g/t Silver 1.4 g/t Gold 0.4% Copper	
<b>Project Status:</b>	Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)		
<b>MINING &amp; MILLING:</b>			
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the PP2 deposit	
<b>Proposed Mineable Reserve (tonnes):</b>	5,015,000 tonnes	<b>Project Life (years):</b>	10 years
<b>Mining Method:</b>	Underground	<b>Milling Rate (tonnes/day):</b>	2,000 tonnes per day
<b>Commodity:</b>		Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.	
<b>Recovery:</b>	Assume 90 percent recovery for all metals		
<b>Concentrate Grade:</b>			
<b>Concentration Production (tonnes/year):</b>		25,000 tonnes of zinc concentrates, 13,500 tonnes of lead concentrates, and 3,000 tonnes of copper concentrates for a total of 41,500 tonnes of concentrates annually shipped; figures are rounded.	
<b>INFRASTRUCTURE REQUIREMENTS:</b>			
Currently no road access.			
<b>Railway Alignment Option:</b>	Alaska Highway		
<b>Distance To Rail Alignment (km):</b>	30km to the Alaska Highway		
<b>Connection Location to Railway*:</b>			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>			
Not assessed			
<b>MINE ECONOMICS:</b>			
<b>Mining and Milling Cost:</b>	Not available		
<b>REFERENCES:</b>			

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Priority Deposit Details – Yukon Territory

1. **REFERENCES: (PP2)**
2. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.
3. Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 – 376.
4. Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.

**WORKING DRAFT**

**Priority Deposit Details - Yukon Territory**

<b>PROPERTY NAME:</b> Val		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION:</b> 63.2574 Lat, 144.1074 Long; Mount Hayes B-1 Quadrangle, Alaska		MH334			
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Kuroko massive sulfide		<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A			
<b>Commodities:</b> Zinc, Silver, Gold, Copper, Lead					
<b>Resources (tonnes):</b>					
<b>Inferred:</b>  1.3 million tonnes		Inferred resource estimate based on 3 diamond core drill holes totaling 2,018 feet (615 m) plus electromagnetic geophysical surveys			
<b>Grades of Mineable Resource:</b>		4.4% Zinc 27 g/t Silver 1.2 g/t Gold 0.3% Copper 0.6% Lead			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the VAL deposit			
<b>Proposed Mineable Reserve (tonnes):</b>	1,105,000 tonnes	<b>Project Life (years):</b>	7 years	<b>Milling Rate (tonnes/day):</b>	600 tonnes per day
<b>Mining Method:</b>	Underground	<b>Milling:</b>	Ball mill, flotation circuit; copper, zinc, and lead concentrates shipped to smelter.		
<b>Commodity:</b>					
<b>Recovery:</b>	Assume 90 percent recovery for all metals				
<b>Concentrate Grade:</b>					
<b>Concentration Production:</b>	8,500 tonnes of zinc concentrates, 1,500 tonnes of lead concentrates, and 500 tonnes of copper concentrates for a total of 10,500 tonnes of concentrates produced annually				
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
Rugged area will require creative solution to concentrate and infrastructure; trams ectc.					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>				30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not available				
<b>REFERENCES:</b>					

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Priority Deposit Details - Yukon Territory

1. **REFERENCES: (Val)**
2. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.
3. Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: *Economic Geology*, v. 88, P. 344 - 376.
4. Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.



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**Priority Deposit Details - Yukon Territory**

<b>PROPERTY NAME:</b> Taurus; East Taurus; West Taurus		<b>Alaska Resource Data File No.:</b>	
<b>LOCATION:</b> 63.65 Lat, 141.35 Long; Tanacross C-1 quadrangle, Alaska		TC027	
<b>Owner:</b> Private/Vancouver Address		<b>Website:</b> ardf.wr.usgs.gov	
<b>Deposit Type:</b>		<b>Deposit Profile No.</b>	
Porphyry Copper (Au, Mo)		Cox and Singer (1986) model 17	
<b>Commodities:</b>			
Copper, Molybdenum, Gold			
<b>Resources (tonnes):</b>		<b>Inferred:</b>	Inferred resource of 23 million tons based on 3,500 meters of drilling during two campaigns in the 1970s and in 1993 respectively (drill hole count uncertain), plus extensive geophysical and geochemical prospecting.
<b>Grades of Mineable Resource:</b>		0.30% Copper 0.039% Molybdenum	
<b>Comments:</b>	Considered conservative; hypothetical resource of 500 million tons of the same grade.		
<b>MINING &amp; MILLING:</b>			
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the Taurus deposit	
<b>Proposed Mineable Reserve (tonnes):</b>	34,000,000 tonnes	<b>Project Life (years):</b>	10
<b>Mining Method:</b>	Open pit	<b>Milling:</b>	Ball mill, flotation circuit; copper and molybdenum concentrates shipped to smelter.
<b>Commodity:</b>			15,000 tonnes of copper concentrates and 1,500 tonnes of molybdenum concentrates or a total of 16,500 tonnes of concentrates annually shipped; figures rounded.
<b>Recovery:</b>	Assume 90 percent recovery for copper, 75 percent for molybdenum		
<b>Concentrate Grade:</b>			
<b>Concentration Production:</b>			
<b>INFRASTRUCTURE REQUIREMENTS:</b>			
Access road directly to rail route only about 40 km from mine site			
<b>Railway Alignment Option:</b>	<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>
<b>Distance To Rail Alignment (km):</b>		50km from site to Taylor Hwy as the crow flies	75km from site to Alaska Hwy at Northway Junction, AK as the crow flies
<b>Connection Location to Railway*:</b>			
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>			
Not assessed			
<b>MINE ECONOMICS:</b>			
<b>Mining and Milling Cost:</b>	Not available		
<b>REFERENCES:</b>			

WORKING DRAFT

Priority Deposit Details - Yukon Territory

1. **REFERENCES: (Taurus; East Taurus; West Taurus)**
2. Foster, H.L., 1970, Reconnaissance geologic map of the Tanacross quadrangle, Alaska: U.S. Geological Survey Miscellaneous Investigations Series, Map 922, 1 sheet, scale 1:250,000.
3. Singer, D.A., Curtin, G.C., and Foster, H.L., 1976, Mineral resources map of the Tanacross quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-767E, 1 sheet, scale 1:25,000.
4. Eberlein, G.D., Chapman, R.M., Foster, H.L., and Gassaway, J.S., 1977, Map and table describing known metalliferous and selected non-metalliferous mineral deposits in central Alaska: U.S. Geological Survey Open-File Report 77-168-D, 132 p., 1 map sheet, scale 1:1,000,000.
5. Gill, R., 1977, Geology and mineral deposits of the southwest quarter of the Tanacross D 1 quadrangle, Alaska: [unpublished M.S. thesis]: Golden, Colorado, Colorado School of Mines, 129 p.
6. Cobb, E.H., and Eberlein, G.D., 1980, Summaries of data on and lists of references to metallic and selected nonmetallic mineral deposits in the Big Delta and Tanacross quadrangles, Alaska: U.S. Geological Survey Open-File Report 80-1086, 76 p.
7. Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.
8. Nokleberg, W.J., Bundtzen, T.K., Berg, H.C., Brew, D.A., Grybeck, D., Robinson, M.S., Smith, T.E., and Yeend, W., 1987, Significant metalliferous lode deposits and placer deposits of Alaska: U.S. Geological Survey Bulletin 1786, 104 p.
9. Leriche, P.D., 1995, Taurus copper-molybdenum porphyry deposit, east-central Alaska: *in* Schroeter, T.G., ed., Porphyry Deposits of the Northwestern Cordillera: Canadian Institute of Mining, Metallurgy, and Petroleum Special Volume 46, p. 451 - 457.
10. Nokleberg, W.J., Bundtzen, T.K., Brew, D.A., and Plafker, G., 1995, Metallogenesis and tectonics of porphyry copper and molybdenum (gold, silver) and granitoid-hosted gold deposits of Alaska: Canadian Institute of Mining and Metallurgy Special Volume 46, p. 103 - 141.
11. Newberry, R.J., Layer, P.W., Burleigh, R.E., and Solie, D.N., 1996, New  $^{40}\text{Ar}/^{39}\text{Ar}$  dates for intrusions and mineral prospects in the eastern Yukon-Tanana terrane, Alaska - Regional patterns and significance, *in* Gray, J.E., and Riehle, J.R., eds., Geological Studies in Alaska by the U.S. Geological Survey, 1996: U.S. Geological Survey Professional Paper 1595, p. 131 - 159.

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**Priority Deposit Details - Yukon Territory**

<b>PROPERTY NAME: Jarvis Coal Field</b>			<b>Alaska Resource Data File No.:</b>		
<b>LOCATION:</b> 63.7166 Lat, 145.668 Long; Mt Hayes C-4 quadrangle, Alaska			N/A		
<b>Owner:</b> Private Lease Holder; in process of obtaining updated information		<b>Website:</b> ardf.wr.usgs.gov			
<b>Deposit Type:</b> N/A			<b>Deposit Profile No.</b> N/A		
<b>Commodities:</b> Sub-bituminous 'C' quality coal					
<b>Resources (tonnes):</b>		<b>Inferred:</b>		7.5 million tons	
				Based on drill campaign during 1950s and 1970s (number of holes uncertain) and mining activity during 1950s	
<b>Grades of Mineable Resource:</b>		Sub-bituminous coal			
<b>Project Status:</b>		Inactive			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		Stripping ratio will average 6:1 but varies from 3:1 to 9:1; a pre-feasibility study was completed for the Jarvis Creek coal deposit during the 1980s.			
<b>Proposed Mineable Reserve (tonnes):</b>	6,375,000 tonnes	<b>Project Life (years):</b>	10	<b>Milling Rate (tonnes/day):</b>	2,500 tonnes per day (of coal)
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	NA		
<b>Commodity:</b>				Mine could conceivably produce and ship 637,500 tonnes of coal per year	
<b>Recovery:</b>					
<b>Concentrate Grade:</b>					
<b>Concentration Production:</b>					
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
<b>Railway Alignment Option:</b>		Tintina Trench	Richardson Hwy	Alaska Highway	
<b>Distance To Rail Alignment (km):</b>			5km	40 km from site to Alaska Hwy at Delta Junction via the Richardson Hwy	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Approximately 20 km south of Fort Greely anti missile defense system and 5 km east of the TAPS oil pipeline.					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>		Not available			
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li><b>REFERENCES: (Jarvis Coal Field)</b></li> <li>Warfield, R.S., 1973, Rotary drilling for shippable coal in Jarvis Creek coal field: U.S. Bureau of Mines Open File report 7-73, 32 p. two sheets</li> <li>Meyer, Mark, 1990, Selected coal deposits in Alaska: U.S. Bureau of Mines Open File report 33-90.</li> <li>Merritt, R.D., compiler, 1986, Coal Reports of the State of Alaska Department of Natural Resources Division of Mining and Geological and Geophysical Surveys (including predecessor agencies), p.8.</li> </ol>					

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**Priority Deposit Details - Yukon Territory**

<b>PROPERTY NAME:</b> Nunatak		<b>Alaska Resource Data File No.:</b>			
<b>LOCATION:</b> 63.2503 Lat, 144.0919 Long		<b>MH339</b>			
<b>Owner:</b> Grayd Resource Corporation		<b>Website:</b> www.grayd.com; ardf.wr.usgs.gov			
<b>Deposit Type:</b> Kuroko massive sulfide		<b>Deposit Profile No.</b> Cox and Singer (1986) model 28A			
<b>Commodities:</b> Lead, Zinc, Silver, Gold, Copper					
<b>Resources (tonnes):</b>					
<b>Inferred:</b> 300,000 tons					
<b>Grades of Mineable Resource:</b>		1.2% Lead 2.8% Zinc 58 g/t Silver 2.5 g/t Gold 0.3% Copper			
<b>Project Status:</b>		Exploration inactive since 2004; State Mining Claims held by Grayd Resources (Vancouver, Canada)			
<b>MINING &amp; MILLING:</b>					
<b>Mine Plan Comments:</b>		No feasibility or pre-feasibility studies have been completed for the NUNATAK deposit			
<b>Proposed Mineable Reserve (tonnes):</b>	255,000 tonnes	<b>Project Life (years):</b>	7 years	<b>Milling Rate (tonnes/day):</b>	150 tonnes per day
<b>Mining Method:</b>	Open Pit	<b>Milling:</b>	Ball mill, flotation circuit, copper, zinc, and lead concentrates shipped to smelter.		
<b>Commodity:</b>			1,500 tonnes of zinc concentrates, 500 tons of lead concentrates, and 125 tonnes of copper concentrates or a total of 2,125 tonnes of concentrates annually shipped; figures are rounded.		
<b>Recovery:</b>	Assume 90 percent recovery				
<b>Concentrate Grade:</b>					
<b>Concentration Production:</b>					
<b>INFRASTRUCTURE REQUIREMENTS:</b>					
NA					
<b>Railway Alignment Option:</b>		<b>Tintina Trench</b>	<b>Taylor Route</b>	<b>Alaska Highway</b>	
<b>Distance To Rail Alignment (km):</b>				30km	
<b>Connection Location to Railway*:</b>					
<b>ADDITIONAL SOCIAL AND ENVIRONMENTAL CONSIDERATIONS:</b>					
Not assessed					
<b>MINE ECONOMICS:</b>					
<b>Mining and Milling Cost:</b>	Not available				
<b>REFERENCES:</b>					
<ol style="list-style-type: none"> <li><b>REFERENCES: (Nunatak)</b></li> <li>Cox, D.P., and Singer, D.A., eds., 1986, Mineral Deposit Models: U.S. Geological Survey Bulletin 1693, 379 p.</li> <li>Lange, I.M., Nokleberg, W.J., Newkirk, S.R., Aleinikoff, J.N., Church, S.E., and Krouse, R.H., 1993, Devonian volcanogenic massive sulfide deposits and occurrences, southern Yukon-Tanana terrane, eastern Alaska Range, Alaska: Economic Geology, v. 88, P. 344 - 376.</li> <li>Dashevsky, S.S., Schaefer, C.F., Hunter, E.N., 2003, Bedrock geologic map of the Delta mineral belt, Tok mining district, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 122, 2 sheets, scale 1:63,360.</li> <li>Grayd Resource Corporation, Delta Property Full Report, Online, Internet, February 14, 2006, &lt;<a href="http://www.grayd.com/s/Projects_Delta.asp?ReportID=46042">http://www.grayd.com/s/Projects_Delta.asp?ReportID=46042</a>&gt;.</li> </ol>					