# **Technical Report on the Herbert Glacier Gold Project**

# **Southeast Alaska**

#### Located at:

134.681° West 58.5276° North 518550E 6487500N Zone 8 (NAD 83)

### prepared for:

Grande Portage Resources Suite 280 - 1090 W. Georgia St. Vancouver, B.C. V6E 3V7 Canada

And

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Yukuskokon Professional Services, LLC.

### May 28, 2012

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# Summary

Grande Portage Resources (GPR) is a publically traded mineral exploration company focused primarily on precious metals in Alaska and British Columbia, with its head office in Vancouver. British Columbia, Canada. Grand Portage has interests in two early stage properties in BC and the Herbert Glacier Property in Alaska.

Herbert Glacier property consists of 91 federal mining claims covering approximately 1,881 acres located within the historic Juneau Mining District, 32 km north of Juneau. A mining lease was signed by Quaterra Resources (QR) from Juneau Exploration and Development, Inc. (JEDI) in November 2007. In June, 2010 OR optioned the Herbert Glacier property to GPR, During the 2010 and 2011 field seasons, GPR conducted exploration activities on the Herbert Glacier Project, Southeast Alaska. In November, 2011 GPR and QR signed a JV agreement with GPR holding a 65% interest and with OR holding the remaining 35% interest.

Through 1989 approximately 75% of Alaska's lode gold had been produced from the Juneau area totaling over 6.7 million ounces of gold (Light et al., 1989), although this percentage has since been reduced by production from the Fort Knox and Pogo mines in the Alaska interior. Historic production from the Juneau mining district was mainly from mesothermal quartz veins and stringer lodes localized in greenschist to amphibolite-facies metasedimentary and intrusive rocks. As are typical of these types of deposits worldwide, mineralized veins in the Juneau district are known to extend significant distances along strike and down-dip.

Mineralization at the Herbert Glacier project consists of mesothermal quartz-carbonate-gold-base metal veining and is typical to that seen throughout the district. Gold-quartz veins are hosted in weakly foliated, NW trending quartz diorite caught between two NW-trending faults separating the quartz diorite from gneiss and tonalite to NE and phyllites and metagraywackes to the SW. Four principal veins have been named from south to north and are the Floyd, Deep Trench, Main, and Goat veins. Minor veins include the North, Ridge and Lake. The principal veins strike N80E and dip steeply to the north, with a minor subsidiary NE orientation. On the surface veins and their hydrothermally altered walls erode easily to form prominent linear zones with strike lengths of over 900 meters. The cumulative strike length of all mapped veins at present is over 3,700 m. Current drilling and exposure in the creek bottoms in the canyons indicate that the structural zones hosting the veins are as much as 20 meters wide, while the veins themselves have drill intercepts with corrected true thicknesses of at least 8 meters in places, although most are on the order of 1-2 meters thick. Some of the veins contain visible gold and exhibit local high grade gold values. Metallurgical testing confirms that the gold in this system returns recoveries up to 91% Au and 78% Ag using a combination of gravity concentration and cyanide leach of the gravity tailings. The ores also contain variable percentages of sulfides such as arsenopyrite, galena and sphalerite, and sodium cyanide consumption was high. Further metallurgical work is needed for the project.

Excellent infrastructure exists in nearby Juneau. The project is located 32 kilometers from Juneau. A paved highway runs within 5.5 km of the project, allowing potential road access by permitting and constructing a road to the site from the likely highway access point. Electrical power extends to within 3 km of the highway access point. Tidewater access is 4.5 km on public roads to the highway access point.

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Drilling by GPR in 2010 and 2011 was focused on following up on historical drilling done in 1986 and 1988, and on the results of field work performed in 2007. Drilling has established a better understanding of the controls of mineralization, the associated alteration, grade characteristics and continuity, and overall continuity of the veins along both strike and dip. In addition to drilling and channel sampling. GPR also conducted trench/channel sampling across the Deep Trench Vein, surface sampling and mapping.

The authors visited the property in October of 2011 and quartered core for replicate sample assays. They have also performed several checks of the drilling database against the original survey. geological and assay data. These checks included visual comparison of drill core photographs to the database, auditing of laboratory certificates of analysis against the database, and re-assaying approximately 6% of the coarse rejects from the 2011 drilling for comparison to the original assays. Based upon these reviews it is of both authors' opinions that the database is unbiased and was suitable to be used for an inferred resource calculation. As such, the authors created a 3-dimensional solid model of two of the better drilled out veins on the project (Main Vein and Deep Trench Vein), and directed the calculation of an inferred gold resource within this solid and a drill hole spacing study based upon variography of the existing drill hole data.

Drilling at the Herbert Glacier project has been used to define an inferred mineral resource along a portion of the Main and Deep Trench veins representing approximately 30% of the total mapped strike length of veins on the property. The mineral resource estimate is based on results from 65 diamond drill-core holes (9.386 meters of drilling) and 4 trenches (19.7 meters of trenching) targeting the two structures resulting in an inferred resource of 245,145 ounces of gold at an average grade of 4.86 g/t gold (1,570,172 tonnes) at a 2 g/t Au cut-off grade. The Main Vein resource model extends from 680 m along strike and 200 m down dip, enclosing 27 mineralized intersections in both the Main Vein and a sub parallel hangingwall splay. The undrilled portion of the Main Vein continues at least another 280 m along strike (inferred from mapped outcrops and topographic expressions) and in addition the resource model remains open down dip. The Deep Trench Vein resource model extends for 410 m along strike and 300 m down dip, enclosing 15 mineralized intersections. From mapping on the surface the Deep Trench Vein extends at least another 520 m along strike and is open down dip. The drill hole spacing study suggested a nominal drill hole spacing of 25 meters is needed to upgrade this resource to "Indicated".

YKPS recommends a diamond drill program to add definition to the current model with the objective of upgrading the "Inferred" resource to "Indicated". The basis for the drill program is described in detail in this report. The approximate estimated cost for this program is \$3M.

## **Introduction and Terms of Reference**

#### Introduction 2.1

This Technical Report has been prepared for Grande Portage Resources, and was authorized by Ian Klassen, President. This report is in accordance with NI 43-101 reporting requirements, as a review and summary of past exploration, and to provide recommendations for future work.

The Herbert Glacier property is located within the Juneau Mining District where the majority of the historical mines have been developed primarily by underground mining methods. Mineralization on the property is similar to other gold deposits in the Juneau Gold Belt, consisting of mesothermal quartz veins and stringer lodes with several generations of quartz/carbonate +/- arsenopyrite, pyrite, galena, sphalerite, scheelite and locally visible gold. The style of mineralization on the property fits well into a mesothermal-orogenic gold deposit model. Some veins in the district are known to extend several kilometers along strike and depth suggesting that there is excellent potential for new discoveries both along strike and down dip on the veins currently identified at the Herbert Glacier Project. GPR is targeting these extensions with diamond core drilling and evaluation of these veins along strike with mapping, trenching and channel sampling.

#### **Terms of Reference** 2.2

Grande Portage Resources commissioned Yukuskokon Professional Services, LLC to prepare the following report under the 43-101 reporting standards. The authors, Dr. Nicholas Van Wyck and Mr. William Burnett are independent consultants and Qualified Persons (QP) for the purposes of this report.

#### **Purpose of Report** 2.3

The purpose of this report is to provide an independent evaluation of the Herbert Glacier project, the exploration and discovery potential in that area, past exploration, its relevance and adequacy to assess the mineralization potential of the area, and to provide an independent resource estimate and recommendations for future work. This report conforms to the guidelines set out by the National Instrument 43-101 for the disclosure of technical information regarding mineral projects owned by publically traded Canadian companies.

#### **Sources of Information**

A complete list of the reports and source documents used in the preparation of this report are cited in Section 27. Information for this report was provided to the authors by Hawley Resource Group. This data is derived primarily from work done by the current operator GPR in 2010 and 2011 managed by HRG. Additional information is from historical data maintained by the core claim owners and QR from previous operators Houston Oil and Minerals and Echo Bay Mines (late 80s) and from several reports and maps by the U.S. Geological Survey and the U.S. Bureau of Mines investigations of the district.

Project data reviewed for the purposes of this report was in both hard copy and digital formats. All available maps and core logs were reviewed by the authors. Drill logs were in various formats; pre-

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2010 data were as hard copy logs in reports but without associated core photographs. 2010 and 2011 logs did have associated core photographs.

### 2.5 Field Examination

Both authors visited the site on October 25 and 26, 2011. The first day was spent at the core facilities in Juneau examining core, collecting check samples for replicate analysis and review of historic records. The second day consisted of field inspection, examination and collection of check samples from trenches.

#### Units and Abbreviations 2.6

All technical terms of reference regarding the terms resources, reserves or mineralization used in this report conform to the standards of practice published by the Canadian Institute of Mining Metallurgy and Petroleum. All geological terms used are in standard use within the geological consulting profession in Canada and the US. This report uses metric units whenever possible and falls back to imperial measure when it is necessary to preserve historical context. All references to dollars are in U.S. Dollars unless otherwise indicated.

Other abbreviations are listed in the table below.

**Table 1: List of abbreviations** 

Abbreviation	Definition
Au	Gold
CV	Coefficient of Variation
DDH	Diamond Drill Hole
HRG	Hawley Resource Group, Inc.
GPR	Grande Portage Resources
g/t or gpt	grams per tonne – synonymous with ppm
ICP - AES	Inductively coupled plasma – atomic emission spectra
JEDI	Juneau Exploration and Development Inc.
JGB	Juneau Gold Belt
JV	Joint Venture
m	meters
m.d.l.	minimum detection limit
opt	Troy ounces per ton
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QR	Quaterra Resources
Trench Vein	Deep Trench Vein
tpd	Tonnes per day
UTM	Universal Transverse Mercator Geographic Coordinate System (A type of map projection).
<i>X, Y, Z</i>	Cartesian Coordinates, also "Easting", "Northing", and "Elevation"
YKPS	Yukuskokon Professional Services

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# 3 Reliance on other Experts

This report was prepared by Nicholas Van Wyck, Ph.D. CPG-10553 and William J. Burnett, MSc. CPG-11263 both Qualified Persons under National Instrument 43-101. Both authors have read NI 43-101 and its accompanying documents and this report has been prepared in accordance with NI 43-101.

The authors have relied heavily on and reviewed material and information supplied by HRG that includes both recent exploration work (2010-2011) and historical work with associated private data performed in the late 1980s. Reports by government agencies also provided useful information for this review.

HRG and GPR supplied the information regarding property ownership and permitting. The authors have not made any attempt to verify the legal status and ownership of the Herbert Glacier property, nor are they qualified to do so and have not made any attempt to verify the permitting status of the property. The authors have relied upon HRG and GPR statements that the claims are in good standing and that the project has been adequately permitted for the work carried out to date.

# **Property Description and Location**

#### 4.1 Area and location

The Herbert Glacier Project is located in UTM Zone 8 between 516600 m and 521000 m East, 6485000 m and 6488500 m North (NAD 83 Alaska) in southeastern Alaska approximately 32 km north of Juneau (Figure 1). The project lies entirely within the Juneau 1:250,000 map sheet, and within the Juneau C-3 and C-2 1:63,000 quadrangles.

Elevations on the property range from approximately 40 to 1,200 m above mean sea level. The property consists of 91 Federal claims registered under the legal names listed in Table 2. The aggregate area of the claims is 761.5 hectares (1881 acres). The claims are located within 9 sections of Townships 38 and 39S and Range 65E of the Copper River Meridian.

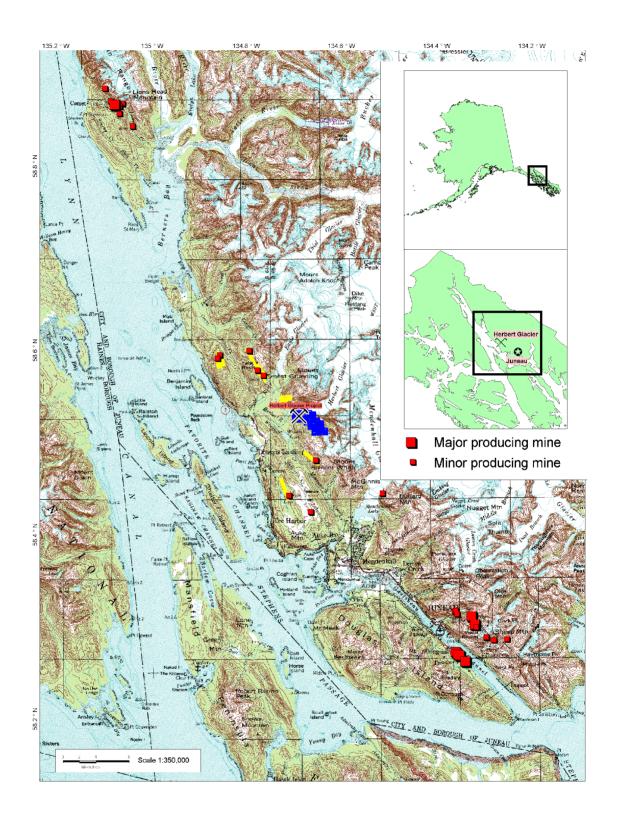


Figure 1: Property location map

#### 4.2 Claims and agreements

The claim block (Figure 2) consists of the three groups of claims. Table 2 below lists the currently active claims at the time of writing. The core 17 claims, shown in yellow, were the original claims acquired by Juneau Exploration and Development Inc. (hereafter JEDI) from Echo Bay Exploration Inc. in 1997, OR and JEDI signed a mining lease agreement in April 2007, at which time 67 additional claims were staked and an area of interest around the core claims agreed upon. A final set of 7 claims were added by QR in February 2008 bring the current total to 91 active claims. There is no distinction between the claims within the agreements and all claims lie within the proscribed area of interest. Intent to hold filings for all claims have been properly recorded through September 1, 2012.

When Echo Bay divested its interests in the Juneau area to JEDI, the recorded sale (Book 476 page 45) makes no mention of an underlying royalty interest in these claims and they were sold unencumbered to JEDI.

The Mining Lease signed by JEDI and QR has an effective date of November 1, 2007. The lease includes a sliding scale NSR on production up to five percent (5%) where the price of gold exceeds \$601 per troy ounce, and a minimum annual advance production royalty of up to a maximum of \$30,000 after the tenth anniversary of the effective date payable to JEDI.

On June 16, 2010 QR optioned the Herbert Glacier property to GPR. The option agreement granted the right to earn 65% in the Herbert Glacier project if:

- a) GPR spent at least \$750,000 before June 15, 2011 to earn 51%
- b) GPR spent and additional \$500,000 before June 15, 2012 to earn the full 65%.

At the time of writing GPR has fulfilled both of these obligations and is fully vested at the 65% ownership interest.

On October 24, 2011 GPR and QR signed a Joint Venture Agreement outlining the collective responsibilities between the JV participants. Funding is on a pro-rata basis, with standard dilution applying in the event either party declines to participate.

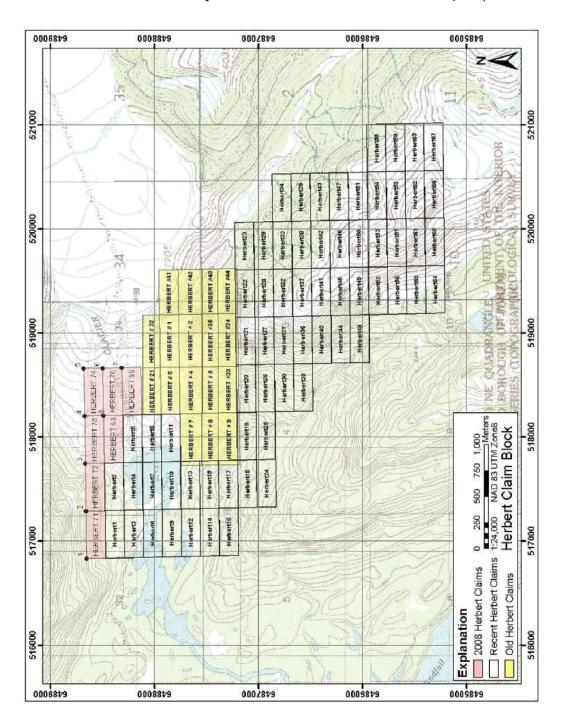


Figure 2: Claim location map.

Table 2: Active claims on the Herbert Glacier property

BLM Claim				District	Sec-Twp-Range	Location	
OWNER OF RECORD	Number	CLAIM	District	Reference #	Copper River Meridian	Date	
QUATERRA ALASKA	AA87165	Herbert 1	Juneau	2008-001349-0	Sec 32,33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87166	Herbert 2	Juneau	2008-001350-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87167	Herbert 3	Juneau	2008-001351-0	Sec 32,33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87168	Herbert 4	Juneau	2008-001352-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87169	Herbert 5	Juneau	2008-001353-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87170	Herbert 6	Juneau	2008-001354-0	Sec 32,33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87171	Herbert 7	Juneau	2008-001355-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87172	Herbert 8	Juneau	2008-001356-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87173	Herbert 9	Juneau	2008-001357-0	Sec 32,33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87174	Herbert 10	Juneau	2008-001358-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87175	Herbert 11	Juneau	2008-001359-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87176	Herbert 12	Juneau	2008-001360-0	Sec 32,33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87177	Herbert 13	Juneau	2008-001361-0	Sec 33 T38S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87178	Herbert 14	Juneau	2008-001362-0	Sec 32,33 T38S, R65E; Sec 4,5 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87179	Herbert 15	Juneau	2008-001363-0	Sec 33 T38S, R65E; Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87180	Herbert 16	Juneau	2008-001364-0	Sec 4,5 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87181	Herbert 17	Juneau	2008-001365-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87182	Herbert 18	Juneau	2008-001366-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87183	Herbert 19	Juneau	2008-001367-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87184	Herbert 20	Juneau	2008-001368-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87185	Herbert 21	Juneau	2008-001369-0	Sec 3,4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87186	Herbert 22	Juneau	2008-001370-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87187	Herbert 23	Juneau	2008-001371-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87188	Herbert 24	Juneau	2008-001372-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87189	Herbert 25	Juneau	2008-001373-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87190	Herbert 26	Juneau	2008-001374-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87191	Herbert 27	Juneau	2008-001375-0	Sec 3,4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87192	Herbert 28	Juneau	2008-001376-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87193	Herbert 29	Juneau	2008-001377-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87194	Herbert 30	Juneau	2008-001378-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87195	Herbert 31	Juneau	2008-001379-0	Sec 3,4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87196	Herbert 32	Juneau	2008-001380-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87197	Herbert 33	Juneau	2008-001381-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87198	Herbert 34	Juneau	2008-001382-0	Sec 2,3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87199	Herbert 35	Juneau	2008-001383-0	Sec 4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87200	Herbert 36	Juneau	2008-001384-0	Sec 3,4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87201	Herbert 37	Juneau	2008-001385-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87202	Herbert 38	Juneau	2008-001386-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87203	Herbert 39	Juneau	2008-001387-0	Sec 2,3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87204	Herbert 40	Juneau	2008-001388-0	Sec 3,4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87205	Herbert 41	Juneau	2008-001389-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87206	Herbert 42	Juneau	2008-001390-0	Sec 3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87207	Herbert 43	Juneau	2008-001391-0	Sec 2,3 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87208	Herbert 44	Juneau	2008-001392-0	Sec 3,4 T39S, R65E	18-Apr-07	
QUATERRA ALASKA	AA87209	Herbert 45	Juneau	2008-001393-0	Sec 3 T39S, R65E	18-Apr-07	

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	BLM Claim			District	Sec-Twp-Range	Location
OWNER OF RECORD	Number	CLAIM	District	Reference #	Copper River Meridian	Date
QUATERRA ALASKA	AA87210	Herbert 46	Juneau	2008-001394-0	Sec 3 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87211	Herbert 47	Juneau	2008-001395-0	Sec 2,3 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87212	Herbert 48	Juneau	2008-001396-0	Sec 3,4 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87213	Herbert 49	Juneau	2008-001397-0	Sec 3 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87214	Herbert 50	Juneau	2008-001398-0	Sec 3 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87215	Herbert 51	Juneau	2008-001399-0	Sec 2,3 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87216	Herbert 52	Juneau	2008-001400-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87217	Herbert 53	Juneau	2008-001401-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87218	Herbert 54	Juneau	2008-001402-0	Sec 10,11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87219	Herbert 55	Juneau	2008-001403-0	Sec 11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87220	Herbert 56	Juneau	2008-001404-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87221	Herbert 57	Juneau	2008-001405-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87222	Herbert 58	Juneau	2008-001406-0	Sec 10,11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87223	Herbert 59	Juneau	2008-001407-0	Sec 11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87224	Herbert 60	Juneau	2008-001408-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87225	Herbert 61	Juneau	2008-001409-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87226	Herbert 62	Juneau	2008-001410-0	Sec 10,11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87227	Herbert 63	Juneau	2008-001411-0	Sec 11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87228	Herbert 64	Juneau	2008-001412-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87229	Herbert 65	Juneau	2008-001413-0	Sec 10 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87230	Herbert 66	Juneau	2008-001414-0	Sec 10,11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA87231	Herbert 67	Juneau	2008-001415-0	Sec 11 T39S, R65E	18-Apr-07
QUATERRA ALASKA	AA087875	Herbert 68	Juneau	2008-000861-0	Sec 33 T38S, R65E	5-Feb-08
QUATERRA ALASKA	AA087876	Herbert 69	Juneau	2008-000862-0	Sec 33 T38S, R65E	5-Feb-08
QUATERRA ALASKA	AA087877	Herbert 70	Juneau	2008-000863-0	Sec 33 T38S, R65E	5-Feb-08
QUATERRA ALASKA	AA087878	Herbert 71	Juneau	2008-000864-0	Sec 32,33 T38S, R65E	5-Feb-08
QUATERRA ALASKA	AA087879	Herbert 72	Juneau	2008-000865-0	Sec 33 T38S, R65E	5-Feb-08
QUATERRA ALASKA	AA087880	Herbert 73	Juneau	2008-000866-0	Sec 33 T38S, R65E	5-Feb-08
QUATERRA ALASKA	AA087881	Herbert 74	Juneau	2008-000867-0	Sec 33 T38S, R65E	5-Feb-08
JEDI	59363	Herbert #01	Juneau	86-0005730	Sec 33,34 T38S, R65E	15-Aug-86
JEDI	59364	Herbert #02	Juneau	86-0005731	Sec 33,34 T38S, R65E	15-Aug-86
JEDI	59365	Herbert #03	Juneau	86-0005732	Sec 33 T38S, R65E	15-Aug-86
JEDI	59366	Herbert #04	Juneau	86-0005733	Sec 33 T38S, R65E	15-Aug-86
JEDI	59367	Herbert #05	Juneau	86-0005734	Sec 4 T39S, R65E	15-Aug-86
JEDI	59369	Herbert #07	Juneau	86-0005736	Sec 33 T38S, R65E	15-Aug-86
JEDI	59370	Herbert #08	Juneau	86-0005737	Sec 4 T39S, R65E	15-Aug-86
JEDI	59371	Herbert #09	Juneau	86-0005738	Sec 4 T39S, R65E	15-Aug-86
JEDI	59383	Herbert #21	Juneau	86-0005750	Sec 33 T38S, R65E	19-Aug-86
JEDI	59394	Herbert #32	Juneau	86-0005761	Sec 33,34 T38S, R65E	19-Aug-86
JEDI	59981	Herbert #33	Juneau	86-0006443	Sec 4 T39S, R65E	16-Sep-86
JEDI	59982	Herbert #34	Juneau	86-0006444	Sec 3,4 T39S, R65E	16-Sep-86
JEDI	59983	Herbert #35	Juneau	86-0006446	Sec 3,4 T39S, R65E	16-Sep-86
JEDI	59989	Herbert #41	Juneau	86-0006451	Sec 34 T38S, R65E	16-Sep-86
JEDI	59990	Herbert #42	Juneau	86-0006452	Sec 34 T38S, R65E	16-Sep-86
JEDI	59991	Herbert #43	Juneau	86-0006453	Sec 3 T39S, R65E	16-Sep-86
JEDI	59992	Herbert #44	Juneau	86-0006454	Sec 3 T39S, R65E	16-Sep-86

#### 4.3 **Environmental liabilities**

There are no known environmental liabilities associated with the property.

#### 4.4 **Permits**

The project is entirely on Federal lands administered by the U.S. Forest Service. The area has a land use designation on current land use plans as semi-remote recreation with a minerals overlay. Forest lands within this designation are open to mineral exploration and development, and guidelines allow reasonable access according with the provisions of an approved Plan of Operations. Exploration at the project has proceeded under approved Plan of Operations from the U.S. Forest Service for 2009, 2010 and 2011; although at present the project likely will be impacted by the Sequoia Forestkeeper v. Tidwell lawsuit requiring nationwide all mining exploration permits to undergo NEPA review including public notice, comment, and administrative appeals provisions. At the time of this report's completion, the 2012 U.S. Forest Service Plan of Operations permit was still in review.

HRG has directed that a baseline water sampling program be started at the project site by Admiralty Environmental. The purpose of the program is to assess baseline water quality at the proposed Herbert project site prior to any major operations taking place. Admiralty Environmental with consultation with some of the resource management agencies that would be part of the future permitting process (U.S. Forest Service, Alaska Department of Environmental Conservation), have selected ten surface water sampling locations both above and below the proposed mine area. These locations were sampled for a wide array of tests including trace metals, solids, mineral content, cyanide, and explosion residues such as nitrate and ammonia. Additional sampling is planned for 2012 when the site becomes accessible, and will likely include some groundwater sampling locations as well on suggestion from the regulatory agencies. The agencies will eventually use the data collected to draft permits and establish monitoring regimes based on potential environmental impacts to the site.

A City/Borough of Juneau exploration permit has been granted effective through February 2013.

# 5 Accessibility, Climate, Local Resources and Physiography

The Herbert Glacier project is located within the Juneau Recording District, approximately 32 km northwest of Juneau, Alaska along the eastern shore of Lynn Canal (Figure 1).

The project area lies on the western flanks of the Coast Range Mountains. Terrain is generally rugged within the project area, extending from 40 m to 1200 m above sea level in elevation. Topographic relief ranges from moderate to rugged. Vegetation ranges from dense alder brush to bare rock. The eponymous Herbert Glacier terminates at the eastern edge of the claim block and the glacier's rapid retreat in the past 30 years is responsible for recent exposure of uncommonly large areas of bare rock at low elevations. Bedrock exposure produced by recent glacier retreat is clearly ephemeral, as rapid vegetation growth is advancing at a similar speed.

Southeastern Alaska's climate is the warmest and wettest in Alaska with over 150 cm of annual rainfall and snowfall of 2.4 meters in the Juneau area. Exploration field work is currently limited to summer and fall months, but no seasonal restrictions are anticipated for future operations.

Access to the project area is currently by helicopter from Juneau but the main public paved highway (Glacier Highway or Route 7) from Juneau to Berners Bay passes 5.5 km west of the project area where it crosses the Herbert River. On both banks of the Herbert River National Forest foot trails head toward the project area. Topographically there is no obvious impediment for road access from the highway to the project area along a route parallel to the Herbert River. The most likely difficulty for direct road access to the property from the public highway will be permitting, as this area is likely to contain wetlands.

Juneau is a regional mining center supporting active mining operations at Greens Creek and Kensington. As such it is well supplied with qualified support personnel for any future mining operation at the project site. Other nearby communities including Haines and Skagway add to the potential employment base. The Alaska Marine Highway and commercial aviation are the primary forms of transportation between the three communities.

Electric power lines along the Glacier Highway terminate just north of Dotson's Landing (Figure 1) approximately 3 km south of the highway - Herbert River junction. The topographic maps and the name itself suggest tidewater access is likely at Dotson's Landing as opposed to the closer but silt-rich mouth of the Herbert River. An approximate distance to the project from likely tidewater access is 10 km, of which the first 4.5 km would be on public paved roads.

# History

Most of the core claims were covered by the Herbert Glacier for much of the last century and current interest in the project area began in 1986 when claims were staked. However there are two named prospects (St. Louis and Summit) and a 22 foot shaft at high elevations on the claim block dating from 1889 (Barnett and Miller, 2003). The Juneau area hosts multiple high-grade gold deposits that were active from 1883 through to 1943 and so it is likely the area was prospected during that time. It is also

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likely the greater extent of the Herbert Glacier hampered earlier exploration. A small placer operation was active during the 1930's approximately 1.5 km downstream from the project area but recovered little gold (Barnett and Miller, 2003).

The Herbert Glacier prospect was discovered in 1986 by Houston Oil and Minerals in outcrops recently exposed by retreating ice. Houston Oil and Minerals drilled the prospect in 1986 consisting of 9 holes BQ diameter core totaling of 502 m. Echo Bay Mines did additional 1,100 m drilling in 1988 from 10 holes (Moerlein, 1986 and 1988). Historic data is a little vague as to whether there was some additional shallow "winkie" drilling also completed in 1988, with possibly as much as 230 m completed from 12 holes. Although encouraging results were returned, for unknown reasons Echo Bay abandoned the project.

In 1997 as part of Echo Bay's divestiture of its Alaskan properties, a group of three local prospectors (d.b.a. JEDI) successfully purchased the core Herbert Glacier claims. In 2006 the property was brought to the attention of QR who signed a Mining Lease with JEDI effective November 1, 2007.

A field program in the summer of 2007 managed by HRG resulted in the collection of 299 rock chip. soil, and stream silt samples and the initiation of a property wide geology map.

In 2010 the property was optioned to GPR who immediately started a drilling program on the identified targets. The 2010 drill program totaled 2,600 m over 16 NQ diameter drill holes. The best intercept from the 2010 program was:

- DH 10C-1 from 119.29 – 120.9 m grading 12.9 g/t Au (GPR press release Nov 24, 2010)

In 2011 an additional 30 holes totaling 5.181 m were drilled using similar drill equipment as the previous year. Results were encouraging and cited press releases included:

- DH 11E-2 from 137.1 152.37 m graded 1.084 opt over a total intercept of 15.27 m (true width of 8.76 m), including a 6.570 opt interval from 147.07 - 148.14 m, 2.389 opt from 150.57 - 150.83 m and 4.132 opt from 148.14 - 149.70 m (GPR press release Aug 2, 2011).
- DH 11E-1 from 107.0 115.82 m graded 0.419 opt over a total intercept of 8.82 m (true width of 6.95 metres), including 0.673 opt from 110.92 - 113.69 m, and 0.511 opt from 110.92 - 115.82 m (GPR press release Aug 2, 2011).

In addition a total of 19.72 m of hand-held rock saw channel samples from four trenches across the Deep Trench Vein outcrop trace were collected. The highest values returned (Trench A) were 0.21 opt over 6.13 m including 1.17 opt over 0.45 m (GPR press release Nov 15, 2011).

# **Geological Setting and Mineralization**

#### **7.1 Regional setting**

The Herbert Glacier project is situated within the 160 km long 8 km wide Juneau Gold Belt (JGB). Notable deposits within this mineral belt include the Kensington, AJ and Treadwell deposits and collectively gold production to date is estimated at over 6.5 million ounces (Barnett and Miller, 2003).

Salient characteristics of the over 200 prospects and mines within the JGB is the close proximity to Coastal Shear Zone - a major crustal shear zones defined by northwest-striking, moderately to steeply northeast-dipping, penetrative foliation. The structure parallels the boundary between the Gravina belt to the west and the Taku terrane to the east. The Gravina belt comprises Upper Jurassic to mid-Cretaceous marine argillite and greywacke, interbedded andesitic to basaltic volcanic and volcaniclastic rocks, and plutons ranging from quartz diorite to peridotite (Gehrels and Berg, 1992 and 1994). In Figure 3, Gravina belt rocks include map units KJs, KJv, KJsv, and KJgb. The Taku terrane differs from the Gravina belt by having an older Permian to Triassic aged basement comprising marbles, phyllites, pillowed basalts, and flysch-related rocks, which are overlain by Upper Jurassic to mid-Cretaceous greywackes and likely closely related to similar aged rocks in the Gravina belt. In Figure 3, the Taku terrane lithologies are incorporated into a single map unit KPsv. Metamorphic grade ranges from greenschist to amphibolite facies and generally increases from west to east. Regional metamorphism and deformation, including the Coastal Shear Zone, are broadly linked to emplacement of multiple intrusive rocks into the Coast Mountains (map unit TKt in Figure 3) with isotopic ages ranging from 70 to 55 Ma (Gehrels and Berg, 1994). Within the Juneau Gold Belt auriferous veins have isotopic ages between 56 and 55 Ma (Goldfarb and others, 1997).

#### 7.2 **Local setting**

Published regional geologic mapping (Figure 3) indicates that Herbert Glacier project is largely hosted in units KPsv and TKt. To date the majority of the mapping and drilling has been within a quartzdiorite stock or sill that hosts the mineralized veins. Although there is no independent mapping or geochronology evidence in support, it seems reasonable to correlate the quartz-diorite stock with regional map unit TKt and a belt of deformed metasedimentary rocks on the western edge of the claim block with map unit KPsv. One drill hole from the western-most drill pad (hole 11I-4) passed out of diorite into strongly foliated metasedimentary rocks confirming the strongly tectonized contact between the two units.

Herbert Glacier consists of, at present, four principal and parallel sets of east-northeast-trending quartz veins hosted in quartz-diorite. The veins consistently dip steeply to the north with a minor NE trending vein set splaying off or intersecting the main vein set. Vein thicknesses range from several meters to decimeters and within the host structures occasionally several generations of veining can be observed. This leads to variable mineralized thicknesses noted both at the surface and in drill intercepts with mineralized widths up to 8 m true thickness occasionally encountered, but importantly even if vein thicknesses are variable, drilling at present shows consistent down-dip continuity of the host structures.

Descriptions of closely adjacent prospects suggest that the quartz-diorite host is a unique feature to the Herbert Glacier project as the other prospects are all metasedimentary-hosted.

The mineralogy of the veins is dominantly quartz with lesser carbonate, arsenopyrite, pyrite, galena, sphalerite, scheelite and occasionally visible gold. Visible gold tends to occur associated with galena in the veins. Vein textures commonly show shearing, grain-size reduction and structural offsets indicating mineralization was continuous with deformation.

Alteration extends as much as a meter into the wallrock adjacent to the veining consisting of sericite, chlorite and carbonate-altered quartz diorite. As a result of the preferential erosion of the alteration selvages, steep walled canvons typically mark the locations of the veins on the project. These gullies are easily visible on aerial photos and provide a convenient prospecting tool.

#### 7.3 **Regional mineralization**

Mineralization in the JGB is typically present as quartz-carbonate veins with variable amounts of arsenopyrite, pyrite, base metal sulphides (sphalerite and galena typically), scheelite and free gold. Subtle mineralogical variations exist between deposits – for example Kensington has distinctively high telluride concentrations, but overall the important geochemical characteristic of these deposits are their simple and consistent mineralogy. Regional structures are very important within the JGB exerting a profound control over the mineralized vein systems. And while vein thicknesses and geometries do vary between deposits with vein thicknesses and orientations reflecting the local kinematic conditions during deformation and mineralization, the alignment of approximate 200 deposits and prospects for a distance of 160 km along the Coastal Shear Zone illustrates the importance of major regional structures.

## 7.4 Prospect mineralization

At the time of examination by U.S. Bureau of Mine personnel in the late 1980's only two veins were recognized. Samples of their north vein set contained up to 37.2 ppm gold, 186.7 ppm silver, greater than 1 % lead, and 0.36 % zinc. Samples of the south vein set contained up to 240.8 ppm gold, 126.9 ppm silver, greater than 1 % lead, and 0.36 % zinc (Redman and others, 1989). The Bureau collected a 240-pound metallurgical sample for analysis and beneficiation tests in 1988. A gravity separation test recovered 88.8 % of the gold and 80.7 % of the silver (Redman and others, 1989).

Results from 2011 reported a composited drill intercept from DH 11E-2 from 137.1 - 152.37 m that graded 1.084 opt (37.17 ppm) Au over a total intercept of 15.27 m and a calculated true width of 8.76 m (GPR press release Aug 2, 2011) indicating observed drill intercepts have been returned that are similar to the high-grade gold samples documented at the surface by the U.S. Bureau of Mines.

Data to date is suggestive of potentially several different styles and grades of mineralization being present at Herbert Glacier. The majority of drilling has intersected quartz-carbonate veins hosted within the quartz-diorite. One hundred sixty (160) selected assay values averaged 9.4 ppm Au with median silver to gold ratio of 1.3:1. Pb rarely exceeds 1% and Zn 0.5%. These numbers are in broad agreement with the earlier Bureau of Mines results cited above and confirm the gold-rich nature of the mineralization. Drilling in 2011 at the western extension of the Main Vein (DH11I-4) intersected a 0.93 m interval (151.77-152.70 m) which shows the strongest values for silver (4,010 ppm), lead (3.18%), zinc (3.12%), copper (0.38%) and antimony (0.62%) received to date on the Herbert Glacier project (GPR press release Dec 6, 2011). The hole was one of the few that extended from quartzdiorite into metasedimentary rocks and offers encouragement for additional target models on the property.

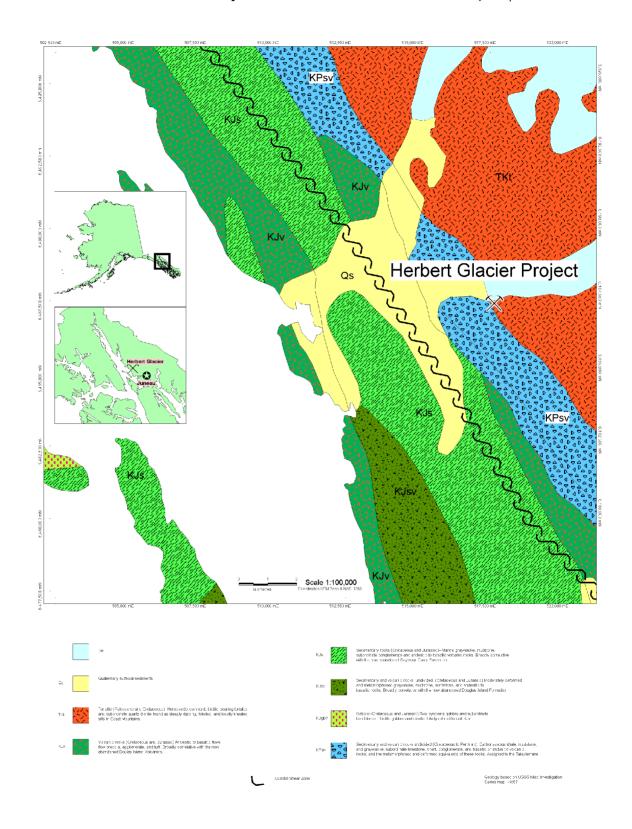


Figure 3: Regional geology

# **Deposit Type**

Gold deposits within the Juneau Belt, including Herbert Glacier, fit well into the orogenicmesothermal gold vein deposit model. World class examples of this deposit type include the JGB as well as the Grass Valley - Mother Lode District, California, Sukhoi Log, Russia and Bendigo, Australia (Groves and others, 2003).

Salient characteristics of this class of mineral deposit are: the regional metamorphic grade of hostrocks (greenschist), the composition of fluid inclusions in quartz veins (low salinity, H2O-CO2 rich), and stable isotope compositions (elevated O<sup>18</sup>), which all consistently point towards these deposits forming from regional metamorphic fluids generated during orogenic thickening being focused into large crustal-scaled structures. Typically on the deposit and prospect scale, second and third order structures related to the large, regional mega-structures act as local structure control to further focus fluids and their resultant veins.

In the JGB mineralization appears to be focused within competent host-lithology such as intrusive stocks. For example at the Kensington Mine mineralization is hosted in the Jualin Diorite, at the AJ and Treadwell Mines within gabbro sills and a diorite stock respectively. As is typical in orogenicmesothermal gold vein deposits worldwide, the strike length and depth of individual deposits in the JGB can be extensive: for example at the AJ Mine development occurred over a 6 km strike length and a down dip extension of 700 m (Barnett and Miller, 2003). Vein geometries and widths are such that these deposits have historically been mined by selective underground methods.

# **Exploration**

Exploration on the property at present consists of a property-scale rock chip, stream silt, and soil sampling program started in 2007 and continued to a lesser degree during the 2010 and 2011 drilling programs. Two hundred and ninety nine (299) samples collected and assayed in 2007 are recorded in the property database. Samples have been collected from 50% of the project area. There has been no systematic grid sampling program, which is appropriate based on the exposure level and the narrow, high-grade targets sought. A high resolution aerial photograph covers the entire claim block and a detailed 5 m spacing contour map has been prepared in a digital format over 12.5% of the claim area. A hand-drafted geologic map centered on the drill targets at an approximate scale of 1:2200 has been compiled onto the 5 m spacing contour map. The high-resolution aerial photograph is particularly useful on account of the large areas of rock exposure and the association of veining with pronounced linear features, making it a valuable prospecting tool.

The 2007 sampling results show that all the major vein structures have been covered by multiple surface samples on the claim block. The majority of the anomalous gold samples are located on the northern portion of the claim block on the Main, Deep Trench, and Goat veins. South of this area the number of anomalous gold samples decreases, where only a single sample out of a population of 112 returned a measured value above 5 ppm Au. This area with low surface gold values correspond to that portion of the claim block south of the 6487400 Northing, comprising approximately half the area of the claim block.

The rock chip program was successful in identifying veins with anomalous gold values, but because the sampling method is non-uniform, it is difficult to apply the results to quantitative resource modeling. In 2011 a small channel sampling program was started across surface exposed veins. Four trenches (A through D) totaling 19.72 m across the Deep Trench Vein were collected using a portable rock saw. The method consisted two parallel cuts approximately 3 cm deep and 6 cm wide and sample lengths on the order of 0.5 to 1.5 m long. The samples collected approximated a drill core rock volume and typical sample length. This is a valuable exploration tool precisely because it standardizes the sampling process and was incorporated into the solid resource model. During the 2011 site visit by the authors, all check assay samples collected from trenches provided excellent agreement with reported assay values, testifying to the repeatability of this sampling method.

Suggestions for future exploration methods have been included in the recommendations section.

# 10 Drilling

The first drilling on the property was in 1986. This drilling totaled 502 m of NQ core drilled in 9 holes ranging from 35 to 65 m depth. All holes were drilled to an azimuth of 170 at a dip of -45degrees (Moerlein, 1986). A second drill program in 1988 added another 1,100 m of NQ core and expanded the strike length to 600 m and 200 m down dip (Moerlein, 1988). Collar locations have been digitized from accompanying maps and there is some uncertainty to the original collar locations of these holes. No down-hole surveys are reported for these drill holes. Assay data including copies of the certificates were included in these reports.

The second set of drill data dates from 2010 and 2011 after the project was optioned to GPR. In 2010 2,600 m over 16 NQ diameter drill holes were completed. In 2011 an additional 30 holes totaling 5,181 m were drilled using similar drill equipment as the previous year. All collar locations were surveyed with survey-grade GPS receivers and down-hole deviations recorded with a multi-shot survey tool at approximately 100 foot intervals during the final removal of the drill string.

Helicopters based out of Juneau, supported all phases of the drill program including slinging supplies, drill equipment, fuel, and returning boxed core for logging and sampling. Crew shifts were also helicopter supported. Drill pads 6 m by 6 m in size were constructed from precut lumber at selected areas and multiple angle holes were fanned towards the vein targets from each pad. Water was locally sourced from small creeks.

The 1986 and 1988 drill data predate the 43-101 standards and are not included in this discussion; however the data from these holes is included in the project database and are included in figures shown in this report and in the inferred resource of the veins. Drilling in 2010 and 2011 continue to demonstrate the continuity of mineralized structures at the project.

All drill programs selectively assayed visually mineralized core intervals. From reported descriptions (confirmed by the site visit and examination of selected core samples by the authors) this is appropriate as the mineralized intervals are distinct. Within both mineralized and un-mineralized rock core recovery is good to excellent and there are no drilling or recovery factors that could materially impact the accuracy and reliability of the results.

All the extant drill data has been compiled into a digital database and Table 3 lists the location, azimuth and dip of selected drill holes from the 2010 and 2011 seasons. Based on the sections and geologic mapping, a good case can be made for the dip and continuity of mineralized structures, which to date show steep dips to the north and an approximate east-west strike. Intercept widths listed are the measured intervals and have not been corrected to true mineral widths.

Table 3: Location, azimuth and dip of 2010 to 2011 drill holes with selected intercepts

Drill					From		Au	Interval
Hole	Easting	Northing	Azimuth	Dip	(m)	To (m)	(ppm)	(m)
11E-1	518203	6487727	185	-46	56.2	56.86	9.31	0.66
					107	108.97	19.50	1.97
					110.92	112.16	48.93	1.24
					114.6	115.82	17.58	1.22
11E-2			185	-62	80.01	81.26	5.80	1.25
					137.1	138.98	17.20	1.88
					143.63	144.6	31.30	0.97
					147.07	149.7	175.47	2.63
					150.57	152.37	17.61	1.8
11E-3			190	-72	195.2	196.79	7.67	1.59
11E-5			150	-49	76.66	77.18	11.45	0.52
11C-2	518184	6487919	178	-63.5	150	150.75	6.69	0.75
11C-3			143	-52	93.51	94.79	5.63	1.28
11D-1	518527	6487932	235	-45	7.29	8.5	9.04	1.21
					136.24	138.47	108.10	2.23
					145.39	146.01	8.23	0.62
11J-1	518117	6488100	170	-45	72.85	73.69	7.29	0.84
111-1	518006	6487876	170	-45	100.64	101.36	5.95	0.72
					200.74	201.34	5.90	0.6
111-4			208	-65	144.95	145.88	131.03	0.93
					151.77	152.7	7.75	0.93
111-5			115	-45	111.13	112.19	72.70	1.06
111-7			208	-80	181.12	181.84	6.04	0.72
11G-1	518329	6487735	227	<i>-57</i>	151.9	152.49	6.73	0.59
11G-2			210	-45	130.5	132.72	5.94	2.22
11G-4			180	-45	99.52	100.15	19.25	0.63
11G-5			180	-63	133.22	133.87	8.16	0.65
					146.63	147.68	7.90	1.05
11F-3	518090	6487701	180	-70	40.23	43.49	12.13	3.26
10A-4	518359	6487950	170	-45	339.85	341.36	5.18	1.51
10A-5			170	-65	25.46	26.31	7.26	0.85
10B-1	518779	6487673	210	-45	26.94	27.46	9.40	0.52
10C-1	518185	6487919	170	-45	119.76	120.9	14.05	1.14
10D-2	518529	6487932	170	-82	134.49	135.64	7.65	1.15
10E-1	518204	6487728	210	-45	51.21	51.73	6.42	0.52
10E-1					80.64	81.15	8.51	0.51

# 11 Sample Preparation, Analyses and Security

During the site visit no drilling or sample preparation was in progress, so the description that follows is based on narratives with the operator. All core samples were removed via helicopter from the drill pad to a secure hanger area and from there by truck to the project core logging and sample prep facility in Juneau. This facility consisted of two lockable 40-foot shipping containers situated behind a residence in a graded parking area. The surrounding area is residential with multifamily housing units and business in the immediate area. The area is not fenced and is easily accessible to the public. The containers are owned by one of the underlying claim owners and so steps have been taken to maintain a clear custody of core samples by the operator including storage of the core in a locked container. Core is first logged and selected intervals marked for sampling. A rock saw outside the core facility is used to saw the core in half. One half is bagged and stored prior to shipping to the assay lab, while the remainder of the core is archived on the core storage site. Samples are described as being locked before being shipped to the assay lab in Fairbanks by air shipment. Based on the number of assay certificates it appears that samples are shipped to the lab relatively quickly and are not stockpiled on site for any length of time. There did not appear to be use of security seals on sample bags nor did there appear to be a specific storage area for split samples prior to shipping to the assay lab.

Security concerns are not being ignored but improvements can only add to the quality of data. To this regard suggested improvements are included in the recommendations.

Core samples from 2010 and 2011 have been assayed by ALS Minerals using a variety of methods. Samples were air shipped to the ALS preparation facilities in Fairbanks, AK. Samples that were incompetent, friable, clay-rich or crumbly were bagged in plastic bags and then placed in the standard canvas bags so there would be no possible loss of free gold in the cloth. Core samples were weighed. coarse crushed, split and pulverized. Pulps were shipped to Reno, NV for analyses. For both 2010 and 2011, base metals and trace elements were analysed by ICP – AES (ALS prep code: ME-ICP61). This method uses a four acid dissolution method and is primarily designed as an exploration geochemistry analytical package. Initially, 2010 gold assays were by conventional fire assay techniques (ALS prep code: Au-ICP21), consisting of fire assay of a 30 g sample of the pulp with the pellet then dissolved in acid and "finished" by AES. This analytical method is typically used for exploration projects. Later in the 2010 season, 34 samples with anomalous gold values were check assayed using the metallic screen method (ALS prep code: Au-SCR21). In 2011 metallic screen assays were used for all submitted samples in addition to conventional fire assays.

The authors are unaware of any relationship between the assay lab (ALS) and either GPR or QR. Most ALS Minerals laboratories are registered or are pending registration to ISO 9001:2008, and a number of their analytical facilities have received ISO 17025 accreditations for specific laboratory procedures.

At present there are substantial and significant deficiencies in the quality control and quality assurance methods used. There are no external standards being used nor is there a program of duplicate analyses. Analytical blanks are submitted into the sample stream but the source of the blank material is problematical. Recommendations for improvements are listed in section 19 below.

## 11.1 Opinion on the adequacy of sample preparation, security, and analytical procedures

The authors' opinion on the adequacy of sample preparation, security, and analytical procedures is that improvements can be made to the methods used. Recommendations have been made covering these areas (see Section 26.1). Concerning the adequacy of the data collected to date, a program of quality control has been implemented and is discussed further in section 12.2 below. While significant deficiencies to the data have been identified, it is the authors' opinion that the data is still of value based largely on the good agreement between the original data and the later check assays. This is discussed further below.

## 12 Data Verification

## 12.1 Authors' visit check sampling verification

During the site visit on both October 24<sup>th</sup> and 25<sup>th</sup> the authors collected a suite of check samples from core, trench and rock chip samples. All samples were selected and collected independently from the property owners. Trench and rock chip sample locations were checked in the field with a hand-held GPS. Drill core was selected from the core archive facilities. Samples were hand delivered to the ALS Minerals prep lab in Anchorage. The original drill core and trench samples had a full suite of 33 elements plus gold while the earlier rock chip samples only had reported gold values. All check samples represent true duplicate samples and were collected in their entirety by the authors as either sawed 1/4 core from the existing archived core, or replicate samples collected in the field from trenches or hand sample locations. Pulp material was prepared by a different processing lab facility. The results of selected elemental comparisons are presented below.

Table 4: Comparison of selected element assay values between replicate and original samples

	Au	Ag	As	Ba	Bi	Mn	P	Pb	S	Sb	V	W	Zn
56178	2.27	< 0.5	5220	1460	3	866	1160	26	0.34	8	132	20	133
56178	1.71	< 0.5	3380	1300	<2	778	1080	17	0.31	6	119	10	114
56308	12.9	12.3	>10000	200	5	293	280	875	0.5	< 5	21	40	25
56308	21.8	7	>10000	170	4	232	230	1055	0.58	<5	17	60	335
56431	99.2	82.8	>10000	180	8	571	250	6950	1.41	23	31	10	4870
56431	240	>100	>10000	190	5	450	280	>10000	1.87	34	32	<10	6220
56303	3.11	16.9	>10000	180	13	494	760	5750	3.65	20	63	160	49
56303	3.69	11.3	>10000	470	4	374	570	3020	3.61	9	46	120	30
56175	17.7	9.6	>10000	1240	9	762	920	2470	0.79	8	103	50	156
56175	17.65	11	>10000	1200	3	744	1000	1855	0.93	7	106	60	166
96679	35.3	7.1	>10000	470	<2	474	330	629	1.21	<5	33	250	23
96679	25	8.9	>10000	420	2	420	300	245	0.64	< 5	28	410	21
96680	0.76	0.6	4320	1100	<2	843	1090	18	0.62	< 5	115	50	141
96680	1.28	< 0.5	3890	1080	<2	907	1260	12	0.37	< 5	134	40	116
96681	34.1	16.6	>10000	110	<2	107	90	2310	1.74	8	11	10	103
96681	41.2	25.5	>10000	170	6	174	160	5110	2.08	11	16	20	600
144805	7.46	4.1	7690	130	<2	214	130	1130	0.56	< 5	12	40	33
144805	73.3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
147229	0.23	20.6	>10000	10	3	51	10	5160	0.61	11	1	<10	4
147229	2.85	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Note: Samples in italics are the replicate results, original results are in regular font. All values are in ppm except for S, which is in weight percent. < indicates analysis was below M.D.L., > indicates over assay above upper limits to assay method.

Gold assays showed a range in values with individual comparisons of repeat to original ranging from 59% to 41%. The average of all drill core and trench gold analyses showed the repeat samples were 12% lower than the original results. The heterogeneity of these results is assigned to the irregular distribution of gold within the samples (nugget effect). The pattern of the other element distributions between original and check samples were consistent within natural variability.

It is the opinion of the authors that the comparison between original reported assay values and the randomly and independently collected suite of check samples indicate satisfactory comparison between the two sets.

### 12.2 HRG sampling verification

Sample preparation by HRG, as described in the previous section, lacked a program of standards and duplicates, and is not available for analysis. Typically in a report such as this, analysis of these data would be part of the data verification. In lieu of this deficiency the assay lab (ALS Minerals) was contacted and a search for all extant course reject samples stored by the lab was requested. No 2010 samples and only some of the 2011 samples were found. Of these remaining samples the amounts of course reject material on hand were limited, which is significant because the metallic screen Au assay method requires a large sample mass. From the list of remaining samples with sufficient material remaining, 35 samples spanning the range in observed Au values were selected. Although samples containing the highest reported gold values had been consumed by prior analyses it was still possible to select from the remaining material samples ranging from 0.1 to 16 ppm Au. These samples were re-assayed together with a suite of blanks and independent commercial standards purchased from Analytical Solutions Ltd., a Canadian laboratory. These data are discussed further below.

#### 12.2.1 Blanks

Eight blanks were prepared from washed cobbles purchased from the local sand and gravel business. The material was predominantly plutonic rock. The samples were weighed and approximated the samples being processed. All recorded weights corresponded with the assay lab measurements of received samples and the blanks were reported as being run in the correct order. This order was to space blanks at the start and after every fifth unknown sample.

None of the reported blank values measured above minimum gold detection limits of 50 ppb. The interpretation is that, for this set of analyses, the assay lab sample crushing and processing equipment was properly cleaned and that cross sample contamination was minimal.

#### 12.2.2 Standards

Eight commercial lab standards were submitted to the assay lab to be run in sequence with the blanks and unknowns. These standards were prepared and sold by Analytical Solutions Ltd., consisting of three standards with given gold values of: Std  $62d = 10.5 \pm 0.14$ , Std  $10c = 6.53 \pm 0.08$ , Std 65a =0.52±0.007 (all values reported as ppm Au).

The results of the analyses are present below as a graph plotting listed reported standard values (with associated errors) against the assay lab results.

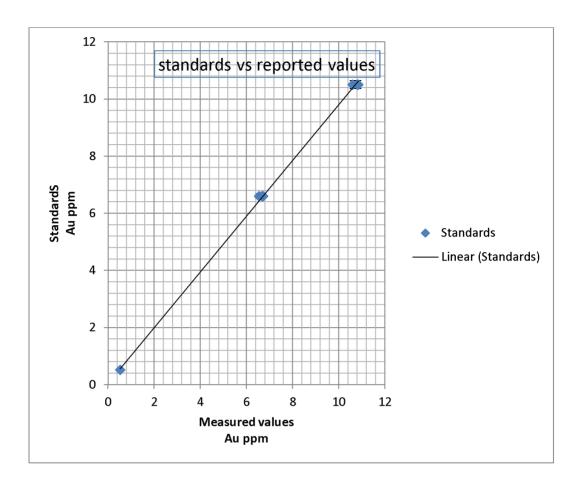


Figure 4: Graph of standards vs. reported values.

The data shows good reproducibility between the independent standards and the reported assay lab results. Some caution is warranted due to the small sample size and more importantly, that the standards were not submitted throughout the two-year exploration campaign.

In addition some consideration should be given to how closely the commercial standards adequately replicate metallic screen analyses. The entire metallic screen assays method uses a dual-pathway process where the coarse (+) screened material is analyzed separately from the fine (-) screened material and the subsequent total gold value is a weighted average of the two values. The commercial standards are pre-prepared and in the form of sample pulps. They are assayed as conventional fire assay material and so only replicate the fine (-) screen side of the process. There are no commercially available suitable standards designed replicate "real" high-grade gold samples analyzed via the metallic screen method.

Regardless of these caveats, it is the opinion of the authors that the standards indicate satisfactory accuracy of the assay lab results for the resubmitted sample set.

#### **12.2.3** Samples

Thirty five samples can be compared to their initial results, plotted as original values against reassayed values (Figure 5). Samples were specifically selected to encompass as wide a range of

reported gold values noted in the dataset. The figure shows combined Au values, which are the final reported metallic screen assay results for the sample, as well as the individual – and + values,

A number of interesting features can be seen in the data. First the comparison between Combined Au values shows a good correlation between original and re-assay results. The results suggest the original results slightly under-report the gold values present – but no statistical significance should be placed on this. The cause can be seen in the large variability in the + fraction compared to the - fraction. These data illustrate why metallic screen assays are appropriate for the higher grade samples at Herbert Glacier – the large variability in the + fraction is due to the gold "nugget" effect where an irregular distribution of coarser gold is recorded. In comparison, the – size fraction shows a greater degree of correlation and presumably reflects a more uniform finer grained distribution.

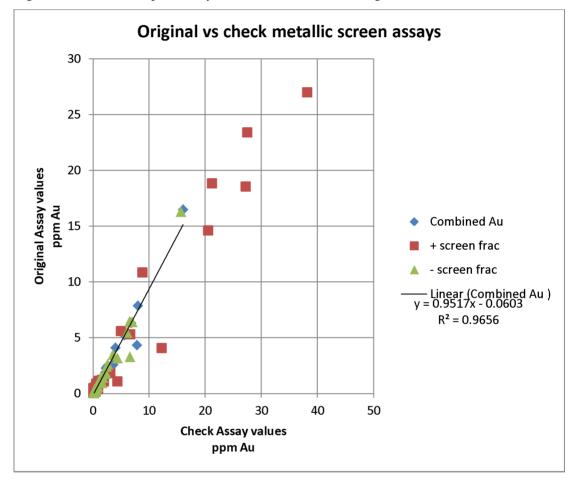


Figure 5: Comparison graph of original metallic screen assay results against check assays.

It is the opinion of the authors that the comparison between original reported assay values and the reassayed check samples indicate satisfactory comparison between the resubmitted sample set.

## 12.3 Database Verification

In order to provide a foundation for future work the authors constructed a standard drill database with all available data on collar locations, drill hole surveys, assays, lithology, and geotechnical

measurements. Data verification of assay results in this database consisted of randomly sampling 5% of the data entries by checking the values against the original records (primarily a check against the assay certificates) and is described in greater detail below.

Without doubt, the single most significant parameter in the database is the Au assay value, although partial data for Ag. As. Pb. Zn and W values has been collected where available. There are two generations of Au assay data entered into the database: the 2010 to 2011 data collected by HRG and the original 1986 to 1988 data contained in reports for Echo Bay Exploration, referred to below as the Moerlien Au data.

HRG Au data: These data all include the original assay certificates and full descriptions of the assay methods used. As described above (Section 11) both conventional fire assay and metallic screen assay methods were used.

Moerlien Au data: Contained within reconstituted digital logs complied by HRG from two internal company reports (Moerlien 1986 and 1988) are selected drill core intervals with Au, Ag, As and Pb assay values. Little information is provided on the sample preparation methods and specific details on the assay techniques, but some samples were reported on assay results as metallic screen assays.

#### Data treatment

All Au assay values have been converted into a single standard unit of ppm. For all opt reported values the number was converted into ppm by dividing by 0.0292 (1 opt = 34.2857 ppm). For intervals that have been assayed by both conventional fire assay techniques and by metallic screen methods only the metallic screen value has been used. HRG Au assay certificates for metallic screens report both the – mesh and + mesh size fraction assay results. The reported value used in this database is the combined – and + mesh assay result as reported by the assay lab. None of the assays have been capped for nugget effect.

Ag assays are not significant and most report below minimum detection limits.

HRG collar locations were measured with a survey-grade GPS, earlier collar coordinates were digitized from maps, both are accepted as correct. No down-hole surveys were performed on the 1980's vintage drilling and a multi-shot survey tool was used in 2010 and 2011. Significant variation was noted in the recorded survey results from 2010 and any survey result with azimuth deviating more than 20° or a dip deviation of more than 5° from the previous measurement was discarded.

All available lithology, structure, alteration and geotechnical information has been added to the database. Because the operators have changed over the years, the data collected for various topics has a range of observations recorded. This necessitated some editing and merging of disparate datasets into a unified digital format. The authors recommend that consideration be given to maintaining consistency of the digital database for entries on lithology, alteration and structure in the future.

The results of the data verification on this database were:

A total of 1,145 Au assays were entered, of these 698 were collected in 2010-2011. The audit checked 35 (5%) of the 2010-2011 samples values against original assay certificates. Only 2 minor errors were noted (under assay values reported as zero) and appropriate changes were made.

The audit found 125 sample breaks less than 5 m wide between other sampled intervals. Of concern 7 of these were less than 0.4 m suggesting a more likely error was the recording of the "from-to" interval. Without examination of the sampled core it is not possible to choose between these two options. Recommendations have been made to avoid these small sampling gaps in the future.

The audit checked 164 survey measurements and removed 5 measurements for excessive deviation. Close to one quarter of all holes from 2010 and 2011 did not have acceptable down-hole survey data (11 holes).

The authors' consider that this database is sufficient for the construction of a resource model. The good agreement discussed above between original reported assay values from 2011 compared with

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subsequent check assay results suggest the recorded gold assay values contained within the database are sound. It is recommended that an improved data verification program be maintained going forward including particular attention on additional check assay samples including the incorporation of a series of standards, duplicates and blanks. Also relevant to data verification are improvements in down-hole survey data and more complete sampling of drill core. These points will be further addressed in the recommendations. It is the authors' opinion that the pre-2010 drilling should be twinned for incorporation into an indicated resource model or higher.

# 13 Mineral Processing and Metallurgical Testing

The U.S. Bureau of Mines collected a 240-pound metallurgical sample for analysis and beneficiation tests in 1988. A gravity separation test recovered 88.8 % of the gold and 80.7 % of the silver (Redman and others, 1989). In 2010 a sample prepared from cannibalized drill core was tested for "Bond Ball Grindability" and gold recoveries. The results cite a calculated value of 15.7 kw-hr/tonne for work index (WI) and combined gold and silver recoveries of 91 and 78 % respectively using gravity concentration followed by cyanidization of the concentrates and tails (G & T Metallurgical Services, Ltd., 2011). The report recommends further metallurgical testing to understand the large consumption of sodium cyanide in the process. Though the metallurgical study consisted of representative material from core, the material collected was uniformly from relatively low-grade material recovered during the 2010 drilling campaign and did not include the high-grade with visible gold drilled during the 2011 season. As testing of the project continues, increased knowledge will allow a better consideration of the range and size of the sampling program required for additional metallurgical sampling. A bulk sample between 10 and 100 tonnes will permit a far more comprehensive mill design and a gravity only recovery test by Falcon (or equivalent) would provide better parameters for designing of the mill. Finally, the regional characteristics of ores from past mining operations in the Juneau district appear to be quite consistent, containing a very high percentage of free milling gold with the remainder of the gold reporting with the base metal sulphides. It is reasonable to expect, based on these regional characteristics and the character of the core samples obtained to date, that potential ore from the Herbert Glacier project will behave similarly.

## 14 Mineral Resource and Mineral Reserve Estimates

#### 14.1 Resource Estimation Procedures

After the preliminary 43-101 report was drafted, GPR requested to expand the scope of the study to include the preparation of a mineral resource estimate. This resulted in the construction of the digital database of all known drill collars, surveys and associated assay results. The values were used to construct a wire-frame 3D model of the vein mineralization along the Main and Deep Trench veins. The geologic database together with 3D solid models for the Main and Deep Trench Veins was provided to Garth D. Kirkham, P.Geo of Kirkham Geosystems Ltd., who provided the geostatistical calculations and resource model results. The following sections detail the methods, processes and strategies employed in creating the revised resource estimate for the Herbert Glacier Deposit.

#### 14.1.1 Solid Model construction

Because core logs were digital and inconsistent, the model was prepared by identifying the hanging wall and footwall contacts of the mineralized structures in drill core photographs. Assay results were check against core photographs to identify edges of mineralization. Assays were composited down hole as an additional guide. The authors then used the resultant contacts and assays to interpret the vein along strike, on level plans, starting at the surface mapped exposures. The interpretation rules were:

- Solids extend 100 meters along strike and 150 meters along dip from any mineralized drill hole intercept and pinch out at the extent of the interpreted projection.
- Solids could be inferred only halfway between mineralized and non-mineralized core holes. If the drilling in the third dimension showed continuity, then the un-mineralized portion of the vein was thinned out to virtually nothing between barren and mineralized intercepts.
- Solids were snapped to Hangingwall and Footwall contacts, including minor dilution in many cases to encompass the mineralized and altered structure in its entirety.

The final level plan interpretations were then stitched together to form the 3 dimensional wireframe solid model. Final editing was used to insure integrity between drill core results and the final vein solid model.

The three following figures show the long, plan and section views of the resultant vein solids. In all cases the Trench is in light blue, the Main in dark blue and the Main Splay in light green colors.

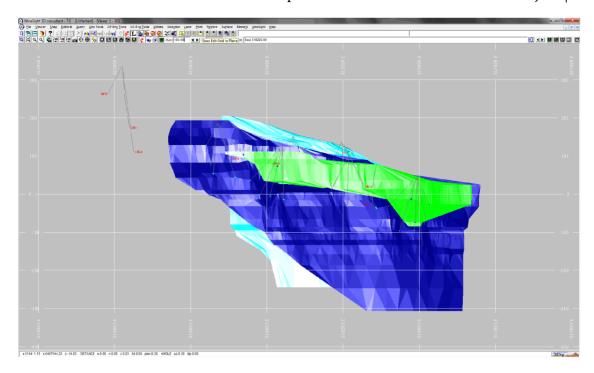


Figure 6: Long section of vein solids with drill holes.

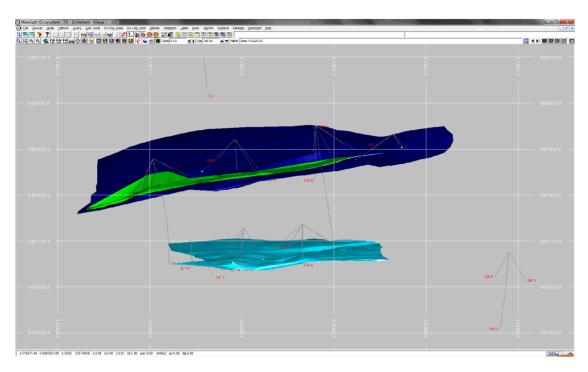


Figure 7: Plan view of vein solids with drill holes.

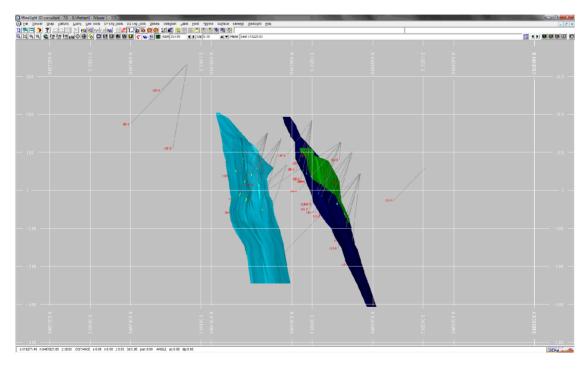


Figure 8: Section view of vein solids with drill holes.

#### 14.1.2 Assay database

The database consists of a total of 65 diamond drill holes (9,386 m of drilling) and 4 trenches (19.7 m of trenching) targeting the two structures, covering the entire Herbert Glacier Project area intersecting the Herbert Glacier Deposit as it is defined currently.

Summary statistics for the assay gold database contained 1,160 Au values with a minimum value of 0.00 g/t Au and a maximum value of 432.88 g/t (Table 5). The average overall Au grade (unweighted by sample length) is 3.01 g/t, with a standard deviation of 19.14. There is a very high coefficient of variation<sup>1</sup> (CV) of 6.36 when considering all of the assays.

Table 5: Summary statistics for assay data (un-weighted)

	Count	MIN	MAX	Mean	1stQ	Median	3rdQ	SD	VAR	CV
TRENCH	98	0	225	9.62	0.65	1.95	4.98	28.73	825.51	2.99
MAIN	148	0	229	8.93	0.22	1.08	3.25	30.99	960.44	3.47
MAIN SPLAY	38	0.12	432.88	15.41	0.65	1.52	4.11	69.93	4889.95	4.54
Total	284	0	432.88	10.04	0.65	1.52	4.11	37.76	1425.74	3.76
All	1,160	0	432.88	3.01	0.22	0.22	1.08	19.14	366.52	6.36

However, within the vein zone solids the assay database contains 284 Au values with average overall Au grade (weighted by sample length) of 8.29 g/t, with a standard deviation of 32.01 (Table 6). Figure 9 shows the summary statistics and box plots, which are consistent for all veins.

Table 6: Summary statistics for assay data weighted by sample length

	Assay Interval	MIN	MAX	Mean	1stQ	Median	3rdQ	SD	VAR	cv
TRENCH	101.8	0	225	8.86	0.65	1.95	4.98	29.25	855.42	3.30
MAIN	100.9	0	229	7.27	0.22	1.08	3.25	28.35	803.92	3.90
MAIN										
SPLAY	19.2	0.12	432.88	10.64	0.65	1.52	4.11	55.43	3072.72	5.21
Total	221.9	0	432.88	8.29	0.65	1.52	4.11	32.01	1024.49	3.86
All	924.3	0	432.88	2.49	0.22	0.22	1.08	16.08	258.48	6.45

<sup>&</sup>lt;sup>1</sup> The coefficient of variation is defined as CV=σ/m (standard deviation/mean), and represents a measure of variability that is unit-independent. This is a variability index that can be used to compare different and unrelated distributions.

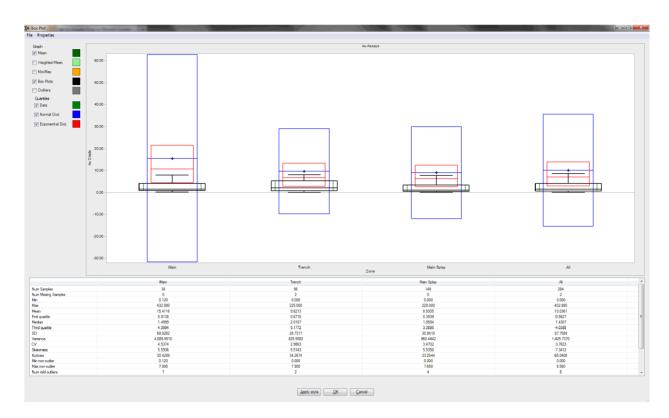


Figure 9: Histogram and basic statistics of all Au samples weighted by assay interval length.

#### 14.1.3 **Topography**

The topographic relief is fairly steep with creeks cutting topography running east-west. Elevations range between 50 m and 450 m. That trench results demonstrate grades persist to the surface, it is safely concluded that the topography is the preliminary surface for bounding the top of the model. It should be noted that the veins follow the topographic lows, greatly assisting with exploration and also offering opportunity for surface sampling to demonstrate continuity as shown in Figure 10.

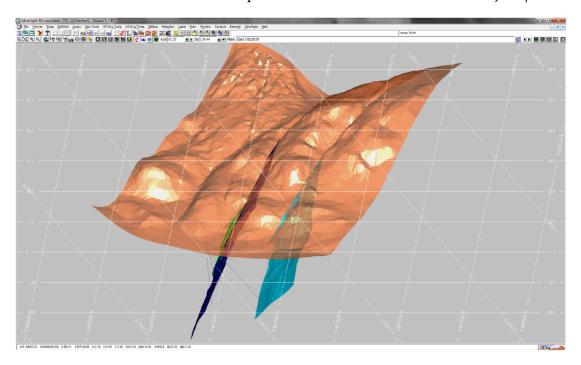


Figure 10: Perspective view of triangulated topography with veins following relief.

#### **14.1.4** Density

A density of 2.65 tonnes/m<sup>3</sup> was assigned for the quartz mineralized intersections (see section 26.1.8).

#### Compositing 14.1.5

Composites were calculated over the length of the vein intersection to a maximum of 1 meter in order to provide the best compromise between number of composites available for estimation and a reasonable degree of dilution and regularization. Table 7 shows the statistics for the composites for all samples and those created for the vein zones. Note that the CV is now 2.97 and is still relatively high. Figure 11 and Figure 12 show the histograms for the composites and the cumulative frequency plot for all the veins. The individual plots for each vein are similar and not reproduced for brevity.

**Table 7: Summary statistics for composites** 

	Count	Assay Interval	MIN	MAX	Mean	1stQ	Median	3rdQ	SD	VAR	с٧
TRENCH	101	101.8	0	225	8.86	1.01	2.14	5.29	27.51	756.61	3.10
MAIN	100	100.9	0.04	136.344	7.27	0.56	1.01	3.71	20.16	406.41	2.77
MAIN SPLAY	20	19.2	0.2	131.073	10.64	0.56	1.46	4.16	28.79	828.96	2.71
Total	221	221.9	0	225	8.29	0.56	1.69	3.94	24.59	604.73	2.97
All	1,240	924.3	0	225	2.49	0.11	0.34	1.01	12.54	157.31	5.03

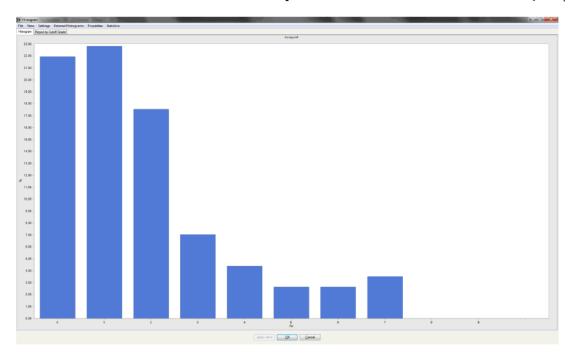


Figure 11: Histogram of composites within all vein zones.

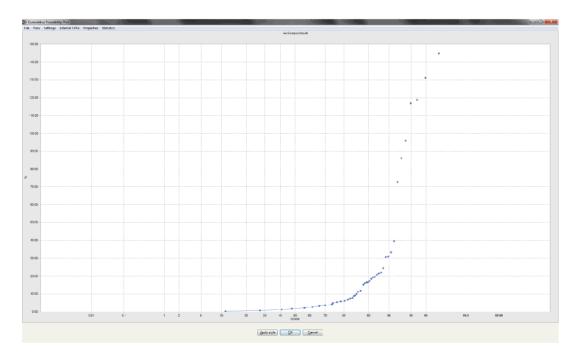


Figure 12: Probability plot for all vein composites.

#### 14.1.6 Au High Grade Outliers (capping)

It was decided, a posteriori, to limit the influence of high grade outliers. Six values were limited to 50 g/t as they were high in relation to the remaining population. The distance that was chosen for which to limit the influence of the outlier grades was 50 meters.

#### 14.1.7 Variography

Due to the relatively low number of data points and therefore pairs, variography offered little in the way of meaningful results. The ellipsoid direction for the estimation process was chosen to be 0 degrees azimuth and -80 degrees for the Trench and Main Splay veins and -75 degrees dip for the Main vein, as this is the predominant direction of the zone solids. It should be noted that the orientation of the ellipsoid defines the dominant strike and dip directions of the gold mineralization.

#### 14.1.8 **Block model**

The block model was constructed by matching assays to those within the corresponding zone solids model. The composite and model coding process is designed to set the priority to insure that all grade and volumes are accurately interpolated into the appropriate solid and insure that there is no overestimation of grade and tonnage or double counting within blocks that overlap geologic boundaries.

After the solids were completed, they were utilized to assign a numeric code into the intervals within the assay database so that they may be used for matching of geology back into the assays and subsequent composite database. This process entails first assigning a numeric code to the assays depending on whether the intervals fall within the particular geologic solid or not. The next step is to composite the drill holes within the zones to a maximum of 1 meter intervals, and then insuring the corresponding composite interval is contained within the geologic solid. At the transition boundaries, the composites are truncated and the remaining tails retained.

A necessary, parallel process involves assigning numeric codes based on the geology solid, back to the block model as described above. This step insures that the geology codes within the grade model are matched with the corresponding codes within the composite database. In addition to the numeric code, it is necessary to assign a percentage for the amount in which these geologic solid fall within the defined solid. This is primarily done for weighting the block model for the purpose of resource calculations.

The Herbert Glacier Resource Block Model used for calculating the resource was defined according to the following limits:

The block size chosen was 20 m x 2 m x 20 m oriented at east, north and elevation respectively, in an effort to adequately discretely define the vein solids so as not to inject an inordinate amount of internal dilution, to somewhat reflect drill hole spacing available and to characterize the vein solids with a reasonable number of discrete points.

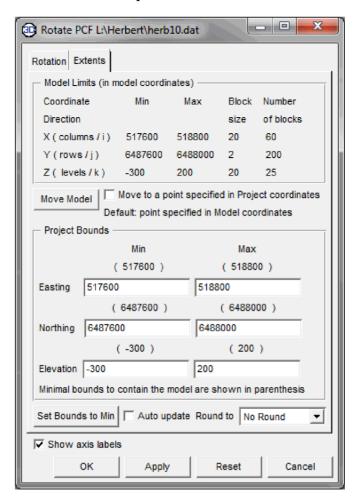


Figure 13: Block model definition – extents and dimensions

#### 14.1.9 **Interpolation Method**

For the grade modeling process, inverse distance to the second power was chosen as the method of interpolation. Correlograms and other variogram estimators were not used to obtain a spatial variability model that could be used in the estimation of the resources due to the relatively low number of pairs. For the purpose of validation, nearest neighbor modeling was employed. The MineSight<sup>TM</sup> Modeling System was used for the interpolation.

#### 14.1.10 Estimation Plans

A single pass strategy was employed to estimate the resource model. This entailed using a search ellipse distance of 150 m x 150 m x 50 m at an azimuth of 0 degrees and a dip of -80 degrees down from horizontal for the Trench and Main Splay veins and -75 degrees for the Main vein. A minimum of 2 composite and maximum of 15 composites were allowed for each block with a maximum 3 from any one drill hole.

Figure 14, Figure 15, and Figure 16 show long section views looking perpendicular to the zones at varying cut-off grades for the Trench, Main and Main Splay, respectively. In each case it is indicative of where the concentration of gold mineralization is focused, the trend of mineralization and areas that warrant additional investigation.

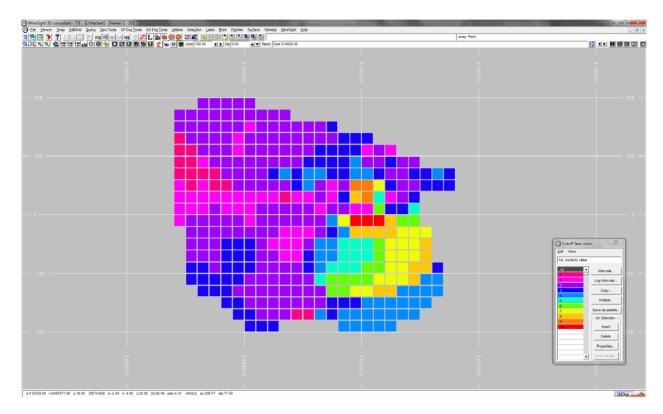


Figure 14: Long section view of resource blocks for Trench Vein

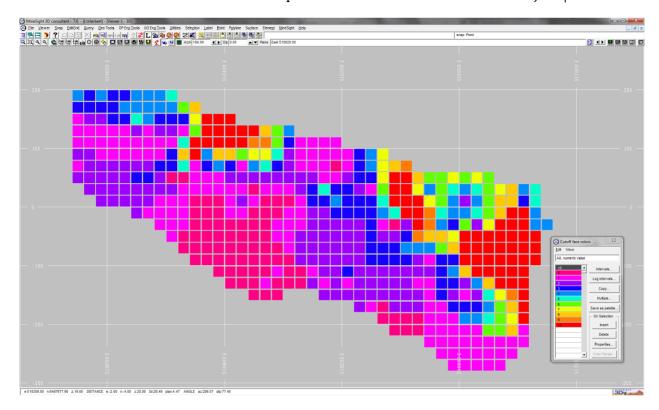


Figure 15: Long section view of resource blocks for Main Vein

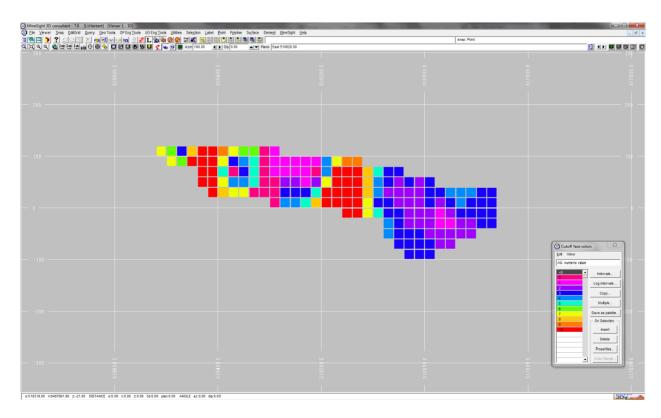


Figure 16: Long section view of resource blocks for Main Splay Vein.

#### 14.1.11 Validation of the Block Model

A graphical validation was done on the block model where cross sections and plans were used to check the block model on the computer screen, showing the block grades, the composite data and the topographic surface. No evidence of any block being wrongly estimated was found and it appears that every block grade examined can be explained as a function of the surrounding composites, the search strategy employed for modeling and the estimation plan applied.

#### 14.2 Reserve Statement

Drill data demonstrates the continuity of mineralization within the Trench and Main Veins and has been used to construct solid models enclosing mineralization. Further modeling within the enclosed solids results in a block model of possible mineralization distribution. The tabulation of all blocks at a 2 g/t Au cut-off is presented below (Table 8)

Table 8: Herbert Glacier resource estimate at 2 g/t Au cut-off

	TONNES	Au (g/t)	Au (oz)
TRENCH	957,373	4.052	124,721
MAIN	535,357	6.064	104,374
MAIN SPLAY	77,442	6.446	16,049
TOTAL	1,570,172	4.86	245,145

An alternative presentation lists the various estimated gold contents within the solid model at various cut-off grades (Table 9).

Table 9: Herbert Glacier resource estimate by cut-off grade and zone

ZONE	CUTOFF	TONNES	AU	OUNCES
Trench Vein	0.5	1,081,806	3.760	130,776
	1	1,058,120	3.825	130,124
	1.5	1,024,959	3.908	128,781
	2	957,373	4.052	124,721
	2.5	726,212	4.614	107,729
	3	533,142	5.291	90,692
	4	325,583	6.491	67,946
	5	188,544	7.904	47,913
Main Vein	0.5	799,384	4.467	114,805
	1	721,445	4.865	112,843
	1.5	596,610	5.622	107,838
	2	535,357	6.064	104,374
	2.5	446,466	6.822	97,924
	3	357,343	7.851	90,199
	4	236,942	10.075	76,750
	5	184,205	11.690	69,232
Main Vein Splay	0.5	87,774	5.850	16,509
	1	84,522	6.042	16,419
	1.5	82,479	6.165	16,348
	2	77,442	6.446	16,049
	2.5	72,142	6.759	15,677
	3	60,465	7.516	14,611
	4	37,085	10.104	12,047
	5	30,221	11.404	11,080
Totals	0.5	1,968,965	4.14	262,090
Totals			4.14	
	1.5	1,864,086		259,386
	2.5	1,704,048 <b>1,570,172</b>	4.62 <b>4.86</b>	252,967 <b>245,145</b>
	2.5	1,244,820	5.53	221,330
	2.5	950,949	6.39	195,502
	4	599,610	8.13	156,743
	5	402,970	9.90	128,225
	J	402,370	5.50	120,223

#### 14.3 Mineral Resource Classification

In accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Mineral Reserves, adopted by CIM Council, as amended, the classification of resources was determined to be inferred at this time.

Mineral resources that are not mineral reserves do not have demonstrated economic viability. The mineral resource estimates will be affected by environmental, permitting, taxation, socio-economic, marketing, political, metallurgical, mining, and infrastructure issues. These issues are mainly economic impacts that have not yet been examined so are not discussed in this report.

### 15 Mineral Reserve Estimates

There are no mineral reserve estimates for the property.

### 16 Mining Methods

Initial review of the veins and vein distribution at the project suggest long-hole sublevel stoping methods would be the most feasible means of mining the vein material at high enough production levels to sustain a minimum 250-750 tpd operation.

# 17 Recovery Methods

Beyond the information listed in Section 13, there is no additional information on test or operating results relating to the recoverability of gold or other commodities at the project.

### 18 Project Infrastructure

There have been no studies of required infrastructure and logistic requirements for the project.

#### 19 Market Studies and Contracts

At present the principal commodity of interest at the project is gold. Transportation and sale of gold is easily viable around the world and there are no specific markets or need of specific contracts for the

sale of the project's production. There have not been any specific studies or analyses completed by GPR on market studies, commodity price projections, product valuations, market entry strategies, or product specification requirements.

The authors are unaware of any contracts relating to GPR required for the Herbert Glacier property development, including mining, concentrating, smelting, refining, transportation, handling, sales and hedging, and forward sales contracts or arrangements.

# 20 Environmental Studies, Permitting and Social or Community **Impact**

There are no known studies of specific environmental, permitting and social or community factors related to the project.

# 21 Capital and Operating Costs

There are no known estimates of capital and operating costs for project development. However for the purposes of a minimum cut-off grade for the resource. YKPS estimated nominal mill operating costs for a 250 tonne per day mining operation using typical 250 tpd crushing and grinding plant configuration and associated connected horsepower, a gravity only recovery method (based on the metallurgical results from the Bureau of Mines metallurgical study by gravity recovery processes), current industry labor rates, and current fuel and power rates in Juneau.

Table 10: Gravity Mill operating cost estimates

#### **Gravity Mill Operating Cost Estimates**

14		A	nnual Cost		<u>Cost</u>
<u>ltem</u>			(US\$)	<u>(U</u>	<u>S\$/tonne)</u>
Mill Throughput	83,950 t	onnes	per year (25	O tpo	d @ 92%
	availabil	ity)			
Power		\$	482,705	\$	5.75
Labor		\$	2,388,881	\$	28.46
Grinding Media		\$	300,000	\$	3.57
Repair and Operating S	Supplies	\$	288,000	\$	3.43
Liners and Wear items		\$	250,000	\$	2.98
Water Supply		\$	50,000	\$	0.60
Paste Backfill Tailings	disposal	\$	456,250	\$	5.43
Equipment Op. Cost		\$	150,000	\$	1.79
20% Contingency		\$	873,167	\$	10.40
		Total	Cost/Tonne	\$	62.41
		Mir	ning Dilution		15%
			Recovery		88.8%
		Mil	I Cut-off g/t		1.90

### 22 Economic Analysis

No economic analysis of the project has been prepared to date.

### 23 Adjacent Properties

There are five active claim blocks in close proximity to the Herbert Glacier project area. Figure 1 depicts these claims in yellow with the Herbert Glacier project claims in red. The edge of the closest is a claim block centered on the Mitchell and McPherson prospect (Barnett and Miller, 2003 - JU096) located 1100 m to the northwest. The next claim block 5 km to the northwest includes the Eagle River/Amalga Mine (Barnett and Miller, 2003 - JU094). This currently inactive mine had a reported 30,000 feet of underground workings and a 20-stamp mill dating from the 1930's. To the south within a 6 km radius are two other small claim blocks. The shape and orientation of all the claim blocks suggest a strong NW-SE structural orientation and are consistent with the regional mineralized trend.

### 24 Other Relevant Data and Information

The authors are not aware of any other data that has material bearing on the Herbert Glacier property.

### 25 Interpretation and Conclusions

The Herbert Glacier project is located in the heart of the historic Juneau Gold District, SE Alaska. Mineralization at the property consists of mesothermal quartz-carbonate-gold-base metal veining and is typical to that seen throughout the district. Four principal veins have been named from south to north and are the Floyd, Trench, Main, and Goat veins. Minor veins include the North, Ridge and Lake. The principal veins strike N80E and dip steeply to the north. The cumulative strike length of all mapped veins at present is over 3,700 m. Drilling at the Herbert Glacier project has been used to define an inferred mineral resource along a portion of the Main and Trench veins representing approximately 30% of the total mapped strike length of veins on the property.

The authors conclude from observation and work completed to date that the Herbert Glacier project mineralization conforms to a model of orogenic-mesothermal gold mineralization and that such systems in Alaska have potential to develop economically recoverable resources. Work to date has made good progress in identifying mineralized continuity of the Main and Deep Trench veins along a strike length of 680 m and 410 m along strike respectively and down dip extents from 200 m (Main Vein) to 300 m (Deep Trench Vein). Based on surface mapping and topography there is a reasonable possibility that these veins extend along strike an additional 280 m on the Main Vein and 520 m on the Deep Trench Vein. No geological evidence has been found to limit the down dip extension of these veins. In addition the Goat vein offers a strong potential for additional resources and four more minor veins are largely un-drill tested. A mineral resource estimate has been calculated based on results from 65 diamond drill-core holes (9,386 meters of drilling) and 4 trenches (19.7 meters of

trenching) targeting part of the Main and Deep Trench veins, resulting in an inferred resource of 245,145 ounces of gold at an average grade of 4.86 g/t gold (1,570,172 tonnes) at a 2 g/t Au cut-off grade.

Preliminary resource estimates are strongly influenced by high-grade shoots along the veins. The best example to date is the zone encountered off the E-pad in 2011 where the Deep Trench vein dramatically thickens and grade increases. A second potential shoot may exist along the Main vein. The resource model is largely dependent on these high-grade zones and drill delineation of the downdip extensions and identification of additional shoots are a priority. The resource remains open in multiple directions along these defined veins in addition to there being several highly prospective structures spread over the property.

### 26 Recommendations

#### 26.1 Sampling and quality control program

In order to streamline data handling in the future, consideration must be addressed to the following.

#### 26.1.1 Analytical methods

For both 2010 and 2011 base metals and trace elements were analysed by ICP – AES (ALS prep code: ME-ICP61). This method uses a four acid dissolution method and is primarily designed as an exploration geochemistry analytical package. Project samples routinely have arsenic exceeding the maximum detection limits (>10,000 ppm) and it is suggested that the intermediate assay method (ME-ICP61a) be requested in the future to avoid over-assay results. Base metal and W values have so far been adequately analysed, but it is still recommended that the rare over-assayed Pb and Zn intervals continue to be re-assayed.

Gold assays initially in 2010 were by conventional fire assay techniques (ALS prep code: Au-ICP21), consisting of fire assay of a 30 g sample of the pulp with the pellet then dissolved in acid and "finished" by AES. This analytical method is typically used for exploration projects. Later in the 2010 season, 34 samples with anomalous gold values were check assayed using the metallic screen method (ALS prep code: Au-SCR21). In 2011 metallic screen assays have been used for all submitted samples.

It is recommended that a standard assay protocol be developed. It is demonstrably better to use a metallic screen assay technique for high-grade gold samples from Herbert Glacier. There is reasonable question as to whether this additional expense is required for all lower grade samples, and it possible to construct an assay protocol that only initially requests metallic screen analysis on samples that contain visible gold noted in logging but that instructs the lab to automatically re-assay via metallic screens any sample returning conventional assay values in excess of 2 ppm. In this protocol the suggested sequence would be to request all Au assay sample sizes be increased from 30 g to 50 g. Any post-fire assay finish (AES or gravimetric) would be sufficient as long as the m.d.l. is better than 50 ppb. Any samples returning Au values greater than 2 ppm would automatically be reanalysed using metallic screen methods.

#### 26.1.2 Standards, duplicates and blanks

#### Standards

A set of standards must be introduced into the sampling program. Typical industry protocols require 5% of the samples to be a known standard. Standard pulps appropriate to the ore grade values observed at the project must be acquired before the start of the next drill program. At least three different standard concentrations should be purchased and used; a low grade sample around 1 ppm Au, and an intermediate grade around 5 ppm and a higher grade standard around 10 ppm Au. Standards should also approximate base metal and Ag values common to the study area if possible but also be beneath the maximum detection limits of the method used. Although higher gold grades are present at the project area, there is little reason to request a similar high-grade standard because the standards are manufactured to have a uniform gold concentration. In nature and specifically at the project area, the high gold grade results from a highly irregular distribution of gold within a sample (the nugget effect). A metallic screen assay is used not because it is better designed to measure high gold concentrations but to minimize the nugget effect with a large sample size and the recovery of coarse gold from the + size fraction. There is little benefit to comparing an artificial high-grade standard with the metallic screen assay results because they are measuring separate parameters.

#### Duplicates, Replicates and Check Assays

This report recommends duplicate, and check assays as a part of the QA/QC protocol. However, because of the strong presence of visible gold and local extremely high grade intervals, these analyses may be problematical because of the nugget effect. To minimize this, the conventional approach is to use as large a sample size as possible to normalize for the erratic distribution of gold within the sample. Assay results from both 2010 and 2011 used the metallic screen method, which consists of a one kg (1000 g) + size fraction is entirely fire assayed and combined with the results of the – size fraction. This assay method is very useful for the Herbert Glacier project because it effectively measures the contribution from coarse gold that is significantly under-reported in conventional 30 or 50 g assay techniques. In order to duplicate a metallic screen assay analysis there must be at least 2 kg of starting material.

In summary duplicate analyses should consist of at least two sorts at this project: a) a set of intralaboratory duplicates of metallic screen analyses and conventional (200 g) pulps b) a set of interlaboratory duplicates of conventional (200 g) pulps. It is recommended that metallic screen duplicates be selected after the results are received such that all high-grade samples (> 1 opt Au) are re-run. At least 5% of the non-metallic screen assay results should be duplicated. Because of the large sample size required for the metallic screen analysis, replicate samples (consisting of quartered core) are not recommended for this project.

It is recommended that immediate attention be given at the end of the field season and after all outstanding assay results have been received to select approximately 10% of the samples for re-assay at an umpire lab for a second round of assay analysis.. The authors' experience with trying to identify 2010 samples at the end of 2011 was that these samples had been disposed of by the lab. Consequently immediate identification of selected samples for proper QA/QC is the best solution to this problem.

#### **Blanks**

Blanks must be used regularly in the sample stream primarily as a check that the assay lab is not crosscontaminating samples during the sample prep process. This occurs because gold from high-grade gold samples can be smeared on to the crushing plates and if not properly cleaned can transfer to the next sample. The best check against this is to always start a sequence of samples prepared by the lab with a blank sample and to run blanks after samples with known visible gold. The authors recommend completing a pass/fail analysis of the results whereby coarse blank material should not exceed three times the detection limit for gold.

The sampling program used at Herbert Glacier in 2010 and 2011 does use blanks, but these blank samples are intervals of "visibly barren core" skeletonized from other project drill core and submitted as blanks at the beginning and end of a sample submittal. The greatest problem with this method is that if a non-blank assay value is returned there is no definitive way to know whether the selected core had unrecognized mineralization or if the assay lab had contamination problems. It is recommended that a uniform project blank material be selected. Typically a bulk supply of dimension stone can be used.

#### 26.1.3 Sample numbering and labelling

The sample numbering system used in 2010 and 2011 was confusing with sample numbers being semi-randomized down the drill hole. For example, a sequence of three adjacent samples numbers down DH 11-E1 starting at 105.52 to 109.25 m was 56161, 56151 and 56165. The rational, as explained, was for security purposes such that an outside observer (presumably the assay lab) could not intuit continuity of mineralization. It is the authors' opinion that this causes more problems that solutions and should not be continued. A numerical sequence of samples for each drill hole permits an easier method to organize blanks, standards and duplicates – typically this is done through preselecting in a sample booklet a minimum number of each quality control samples. Secondly, an order sequence of samples allows better control and instructions to the assay lab to analyse the samples in a specified sequence. This is important because you will want to know the sequence the samples are prepped and analysed such that the potential effects from high-grade samples can be documented. While of course it is possible to specify the order using a non-sequential list of sample numbers, it is far less prone to errors if the samples are run in a numerical sequence.

Sample numbering within the core boxes also should be modified. At present the sample number for an interval is written on flagging and placed in the core box adjacent to the cut core. There are no indications of where a sample starts and stops. Because a semi-random number sequence is used, it is next to impossible to intuit where a sample begins or ends, or if there is an error in sample labelling.

The authors' recommend that sample labelling be changed going forward to include:

- a) Blocks or labelling in the core box showing the start and end of each sample interval including the measured depth at that point.
- b) Because wax paper core boxes are being used, to staple sample tags adjacent to the sample interval such to avoid the possibility that sample numbers are moved from the appropriate position in the core box.
- c) That when the core is photographed that the sample numbers, the starting and end footage measurements be clearly visible in the photograph.

Typically assay labs will issue sample booklets at the start of the field season with pre-numbered sample tags. A routine that methodically attaches the tags to the core with tear sheets that go into a sample bag as the core is cut can minimize sampling errors.

#### 26.1.4 Additional sampling recommendations

Because the sample preparation facility is in a quasi-public area, additional safeguards should be implemented to insure security of samples prior to shipping. An effective and inexpensive method would be to use a method of security seals on sample shipments. While these will not prevent loss of samples they will prevent against sample tampering.

Another cost effective technique is to record the sample weights prior to shipping to the assay lab. While the assay lab performs this same service to the samples upon arrival, having an independent

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check on the sample weight can allow recognition of swapped samples by the lab, or identification of missing or improperly labelled sample bags.

#### 26.1.5 Core photographs

During the construction of the resource model, frequent use of the core photographs is needed to visually check for the location of boundaries between mineralized and un-mineralized core. This uncovered numerous deficiencies with the existing core photographs and the following recommendations are suggested. Core boxed must be photographed in a standard manner, with consistent lighting, after sample tags have been added to the core, but before the core is cut for assay purposes. One method is to construct a core photography stand that insures a uniform camera placement. It is important that photographs allow future geologists to clearly read sample numbers, starting and ending depth values, the drill-hole name, core box number and depths.

#### 26.1.6 Sample intervals

While it is easy to distinguish between fresh, unaltered host rock and the mineralized veins, there is a tendency to sample only the latter material. This leads to small intervals of sampled core, sometimes separated from the next interval by small un-sampled intervals. This becomes problematic when trying to define mining widths and in compositing analyses. Therefore samples should extend at least two 1.5 m sample intervals beyond the edge of mineralization. Furthermore if two sampled intervals are less than 5 meters apart, that intervening interval should also be sampled. For example the existing sampling on DDH 11E-3 continuously sampled from 191.32 to 210.76 m. A sample break of 1.55 m was left and sampling restarted from 212.31 and continued to 229.62. Regardless of the material, this 1.55 m interval should have been sampled. Another example comes from DDH 11I-1, which ended in metasedimentary rocks with abundant quartz veining that was never sampled. Unfortunately this zone passes though the trend of the Deep Trench Vein and knowledge of these assays are vital for effective construction of the resource model.

#### 26.1.7 Down-hole surveys

A critical part of the resource modeling and possible mine planning will require precise knowledge of where small, but high-grade intervals of mineralized rock are located. The current method of collar surveys is adequate but the accompanying down-hole surveys are equally important and deserves similar care. The geologist should be insistent that the highest quality data is returned before the hole is terminated to verify the instrument is working and the data quality acceptable. Some consideration should be made to specifying in the drilling contract responsibility for the rental and use of a working instrument with minimum acceptable limits for drill-hole deviations.

#### 26.1.8 Specific Gravity Measurements

A program to measure mineralized, altered and unaltered wallrock specific gravity should be started. A set of measurements should be collected from each hole across zones of mineralization using existing core samples. To this goal, the project should acquire an appropriate scale, beaker and suspension basket together with a set of known standards. A sampling protocol that records regular calibration together with sample measurements is required.

#### 26.2 Exploration program

Exploration at Herbert Glacier is still at an early stage and much of the existing land package remains untested. The drill data to date shows the Main Vein and the Deep Trench Vein can be traced along a strike length of 680 m and 410 m respectively, albeit with variable grades. One drill hole successfully intersected the Goat Vein to the north and mapping indicates at least two undrilled veins; the Floyd and North veins. Drilling is an expensive but necessary method to test for subsurface continuity but some consideration should be given to quickly locating areas of high-grade mineralization.

Two recommendations are made to improve the effectiveness of the upcoming exploration program concerning trenching and drilling is discussed below.

#### 26.2.1 Trenching

There is some indication that careful surface trench data can provide a lower cost method for drill target selection. In 2011 four small trenches were cut across the Deep Trench Vein south of drill Pad E and perhaps fortuitously on that portion of the vein with the best drill intercepts vet recorded on the property. During the property examination these trenches were examined and consisted of a channel cut with a portable rock saw and produced a high-quality sample. Because of the excellent exposure and minimum of vegetation, a precise and consistent sample could be collected across the vein. Although more labor intensive these samples avoid the problem of rock chip sampling because they avoid the sampling bias of the individual geologist and provide a more consistent, high-quality sample comparable to drill core yet at a fraction of the price.

It is recommended that where possible trench sampling is collected across all exposed veins within the resource area. Priority should be given first to veins adjacent to the existing drill pads. Trenches should be spaced no more than 25 meters along strike and aim to consistently collect samples perpendicular to the strike of the vein-zone. It is important that trenches start at the edge of the mineralized structures and traverse across the whole zone and not simply focus on cutting exposed quartz veins. Trench lengths 10-15 m long are to be planned for.

Trenches should be first flagged and clearly marked by the geologist prior to cutting by a contractor who should not sample the trenches. Sampling should only be by a geologist who will also be responsible for logging the trench. Sampling should include similar sampling protocol of blanks, standards and duplicates applied to drill core. Mapping should be similar to drill core but include special attention to structural measurements. Trenches should be photographed before and after sampling, and should indicate sample breaks in the photographs. Additionally, sample breaks should be permanently marked with a concrete nail or red-head and an aluminum marking tag. Starting locations should be recorded with a GPS and a tape measure and inclinometer to record the sample breaks down the trench.

The objective of the exercise will be to test along strike variations in grade of individual veins and to compare with subsurface drill intercepts. If it can be demonstrated that surface grade variations of exposed veins broadly correlate with subsurface shoots, then this technique will provide an effective and efficient method to improve drill targeting in the rest of the project area.

#### 26.2.2 Rock chip sampling

It is recognized that trenching, as described above, is a significant investment in time and man-power. The purpose of trenching is justified if the data can be incorporated into resource modeling, and as such trenching in areas that will or already have drilling on down-dip extensions of veins is always useful. However there is still room for rock chip sampling as a first past exploration technique primarily as a means to identify veins with anomalously high Au values. Drill targeting will be greatly aided by a program of methodical rock chip sampling over surface vein exposures. Careful attention should be given to expand beyond the existing coverage along strike of the Main, Deep Trench, Goat, North, Lake and Ridge veins. Coverage along the Floyd vein at present only consists of three samples and should be greatly expanded.

This sampling should be given priority at the beginning of the field season such that if particularly encouraging results are returned there will be sufficient time to test the down dip values with drilling.

#### 26.2.3 Drilling

A drill spacing study was performed as part of this review to determine optimum drill hole spacing for the variability of the mineralization on the project. The spatial variability in the variogram and the drill hole composited sample data was used to estimate confidence intervals (or reliability) of estimation for different volumes at different drill hole spacing. For this project drill hole spacing grids of 100 x 100 m, 50 x 50 m and 25 x 25 m were tested. The following assumptions were made for the confidence interval calculations:

- The variograms are appropriate representations of the spatial variability for presence of mineralization and metal grade.
- The bulk density for the domains is 2.65 tonnes/m<sup>3</sup>.
- Most of the uncertainty in metal production within veins is due to the fluctuation of metal grades and not to variation in the presence or absence of the unit.
- A capping grade of around 30 g/t will be applied to future resource estimates.
- The possible production rate is 250 tpd.

Confidence limits for gold metal production are shown in Figure 17. The curves show a graphical representation of how the uncertainty decreases with closer drill hole spacing. Based on the current information, it appears that sampling on a 50 m grid will produce uncertainty for the year around ±25% and at 25 m uncertainty is around  $\pm 20\%$  at the 250 tpd production rate.

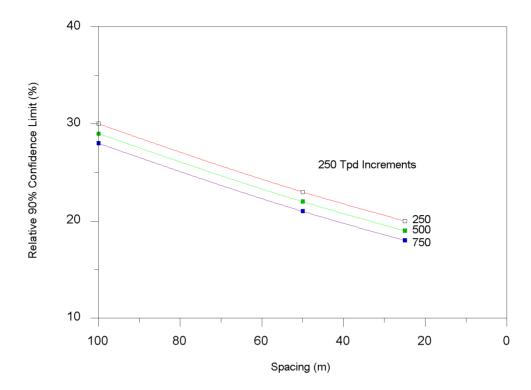


Figure 17. Gold grade estimation uncertainty by drill hole spacing on annual production basis.

Based on the results of this drill hole spacing study we recommend that a drill spacing of around 25 m may be sufficient in delineating indicated resources at 250 tpd. The calculation of uncertainty should be monitored as drilling progresses.

The greatest difficulty with the obtaining effective sample assays is the nugget-rich nature of gold observed at the project area. Assays as high as 12 opt have been reported and visible gold can be observed in some drill core. Typically the solution to this type of grade distribution problem is to increase the sample size. To this regard consideration should be given to increasing the core diameter from NQ to H sized core. Alternatively it is not recommended to use core smaller than NQ.

#### 26.3 Budget

A suggested budget for a field season running from the beginning of July to mid-October using a single drill and sufficient crew is presented. The basis for this budget is an exploration program designed to test for continuity adjacent to the highest-grade regions along the Main and Trench veins and to upgrade these areas into the indicated resource category. In addition a fraction of the budget is allocated towards expanding the strike-length along the Deep Trench, Main and Goat veins and increasing the inferred resource estimate.

Results of the drill spacing study indicate that the nominal drill hole spacing for upgrading of the inferred to indicated resource category is 25 m. Using this spacing the authors have designed drill holes that pierce the vein solid models within the highest-grade mineralization on the Main and Deep Trench veins. Total combined meterage is as tabulated below.

Table 11: Proposed drill meterage budget

Drilling	Meters
Trench Vein	6,848
Main Vein	5,431
Exploration Drilling	2,945
Total Drilling	15,355

The collar coordinates for these holes were recommended to be incorporated into future permitting requests to the appropriate regulatory authorities, and the total meterage of drilling calculated forms the basis of this budget.

Using the cost estimates provided from the 2010 and 2011 seasons, signed contracts for the 2012 season and estimates of remaining anticipated expenses a budget was calculated with the details provided below.

Table 12: Proposed 2012 exploration budget

ltem	Estimate
Helicopters	\$307,320
Drilling and trenching	\$1,997,389
Geological and support staff	\$91,500
Lodging	\$50,000
Laboratory	\$118,690
Travel and shipping	\$60,000
Reports	\$75,000
10% contingency	\$269,990
Total	\$2,969,889

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# 28 Date and signature page

The effective date of this technical report, entitled "Tec Gold Project, southeast Alaska" is May 28, 2012. Dated: May 28, 2012	hnical Report on the Herbert Glacier
Signed:	
<u>(signed) <i>Nicholas Van Wyck</i></u> Dr. Nicholas Van Wyck, CPG #10553	[sealed CPG#10553]
Signed:	
<u>(signed) <i>William Burnett</i></u> William Burnett, CPG #11263	[sealed CPG#11263]

# 29 Certificate of Qualifications

- I, Nicholas Van Wyck Ph.D., do hereby certify that:
- 1. I have graduated from the following Universities with degrees as follows:
  - a. Tufts University, B.S. Geology 1985
  - b. University of Wisconsin Madison, M.S. Geology 1989
  - c. University of Wisconsin Madison, Ph. D. Geology 1994
- 2. I am a member in good standing of the following professional associations:
  - a. Society of Economic Geologists
  - b. American Institute of Professional Geologists
- 3. I have worked as a geologist for 26 years since my graduation from Tufts University.
- 4. I am a Certified Professional Geologist (AIPG #10553).
- 5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with professional associations and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-
- 6. I am co-author of this report and am jointly responsible for the preparation of the report titled Technical Report on the Herbert Glacier Gold Project, Southeast Alaska and dated May 28, 2012 (the "Technical Report") relating to the Herbert Glacier property. I visited the Herbert Glacier property October 24-25, 2011, where I involved in the geologic evaluation of the property.
- 7. I have not had prior involvement with the property that is the subject of the Technical Report.
- 8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
- 9. I am independent of the issuer applying all of the tests in section 1.4 of National Instrument 43-101.
- 10. I have read National Instrument 43-101 and Form 101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, or the Technical Report.

Dated this May 28, 2012

Signature of Qualified Person

Nicholas Van Wyck Ph.D., CPG

### **CERTIFICATE OF QUALIFIED PERSON**

- I, William J. Burnett, MSc., do hereby certify that:
- 1) I am a certified Professional Geologist (AIPG #11263), and General Manager of Yukuskokon Professional Services, LLC.
- 2) I reside at 3101 Sakai Loop, Wasilla, AK 99687, USA.
- 3) The technical report to which this certificate applies is entitled "Technical Report on the Herbert Glacier Gold Project, Southeast Alaska", and bears an effective date of May 28, 2012 (the "Report"). I am co-author of this report and am jointly responsible for the preparation of the report.
- 4) I graduated with a Bachelor of Science degree in Geology from Fort Lewis College (1992) and a Master of Science degree in Geology from Colorado State University (1994).
- 5) I am a licensed geologist (No. 624) in the State of Alaska. I have worked in Mexico, Canada, and the United States.
- 6) I have practiced my profession continuously since June 1993 and have been involved in exploration and/or mining and/or evaluation on a variety of mineral deposit types, including Carlin-type epithermal gold deposits, alkali-hosted epithermal gold and porphyry copper deposits, Cu-Au Skarn deposits, massive sulfide-gold deposits, Orogenic gold deposits, and low sulfidation epithermal gold deposits.
- 7) My experience and qualifications meet the requirements to be a "qualified person" as defined in National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101").
- 8) I visited the Herbert Glacier property October 24-25, 2011, where I involved in the geologic evaluation of the property.
- 9) I am independent of the issuer in accordance with Section 1.4 of NI 43-101.
- 10) I am independent of the property and the property vendor in accordance with Section 3.2 of the TSX Venture Appendix 3F, Mining Standard and Guidelines.
- 11) I have read NI 43-101 and Form 43-101F1 and Companion Policy 43-101CP, and the Report has been prepared in compliance with that instrument and form.
- 12) To the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Dated at Wasilla, Alaska this 28<sup>th</sup> day of May, 2012

William J. Burnett, MSc., CPG

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#### CONSENT OF AUTHOR

TO: Grand Portage Resources (the "Issuer")

AND TO: Ontario Securities Commission

Alberta Securities Commission

**British Columbia Securities Commission** 

Saskatchewan Securities Commission

Manitoba Securities Commission

Nova Scotia Securities Commission

Prince Edward Island Securities Office

New Brunswick Securities Commission

Securities Commission of Newfoundland and Labrador

(collectively, the "Commissions")

AND TO:

The Toronto Stock Exchange (the "TSX")

RE:

Technical Report

I, Nicholas Van Wyck Ph.D., do hereby consent to the filing of the written disclosure of the technical report titled Technical Report on the Herbert Glacier Gold Project, Southeast Alaska and dated May 28, 2012 (the "Technical Report") and any extracts from or a summary of the Technical Report in the reporting documents of Grand Portage Resources and to the filing of the Technical Report with the securities regulatory authorities referred to above. I also certify that I have read the written disclosure being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or that the written disclosure in the report contains any misrepresentation of the information contained in the Technical Report.

Dated this May 28, 2012

Signature of Qualified Person

Nicholas Van Wyck Ph.D., CPG

#### TO: Grand Portage Resources (the "Issuer")

AND TO: Ontario Securities Commission

**CONSENT OF AUTHOR** 

Alberta Securities Commission

**British Columbia Securities Commission** 

Saskatchewan Securities Commission

Manitoba Securities Commission

Nova Scotia Securities Commission

Prince Edward Island Securities Office

New Brunswick Securities Commission

Securities Commission of Newfoundland and Labrador

(collectively, the "Commissions")

AND TO:

The Toronto Stock Exchange (the "TSX")

RE:

Technical Report

I, William J. Burnett, do hereby consent to the filing of the written disclosure of the technical report titled Technical Report on the Herbert Glacier Gold Project, Southeast Alaska and dated May 28, 2012 (the "Technical Report") and any extracts from or a summary of the Technical Report in the reporting documents of Grand Portage Resources and to the filing of the Technical Report with the securities regulatory authorities referred to above. I also certify that I have read the written disclosure being filed and I do not have any reason to believe that there are any misrepresentations in the information derived from the Technical Report or that the written disclosure in the report contains any misrepresentation of the information contained in the Technical Report.

Dated this May 28, 2012

William J. Burnett, MSc., CPG