TECHNICAL REPORT ON THE
ARROWSTAR RESOURCES LIMITED
PORT SNETTISHAM IRON ORE PROPERTY
JUNEAU REGION, ALASKA USA

By
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SUMMARY

1. Overview

Arrowstar Resources Limited (Code TSXv:AWS) has retained Alex Burton, Principal of Burton Consulting Inc to prepare an independent National Instrument 43-101F1 (“NI 43-101F1”) compliant Property of Merit Technical Report. This review of the Port Snettisham, Alaska property is in support of a proposed capital raising by the Company to enable it to drill 9 diamond drill holes, to a depth of upto 500 metres and if successful raise further capital or debt to plan and implement further exploration and design and feasibility of an iron ore fines mine.

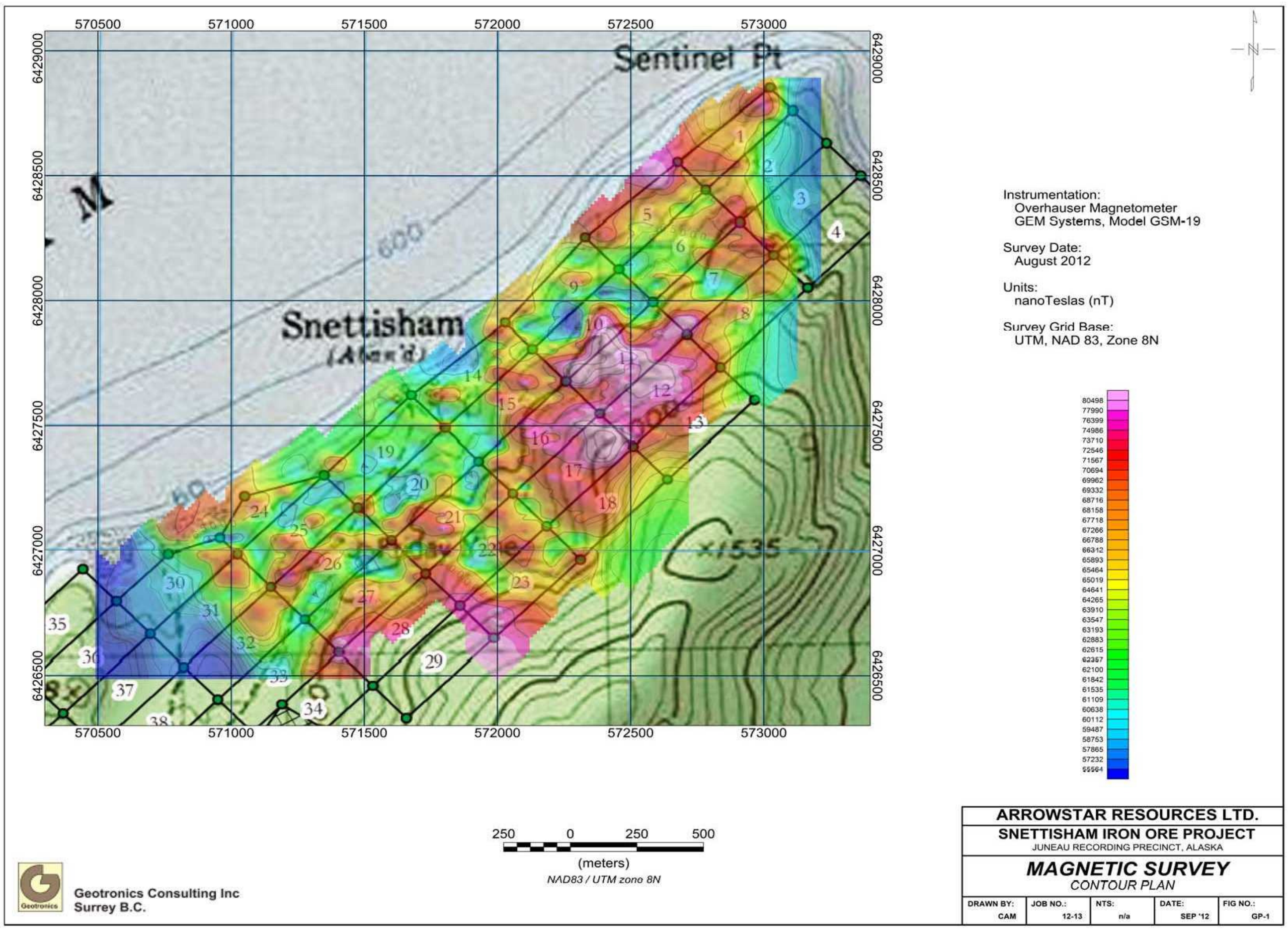


Figure 1 2012 Ground Magnetic Survey

The above ground magnetic survey was completed in October 2012 by Geotronics Consulting Inc., and shows magnetic highs of 77,000 nano teslas on claims 16, 17 and 10, 11 and 12. The shoreline magnetite scree and outcrop correlate closely with the magnetic high in claim 5. Some samples tested showed Fe values of 58%. Note the appearance of the southern second magnetic anomaly at claim 29.

The Port Snettisham Iron ore deposit was first identified in the late 1800’s when mariners sailing up Steven’s passage and down to Gilbert’s Inlet past Sentinel Point noticed their compass needles swinging for no apparent reason. This was due to the magnetic field being exerted in the area from the magnetic (Magnetite) rocks that are present. Gold miners explored the peninsula in 1890 and located small veins of gold and operated the Crystal Mine and Friday mines. They also noticed several intrusions displaying ultramafic rocks called pyroxenites that had magnetite crystals forming dykes and intrusions.

The presence of magnetite has been validated by Geologists visiting the site over the years including Mr. Burton on July 10, 2012 over three days and from chemical analysis and magnetic studies done Arrowstar Resources and others. The depth of the channel adjacent to the deposit is more than 30 metres deep, and just 7 metres from the shore line making it suitable for cape and panamax ships to dock or be transloaded. A transhipment barge system or a floating conveyor system has been proposed to load ships as the distance to the ship loading hold at the high tide mark is approximately 10 metres.

On 10 July 2012 Mr. Burton and representatives from Arrowstar visited the property and collected 105 samples from shoreline scree and outcrop that were analysed by Inspectorate Laboratories in Vancouver. A summary of the results is as follows:

SUMMARY OF PORT SNETTISHAM CHEMICAL ANALYSIS OF 105 SAMPLES

							Snettisham Samples % Chemical Analysis								
	Fe	S	P	SiO2	Al2O3	TiO2	V2O5	K2O	Na2O	CaO	MgO	Mn	Ni	Cu	LOI
Min	9.99	0.00	0.00	1.71	1.24	0.34	0.03	0.01	0.02	0.66	3.87	0.11	0.00	0.00	0.00
Max	58.35	0.41	2.10	44.06	10.15	6.53	0.57	1.77	1.77	20.65	32.30	0.40	0.05	0.03	10.73
Avg	21.28	0.03	0.41	32.46	5.20	2.55	0.18	0.39	0.27	12.96	13.52	0.18	0.01	0.01	1.33
Std Dev	9.24	0.08	0.53	7.72	1.99	1.28	0.11	0.43	0.27	5.76	7.21	0.06	0.01	0.01	2.59

Table 1: Summary of 105 samples from Port Snettisham

The above represents 105 samples taken along the beach. The Inspectorate job number was 12-360-07939-01. The table above shows the maximum, minimum, average and standard deviation of the samples collected.

The above analysis demonstrates that the average Fe value, phosphate, sulphur, and silica values are acceptable for an iron ore fines product even prior to processing. The titanium values are less than 7% which is the usual cut-off for a titano-magnetite product. High value titanium magnetite needs to be in excess of 15% TiO_2 to have a separate economic benefit for steel mills. This view has been confirmed by Phil Thomas, VP Exploration at Arrowstar Resources. There are many types of smelting systems to manage and take benefit of high titanium iron ores. The KOBM (Klockner Oxygen Blown Maxhutte) process is a rotary kiln blast furnace is one used inextensively in Australasia.

The vanadium component is also very high in relative terms. Titaniferous magnetite deposits are magmatic accumulations of magnetite and ilmenite. They commonly contain 0.2 to 1 percent V_20,, most of which is concentrated in the magnetite, and they have become the world's principal source of vanadium.

Fischer, RP, Vanadium Resources in Titanifierous Magnetite Deposits, 1975 explains:

> "Titaniferous magnetite deposits are magmatic accumulations of magnetite and ilmenite. They commonly contain 0.2 to 1 percent V_20_5 most of which is concentrated in the magnetite, and they have become the world's principal source of vanadium.
>
> These deposits are mostly associated with mafic igneous rocks that occur in thick stratiform sheets or complex intrusive bodies of deep-seated origin. The ore minerals crystallized with the rock-forming minerals from the magma, and they commonly occur disseminated in large masses of rock or segregated in extensive layers; some bodies of magnetite and ilmenite occur as plugs or dikes that were injected as solutions or melts into these forms. The deposits vary widely in size; some are very large.
>
> Vanadium can be recovered from titaniferous magnetite ore by either of two processes: (1) precipitating a vanadium salt from a leach of ore roasted with salt, or (2) precipitation from a leach of salt-roasted vanadium-rich slag obtained by smelting the ore to make a vanadium-bearing pig iron, which is then blown in a converter to make the vanadium-rich slag. About 75 percent of the world's supply of vanadium was derived from titaniferous magnetite deposits in 1970; virtually no vanadium was obtained from this raw-material source before the 1950's. The vanadium in known titaniferous magnetite deposits represents several thousands of years supply at the current rate of world consumption, about 25,000 short tons of vanadium yearly."

Nearly all of the world's vanadium is derived from mined ore as either direct mineral concentrates, usually vanadium- and titanium-rich magnetite, or as a by-product of steel-making slags. The United States Geological Survey (USGS) estimates that almost 70% of annual supply is recovered from slags and about 30% directly mined. New design codes in China in 2012 aim to restrict the use of lower strength reinforcing bars and government directives require the production of high vanadium content alternatives. This has the potential to increase China's vanadium intensity usage rate, which currently lags those of developed countries such as the USA. According to the United States Geological Society (USGS), in 2009, the annual worldwide production and reserves of vanadium was approximately 63 million tonnes (vanadium metal) which equates to 112,000 tonnes of V2O5.

A significant amount of work including drilling was done by the USG Survey (then the US Dept of Interior, Bureau of Mines) from 1950 to 1956 and also by Marcona Corporation in 1969 completed drilling program and feasibility study for production with Marubeni Corporation. These and other reports will be discussed in the History section 4 of this report.

The Arrowstar drill locations have been positioned so that the areas with the highest magnetic susceptibility will be targetted and this computer generated dumbbell surface shape will be drilled to a depth of 500 metres to ensure the drill holes intersect the body. Modelling of the drill hole data acquired by the USGS in the 1950's and their magnetic survey has given some approximate values on what the body might look like and the depth that the magnetite occurs. Magnetic signals from the magnetic survey were entered into a computer model and the result was a computer generated "inversion" model of the values collected. The reader should not assume the iron ore body looks like the magnetic inversion model. 3D inversion modelling—which generates full 3D models in an automated environment—is an advance over the more traditional 2D forward modelling. The technique transforms observed magnetic data into a 3D model populated by a mesh of cells carrying density or magnetic susceptibility values. The process is iterative, with adjustments being made to a starting model in order to minimise any misfit between observed and computed data. The final models, containing the magnetic susceptibility values, reproduce the magnetic field to within a small degree of system error.

The current exploration program has reached an advanced stage – Arrowstar has completed putting all the available drill hole data into a database, the ground magnetic survey has been completed and modelled, geochemistry of a large number of samples has been analysed and Davis Tube separation and PerMr.oll and Sala benefication tests completed on a large number of samples. A drilling permit has been lodged with the Department of Mineral Resources in Alaska and also land use permit with the National Forestry Service (Bureau of Land Management) in Juneau.

The sources of data including the literature review and notes from Mr. Burton's trip are included in this report. In our report to Arrowstar Resources, Burton Consulting Inc. ("BCI") detailed observations of both outcrop in the foreshore area and took 105 samples of outcrop, and had them analysed. Mr. Burton also observed approximately 30,000 feet of core in the disused Marcona Core Shack.

Mr. Thomas has personally inspected every drill hole site and taken the GPS co-ordinates and checked that a drilling platform can be constructed for the forthcoming diamond drill program.

1.1 Reliance on other experts

In this report BCI have not tested any of the data presented for its reliability and accuracy. The data presented in this report goes back to the 1950's and the authors are either not contactable or the data has been lost. In particular the drill hole data and locations from Marcona Corporation and the feasibility study conducted by Marcona/Marubeni Corporation has not been located. Only the drill cores have been located and surveyed with a KT-10 magnetic susceptibility meter. Phillip Thomas, VP Exploration Arrowstar Resources, who is a qualified person as defined by National Instrument 43-101 has assisted in the preparation of this report and any of Mr. Thomas's data or conclusions is referenced to him. Mr. Thomas has been active in iron ore for the past 10 years exploring and operating iron ore mines in Chile and Mexico. He is a member of the Australian Institute of Geoscientists.

1.2 Terms of Reference

At the request of Arrowstar Resources, Burton Consulting Inc was retained to provide an independent review and summary of the previous exploration and historical resource estimates for the Port Snettisham Iron property located in Stephen's passage near Juneau Alaska. This report presents a review of the historical and more recent work completed and offers an opinion as to whether the property merits further exploration expenditures. The report does not constitute an audit of any previously estimated mineral resources on the Port Snettisham Iron property.

The geological setting of the property, mineralization style and occurrences, and exploration history were described in various reports that were prepared during the 1950's as well as in various government and other publications listed in Section 0 "References" of this report. The relevant sections of those reports are reproduced or quoted herein where appropriate.

Arrowstar Resources ("Company") has performed exploration and analysis work on the property in 2012 and 2013. Geophysical studies were completed over the iron formation by Geotronics Consulting Ltd ("Geotronics") of Vancouver doing a ground magnetic survey covering more than 259 hectares (617 acres) out of a total claim size of 980 hectares with 1,400 line kilometres walked. The Company is in the process of applying for a drilling exploration permit and has received from the Department Of Forestry representing the Bureau of Land Management ("BLM") a certificate dated 8 May 2013 that an application has been submitted. An application to drill was submitted to Department of Natural Resources in 0n 8 March 2013 and this was passed on to six other agencies.

Confirmation that the application met the required standards and accepted was received. On May 7, 2013, an inspection of the drill site was undertaken by the diamond drill team and Arrowstar's VP Exploration team. Nine drill locations were identified and the disturbance to the surrounding area, if any, quantified in terms of soil removal and trees that need to be removed. Sufficient lead time is required for logistics to be completed for fuel, equipment and supplies that must be shipped to site at the start of the field season. Lead time is also required for the application to the State and Federal governments for permitting approvals for exploration activities. Approval from Washington D.C. to remove the trees is currently being processed.

In this report all currency amounts are stated in Canadian dollars with commodity prices typically expressed in US dollars. Quantities are generally stated in SI units, the standard practice within Canada, including metric tonnes (t) and kilograms (kg) for weight, kilometres (km) or metres (m) for distance, and hectares (ha) for area. Where applicable, imperial units have been converted to SI units, the standard Canadian and international practice.

During Mr. Burton's visit to the site from July 10, 2012 through July 14, 2012, a small amount of drill core was collected but most Marcona drill core remains at the property in a core shack. Mr. Burton observed there were two core sizes NQ and BQ. This may have been from two separate campaigns. There is very clear access from the core shack up to an open area where there are empty fuel cans. A possible explanation is that they found the second magnetic anomaly identified in the geophysics and drilled it. While on site, Mr. Burton examined various iron formation outcrops, and float that is easily accessible on the foreshore. There is very little outcrop on the site as it is covered by thick lichen, decaying forest and up to 2 metres of soil. The streams are small but numerous in almost every gully.

BCI has searched the literature and found a small number of assessment reports and news releases that mention the property and also conducted a search in publicly available information and has determined the scope of the work that the drilling program is reasonable as a first phase of analysis.

To the date of this report, the Company nor BCI have been able to locate the records of the drilling or feasibility study conducted by Marcona Corporation in the late 1960's. Arrowstar's VP Exploration has logged about 60 trays of core (1,820 metres) and taken magnetic susceptibility readings with a KT-10 magnetic susceptibility meter but no other data is available except for the press release in the Mines and Petroleum Bulletin: Fairbanks Mining Superintendent, State of Alaska, Dept of Natural Resources, Division of Mines and Geology Vol XVII No 6, June 1969.

The qualified person responsible for the preparation of this report and the opinion on the propriety of the proposed drilling exploration program is Mr. Alex Burton, Graduate Geologist (B.A. University of B.C.1954), Registered as both a Professional Engineer and Registered Professional Geologist in B. C., #6262. Founding Member (#17) of the Assn. of Exploration Geochemists (now called Association of Applied Geochemists), Life Member Canadian Institute of Mining and Metallurgy (C.I.M.M.), and Life Member of the Association of Geoscientists for International Development.

The review of the Port Snettisham Iron property is based on published material researched by BCI, as well as data, professional opinions and unpublished material submitted to him by Arrowstar Resources.

Mr. Burton briefly reviewed the results of previously published resource estimates completed on the property. In the case of the historical resources, reports on the Port Snettisham deposits. These estimates, however, do not comply with the current Canadian Institute of Mining, Metallurgy and Petroleum Resources (CIM) Definition Standards on Mineral Resources and Mineral Reserves as required by National Instrument 43-101 (NI 43-101) "Standards of Disclosure for Mineral Projects." Therefore Arrowstar Resources and the reader should not rely solely on the previous resource estimates for planning a work program or to estimate a mineral resource on the property. Further fieldwork is required to locate and evaluate the actual extent and nature of the mineralization at the Port Snettisham Iron property.

While exercising all reasonable diligence in checking, confirming and testing, Mr. Burton has relied upon Arrowstar Resources's presentation of the project data from their own work and that of previous explorers of the Port Snettisham Iron property in formulating its opinion.

The agreement under which Arrowstar Resources holds title to the Port Snettisham Iron property has been reviewed by Mr. Burton and appears to be in order; however, BCI offers no legal opinion as to the validity of the mineral title claimed. A description of the property, and ownership thereof, is provided for general information purposes only.

Comments on the state of environmental conditions, liability and remediation have been made where required by National Instrument 43-101. BCI offers no opinion on the state of the environment on the properties. The statements are provided for information purposes only. Online Exploration Serviuces have checked the mineral claims list and confirmed they appear to be in order.

The descriptions of geology, mineralization, exploration and mineral resource estimation methodology used in this report are from reports prepared by various companies or their contracted consultants for the various components of the Port Snettisham Iron property. The companies completing work in the 1950s and 1970s were conducting their activities in accordance with industry standards at that time. BCI has no reason to doubt the validity of the information provided by Arrowstar Resources.

BCI is pleased to acknowledge the helpful cooperation of Arrowstar Resources personnel, all of whom made available any and all data that we requested and responded openly and helpfully to all questions, queries and requests for material.

2. Property Description and Claims

In 2012 Pacific Rim Limited sold its 49 claims covering 980 acres (397 hectares) at Port Snettisham Iron Ore deposit to Gulfside Resources Ltd (now known as Arrowstar Resources Ltd). Arrowstar Resources Ltd has a US subsidiary called Gulfside Alaska Inc that is the legal owner of the mining claims. The Port Snettisham property has the following claims:

Table 2 Port Snettisham Mining Claims

Juneau Recording District

BLM No.	CLAIM NAME	COPPER RIVER MERIDIAN Twp	Rng	Sec.	Document Number
AA092723	Snettisham Iron Ore 1	45 S	72 E	4 SW	2010-007626
AA092724	Snettisham Iron Ore 2	45 S	72 E	4 SE, 4 SW	2010-007627
AA092725	Snettisham Iron Ore 3	45 S	72 E	4 SE, 4 SW, 9NW	2010-007628
AA092726	Snettisham Iron Ore 4	45 S	72 E	4 SE, 4 SW, 9 NE, 9 NW	2010-007629
AA092727	Snettisham Iron Ore 5	45 S	72 E	4 SW, 5 SE, 8 NE, 9 NW	2010-007630
AA092728	Snettisham Iron Ore 6	45 S	72 E	4 SW, 9 NW	2010-007631
AA092729	Snettisham Iron Ore 7	45 S	72 E	4 SW, 9 NW	2010-007632
AA092730	Snettisham Iron Ore 8	45 S	72 E	9 NW	2010-007633
AA092731	Snettisham Iron Ore 9	45 S	72 E	5 SE, 8 NE, 9 NW	2010-007634
AA092732	Snettisham Iron Ore 10	45 S	72 E	8 NE, 9 NW	2010-007635
AA092733	Snettisham Iron Ore 11	45 S	72 E	8 NE, 9 NW	2010-007636
AA092734	Snettisham Iron Ore 12	45 S	72 E	8 NE, 9 NW	2010-007637
AA092735	Snettisham Iron Ore 13	45 S	72 E	9 NW, 9 SW	2010-007638
AA092736	Snettisham Iron Ore 14	45 S	72 E	8 NE	2010-007639
AA092737	Snettisham Iron Ore 15	45 S	72 E	8 NE, 8 SE	2010-007640
AA092738	Snettisham Iron Ore 16	45 S	72 E	8 NE, 8 SE	2010-007641
AA092739	Snettisham Iron Ore 17	45 S	72 E	8 NE, 8 SE, 9 SE, 9 SW	2010-007642
AA092740	Snettisham Iron Ore 18	45 S	72 E	8 SE, 9 NW, 9 SW	2010-007643
AA092741	Snettisham Iron Ore 19	45 S	72 E	8 NE, 8 NW, 8 SE, 8 SW	2010-007644
AA092742	Snettisham Iron Ore 20	45 S	72 E	8 NE, 8 SE, 8 SW	2010-007645
AA092743	Snettisham Iron Ore 21	45 S	72 E	8 SE, 8 SW	2010-007646
AA092744	Snettisham Iron Ore 22	45 S	72 E	8 SE	2010-007647
AA092745	Snettisham Iron Ore 23	45 S	72 E	8 SE	2010-007648
AA092746	Snettisham Iron Ore 24	45 S	72 E	8 SW	2010-007649
AA092747	Snettisham Iron Ore 25	45 S	72 E	8 SW	2010-007650
AA092748	Snettisham Iron Ore 26	45 S	72 E	8 SW	2010-007651
AA092749	Snettisham Iron Ore 27	45 S	72 E	8 SE, 8 SW	2010-007652
AA092750	Snettisham Iron Ore 28	45 S	72 E	8 SE, 8 SW, 17 NE, 17 NW	2010-007653
AA092751	Snettisham Iron Ore 29	45 S	72 E	8 SE, 8 SW, 17 NE, 17 NW	2010-007654
AA092752	Snettisham Iron Ore 30	45 S	72 E	7 SE, 8 SW	2010-007655

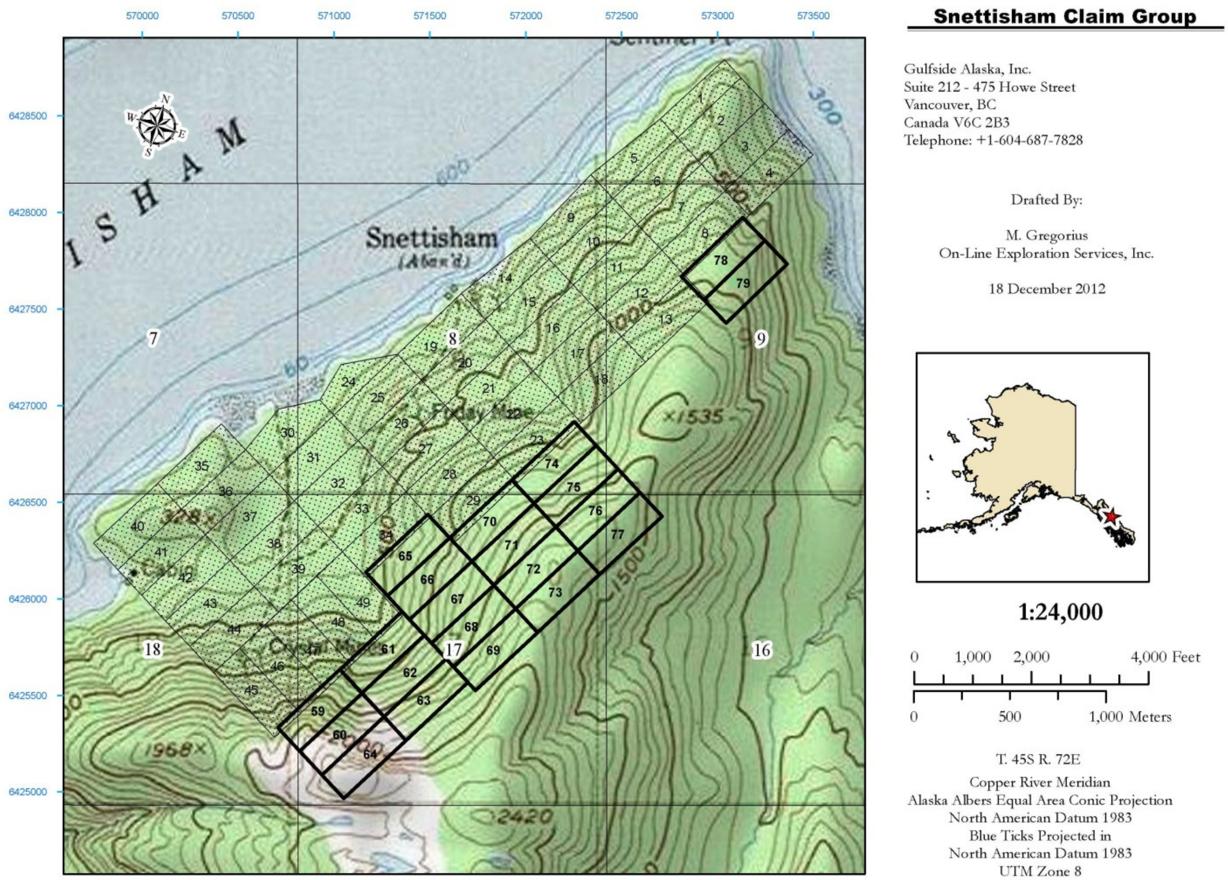


Figure 2: Port Snettisham Claim map showing old and new claims

2.1 Acquisition of Property

On October 19, 2011, the TSX Venture Exchange accepted for filing an option agreement (the "Port Snettisham Agreement") between Gulfside Minerals Ltd. (the "Company") and Pacific Rim Mineral, LLC (the "PS Vendor") pursuant to which the Company has the option to acquire up to a 100% interest in 49 claims that comprise the Port Snettisham property, located near Port Snettisham, about 30 miles (50 km) southeast of Juneau, Alaska.

The aggregate consideration payable in stages by the Company over a seven year period ending October 31, 2018 to the PS Vendor in stages, is $3,770,000 cash ($120,000 cash payable in the first year). In addition, the Company must incur aggregate exploration expenditures on the Port Snettisham property of $3,300,000 by October 31, 2018 ($150,000 to be incurred in the first year). The Port Snettisham Vendor ("PS Vendor") is also entitled to a 2.5% NSR on the Port Snettisham property with the Company having the right to reduce the NSR to 1.5% by paying the PS Vendor $1,500,000 cash.

Insider / Pro Group Participation: Not applicable. At the time the Port Snettisham Agreement was entered into, the Company was at arm's length to the PS Vendor.

Finder's Fee: A finder's fee of $22,000 cash was payable by the Company to an arm's length private company named Ridgerock Industries Ltd. in connection with the Port Snettisham property acquisition.

2.2 Further Claims Staked

The Company has staked an additional 21 claims (59 to 79) adjacent to and continuous with its Port Snettisham, Alaska iron ore claim block (the "Claims). This was done after the ground magnetic survey was completed to exploit the second anomaly that became apparent.

The Claims adjoin the present claim block to the east and south in an area potentially extending an area of magnetic highs indicated during the Company's geophysical surveys conducted this past Autumn 2012. The new claim block expanded the Company's project area by about 43%. The total area of the 21 claims is 430 acres (174 hectares).

2.3 Mineralised Zones

At the southern end of the claims is the Friday and Crystal Mines that are not operational but there are current claims on the Friday mine. This was a small gold mine operated in the early 1900's. The location of mineral resources, mineral reserves and mine workings in the area is summarized below. No iron ore workings were ever commercialized.

Platnium

Page and others (1973) identified a resource of 4.55 million troy ounces of platinum-group metals in the orebody at Port Snettisham defined by Thorne and Wells, 1956 that has an average grade of 0.0027 ounce of platinum-group-elements per ton. They also cite the potential for more platinum-group elements at a similar grade in extensions of the ore body.

Gold

The following is an extract on the mineralization in the area from the Unites States Department of the Interior Geological Survey by Cobb et al:

> **Cobb, Edward H, 1978 – Summary of the References to Mineral Occurrences (Other than Mineral Fuels and Construction Materials) in the Sumdum and Taku Quadrangles, Alaska.**
>
> **Page 9-14, 65 pages Open-File report 78-698**

Crystal	**Gold**
Juneau district	Sumdum (1.8, 16.9)
MF -425, loc. 1	57°58'N, 133°48'w

Summary: Quartz fissure vein(s) about 4 ft. thick in amphibolite (probably derived from andesite or porphyritic basalt) mined from 1899 to 1905 and sporadically until early 1930's. Production from Crystal and nearby Friday mines, 1899-1905 probably was at least -2,000 oz. of gold; no data on later production. Ore mainly pyrite, some of which had on crystal faces small crystals and particles of visible gold. Includes references to Daisy Bell and to lode gold near Snettisham.

Spencer, 1904 (8 225), p. 36 -- Has been considerable prospecting on south side of Port Snettisham near contact between greenstone and overlying Shales; one mine has produced a few thousand dollars [19031.]

Wright and Wright, 1905 (B 259), p. 53 -- Snettisham mine and 20-stamp mill operated for most of 1904. "...relatively [probably as compared to mines at .Juneau] small deposit..."

Spencer, 1906 (84287), p. 47-48 -- Discovered 1895. Quartz ledge 1-10 ft. wide (average about 4 ft.) in what appears to be a wide andesite dike; quartz and included andesite fragments carry gold. Many large pyrite cubes in druses in quartz,. gold (some crystalline) on sides of pyrite cubes. Mining and milling (10 stamps), 1901-02, said to have produced about $25,000 (about 1,210 fine oz_) in gold. Larger scale development began in 1903; about 1,000 ft. of workings; developed ore stoped and milled by end of 1904. [No data on amount of production.] Plan to remove equipment in 1905.

Wright and Wright, 1906 (B 284), p. 40-41 -- No mining, 1905; ran out of ore

Wright, 1907 (B 314), p. 58 -- A little mining and milling, 1906.

Wright, 1908 (3 345), p. 90 -- Considerable ore run through 5-stamp mill, 1907.

Wright, 1909 (8 379), p. 71-72 -- Stoping from upper level toward surface; vein 18 in. to 5 ft. thick. Ore mined from surface on Daisy Bell claim. Mill treated 15 tons of ore a day for 50 days, 1908-

Knopf, 1910 (B 442), p. 139 -- Mining and milling, 1909.

Knopf, 1911 (B 480), p. 97 -- Mining suspended and mill closed, Sept. 1910. ore body was a quartz vein about 4 ft. thick in zoisite amphibolite that Wi-eprobably derived from andesite porphyry; vein dips 10°-40° NE.

Knopf, 1912 (8 502), p. 39-40 -- Quartz fissure vein in schistose zoisite amphibolite that appears to have been derived from a porphyritic basalt in which the original feldspar phenocrysts were saussuritized and drawn out. Chemical analysis and petrographic description of rock are given. Near vein amphibolite is altered to a rock that is mainly albite; minor amounts of quartz, pyrite, carbonate, chlorite, and apatite.

Brooks, 1913 (B 542), p. 33 -- 100-ft. tunnel and 40-ft. raise completed on Daisy Bell claim; discovery of 4-ft. ore body reported, 1912.

Martin, 1920 (2 712), p. 30 -- Idle, 1918.

Brooks, 1922 (B 722), p. 36 -- A little ore milled at Daisy Bell, 1920. Brooks, 1923 (B 739), p. 21 -- Small-scale productive work, 1921.

Brooks and Capps, 1924 (B 755), p. 24 -- Mine closed, 1922.

Thorne and Wells, 1956 (RI 5195), p. 6 -- Crystal and Friday gold mines

operated by Alaska Snettisham Gold Mining Co., 1899-1905. Sporadic gold mining in area until early 1930's.

Berg and Cobb, 1967 (B 1246), p. 155 -- Crystal and Friday mines probably produced about 2,000 oz. gold between 1899 and 1905; sporadic mining until early 1930's, but no data on production after 1905. Lodes in slate near its contact with diorite; quartz veins containing pyrite and gold. Ore mainly pyrite, in much of which small crystals and particles of gold were visible.

Friday	Gold, Iron
Juneau district	Sumdum (2.15, 17.3)
MF-425, loc. 2	57°59'N, 133°46'W

Summary: Irregular quartz body 1-6 ft. wide in altered slate near a diorite intrusive body. Mined from 1899 to 1904. Low-grade ore consisting of auriferous pyrite and much magnetite. See also Crystal.

Spencer, 1906 (B 287), p. 47 -- Irregular quartz ledge 1-6 ft. wide in altered slate near diorite intrusive. Developed by 2 tunnels 750 ft. and 600 ft. long, pits, and open cuts. Operations began in 1899 and ceased in 1904. Ore is auriferous pyrite with much magnetite; low grade. [No data on production]; Thorne and Wells, 1956 (RI 5195), p. 6 -- See entry on Crystal sheet. Berg and Cobb, 1967 (B 1246), p. 155 -- See entry on Crystal sheet.

The following article was posted in the June 1969 Mines and Petroleum Bulletin published by the Dept of Natural Resources.

"Snettisham Iron to be Developed –
The Alaska Reporting Service, Report No. 395, April 14, 1969 reported that the Commissioner of the Department of Economic Development, Frank H. Murkowski, announced that the Tokyo newspaper, Nihon Keizai, stated that the Marubeni Company and Marcona Corporation have agreed to a joint development project of iron deposits near Snettisham southeast of Juneau.

Plans call for pellitizing two to four million tons of iron ore annually. The Snettisham deposit consists of a titaniferous magnetite containing 15 to 20 percent total iron.

Marcona is a San Francisco-based corporation that mines and processes iron ore and operates an ocean fleet for shipping iron ore and other bulk commodities. Marubeni-Iida Company is a large Japanese trading company. Development of the Snettishan deposit should create renewed interest in other low-grade Alaskan iron deposits such as Klukwan near Haines, Union Bay north of Ketchikan, and the west side of Cook Inlet near Kamishka Bay and Iliamna Bay."

Photo 1: Large piece of float scree on the beach displaying magnetite

Environmental Liabilities

From discussions with the National Forestry Service and the Department of Natural Resources by Mr. Thomas there appear to be no environmental liabilities associated with the above mining claims. Photos of refuse and used equipment located on the claims have been provided to the National Forest service to be collected and cleaned up, ensuring they are not declared to be archeological artifacts. There has been significant logging in the past from the 1908 gold mining era, to the 1950's and 1960's, the establishment of the Port Snettisham township. Secondary forest growth is obvious and cleared areas are common through the forest canopy.

2.4 Permits Required

To drill the property, ArrowStar is required to lodge an Annual Placer Mining Application with the Alaskan division of the US Department of Natural Resources, Mining, Land and Water Division. This multi-agency permit application was lodged on 5 March 2013. A supplemental BLM application was lodged with the Bureau of Land Management that is supervised by the National Forestry Service in Juneau. This application has also been accepted. Approximately 44 trees were identified that had to be removed to allow the drill rig to be safely located in the positions identified by Arrowstar's Geologist Phil Thomas and Mr. Murray Hutton, a consulting geologist from Geos Mineral Consultants in Sydney, Australia who is JORC competent person in iron ore.

3. Accessibility, Climate, Local resources, Infrastructure and Physiography

3.1 Topography, Elevation and Vegetation

The Topography is low lying hills that reach an elevation of 1,500 feet (457 metres) above sea level. There are two glacial cirques at the southern end of the deposit inside of the claim area. The ocean channel is very deep and was measured at 257 fathoms (467 metres) just 75 metres from the shore in one area but averages approximately 100 fathoms (128 metres) or more in the channel. In the southern part of the tenement the ridge rises to 2,000 feet (616 metres).

The vegetation is typical of the area and primarily consists of typical spruce/hemlock forests. Western hemlock and Sitka spruce dominate the overstory, while the understory is composed of shrubs, such as red huckleberry, rusty menziesia, and devil's club. The forest floor is covered with a mat of mosses, liverworts, and plants, such as deerheart, bunchberry dogwood, single delight, and skunk cabbage. Streamside riparian vegetation is characterized by salmonberry, devil's club, alder, grasses, and ferns. Vegetation classified as muskeg is not abundant. These areas, dominated by sphagnum mosses, sedges, and shrubs of the heath family, are interspersed among low-elevation timber stands where drainage is restricted. Trees within the muskegs are sparse and consist mainly of stunted hemlock, lodgepole pine, and Alaska-cedar with fir and hemlock trees creating a canopy cover and decayed ground cover with fungi.

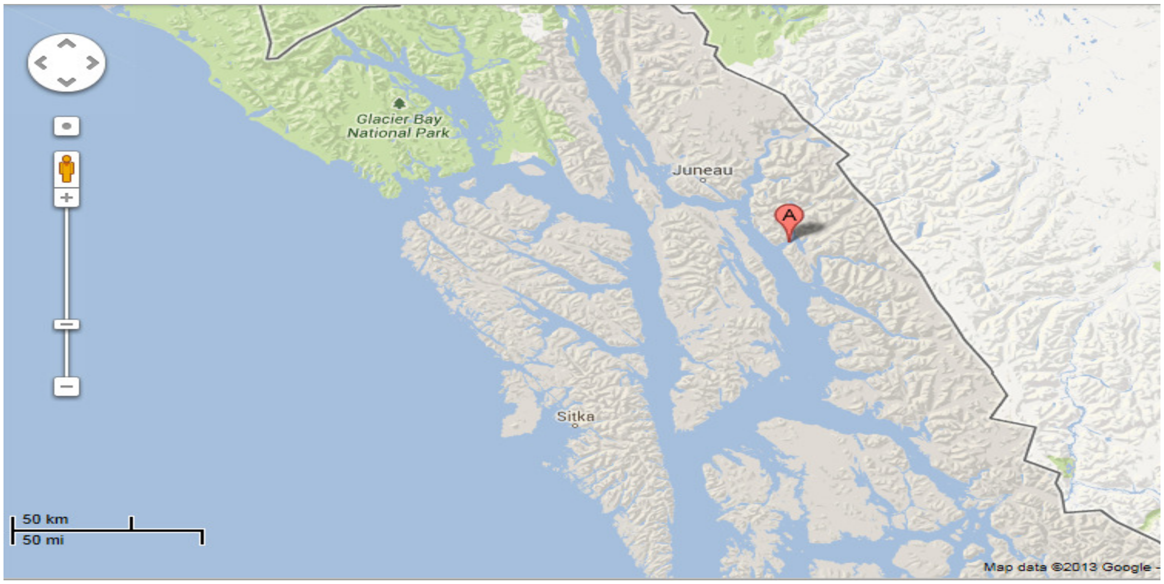
Photo 2: Snow drifts between the Hemlock and Sitka trees in May 2012

Photo 3: Typical vegetation on the slopes near the beach

3.2 Property Access

The site is located some 50 kilometres (30 miles) from the city of Juneau, the capital of Alaska. It is located on Stephens passage and has open and deep access to the North Pacific ocean.

There are no roads that are accessible on the claims for four wheel drives. There is a walking track that is registered to the Friday mine which is Alaskan RS ROW number 1137. The main access proposed is by barge to the site where there is a old core shack and a beach that is suitable for offloading equipment and setting up a camp site. The drill rig and rods will need to be lifted by Helicopter onto the site according to the plan lodged with the National Forestry Service. A Camp site will be set up and staff airlifted to the drilling site due to the thick forest and brush (Devils Club) undercover. This will also minimize damage to the environment. During inclement weather where helicopter operation is not possible, staff will walk from the drill site to the shoreline and be pickup by skiff and taken back to the camp site. In the southern area of the claim there is cleared land that is suitable for walking.



"A" is the location of the Port Snettisham deposit

Juneau has a population of about 31,500 people with a median age of 36. There is no settlement on the Port Snettisham peninsula. There is an absence of wildlife on the Port Snettisham side of the peninsula, and no tracks or other signs of animal life were found. There is also very little food with no berry bushes found. The birdlife is also very scarce in the months of May June and July which is the time the site was visited. Mostly recreational fisherman passby the area but due to a sea lion colony 4 or 5 kilometres away the fishing is suboptimal. Of the 24,500 people living in Juneau and surrounds there is approximately 24% not employed or not in full-time work in 2011.

Historically Juneau was the site of the Alaskan Treadwell Gold mine.


Photo 4: Beach area where landing of equipment is suitable near proposed camp site

3.3 Climate and Length of Operating Season

The climate in the Juneau area is tempered by the sea and thus does not experience the usual extremes found in Alaska. The table below shows the average temperature ranges and precipitation.

Juneau Temperature F	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Temperature	24.2	28.4	32.7	39.7	47.0	53.0	56.0	55.0	49.4	42.2	32.0	27.1	40.6
Avg. Max Temperature	29.4	34.1	38.7	47.2	55.1	60.9	63.9	62.7	55.9	47.1	36.7	31.6	46.9
Avg. Min Temperature	19.0	22.7	26.7	32.1	38.9	45.0	48.1	47.3	42.9	37.2	27.2	22.6	34.1
Days with Max Temp of 90 F or Higher	0.0	0.0	0.0	< 0.5	1.0	5.0	7.0	6.0	< 0.5	0.0	0.0	0.0	19.0
Days with Min Temp Below Freezing	25.0	22.0	23.0	14.0	3.0	< 0.5	0.0	< 0.5	1.0	8.0	18.0	23.0	139

Juneau Precipitation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precipitation (inches)	4.5	3.8	3.3	2.8	3.4	3.1	4.2	5.3	6.7	7.8	4.9	4.4	54.3
Days with Precipitation 0.01 inch or More	18.0	17.0	18.0	17.0	17.0	15.0	17.0	18.0	20.0	23.0	20.0	21.0	222
Monthly Snowfall (inches)	25.7	19.0	15.2	3.3	0.0	< 0.05	0.0	0.0	< 0.05	1.0	12.5	22.3	99.0

In respect to pit operations, the months of Nov to March experience heavy snow falls but given the drill and blast extraction process this snow is not significant. It should be reasonable to conduct operations with no interruptions during the year. It is anticipated that all iron ore will be transported by covered conveyor (both final product and waste). There will be little requirement for roads outside the pit for heavy equipment. Mr. Thomas reported that In May 2013 only two of the drill sites had snow on them which was in patches.

3.4 Mining Rights, Power, Personnel, Tailings, Storage

There appears to be no legal impediment to setting up a mine on the site based on the legal exploration claim that has been granted on Federal ground. The Bureau of Land Management Alaska minerals program has responsibilities and adjudicative duties associated with federal mining claims, mineral surveys and patents, validation of title evidence, review of mineral validity reports, service of federal minerals contest actions, guidance for surface use management and use and occupancy under the mining laws; processing mineral lease applications, mineral materials, solid minerals prospecting permits, bonding documentation, and preparation and service of decisions, notices and other legal documents. When ready, Arrowstar will complete a base line study to accompany their Annual Placer Mine Application ("APMA"). There are performance standards issued in BLM Supplement A that apply to operations. Each year a claim owner that intends to conduct mining activity, including exploration, mining, or transportation of equipment and maintaining a camp, an APMA or Annual Hardrock Exploration Application ("AHEA") is to be completed and submitted to a State Division of Mining, Land & Water

Office nearest to where the activity will take place (Juneau Office). A mining License is issued by the Alaska Department of Revenue.

Mining waste which will be mostly non magnetic ultramafics including pyroxenite and diorite will be disposed off in an area on the current mining claim that complies with the current laws. All tailings, dumps, deleterious materials or substances, and other waste produced by the operations shall be disposed of so as to prevent unnecessary or undue degradation and in accordance with applicable Federal and State Laws. Adequate space is likely available for potential tailings storage areas, waste disposal areas, and sites for facilities but the project is not at a stage that enables the scale of facilities or specific locations to be detailed.

The plant will not require significant amounts of power as it is self contained in the proposed mobile primary, secondary and VSI crushers. They are diesel electric crushers and vibroscreens. The final stage of the process will require a diesel generator to run a ball mill/High Intensity Grinding mill (similar to the Outotec HIG900) and magnetic drums (both wet and dry) taking the iron ore material to 1-3 mm. The Alaska Electric Light & Power ("AELP"), power line is located on the opposite side of the Snettisham channel. With the addition of the Crater Lake Stage's 31 MW capacity, the total amount of electrical energy now available from the Snettisham station is 78.2 MW. There are 46 miles of submarine cable linking in the Greens Creek Mining project. At this stage the writer is not aware of any plans by AELP to link the high voltage lines by submarine cable to the proposed mine project that is a distance of about 1.3 kilometres.

The Greens Creek Mine on Admiralty Island was established in 1987 and continues to be a key employer of Juneau residents. The Kensington Mine, located 45 miles north of Juneau, is another example of the region's strong ties to the mining industry.

Below is an extract from the Juneau BLM Land Use Management Plan, January 1993.

> **Recreation Uses**
> The marine waters in this Port Snettisham area are used for viewing marine mammals. The south end of Gilbert Bay is particularly popular for viewing waterfowl and bears, and for sport fishing. The mouth of Port Snettisham is popular for viewing humpback whales in summer. The mouth of the Whiting River is popular for viewing seals. There are protected anchorages in Subunits 15b5,15b6, and 15b7. Port Snettisham only has two anchorages and no classification on any unit.
>
> **Mineral Potential**
> The U.S. Bureau of Mines has identified two areas in this unit with high mineral potential. The first is the north end of the Snettisham Peninsula, and includes the Crystal, Friday, and Snettisham mines. There are federal mining claims surrounding these mines. The second area extends from "the Gorge" at the mouth of the Whiting River, southeast to Tracy Arm. This second area includes Sweetheart Ridge (between Gilbert Bay and Tracy Arm).

Resource Transfer Facilities

Possible areas for resource transfer sites identified by the BLM for minerals include the mouth of Gilbert Bay adjacent to the Snettisham, Friday, and Crystal mines and the area between Point Styleman and Mallard Cove. In addition, another possible resource transfer facility site was identified by the USES at the south end of Gilbert Bay. An Environmental Impact Statement (EIS) for a log transfer site was completed in 1981 by the USFS. However, the proposed timber sale on adjacent uplands was not bid and trees were never cut. The timber is likely to be resold and a transfer facility needed during the life of the plan.

BLM Management Guidelines – Extract from Juneau State Land Plan 3-277

"The unit will be managed consistent with its primary designations: Fish and Wildlife Habitat (Ha), Fish and Wildlife Harvest (Hv), and Dispersed Recreation (Rd). However, tideland support facilities for upland mining and timber development are allowable uses within Subunit 15b6. Specific sites have not been identified and designated for these facilities at this time (1991). Designating a large area as one subunit (15b6) provides the flexibility to work with an applicant to identify a site that will minimize significant adverse impacts on the other resources and uses for which these subunits are co-designated. An amendment to the plan or reclassification for these types of uses is not required since these types of uses are allowable under this management intent."

Mineral Closures.

"The estuarine area, from mean high water to a water depth of 40 feet (measured at mean low low water), at the mouth of Sweetheart Creek will be closed to new mineral location to protect important rearing areas for anadromous fish. The maintenance of the high-quality estuarine rearing-habitat adjacent to these streams and avoiding impacts to the associated water quality and marine plant and animal communities are essential to sustain the productivity of the Juneau area commercial- and community-harvest fisheries surrounds a net pen site for the remote release of hatchery-raised salmon. Maps of these closures can be found in Mineral Order 653 in Appendix B."

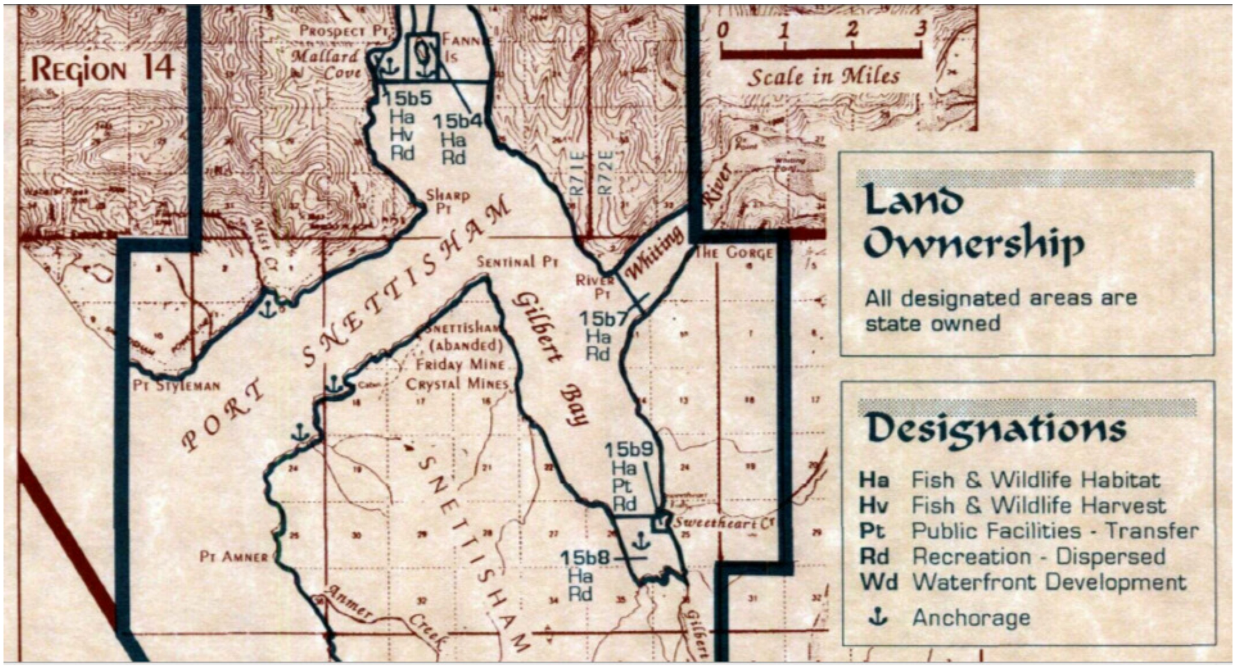


Figure 3: Extract from Juneau State Land Plan 3-277 completed Jan 1993

As can be seen from the Map above, Port Snettisham is outside these 15xx designated areas.

Anadromous Waters Map

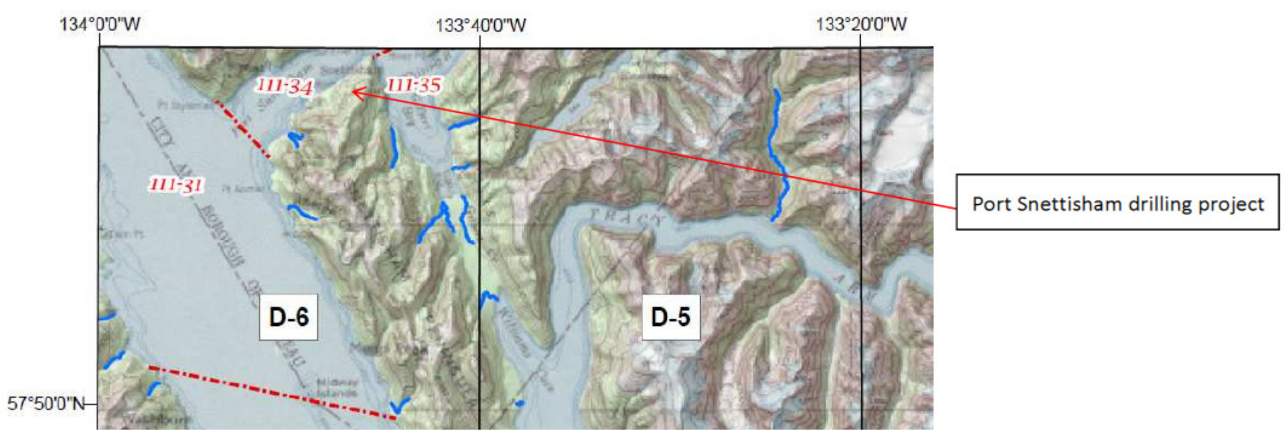


Figure 4: Anadromous Waters Map from Dept of Resources

There are many streams in the claim area but none are claimed to be andromous. The water usage will be very small mostly for wet magnetic drums and drinking water.

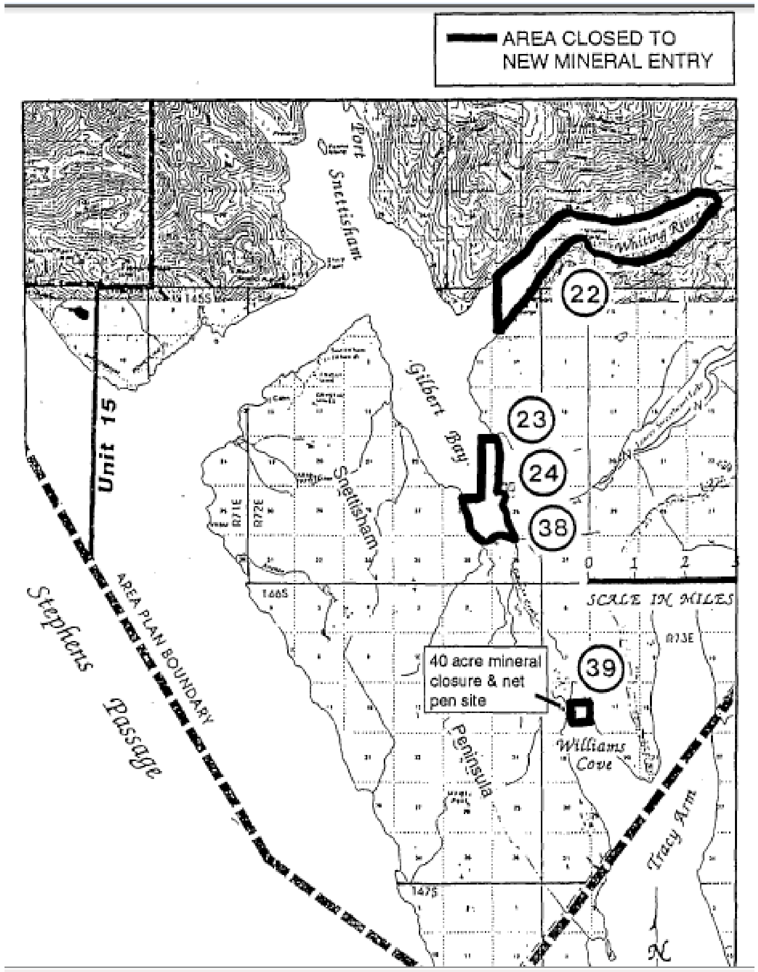


Figure 5: Areas closed to mineral exploration - Extract from Juneau State Land Plan 3-277 Jan

Mining Personnel

Mining Personnel will be sourced from Juneau and further afield. The equipment operation does not require large numbers of personnel and Arrowstar expect the head office and laboratory team to be located in Juneau. Parts and maintenance teams will be on site. Typically in this type of operation being contemplated, two eight hour shifts operate with 50 personnel per shift.

The potential tailing storage areas are located to the north and south of the deposit boundary. Some back filling will occur as the tailings are very suitable to consolidate pits. The areas are not heavily forested, and have grasses and bog on them. A base line study and Environmental Impact Study will be completed before the final areas are delineated.

The options being assessed by Arrowstar are a mobile processing plant that moves around the pit and is contained within it and all ore and waste are moved by conveyor or a fixed plant and ore is moved around the pit by trucks and front end loaders onto a conveyor system. The footprint of the plant is expected to be very small.

Operational Costs and Capex
Mr. Thomas estimates the annual operation costs are estimated to be between $23-$30 per tonne of final product based on a total annual expenditure of $23 million, a head grade of 40% Fe and a ratio of 4:1 using a dry processing system. A breakdown of the $23m is wages for 110 staff ($7.5m), fuel ($10m) consumables (parts and supplies) ($2.5m) and other $10m. Mr. Thomas has had several discussions with Consultants and they confirm this is a likely range of opex costs. The plant capex will be less than US$30m per one million tonnes of production if a portable crushing facility with conveyors is used eliminating the need for large numbers of trucks.

4. History

4.1 Prior ownership

Pacific Rim Minerals restaked the property on 18 November 2010. The geologists involved were Stephen McKay and Ryan DeMars of Northern American Exploration Inc located in Kaysville Utah. They located most of the co-ordinates when it was staked in 2008. They did not do any field work but Stephen McKay wrote a staking report on 20 November 2010 and made the following comments:

> **"GENERAL GEOLOGY & ENVIRONMENT**
> The majority of the original SIO claim area 1-40 is mainly composed of an igneous rock termed pyroxenite. At the north end near Sentinel Point, the deposit is bordered by phyllite and the borders to the south and southwest are composed mostly of diorite. The main iron ore deposit in the form of magnetite is an accessory mineral in the pyroxenite. Massive magnetite is easily located with a simple pencil magnet along the coast by the Port of Snettisham and to the north near Sentinel Point. Moving into the interior from Port Snettisham and up to the 1,000 foot elevation, magnetite was easily locatable with a pencil magnet. Outcrops of massive magnetite are well exposed along the coast and in cliffs and ledges that are found in the steeper hill sides along the southeast portions of the claim block. See the attached geology map copied from the Bureau of Mines Report of Investigations 5195. (Thorne RL and Wells RR, Studies of the Snettisham Magnetite Deposit South East Alaska, Bureau of Mines Report of Investigations 5195, United States Department of the Interior, February 1956).
>
> Vegetation is thick and consists of Sitka spruce, hemlock and cedar trees. Devil's Club along berry bushes were found everywhere from the coast to the highest elevations along the southeast portion of the claim block. There were a few large areas of muskeg which were frozen and also provided an excellent area to establish a base camp with excellent landing zones for the helicopter.
>
> The terrain ranged from a rough and rocky coast line to a hilly interior near the coast and the mountains are precipitous. We found that climbing up the steep slopes was made difficult due to the frozen ground which made kicking into the hill for foot holds difficult. "

A summary of the work done prior to the 1950's is summarized below:

The large pyroxenite body that makes up much of the northern end of the Snettisham Peninsula was known to contain abundant magnetite locally as early as the 1890's. This site is the center of an area about 2000 feet by 1000 feet in size in which the U.S. Bureau of Mines diamond drilled more than 5,000 feet of hole in 1953 and was subsequently explored by private industry in the 1960's. The center of the area is about 0.5 mile east of the abandoned town of Snettisham and about 0.6 mile west-northwest of the center of section 9, T. 45 S., R. 72 E.

The Snettisham iron deposit is one of the larger bodies in a belt of Alaska-type ultramafic-mafic intrusions that are spread along the length of southeastern Alaska (Taylor and Noble, 1960; Taylor, 1967; Himmelberg and Loney, 1995; Foley and others, 1997).

The body in Port Snettisham is an elliptical intrusion about 2 miles in length (3.2 kilometres) maximum outcrop that is mainly composed of hornblende-magnetite clinopyroxenite, biotite-magnetite pyroxenite, and hornblende-biotite-magnetite clinopyroxenite. There appears to be numerous metasomatic replacement episodes. BCI have observed diorite dykes penetrating pyroxenite in some places. The pyroxenite locally grades into diorite. As in several other such bodies in southeastern Alaska, the magnetite content is locally high enough to be considered as a source of iron, titanium, vanadium, and possibly platinum-group element (Buddington, 1925; Thorne and Wells, 1956; Page and others, 1973). The magnetite is slightly titaniferous by today's standards but too low to be of significance. The body is cut by numerous thrust and normal faults (Redman and others, 1989). Although there are several episodes of the intrusion of Alaska-type complexes in southeastern Alaska, the Snettisham body is probably 100-118 million years old (Brew and Morell, 1983; Himmelberg and Loney, 1995).

Although there was a small test shipment of magnetite ore to Juneau in about 1917 (Buddington, 1925), the first major effort to explore the iron potential of the deposit was in the 1950's by the U.S. Bureau of Mines who drilled at least 9 holes totaling 6,543 feet, did a geophysical survey over the body, and had beneficiation tests done on the ore (Thorne and Wells, 1956).

The work outlined a magnetite-rich area of the pyroxenite about 2,400 feet by 9,600 feet in area with a vertical extent of 1,000 feet. The Bureau identified 450,000 tons of material that contained 19 percent iron, 2.6 percent titanium, and 0.05 percent vanadium, and these figures have been cited numerous times since in other publications (e.g. Carr and Dutton, 1959; Berg and Cobb, 1967; Fischer, 1975). In 1967, the Marcona Corporation optioned the Snettisham iron deposit and carried out extensive exploration, including diamond drilling and metallurgical tests. In addition, Page and others (1973) identified a resource of 4.55 million troy ounces of platinum-group metals in the orebody defined by Thorne and Wells that has an average grade of 0.0027 ounce of platinum-group-elements per ton. They also cite the potential for more platinum-group elements at a similar grade in extensions of the ore body.

Workings: The core has been located in a core shack on the peninsula. Marcona Corporation in a press release issued by Marubeni-Iida Corporation in 1969 cited a production of up to 5 million tonnes of fines (no cut off grade or average grade was mentioned) with a 50 year mine life.

4.2 Historical Mineral Resource and Mineral Reserve Estimates in Accordance with Section 2.3 of the National Instrument

The first major effort to explore the iron potential of the deposit was in the 1950's by the U.S. Bureau of Mines (Thorne and Wells, 1956). The report titled “Studies of the Snettisham Magnetite Deposit South East Alaska, Bureau of Mines Report of Investigations 5195, United States Department of the Interior, February 1956”. In this report they completed a magnetic survey, drilled 11 holes for a total depth of 6,546 feet, completed detailed geochemistry and petrographic studies, and collect enough sample to beneficiate the iron ore using dry magnetic separation. However they did not attempt to estimate a resource. The work outlined a magnetite-rich area of the pyroxenite about 2,400 feet by 9,600 feet in area with a vertical extent of 1,000 feet. The Bureau identified 450,000 tons of material that contained 19 percent iron, 2.6 percent titanium, and 0.05 percent vanadium, and these figures have been cited numerous times since in other publications (e.g. Carr and Dutton, 1959; Berg and Cobb, 1967; Fischer, 1975). The methodology used is prior to National Instrument 43-101 being introduced.

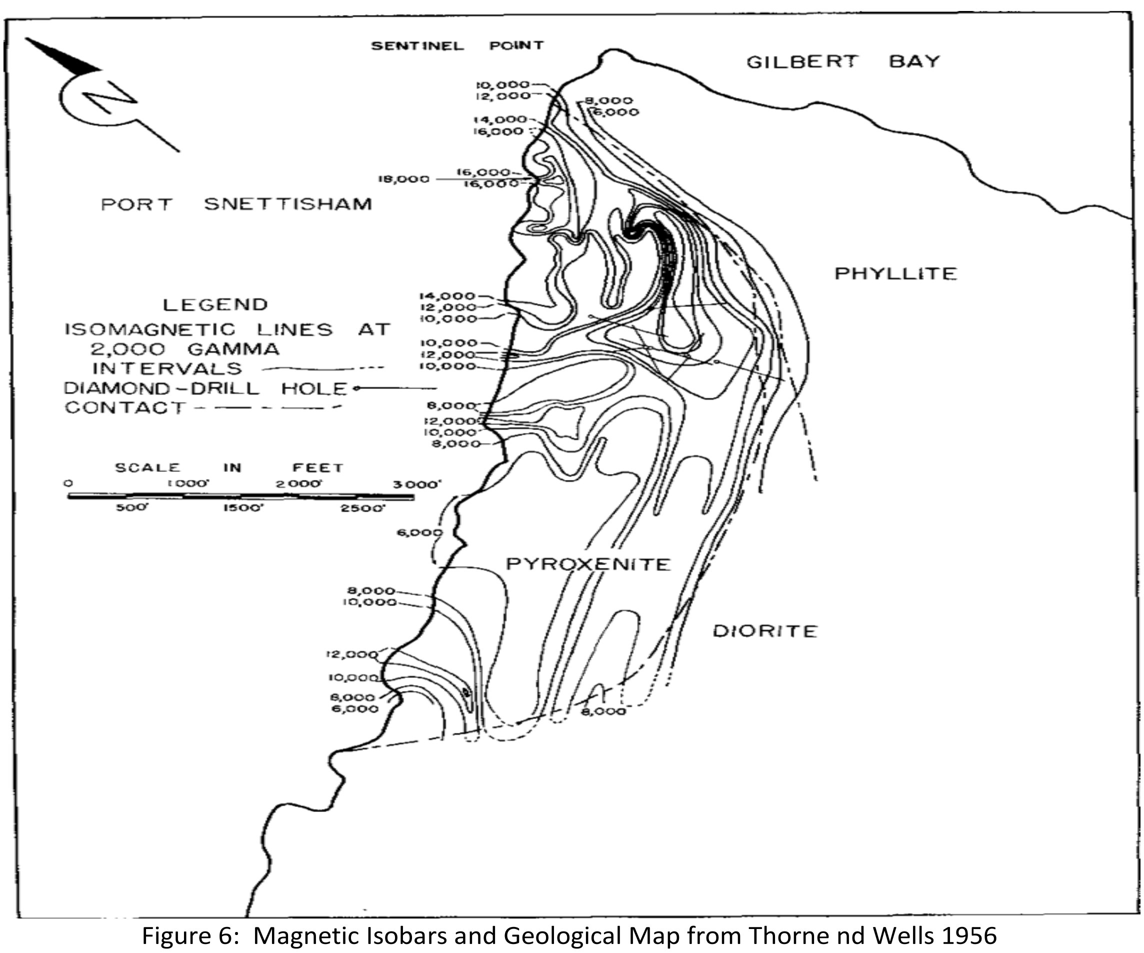


Figure 6: Magnetic Isobars and Geological Map from Thorne nd Wells 1956

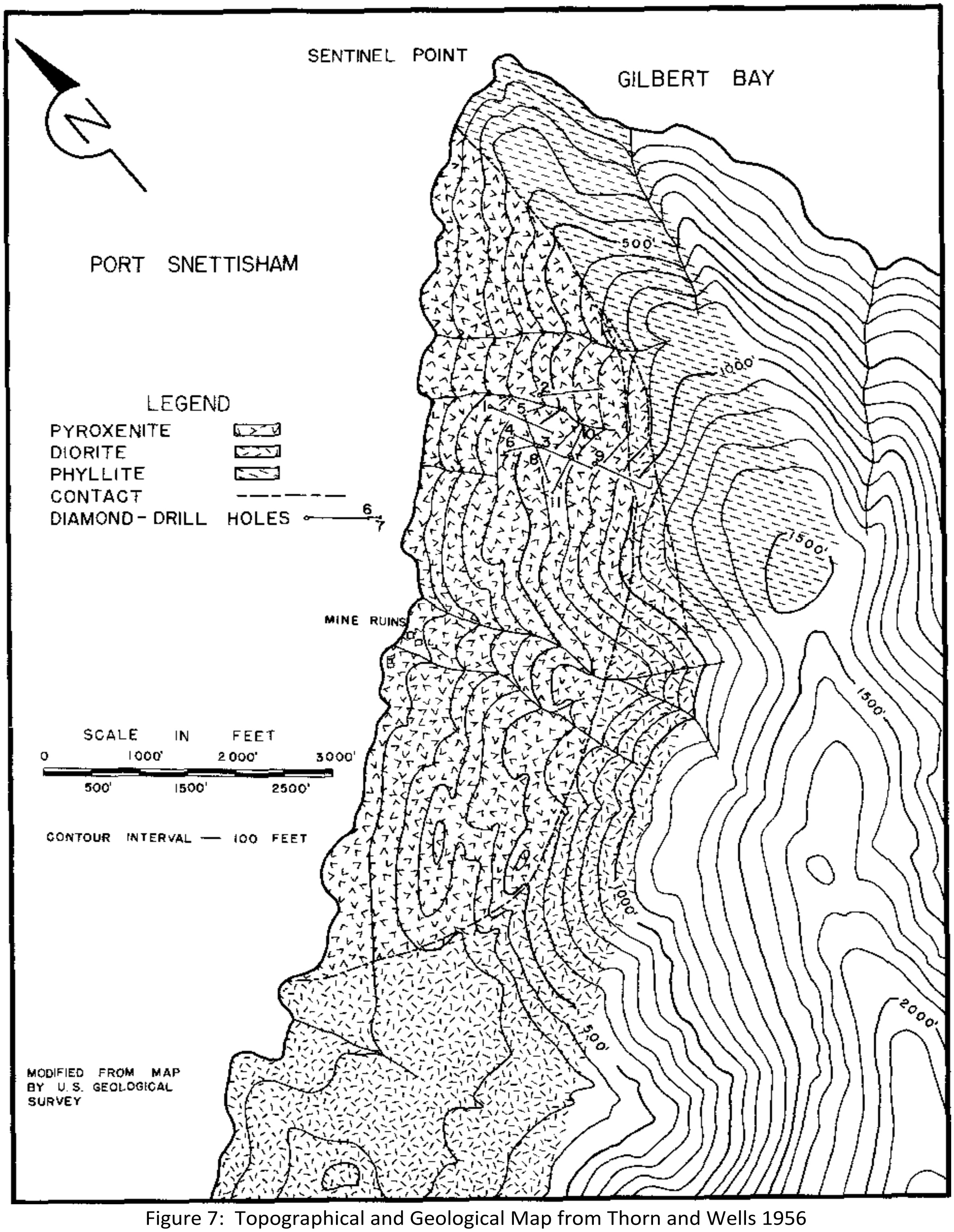


Figure 7: Topographical and Geological Map from Thorn and Wells 1956

In addition, Page and others (1973) identified a resource of 4.55 million troy ounces of platinum-group metals in the orebody defined by Thorne and Wells that has an average grade of 0.0027 ounce of platinum-group-elements per ton. They also cite the potential for more platinum-group elements at a similar grade in extensions of the ore body. Todate we have not been able to access a copy of this report to determine the methodology used.

The summary of the Thorne and Wells, 1956 report on page one said:

> "The magnetic attraction of a part of the Snettisham Peninsula is noted on early navigational charts prepared by the Coast and Geodetic Survey. Reconnaissance examinations by the Geological Survey and a preliminary dip needle survey by the Territorial Department of Mines indicated the general nature of the basic intrusive, but little *was* known as to the grade and extent of the magnetite mineralization. The detailed survey by the Bureau of Mines proved an *area* of approximately 390 acres in which generally high magnetic anomalies with exceptionally high localized anomalies occur. Subsequent drilling across a representative section of the deposit yielded core samples, which assayed from 11 percent to over 45 percent total iron. A large sample of core composited to represent the drilled portion of the deposit assayed 18.9 percent Fe, 2.6 percent Ti02, and 0.29 percent S, 0.32 percent P, and 0.05 percent V.
>
> Representative samples composited from drill cores were subjected to beneficiation tests at the Juneau Laboratory. Direct magnetic separation of ore ground to minus-150-mesh or staged magnetic separation of 35-mesh ore with concentrates retreated at minus-150-mesh resulted in the recovery of 61 to 64 percent of the total iron in a concentrate assaying about 64 percent iron, 3.5 percent Ti02, 0.3 percent V, 0.4 percent S, and less than 0.01 percent P. The sulfur content of the concentrate could not be lowered by mechanical methods but was satisfactorily reduced by sintering."

The 1953 Bureau of Mines drilling program referred to in the above report consisted of 11 diamond core holes totalling 6,546 ft (1,995.4 m). The holes were drilled at angles ranging from -30° to -60° and lengths of 122.2m to 259.9m (Table 1). Core diameter was NX (54mm) to EX (22mm). 335 samples from the drilling were analysed for total iron content. The highest value was 45.1% Fe total. Composites, based on iron content, were submitted to the laboratory for more complete analyses and for beneficiation tests. Core intervals with no logged magnetite content returned Fe_total values up to 18%. It is assumed that this iron content is incorporated in ferromagnesian minerals within the ultramafic host rocks with only minor amounts of disseminated magnetite.

Subsequent studies conducted by Arrowstar shows that the Bureau of Mines did not drill deep enough to intersect the main magnetite body as shown by the 3D magnetic inversion model (a graphic depiction of what the magnetic susceptibility data looks like in a sold block model) below produced by Geos Consulting from the historical drill data, overlain by the Geomagnetic survey done by Getronics Consulting Limited. The accuracy of the data in the Invesrion Model is usually inverse with the depth so data at 500 metres is much less reliable than data at 50 metres.

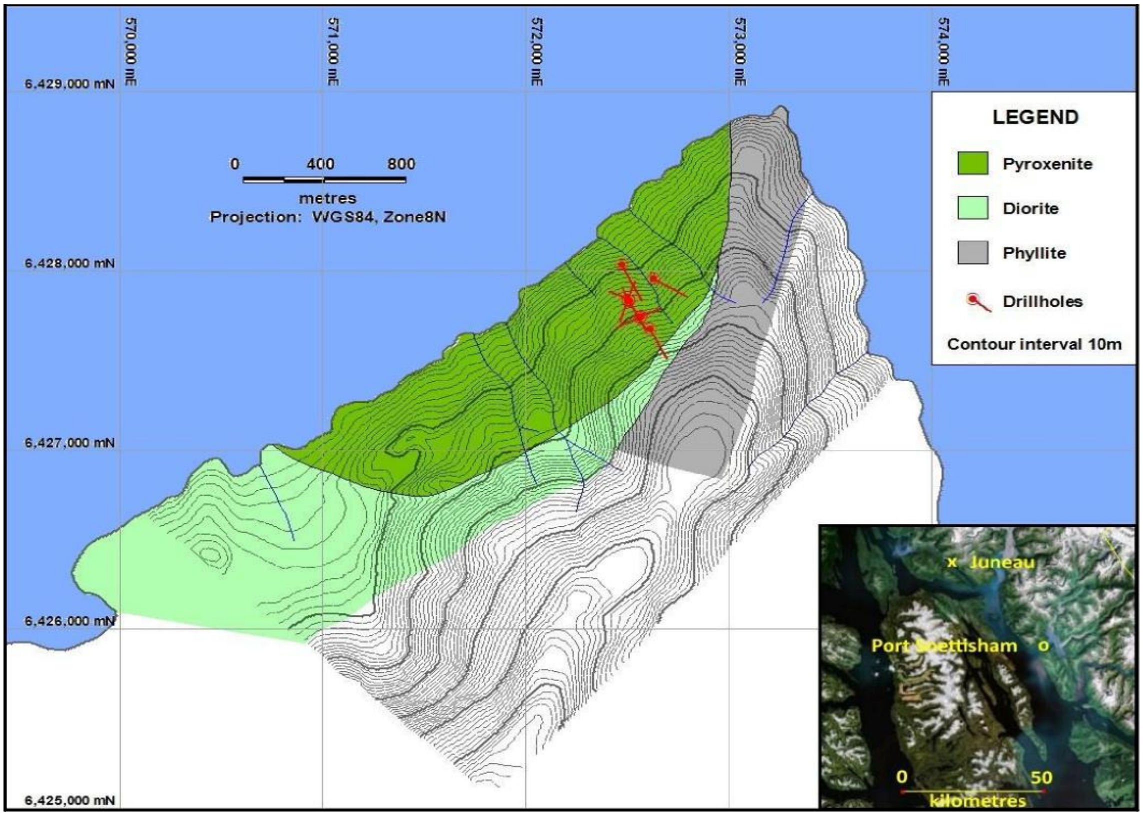


Figure 8: Drill holes from USGS plotted on geological map

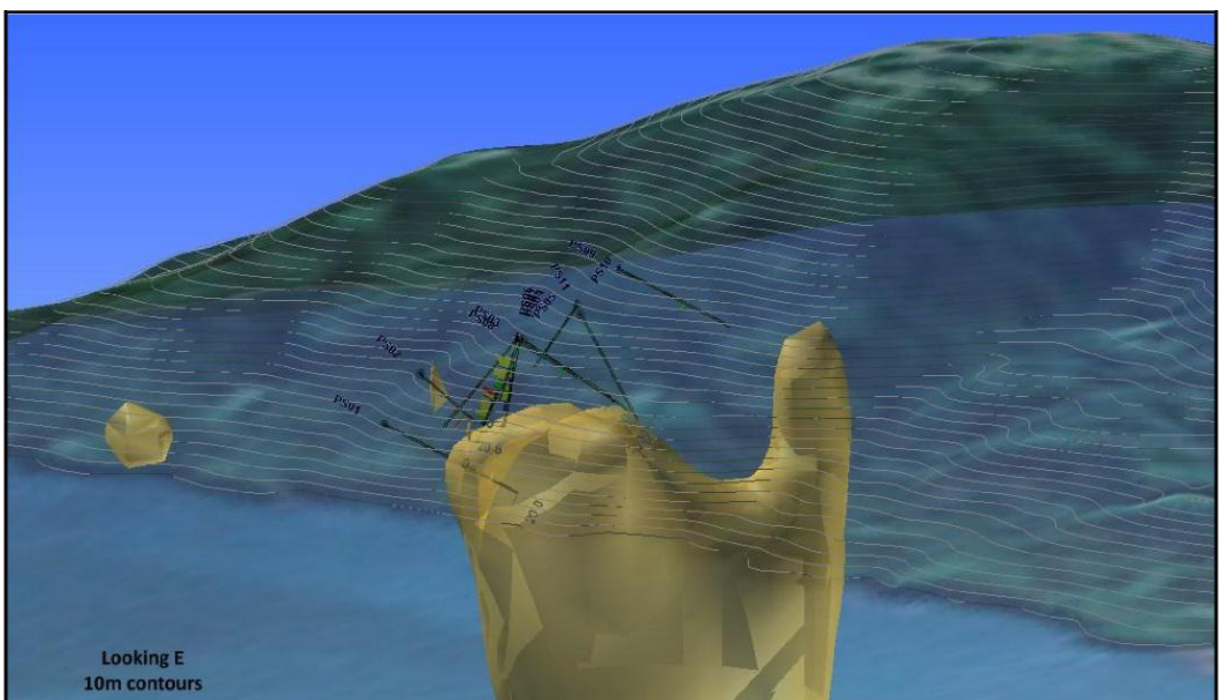


Figure 9: 3D Magnetic Inversion model of Port Snettisham body

The magnetics modeling (see above) suggests several pipe-like bodies of magnetic material within the pyroxenite units, the main body being located close to the contact with the diorite. The top of the main body is around 200m below surface, with the small apophysis coming to within 50m of the surface. Massive coarse-grained magnetite has been described on the beach under the northern magnetics anomaly (Photo 1).

The historic drilling appears not to have reached the main magnetic body to any significant degree as the drill holes were all too shallow. The high content of iron from the drilling possibly represent cumulates, stringers and veins above the main body. Core logging (Thorne & Wells, 1956) mentions “pyroxenite, with flow structure, masses of magnetite” and “magnetite, with some pyroxenite” in high grade sections of Hole 2, and “coarse-grained pyroxenite, with moderate to heavy magnetite enrichment” in Hole 4.

The exploration program proposed at Snettisham is to outline a body with moderate to high magnetite content that can be beneficiated to produce a 62% magnetite concentrate product through low cost grinding followed by magnetic separation. Subsequent test work by Arrowstar on two samples from Snettisham has shown that a 62% Fe_3O_4 product would be produced when a fairly fine crush of approximately 1.0-0.7 mm was achieved. This is in the range of low cost grinding equipment available today.

The other detailed paper that refers to resource size is that of **Himmel GR and Loney RA, US Geological Survey Professional Paper 1564, 1995, Characteristics and Petrogensis of Alaskan Type Ultramafic-Mafic Intrusions, South Eastern Alaska,** on page 5.

> “Most of the Alaskan-type ultramafic bodies are roughly circular to elliptical in plan with relatively steep contacts. They range in size from only a few meters to about 10 km in maximum exposed dimension (Union Bay, fig. 3). The larger bodies include those at Klukwan, Haines, **Port Snettisham**, Kane Peak, Red Bluff Bay, Blashke Islands, Union Bay, Salt Chuck, Annette Island, and Duke Island (fig. 1).” Magnetite is particularly abundant in clinopyroxenite and hornblende clinopyroxenite at Klukwan, Port Snettisham, Union Bay, and, to a lesser extent, at Salt Chuck.”
>
> On Page 29, regarding the formation of magnetite they comment “The Esseneite component (main constitutents being $CaFe_3$+$AlSi0_6$) of clinopyroxene generally increases with the differentiation sequence of rocks. Clinopyroxene with substantial Fe3+ and Esseneite component occurs in hornblende clinopyroxenite and magnetite clinopyroxenite at Douglas Island, Haines, Klukwan, **Port Snettisham**, and Union Bay. Experimental studies of Holloway and Burnham (1972) and arguments by Loucks (1990) demonstrate that when Fe203/Fe0 is buffered in the melt, increasing Pv, causes crystallization of increasingly Fe3+-rich and Al-rich clinopyroxenes (as esseneite and possibly Ca-tschermakite components). The elevated PH_2O promotes oxidation of iron which enhances crystallization of Fe3+-rich esseneitic clinopyroxene.
>
> The occurrence of clinopyroxene that has the higher esseneite component in hornblende- and magnetite-rich clinopyroxenites is consistent with these arguments and suggests that the magmas that crystallized the Alaskan-type ultramafic rocks gen-

erally became more hydrous as fractionation proceeded. The absence of abundant magnetite and hornblende in the ultramafic rocks of the Blashke Islands and Kane Peak bodies, and the generally low esseneite component of clinopyroxene in these bodies, suggest that the magmas that crystallized these two bodies were probably less hydrous and less oxidizing than the magmas that crystallized the other bodies."

To the best knowledge of BCI there has been no production from the Port Snettisham Claims. Thorne and Wells did a benefication study on the core samples using wet grinding and separation technology. They concluded:

"Laboratory beneficiation testing was conducted on composite samples prepared from diamond-drill cores obtained during the Bureau of Mines drilling campaign at the Snettisham deposit during 1953 and 1954. The investigation was executed in two distinct parts. Phase 1 consisted of a series of wet magnetic separation tests made on 17 samples composited to represent definite sections of the deposit. Phase 2 was a more intensive testing program on a sample composited to be representative, as nearly as possible, of the entire portion of the ore body covered by the investigation. All samples were roll crushed to minus-10-mesh and mixed thoroughly to assure representative splits for testing and analysis.

A study of the Thorne and Wells data shows that the trend of concentration is similar for all samples and that recovery of iron and rejection of impurities vary directly as the grade of the head samples. As summarized in table 6 of their paper, the results indicated that magnetic separation of Snettisham ore ground to minus-100-mesh would recover about 65 percent of the total iron in a product assaying over 60 percent Fe, about 4 percent Ti02, 0.5 percent S, 0.02 percent P, and 0.3 percent V. The high sulfur content is due to the magnetic sulfide, pyrrhotite; consequently, the final concentrate probably would require flotation or sintering for removal of sulfur.

"Portions of the general composite were ground with a porcelain mortar and pestle to pass 20-, 35-, 48-, 65-, 100-, 150-, 200-, and 325-mesh sieves. Each portion was treated on a low-intensity, wet magnetic separator to produce a magnetic concentrate and a nonmagnetic reject. Results are summarized in table 8. The results in table 8 show that the grade of iron in the final product is inversely proportional to particle size. Elimination of titanium and phosphorus is increasingly improved with finer grinding, but nearly 40 percent of the sulfur remains in the magnetic concentrate, even in the minus-325-mesh size range. The data indicate that grinding to minus-100-mesh is adequate for producing plus-60-percent Fe concentrate. Minus-150-mesh grinding, however, is necessary to reduce the phosphorus content of the magnetic concentrate to less than 0.01 percent P. At this grind 64.3 percent of the iron was recovered in a product that assayed 64.4 percent Fe, 3.7 percent Ti02, 0.62 percent S, and less than 0.01 percent P."

As previously mentioned, no data is available from the work done by Marcona Corporation. The above confirms the work done by Arrowstar Resources using the more modern Davis Tube Test and PerMr.oll Test.

5. Geological Setting

5.1 Regional Geology

Himmelberg GR and Loney RA 1995, describe the regional geologic framework of southeastern Alaska to include six main geologic features called terranes.

(1) The Chugach terrane is composed of mostly flysch; the remainder is melange that consists of Cretaceous metaflysch and mafic metavolcanic rocks. (2) The Wrangellia terrane is composed of Permian and Triassic graywacke, limestone, and mafic metavolcanic rocks. (3) The Alexander terrane is composed of coherent, barely metamorphosed Ordovician through Triassic graywacke turbidites, limestone, and volcanic rocks. The Gravina overlap assemblage depositionally overlies the eastern margin of the Alexander terrane and consists of variably metamorphosed and deformed Upper Jurassic to mid-Cretaceous flysch and intermediate to mafic volcanic rocks.

The Yukon Prong terrane consists of metapelite, metabasalt, marble, and quartzite; it has possible ancient crustal affinities and Port Snettisham is probably part of this terrane. (6) The Stikine terrane is composed of upper Precambrian basement rocks, some Devonian strata and Mississippian and Permian volcaniclastic rocks, mafic to felsic volcanic rocks, and carbonate rocks that were locally deformed and intruded in before Late Triassic time. The informally named Coast plutonic-metamorphic complex (Brew and Ford, 1984) has been superimposed on the Yukon Prong and adjacent terranes as a result of tectonic overlap and (or) compressional thickening of crustal rocks during collision of the Alexander and Wrangellia terranes with the Stikine terrane, the intervening Gravina overlap assemblage, and the Yukon Prong rocks (Monger and others, 1982; Brew and others, 1989).

The Alaskan-type ultramafic bodies are not restricted to any one terrane (fig. 1). Most were intruded into the Alexander terrane or into the Gravina overlap assemblage. The Red Bluff Bay body, however, occurs west of the main belt of Alaskan-type bodies on the east side of Baranof Island in what is generally interpreted to be the Chugach terrane, and the Port Snettisham, Windham Bay, and Alava Bay bodies occur in rocks that are probably part of the Yukon Prong terrane.

The ultramafic bodies fall into two age groups. Lanphere and Eberlein (1966) reported K-Ar ages that range from 100 to 110 Ma for 10 of the bodies. For the Duke Island body, Saleeby (1991) reported concordant U-Pb zircon ages of 108 to 111 Ma, and Meen and others (1991) reported the $^{40}Ar/^{39}Ar$ age for hornblendes of 118.5 Ma. On the basis of U-Pb zircon ages for gabbro pods in hornblendite at Union Bay, Rubin and Saleeby (1992) interpret that body to have an approximate age of 102 Ma. Loney and others (1987) reported data that suggest a much older age of about 429.1 Ma for the Salt Chuck body. Similar ages were obtained by M.A. Lanphere (1989) for ultramafic bodies on Dall Island (400.1 Ma) and Sukkwan Island (440.5 Ma).

The older group of Alaskan-type complexes was intruded into the Alexander terrane prior to collision with the Stikine and Yukon Prong terranes.

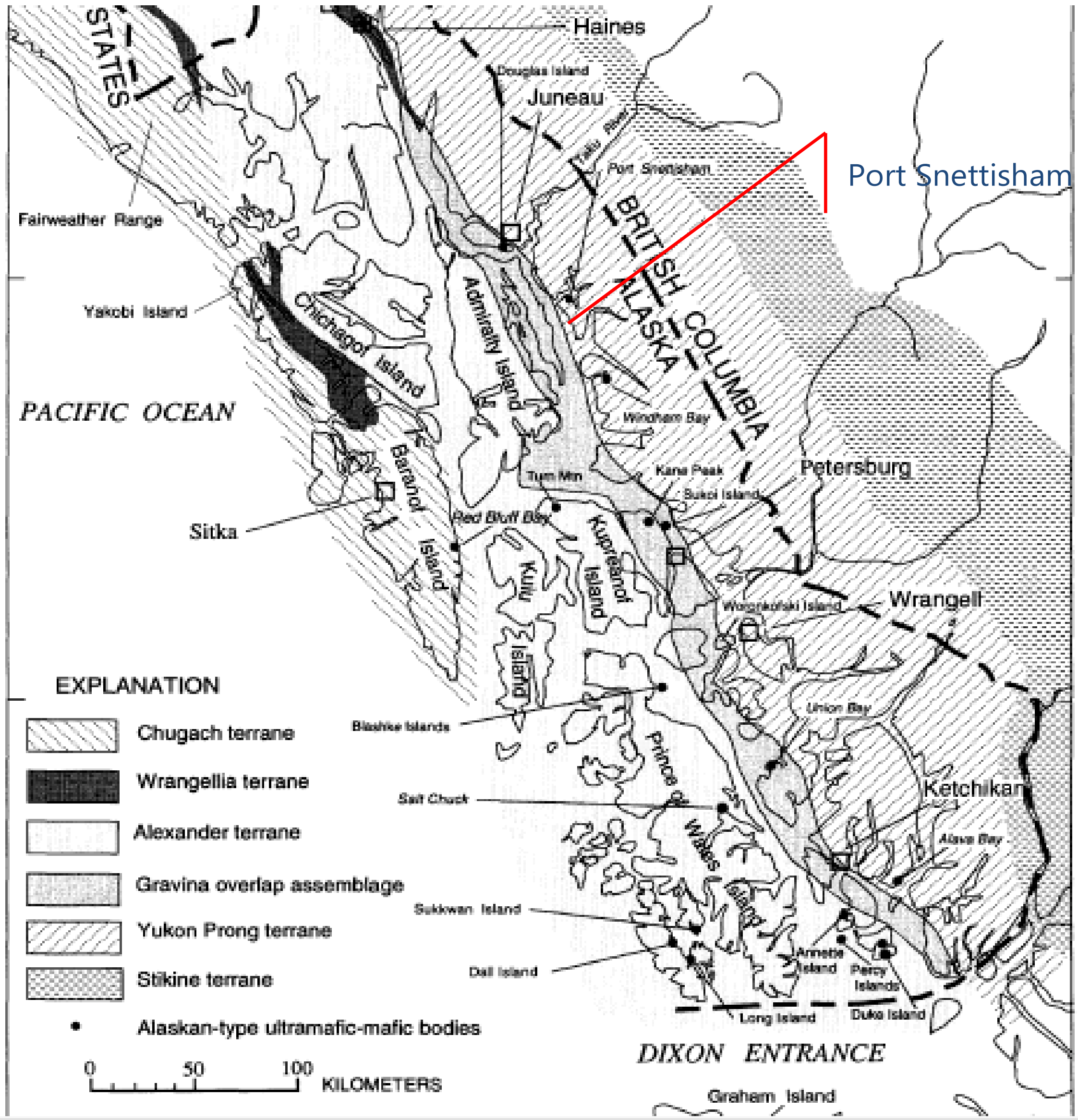


Figure 10: Regional Geological Map show the six main terrane geological structures

5.2 Local Geology

There are three main rock types on the property: Phyllite – a metamorphosed sedimentary rock, diorite, and the host rock for the iron ore, pyroxenite.

Most of the outcrop and scree that is exposed is along the foreshore of the property. There is a phyllite contact in the north and there is diorite to the south. The ultramafic pyroxenite rocks have cumulus textures that reflect their origin and concentration by crystal fractionation processes (Himmelberg GR and Loney RA 1995). Most of the ultramafic rocks are medium- to coarse- grained acumulates. Textures are generally subhedral to anhedral granular with mutually interfering, gently curved grain boundary segments. Dunite and wehrlite consist of adcumulus olivine and interstitial postcumulus clinopyroxene, which is poikilitic in some wehrlite samples. Chromian spinel is an accessory mineral in dunite and wehrlite. The main minerals observed from both cores drilled and scree are: Hornblende magnetite clinopyroxenite; biotite magnetite clinopyroxenite;

hornblende biotite magnetite clinopyroxenite. The crystallization order appropriate to the Alaskan-type cumulate sequence of rocks is therefore olivine + minor chromite, clinopyroxene, magnetite, hornblende, plagioclase ± orthopyroxene.

The geological map created by Thorne and Wells, 1956 shows the outline of the three main rock types encountered.

Thorne and Wells cited the northern part of Snettisham Peninsula is composed of diorite and pyroxenite, which has been intruded into phyllite. Near the abandoned mining town of Snettisham, pyroxenite is exposed along the beach and extends inland for a considerable distance. To the east, toward Sentinel Point, the pyroxenite is in contact with the phyllite, into which some sill-like layers of pyroxenite have been injected. To the south the pyroxenite is in gradational contact with diorite, as is indicated by float, by change in magnetic attraction, and by drill hole 9, which penetrated the contact zone (figs. 7, 8, and 15); outcrops are infrequent because of the heavy cover of soil and vegetation.

The pyroxenite is intruded by dykes of diorite and aplite and, more rarely, by narrow vein dykes of white alkali-calcic plagioclase. Aerial photographs of the Port Snettisham area indicate that the regional topography has been influenced greatly by a series of major fractures, which trend N. 15° W. and are intersected by another series of approximately parallel fractures trending N. 45° E. Within the area underlain by pyroxenite no major faulting is indicated by the topography; furthermore, no large fractures were encountered in the drill holes, although some movement within the intrusive is indicated by flow structure exhibited in the drill core.

5.3 Deposit Types

Thorn and Wells 1956 cite the northwestern part of the intrusive mass being composed of pyroxenite and associated variants containing magnetite, which occurs generally disseminated but also in localized concentrations. This has been observed by BCI. The other intrusive body is diorite, which also contains magnetite but in considerably smaller percentages than does the pyroxenite. Hornblende is a major constituent of the pyroxenite; in parts of the deposit it is the dominant dark mineral. Evidence of this can be seen in the beach samples.

Photo 5 Coarse grained magnetite with epidote alteration

Extreme variation in texture characterizes the pyroxenite deposit. Coarse-grained pegmatitic phases occur within the mass; they may consist of pyroxene and/ or hornblende or pyroxene, hornblende biotite, and magnetite in varying proportions, including dominant magnetite. Occasionally chlorite is intergrown with the other minerals. The magnetite commonly is associated with sphene, apatite, epidote, and very small amounts of pyrrhotite, chalcopyrite, ilmenite, and spinel.

As mentioned above, the magnetite is disseminated generally throughout the pyroxenite mass in fairly uniform amounts, but higher grade concentrations are indicated by float, by occasional outcrops, and by core-drill samples. Buddington mentions a 6-foot vein of virtually solid ilmenitic magnetite outcropping on the beach about 100 yards east of the first point opposite the site of the post office building at the old Snettisham mine camp. This cropping could not be identified during the Bureau of Mines investigation; however, massive magnetite float is abundant in the vicinity of the old camp, and a small cropping north of the location mentioned by Buddington, yielded samples that assayed 43 percent total iron. Massive magnetite is exposed in the bed of the small stream flowing between diamond-drill holes 1 and 2 at approximately 600 feet altitude. Drill holes, 1, 2, 4, 6, and 7 all encountered massive magnetite or above-average, magnetite-enriched pyroxenite in core sections ranging from 2 feet to over 50 feet in length. The size, continuity, and manner of occurrence of the high-grade magnetite encountered in the drill holes were not determined, but the incidence of such occurrence is believed to be normal for the drilled section of the pyroxenite intrusive.

The magnetite-bearing pyroxenite intrusive occupies a land area of approximately 390 acres along the northeast shore of Snettisham Peninsula. The shape of the exposed portion of the deposit is roughly that of the segment of a circle, with the chord length along the shore approximating 9,600 feet. The widest west-east section is approximately 2,400 feet;

altitudes range from sea level to 1,000 feet. The pyroxenite extends northwestward under the waters of Snettisham Inlet for an unknown distance.

The exploration target at Snettisham is to outline a body with moderate to high magnetite content that can be beneficiated to produce a 62% magnetite concentrate product through low cost grinding followed by magnetic separation. The drill targets have all been identified as magnetic highs and we are working on the basis that the Mg and Al content of the magma will influence the deposition of pure magnetite in the body (Himmelberg and Loney 1995).

6. Exploration

Arrowstar did some initial exploration work in June 2012 that consisted of taking beach and iron sand samples, doing some magnetic susceptibility readings on these scree samples and surveying the property for outcrop. It was interesting to note that the beach had silica sand in between the magnetite and pyroxenite outcrop and the next beach that had iron mineral sand. This indicates a possibility of the second anomaly that was picked up on the magnetic survey. They correlated the magnetic susceptibility readings to Fe which has been done by others (Eloranta, JW 1983 Master of Science Thesis – The Use of Magnetic Susceptibility in large diameter blast holes.) Subsequent to this initial geochemistry analysis of nine samples, a further 107 samples where taken and analysed and a Davis Tube Magnetic separation tests conducted. Geotronics Consulting Limited was hired to complete a ground magnetic survey.

Geochemistry Sampling

Rock chip samples were taken from scree and outcrop along the beach. A total of 11 samples were taken, and of these three were diorite and eight were pyroxenite.

The samples were sent to the Vancouver laboratory of Inspectorate Exploration & Mining Services Ltd., (a Bureau Veritas GroupCompany) Metallurgical Division, 11620 Horseshoe Way, Richmond, BC Canada V7A 4V5 for analysis using an Fire assay, ICP, XRF machines and wet chemistry assay to determine the Fe_2 component.

The results of the 8 samples (three were omitted) are set out below:

Sample	Fe3	Fe-Con	Al2O3	CaO	Cu	K2O	MgO	Mn	Na2O	P	S	SiO2	TiO2	V2O5	LOI
1	8.55	16.58	5.53	16.9	0.007	0.626	12.1	0.147	0.39	0.007	0.009	39.6	2.613	0.158	0.06
5	24.38	40.86	4.85	10.84	0.01	0.028	4.46	0.36	0.15	1.242	0.019	14.48	5.002	0.339	0.00
6	12.07	20.94	4.07	16.25	0.005	0.062	11.71	0.121	0.21	0.003	0.011	35.87	2.42	0.179	0.01
7	8.92	15.55	2.68	9.15	0.003	0.111	22.97	0.15	0.13	0.014	0.018	37.21	1.136	0.087	4.10
8	12.03	21.35	5.51	15.33	0.005	0.522	11.19	0.141	0.21	0.001	0.007	34.22	3.048	0.185	0.06
9	35.87	57.72	5.02	0.83	0.014	0.005	4.72	0.233	0.02	<0.001	0.008	2.31	6.471	0.564	0.00
10	10.25	19.72	6.66	17.42	0.005	0.284	8.24	0.263	0.77	0.668	0.017	34.74	2.956	0.147	0.00
11	7.26	16.12	10.34	15.01	0.013	1.013	9.38	0.19	1.42	0.959	0.252	34.4	2.704	0.124	0.23

Figure 11: Table of chemcial analysis of eight pyroxenite and magnetite samples collected May 2012

The machine calibration is set out below:

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Richmond, BC V7A 4V5 Canada

		Au	Pd	Pt	Fe2	Fe3	Fe	Al2O3	BaO	CaO	Cr2O3	Cu	Fe	K2O	MgO
		Au-1AT-AA	Pd-1AT-ICP	Pt-1AT-ICP	Fe2-WET	Fe3-CON	Fe-CON	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100
Sample	Sample	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	%	%
Description	Type	0.005	0.005	0.005	0.01	0.01	10	0.01	0.01	0.01	0.001	0.001	0.01	0.001	0.01
STD-SARM 5 expected								4.18		2.66	3.500	0.002		0.090	25.33
STD-SARM 5 result								4.18	<0.01	2.63	3.492	<0.001		0.082	25.17
QCV1206-00835-0002-BLK								<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.001	<0.01
QCV1206-00835-0003-BLK								<0.01	<0.01	<0.01	<0.001	<0.001	<0.01	<0.001	<0.01
STD-JSS 852-2 expected								0.38		0.13	0.004			0.007	1.15
STD-JSS 852-2 result								0.37		0.14	0.013			<0.001	1.13
Sample#1 5758786	Rock				8.03	8.55									
Sample#1 5758786 Dup					7.88	8.61									
STD-SY-4 expected					2.22										
STD-SY-4 result					2.33										
Sample#1 5758786	Rock	<0.005	0.010	0.010											
Sample#1 5758786 Dup		<0.005	0.010	0.010											
STD-PD1 expected		0.542	0.563	0.456											
STD-PD1 result		0.521	0.536	0.433											
QCV1206-00838-0003-BLK		<0.005	<0.005	<0.005											
Sample#1 5758786	Rock						16.58								
Sample#1 5758786 Dup							16.49								
STD-MW-1 expected							66.08								
STD-MW-1 result							66.08								
STD-WMS-1A expected							45.40								
STD-WMS-1A result							42.96								

INSPECTORATE
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Richmond, BC V7A 4V5 Canada

Certificate of Analysis

12-360-03899-01

Arrowstar Resources Inc
Suite 507-475 Howe Street
Vancouver, BC V6C 2B3

		Mn	Na2O	Ni	P	S	SiO2	TiO2	V2O5	Zn	Zr	Total	LOI
		NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100	NA-XF100
Sample	Sample	%	%	%	%	%	%	%	%	%	%	%	%
Description	Type	0.001	0.01	0.001	0.001	0.001	0.01	0.001	0.001	0.001	0.01		
STD-SARM 5 expected			0.37	0.056			51.10	0.200	0.048				
STD-SARM 5 result			0.36	0.054			51.10	0.184	0.045				
QCV1206-00835-0002-BLK		<0.001	<0.01	<0.001	<0.001	<0.001	99.42	<0.001	<0.001	<0.001	<0.01	99.42	
QCV1206-00835-0003-BLK		<0.001	<0.01	<0.001	<0.001	<0.001	99.68	<0.001	<0.001	<0.001	<0.01	99.67	
STD-JSS 852-2 expected		0.077	0.03	0.045	0.014	0.002	1.70	0.480	0.820				
STD-JSS 852-2 result		0.076	0.02	0.045	0.012	0.004	1.69	0.493	0.821				

The samples show that the Fe_3 concentration ranges between 30% and 60% of total iron. This may have been attributed to alteration of the magnetite to specularite or some other mechanism producing Fe2+ which is found in hematite. The FeO component can be expected to be in the 15%-18% range. The titanium content ranged up to 6.47% in the sample with the highest Fe value. This level is favoured by northern Chinese mills as titanium content preserves the refractory lining in the blast furnace and may assist with iron production that will have titanium added to it when it is converted to speciality steels. The LOI was very small (Loss of Ignition) showing there is very little water in the magnetite. The vanadium values were quite high for magnetite in one sample.

The Davis tube magnetic test results carried out by Inspectorate on the above samples were as follows:

Client:	Arrowstar	Project:	1204106
Test:	Davis Tube Magnetic Separation	Date:	June 26, 2012

Item	Test No.	Sample ID	Start g	Mag g	Non Mag g	Mag %
1	DT1	5758786 1 of 10	24.965	3.54	21.43	14.18
2	DT2	5758127 2 of 10	25.050	2.66	22.39	10.62
3	DT3	5758750 3 of 10	24.827	3.51	21.32	14.14
4	DT4	5759037 4 of 10	10.240	5.86	4.38	57.23
5	DT5	5759086 5 of 10	25.085	5.64	19.45	22.48
6	DT6	5759098 6 of 10	24.821	5.56	19.26	22.40
7	DT7	5759104 7 of 10	24.883	5.96	18.92	23.95
8	DT8	5759110 8 of 10	10.308	8.94	1.37	86.73
9	DT9	5759209 9 of 10	24.814	5.06	19.75	20.39
10	DT10	5759325 10 of 10	24.856	2.22	22.64	8.93

The interesting statistic from this analysis is that the magnetic separation is significantly higher than the Fe2+ concentration as a percentage for a high Fe total sample. This means that a wet separation process would work very efficiently. The grind size for Davis Tube is 325 mesh whereas 100 mesh will probably be more than adequate to achieve satisfactory concentration of magnetite.

This is ideal size for producing pellet feed. On the 23 October 2012 the following results were received on 105 samples collected during the trip BCI made in July 2012 to the Port Snettisham location. The methodology and processes were the same as used in the July 2012 study by Inspectorate.

							Snettisham Samples % Chemical Analysis								
	Fe	S	P	SiO2	Al2O3	TiO2	V2O5	K2O	Na2O	CaO	MgO	Mn	Ni	Cu	LOI
Min	9.99	0.00	0.00	1.71	1.24	0.34	0.03	0.01	0.02	0.66	3.87	0.11	0.00	0.00	0.00
Max	58.35	0.41	2.10	44.06	10.15	6.53	0.57	1.77	1.77	20.65	32.30	0.40	0.05	0.03	10.73
Avg	21.28	0.03	0.41	32.46	5.20	2.55	0.18	0.39	0.27	12.96	13.52	0.18	0.01	0.01	1.33
Std Dev	9.24	0.08	0.53	7.72	1.99	1.28	0.11	0.43	0.27	5.76	7.21	0.06	0.01	0.01	2.59

Figure 12: Minimum Maximum Average and Standard Deviation of 107 samples collected for chemcial analysis from Port Snettisham

As can be seen from the chemical analysis the average of the rock chip samples collected around the pilings area, close to a magnetic high and the beach area that is close to the diorite transition the average Fe was 21.3% and the minimum value 9.9% Fe. The average values for Titanium and Sulphur were good, phosphorous a little high but this will reduce on crushing as will the SiO_2. The alkalis levels of K_2O and Na_2O look very good but the average of CaO is high so this will have to be further investigated. The vanadium levels are very good for iron ore. 105 samples were collected so that statistically significant population tests could be completed.

On November 22, 2012, the Davis Tube tests of the 105 samples collected in July 2012 were received.

Mag Conc.		Non-Mag		Initial weight
(g)	%	(g)	%	(g)
5.17	**25.48**	**15.16**	**74.52**	**20.14**

They show that across a large number of samples not necessarily picked to have high component of magnetite that the magnetic fraction of the iron ore is approximately 25%. This would indicate that for approximately every four tonnes of run of mill iron ore mined one tonne of final product would be produced. However, this is not high grade run of mine material (>50% Fe as a cut off grade) but scree and outcrop that may not have been selected by a mining engineer. A pre-separation magnetic belt would have separated the diorite and other non magnetic material before it reached the magnetic drums and the HIG crusher.

6.1 PerMr.oll and Sala Testing

We then provided Inspectorate with four composite samples crushed to various sizes to see what the size effect would be on the liberation of Fe.

Inspectorate Testing Procedure
Each composite was crushed to four (4) different sizes and subjected to a magnetic separation process as follows:

6.3 mm (1/4")	PerMr.oll Separator
3.4 mm (6 mesh)	PerMr.oll Separator
1.7 mm (10 mesh)	PerMr.oll Separator
0.15 mm (100 mesh)	Sala Separator

The three per Mr.oll tests produced a concentrate, middlings and tailings product, while the Sala test resulted in a concentrate and tailings. All products were analysed for $_{Fe3O4}$ (magnetite content).

Results
Both composites produced very similar results. At the three (3) coarser crushes, concentrate grades were in a narrow range of 38 – 43% Fe_3O_4, only slightly above that of the overall feed grade. The middlings products were very similar in grade to those of the concentrates. There was negligible magnetic separation at these crush sizes.

It was not until the composite samples were crushed and ground to 0.15 mm (100 mesh) that an upgrading occurred. At this size concentrate grades of 80.0 and 85.2% Fe_3O_4 were achieved. As indicated on the following graph, a 62% Fe_3O_4 product would not be achieved until a fairly fine crush of approximately 0.8mm-0.7 mm was achieved.

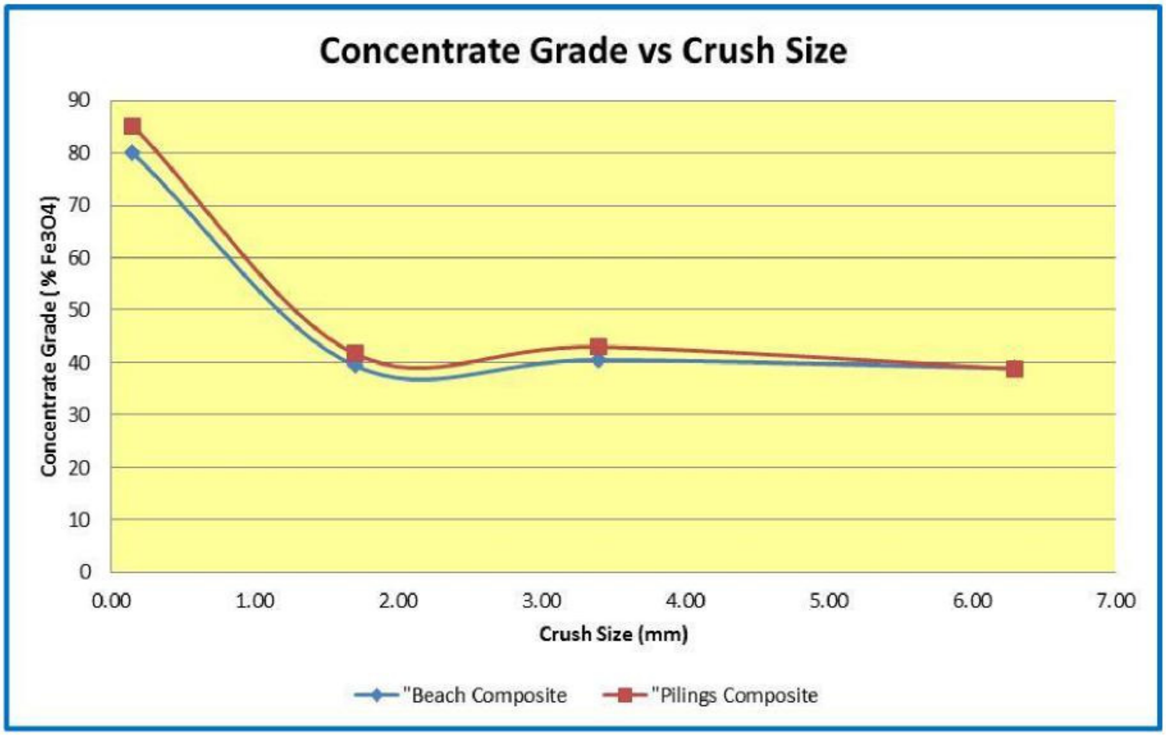

Figure 13: Magnetic concentration of Fe versus crush size

The screen analysis and fractional assay of the -6.3 mm (-1/4") feed sample indicates a very uniform Fe_3O_4 grade across all screen sizes. There appears to be no preferential mineral concentration.

The Sala Test produced the following results:

Sample: Beach Composite - 0.15 mm (-100 mesh)

Product	Weight		Assay	% Distribution
	g	%	% Fe_3O_4	Fe_3O_4
Magnetic Product	37.0	37.8	80.0	83.2
Non Magnetic Tails	60.8	62.2	9.8	16.8
Calculated Head	**97.7**	**100.0**	**36.4**	**100.0**

Figure 14: Table of the Sala Crush test results showing excellent results of 1:2 yield

The above results are consistent with the PerMr.oll results.

6.2 Magnetic Survey

Geotronics Consulting Ltd conducted a ground magnetics survey for Arrowstar during August 2012, using a Geometrics G-856 proton precession magnetometer. They completed 21 line traverses at a 90 degree angle to the contact zone of the phyllite and the pyroxenite. Geotronics Contouring of the reduced-to-pole values showed a magnetic high in the middle of the survey area measuring approximately 870m x 550m, elongated towards NE (Figure 4). Other magnetic highs were located along the shoreline to the north of the main body and in the southwestern corner of the survey grid. Neither of these anomalies was closed off because of the survey coverage.

3D Inversion modelling of the magnetics data was undertaken by Geotronics. Dxf files of the modelled data was provided by Arrowstar and imported into the Micromine project model by Geos Mineral Consultants, Sydney Australia.

The main magnetics anomaly produced a heart-shaped body approximately 500m x 500m x 700m, elongated vertically. The top of the inversion model is mostly 200m below surface, apart from a narrow apophysis on the southwestern side, which rises to within 50m of the surface. Inversion models of the smaller anomalies produced bodies that lie beyond the survey area and are regarded as being of low confidence level.

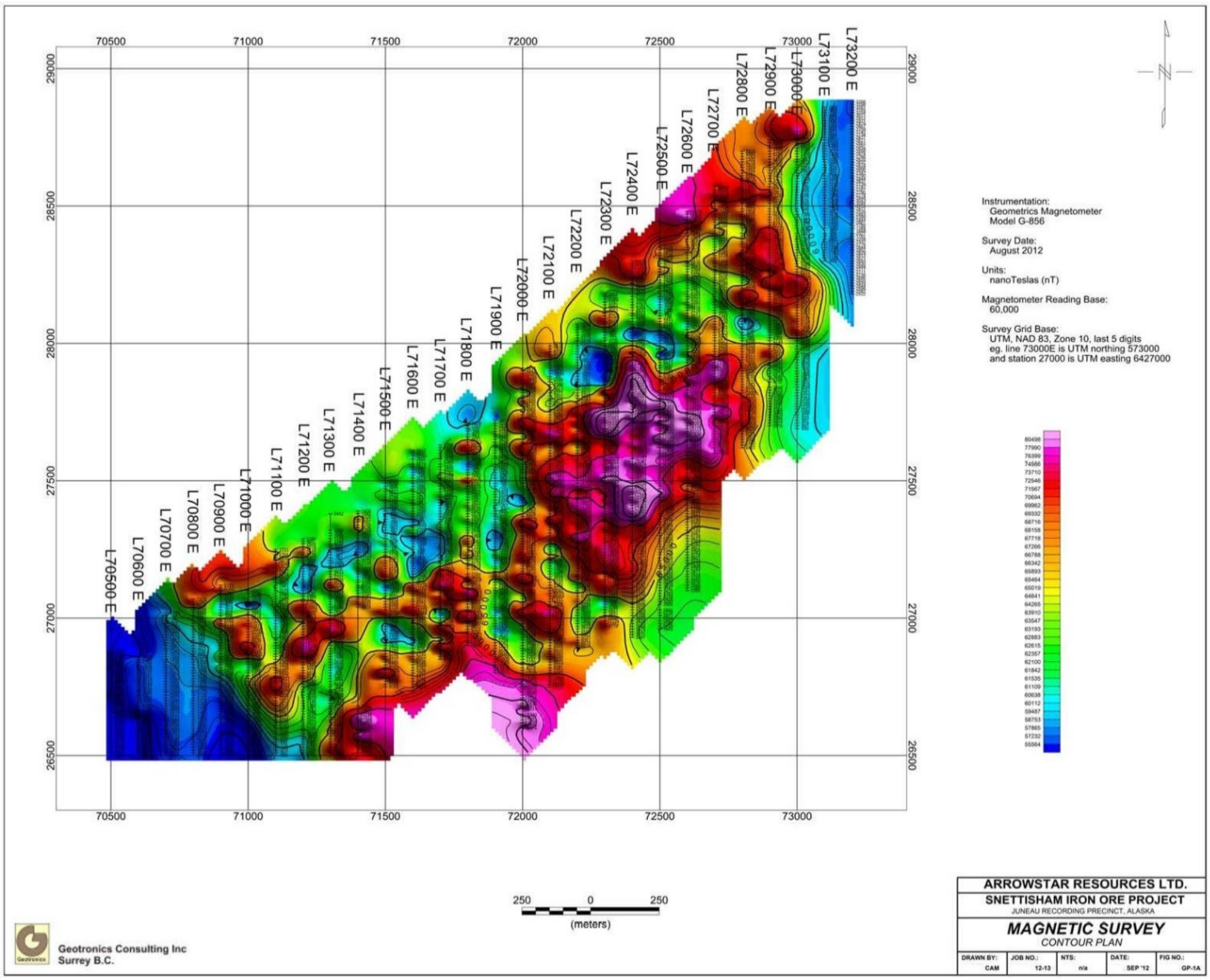

Figure 15: Magnetic Survey showing traverses and magnetic highs (pink areas) that have magnetite present in high concentrations

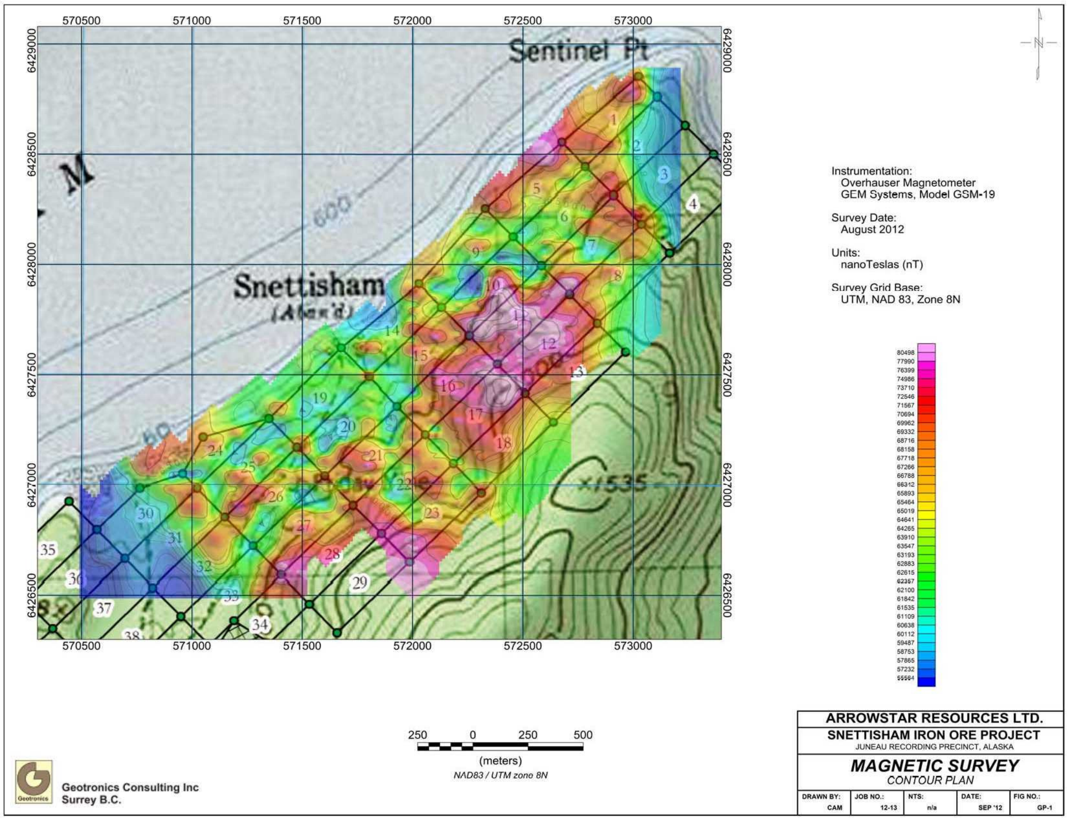

Figure 16: Claim map with magnetic concentration superimposed

Note the second large magnetic anomaly near claim 29 that is barely defined. An extension of this magnetic survey will better define this prospective resource.

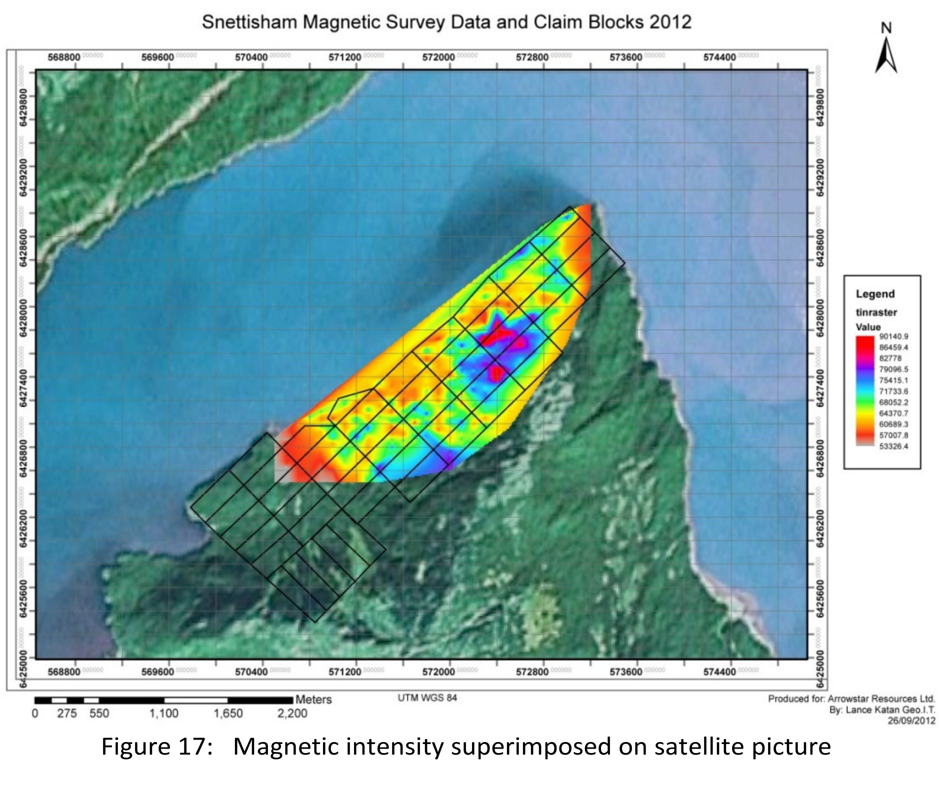

Figure 17: Magnetic intensity superimposed on satellite picture

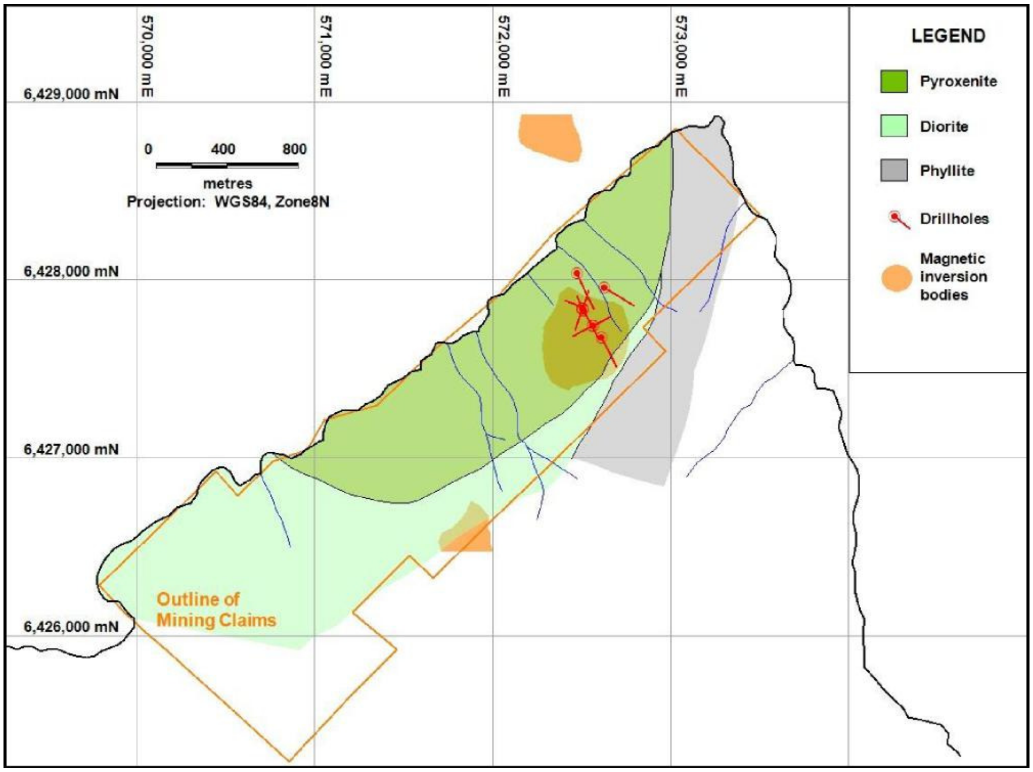

Figure 18: USGS drill holes plotted on geology rock contacts

Shown above are the USGS drill holes relative to the magnetic high indentified in the latest Geotronics survey. Below is the proposed drill hole pattern for the next drilling program to penetrate the inversion magnetic targets.

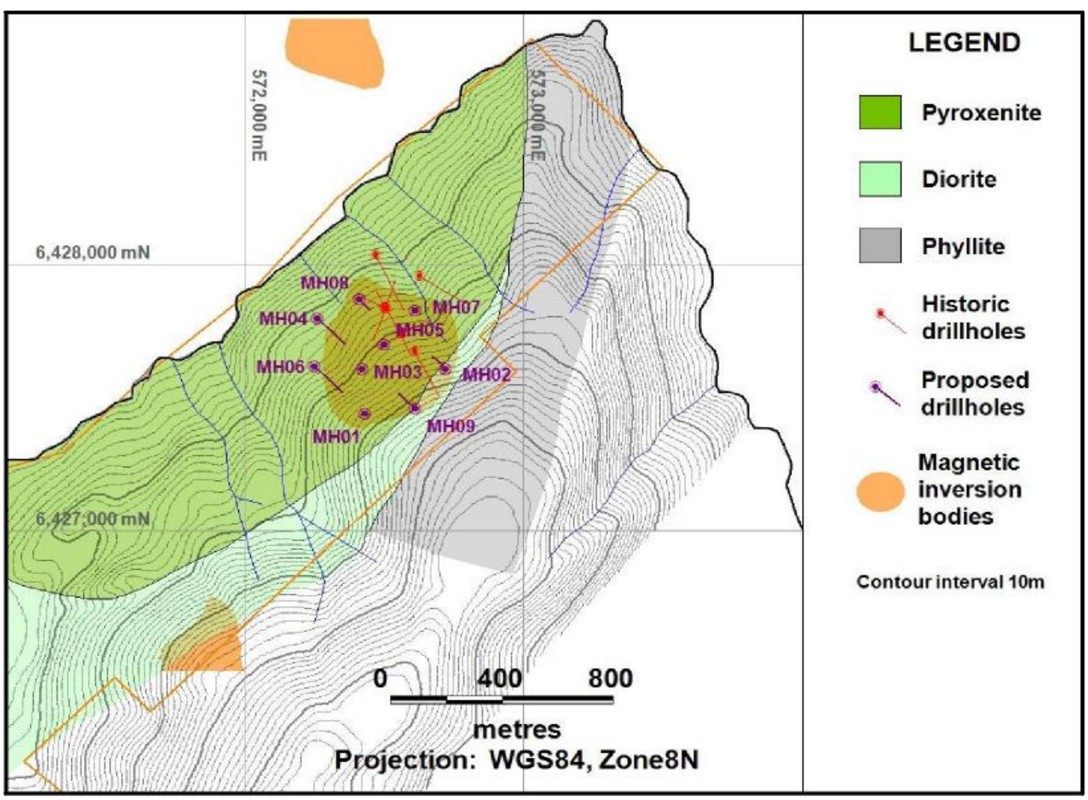

Figure 19: 2013 Drill hole locations plotted on the Geological Map

7. Drilling

All of the drilling on the Port Snettisham Iron property was conducted in the 1950s and 1960s. The drilling practices may have been in compliance with industry standards in place at that time but they cannot be validated or compared to current norms. Set out below is an extract from the Report from the USGS Report by Thorne and Wells 1956.

TABLE 1 - Summary of diamond core drilling

Hole No.	DP[1]/	Bit size2/				Total	Recovered center	
		NX	BX	AX	EX		Feet	Percent
1	2.0	2.0	8.0	840.6		852.6	807.6	94.9
2	15.0		3.0	2.0	722.0	742.0	699.8	96.3
3	3.0		4.0	3.0	732.0	742.0	721.5	97.6
4	5.0			4.0	496.5	505.5	491.3	98.2
5	5.0			4.5	539.5	549.0	508.6	93.5
6	5.0			3.4	431.8	440.2	407.0	93.5
7	10.0			5.6	385.4	401.0	361.7	92.5
8	4.0			6.5	485.6	496.1	472.9	96.1
9	6.0		4.0	5.7	703.9	719.6	683.8	95.8
10	9.5		2.5	3.5	484.7	500.2	476.2	97.0
11	8.0		2.0	5.0	583.0	598.0	580.8	98.4
Total	72.5	2.0	23.5	883.8	5,564.4	6,546.2	6,211.2	95.9

1: Drive pipe through soil and overburden; deducted from the total drilled before dividing to determine the percentage recovered.

2: These bit sizes indicate the following core diameter: NX - 2-1/8 inches, BX - 1-5/8 inches, AX - 1-1/8 inches, EX - 7/8 inch.

Core Sampling and Analyses

All AX core from hole 1 was split; half *was* submitted for analyses, and the remaining portion (representing 94.9 percent of the hole length) was retained and filed in the core library for future reference. Subsequent holes were drilled EX size, and only small, split pieces of core representing a 10-foot length of hole or a particular type of mineralization were retained and filed for future reference; the remaining bulk of the small core *was* submitted for analyses and later composited for laboratory study. All core was sampled according to mineral characteristics rather than by the length of drill run. Particular care was exercised to break samples at changes in magnetite content or rock type.

All 335 core samples obtained from the 11 holes were analyzed for total iron content; iron analyses and sample descriptions are given in table 2. The samples were composited according to iron content and submitted to the laboratory for *more* complete chemical analyses and for beneficiation tests; methods and results are in the following sections of this report.

For example the analysis for hole one:

TABLE 2 - Core-sample descriptions and total iron analyses

HOLE 1

Location: Lat. 4,352.5, Dep. 5,577.0
Elevation: 201 ft.
Depth: 852.6 ft.

Bearing: S. 25° 51' E.
Inclination: -30°

From-	To-	Feet	Total iron, percent	Description
0	3.0	3.0		Moss and soil overburden.
3.0	12.0	9.0	17.7	Coarse-grained hornblende, augite, and pigeonite, with small amounts of associated magnetite, olivine, apatite, sphene, epidote, biotite, pyrite, and chlorite. Also present are very small amounts of pyrrhotite, chalcopyrite, and ilmenite.
12.0	34.8	22.8	15.5	Same as 3.0-12.0 feet, except altered plagioclase at 27.5-31.5 feet.
34.8	44.0	9.2	16.1	***Same*** as 3.0-12.0 feet, some medium-grained flow structure.
44.0	63.8	19.8	16.0	Coarse mafic as above, with some alkali-calcic plagioclase stringers.
63.8	84.1	20.3	15.3	Same as 44.0-63.8 feet, with more biotite.
84.1	102.1	18.0	15.9	Coarse-grained mafic, with some flow structure.
102.1	112.3	10.2	16.9	Coarse-grained pyroxenite; some increase in magnetite.
112.3	128.8	16.5	17.4	Some pegmatitic segregation.
128.8	149.3	20.5	18.2	Do.
149.3	169.7	20.4	17.0	Coarse-grained pyroxenite, with hornblende masses.
169.7	189.8	20.1	15.9	Do.
189.8	208.8	19.0	16.3	Coarse-grained pyroxenite, with hornblende, some plagioclase, and epidote at 200 feet.
208.8	226.9	18.1	14.9	Hornblende and biotite hornblendite; some pyroxene.
226.9	247.5	20.6	16.0	Coarse-grained amphibole and pyroxene; some plagioclase.
247.5	268.0	20.5	16.7	Coarse-grained pyroxenite, some plagioclase, and some flow structure.
268.0	285.6	17.6	16.7	Coarse pyroxenite.
285.6	304.0	18.4	15.8	Do.
304.0	324.1	20.1	16.0	Coarse-grained pyroxenite, 8 inches diorite at 310 feet and 3 inches plagioclase at 320 feet.
324.1	344.3	20.2	16.0	Coarse-grained pyroxenite; diorite 328 to 330 feet.
344.3	364.6	20.3	15.1	Coarse-grained pyroxenite, partly pegmatitic; 1 foot diorite at 361 feet.
364.6	383.6	19.0	15.4	Coarse-grained pyroxenite; 1 inch diorite at 364 feet, much schist-like flow structure.
383.6	397.2	13.6	15.4	Coarse-grained pyroxenite.
397.2	419.0	21.8	15.4	Coarse-grained pyroxenite; some plagioclase at 407 feet.
419.0	437.2	18.2	15.3	Coarse-grained pyroxenite, hornblende 423-424 feet, augite 428-429 feet.
437.2	456.3	19.1	15.3	Coarse-grained pyroxenite, some pegmatitic; 3 feet diorite at 440 feet.
456.3	477.2	20.9	16.4	Coarse pyroxenite, partly pegmatitic.

There were no log conclusions made, except for the data logged above.

From-	To-	Feet	Total iron, percent	Description
477.2	495.9	18.7	16.4	Coarse pyroxenite, partly pegmatitic.
495.9	504.0	8.1	16.0	Do.
504.0	506.2	2.2	33.3	Magnetite and pyroxenite.
506.2	510.2	4.0	12.8	Coarse-grained pyroxenite, with little magnetite.
510.2	520.6	10.4	16.5	Coarse-grained pyroxenite, partly pegmatitic.
520.6	534.3	13.7	19.2	*Same* as 510.2-520.6 feet, with an increase in magnetite.
534.3	553.0	18.7	16.1	Coarse-grained pyroxenite.
553.0	561.6	8.6	15.7	Do.
561.6	572.0	10.4	17.8	Same as 534.3-553.0 feet, with slight increase in magnetite.
572.0	582.6	10.6	16.2	Coarse pyroxenite, partly pegmatitic.
582.6	599.2	16.6	14.0	Coarse pyroxenite, diorite, and breccia, 587-593 feet.
599.2	618.8	19.6	15.7	Coarse pyroxenite, diorite, and breccia, 615-618 feet.
618.8	638.3	19.5	15.7	Coarse pyroxenite, partly pegmatitic; 6 inches diorite at 630 feet.
638.3	659.2	20.9	14.2	Coarse pyroxenite.
659.2	679.7	20.5	14.0	Do.
679.7	698.0	18.3	14.3	Do.
698.0	717.6	19.6	14.9	Same as 638.3-659.2 feet, but 700-703 feet diorite with flow structure.
717.6	737.0	19.4	15.4	Coarse pyroxenite, partly pegmatitic.
737.0	755.8	18.8	14.9	Do.
755.8	772.1	16.3	13.9	Coarse-grained pyroxenite, some felsic areas.
772.1	790.0	17.9	16.3	Do.
790.0	811.6	21.6	14.6	Do.
811.6	830.8	19.2	16.3	Pyroxenite, partly pegmatitic.
830.8	852.6	21.8	16.3	Same as 811.6-830.8 feet, with 1/4 inch epidote, plagioclase stringer 837-838 feet.

The benefication testing followed a similar pattern to today's processes but with less sensitive and less sophisticated equipment.

Character of the Ore

Detailed physical and chemical studies were made on only the general composite sample representative of the portion of the Snettisham ore body included in the field examinations.

Physical

The sample essentially contains augite, hornblende, less magnetite, and relatively small amounts of calcite, epidote, chlorite, apatite, alkali-calcic plagioclase, and biotite. Also present are very small amounts of chalcopyrite, pyrrhotite, quartz, and pyrite.

The magnetite is partly liberated in the minus-200-mesh fraction; because of intimate association of ferromagnesian minerals, however, much of the magnetite remains locked.

Chemical

Representative head samples, carefully prepared from the general composite, were analyzed both chemically and spectrographically. Partial chemical analysis of the ore is shown in table 3. Semiquantitative spectrographic analysis revealed the presence and approximate quantities of the metal listed in table 4. Any other elements, if present, are in amounts lower than the minimum detectable by the routine technique employed.

TABLE 3 - Chemical analysis

Assay, percent									Oz. Per ton	
Fe	TiO2	S	P	V	A1203	Si021	Mg0	Ca0	Au	Ag
18.9	2.6	0.29	0.32	0.05	7.8	33.9	9.3	15.4	Nil	0.2

Ni, As, Mn, and Cu are present in amounts of less than 0.05 percent. Co *was reported* to be less than 0.01 percent.

TABLE 4 - Spectrographic analysis

Al	Ca	Cu	Mg	Fe	Mn	Ni	Si	Ti	V	B
C/	A	E	C	A	D	E	A	Di	E	F

Legend:

A. - over 10 percent.
B. - 5 to 10 percent.
C. -1 to 5 percent.
D. - 0.1 to 1 percent.
E. - 0.01 to 0.1 percent.
F. - 0.001 to 0.01 percent.
G. - less than 0.001 percent.

Magnetic iron, magnetite, or recoverable iron assays are empirical analyses, usually based on the percentage of total iron recovered in a concentrate made by wet low-intensity, magnetic separation at a selected grind. Thus, based on treatment of minus-100-mesh ore, the Snettisham general composite contains approximately 12.2 percent magnetic iron.

Tests described later show that both the grade of the concentrate and the percentage of iron remaining in the tailing depend, to a large extent, on the degree of fineness of the feed. For this reason, all recoveries given in this paper have been reported in terms of total rather than magnetic iron.

Dry Magnetic Separation

Magnetic separation, using a Wetherill-type high-intensity separator, was tried for the preliminary concentration step. For this test ore was roll crushed to minus20-mesh and screen sized on 35-, 65-, and 200-mesh sieves. Each fraction was treated separately to produce a magnetic concentrate and a reject. Like products were combined for *assay.* The combined concentrate *was* reground to minus-150-mesh and treated by wet magnetic separation. Results are shown in table 9.

TABLE 9 - Dry and wet magnetic separation

Product	Weight, percent	Assay, percent					Distribution, percent	
		Fe	**TiO2**	S	P	V	Fe	TiO2
Magnetic	19.38	66.1	2.85	0.41	1/0.01	0.37	65.6	21.7
Wet reject	22.03	8.7	3.90	.33	.28	1/.02	9.8	34.3
Dry reject	58.59	8.2	1.90				24.6	44.0
Calc. head	100.00	19.5	2.5				100.0	100.0
Dry magnetic	41.41	35.6	3.4				75.4	56.0

1/ Less than.

By combined dry and wet magnetic separation, 58.59 percent of the original weight was rejected after only minus-20-mesh grinding. The final concentrate contained 65.6 percent of the total iron and assayed 66.1 percent Fe, 2.85 percent Ti02, 0.41 percent S, 0.37 percent V, and less than 0.01 percent P.

Staged Wet Magnetic Separation

Review of the foregoing tests showed that by dry magnetic separation approximately 59 percent of the original weight of ore was rejected without further grinding, whereas by wet magnetic separation 73 percent of the ore could be rejected without further treatment. A study was made, therefore, of wet magnetic separation of minus-35-mesh material followed by regrinding the magnetic portion to minus-150mesh and re-treatment. Results are given in table 10.

TABLE 10 - Staged wet magnetic separation

Product	Weight, percent	Assay percent						Distribution, percent				
		Fe	**TiO2**	S	P	V	Si02	Fe	TiO2	S	P	V
Magnetic...	17.40	64.5	3.1	0.47	1/0.01	0.34	1/0.05	61.9	21.2	43.2	0.6	50.0
Regrind reject...	8.28	10.8	6.3	.31	.20	.08		4.9	20.5	13.6	4.4	5.9
Coarse reject...	74.32	8.1	2.0	.11	.49	.07		33.2	58.3	43.2	95.0	44.1
Cale. *head.*	100.00	**18.1**	2.5	.19	.38	.12		100.0	100.0	100.0	100.0	100.0

1/ Less than.

By staged wet magnetic separation treatment 61.9 percent of the total iron was recovered in a magnetic product that assayed 64.5 percent Fe, 3.1 percent Ti02, 0.47 percent S, 0.34 percent V, and less than 0.01 percent P. The recovery is slightly less than was made by direct wet magnetic treatment of minus-150-mesh ore, but the 2-stage treatment method eliminated fine grinding of 74 percent of the total material. Half of the total vanadium in the ore reported in the magnetic concentrate. Although the grade is only 0.3 to 0.4 percent V, a portion of the vanadium might be recoverable during subsequent smelting treatment.

7.1 Marcona Corporation Cores

Near the beach is the Marcona core shack with a rack of diamond drill core boxes made of cardboard. Approximately 150 boxes of core remain in the rack and it may even be possible to relog some of the core in those boxes. Unfortunately most of the core that was stored on site has been disturbed and a further 100 or more boxes have been spilled and emptied of their contents.

Photo 6: Marcona Corporation core trays in the core shack


Photo 7: Larger core split showing magnetite and biotite with epidote alteration

Based on the core boxes and core it was possible to determine the following:

- Core was placed in cardboard trays and labeled at the end of the trays.
- Drill core diameter was typically small diameter (22 mm; AX or EX diameter).
- Drill hole number and hole depths were marked on the trays ends
- Core was split in half for sampling, with one half retained in the core box.

Most holes were relatively short (i.e. average of less than 250 m). Arrowstar logged as many boxes as possible in the hope that the data will be recovered. In addition most core was briefly surveyed with the KT-10 magnetic susceptibility meter and values in the range of 10-14 magnetite units were recorded indicating Fe values in the 20-30% range.

Information on drill hole collar locations, hole orientations, core recoveries, apparent dip of stratigraphy, geological logs, assays, collar maps, and sections are not available.

BCI considers that if Arrowstar Resources collects new drillhole data for use in resource estimation then the drilling program should utilize:

- NQ or HQ diameter core (sufficiently diameter to ensure a reasonable sample size).
- Collar surveying using a differential GPS or total station.
- Core should be stored on site in a secure and protected facility in substantial plastic trays.
- Down hole surveys should be completed for all holes, at the end of the holes and at regular intervals (depending on the length of hole and amount of deviation observed).

- Oriented core should be completed in some holes in order to provide certainty for interpretations, and orientations of textures and structural features.
- Core photographs, geologic logs, core recoveries, and geotechnical data should be collected on all core.

The co-ordinates and azmith to be drilled is as follows:

Hole	East UTM_Z8N	North UTM_Z8N	RL	Azim	Dip	Length (m)
MH01	572430	6427440	270	0	-90	400
MH02	572720	6427610	270	315	-80	400
MH03	572420	6427610	210	0	-90	400
MH04	572260	6427800	112	135	-70	400
MH05	572500	6427700	210	0	-90	500
MH06	572250	6427620	148	135	-70	400
MH07	572610	6427830	172	0	-90	300
MH08	572410	6427870	140	135	-80	300
MH09	572610	6427460	318	315	-80	500

SAMPLING METHOD AND APPROACH

Samples prior to Arrowstar's work were taken from the various deposits contained within the Port Snettisham Iron property in the 1950s and 1960s. The sampling practices may have been in compliance with industry standards in place at that time but they cannot be validated or compared to current norms. A description of the historical exploration work is contained within this report. Observations of the remnants of the core in the core shack shows that the core was split in half for sampling, with one half retained in the core box. Sample lengths were variable but 10 foot (3.04 m) intervals appear to be the most commonly used. None of the historical sampling can be documented to ensure it is compliant with the current standards.

BCI considers that during sample collection the following should be considered:

- Sampling methods should be documented.
- Core should be sawn (with half retained on site in a secure and protected facility).
- Sample lengths should be consistent (or if samples intervals are determined by changes in lithology then a minimum sample length should be adopted i.e. 1 m).
- Compositing methodologies should be documented.
- Chain of custody procedures should be established and followed.

DATA VERIFICATION

No data verification or quality control/quality assurance (QAQC) program was in place during the drilling program conducted on site in the 1950s and 1960s.

Since the assaying and metallurgical testing of samples from the Port Snettisham Iron property was conducted over several decades and only Marcona core sample remains, BCI was unable to request additional work to verify the earlier results. Hence, BCI's findings are based entirely on documentation of previous assays and testwork. Although no verification work is possible, BCI considers that the groups involved with the earlier metallurgical testing are considered to be competent, respected and experienced in this field.

BCI considers that future drilling programs should include the following data verification steps:

- QAQC program including certified standard reference samples, blanks, duplicates, external check assays.
- Duplicates in some of the sample preparation steps.
- Twin holes to check old drill hole data if Marcona drill sites are found
- Analytical duplicates.
- Comparison of composite of individual data against the analytical results of the composite samples.

7.2 ADJACENT PROPERTIES

No other significant iron properties are known in the area surrounding the Port Snettisham Iron property.

7.3 MINERAL PROCESSING AND METALLURGICAL TESTING

Low-grade (<50% Fe cut off grade) iron formations such as those present in the Port Snettisham region of Alaska outcrop occur predominately as oxides with silicates as the principal impurity. The iron oxides occur in two forms, magnetite, in which the iron mineral is magnetic, and hematite, a much less almost nonmagnetic form of iron oxide. The magnetite is concentrated after crushing with magnetics and the hematite by using gravity separation or floating off the silicates.

Mineral processing operations involve the crushing and grinding of the ores to a size fine enough to free the iron mineral from the silica waste. The medium of transport of the ground product is water, or it may be a dry operation using conveyors. Wet magnetic separation is also viable if the magnetite and hematite occur together. The amount of size reduction required is determined by the size of the individual magnetite mineral particles and can be quite variable, even within the same ore body. Dry magnetic separation systems have also been very effective if the magnetic susceptibility of the magnetite is high. Iron ores in Chile separate very easily at 1-3mm using dry separation from 9% Fe (magnetic) concentration in the ROM head grade and produce 64% Fe.

Once the iron minerals are ground fine enough to liberate the iron oxide particles from the silica waste, processing steps are introduced to reject the waste product. With magnetic ores, mechanical separation of the iron and silicates is accomplished primarily using magnets (magnetic separators) to trap the iron while the non-magnetic silicates are washed or separated away. Hematite processing can present more of a challenge. If the hematite particles are coarse enough, the difference in specific gravity between heavier iron minerals, and the silica can be exploited and gravity separation utilized. Typical equipment such as spirals and thickening tanks are employed to segregate the heavier, iron rich stream from the waste. For finer iron mineralization, froth flotation is used on the iron oxide-silicates slurry.

This process utilizes reagents that have a specific affinity for iron or silica. The reagents, along with flotation machines, are used to mechanically separate the two minerals. In a flotation machine, utilizing the proper chemicals, air is introduced to the iron oxide-silica slurry. The air, along with the process chemicals, causes one of the two mineral species to attach itself to an air bubble and float to the surface.

The iron ore concentrate is then dewatered and usually formed into 10 mm diameter balls. The soft or “green” balls are hardened by firing in a special furnace to produce pellets for transport to blast furnaces where the process of converting the iron ore pellets into steel begins.

BCI reviewed documentation of testwork conducted on the various iron deposits of the Port Snettisham Iron property primarily by Thorne and Wells 1956. Other than the current report, no additional work was found to have been recorded after that date. The objective of the work undertaken was to characterize the resource in each location and assess its potential for use as blast furnace feed, sinter product or lump ore based on the quality parameters of that era.

In another paper by Holmes, WT and Banning H, 1964 Electric Smelting of of Titaniferous Ores from Alaska, Montana and Wyoming did take a sample and produce pig iron in 1963. They concluded “ABSTRACT:

> Electric-smelting studies were made on titaniferous materials obtained from the Klukwan and Snettisham, Alaska; Choteau, Mont.; and Iron Mountain, Wyo., deposits with the objective of determining the feasibility of producing pig iron and an enriched titania slag in one test series and pig iron alone in another test series. In addition, related studies were conducted to determine the amenability of Choteau crude ore to wet-magnetic separation and to determine the quality of steel that could be produced from the titaniferous pig iron.
>
> The continuous smelting tests were made in a three-phase, submerged-arc, electric furnace, and the laboratory steelmaking tests were made in a single-phase electric-arc furnace. A continuous, belt-type, wet-magnetic separator was used in conjunction with a ball mill and a spiral classifier in recovering titaniferous magnetite from the crude Choteau ore. Pig irons containing less than 0.05 percent phosphorus or sulfur

were readily produced from the titaniferous materials; iron recoveries ranged from 92 to 98 percent. The Choteau ore was ground to minus 65-mesh to produce a concentrate containing 60 percent or more iron. The steel produced from the titaniferous pig iron was a high-quality product."

Snettisham Concentrate

In the eighth test, limestone was used in the furnace charge to yield a low-phosphorus pig iron and a slag with a basicity of 1.57. A lower proportion of carbon was used than in previous tests. The percentage of total carbon obtained from coal was about the same as that of test 7. No operating difficulties were noted. About 92 percent of the iron was recovered in a premium-grade pig iron. Carbon and silicon contents of the metal were lower than in any of the tests on Klukwan concentrates. Electrode consumption was high; the low proportion of carbon in the charge was one of the factors that contributed to the high electrode consumption."

7.4 METALLURGICAL RESPONSE OF PORT SNETTISHAM MINERALIZATION

Documentation of the metallurgical testwork on the Port Snettisham iron ore was reviewed. Other than the above test work on a 15 tonne sample, no additional work was found to have been recorded after that date. While the Marcona documents make some reference to pelletizing the concentrates, the first pelletizing facilities were just being constructed at that time (1970's) and present day pellet quality specifications were not as yet available. The emphasis of the work was to create a final product for direct shipment or sinter. The product reported at that time was higher in silica than the acceptable norm for today's blast furnaces.

Today's chemical quality specifications for iron ore pellets generally require that the pellet be less than 5% silica and contain minor amounts of the trace elements that are detrimental to the steel making process. Critical trace elements include phosphorus and sulphur. Typically, sulphur will be driven off in the pelletizing furnace. Low concentrate sulphur content is critical to avoid dealing with sulphur emissions.

Concentrate sulphur content of less than 0.1% is desirable. Phosphorus content is somewhat dependent on customer specifications but is rarely higher than 0.09%. Recently, steel producers have shown an interest in a higher grade product called a DRI (Direct Reduced Iron) pellet that commands a higher price than the standard pellets described above. Generally, these pellets must be less than 3% in total impurities and assumed to have been prepared in a pilot plant 43 years ago but can not be located today.

8. MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

As discussed historical resource estimates on the Port Snettisham Iron property do not exist. BCI has reviewed the resource estimates completed during the 1950's for the Port Snettisham Iron property and notes that these provide a resource potential for the property but the estimates do not conform to the presently accepted CIM Definition Standards for Mineral Resources and Mineral Reserves, as required by NI 43-101 regulations.

Therefore Arrowstar Resources should not rely solely on the previous data for planning a work program or to establish a mineral resource on the property. Further fieldwork is required to locate and evaluate the true extent and nature of the mineralization at the Port Snettisham Iron property. As exploration progresses on the Port Snettisham Iron property further economic and technical evaluation of the resource potential for this project will need to be performed in accordance with present industry practices and standards as set out in NI 43-101.

9. OTHER RELEVANT DATA AND INFORMATION

All relevant data (with the exception of Section 10 below) and information regarding Arrowstar Resources's Port Snettisham Iron property is included in other sections of this report.

10. GENERAL SOCIAL AND ENVIRONMENTAL CONDITIONS

There were no fatal flaws identified concerning the environmental and social components of the Port Snettisham property. Potential environmental and social issues for project development are likely to include:

- Special Status Species-birds
- Tailing disposal-use of natural water bodies should be avoided.

It is recommended that Arrowstar Resources:

- Participate in the multi-stakeholder fauna and ocean life conservation project;
- Initiate baseline environmental monitoring and social impact assessments.
- Conduct a cultural heritage resource study.
- Develop and initiate a stakeholder engagement strategy for exploration and all subsequent project development phases.

Regulatory Framework

Alaska has extensive legislation and regulations that work to protect the environment and the health and safety of workers and communities. The properties under consideration are located on federal land.

11. INTERPRETATION AND RECOMMENDATIONS

Arrowstar Resources has acquired all the available property data that was collected during the historical exploration programs completed during the 1950's and 1960's. This data indicates that the potential for significant iron resources exists at the Port Snettisham Iron property. In order to delineate these potential iron resources, BCI recommends that Arrowstar Resources complete a nine hole drilling exploration program on the property.

11.1 CONCLUSIONS

At the Port Snettisham Iron property, Arrowstar Resources has acquired a property containing extensive outcrops of iron formation on the beach zone with several potential significant iron deposits.

This previous drillhole data cannot be used to develop a mineral resource in compliance with CIM or NI43-101 standards. Thus, all of the reported historical iron resources are considered speculative and do not meet any standard of modern reportable resources or reserves. Further, an iron resource not only requires an iron head assay, but it also requires some metallurgical knowledge as to whether that assay can in fact have a reasonable expectation of producing a viable commercial product.

Given that all of the information on the Port Snettisham Iron property was collected before the early 1970's, and a limited amount of the original samples of drill core remains, the property will require extensive exploration before an inferred resource can be determined. The known exploration targets and areas of significant potential should be regarded as an early stage project, with a significant economic potential should the mineralization prove to be consistent with the historical exploration results.

BCI has reviewed the historical exploration results and developed an exploration program to validate those results as outlined in Section 7 for the Port Snettisham Iron property. It is BCI's opinion that the Port Snettisham Iron property merits further exploration and that the proposed exploration plans are properly conceived and justified.

12. RECOMMENDATIONS

BCI recommends that a two phase exploration drilling program be conducted to develop an inferred resource on the Port Snettisham Iron property. Arrowstar Resources determined that the minimum initial objective of the drilling program should be to establish an inferred resource size of at least 100 million metric tonnes of Run of Mine ore (25 million cubic metres – 300m x 300m x 280m) at a Specific Gravity of 4 with a cut off grade about 20% Fe (magnetic). BCI has used that resource size and iron ore density as a guide in preparation of the proposed work program.

Given the consistency of magnetite in the pyroxenite iron formation shown by some of the outcrop at Port Snettisham, a drill hole spacing of 200 meters along strike may be adequate to identify an inferred resource. The drilling program will require approximately 25 holes with a cumulative length of 10,000m. The drilling program will also help understand the potential variation in mineralogy and in grain size of magnetite and/or hematite (liberation issues).

- Phase 1 would require 9 drill holes totalling 3,000 m and would be completed within 2013 at a cost of USD$1.2m plus a follow up geophysics and mapping work.
- Phase 2 would be contingent on the success of the Phase 1 work and would include 27 drill holes totalling 13,500 m at intervals sufficient to produce a measured resource estimate.

The work programs will include surveying, mapping, geophysics, drilling, and collection of some bulk samples for testwork. Core samples and bulk samples will be assayed and composites will also be analyzed using metallurgical tests. The metallurgical test work will include Davis magnetic tube tests to determine the potential recovery of magnetite and Wilfley table tests to determine the potential recovery of hematite.

The cost of drilling, assaying and metallurgical testing for the Phase 1 program is estimated to be $1.2 million (Canadian dollars). The entire program is planned to be completed within 2013. All drilling is planned to be conducted between the months of June and September.

The Phase 2 program is estimated to be at least $5.0M but will be contingent on the Phase 1 results.

12.1 DRILLING PROGRAMS

The Port Snettisham property is located on the northern end of Sentiental Point and extends 5 km to the sotuh. Mapping conducted during exploration programs during the 1950's identified a large potential commercial iron deposit along this relatively continuous segment of iron bearing pyroxenite.

A review of available data (plan maps, drill logs and cross sections) indicate drilling on 150m centers on lines spaced at 300 m it may be sufficient to define the distribution and metallurgical response of magnetite and hematite and the major structures controlling the thickness of the iron formation and identify a probable or proven resource. The historical drilling was performed at a variety of drill hole spacings and depths ranging down to 200m but mostly vertical.

A two phase, two year, exploration program is proposed to complete the drilling necessary to confirm a CIM and NI 43-101 compliant inferred mineral resource. If metallurgical results are favourable, then further drilling at closer spacing will be required to identify a measured or indicated resource. It is proposed that the second phase drilling program begin next year (2014).

12.2 2013 Work Program

The drilling program will be conducted with a helicopter portable drill rig (LY 38 e.g.). The location of drill holes will be surveyed using differential GPS with sufficient horizontal and vertical accuracy to enable use of the data for resource estimation. NQ (47.6 mm diameter) core will be adequate for providing large enough samples for sampling and composites for metallurgical testing. Core will be sawed in half with one-half of the core retained and stored on site. Lithologic and geotechnical core logging will be conducted on site. Samples will be collected based on geologic (mineralogical) units.

12.3 Personnel

The drilling program will require at least one senior geologist, one junior geologist, and two technicians. In addition, a geologist familiar with magnetite and hematite iron ore deposits and the processing of those ores should be available on a consulting basis to provide expertise in logging, sampling and compositing of samples.

The senior geologist will provide oversight of the drilling program, core logging, and sampling. The junior geologist will be responsible for overseeing drill rig moves, logging core and sampling. Technicians will be responsible for organizing core, sawing or splitting core, and crushing of core and subsample preparation (if necessary).

Each drill rig will have two drillers (one on dayshift and one on nightshift) and two helpers. The drilling company will also have a drilling supervisor on site. The camp will also require a cook and helper(s). Technicians and camp helpers could be hired from Juneau.

12.4 Assays and Metallurgical Analyses

Core samples will be collected for submission to an independent commercial laboratory. All core with over 10% iron as magnetite and or hematite will be sampled and analyzed. This is estimated to be 60% of the core and approximately 1,300 samples.

Sample intervals will be determined by field geology and will not usually exceed 2m intervals. All core will be analysed at 2cm intervals with a magnetic susceptibility meter. Arrowstar Resources may decide to expedite the assays of the individual samples and also reduce the amount of material being shipped from site by crushing and subsampling the samples on site using an XRF gun and a KT-10 meter. A small portion of the crushed material can be sent off site by boat. A larger split of the same sample can shipped to the metallurgical lab for composite preparation and testwork.

All sample intervals submitted to the laboratory will be subjected to the following analyses:

1. Whole rock chemical analysis (by XRF, ICP AAS) - SiO2, Al2O3, Fe2O3, FeO, Fe_3O_4 MgO, CaO, Na2O, K2O, TiO2, P_2O_5, MnO, Cr2O3, V2O5. TiO_2
2. Loss on ignition (LOI).
3. Fe++ by titration.
4. CO2 (carbonates).
5. Total S by combustion.

12.5 Metallurgical Tests

Metallurgical testing will be performed on composites of split core (NQ core). Up to 28.5 kg of each composite sample will be available for metallurgical testing. These samples will be submitted to a competent metallurgical laboratory for the following ore characterization and concentrating tests. The metallurgical work on the composites of the iron formation samples will consist of two specific procedures. The Snettisham composites will require both gravity and magnetic separation tests. Based on the available geologic information, a total of 261 samples of drill core will require testing.

Of the 261 samples:

- 51 will be magnetic iron formation requiring Davis Magnetic Tube Tests.
- 210 will be magnetite/specularite hematite requiring gravity separation tests and Davis Magnetic Tube Tests.

BCI recommends that each 10-m drill core composite be characterized by performing the following analyses:

1. Bulk density.
2. Whole rock chemical analysis (by XRF) - SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, TiO_2, P_2O_5, MnO, Cr_2O_3, V_2O_5.
3. Loss on ignition (LOI).
4. Fe^{++} by titration.
5. CO_2 (carbonates).
6. Total S by combustion.
7. SATMAGAN - magnetic iron determination.

The drill core characterization work will cost approximately $500 per composite sample.

The hematite fraction will be subjected to heavy liquid tests (SG = 3.3) to determine the size reduction required for liberation of the iron. Once liberation size is determined, Wilfley table tests, which continue as the standard concentrating test for coarse specular hematite, will be performed on a ground sample to assess recovery. The concentrate will then undergo chemical analysis by XRF and the tails will be analyzed for iron content.

12.6 Metallurgical Process Testing Cost Estimates

Discussions were held with the technical group from Inspectorate based in Vancouver,BC to obtain budgetary estimates for various testwork, ore characterization and chemical analyses. Technician charges of $100/hr are assumed based on experience and current industry cost structures. Contingency not factored into management and reporting charges.

The Snettisham Area contains an iron resource that is a combination of magnetite and hematite. It may be necessary to recover both hematite and magnetite in order to have an economic operation in this area. Metallurgical testing must evaluate the potential recovery of both magnetite and hematite at reasonable economic grind sizes. The estimation of magnetite recovery is straight forward and can be predicted well by the Davis Tube Magnetic Test. Hematite recovery can be estimated and can be predicted by table tests. Head and concentrate samples will be analyzed for a suite of elements critical to evaluating iron ore concentrate.

12.7 Logistical Support

Drill rigs, camps and fuel can be brought into Port Snettisham by ship. Drill rigs will be lifted by helicopter into the 9 drill sites. One helicopter will be required for the field season for staff and small item lifting. The supplies to establish the camp supporting the Snettisham drilling will be barged in.

12.8 Drill Program Budget

The proposed drilling program can be completed in two field seasons and will require 13,500 m of drilling. This budgetary figure includes direct drilling costs, helicopter transport, fuel, camp facilities and staff, geologic staff, sampling and analyses. The proposed drilling program would cost C$1.5 million dollars for phase one.

2013 Drill Campaign Budget CAD

Snettisham Project	**Details**	**Cost**	**Unit**	**Total Cost**
drilling rig contractor - 5 staff	feet x $/ft	11200	55	616,000
helicopter Hughes	$ x days	4500	10	45,000
helicopter robinson 44	$ x days	1500	81	121,500
geologist - Justin Burton	$ x days	350	85	29,750
snr geologist - Phil Thomas	$ x days	1500	7	10,500
camp cook	$ x days	250	81	20,250
core slicer	$ x days	300	81	24,300
meals - 9 staff	$ x days x men	23	729	16,767
diamond saw	per saw	1	1,500	1,500
grenburg saw	per saw	1	500	500
plastic core trays 3metre	trays x $	1120	15	16,800
barge - transfer food equipment	2 trips x $	1	3,000	3,000
purchase skiff	per skiff	1	25,000	25,000
portable toilet	per toilet	1	2,500	2,500
drill data into mine info	per task	1	5,000	5,000
model body, variograms, resource est	per task	1	10,000	10,000
airfares	PT, RM, JB,	3	4,500	13,500
tents, stretchers, tables chairs, cooking etc	staff x $	6	2,500	15,000
XRF spectrum gun	per gun	1	42,000	42,000
workers insurance	per project	1	10,000	10,000
beach decking	per deck	1	500	500
fuel storage drums	Blackrock quote	320	176	56,320
Internet satellite dish and service	per dish	1	15,000	15,000
tree contractor	per job	2	1,500	3,000
downhole mag sus gamma	per job	1	10,000	10,000
Chemical Lab Analysis	per sample lot	1	60,000	60,000
43-101 F1 resource report , review	per job	1	25,000	25,000
Total				**1,198,687**

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14. DATE AND SIGNATURE PAGE

The undersigned prepared this Technical Report, titled “Technical Report On The Arrowstar Resources Limited Port Snettisham Iron Ore Property Juneau Region, Alaska USA” with an effective date of June 1, 2013, in support of the public disclosure of technical aspects of the capital raising for diamond drilling the property by Arrowstar Resources. The format and content of the report are intended to conform to Form 43 101F1 of National Instrument 43-101 (NI 43-101) of the Canadian Securities Administrators.

Signed,

Burton Consulting Inc
Alex D K Burton
Principal
June 1, 2013

15. CERTIFICATE OF AUTHOR - Mr. Alex Burton

As Author of this report entitled "Technical Report on the Port Snettisham Iron Property Port Snettisham Bay Region, Alaska", dated June 1, 2013, I, Alex Burton do hereby certify that:

1. I am the Principal of Burton Consulting Inc., 1408 - 7 Avenue, New Westminster, B. C. V3M 2K3 Cell: 604 525 8403, Email: aburton@shaw.ca and carried out this assignment as the Principal of Burton Consulting Inc. I hold the following academic qualifications: Graduate Geologist (B.A. University of B.C.1954);
2. I am a member of and registered as both a Professional Engineer and Registered Professional Geologist in B. C., #6262. Founding Member (#17) of the Assn. of Exploration Geochemists (now called Association of Applied Geochemists), Life Member Canadian Institute of Mining and Metallurgy (C.I.M.M.), and Life Member of the Association of Geoscientists for International Development;
3. I have worked as a mining engineer in the minerals industry for 58 years.
4. I have read National Instrument 43-101 ("NI43-101") and Form 43-101F1 and, by reason of education, experience and professional registration, I fulfill the requirements of a Qualified Person as defined in NI 43-101. My work experience includes setting up and managing exploration offices for major mining companies (Noranda, Copper Range, Phelps Dodge, Mindeco) in Canada, U.S.A., Australia, and Africa. I've worked in mining exploration and production in metals, gems, industrial minerals, coal, where I was responsible for completing geologic models, reserve estimates, economic analysis, slope designs, pit optimization, pit design, long term scheduling, short term scheduling and reserve validation.
5. In this report I am responsible for all sections of this report.
6. This Report has been prepared in compliance with the criteria set forth in National Instrument 43-101 and Form 43-101F1.
7. I have had no prior involvement prior to 2012 with the properties that are the subject of this Technical Report.
8. I have visited the properties from July 10 2012 through July 14, 2012.
9. I am independent of Arrowstar Resources as defined in Section 1.4 of NI 43-101, other than providing consulting services.

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

Dated this 1 day of June, 2013 *"Alex R K Burton."*