

2012 GEOLOGICAL AND GEOCHEMICAL REPORT  
FOR THE  
VULCAN PROPERTY

Fort Steele Mining Division, Southeastern B.C.

Mapsheets 82F079, 82F089

Latitude 49°47' N, Longitude 116°20'W

Prepared for

Navy Resources Corp.  
918, 1030 West Georgia St.  
Vancouver, BC V6E2Y3

BC Geological Survey  
Assessment Report  
33554

by

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## SUMMARY

The Vulcan property is located in the Purcell Mountains approximately 30 km northwest of the historic Sullivan Mine at Kimberley, B.C. The property consists of 5 claims and is 100% owned by Eagle Plains Resources with no underlying royalties or encumbrances.

The principle exploration target on the property is a Sullivan-type stratiform sediment-hosted massive sulfide deposit. The Sullivan Mine has produced 144 million tons of ore averaging 6.5% Pb, 5.6% Zn and 2.3 opt Ag to 1988. At the Vulcan, the styles of mineralization, host rocks and alteration all show strong similarities to the Sullivan Deposit. The best sulfide mineralization at Vulcan is exposed in a surface showing. Strata controlled pyrrhotite-galena-sphalerite occurs on the "Sullivan Horizon" in a 7.5 m thick zone which includes 1.5 m averaging 1.6% combined Pb-Zn. Grab samples of this zone assay up to 5.5% Pb-Zn and 22 opt Ag.

The Vulcan property and its surrounding geology has been tested by historic drilling on a few separate occasions. The most comprehensive testing occurred in the early 1990's by Ascot Resources. In 1991 a five hole 1,003m total drill program was completed; all holes excepting Vu-91-4 were drilled within the current boundaries of the Vulcan property. In 1992 three holes were drilled to the west of the Jurak 1 claim in the West Basin area. The West Basin program, totaling 1535m of drilling, explored the Lower-Middle Aldridge contact (LMC) to depths of 300m, roughly 600-800m down-dip of 1991 intersections. Though 1992 drilling indicated the presence of Sullivan-type stratigraphy and alteration in all holes, significant base-metal mineralization was not encountered. The down dip extension of the 1991 holes on the Vulcan Property remains untested.

Work conducted on the Vulcan property in 2005 included reprocessing and reinterpretation of 1995 EM geophysical data and the development and implementation of a GIS database. In 2005, as part of a data compilation on an unrelated project in SE BC, Eagle Plains requested an independent contractor, Condor Geophysics, to verify and reprocess Geoterrex-Dighem (now Fugro Airborne Surveys) EM survey data collected in 1995 by a joint partnership between BC Ministry of Employment and Investment, Energy and Minerals division, BC Geological Survey Branch and the Geological Survey of Canada. During the course of the data verification by Condor, it was found that the GPS height and the barometric altimeter height were both corrupted, rendering the original geophysical maps and related data included in the 1996 public release highly suspect, if not worthless. After considerable effort Condor was able to arrange for the government to supply replacement SRTM (Shuttle Radar Topography Mission) elevation data that has reasonable resolution and based on this new data set were able to produce a new interpretation of the 1995 data. As the 1995 survey also covered the Vulcan claim area Eagle Plains contracted Condor to correct and reinterpret the EM data for the area referred to as the St. Mary Block. Compilation work included scanning, rectifying and digitizing the historic geology maps, creating a drill-hole database, imputing the historic drill logs, and the creation and interpretation of new sections. A geochemistry database was also implemented utilizing historic rock, silt and soil sample data. The geochemistry and drill-hole databases allow for a more organized approach to the interpretation of the geology of the Vulcan.

Based on the results from the 2005 program, further work was recommended for the property to better define the down-dip projection of the Lower-Middle Aldridge contact, the stratigraphic horizon that hosts the nearby Sullivan deposit. In 2006, Eagle Plains carried out a helicopter borne time domain geophysical survey on the project. A total of 125.51 line km at 200m spacing was flown on April 29th 2006. Initial results from the survey indicate that the survey imaged the known mineralized structures and has also identified areas for further follow up. The total cost of the 2006 program was \$39,178.84.

In 2011, Fugro Airborne was contracted to conduct a 318 line km heliborne gravity gradiometry (AGG)

survey of the Vulcan property with a North-South transverse line spacing of 100m and 2000m spaced tie lines. The survey was successful in identifying possible discordant structures spatially associated with the Hilo 2 showing. The nature of the gravity high remains unknown but could represent a mineralized structure associated with proterozoic growth faults that has not been detected at surface. The total cost of the 2011 exploration program was approximately \$118,583.19.

The 2012 work consisted of completing due diligence work to confirm the historical results at the Hilo 3 showing along with doing geological evaluation on the showing and most prospective location to put a drill pad to test the down dip extension of the mineralization. The sample collected at the showing returned 10.6 g/t Ag, 0.9% Pb and 0.7 % Zn over 1 m.

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## INTRODUCTION

The Vulcan property is located in the Dewar Creek \ White Creek area 30 km Northwest of Kimberley, in southeastern British Columbia (Figure 1). The claims are centered at approximately Latitude 49°48' N, Longitude 116°18'W on NTS map sheet 82F/16. The Vulcan claims were acquired to cover four strata-bound lead zinc and copper occurrences, hosted in Aldridge Formation siltite and argillite rocks, as well as to cover the deep down dip extensions of the target horizon along the west side of the property.

## Tenure

The property consists of 5 legacy claims located in the Fort Steele Mining division. Total property area is 1481 hectares. Refer to Table 1 for a complete list of the tenures and their expiry dates and Figure 2 for their location.

On October 24<sup>th</sup>, 2011 Eagle Plains Resources Ltd. And Navy Resources Corporation (Navy) executed a formal option agreement whereby Navy may earn an undivided 60% interest in Eagle Plains' 100% owned Vulcan Property. Under terms of the agreement, Navy will complete exploration expenditures of \$3,000,000, make cash payments of \$250,000 and issue 1,000,000 common shares to Eagle Plains over a fifty-four month period.

There are, to the best knowledge of the author, no liens or encumbrances on the claims. The title was researched using the BC Mineral Titles Division on - line database.

*Table 1 – Vulcan Tenure Data*

Tenure Number	Claim Name	Map Number	Area (Ha)	Owner	Issue Date (MM/DD/YY)	Good to Date* (MM/DD/YY)
398960	JURAK 1	082F079	390	Eagle Plains Resources Ltd. (100%)	12/16/02	12/10/14
408455	VC	082F089	450	Eagle Plains Resources Ltd. (100%)	03/03/04	12/10/14
408454	VC	082F089	450	Eagle Plains Resources Ltd. (100%)	03/03/04	12/10/14
406827	VC	082F079	41	Eagle Plains Resources Ltd. (100%)	11/21/03	12/10/14
406826	VC	082F079	150	Eagle Plains Resources Ltd. (100%)	11/21/03	12/10/14

\*Upon government approval of this report.

## Location

The Vulcan property is located in the Dewar Creek \ White Creek area 30 km North West of Kimberley, in southeastern British Columbia. The claims are centered at approximately Latitude 49°38' N, Longitude 116°40'W on Map sheets 082F057 and 067 (Figure 1).

## **Accessibility, Climate, Local Resources, Infrastructure and Physiography**

### *Access*

The property is accessible by road, by proceeding 50 km west of Kimberley on the St. Mary Lake and River Forest Service roads, then 8 km north on the Dewar Creek logging road. A 4 x 4 access road was built by Cominco in 1979 to access the West Basin area; the road extends 2.5 km east of the Dewar Creek road 8 km marker and into the Vulcan property. The road has steep (+15%) grades and several tight switchbacks; its current condition is unknown. This road extends to an alpine meadow at 2,025 m elevation, and ends in West Basin, approx. 1.5 km northwest of the peak of Mt. Patrick, on the Jurak 1 claim. Access to Jurak Lake basin is by an old pack trail (2 hours on foot from the end of the road). The eastern half of the property can also be accessed by traveling approximately 15km north on the White Creek logging road.

The West Basin 4X4 road was restored and water barred at the close of the 1992 program, but still provides a popular recreational access route to St. Mary Alpine Park. Alternate access to the alpine portions of the property is by helicopter charter from Cranbrook, B.C. (0.35 hrs one way), or from a helicopter base near the east end of St. Mary Lake (0.20 hrs one way).

### *Local Resources and Infrastructure*

Rail facilities are located at Cranbrook, 50km south east of the property, which could be used to ship ore to the Teck-Cominco smelter at Trail, B.C., approximately 130 kilometers west of the Vulcan property. Direct air service is provided from Calgary and Vancouver to the Cranbrook Airport, located approximately 40 kilometers east of the property. There is a well established mining support industry in the area, to service the SE British Columbia coal mines and, until 2001, the Sullivan Mine in Kimberley.

### *Physiography*

The claims are located in the Purcell Mountain Range. The western half of the claims covers rugged mountainous areas up to 3,300 m elevation. The eastern part of the claims covers more moderately sloping mountainous terrain and includes parts of the wider, more flat White Creek valley at approximately 1,240m elevation. The tree line is gradual, with sparse tamarack persisting to approximately 2,400 m.

### *Climate*

The weather is typical of the Purcell Range, with moderate to dry summers and heavy snowfall in the winters. Most of the property is free from snow from mid May until mid October, and the road infrastructure allows drilling from mid April to mid November.



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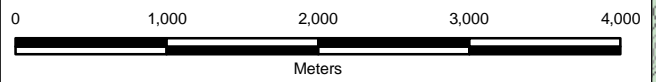
**Navy Resources Corp.**  
**Vulcan Property**  
**Figure 2 - Tenure Map**  
 Projection - NAD 83 UTM Zone 11N  
 Scale - 1: 50 000  
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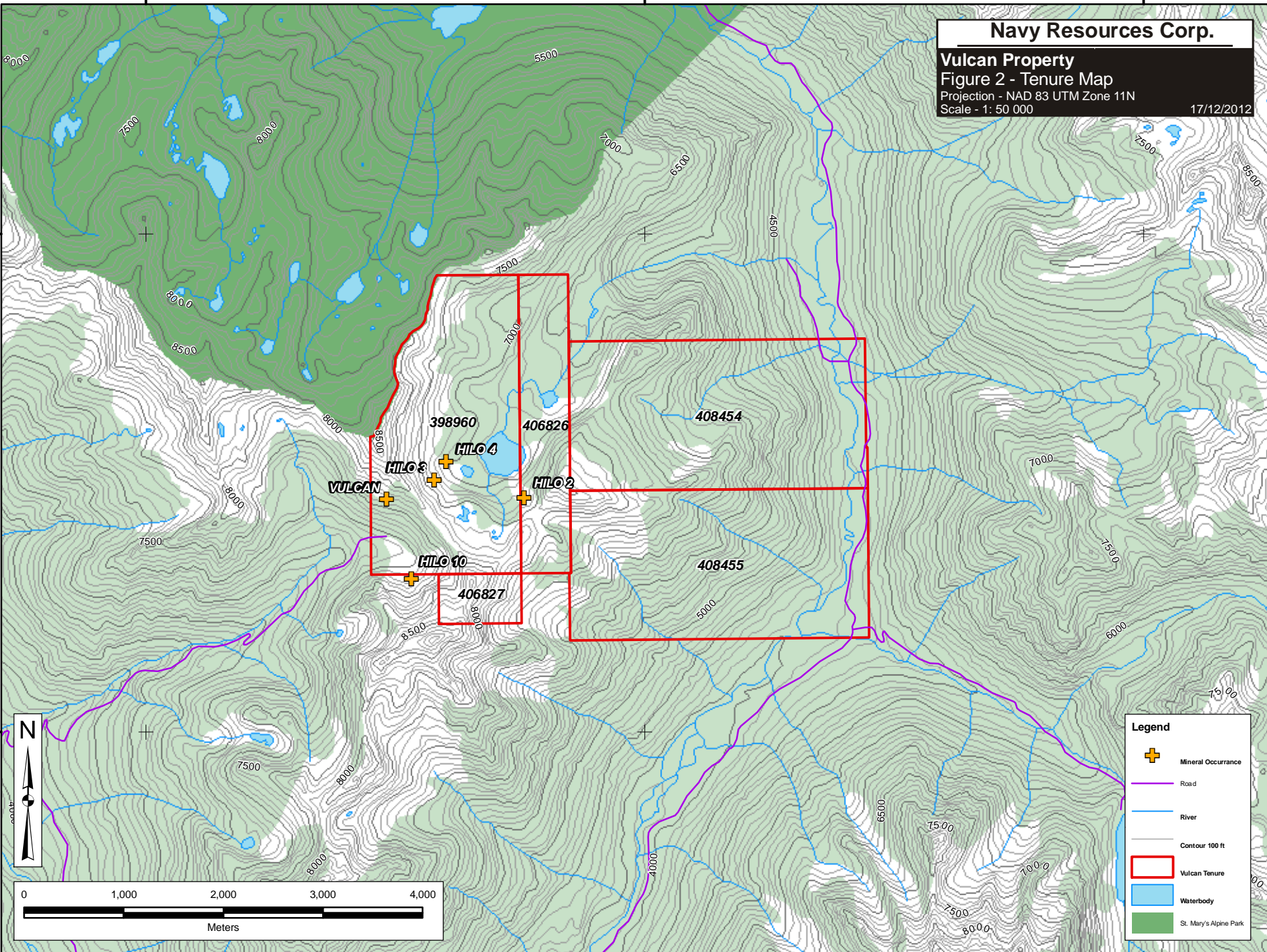
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**Legend**

-  Mineral Occurrence
-  Road
-  River
-  Contour 100 ft
-  Vulcan Tenure
-  Waterbody
-  St. Mary's Alpine Park



## PROPERTY HISTORY

The western part of the Vulcan property was originally staked by Cominco in 1957. During 1957-58, Cominco conducted prospecting, detailed mapping, trail building and an experimental magnetometer-electromagnetic survey. Three short packsack drill holes were also completed on the Main Showing, the results of which are not known to the author.

The Pb-Zn showings were discovered during this period and the mineralization was recognized as being stratigraphic-controlled. Widespread tourmaline mineralization was also noted and observed to be stratigraphic-controlled. A strong similarity between the Vulcan and the Sullivan Mine was documented by O.E. Owens of Cominco at this time. Lead-zinc-silver mineralization was noted to "occur in the same type of rocks, at the same point in the stratigraphic succession, [Lower-Middle Aldridge Contact, LMC] and as the same type of mineralization" as at Sullivan (Owens, 1958). Recommendations for deep drilling were made, with such a program to be deferred until after regional geological studies were completed.

In 1971, Texas Gulf Sulfur re-sampled the showings and did some detailed geological mapping of the Main Showing area. The property was called Hilo at this time. No further work was done by Texas Gulf.

In the 1970's, regional stratigraphic correlation studies by Cominco established that the Vulcan mineralization occurs on the LMC. Regional studies also suggested that the Sullivan type setting defined by the 1958 work was unique, and appeared to be localized in the western part of the current Vulcan claims.

The Vulcan was staked again by Cominco Ltd. in 1976. A 4 x 4 access road was constructed to the property, and a single drill test of the LMC was completed (Vu-79-1, 188 m) from the road. No mineralization or lithochemical anomalies were found at the LMC - marked by a distinctive pyrrhotite laminated wacke underlain by fragmental rocks. Minor weak Pb-Zn mineralization was located in the Lower Aldridge Formation in this hole (1.1 m @ 0.35% Pb, 0.30% Zn).

The property was extended to the south in 1982.

In 1983, Cominco conducted rock geochemical sampling of the fragmental unit and LMC sequence throughout the Vulcan 1-3 claims. Several Pb-Zn-As anomalies were delineated by this work.

A surface UTEM and HLEM survey was conducted in 1984 covering the LMC and fragmental unit on the Jurak 1 claim. Eight UTEM lines (1.2 - 1.8 km length) were surveyed from one transmitter loop. Weak UTEM anomalies were interpreted as indicating a "weak extensive (larger than loop dimension) conductor, with depth to top varying from 100 m to 200 m" (Visser, 1984). The conductor was located in the area of the completed Cominco drill hole.

Cominco's work program on the current Vulcan claims was discontinued following this survey. The objective of subsequent Cominco work was to locate and evaluate the LMC on the more accessible ground to the south of the current Vulcan property.

Mapping, contour and grid soil geochemistry and UTEM/HLEM surveys were completed. Patchy soil Pb-Zn anomalies were outlined on the lower slopes of Mt. Patrick along the projection of the LMC.

UTEM and HLEM anomalies were located on the inferred LMC extension and over the Lower Aldridge Formation. Five drill holes (Vu-84-1 to 4 and Vu-85-1) were completed by Cominco to test the best geophysical anomalies. All holes were entirely within the Lower Aldridge, and the anomalies were found to be caused by graphite and banded/laminated pyrrhotite (+\_chalcopyrite) mineralization. The LMC remains untested in this area, and additional weak geophysical anomalies occur on the possible projection of the LMC.

No further Cominco work programs were carried out in the 1986-90 period.

Ascot resources acquired the option on the Vulcan Claims in 1991. Additional claims were staked in August of that year, and in late September, Ascot carried out a 1003m drill program consisting of five holes drilled over 2.6km of LMC strike length. The objectives of the Ascot program were to use drilling and down hole EM surveys to define the distribution of base metal sulfides and of the sub-basin which forms the sulfide host at shallow to intermediate depths (to roughly 200m), in order that deeper drill tests could be planned.

Ascot conducted a 1,825.8m follow-up drill program in 1992 to provide deep down-dip testing of the Lower/Middle Aldridge Formation contact. Upon completion of this drilling, Ascot directed attention to the White Creek area, located 7km to the south of West Basin. A stratiform massive sulphide showing was discovered in the White Creek area earlier in that summer which returned values of .42% Pb, .35% Zn, and 4.2 g/t Ag over 1.0m. A 5.0 line-km UTEM geophysical survey was completed which indicated the presence of two weak to moderate-strength conductors, one which was associated with the mineralized zone. One further drill hole -Vu-92-4 was drilled to test the geophysical conductors at depth. The hole intersected a mineralized zone which they traced back to the surface showing, but mineralization was weaker than at surface.

The Ascot 1992 drill program was the last technical work completed on the Vulcan property prior to acquisition by Eagle Plains Resources. Cominco allowed the claims to lapse in 2002 at which time Eagle Plains Resources staked the Jurak 1. Since 2002, Eagle Plains Resources has expanded its claims to include the Jurak 2, 3 and 4.

Work conducted on the Vulcan property in 2005 included reprocessing and reinterpretation of 1995 EM geophysical data and the development and implementation of a GIS database. In 2005, as part of a data compilation on an unrelated project in SE BC, Eagle Plains requested an independent contractor, Condor Geophysics, to verify and reprocess Geoterrex-Dighem (now Fugro Airborne Surveys) EM survey data collected in 1995 by a joint partnership between BC Ministry of Employment and Investment, Energy and Minerals division, BC Geological Survey Branch and the Geological Survey of Canada. During the course of the data verification by Condor, it was found that the GPS height and the barometric altimeter height were both corrupted, rendering the original geophysical maps and related data included in the 1996 public release highly suspect, if not worthless. After considerable effort Condor was able to arrange for the government to supply replacement SRTM (Shuttle Radar Topography Mission) elevation data that has reasonable resolution and based on this new data set were able to produce a new interpretation of the 1995 data. As the 1995 survey also covered the Vulcan claim area Eagle Plains contracted Condor to correct and reinterpret the EM data for the area referred to as the St. Mary Block. Compilation work included scanning, rectifying and digitizing the historic geology maps, creating a drill-hole database, imputing the historic drill logs, and the creation and interpretation of new sections. A geochemistry database was also implemented utilizing historic rock,

silt and soil sample data. The geochemistry and drill-hole databases will allow for a more organized approach to the interpretation of the geology of the Vulcan. Base data for the area covered by the Vulcan claim block was also acquired, processed and integrated into the GIS in order to facilitate map creation and improve data visualization.

The 2006 Eagle Plains Resources exploration program at the Vulcan Project consisted of an AeroTEMII high resolution Time Domain Electro Magnetic geophysical survey. Data collection was done by Aeroquest Limited. A total of 125.51 line km of survey were flown on April 29, 2006 with helicopter support provided by Bighorn Helicopters using an AStar 350B2.

The airborne survey defined a number of geophysical anomalies. The most interesting feature is located in the southwestern part of the property. The contoured Aerotem Z-1 Off-time profile shows a distinct feature that roughly traces the contact between Lower and Middle Aldridge rocks. The anomaly appears to correspond with rocks located stratigraphically below the Lower-Middle Aldridge contact, and may represent a new, untested target between the Hilo 10 and Vulcan Minfile occurrences.

There is another feature located at UTM 5518000 N along the boundary with the Purcell Wilderness Conservancy. It appears to be a single point anomaly feature spatially associated with the hanging wall of a Moyie Sill.

Total 2006 exploration expenditures by Eagle Plains Resources on the Vulcan Project were \$37,228.84

## **GEOLOGICAL SETTING**

### **Regional Geology (Termuende, 1992)**

The Vulcan property and adjacent area is underlain by rocks of the Purcell Supergroup on the western flank of the Purcell Anticlinorium, a broad, north-plunging arch-like structure in Helikian and Hadrynian aged rocks. The anticlinorium is allocthonous, carried eastward and onto the underlying cratonic basement by generally north trending thrusts throughout the Laramide orogeny during late mesozoic and early tertiary time (Price, 1981). The oldest rocks exposed in the area are greenish, rusty weathering thin bedded siltites and quartzites of the + 4000m thick Lower Aldridge Formation, along with the facies-related, dominantly fluvial Fort Steele Formation (the bases of which are unexposed). The Sullivan deposit is located some 20-30m below the upper contact of the Lower Aldridge Formation. Overlying the Lower Aldridge is a continuous section of Middle Aldridge quartz wackes, subwackes and argillites some 3000+ m thick. Within the Middle Aldridge formation, fourteen varved marker horizons can be correlated over hundreds of kilometres. These represent the only accurate stratigraphic control. A number of aerially extensive, locally thick gabbroic sills are present within the Lower and Middle Aldridge Formations. These sills and dykes; the "Moyie Sills", locally were intruded into wet, unconsolidated sediments, and have been dated to 1445 Ma, providing a minimum age for Aldridge sedimentation and formation of the Sullivan deposit. The Middle Aldridge is overlain conformably by the Upper Aldridge, 300 to 400 meters of thin, fissile, rusty weathering siltite/argillite.

Conformably overlying the Aldridge Formation is the Creston Formation, comprising approximately 1800 meters of grey, green and maroon, cross-bedded and ripple marked platformal quartzites and mudstones. The Kitchener-Siyeh Formation, which includes 1200 to 1600 meters of grey-green and buff coloured dolomitic mudstone are shallow water sediments overlying the Creston Formation.

The upper portion of the Purcell Supergroup consists of the Dutch Creek and Mount Nelson Formations. The Dutch Creek formation consists of approximately 1200 meters of dark grey, calcareous dolomitic mudstones. Overlying the Dutch Creek formation is the Mount Nelson formation, 1000 meters of grey-green and maroon mudstone and calcareous mudstones. This unit marks the top of the Purcell Supergroup.

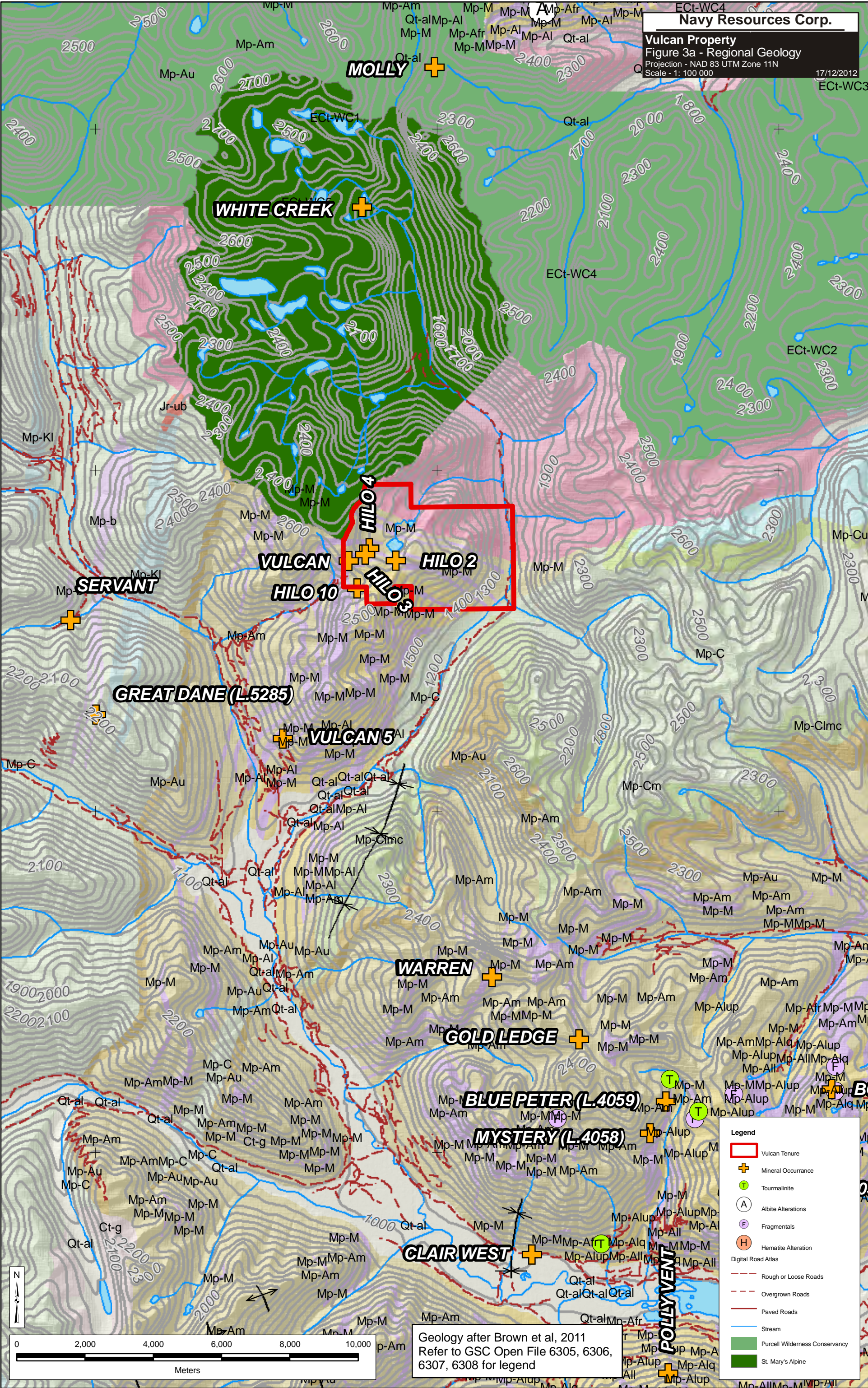
The Purcell Supergroup in the Sullivan area was deposited along a tectonically active basin margin. Dramatic thickness and facies variations record Purcell-age growth faults and contrast with gradual changes characteristic of most Purcell rocks elsewhere. These faults reflect deep crustal structures that modified incipient Purcell rifting, and led to the development of an intercratonic basin in middle Proterozoic time.

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**Navy Resources Corp.**  
**Vulcan Property**  
 Figure 3a - Regional Geology  
 Projection - NAD 83 UTM Zone 11N  
 Scale - 1: 100 000  
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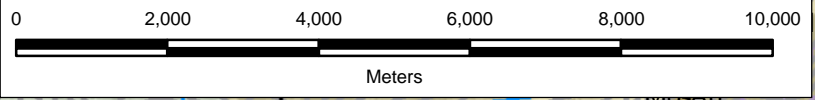
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






















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Geology after Brown et al, 2011  
 Refer to GSC Open File 6305, 6306,  
 6307, 6308 for legend

- Legend**
- Vulcan Tenure
  - + Mineral Occurrence
  - T Tourmalinite
  - A Albite Alterations
  - F Fragmentals
  - H Hematite Alteration
  - Digital Road Atlas
  - Rough or Loose Roads
  - Overgrown Roads
  - Paved Roads
  - Stream
  - Purcell Wilderness Conservancy
  - St. Mary's Alpine

## Regional Geology Legend

	Ct-FC - FRY CREEK BATHOLITH: Leucomonzogranite; biotitemonzogranite; biotite-muscovite monzogranite in westernmost exposures
	Ct-g - Massive, fine to medium grained biotite monzogranite
	ECt-WC1 - WHITE CREEK BATHOLITH: Biotite-epidote granodiorite.
	ECt-WC2 - WHITE CREEK BATHOLITH: Hornblende granodiorite.
	ECt-WC3 - WHITE CREEK BATHOLITH: Biotite monzogranite with megacrysts of potassium feldspar; aplite and pegmatite.
	ECt-WC4 - WHITE CREEK BATHOLITH: Biotite -muscovite leucomonzogranite.
	ECt-WC5 - WHITE CREEK BATHOLITH: Biotite monzogranite.
	Jr-ub - Ultramafic rocks, serpentized peridotite.
	Mp-Afr - ALDRIDGE FORMATION: Fragmental rocks interpreted as sedimentary debris flows, breccias formed in dewatering pathways, mud volcano debris, and hydrothermal breccias: stratiform and discordant matrix- and framework-supported fragmental rocks consisting
	Mp-AI - ALDRIDGE FORMATION: LOWER: rusty brown weathering, thin- to medium-bedded, quartz wacke, quartz arenite.
	Mp-AII - ALDRIDGE FORMATION: Lower siltites; siltstone, argillite, minor quartzite.
	Mp-Alq -ALDRIDGE FORMATION: "Footwall quartzites": grey quartzite, quartz wacke.
	Mp-Alup - Upper siltites: argillite, minor quartzite.
	Mp-Am - ALDRIDGE FORMATION: MIDDLE grey to rusty weathering, thick- to thin-bedded, quartzofeldspathic wacke, intercalated argillite and siltite,
	Mp-Au - ALDRIDGE FORMATION: UPPER: rusty brown weathering, grey to dark grey, fissile to platy, laminated silty argillite and siltite.
	Mp-C - light grey, mauve, or green siltstone and argillite; thin to medium-bedded quartz arenite, quartz wacke; lenticular bedding, ripples, cross-bedding, and mudcracks occur locally.
	Mp-CImc - CRESTON FORMATION: Mud-cracked member
	Mp-Cm - CRESTON FORMATION: MIDDLE: light grey, mauve, or purple, thin to medium-bedded quartz arenite; quartz wacke; lesser grey siltstone and argillite; white quartzite interbeds; lenticular bedding, ripples, cross-bedding, and mudcracks occur locally.
	Mp-Cu - green siltstone; black or purple argillite and siltstone.
	Mp-K - KITCHENER FORMATION: Undivided meta-sedimentary rocks: thin-bedded, brown-weathering dolomitic silt stone and green argillite.
	Mp-KI - KITCHENER FORMATION: LOWER: green and beige siltstone, dark grey argillite; dolomitic siltstone.
	Mp-M - MOYIE INTRUSIONS: "Moyie sills": dark-green to black, medium to fine-grained gabbro and hornblende quartz diorite sills and dikes; several to hundreds of metres thick.
	Mp-b - Post-Moyie Intrusions:(nicol creek feeders?) Mafic sills and rare dikes hosted in Kitchener Formation. Olive green, massive to plagioclase porphyritic.
	Qt-al - Unconsolidated sediments: alluvium; colluvium; diamictite

### *Structure*

The structural geology of the region has broadly warped westerly dipping stratigraphy cut by northerly-trending normal faults. This structure is typical of the west limb of the core of the Purcell Anticlinorium, a large north-plunging feature formed during the development of the Rocky Mountain Thrust and Fold belt. The dominant fault in the area is the Hall Creek thrust fault which runs through the south east corner of the Vulcan. The Hall Creek fault thrusts the Aldridge formation over the younger Creston formation to the east. The sedimentary units of the Purcell Supergroup are bounded to the north by the mid-Cretaceous White Creek Batholith. Near this intrusion, structures are more complicated, folds become tighter and foliation is stronger.

## **Local Geology**

The most recent geology work on the property was done by McCartney (1991) and also appears in the 1992 Geological Report for the Vulcan Property by Tim Termuende. The following local geology descriptions are derived from the 1992 report by Tim Termuende.

### *West Basin*

The West Basin area is relatively unique in its geologic characteristics, containing features similar to those seen within the Sullivan Mine itself, and associated with adjacent Sullivan-North Star Corridor. These features are summarized below:

- a) A stratigraphic sequence which is directly correlative with the Sullivan Deposit. This includes Lower Aldridge rocks in contact with the overlying Middle Aldridge sequence (the Lower-Middle Contact, or LMC), with an intraformational conglomerate and strata-controlled mineralization. This sequence has been mapped on the property over a 3.0km strike length, and in thickness to 250m.
- b) Alteration including tourmalinization and albitization are present and in association with the LMC.
- c) Stratiform lead-zinc-silver mineralization has been noted in drillholes and on surface, and is stratigraphically located within the "Sullivan -Time" horizon. Showings have returned values of 1.6% combined Pb/Zn over 1.52m within a weakly mineralized section 7.5m thick.

### *Rock Types*

#### Middle and Lower Aldridge Formation Siliciclastics

The Lower Aldridge Formation regionally consists of a rhythmic succession of laminated to thin bedded fine grained wacke (argillite) and quartzitic wacke (argillaceous quartzite). The sequence is characterized by minor amounts of fine grained disseminated pyrrhotite which imparts a characteristic rusty weathering nature to Lower Aldridge outcrops. Beds are typically graded, and local crossbedding occurs. Intervals of massive to thick bedded quartzitic wacke or quartz arenite also occur (e.g. "footwall quartzite" unit at the Sullivan Mine). Massive to poorly bedded lenses of intraformational conglomerate occur locally near the top of the Lower Aldridge Formation and are composed of Aldridge rock types in a wacke matrix.

The Middle Aldridge Formation is predominantly medium to thick bedded light grey weathering

quartzitic wacke turbidites consisting of medium grained massive quartz-rich bases overlain by thin wacke-subwacke (argillite) tops. Rip up clasts and flame structures commonly occur in the bases of the quartzite beds and are indicative of a high energy, rapid deposition. Subordinate amounts of Lower Aldridge type lithologies are interbedded within the Middle Aldridge. Gabbro sills of the Moyie Intrusions intrude both Lower and Middle Aldridge, and are locally observed as dykes which crosscut stratigraphy.

### Fragmental (Conglomerate)

This unit occurs near the top of the Lower Aldridge Formation. Many textural variations were noted. The most common type contains rounded medium to fine grained biotitic quartzitic wacke fragments and flat light grey subwacke fragments in a massive fine grained wacke matrix. Disseminated pyrrhotite commonly replaces the biotite-rich clasts, which locally become semi-massive pyrrhotite. Fragments comprise between 15 and 35% of the rock, average 2-3 cm and are matrix supported. The matrix usually contains finely disseminated pyrrhotite, and the unit always weathers to a very rusty brown. Wacke and mudstone fragments are generally smaller and more angular than the quartzitic fragments.

Bedding is rare within the fragmental rock type itself, although intervals of normal bedded Lower Aldridge sediment commonly occur within it. Prominent slump folds commonly occur at the base of fragmental intervals. Fragmental rocks locally contain quartz-feldspar-amphibole-biotite-pyrrhotite concretions(?) often with a pale bleached or a dark biotite-rich halo.

It was noted during 1992 work that the size of fragment, sorting, degree of flattening, and imbrication is directly related to the units' position relative to the regional fold straddling the West Basin/Jurak Lake ridge. Along the flanks of the fold, matrix-supported, smaller, well-sorted fragments were flattened to coin-shaped dimensions, while near the Main Showing area (closer to the fold nose area), fragments were clast-supported, larger, poorly imbricated, and only poorly to moderately sorted. Though much of this textural variation may be attributed to fold-related stresses, there is evidence which suggests a proximity to a source area for the fragmental, a possibility supported by the presence of higher grade mineralization within the Main Showing area itself.

Two theories are considered plausible for the formation of the fragmentals. They may be large slump conglomerate units formed during graben-type faulting and tilting at the close of Lower Aldridge time. Alternatively they may be extruded onto the sea floor during dewatering of the Lower Aldridge sequence, perhaps utilizing zones of cross-strata permeability related to sub-basin development. There is evidence that both of these processes have a role in the formation of fragmentals of the Aldridge Formation.

### Conglomeratic Rocks

These rocks are similar in all respects to the fragmental but contain <10% clasts, usually in a massive wacke matrix. Clast types are similar to those in the fragmental unit and are unsorted. Clasts are matrix supported. Fragments tend to be smaller than in the true fragmental. This rock type grades into massive wacke.

### Massive Wacke

Massive wackes commonly occur near the top of the Lower Aldridge and are usually interbedded with



conglomeratic wacke or fragmental. This rock type is believed to represent a settling out of fine material following fragmental formation and is of a similar composition to the fragmental matrix. Massive wackes are believed to represent more distal settings to the fragmentals, being further removed from the fractures or fault scarps which control fragmental development. They may also accumulate at the top of fragmental sections, as a settling out of suspended clay/silt after conglomerate deposition.

#### Pyrrhotite Laminated Wacke/Subwacke

This unit occurs immediately below the Lower Aldridge-Middle Aldridge contact (LMC) in holes Vu-92-2 and Vu-92-3, also in Vu-91-1 to 5 and in Vu-79-1, and averages approximately 8m in thickness. This lithology is interpreted as an argillaceous sub-basin facies and forms a cap to the fragmental rock units within the sub-basin. The unit is directly correlated with the mineralized sequence at the Sullivan Mine. Similar rock types are often interbedded within the upper 50 m of the fragmental and over the lowermost 20-30 m of the Middle Aldridge.

Texturally the rock type is a fine grained wacke to subwacke, similar to the massive wacke units, but it contains distinctive dark biotite-pyrrhotite rich laminations. The laminations are usually 1-2 mm thick and separated by several cm of massive wacke. The pyrrhotite usually occurs as fine grained disseminations within the dark laminations, but is clearly strata-controlled. Traces of chalcopyrite were observed with the pyrrhotite in Vu-92-2 and Vu-92-3. Within hole Vu-92-3, this unit was locally albitized, and appears creamy white in colouration, within which pyrrhotite lamination widths were observed to increase.

#### Gabbro

The gabbro intrusions are generally sill-like and consist of medium to coarse grained amphibole-plagioclase with minor biotite and chlorite. Minor disseminated pyrrhotite is common. In places, the gabbros have sharp chilled margins, locally with albite-chlorite or biotitic alteration selvages in adjacent sediments. Gabbro contacts can also be gradual and replacive, with coarse calc-silicate assemblages replacing adjacent sediments.

The gabbroic rocks are often locally altered. Chlorite-biotite (+ calcite) alteration is common. Intensive alteration to massive chlorite/biotite was noted in hole Vu-92-2, and may be observed on the northeast-facing slope above the Main Showing. According to G.S.C. geologists, this feature is seen within cores from the Sullivan area, and is known locally as "granophyre". (Termuende, 1992).

#### Calc-silicate Unit

No calc-silicate units were recognized in core during the 1992 Cominco drill program, suggesting them to be a localized feature, apparently restricted to the up-dip regions of the LMC horizon. Calc-silicate units occur as conformable lenses adjacent to the mineralized zone in the Main Showing exposure, where they exhibit strong continuous parallel banding features. A continuous stratabound unit of coarse to medium grained calc-silicate rock also occurs in laminated wacke just below the LMC to the west of Mount Patrick (up-dip of Vu-91-4). Here it is 1-3 m thick. Similar coarse calc-silicate was observed crosscutting the fragmental unit southeast of Vu-91-1 but this zone is poorly exposed.

The calc-silicate is a mottled to banded, coarse to medium grained rock with a quartz-pink feldspar-tremolite-chlorite-calcite mineralogy. Garnet, epidote, albite and biotite are common accessories. The mineralogy of this rock type is similar to the mineralogy of alteration observed in the footwall vent

system of the Sullivan Mine by workers on the GSC/BCDM Sullivan Project. Termuende (1992) noted that although this rock type was identified at surface, and at shallow depth in Vu-91-1,2,4 and 5, it was not found in the deep drill holes in 1992.

### *Alteration And Mineralization*

#### Alteration

Various alteration types are recognized within the property. Most commonly noted is silicification, which consists of microcrystalline replacement (partial to complete) of silica within detrital units. Coarser grained units common to the Middle Aldridge package (quartzites, quartzitic wackes) seemed most susceptible to this alteration, likely due to their increased permeability at one time.

Albite alteration was identified in both holes Vu-92-2 and Vu-92-3. In Vu-92-2 it was noted within a fine to medium bedded wacke of the Lower Aldridge below the contact with a thick gabbro unit (479.3-485.1m). It is also found within the same unit directly above the fragmental contact (499.1-501.5m), and as irregular, patchy occurrences within gabbroic material. In Vu-92-3, it is far more prevalent, occurring below the LMC; locally within the pyrrhotite-laminated wacke, and as pervasive alteration within the underlying conglomeratic wacke and into the turbiditic fine-laminated wacke below (323.2-360.1m). This entire interval has a light bleached appearance, and is visually very similar to the Concentrator Hill Horizon southeast of the Sullivan deposit, though it is geochemically less enriched.

Tourmalinization was noted in holes Vu-92-1 to Vu-92-3. Tourmalinite was seen often as centimetre-scale veins within all rock-types, and as fine, acicular needles within quartz and/or calcite veinlets. Pervasive tourmalinization, as seen associated with Sullivan-type mineralization within the Sullivan-North Star Corridor, was not recognized in core.

Chlorite/biotite alteration, as discussed above, is seen predominantly within gabbroic material and varies greatly in intensity. Commonly at intrusive contacts, replacement is complete within the both the gabbro and its' host, obliterating relict textures. Biotization is also common within finer bedded and massive intervals, particularly in Lower Aldridge rocks.

Sericite alteration was common in all drillholes, occurring as coatings on fracture surfaces in all rock types.

#### Mineralization

Mineralization seen in core at Vulcan consists primarily of fine disseminated pyrrhotite within all rock types. Millimetre to centimetre-wide quartz and/or calcite veins were common to all rock types, and generally carry minor pyrrhotite, locally with trace chalcopyrite, galena and sphalerite.

These stringers were also seen to host fine, acicular tourmalinite needles to .5cm in length. Minor pyrrhotite ± chalcopyrite, pyrite stringers were also noted in all lithologies and in all holes, and appeared to show no preferred orientation.

The most significant form of mineralization to Sullivan-type exploration is the pyrrhotite-laminated wacke. This unit, located directly beneath the Lower-Middle Aldridge contact, was noted in all completed West Basin holes (including 1991 drilling), and consists of strata-controlled Fe-Pb-Zn+/-Ag sulfides hosted by a biotitic, locally albite-altered laminated wacke to subwacke. Pyrrhotite occurs in

dark biotite-rich laminations which are usually 1-2 mm thick and are separated by several cm of massive wacke. The pyrrhotite usually occurs as fine grained disseminations within the dark laminations, but is clearly strata-controlled. This interval may be directly correlated with the sequence hosting stratiform mineralization at the Sullivan Mine. This mineral type is exposed at the Main Showing, where pyrrhotite-sphalerite-galena mineralization occurs over 7.5m, with values to 0.35% Pb, 1.25% Zn returned over 1.52m (previous Cominco sampling). McCartney collected several grab samples of this material in 1991, the best of which assayed 5.5% Pb-Zn combined and 22 gpt Ag. Exploration activity elsewhere in the East Kootenay area has indicated that this anomalous horizon is widespread, and typical of the "Sullivan-Time" stratigraphic interval.

### *Structure*

The main structural feature of the West Basin area is a broad open anticlinal fold plunging steeply to the northwest. O.E. Owens of Cominco conducted the most recent mapping of the West Basin area and describes the structure as follows (Owens, 1958):

"The Lower Aldridge rocks have been folded into large north-south trending anticlines and synclines, and they have been refolded into a west plunging anticline by the intrusion of the White Creek batholith. Within these major folds are numerous smaller closed folds. Some of these strike north-south; others as in West Basin strike east-west. The smaller folds appear to pinch out within short distances and their plunge is variable.

The Middle Aldridge rocks are relatively slightly folded except near the granite. They are part of a thick homoclinal series dipping westward.

North-south trending, steeply dipping faults are common in the eastern part of the map area. These are usually related in space to tight folds and are probably genetically related to them.

Sulfide mineralization was not observed to have any spatial relationship to folds or faults.

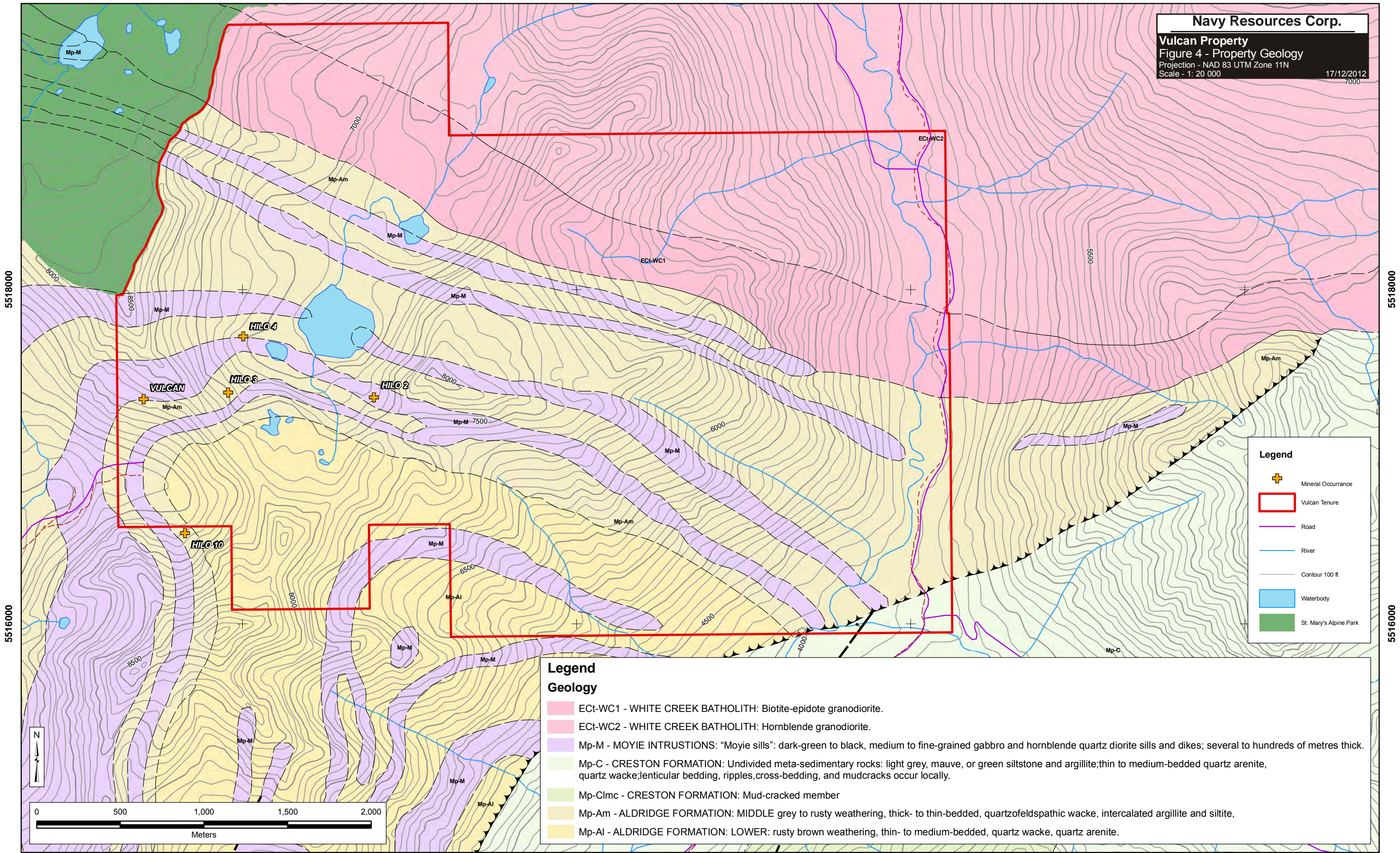
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**Navy Resources Corp.**  
**Vulcan Property**  
**Figure 4 - Property Geology**  
 Projection - NAD 83 UTM Zone 11N  
 Scale - 1: 20 000  
 17/12/2012  
 7000



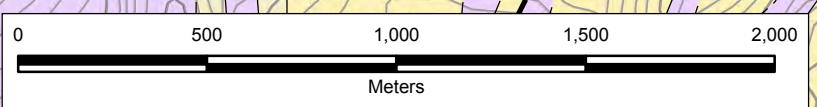
**Legend**

- + Mineral Occurrence
- Vulcan Tenure
- Road
- River
- Contour 100 ft
- Waterbody
- St. Mary's Alpine Park

**Legend**

**Geology**

- ECt-WC1 - WHITE CREEK BATHOLITH: Biotite-epidote granodiorite.
- ECt-WC2 - WHITE CREEK BATHOLITH: Hornblende granodiorite.
- Mp-M - MOYIE INTRUSTIONS: "Moyie sills": dark-green to black, medium to fine-grained gabbro and hornblende quartz diorite sills and dikes; several to hundreds of metres thick.
- Mp-C - CRESTON FORMATION: Undivided meta-sedimentary rocks: light grey, mauve, or green siltstone and argillite; thin to medium-bedded quartz arenite, quartz wacke; lenticular bedding, ripples, cross-bedding, and mudcracks occur locally.
- Mp-CImc - CRESTON FORMATION: Mud-cracked member
- Mp-Am - ALDRIDGE FORMATION: MIDDLE grey to rusty weathering, thick- to thin-bedded, quartzofeldspathic wacke, intercalated argillite and siltite,
- Mp-Al - ALDRIDGE FORMATION: LOWER: rusty brown weathering, thin- to medium-bedded, quartz wacke, quartz arenite.



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## **2012 WORK PROGRAM**

The 2012 work program consisted of one day of geochemical sampling and geological evaluation on the property on September 9, 2012. Barry Price of BJ Price Geological Consultants, along with Tim Termuende, P.Geo of Eagle Plains Resources and the author traveled to the property from Cranbrook using a helicopter chartered from Bighorn Helicopters. The Hilo 3 showing was evaluated and re-sampled to confirm historic results. Geological investigation was completed to determine the best location to test the down dip extension of the Hilo 3 mineralization with a diamond drill hole.

Office work at the start of the field season included compiling historic data including some drill hole and geochemistry data into a central database to aid in future exploration targeting.

## **2012 PROGRAM RESULTS**

The 2012 investigation confirmed the economic values returned from the Hilo 3 showing. The sample returned 10.6 g/t Ag, 0.9% Pb and 0.7% Zn over the 1 m sample interval. This stratabound mineralization with significant base metal values represents a target for future exploration program.

From the geological evaluation, the best location for a drill pad was determined to test the down dip extension of the mineralization found at the Hilo 3 showing. With a drill hole at -60 degrees dip and 160 degree azimuth, the target depth for the mineralization is estimated to be between 300-400m. See Figure 5 for reference.

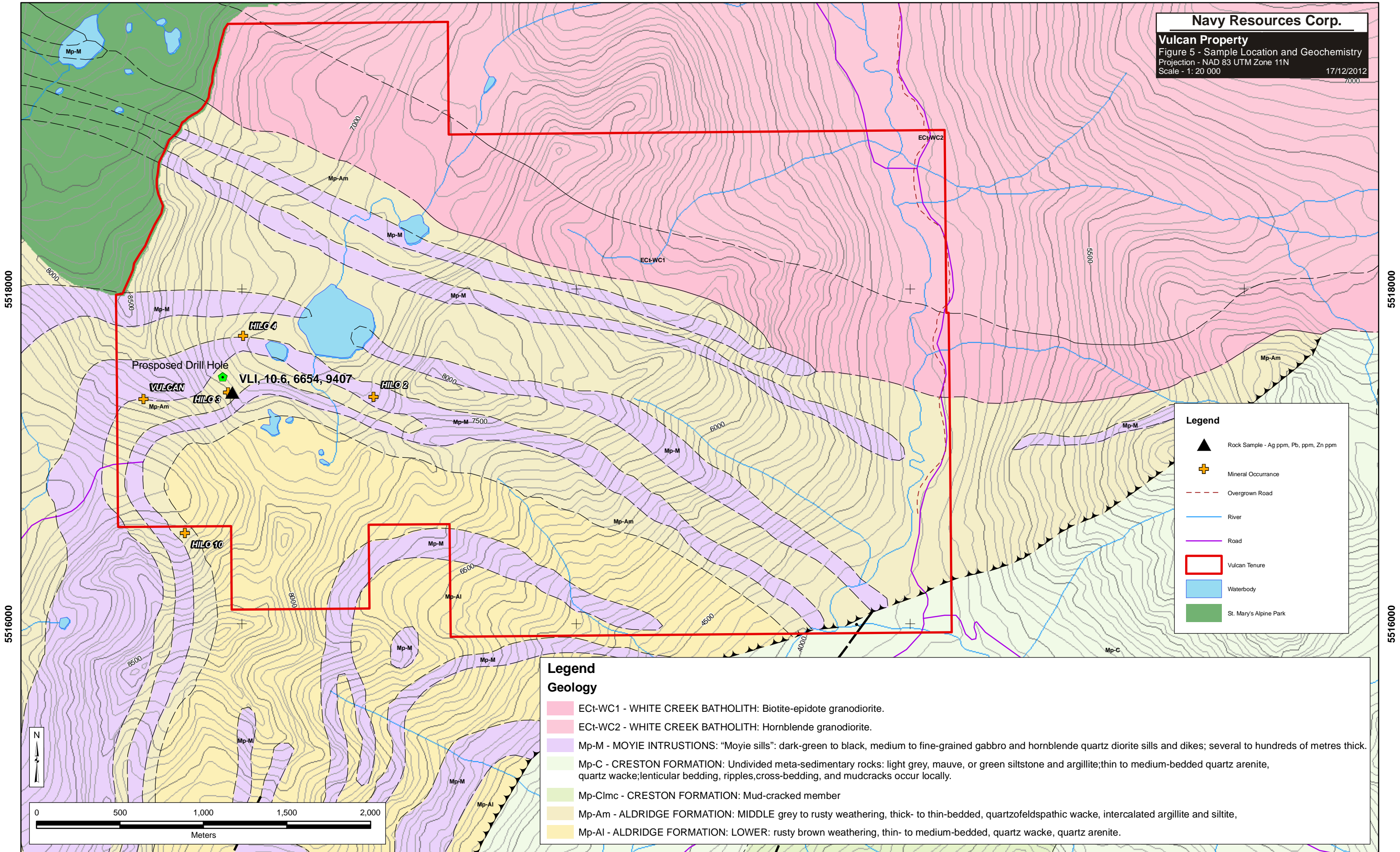
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**Navy Resources Corp.**  
**Vulcan Property**  
 Figure 5 - Sample Location and Geochemistry  
 Projection - NAD 83 UTM Zone 11N  
 Scale - 1: 20 000  
 17/12/2012  
 7000

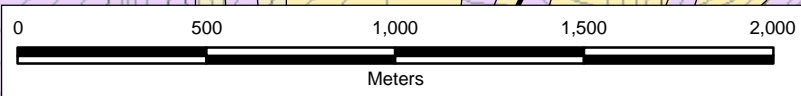


**Legend**

- ▲ Rock Sample - Ag ppm, Pb, ppm, Zn ppm
- ⊕ Mineral Occurrence
- - - Overgrown Road
- River
- Road
- ▭ Vulcan Tenure
- Waterbody
- St. Mary's Alpine Park

**Legend**  
**Geology**

- ECt-WC1 - WHITE CREEK BATHOLITH: Biotite-epidote granodiorite.
- ECt-WC2 - WHITE CREEK BATHOLITH: Hornblende granodiorite.
- Mp-M - MOYIE INTRUSTIONS: "Moyie sills": dark-green to black, medium to fine-grained gabbro and hornblende quartz diorite sills and dikes; several to hundreds of metres thick.
- Mp-C - CRESTON FORMATION: Undivided meta-sedimentary rocks: light grey, mauve, or green siltstone and argillite; thin to medium-bedded quartz arenite, quartz wacke; lenticular bedding, ripples, cross-bedding, and mudcracks occur locally.
- Mp-CImc - CRESTON FORMATION: Mud-cracked member
- Mp-Am - ALDRIDGE FORMATION: MIDDLE grey to rusty weathering, thick- to thin-bedded, quartzofeldspathic wacke, intercalated argillite and siltite,
- Mp-Al - ALDRIDGE FORMATION: LOWER: rusty brown weathering, thin- to medium-bedded, quartz wacke, quartz arenite.



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## CONCLUSIONS

The Vulcan property holds the potential to host significant SEDEX mineralization and is well located with respect to local infrastructure. The property is road-accessible, and is within reasonable distance from a high-voltage hydro-electric line. Rail facilities are located 30km east of the property.

There is two distinct type of mineralization that occurs on the Vulcan property. Both the mineralized stringer veins and the pyrrhotite-laminated wacke are related to a SEDEX style of deposit. Past drill programs on the western part of the Vulcan property have demonstrated that the style of mineralization, host rocks and alteration types show strong similarities to the Sullivan Deposit. Results from drilling in 1991 and 1992 have led to the conclusion that anomalous base metal mineralization within the favorable stratigraphy is widespread throughout the western regions of the property.

Surface mapping (McCartney, 1991) and diamond drilling on the Vulcan property have indicated an environment that is distal to a vent that was active at Sullivan time. The LMC has been tested both inside and outside the Vulcan's current boundaries; the most encouraging mineralization discovered occurs at the Main Showing (Hilo 3) on the Jurak 1 claim. At the Main Showing, features present within the nearby intraformational conglomerate, such as larger-sized, poorly sorted clasts, suggest that this exposure may be proximal to a source area. Further drilling is warranted in this area in order to test the deep down-dip extension of this stratigraphy.

Reprocessing and reinterpretation of the corrupted 1995 Geotrex-Dighem EM survey by Eagle Plains in 2006 showed a moderate EM anomaly coincident with the Lower-Middle Aldridge contact as defined by surface mapping and diamond drilling. This contact is the stratigraphic location of the nearby Sullivan deposit and is considered to be an excellent target for similar style SEDEX mineralization elsewhere in the Aldridge basin. The survey also defined a coincident magnetic and radiometric anomaly north of the mapped LMC. This anomaly may represent a down dip extension of the mineralization found on surface at the Main Showing and could reflect a deeper conductor caused by a sulphide body.

The 2006 AeroTEMII high resolution Time Domain Electro Magnetic geophysical survey imaged two separate EM anomalies in the southwest and west central part of the property. The southwestern anomaly appears to be located along the projection of the Lower – Middle Aldridge contact.

The 2011 AGG survey was successful in identifying an anomalous gravity high lineament that is spatially associated with the Hilo 2 showing. The nature of the gravity high remains unknown but could represent a mineralized structure associated with proterozoic growth faults that has not been detected at surface.

The 2012 program confirmed the presence of economic precious metal values along with highly elevated base metal values located within Sullivan time stratigraphy at the Hilo 3 showing.

## **RECOMMENDATIONS**

For the 2013 season, the following recommendations are made:

- The 1991 and 1992 holes on the Vulcan property should be located with a differential GPS to get an accurate location for modeling purposes
- All remaining drill hole data for the property should be compiled into a modern digital database for planning purposes.
- Compilation of all ground based geophysical work to compare with airborne survey results would add confidence to geophysical targets followed up with field work, and subsequently drill tested.
- Complete geological mapping, prospecting, and geochemical sampling with a focus on following up geophysical targets to identify subsequent areas for diamond drill testing.
- A single diamond drill hole, approximately 300-400m in length, should be drilled further to the north of the Main Zone (Hilo 3) to intersect the Sullivan-type mineralization observed and at surface further down dip as this area is the most prospective on the property.



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**Appendix I**  
**Statement of Qualifications**

**Aaron A. Higgs, B. Sc.**

I, Aaron Ashwell Higgs, B.Sc. do hereby certify that:

I am currently employed as a Geologist by TerraLogic Exploration Inc., with business location of Suite 200, 44-12<sup>th</sup> Ave S., Cranbrook, BC, V1C 2R7 (Telephone: 778-520-2000, email: [aah@terralogicexploration.com](mailto:aah@terralogicexploration.com))

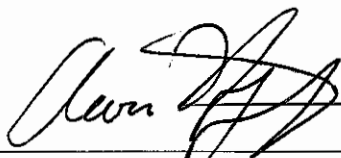
I graduated with a Bachelor of Science in Geology from the University of British Columbia in the year 2005.

I have worked as a Geologist in Western Canada for 8 years.

I am responsible for the preparation of this Technical Report entitled "2012 Geological and Geochemical Report for the Vulcan Property", prepared for Navy Resources Corp.

Dated at Cranbrook, British Columbia, Canada this 20th day of December, 2012.

Respectfully submitted



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Aaron A. Higgs, B.Sc. (Geol)

**Appendix II**  
**Statement of Expenditures**

<b>2012 Vulcan Expenditures</b>					
<b>Exploration Work type</b>	<b>Comment</b>	<b>Days</b>			<b>Totals</b>
<b>Personnel (Name) / Position</b>	<b>Field Days (list actual days)</b>	<b>Days</b>	<b>Rate</b>	<b>Subtotal</b>	
Aaron Higgs, Project Manager	9-Sep-12	1.00	\$625.00	\$625.00	
Tim Termuende, P.Geo	9-Sep-12	1.00	\$800.00	\$800.00	
				\$1,425.00	<b>\$1,425.00</b>
<b>Office Studies</b>	<b>List Personnel</b>	<b>Days</b>			
Project Management	Aaron Higgs, Project Manager	1.89	\$625.00	\$1,181.25	
Database compilation	Blair Orr, Data Manager	2.02	\$360.00	\$727.20	
Database compilation	Chuck Downie, Senior Geologist	0.30	\$800.00	\$240.00	
Report preparation	Jason Kolcun, GIS	0.77	\$525.00	\$404.25	
Report preparation	Jim Ryley, Senior Geologist	1.71	\$675.00	\$1,154.25	
				\$3,706.95	<b>\$3,706.95</b>
<b>Contractors and Subcontractors</b>					
Geological	BJ Price Geological Consultants			\$3,000.00	
				\$3,000.00	<b>\$3,000.00</b>
<b>Transportation</b>		<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Airfare				\$418.08	
Helicopter (hours)				\$1,199.00	
Fuel (litres/hour)				\$171.82	
				\$1,788.90	<b>\$1,788.90</b>
<b>Accommodation &amp; Food</b>	<b>Rates per day</b>				
Hotel				\$79.97	
Meals				\$67.19	
				\$147.16	<b>\$147.16</b>
<b>TerraLogic Exploration Handling and Administration Fees</b>					
				\$740.41	<b>\$740.41</b>
<b>TOTAL Expenditures</b>					<b>\$10,808.42</b>

## **Appendix III - Geochemical Protocol**

**3.1 – Sampling Techniques**

**3.2 - Analytical Techniques**

**3.3 - Software Used**

### **3.1 Handling and Sampling Protocol**

The 2012 sample was collected by Barry Price a P.Geo sub-contractor. The sampling process is standardized and continually monitored for quality assurance and quality control. All samples are described in the field at the time of collection with a GPS location recorded at the site. The 2012 sample from the Vulcan program was shipped to Acme Laboratories at 1020 Cordova St. East, Vancouver, BC for analysis.

The chip sample is a series of continuous and representative samples taken over a set direction and length using a hammer and chisel. Rock samples are recorded with a spatial location and a variety of attributes which include: map unit, major rock type, minor rock type, colour fresh, colour weathered, texture, grain size, mineralization major and mineralization minor.



## 3.2 Analytical Procedures

## METHOD SPECIFICATIONS

### GENERAL SAMPLE PREPARATION METHODS

**Receiving:** Samples arrive via courier, post or by client drop-off; shipment inspected for completeness.

**Sorting and Inspection:** Samples sorted and inspected for quality of use (quantity and condition). Pulp samples inspected for homogeneity and fineness.

#### SOILS

**SS80, S230, SSXX Drying and Sieving:** Wet or damp soil samples are dried at 60°C (Air dried or 40°C if specified by the client). Soil and sediment sieved to -80 mesh (SS80) or -230 mesh (S230), unless client specifies otherwise (SSXX). Sieves cleaned by brush and compressed air between samples.

**SP100, SCP100 Pulverizing:** Soils are pulverized to -100 mesh ASTM with an option of using a mild-steel pulverizer (SP100) or a ceramic pulverizer (SCP100), per 100g.

#### ROCKS AND DRILL CORE

**R200-250, R200-500, R200-1000:** Rock and Drill Core crushed to 80% passing 10 mesh (2 mm), homogenized, riffle split (250g, 500g, or 1000g subsample) and pulverized to 85% passing 200 mesh (75 microns). Crusher and pulverizer are cleaned by brush and compressed air between routine samples. Granite/Quartz wash scours equipment after high-grade samples, between changes in rock colour and at end of each file. Granite/Quartz is crushed and pulverized as first sample in sequence and carried through to analysis.

**P200, PSCB:** Samples requiring pulverizing only are dried at 60°C and pulverized to 85% passing 200 mesh (75 microns), using a mild-steel pulverizer (P200), per 250g or a ceramic pulverizer (PSCB), per 100g.

**M150, M200s:** Rock and Drill Core are crushed, pulverized and sieved, save +150 and -150 mesh fractions (M150) or +200 and -200 mesh fractions (M200) for metallic Au or Cu analysis. Typically 500g samples are sieved.

**HPUL:** Rock and Drill Core are pulverized by using a mortar and pestle.

#### VEGETATION

**PM1:** Plant material is dried then milled to 1mm

**VA475:** Up to 0.1 kg of wet vegetation is ashed by heating to 475°C.

**WWSH:** Plant samples are washed with Type-1 water then dried at 60°C prior to analysis, per 100g.

## METHOD SPECIFICATIONS

### GROUP 1D AND 1F – GEOCHEMICAL AQUA REGIA DIGESTION

<b>Package Codes:</b>	1D01 to 1D03, 1DX1 to 1DX3, 1F01 to 1F07
<b>Sample Digestion:</b>	HNO <sub>3</sub> -HCl acid digestion
<b>Instrumentation Method:</b>	ICP-ES (1D), ICP-MS (1DX, 1F)
<b>Applicability:</b>	Sediment, Soil, Non-mineralized Rock and Drill Core

#### Method Description:

Prepared sample is digested with a modified Aqua Regia solution of equal parts concentrated HCl, HNO<sub>3</sub> and DI H<sub>2</sub>O for one hour in a heating block of hot water bath. Sample is made up to volume with dilute HCl. Sample splits of 0.5g, 15g or 30g can be analyzed.

For 1F07, Lead isotopes (Pb<sub>204</sub>, Pb<sub>206</sub>, Pb<sub>207</sub>, Pb<sub>208</sub>) are suitable for geochemical exploration of U and other commodities where gross differences in natural to radiogenic Pb ratios, is a benefit. Isotope values can be reported in both concentrations and intensities. Sample splits of 0.25g, 0.5g, 15g or 30g can be analyzed.

Element	Group 1D Detection	Group 1DX Detection	Group 1F Detection	Upper Limit
Ag	0.3 ppm	0.1 ppm	2 ppb	100 ppm
Al*	0.01%	0.01%	0.01%	10%
As	2 ppm	0.5 ppm	0.1 ppm	10000 ppm
Au	2 ppm	0.5 ppb	0.2 ppb	100 ppm
B*^	20 ppm	20 ppm	20 ppm	2000 ppm
Ba*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Bi	3 ppm	0.1 ppm	0.02 ppm	2000 ppm
Ca*	0.01%	0.01%	0.01%	40%
Cd	0.5 ppm	0.1 ppm	0.01 ppm	2000 ppm
Co	1 ppm	0.1 ppm	0.1 ppm	2000 ppm
Cr*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Cu	1 ppm	0.1 ppm	0.01 ppm	10000 ppm
Fe*	0.01%	0.01%	0.01%	40%
Ga*	-	1 ppm	0.1 ppm	1000 ppm
Hg	1 ppm	0.01 ppm	5 ppb	50 ppm
K*	0.01%	0.01%	0.01%	10%
La*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Mg*	0.01%	0.01%	0.01%	30%
Mn*	2 ppm	1 ppm	1 ppm	10000 ppm
Mo	1 ppm	0.1 ppm	0.01 ppm	2000 ppm

Element	Group 1D Detection	Group 1DX Detection	Group 1F Detection	Upper Limit
Na*	0.01%	0.001%	0.001%	5%
Ni	1 ppm	0.1 ppm	0.1 ppm	10000 ppm
P*	0.001%	0.001%	0.001%	5%
Pb	3 ppm	0.1 ppm	0.01 ppm	10000 ppm
S	0.05%	0.05%	0.02%	10%
Sb	3 ppm	0.1 ppm	0.02 ppm	2000 ppm
Sc	-	0.1 ppm	0.1 ppm	100 ppm
Se	-	0.5 ppm	0.1 ppm	100 ppm
Sr*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Te	-	0.2 ppm	0.02 ppm	1000 ppm
Th*	2 ppm	0.1 ppm	0.1 ppm	2000 ppm
Ti*	0.01%	0.001%	0.001%	5%
Tl	5 ppm	0.1 ppm	0.02 ppm	1000 ppm
U*	8 ppm	0.1 ppm	0.05 ppm	2000 ppm
V*	1 ppm	2 ppm	2 ppm	10000 ppm
W*	2 ppm	0.1 ppm	0.05 ppm	100 ppm
Zn	1 ppm	1 ppm	0.1 ppm	10000 ppm
Be*	-	-	0.1 ppm	1000 ppm
Ce*	-	-	0.1 ppm	2000 ppm
Cs*	-	-	0.02 ppm	2000 ppm
Ge*	-	-	0.1 ppm	100 ppm
Hf*	-	-	0.02 ppm	1000 ppm
In	-	-	0.02 ppm	1000 ppm
Li*	-	-	0.1 ppm	2000 ppm
Nb*	-	-	0.02 ppm	2000 ppm
Rb*	-	-	0.1 ppm	2000 ppm
Re	-	-	1 ppb	1000 ppb
Sn*	-	-	0.1 ppm	100 ppm
Ta*	-	-	0.05 ppm	2000 ppm
Y*	-	-	0.01 ppm	2000 ppm
Zr*	-	-	0.1 ppm	2000 ppm
Pt*	-	-	2 ppb	100 ppm
Pd*	-	-	10 ppb	100 ppm
Pb <sub>204</sub>	-	-	0.01 ppm	10000 ppm
Pb <sub>206</sub>	-	-	0.01 ppm	10000 ppm
Pb <sub>207</sub>	-	-	0.01 ppm	10000 ppm
Pb <sub>208</sub>	-	-	0.01 ppm	10000 ppm

\* Solubility of some elements will be limited by mineral species present.

^Detection limit = 1 ppm for 15g / 30g analysis.

**Limitations:**

Au solubility can be limited by refractory and graphitic samples.

### **3.3 Software**

The following is a list of software used in the field and writing of this report:

- Arc GIS 9.3
- Microsoft Access
- Apache Open Office
- Adobe Acrobat 9

## **Appendix IV – Sample Location and Description**

# Appendix 4.1 - Rock Sample Description

Monday, April 08, 2013

10:54:59 AM

Sample Number	Sampler	Date	Sample Type	Sample Purpose	Location Method	Easting	Northing	UTM Zone	GPS Accuracy	Channel Length (m)	Rock Type	Description
VLI	BP	9/9/2012	ROCK	ASSAY	GPS	547940	5517381	11N	6	1	Siltstone	Collected at Hilo Showing

## **Appendix V - Analytical Certificates**





1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Acme Analytical Laboratories (Vancouver) Ltd.

www.acmelab.com

Client: B.J. Price Geological
1028 - 470 Granville St.
Vancouver BC V6C 1V5 Canada

Submitted By: Barry Price
Receiving Lab: Canada-Vancouver
Received: September 19, 2012
Report Date: October 16, 2012
Page: 1 of 2

CERTIFICATE OF ANALYSIS

VAN12004609.1

CLIENT JOB INFORMATION

Project: VOLCAN
Shipment ID:
P.O. Number
Number of Samples: 1

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Table with 6 columns: Method Code, Number of Samples, Code Description, Test Wgt (g), Report Status, Lab. Contains two rows of sample preparation data.

SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp After 90 days
DISP-RJT Dispose of Reject After 90 days

ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: B.J. Price Geological
1028 - 470 Granville St.
Vancouver BC V6C 1V5
Canada

CC:



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



Acme Analytical Laboratories (Vancouver) Ltd.  
 1020 Cordova St. East Vancouver BC V6A 4A3 Canada  
 Phone (604) 253-3158 Fax (604) 253-1716

www.acmelab.com

Client: **B.J. Price Geological**  
 1028 - 470 Granville St.  
 Vancouver BC V6C 1V5 Canada

Project: VOLCAN  
 Report Date: October 16, 2012

Page: 2 of 2

Part: 1 of 1

CERTIFICATE OF ANALYSIS

VAN12004609.1

Method	WGHT	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	
Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL	0.01	1	1	3	1	0.3	1	1	2	0.01	2	2	2	1	0.5	3	3	1	0.01	0.001	
G1	Prep Blank	<0.01	<1	2	<3	47	<0.3	4	5	608	2.06	<2	<2	3	57	<0.5	<3	<3	38	0.46	0.078
VLI	Rock	4.92	6	45	6654	9407	10.6	12	8	1623	3.77	642	<2	7	45	25.4	14	8	38	1.31	0.022



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 Vancouver BC V6C 1V5 Canada

**Project:** VOLCAN  
**Report Date:** October 16, 2012

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Part: 2 of 1

# CERTIFICATE OF ANALYSIS

VAN12004609.1

Method	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Tl	Hg	Ga	S	Sc	
Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	
MDL	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	5	1	5	0.05	5	
G1	Prep Blank	9	8	0.60	232	0.122	<20	1.00	0.09	0.50	<2	<5	<1	<5	<0.05	<5
VLI	Rock	11	34	2.00	66	0.117	<20	4.15	0.20	1.64	3	8	<1	11	1.53	<5



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 Vancouver BC V6C 1V5 Canada

Project: VOLCAN  
 Report Date: October 16, 2012

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Part: 1 of 1

QUALITY CONTROL REPORT

VAN12004609.1

Method	WGHT	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	
Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL	0.01	1	1	3	1	0.3	1	1	2	0.01	2	2	2	1	0.5	3	3	1	0.01	0.001	
Reference Materials																					
STD DS9 Standard		13	103	93	319	1.5	40	7	592	2.35	18	<2	5	67	2.3	4	<3	41	0.71	0.081	
STD OREAS45EA Standard		4	718	<3	33	0.5	394	55	418	24.41	6	<2	8	4	<0.5	<3	13	312	0.03	0.027	
STD OREAS45CA Standard		4	532	26	63	<0.3	259	98	997	16.64	5	<2	4	15	<0.5	8	<3	230	0.45	0.039	
STD OREAS45EA Expected			709	14.3	30.6	0	357	52	400	22.65	11.4	0.05	10.7	4.05				295	0.032	0.029	
STD DS9 Expected		12.84	108	126	317	1.83	40.3	7.6	575	2.33	25.5	0.118	6.38	69.6	2.4	4.94	6.32	40	0.7201	0.0819	
STD OREAS45CA Expected		1	494	20	60	0.275	240	92	943	15.69	3.8	0.043	7	15	0.1	0.13	0.19	215	0.4265	0.0385	
BLK Blank		<1	<1	5	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<2	<1	<0.5	<3	<3	<1	<0.01	<0.001	
Prep Wash																					
G1 Prep Blank		<0.01	<1	2	<3	47	<0.3	4	5	608	2.06	<2	<2	3	57	<0.5	<3	<3	38	0.46	0.078



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Project: VOLCAN  
 Report Date: October 16, 2012

Page: 1 of 1

Part: 2 of 1

# QUALITY CONTROL REPORT

VAN12004609.1

Method	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Tl	Hg	Ga	S	Sc	
Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	
MDL	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	5	1	5	0.05	5	
Reference Materials																
STD DS9	Standard	12	121	0.61	330	0.105	<20	0.95	0.09	0.40	4	<5	<1	<5	0.17	<5
STD OREAS45EA	Standard	8	868	0.10	151	0.091	<20	3.26	0.03	0.06	<2	7	<1	<5	<0.05	90
STD OREAS45CA	Standard	18	726	0.15	171	0.139	<20	3.78	0.01	0.08	<2	6	<1	10	<0.05	50
STD OREAS45EA Expected			849	0.095	139			3.32	0.027	0.053		0.072		11.7	0.044	78
STD DS9 Expected		13.3	121	0.6165	330	0.1108		0.9577	0.0853	0.395	2.89	5.3	0.2	4.59	0.1615	2.5
STD OREAS45CA Expected		15.9	709	0.1358	164	0.128		3.592	0.0075	0.0717		0.07	0.03		0.021	
BLK	Blank	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<5	<1	<5	<0.05	<5
Prep Wash																
G1	Prep Blank	9	8	0.60	232	0.122	<20	1.00	0.09	0.50	<2	<5	<1	<5	<0.05	<5