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**ASSESSMENT REPORT**

describing

**GEOLOGICAL MAPPING, PROSPECTING, HAND TRENCHING AND  
GEOCHEMICAL SAMPLING**

at the

**GROUNDHOG PROPERTY**

Sea 1-104	YC72460-YC72563
105-108	YC73866-YC73869
109-120	YC98399-YC98410

NTS 105F/10

Latitude 61°36'N; Longitude 132°52'W

located in the

Watson Lake Mining District  
Yukon Territory

prepared by

Archer, Cathro & Associates (1981) Limited

for

**ROCKHAVEN RESOURCES LTD.**


by

Mike Kammerer  
and  
Matt Turner, B.Sc.  
March 2010

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## INTRODUCTION

The Groundhog property covers silver-lead±zinc±gold showings located in the Pelly Mountains of Yukon Territory. It is wholly owned by Rockhaven Resources Ltd.

This report describes an exploration program conducted by Archer, Cathro & Associates (1981) Limited between July 9 and August 11, 2009. It involved prospecting, hand trenching and geochemical sampling by a two person crew working from a tent camp on the property. Twelve claims were staked on the west side of the property during the program. The lead author participated in the program and the secondary author supervised it. Their Statements of Qualifications appear in Appendix I.

## PROPERTY LOCATION, CLAIM DATA AND ACCESS

The Groundhog property consists of 120 contiguous mineral claims located 50 km southwest of Ross River in southeastern Yukon, at latitude 61°36' north and longitude 132°52' west on NTS 105F/10 (Figure 1). The claims are registered in the Watson Lake Mining Recorder in the name of Archer Cathro, which holds them in trust for Rockhaven. Claim data are listed below while the locations of individual claims are illustrated on Figure 2.

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Date*</u>
Sea 1-104	YC72460-YC72563	March 5, 2017
105-108	YC73866-YC73869	March 5, 2014
109-120	YC98399-YC98410	March 5, 2015

\*Expiry date includes 2009 work which has been filed for assessment credit but not yet accepted.

The work was done from a tent camp located at an old exploration campsite alongside the Groundhog Creek access road. An ATV and a previously constructed road system were used to access most parts of the property. Minor road repairs were done using pick and shovel.

## HISTORY

Silver-lead-zinc mineralization was discovered in the region in 1956. Subsequent exploration has outlined two areas of silver-lead-zinc mineralization, one to the north, and the other to the south, of Groundhog Creek (collectively “the Groundhog Silver Camp”). In total, about 100 showings have been discovered, mostly by prospecting and bulldozer trenching. The showings located north of Groundhog Creek presently lie within a staking moratorium pending settlement of First Nation land claims.

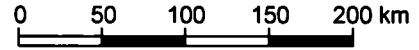
Silver mineralization was first reported in the area now covered by the Groundhog property by prospectors H. and P. Verslucce in 1979. They staked the Jeff claims and conducted limited prospecting and rock sampling. Soon afterward N. Hennel staked the Hi Grade claim on the east side of the Jeff claims and an unknown person staked the Jim claims directly to the south. There is no record of work having been done on either of those claim blocks. In 1981, the Seagull Joint Venture, comprised of Great Western Petroleum Corporation and Lornex Mining Corporation,

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FIGURE 1

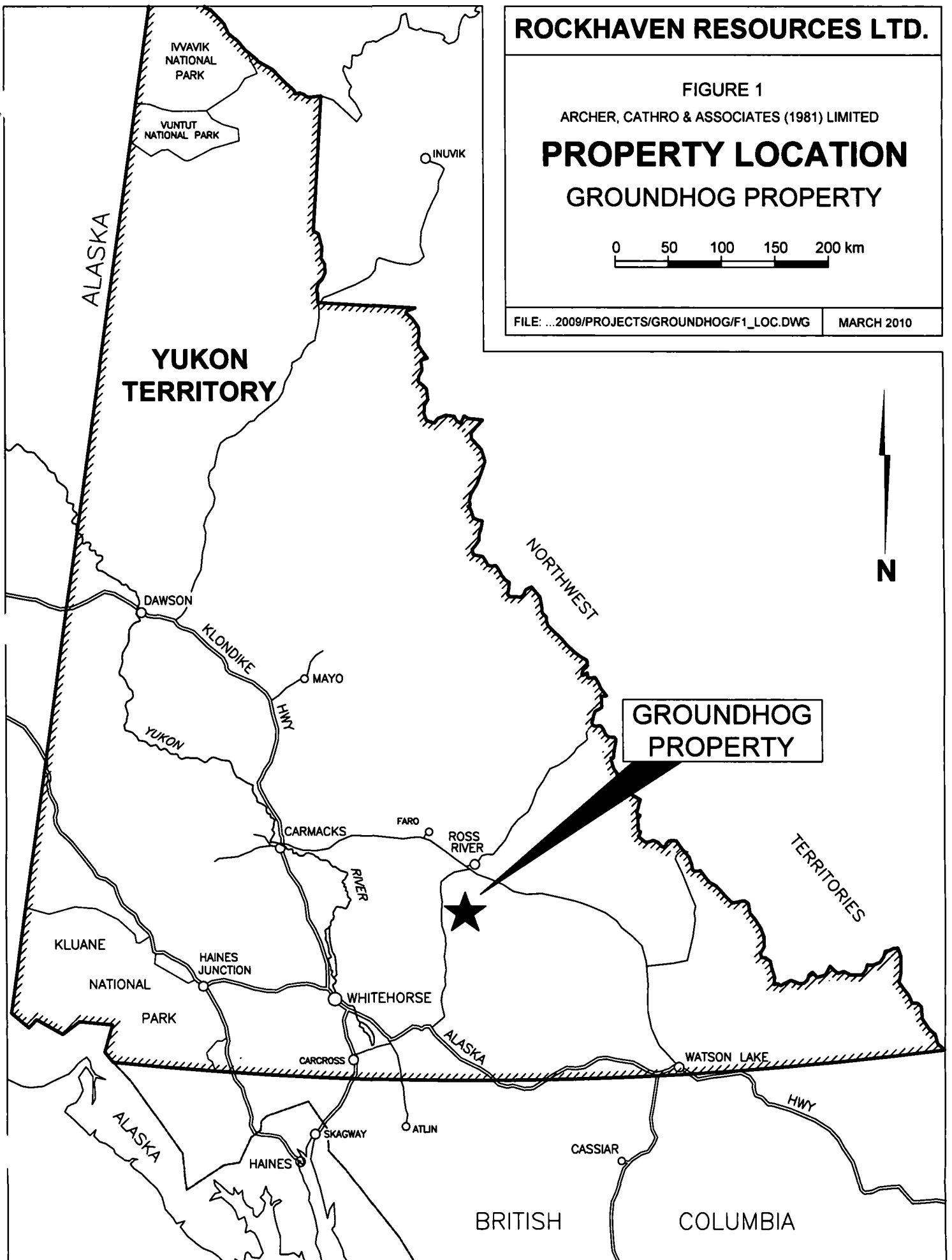
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

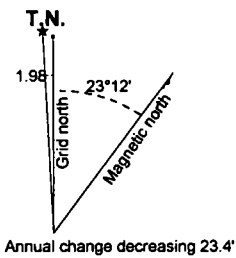
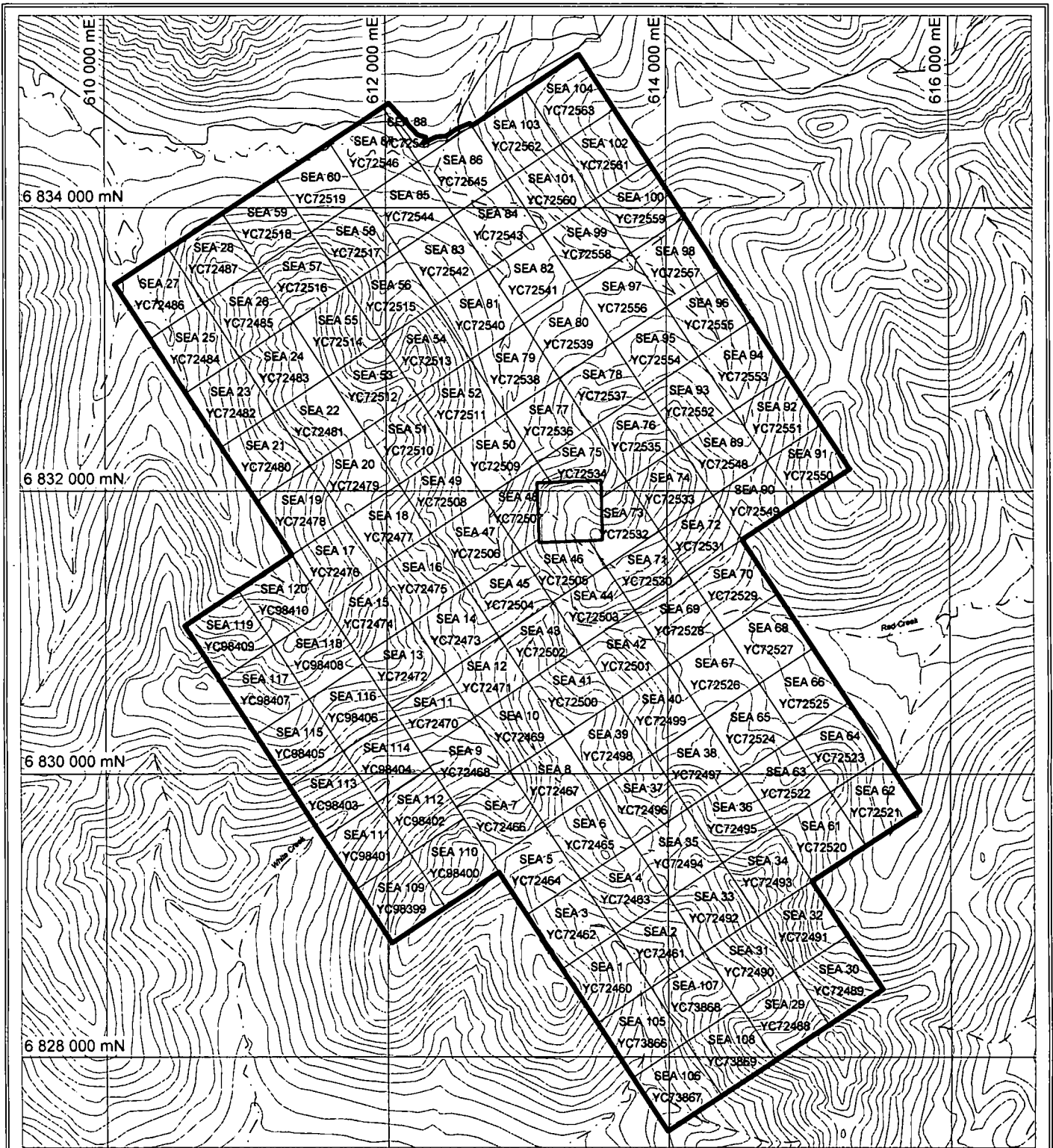
**PROPERTY LOCATION  
GROUNDHOG PROPERTY**



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MARCH 2010





Claim owned by others

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**FIGURE 2**

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**CLAIM LOCATIONS**

**GROUNDHOG PROPERTY**

0 2 km

UTM Zone 8, NAD83, NTS 105F/10

FILE:../2008/Groundhog

DATE: MARCH 2010

staked the Lorne claims to the east of the Jeff claims. That joint venture performed a program of mapping and silt and soil geochemical sampling over its property. This work located scattered mineralized float, but it was all believed to have originated from the Jeff claims, except for a train of massive galena boulders that was followed to a snow covered area. That discovery was never further evaluated.

In 1986, Yukon Minerals Corporation staked 348 claims to cover all of the known showings in the Groundhog Silver Camp. In 1987 it added another 152 claims and formed a joint venture with Perrex Resources Inc. That joint venture carried out mapping and prospecting over the entire claim block, which resulted in the discovery of a number of new showings. Subsequently bulldozer and excavator trenching was done to evaluate various showings. One of the showings (PN) was tested by a 52.56 tonne bulk sample and 204 m of diamond drilling in 6 holes between 1988 and 1990.

McCrorry Holdings Ltd. conducted an eight day reconnaissance exploration program over its adjoining Pass Peak property in 1987. Nine mineral occurrences were discovered and sampled. This property was optioned to Yukon Minerals in 1988. Detailed mapping and silt geochemistry sampling were completed in 1988 over this property, which lies in the southern portion of the present Groundhog property.

The area was partially restaked by Whitehorse prospector R. Berdahl in 1990, and he continues to own one claim that covers old workings on the Lucky, PN and Jill veins.

The southern part of Groundhog Silver Camp was staked in late 2007 by Strategic Metals Ltd. Rockhaven bought the property from Strategic in November 2007.

In summer 2008, Rockhaven contracted Geotech Inc. to complete a helicopter-borne versatile-time domain electromagnetic (VTEM) and magnetic survey over the property. The results from this survey were later used by a two-man crew that re-evaluated historical showings and collected silt samples. The Sea 105 to 108 claims were staked to cover the inferred strike extension of a newly discovered showing.

## **GEOMORPHOLOGY**

The Groundhog property is located in the St. Cyr Range of the Pelly Mountains. All streams draining the property flow into the Groundhog, Upper Sheep and Seagull creeks, which ultimately flow into the Bering Sea via the Pelly and Yukon Rivers.

The claims overlie rugged topography with peaks rising to 2120 m from valley floors of 1200 m. Lower elevations are vegetated with spruce forests, thick buckbrush and slide alder surrounded by moss. Higher elevations exhibit talus slopes with intermittent grass and alpine heather. Outcrop is mostly restricted to ridges and very steep slopes. Treeline is at about 1575 m.

## REGIONAL GEOLOGY

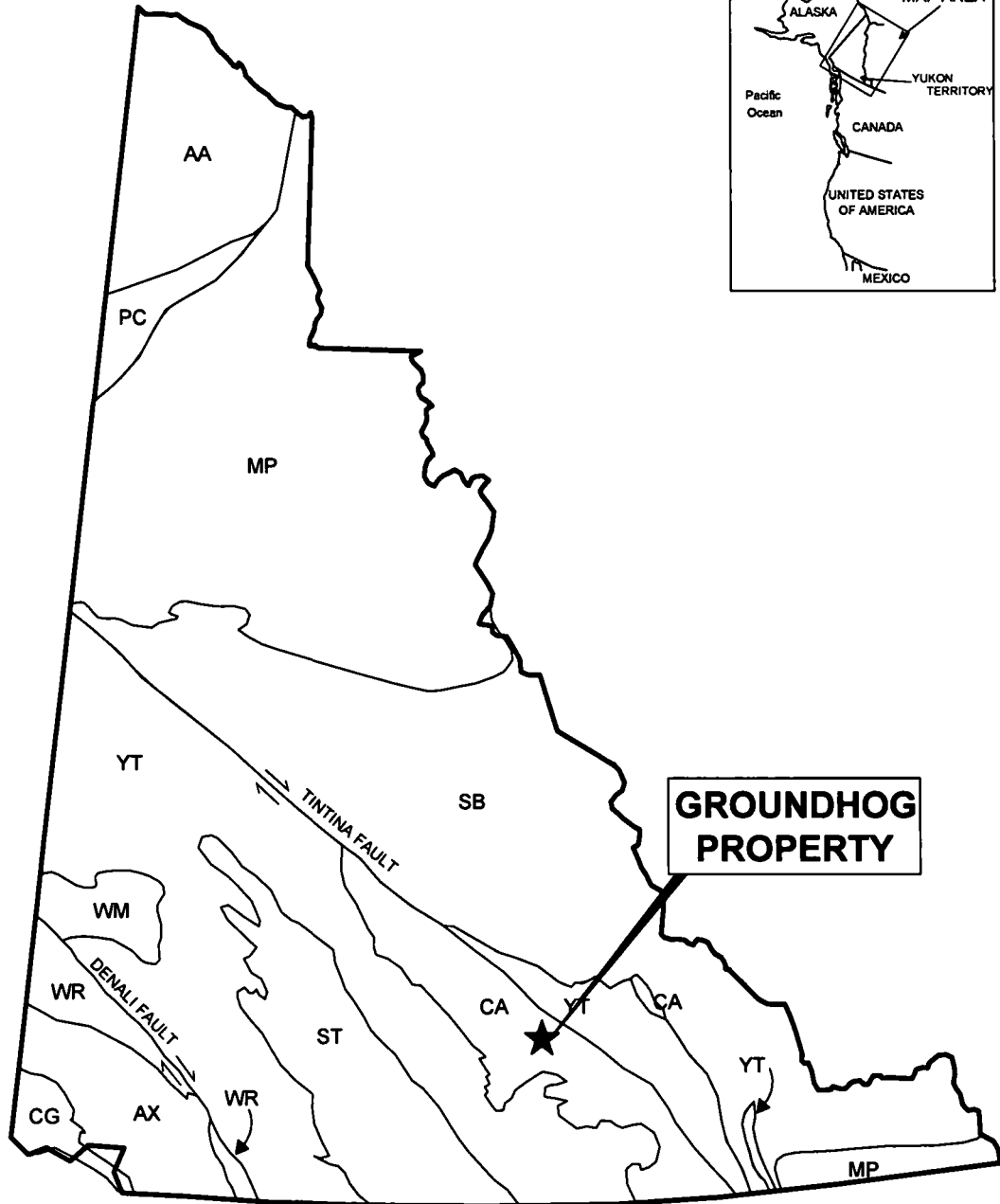
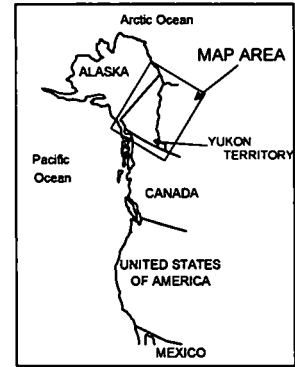
The Groundhog property is located 30 km southwest of the Tintina Fault in the Ketzta-Seagull District of the Cassiar Platform, (Figure 3). The Tintina Fault is a northwest trending transcurrent fault that produced approximately 425 km of dextral strike-slip offset between 58 and 67 million years ago (Mortensen, 2004). In southeastern Yukon, this fault juxtaposes a metamorphosed island arc assemblage of the Yukon-Tanana Terrane to the northeast against miogeoclinal rocks of the Cassiar Platform to the southwest (Figure 3).

The Ketzta-Seagull District is underlain by late Proterozoic to Triassic clastic, volcanic and carbonate rocks that were deformed during Mesozoic arc-continent collision and by Mid-Cretaceous intrusions (Tempelmen Kluit, 1977). Structure across the district has a pronounced northwesterly trending fabric. It is dominated by northeast verging thrust faults, which resulted from Mesozoic compression, and parallel to sub-parallel horst and graben, which were probably formed during uplift caused by doming above a large buried intrusion (Abbott, 1986). Seven main lithological units are recognized in the Groundhog area (Gordey and Makepeace, 1999). These units are described in the following table, and their distribution is shown on a regional geology map (Figure 4).

**Table I - Regional Lithological Units (After Gordey and Makepeace, 1999)**

<b>Name</b>	<b>Age</b>	<b>Unit</b>	<b>Description</b>
Cassiar Suite	Mid-Cretaceous	mKqC	Light grey weathering, homogenous, porphyritic medium-grained biotite quartz monzonite.
Earn Group	Upper Devonian to Lower Mississippian	DMEC1	Dark grey, recessive weathering, thin bedded, black siliceous slate with chert pebble conglomerate and rare lenses of intermediate to felsic volcanoclastic rocks.
		DMEC2	Rusty orange weathering, resistant, apple-green and dark grey, thin bedded chert and cherty tuff; local nodular and bedded barite.
		DMEC3	Heterogeneous, rusty, black, white, and orange- weathering rhyolite-trachyte to andesite flows, breccias and tuffs.
Askin Group	Middle Silurian to Middle Devonian	SDA2	Medium grey to buff weathering, medium-to-thick bedded dolomite, silty and sandy dolomite, limestone, and medium-to-thick bedded orthoquartzite.
Kechika Group	Upper Cambrian to Lower Ordovician	COK1	Basinal, fine grained, calcareous pelitic strata containing thin bedded, lustrous, calcareous grey slate, phyllite, limestone, minor grey dolomite and dolomitic limestone; quartz-carbonate veins; minor sills and flows of basalt.





**ANCESTRAL NORTH AMERICA**

- MP Mackenzie Platform
- SB Selwyn Basin

**TERRANES**  
Displaced Continental Margin

- AA Arctic Alaska
- CA Cassiar
- PC Porcupine

Pericratonic Terranes

- YT Yukon-Tanana / Slide Mountain

**ACCRETED TERRANES**

- ST Stikinia / Cache Creek
- AX Alexander
- WR Wrangellia
- CG Chugach
- WM Windy McKinley

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FIGURE 3

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

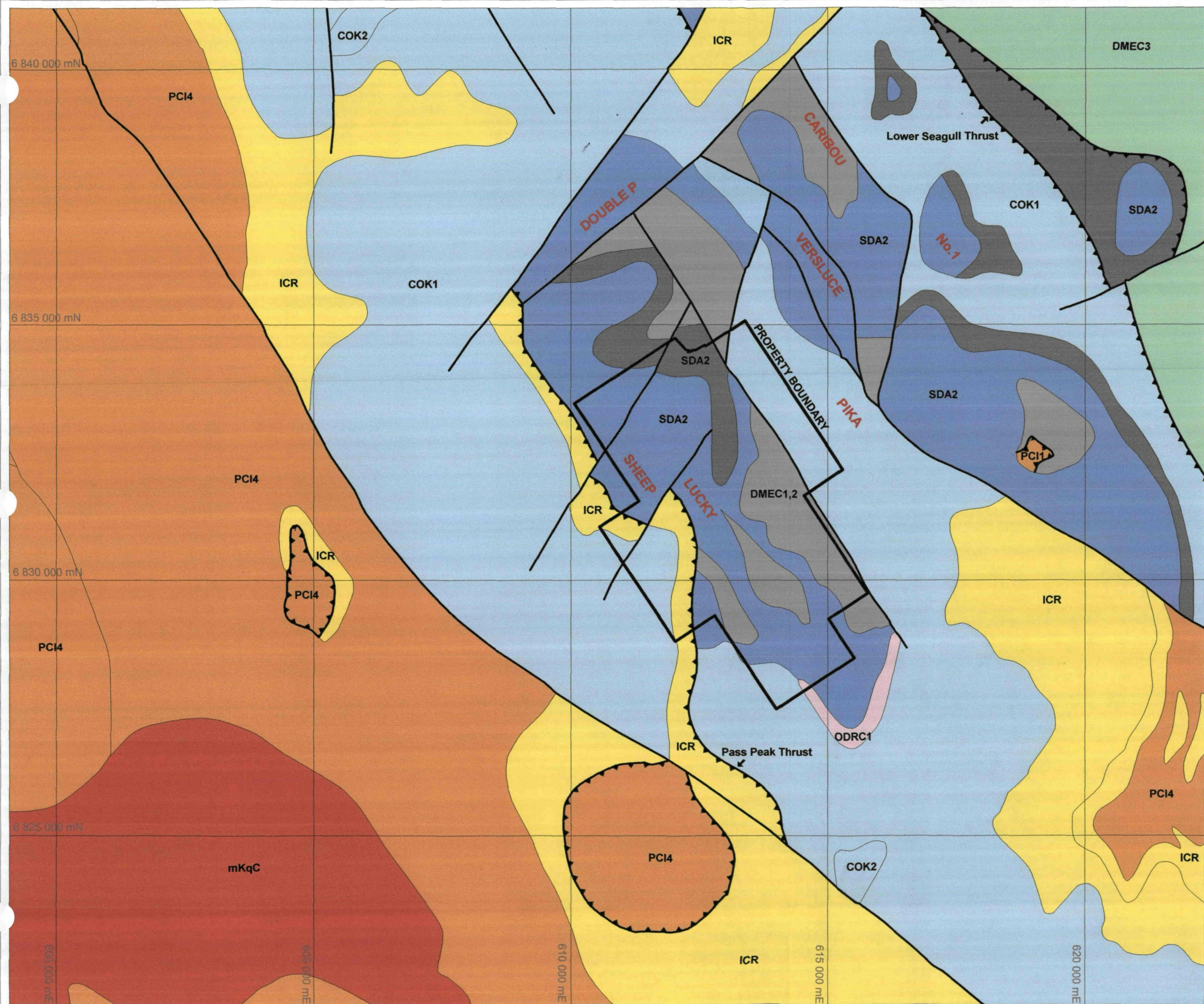
**TECTONIC SETTING  
GROUNDHOG PROPERTY**

0 100 200 km

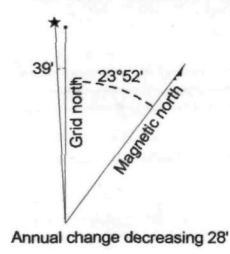
DRAWN/REVISED BY: MT

FILE: ...FIG 03 - TECTONIC SETTING

DATE: MARCH 2010



- Mid Cretaceous**  
**Cassiar Suite**  
**mKqC** Light grey weathering, homogenous porphyritic medium grained biotite quartz monzonite
- Upper Devonian to Lower Mississippian**  
**Earn Group**  
**DMEC1,2** Dark grey, recessive weathering, thin bedded, black siliceous slate with interbeds and members of quartz-chert greywacke, chert granule grit, and rusty orange weathering, resistant, apple-green and dark grey, thin bedded chert and cherty tuff
- DMEC3** Heterogeneous, rusty, black-, white-, and orange-weathering rhyolite-trachyte to andesite flows, breccias and tuffs
- Silurian to Lower Devonian**  
**Askin Group**  
**SDA2** Resistant, thick bedded to massive, red weathering, coarsely sucrose dolomite; minor sandy dolomite
- SDA2** Recessive weathering, thin bedded, dark grey dolomitic shale
- Ordovician to Devonian**  
**Road River Group**  
**ODRC1** Recessive, black, locally calcareous, fissile graphoitic shale
- Upper Cambrian to Lower Ordovician**  
**Kechika Group**  
**COK1** Basinal fine grained calcareous pelitic strata containing thin bedded, lustrous, calcareous, grey slate, phyllite, limestone, minor grey dolomite and dolomitic limestone; quartz- carbonate veins; minor sills and flows of basalt
- COK2** Massive, dark green and marron amygdaloidal basalt flows and volcaniclastics
- Lower Cambrian**  
**Rosella Group**  
**ICR** Resistant, thick bedded to massive, limestone and argillaceous limestone with local archaeocyathid buildups, trilobite fragments, and oolites, pisolitic massive dolomite and limestone; marble, calc-silicate, calcareous phyllite and minor schist
- Upper Proterozoic to Lower Cambrian**  
**Ingenika Group**  
**PCI1** Calcareous sandstone, shale, quartz-eye grit, quartzite and minor grey limestone
- PCI4** Buff weathering, resistant muscovite-biotite granodiorite gneiss and augen gneiss
- ▲▲▲ Thrust fault  
 — Normal fault  
 — Geological contact  
**SHEEP** Mineralized trend



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**FIGURE 4**

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**REGIONAL GEOLOGY**

**GROUNDHOG PROPERTY**

0 5 km  
 UTM Zone 8V, NAD83, NTS 105F/10

FILE:../2008/GROUNDHOG DATE: MARCH 2010

Rosella Group	Lower Cambrian	ICR	Resistant, thick bedded to massive, limestone and argillaceous limestone with local archaeocyathid buildups, trilobite fragments, and oolites; pisolitic massive dolomite and limestone; marble, calc-silicate, calcareous phyllite and minor schist.
Ingenica Group	Upper Proterozoic to Lower Cambrian	PCI4	Buff weathering, resistant muscovite-biotite granodiorite gneiss and augen gneiss.

### **PROPERTY GEOLOGY**

Mapping in 1988 by Yukon Minerals identified six units on the property, which are correlated to the regional lithologies as shown in Table II. Mapping by Rockhaven in 2008 (Turner, 2009) was done at 1:10000 scale, using the same units. Some more detailed mapping was also done in 2009, mainly in the west part of the property. Property geology is shown on Figure 5.

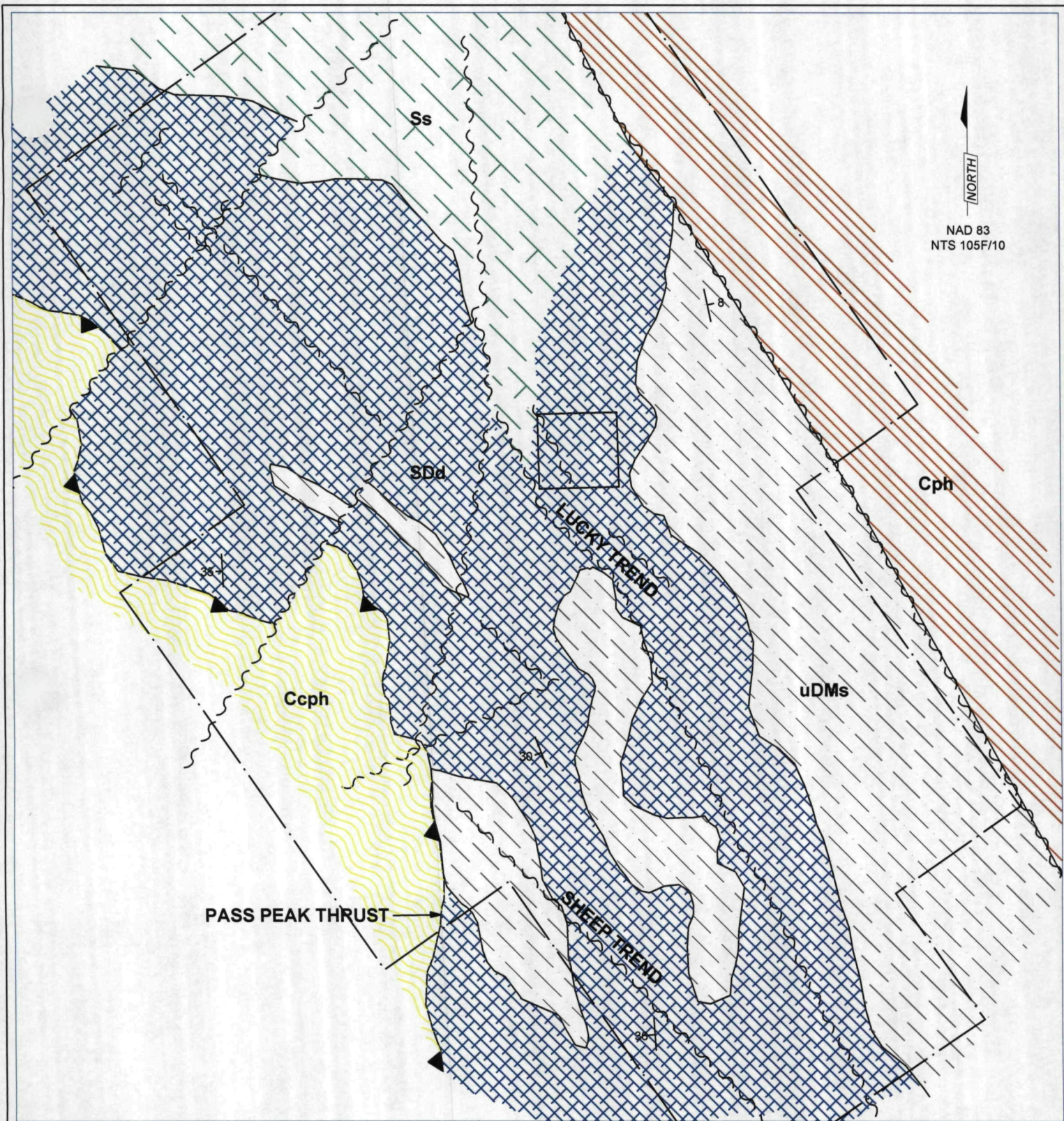
**Table II - Correlation of Regional and Property Lithological Units**

<b>Regional unit</b>	<b>Property subunit</b>	<b>Description</b>
mKqC	KTqfp	Dark green, fine grained biotite-bearing dykes.
DMEC1	uDMs	Black, recessive weathering shale.
DMEC2	uDMc	Dark grey, resistant, thin bedded chert and local nodular and bedded barite.
SDA2	SDd	Buff-, grey-, and red-weathering dolomite with lenses of massive quartz arenite.
COK1	Ccph	Grey buff, brown weathering, thinly laminated calcareous phyllite.
ICR	Cph	Grey calcareous phyllite.

The property is underlain by relatively thick successions (up to 400 m) of calcareous sedimentary rocks with lesser clastic sedimentary rocks, which range in age from Lower Cambrian to Late Devonian-Mississippian. Bedding orientations mostly show northerly strikes, with flat to moderate dips of 5° to 35°W in the western part of the property and 2° to 20°E in the east. These measurements indicate a broad anticlinal fold with a northerly trending axis.

Although there are no mapped exposures of intrusive bedrock on the property, some areas host numerous boulders of dark green, intermediate to mafic intrusive (KTqfp). Yukon Minerals mapped two dykes of this unit in outcrops about 400 m north of the property. These dykes range from 2 to 10 m in width and were traced over 600 m along strike.

The Pass Peak Thrust Fault is the only named fault on the property and represents the southern flank of the complexly faulted arch named the Seagull Uplift. The Lower Seagull Thrust, 5 km to the northeast of the property (Figure 4), represents the northern flank of the arch. Both of these thrust faults strike northerly and dip shallowly to the west.

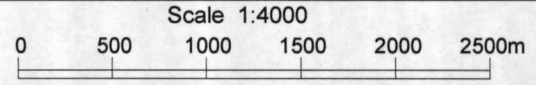


NAD 83  
NTS 105F/10

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><span style="border: 1px solid black; padding: 2px;">uDMs</span> Late Devonian to Mississippian<br/>Black shale, phyllite, chert conglomerate</li> <li><span style="border: 1px solid black; padding: 2px;">SDd</span> Silurian and Early to Middle Devonian<br/>Buff-, grey- and red-weathered dolomite with lenses of quartz arenite</li> <li><span style="border: 1px solid black; padding: 2px;">Ss</span> Silurian<br/>Grey weathering, platy, thinly laminated dolmitic siltstone</li> <li><span style="border: 1px solid black; padding: 2px;">Ccph</span> Late Cambrian<br/>Grey buff, brown weathering, thinly laminated calcareous phyllite</li> <li><span style="border: 1px solid black; padding: 2px;">Cph</span> Early Cambrian<br/>Grey calcareous phyllite</li> </ul> | <ul style="list-style-type: none"> <li> Thrust fault</li> <li> Normal fault</li> <li> Bedding measurement</li> </ul> |
|--|--|

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FIGURE 5  
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**PROPERTY GEOLOGY**  
GROUNDHOG PROPERTY



DRAWN / REVISED BY: M. Turner	PROJECT: GROUNDHOG
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Several normal faults and shear zones have also been mapped on the property. These structures strike northwesterly and northeasterly and dip steeply. They are interpreted to be horst and graben structures within the Seagull Uplift (Abbott, 1986). These high angle faults offset the thrust fault.

### **MINERALIZATION AND ROCK GEOCHEMISTRY**

Mineralization in the Seagull Uplift is associated with seven main structural trends, two of which, (the Sheep and Lucky trends) cross the property (Figure 4). These mineralized trends are oriented northwesterly and are individually traced up to 7 km along strike. They appear to lie along the flanks of grabens formed during the Seagull Uplift (Ramaekers, 1988) or along fluid conduits provided by older thrust faults. Although the source of the mineralizing fluids is unknown, it has been postulated that the uplift and structural extension resulted from doming above an unexposed Mid-Cretaceous intrusion, which may also have been the main heat source driving the fluid transfer (Abbott 1986).

The majority of the showings on the property are fault-bounded quartz-carbonate veins and breccias hosted by the Askin Group carbonate sequence. Mineralization within the veins and breccias consists of disseminated to semi-massive, coarse grained galena, sphalerite, tetrahedrite, freibergite and pyrite. Malachite staining is common on carbonate minerals, with the copper remobilized from the weathering of tetrahedrite. Hydrozincite residue is also locally observed. Most of the showings occur near the top of the Askin Group, just below the contact with overlying Earn Group shales and fine grained clastics. This relatively incompetent and non-reactive unit appears to have acted as a physical and chemical barrier that localized mineral deposition in the underlying carbonate rocks (Fowler, 1988).

Four main types of mineralization have been discovered on the Groundhog property as generally described in the following paragraphs. Individual showings are described later in the section.

**Vein and breccia zones** on the property are associated with northwest trending, steeply dipping structures, which mostly occur along the Lucky and Sheep trends. Mineralization is hosted within the main structures and in east to northeast trending shear zones that cut obliquely across the primary structures. Movement along these shears has helped produce dilatent zones that have enabled open space filling by veins.

**Replacement mineralization** is locally developed where structures hosting vein and breccia zones cut carbonate wallrocks. Little effort was made by previous operators to assess potential for this type of mineralization. However, prospecting in 2008 and 2009 appears to have discovered replacement style zones (JW and Aztek Showings).

**Stratiform mineralization** occurs as finely banded galena, sphalerite and chalcopyrite in Cambrian-aged phyllites and tuffs in the western part of the property within the upper plate of the Pass Peak Thrust Fault. Two showings (Strat and Geo) exhibit this style of mineralization. They are located on opposite sides of a valley about 1500 m apart.

In 2009, 111 rock samples were collected from the area encompassed by the Groundhog property. Of those samples, 27 were from the Lucky and PN Showings. Although these showings are located on a claim owned by an independent prospector, the host structures project off those claims and onto Rockhaven's claims. The samples were collected so that the mineralization can be characterized geochemically, and this data used to interpret nearby soil results. Rock sample descriptions can be found in Appendix II, sample handling and analytical procedures are described in Appendix III, and certificates of analysis appear in Appendix IV. Figure 6 shows rock sample and showing locations.

### **Cirque Showing**

The Cirque Showing is located along the flat top of a prominent northwest trending ridge, which is underlain mainly by resistant weathering Askin Group dolomite (SDd). Access to the showing is by a cat road that extends southeast along the ridge top from the main access road at Jerry Pass (Figure 6). The showing is located toward the north end of the Sheep Trend.

Mineralization at the Cirque Showing consists of three parallel quartz-siderite veins and stockworks bearing galena, tetrahedrite, azurite, malachite and sphalerite. Limonite and manganese alteration are developed in wallrocks peripheral to the veins. The veins have been exposed in trenches over a length of 400 m length and are open along strike in both directions. The southern projection is covered by talus and felsenmeer and the northern projection is obscured by heavy vegetation and till in the Groundhog Creek valley.

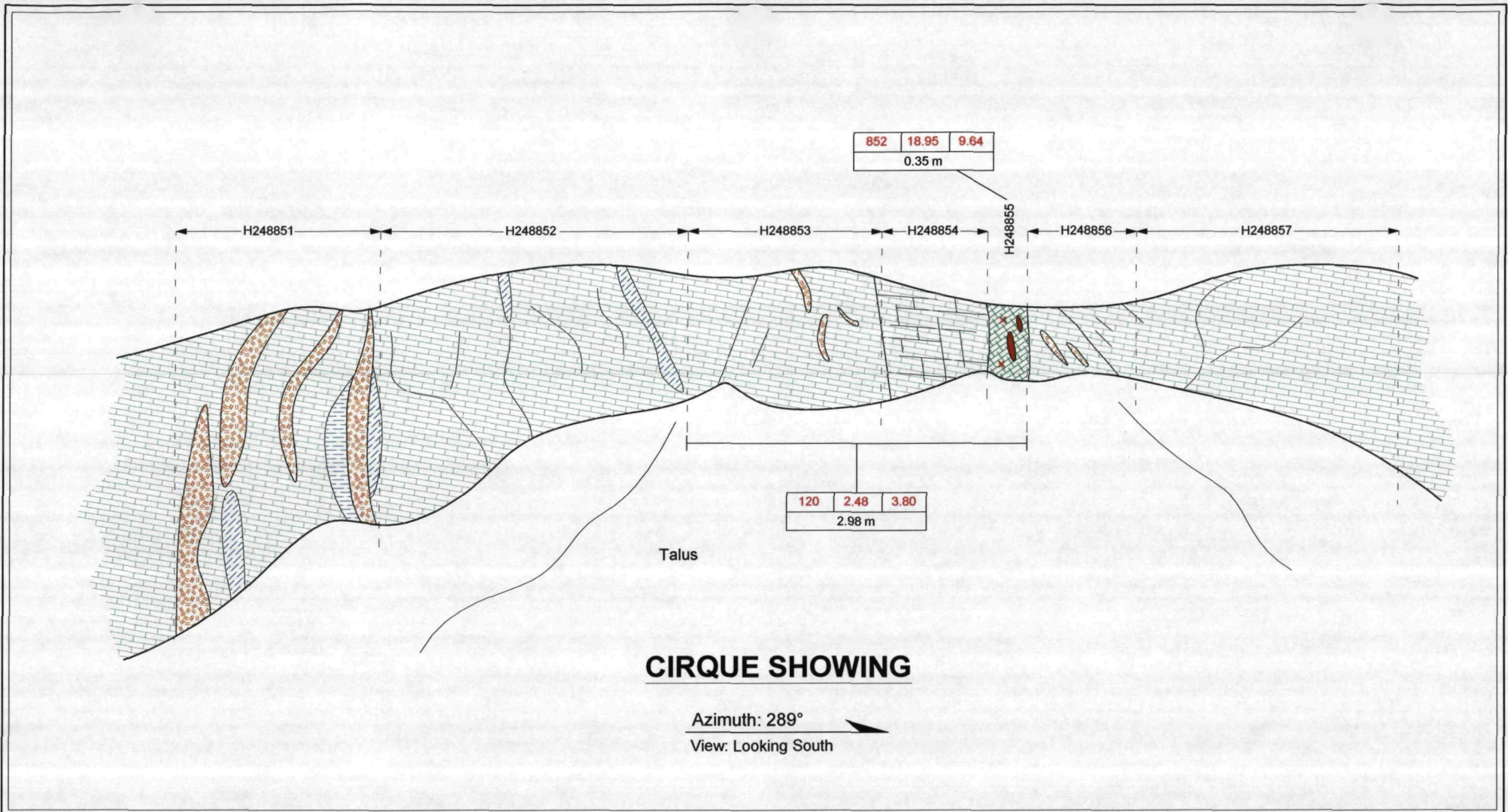
In 2008, two rock samples were taken, which represented the strongest mineralization observed within the exposed veins. The better of them returned 11663.5 g/t Ag, 64.7% Pb and 3.7% Cu. A 1 m chip sample across strongly limonitic wallrocks directly adjacent to that vein returned 388 g/t Ag, 4.4% Pb and 7.8% Zn.

During the 2009 field program, an 8 m wide exposure across one of the veins was mapped and sampled. Chip samples returned mostly low values with the best results from three samples that included the vein and the adjacent hanging wall. These samples yielded a weighted average of 120 g/t Ag over 2.98 m. The sample from the vein returned 852 g/t Ag, 18.95% Pb and 9.64% Zn over 0.35 m. Details of the mapping and sampling are shown on Figure 7.

### **Scree Showing**

The Scree Showing was discovered in 2008 while prospecting along a boulder talus slope. The showing is located approximately 350 m along strike of the SP Showing within the Lucky Trend. A large area containing sparse quartz vein and massive galena float was outlined in 2009. The distribution of the mineralized float was mapped, leading to a band of rusty cliffs.

Mineralization could not be found on the cliffs, suggesting that the source of the float has been eroded away, or that it is buried under talus at the base of the cliffs. The better of the two float samples taken in 2008 returned 983 g/t Ag and 45.77% Pb. Hand trenching is needed to assess this discovery.



**LEGEND**

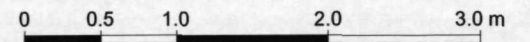
- Dolostone
- Quartz vein
- Galena
- Gouge
- Slickensides
- Galena disseminations

**Assay Results**

Ag (g/t)	Pb (%)	Zn (%)
852	18.95	9.64
0.35 m		
Interval length		

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**FIGURE 7**  
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**TR-09-01 TRENCH RESULTS**  
GROUNDHOG PROPERTY



DRAWN BY: M. Kammerer

PROJECT: Groundhog

FILE P:\2009\Groundhog\Drafting

DATE: MARCH 2010

### **Rob #1 Showing**

The Rob 1 Showing is a north-south trending limonite altered vein fault hosting localized galena pods and strong malachite staining. The showing is at the south end of the property on the western flank of Pass Peak. The area was discovered in 2008, but could not be followed up due to deep snow cover. A float sample taken in 2008 assayed 2000 g/t Ag, 77.21% Pb, and 1.3% Cu.

Prospecting in 2009 traced mineralized float about 200 m up hill from a small bedrock exposure developed where the float train crosses the access road. The most abundant float occurs in an area of shallow overburden on a ridge crest on the western flank of Pass Peak. No prospecting has been done south of the ridge crest. The orientation of the float train is consistent with the strike observed in the bedrock exposure. One chip sample and two float samples were collected across and immediately uphill of the bedrock exposure, and three grab samples were taken near the ridge crest. The chip sample returned 382.6 g/t Ag, 14.47% Pb, and 7.15% Zn over 0.5 m, while the better mineralized of the nearby grab samples assayed 2440 g/t Ag, 58.57% Pb, and 5.69% Zn. The best of the grab samples from the ridge crest yielded 1665 g/t Ag and 72.92% Pb. Locations of the rock samples and complete assays are shown on Figure 8. Hand trenching should be done on the ridge crest to further assess this showing.

### **Aztek Showing**

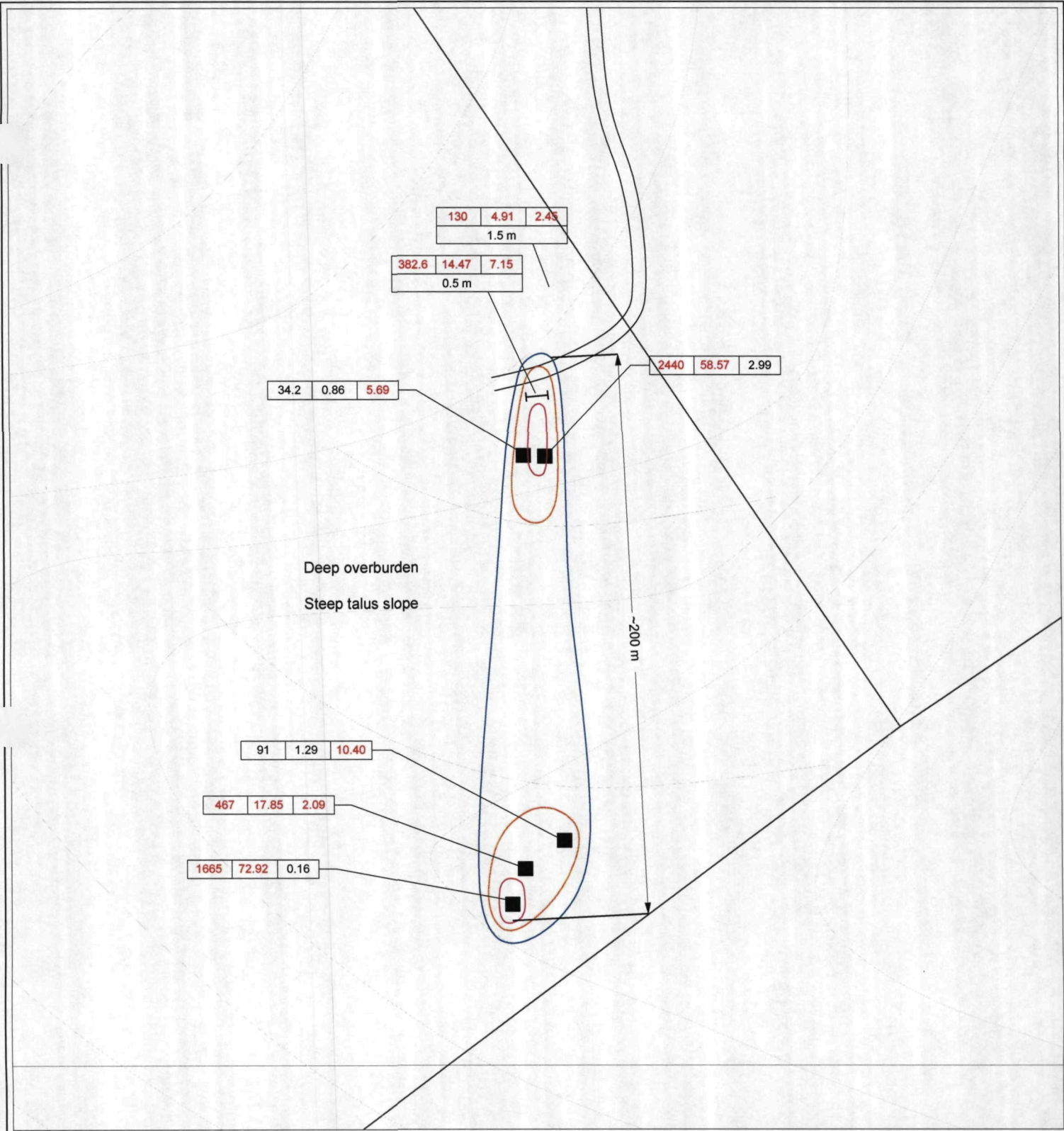
The Aztek Showing was identified during the 2009 exploration program. It comprises a broad area hosting localized zones of limonite altered dolostone on a moderately sloping dome in the centre of the property. A few rock samples of this material were collected from float in road cuts and historical bulldozer trenches. These samples returned up to 1.81 g/t Au, 486 g/t Ag and 14.9% Pb.

The Aztek Showing is loosely defined by widely spaced soil sampling, which yielded elevated gold and arsenic values from an area about 2000 m long and up to 1400 m across. Analysis of the data from the 2008 VTEM survey shows a magnetic low that approximately coincides with the geochemically anomalous area. The assays and soil geochemical results were received after the crew left the property, so no follow-up exploration has been done at this showing.

### **JW Showing**




The JW Showing was discovered in 2008. It is a shear zone hosted in dolomite (SDd). The shear is exposed for a length of 40 m. An area of silicification in the southern part of the exposure is mineralized with pods and disseminations of honey sphalerite and minor galena, which exhibit open-space replacement textures. In 2009, two hand trenches were dug across the shear, 7 m apart (Figure 9). Chip samples from the northern trench (TR-GH-09-03) averaged 7.33% Zn over 6.9 m. The southern trench (TR-GH-09-04) exposed two bands of mineralization, the better of which returned 4.57% over 0.78 m. Both trenches ended in mineralization. Additional hand trenching along strike might help to further define this structure but mechanized trenching would be more effective because of deep overburden.





**LEGEND**

Relative abundance of mineralized float:

-  Low to moderate
-  High
-  Very high

**Assay Results**

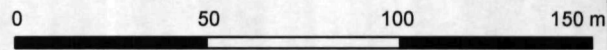
Ag (g/t)	Pb (%)	Zn (%)
852	18.95	9.64
0.35 m		
Interval length		

**ROCKHAVEN RESOURCES LTD.**

**FIGURE 8**

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

**ROB 1 SHOWING  
GROUNDHOG PROPERTY**



DRAWN BY: M.Kammerer

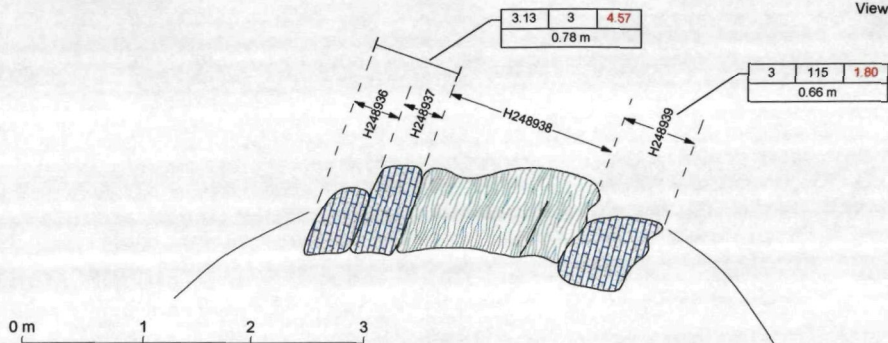
PROJECT: Groundhog

FILE:P:\2009\Groundhog\Drafting

DATE: MARCH 2010

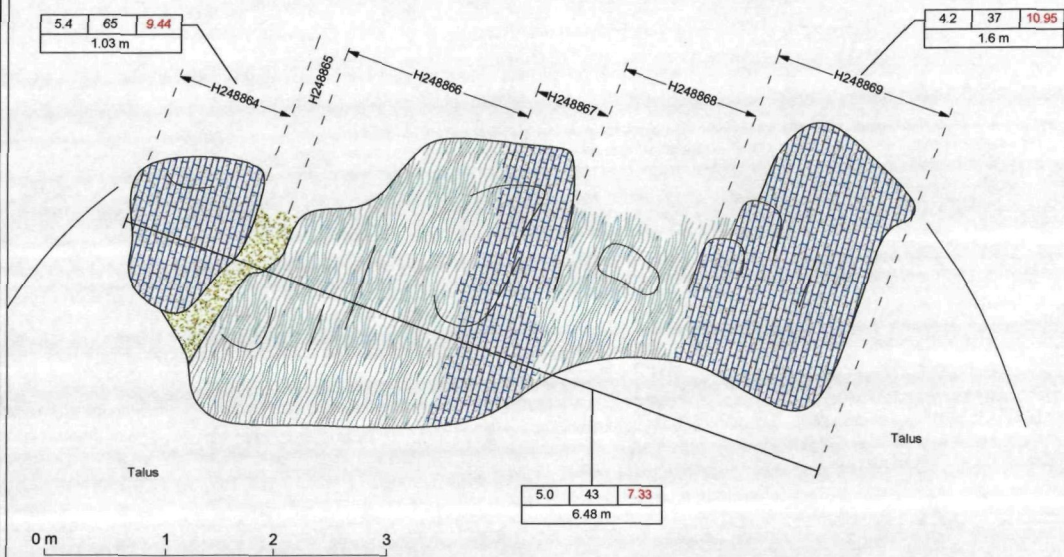
TR-GH-09-04

Azimuth: 18  
View: Looking southeast

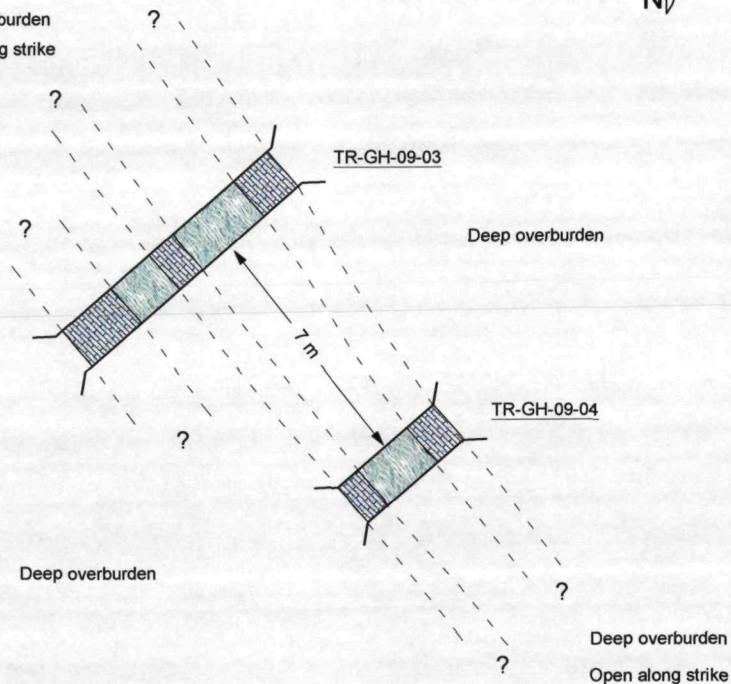


TR-GH-09-03




Azimuth: 180°  
View: Looking southeast



Deep overburden  
Open along strike



LEGEND

-  Porous, cavity-filled siliceous dolostone with disseminated honey spherulite and abundant hydrozincite coatings on fracture surfaces
-  Dolostone and phyllite with hydrozincite coatings common on fracture surfaces
-  Decomposed rock

Assay Results

Ag (g/t)	Pb (ppm)	Zn (%)
852	18.95	9.64
Interval length 0.35 m		

ROCKHAVEN RESOURCES LTD.

FIGURE 9  
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**JW SHOWING TRENCH RESULTS**  
GROUNDHOG PROPERTY

SCALE: As Shown

DRAWN BY: M.Kammerer  
FILE P:\2009\Groundhog\Drafting

PROJECT: Groundhog  
DATE: MARCH 2010

### **Strat and Geo Showings**

The Strat and Geo Showings consist of laminated and disseminated galena, sphalerite and chalcopyrite in a Lower Cambrian unit comprised of tuffaceous phyllite and quartz-carbonate phyllite. These showings are located 1500 m apart on the opposite side of a broad valley. They lie within the same stratigraphic section, directly above the Pass Peak Thrust Fault. The Strat Showing has been traced for a length of approximately 100 m, with thicknesses ranging between 0.5 and 2 m. The Geo Showing has been traced for a length of over 200 m, and range between 1 and 2 m in width.

In 2009, chip samples were collected from three hand trenches that were dug at the Strat Showing within historical bulldozer trenches, and two chip samples were taken at the Geo Showing from outcrops. Most of these samples returned sub-economic values for silver, lead and zinc. The best samples from the Strat Showing returned 13.9 g/t Ag, 0.50% Pb and 1.47% Zn over 0.78 m and 23.3 g/t Ag, 0.58% Pb and 2.19% Zn across 0.25 m. The best sample from the Geo Showing yielded 3.4 g/t Ag, 0.25% Pb and 0.28% Zn over 2.2 m.

**The PN, Lucky and Jill showings** lie on the Pete 1 claim, which is owned by R. Berdahl. Samples from these showings were taken for geochemical purposes only. The showings were not sampled or mapped in detail.

### **SOIL GEOCHEMISTRY**

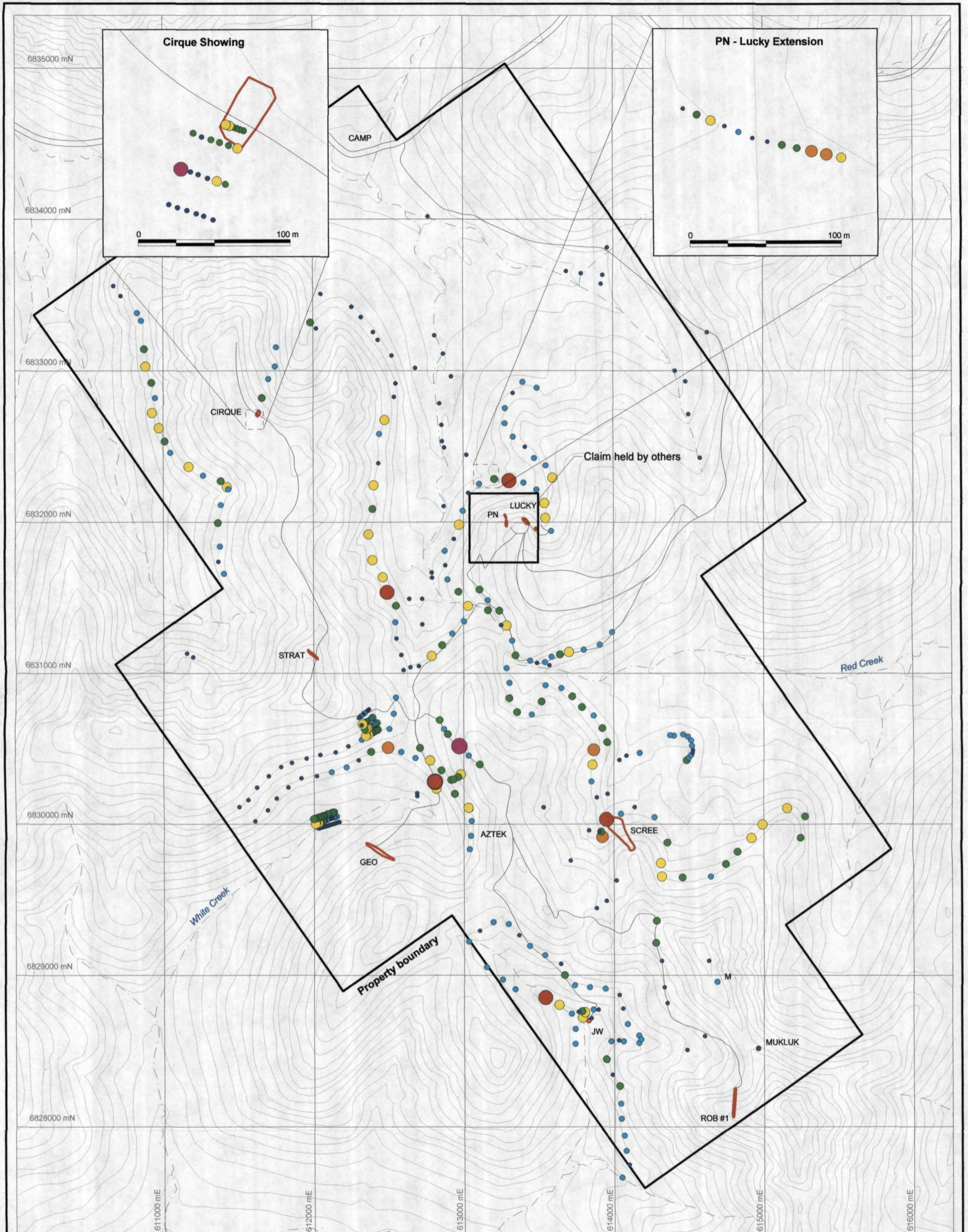
In 2009, 373 soil samples were collected from the property. Two types of samples were collected: 1) closely spaced soil samples were collected on lines across projected extensions of known showings, and 2) contour soil samples were taken across the property to identify areas with the greatest potential for new discoveries. In addition, 47 silt samples taken in 2008 were reanalyzed for gold in February 2009.


Sample handling and analytical procedures used in 2009 are described in Appendix III and certificates of analysis are provided in Appendix IV. Anomalous thresholds for soil values are listed in Tables III below. Figure 10 shows 2009 soil sample locations. Figures 11-15 illustrate thematic data for silver, lead, zinc, gold and arsenic, respectively.

**Table III- Anomalous Thresholds for Soil Samples**








<b>Element</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	<b>Peak</b>
Silver (ppm)	>2 ≤5	>5 ≤10	>10	72.2
Lead (ppm)	>100 ≤200	>200 ≤500	>500	34,200
Zinc (ppm)	>200 ≤500	>500 ≤1000	>1000	13,900
Gold (ppb)	>20 ≤50	>50 ≤100	>100	327
Arsenic (ppm)	>50 ≤100	>75 ≤150	>150	1,940

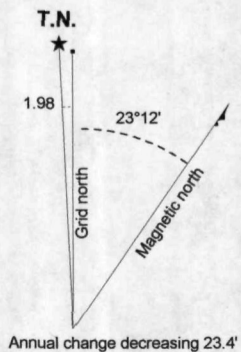
The detailed soil samples taken near known showings were collected using a motorized auger at depths of 1 to 1.5 m. The motorized auger was used for the grid in White Creek valley, between the Strat and Geo Showings, at the Cirque Showing and north of the PN and Lucky Showings.



STRAT  Showing location

**Silver Geochemistry (ppm)**

-   $\geq 25 < 100$
-   $\geq 10 < 25$
-   $\geq 5 < 10$
-   $\geq 2 < 5$
-   $\geq 1 < 2$
-   $\geq 0.5 < 1$
-   $\geq 0 < 0.5$



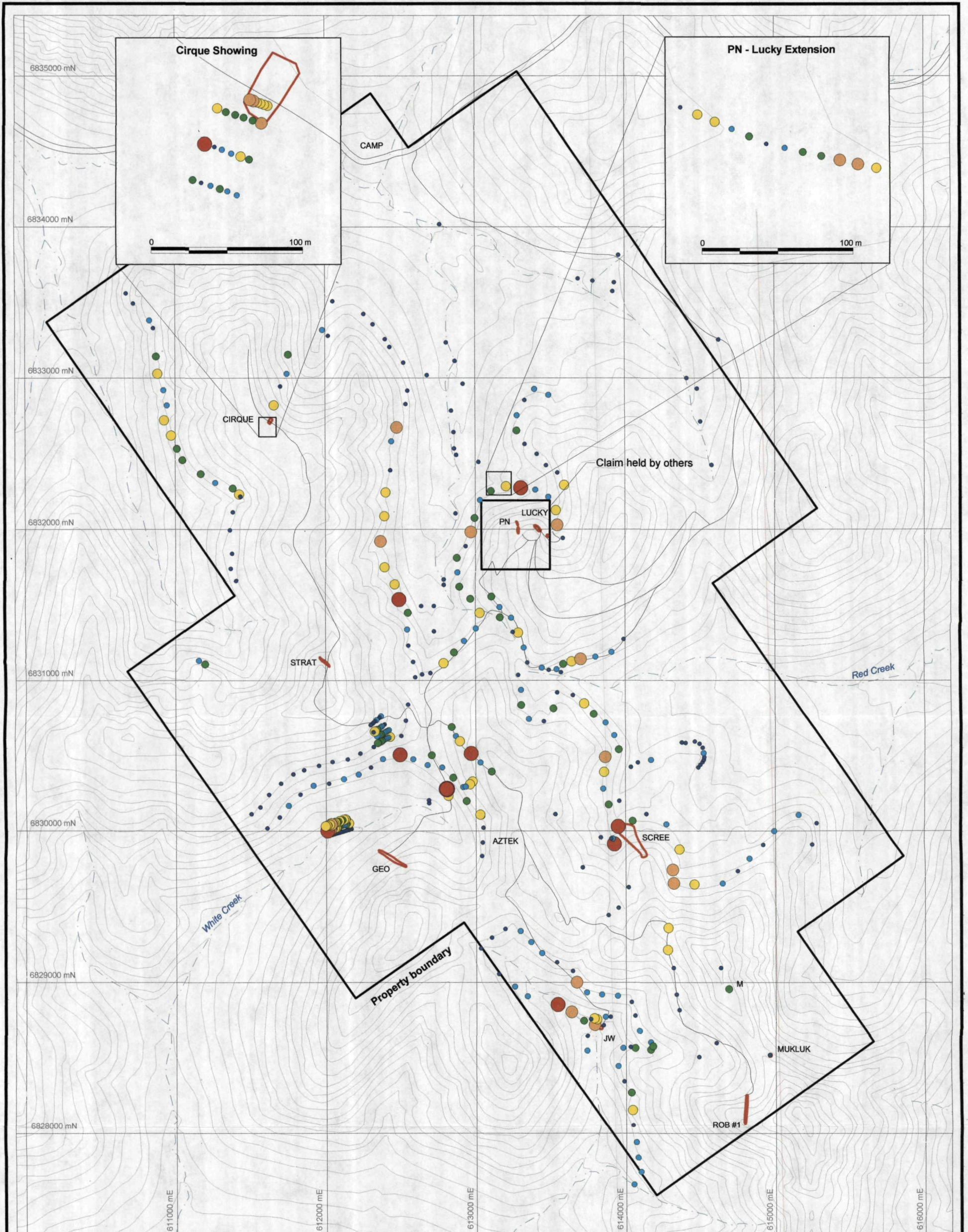
**ROCKHAVEN RESOURCES LTD.**


**FIGURE 11**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**SILVER SOIL GEOCHEMISTRY**  
**GROUNDHOG PROPERTY**

0 0.2 1 km








UTM Zone 8, NAD83, NTS 105 F/10

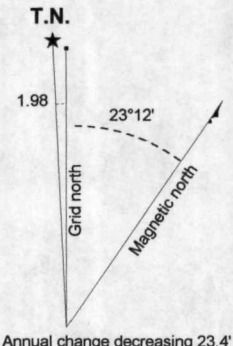
FILE: Projects/2009/Groundhog/MapInfo... DATE: MARCH 2010



STRAT  Showing location

**Lead Geochemistry (ppm)**

-   $\geq 10,000$  < 50,000
-   $\geq 1,000$  < 10,000
-   $\geq 500$  < 1,000
-   $\geq 200$  < 500
-   $\geq 100$  < 200
-   $\geq 50$  < 100
-   $\geq 0$  < 50



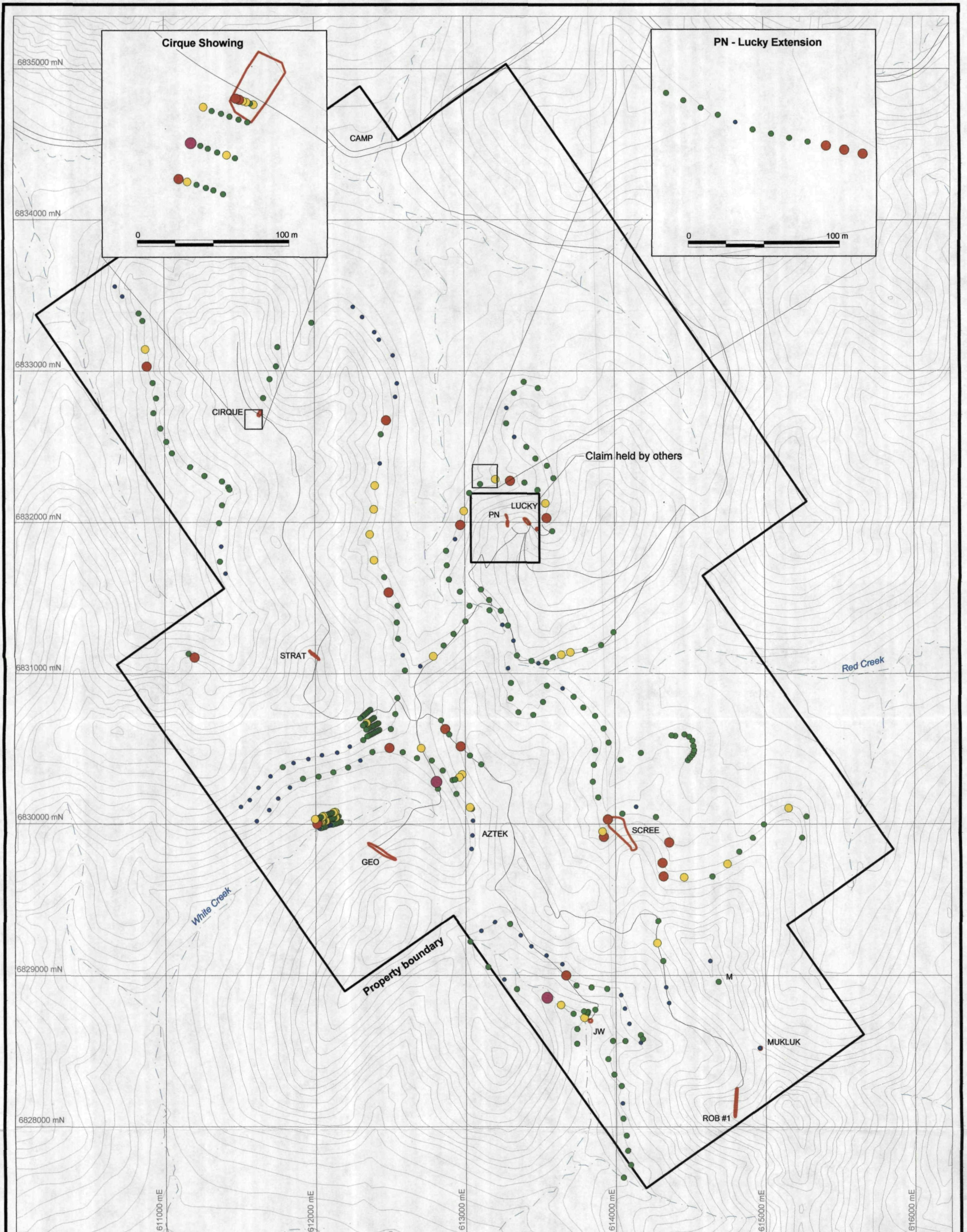
**ROCKHAVEN RESOURCES LTD.**


**FIGURE 12**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**LEAD SOIL GEOCHEMISTRY**  
**GROUNDHOG PROPERTY**

0 0.2 1 km






UTM Zone 8, NAD83, NTS 105 F/10

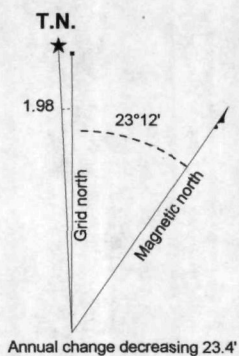
FILE: Projects/2009/Groundhog/MapInfo... DATE: MARCH 2010



STRAT  Showing location

**Zinc Geochemistry (ppm)**

-   $\geq 5,000 < 15,000$
-   $\geq 1,000 < 5,000$
-   $\geq 500 < 1,000$
-   $\geq 100 < 500$
-   $\geq 14 < 100$



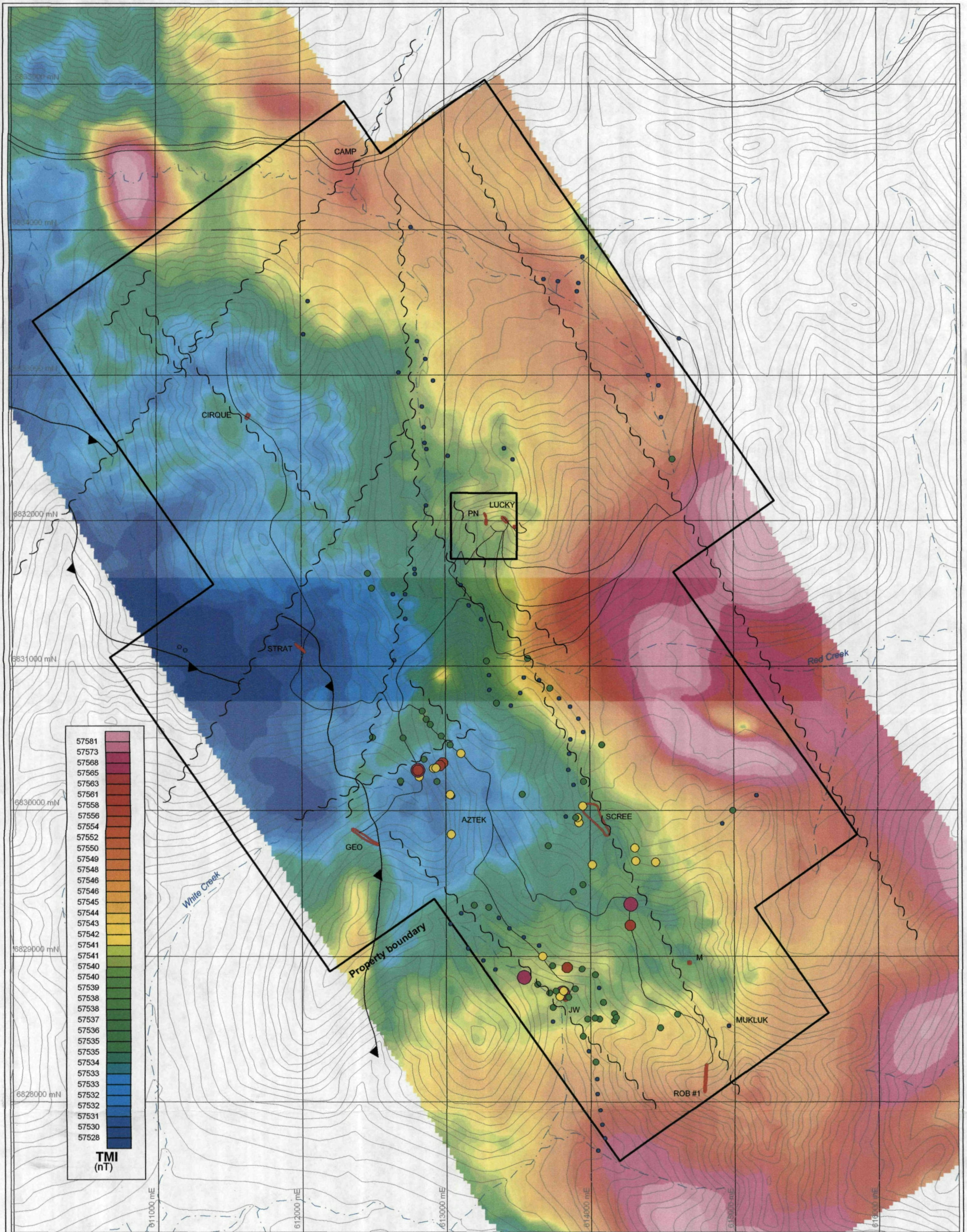
**ROCKHAVEN RESOURCES LTD.**

**FIGURE 13**  
**ARCHER, CATHRO & ASSOCIATES (1981) LIMITED**  
**ZINC SOIL GEOCHEMISTRY**  
**GROUNDHOG PROPERTY**

0 0.2 1 km

UTM Zone 8, NAD83, NTS 105 F/10

FILE: Projects/2009/Groundhog/MapInfo... DATE: MARCH 2010



**ROCKHAVEN RESOURCES LTD.**

**FIGURE 14**

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
**GOLD GEOCHEMISTRY WITH  
 GEOLOGY AND MAGNETICS**  
 GROUNDHOG PROPERTY

0 0.2 1 km

UTM Zone 8, NAD83, NTS 105 F/10

FILE: Projects/2009/Groundhog/MapInfo...

DATE: MARCH 2010

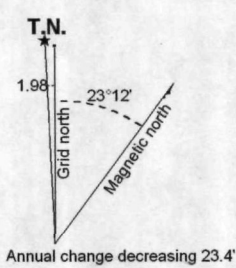
STRAT Showing location

Thrust fault

Normal fault

**Gold Geochemistry (ppb)**

- $\ge 100 < 500$
- $\ge 50 < 100$
- $\ge 25 < 50$
- $\ge 10 < 25$
- $\ge 0 < 10$



Single lines of contour soil samples were taken on hillsides in most parts of the property. The samples were generally spaced about 100 m apart but closer spaced samples were taken near the identified mineralized trends or across projected strike extensions of known showings.

At the Cirque Showing, closely spaced soil samples were collected on a grid south of the main exposure. Results show locally anomalous silver, gold, lead and zinc values at both the east and west edges of the grid. This grid should be extended to better evaluate the potential of the structure along strike.

Samples from the east end of the soil line north of the PN and Lucky Showings yielded moderately anomalous values for silver, lead and zinc. These results may be a function of down hill dispersion from the showings.

At the Aztek Showing, elevated gold and arsenic soil geochemical values form an oval approximately 2000 m long and up to 1400 m wide. Results were very promising with anomalous soil values ranging between 20 and 327 ppb gold and 77 to 1940 ppm arsenic (Figures 14 and 15). Silt samples taken in 2008 from the creeks that drain this area also returned anomalous values for both gold and arsenic. This area should be grid soil sampled.

Closely spaced soil samples were collected from two small grids in the valley between the Strat and Geo Showings. These grids were located to straddle the projections of the Pass Peak Thrust and overlying favourable stratigraphy. Weakly anomalous values suggest that the showings may extend under overburden in the valley, but that is likely still sub-economic in thickness and grade.

### **DISCUSSION AND CONCLUSIONS**

The Groundhog property hosts numerous silver-lead±zinc±gold showings, most of which are hosted within fault structures that lie along two main mineralized trends. Mineralization is mainly found within vein, breccia and replacement zones within Silurian-age carbonate rocks. Manto-type silver-lead-zinc±gold deposits are known to occur in the district and these replacement style deposits are very attractive exploration targets. Elevated gold and arsenic results from soil and rock samples collected in 2009 warrant priority follow-up.

The area within the anomalous soil geochemical zone that defines the Axtex Showing corresponds to a magnetic low identified by the 2008 VTEM survey. This demagnification may outline areas of silicification and silica replacement within favourable carbonate rocks. The relative close proximity to the Ketz gold-bearing manto deposit and Tay LP gold-bearing skarn/breccia showings is encouraging. The various silver±lead±zinc showings that occur peripheral to the Aztek Showing are analogous to veins, breccias and replacement zones developed peripheral to replacement style gold showings in other parts of Yukon (Ketz, Tay LP and Rau). Detailed mapping and grid soil geochemical sampling are recommended for follow-up at the Aztek Zone.

Trenching and soil sampling should also be done on a lower priority basis to continue evaluating the various silver-lead-zinc showings hosted in carbonate rocks.

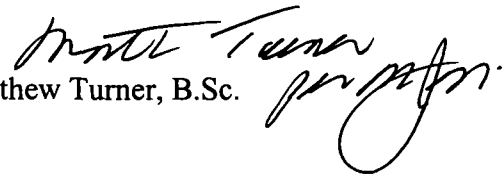


The Strat and Geo Showings are interesting occurrences but it is unlikely that an economic size and grade deposit comes to surface on the property. The best potential would be for a blind deposit down-dip to the west.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

  
M. Kammerer

  
Matthew Turner, B.Sc.

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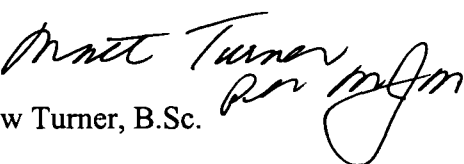
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**APPENDIX I**  
**STATEMENT OF QUALIFICATIONS**

## STATEMENT OF QUALIFICATIONS

I, Matthew Turner, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Vancouver, British Columbia, hereby certify that:

1. I graduated from the University of British Columbia in 2002 with a B.Sc. majoring in Earth and Ocean Sciences.
2. From 1997 to present, I have been actively engaged in mineral exploration in British Columbia, Yukon Territory and Northwest Territories.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.

  
Matthew Turner, B.Sc.

## STATEMENT OF QUALIFICATIONS

I, Mike Kammerer, geological technologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Vancouver, British Columbia, hereby certify that:

1. I graduated from Sir Sanford Fleming College in 1997 with a diploma in Geological technology.
2. From 2007 to present, I have been actively engaged in mineral exploration in Yukon Territory and North West Territories
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.

Mike Kammerer 

**APPENDIX II**  
**ROCK SAMPLE DESCRIPTIONS**

Rock Sample Descriptions			Project: <u>Groundhog</u>	Property: <u>Groundhog</u>		
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248851	UTM: 611638	E	UTM: 6832746	N	Sample Width: 1.80	Abundance:
	Elevation:	m				
Comments: Dolostone with veins of bull quartz 2-5 cm thick, moderate limonite alteration, patchy zinc-zap response						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248852	UTM: 611638	E	UTM: 6832746	N	Sample Width: 2.70	Abundance:
	Elevation:	m				
Comments: Dolostone, moderate alteration, weak zinc-zap response						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248853	UTM: 611638	E	UTM: 6832746	N	Sample Width: 1.70	Abundance:
	Elevation:	m				
Comments: Dolostone, strong alteration, abundant quartz veinlets, trace galena blebs, patchy strong zinc-zap response						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248854	UTM: 611638	E	UTM: 6832746	N	Sample Width: 0.93	Abundance:
	Elevation:	m				
Comments: Deeply altered limonite altered dolostone, crumbly, minor galena blebs, common quartz veinlets, patchy zinc-zap strong						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248855	UTM: 611638	E	UTM: 6832746	N	Sample Width: 0.34	Abundance:
	Elevation:	m				
Comments: Rusty decomposed rock (possible fault), mostly sand sized particles, 5 to 15% galena blebs (varriable: this is the source of the larger pieces found at this showing, but as you dig through it, sometimes there is nothing), zinc- zap moderate						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248856	UTM: 611638	E	UTM: 6832746	N	Sample Width: 0.95	Abundance:
	Elevation:	m				
Comments: Dolostone, strong limonite alteration, abundant quartz veinlets, very fractured						
<hr/>						

Rock Sample Descriptions			Project: <u>Groundhog</u>	Property: <u>Groundhog</u>		
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248857	UTM: 611638	E	UTM: 6832746	N	Sample Width: 2.30	Abundance:
	Elevation:	m				
Comments: Dolostone, weak limonite alteration but locally strong in some fractures						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248858	UTM: 611638	E	UTM: 6832746	N	Sample Width: 1.20	Abundance:
	Elevation:	m				
Comments: Dolostone, moderate limonite and hematite alteration						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H148859	UTM: 611638	E	UTM: 6832746	N	Sample Width: 0.95	Abundance:
	Elevation:	m				
Comments: Dolostone, deep limonite and hematite alteration, soily						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248860	UTM: 611638	E	UTM: 6832746	N	Sample Width: 0.60	Abundance:
	Elevation:	m				
Comments: White, coarse quartz vein						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248861	UTM: 611638	E	UTM: 6832746	N	Sample Width: 0.90	Abundance:
	Elevation:	m				
Comments: Dolostone, weak to no alteration, hard						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248862	UTM: 611638	E	UTM: 6832746	N	Sample Width: 1.10	Abundance:
	Elevation:	m				
Comments: Dolostone, moderate limonite alteration, very fractured						
<hr/>						



**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248863	UTM: 611638	E	UTM: 6832746	N	Sample Width: 1.50	Abundance:
	Elevation:	m				

Comments: Rusty decomposed rock, aligned with H248855, but no galena was observed

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248864	UTM: 613830	E	UTM: 6828701	N	Sample Width: 1.10	Abundance:
	Elevation:	m				

Comments: Pumicy, cavity filled fine-grained grey quartz with strong rust seams, hydrozincite coatings common on fracture surfaces, some dolostone present with fine grained sphalerite disseminations, zinc-zap strong

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248865	UTM: 613830	E	UTM: 6828701	N	Sample Width: 0.30	Abundance:
	Elevation:	m				

Comments: Soft, partially decomposed dolostone with moderate limonite alteration and common hydrozincite coatings, zinc-zap strong

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248866	UTM: 613830	E	UTM: 6828701	N	Sample Width: 1.80	Abundance:
	Elevation:	m				

Comments: Mixed black phyllite and dolostone, moderate limonite alteration, some pods of pumicey silica replacement, hydrozincite coatings common, zinc-zap strong

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248867	UTM: 613830	E	UTM: 6828701	N	Sample Width: 0.70	Abundance:
	Elevation:	m				

Comments: Pumicey, cavity-filled fine-grained grey quartz with strong rust seams, common hydrozincite coatings on fracture surfaces, zinc-zap strong

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248868	UTM: 613830	E	UTM: 6828701	N	Sample Width: 1.30	Abundance:
	Elevation:	m				

Comments: Dolostone, strong limonite alteration, abundant hydrozincite coatings on fracture surfaces, strong silica alteration

Rock Sample Descriptions			Project: <u>Groundhog</u>	Property: <u>Groundhog</u>	
Sample Number: H248869	Grid East: UTM: 613830 Elevation: m	E	Grid North: UTM: 6828701 N	N Type: Chip Sample Width: 1.70	Dimension: Abundance:
Comments: Pumicey, cavity-filled fine-grained grey quartz with silica altered dolostone containing fine-grained honey-sphalerite disseminations, strong rust seams, common hydrozincite coatings on fracture surfaces, zinc-zap strong					
Sample Number: H248870	Grid East: UTM: 611987 Elevation: m	E	Grid North: UTM: 6831127 N	N Type: Chip Sample Width: 0.80	Dimension: Abundance:
Comments: Light grey calcareous phyllite					
Sample Number: H248871	Grid East: UTM: 611987 Elevation: m	E	Grid North: UTM: 6831127 N	N Type: Chip Sample Width: 1.10	Dimension: Abundance:
Comments: Fine-grained white quartz lenses with bands of fine-grained galena and sphalerite in halos near the perimeter of the lenses. Lenses are 2-4 inches thick and are within a pale green schist, but at this location the quartz lenses make up most of the material					
Sample Number: H248872	Grid East: UTM: 611987 Elevation: m	E	Grid North: UTM: 6831127 N	N Type: Chip Sample Width: 1.25	Dimension: Abundance:
Comments: Phyllite/schist, pale to grey-green, calcareous, some small cats-eye quartz lenses, moderate limonite alteration					
Sample Number: H248873	Grid East: UTM: 611987 Elevation: m	E	Grid North: UTM: 6831127 N	N Type: Chip Sample Width: 2.20	Dimension: Abundance:
Comments: Phyllite, calcareous, rusty weathering but fresh faces are grey					
Sample Number: H248874	Grid East: UTM: 611987 Elevation: m	E	Grid North: UTM: 6831127 N	N Type: Chip Sample Width: 0.34	Dimension: Abundance:
Comments: Fault gouge, fine-grained cohesive, rusty zones and black zones					

**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248875	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.90	Abundance:
	Elevation:	m				

Comments: Mid to dark-grey calcareous shale

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248876	UTM:	611977 E	UTM:	6831127 N	Sample Width: 4.20	Abundance:
	Elevation:	m				

Comments: Grey phyllite, rusty weathering zone, grades towards greenish near H248877

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248877	UTM:	611977 E	UTM:	6831127 N	Sample Width: 0.25	Abundance:
	Elevation:	m				

Comments: Fine-grained quartz with fine-grained galena, sphalerite and pyrite in thin bands, strong rust in thin seams between pale green schist.

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248878	UTM:	611977 E	UTM:	6831127 N	Sample Width: 0.90	Abundance:
	Elevation:	m				

Comments: Rusty weathering grey-green phyllite and schist.

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248879	UTM:	611997 E	UTM:	6831115 N	Sample Width: 0.60	Abundance:
	Elevation:	m				

Comments: Grey phyllite from sheer zone, shattered.

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248880	UTM:	611997 E	UTM:	6831115 N	Sample Width: 0.15	Abundance:
	Elevation:	m				

Comments: Gouge, black and rust colored cohesive soil.

**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248881	UTM:	611997 E	UTM:	6831115 N	Sample Width: 0.30	Abundance:
	Elevation:	m				

Comments: Rusty sheared pale green schist with seams of mineralized quartz (fine-grained galena and sphalerite in thin bands)

---

Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248882	UTM:	611997 E	UTM:	6831115 N	Sample Width: 1.40	Abundance:
	Elevation:	m				

Comments: Rusty, sheared medium-green schist with small cats-eye quartz pods.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248883	UTM:	611997 E	UTM:	6831115 N	Sample Width: 0.22	Abundance:
	Elevation:	m				

Comments: Gouge, black and rust colored cohesive soil.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248884	UTM:	611997 E	UTM:	6831115 N	Sample Width: 0.80	Abundance:
	Elevation:	m				

Comments: Black, thinly laminated shale, very crumbly.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248885	UTM:	611997 E	UTM:	6831115 N	Sample Width: 0.40	Abundance:
	Elevation:	m				

Comments: Grey calcareous shale, less sheared than above materials.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248886	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.70	Abundance:
	Elevation:	m				

Comments: Grey-green phyllite with moderate rust alteration.

Rock Sample Descriptions		Project: <u>Groundhog</u>		Property: <u>Groundhog</u>		
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248887	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.25	Abundance:
	Elevation:	m				
Comments: Rusty pale-green schist with abundant mineralized quartz seams. MZN: Galena and pyrite.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248888	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.40	Abundance:
	Elevation:	m				
Comments: Pale-green schist with strong rust seams and occasional interlaminated cats-eye shaped quartz pods.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248889	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.78	Abundance:
	Elevation:	m				
Comments: Pale-green schist with strong rust seams and abundant interlaminated mineralized fine-grained quartz. MZN: 2-5% combined galena and pyrite						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248890	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.03	Abundance:
	Elevation:	m				
Comments: Gouge, rusty, fine-grained soil.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248891	UTM:	611987 E	UTM:	6831127 N	Sample Width: 1.10	Abundance:
	Elevation:	m				
Comments: Grey phyllite, weak to no alteration.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248892	UTM:	611987 E	UTM:	6831127 N	Sample Width: 0.75	Abundance:
	Elevation:	m				
Comments: Grey-green phyllite, strong alteration, rusty seams, some small interlaminated quartz seams with minor pyrite.						
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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248893	UTM:	611987 E	UTM:	6831127 N	Sample Width: 1.10	Abundance:
	Elevation:	m				

Comments: Similar to above unit, but less altered looking.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248894	UTM:	612469 E	UTM:	6829794 N	Sample Width: 0.93	Abundance:
	Elevation:	m				

Comments: Pale grey-green phyllite, light limonite alteration.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248895	UTM:	612469 E	UTM:	6829794 N	Sample Width: 2.10	Abundance:
	Elevation:	m				

Comments: Similar to above unit but with strong rusty bands.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248896	UTM:	612469 E	UTM:	6829794 N	Sample Width: 1.20	Abundance:
	Elevation:	m				

Comments: Pale green schist with strong rust banding and occasional interlaminated quartz seams containing banded fine-grained galena and sphalerite (<5%)

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248897	UTM:	612469 E	UTM:	6829794 N	Sample Width: 1.30	Abundance:
	Elevation:	m				

Comments: Similar to above zone, but no visible mineralization.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248898	UTM:	612469 E	UTM:	6829794 N	Sample Width: 1.50	Abundance:
	Elevation:	m				

Comments: Grey-green phyllite, light limonite alteration.

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Rock Sample Descriptions			Project: <u>Groundhog</u>	Property: <u>Groundhog</u>		
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248899	UTM: 612485	E	UTM: 6829785	N	Sample Width: 4.20	Abundance:
	Elevation:	m				
Comments: Pale green schist, moderate limonite alteration.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248900	UTM: 612485	E	UTM: 6829785	N	Sample Width: 1.10	Abundance:
	Elevation:	m				
Comments: Pale green schist, strong rust banding.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248901	UTM: 612485	E	UTM: 6829785	N	Sample Width: 2.20	Abundance:
	Elevation:	m				
Comments: Pale green schist with strong rust banding and interlaminated quartz seams containing fine-grained bands of galena <5%						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248902	UTM: 612485	E	UTM: 6829785	N	Sample Width: 2.20	Abundance:
	Elevation:	m				
Comments: Pale green schist with strong rust banding.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248903	UTM: 613420	E	UTM: 6832014	N	Sample Width: N/A	Abundance:
	Elevation:	m				
Comments: Composite sample from the 3 bulk sample bags at the Lucky showing. Massive galena with some malachite and azurite staining, and some limonite pieces and limonitic soil, unknown pale yellow mineral.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248904	UTM: 613391	E	UTM: 6831956	N	Sample Width: N/A	Abundance:
	Elevation:	m				
Comments: Composite sample from group of 23 bulk sample bags at landing inbetween Lucky and PN showings (most likely source: Lucky). This sample is from east group of 7. Massive galena with abundant limonite and limonitic soil.						
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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248905	UTM:	613381 E	UTM:	6831950 N	Sample Width: N/A	Abundance:
	Elevation:	m				

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Comments: Composite sample from group of 23 bulk sample bags at landing inbetween Lucky and PN showings (most likely source: Lucky). This sample is from west group of 16, and represents the large clasts only - the soil component was sampled separately in sample H248906. Massive galena with strong malachite staining, and abundant unknown pale yellow mineral.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248906	UTM:	613381 E	UTM:	6831950 N	Sample Width: N/A	Abundance:
	Elevation:	m				

---

Comments: Composite sample from group of 23 bulk sample bags at landing inbetween Lucky and PN showings (most likely source: Lucky). This sample is from west group of 16, and represents the soil component only - the larger clasts were sampled separately in sample H248905. Sandy, limonitic soil.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248907	UTM:	613419 E	UTM:	6832004 N	Sample Width: 1.0 m	Abundance:
	Elevation:	m				

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Comments: Footwall rock, dolostone, moderate limonite alteration.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248908	UTM:	613419 E	UTM:	6832004 N	Sample Width: 0.70 m	Abundance:
	Elevation:	m				

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Comments: Strongly limonite altered dolostone with galena blebs and seams of limonitic soil.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248909	UTM:	613419 E	UTM:	6832004 N	Sample Width: 0.50 m	Abundance:
	Elevation:	m				

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Comments: Dolostone, siliceous, weak to no alteration, hard

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248910	UTM:	613414 E	UTM:	6832011 N	Sample Width: 1.0 m	Abundance:
	Elevation:	m				

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Comments: Dolostone, limonite staining on fracture surfaces.

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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248911	UTM:	613414 E	UTM:	6832011 N	Sample Width: 1.20 m	Abundance:
	Elevation:	m				

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Comments: Deeply limonite altered dolostone, very fractured, trace galena blebs, some thin seams of limonitic soil.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248912	UTM:	613414 E	UTM:	6832011 N	Sample Width: 1.60 m	Abundance:
	Elevation:	m				

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Comments: Massive galena and limonitic soil. Galena is often with unknown pale yellow mineral.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248913	UTM:	613414 E	UTM:	6832011 N	Sample Width: 0.70 m	Abundance:
	Elevation:	m				

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Comments: Dolostone, siliceous, weak to no alteration, very hard.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248914	UTM:	613408 E	UTM:	6832016 N	Sample Width: 1.70 m	Abundance:
	Elevation:	m				

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Comments: Carbonate matrix, dolostone clast breccia, frequent galena blebs, limonite stains on fracture surfaces.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248915	UTM:	613408 E	UTM:	6832016 N	Sample Width: 0.60 m	Abundance:
	Elevation:	m				

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Comments: Strongly limonite altered dolostone with seams of limonitic soil and frequent galena blebs.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248916	UTM:	613408 E	UTM:	6832016 N	Sample Width: 1.45 m	Abundance:
	Elevation:	m				

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Comments: Massive galena, limonite boxwork, limonitic soil. Galena often with unknown pale yellow mineral and malachite/azurite staining.

**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248917	UTM:	613408 E	UTM:	6832016 N	Sample Width: 1.0 m	Abundance:
	Elevation:	m				

Comments: Dolostone, siliceous, weak to no alteration, hard.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248918	UTM:	613404 E	UTM:	6832022 N	Sample Width: 2.6 m	Abundance:
	Elevation:	m				

Comments: Dolostone, weak to moderate limonite alteration, a few fractures with cemented limonite infilling.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248919	UTM:	613404 E	UTM:	6832022 N	Sample Width: 0.6 m	Abundance:
	Elevation:	m				

Comments: Strongly limonite altered dolostone with seams of rusty soil and limonite boxwork.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248920	UTM:	613404 E	UTM:	6832022 N	Sample Width: 1.0 m	Abundance:
	Elevation:	m				

Comments: Dolostone, siliceous, weak to no alteration, very hard.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248921	UTM:	613286 E	UTM:	6831982 N	Sample Width: 0.90 m	Abundance:
	Elevation:	m				

Comments: Grey siliceous dolostone (or chert?), moderate limonite alteration, very hard.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248922	UTM:	613286 E	UTM:	6831982 N	Sample Width: 0.50 m	Abundance:
	Elevation:	m				

Comments: Deeply limonite altered siliceous dolostone with seams of limonitic soil.

Rock Sample Descriptions		Project: <u>Groundhog</u>		Property: <u>Groundhog</u>		
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248923	UTM:	613286 E	UTM:	6831982 N	Sample Width: 0.90 m	Abundance:
	Elevation:	m				
Comments: Grey siliceous dolostone (or chert?), limonite staining on fractures, very hard.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248924	UTM:	613286 E	UTM:	6831982 N	Sample Width: 0.67 m	Abundance:
	Elevation:	m				
Comments: Deep limonite alteration, abundant limonitic soil, no visible galena.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248925	UTM:	613286 E	UTM:	6831982 N	Sample Width: 0.90 m	Abundance:
	Elevation:	m				
Comments: Grey siliceous dolostone (or chert?), limonite staining on fractures, very hard.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248926	UTM:	613286 E	UTM:	6831996 N	Sample Width: 2.20 m	Abundance:
	Elevation:	m				
Comments: Mild to moderate limonite alteration with occasional thin seams of limonitic soil, extremely hard, some sections not included in chip sample due to excessive hardness.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248927	UTM:	613286 E	UTM:	6832005 N	Sample Width: 2.5 m	Abundance:
	Elevation:	m				
Comments: Light grey siliceous dolostone (or chert?), weak to moderate limonite alteration. Hanging wall.						
<hr/>						
Sample Number:	Grid East:	E	Grid North:	N	Type: Chip	Dimension:
H248928	UTM:	613286 E	UTM:	6832005 N	Sample Width: 0.23 m	Abundance:
	Elevation:	m				
Comments: Massive galena, abundant unknown pale yellow mineral, trace malchite staining, thin limonitic soil seams						
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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248929	UTM:	613276 E	UTM:	6831996 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Composite sample of 2 bulk sample bags located near the PN showing. Massive galena, limonitic soil, unknown pale yellow mineral, minor malachite staining.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248930	UTM:	611039 E	UTM:	6831236 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Limonitic float.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248931	UTM:	611161 E	UTM:	6831133 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Limonitic float.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248932	UTM:	611224 E	UTM:	6831082 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Quartzite with strong limonite alteration.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248933	UTM:	611331 E	UTM:	6831018 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Gossanous rock with variably coloured rust staining - yellow to red.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248934	UTM:	613236 E	UTM:	6832109 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Cemented gravelly fault-gouge breccia. Very probable extension of of fault containing PN showing: no visible mineralization, no limonitic alteration.

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Rock Sample Descriptions		Project: <u>Groundhog</u>		Property: <u>Groundhog</u>		
Sample Number: H248935	Grid East: UTM: 612485 E Elevation: m	E	Grid North: UTM: 6829785 N	N	Type: <u>Grab</u> Sample Width: <u>N/A</u>	Dimension: Abundance:
Comments: Selective sample of stratabound mineralization within Geo formation. Gine grained quartz with fine grained banded galena and reddish sphalerite.						
Sample Number: H248936	Grid East: UTM: 613830 E Elevation: m	E	Grid North: UTM: 6828701 N	N	Type: <u>Chip</u> Sample Width: <u>0.45 m</u>	Dimension: Abundance:
Comments: Siliceous dolostone, abundant replacement textured honey-sphalerite, white hydrozincite and limonite stained hydrozincite on fracture surfaces and within small cavities.						
Sample Number: H248937	Grid East: UTM: 613830 E Elevation: m	E	Grid North: UTM: 6828701 N	N	Type: <u>Chip</u> Sample Width: <u>0.38 m</u>	Dimension: Abundance:
Comments: Siliceous dolostone, same as H248936, but no sphalerite observed.						
Sample Number: H248938	Grid East: UTM: 613830 E Elevation: m	E	Grid North: UTM: 6828701 N	N	Type: <u>Chip</u> Sample Width: <u>1.60 m</u>	Dimension: Abundance:
Comments: Black phyllite, abundant limonite staining on fractures, zinc-zap response strong on fracture surfaces.						
Sample Number: H248939	Grid East: UTM: 613830 E Elevation: m	E	Grid North: UTM: 6828701 N	N	Type: <u>Chip</u> Sample Width: <u>0.70 m</u>	Dimension: Abundance:
Comments: Very siliceous dolostone with pumicey texture, abundant cavities with limonite and hydrozincite coatings, abundant limonite stained fractures, very strong zinc-zap response.						
Sample Number: H248940	Grid East: UTM: 614959 E Elevation: m	E	Grid North: UTM: 6828520 N	N	Type: <u>Grab</u> Sample Width: <u>N/A</u>	Dimension: Abundance:
Comments: From outcrop of pale green phyllite with abundant cubic pyrite, beside rusty gouge zone (CC57090). This zone supports unusually lush vegetation for the area.						

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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number: H248941    Grid East: E    Grid North: N    Type: Grab    Dimension:  
UTM: 614794 E    UTM: 6828109 N    Sample Width: N/A    Abundance:  
Elevation: m

Comments: Limonitic dolostone from Rob 1 vein/fault surface expression on ridge-crest (sub-crop). Trace galena.

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Sample Number: H248942    Grid East: E    Grid North: N    Type: Grab    Dimension:  
UTM: 614794 E    UTM: 6828109 N    Sample Width: N/A    Abundance:  
Elevation: m

Comments: Near source float from trace of vein/fault. Deeply limonite altered rock with abundant galena blebs.

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Sample Number: H248943    Grid East: E    Grid North: N    Type: Grab    Dimension:  
UTM: 614791 E    UTM: 6828097 N    Sample Width: N/A    Abundance:  
Elevation: m

Comments: Massive galena, coarse crystalline. Found numerous float pieces in talus, all clustered in one area following vein strike to the north. Fist sized pieces common. No malachite or other staining, little or no limonite staining.

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Sample Number: H248944    Grid East: E    Grid North: N    Type: Chip    Dimension:  
UTM: 614803 E    UTM: 6828255 N    Sample Width: 1.0 m    Abundance:  
Elevation: m

Comments: Pale-tan phylite weak to moderate limonite alteration.

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Sample Number: H248945    Grid East: E    Grid North: N    Type: Chip    Dimension:  
UTM: 614803 E    UTM: 6828255 N    Sample Width: 0.25 m    Abundance:  
Elevation: m

Comments: Massive galena, dark red rusty soil, common malachite stains, greeny white concretions with mild zinc-zap reaction, some crystalline calcite seams.

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Sample Number: H248946    Grid East: E    Grid North: N    Type: Chip    Dimension:  
UTM: 614803 E    UTM: 6828255 N    Sample Width: 0.25 m    Abundance:  
Elevation: m

Comments: Dolostone, limonite cementation in some fracture openings, sections of breccia with galena blebs.

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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248947	UTM:	614803 E	UTM:	6828255 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Composite of abundant vein material float: massive galena, limonitic soil, malachite, trace azurite, unknown pale concretion mineral.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248948	UTM:	614803 E	UTM:	6828255 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Composite of wall-rock float from foot-wall of vein: Dolostone with malachite staining and variable galena blebs.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248949	UTM:	614278 E	UTM:	6829214 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Strongly limonitic rock on roadside near Pass Peak.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248950	UTM:	612329 E	UTM:	6830737 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Fine grained quartz float with <5% banded galena from talus/till slope along inferred location of Pass Peak thrust fault to the west of the Strat showing. Specimen similar in character of Strat & Geo type mineralization.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248951	UTM:	612209 E	UTM:	6830964 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Fine grained quartz float with <5% banded galena from talus/till slope along inferred location of Pass Peak thrust fault to the west of the Strat showing. Specimen similar in character of Strat & Geo type mineralization.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248952	UTM:	612097 E	UTM:	6831005 N	Sample Width: N/A	Abundance:
	Elevation:	m				

Comments: Dark green phyllite float with dark rust weathering and pods of red crystalline replacement textured mineral (very hard) and scattered fine grained pyrite.

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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248953	UTM:	612023 E	UTM:	6831095 N	Sample Width: N/A	Abundance:
	Elevation:	m				

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Comments: Float from lowest, east-most historical trench of the Strat formation: Pale green calcareous schist with lenses of fine grained quartz containing banded fine-grained sulphides (galena, pyrite & sphalerite).

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248954	UTM:	611709 E	UTM:	6831006 N	Sample Width: N/A	Abundance:
	Elevation:	m				

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Comments: Dark green phyllite float with dark rust weathering and pods of red crystalline replacement textured mineral (very hard) and scattered fine grained pyrite.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248955	UTM:	612894 E	UTM:	6830589 N	Sample Width: N/A	Abundance:
	Elevation:	m				

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Comments: Limonite boxwork from road-side below Rob 2.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248956	UTM:	613016 E	UTM:	6830468 N	Sample Width: N/A	Abundance:
	Elevation:	m				

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Comments: Below Rob 2: Rusty weathering silica boxwork with trace galena flecks. Found within gossanous zone.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248957	UTM:	612978 E	UTM:	6830327 N	Sample Width: N/A	Abundance:
	Elevation:	m				

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Comments: Below Rob 2: Pervasively limonitic breccia from near top of prominent rusty erosion channel.

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Sample Number:	Grid East:	E	Grid North:	N	Type: Grab	Dimension:
H248958	UTM:	614530 E	UTM:	6830521 N	Sample Width: N/A	Abundance:
	Elevation:	m				

---

Comments: Pale green phyllite with abundant pale green orbicular cavities (likened compressed amygdules) filled with sulphide. Weathers dark rusty. Abundant.

---

---



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**Rock Sample Descriptions**Project: GroundhogProperty: Groundhog

---

Sample Number:      Grid East:                  E      Grid North:                  N      Type: Grab      Dimension:  
H248959                  UTM:                  614527 E                  UTM:                  6830533 N      Sample Width: N/A      Abundance:  
                                 Elevation:                  m

Comments: Phyllite similar to above, but with pyrite along fractures, and finley disseminated throughout.

---

---

Sample Number:      Grid East:                  E      Grid North:                  N      Type: Grab      Dimension:  
H248960                  UTM:                  614435 E                  UTM:                  6830591 N      Sample Width: N/A      Abundance:  
                                 Elevation:                  m

Comments: Phyllite, similar to above, but with pervasive tan colouring.

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Sample Number:      Grid East:                  E      Grid North:                  N      Type: Grab      Dimension:  
H248961                  UTM:                  614374 E                  UTM:                  6830588 N      Sample Width: N/A      Abundance:  
                                 Elevation:                  m

Comments: Grey calcareous sandstone with finely disseminated pyrite. Very common over wide area.

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Sample Number:      Grid East:                  E      Grid North:                  N      Type: Grab      Dimension:  
H248962                  UTM:                  611740 E                  UTM:                  6832844 N      Sample Width: N/A      Abundance:  
                                 Elevation:                  m

Comments: Coarse crystalline massive galena float from within deeply incised active erosion channel. Abundance: 1

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**APPENDIX III**  
**SAMPLE HANDLING AND ANALYTICAL PROCEDURES**

## **SAMPLE HANDLING AND ANALYTICAL PROCEDURES**

All rock and soil samples collected during the 2009 program were sorted into rice bags and sealed with a plastic zap strap on the Groundhog property. Samples were brought to Whitehorse by Archer Cathro personnel.

Sample bags were temporarily stored at the Archer Cathro office prior to shipment. All samples were shipped via Greyhound Courier Express to ALS Chemex in North Vancouver, British Columbia.

### **Rock Geochemical Samples**

All rock sample sites in 2009 were marked with orange flagging tape labelled with the sample number. The location of each sample was determined using a handheld GPS unit. All samples sent for shipment were double bagged with an individually pre-numbered sample tag placed in each bag.

The rock samples were submitted to ALS Chemex in North Vancouver, British Columbia where they were dried and fine crushed to -2 mm. A 250 g split was then pulverized to 75 micron and a portion of this material was digested in aqua regia before being analyzed for 34 elements by the inductively coupled plasma-atomic emission spectroscopy technique (ME-ICP41). Gold analysis was done using AU-ICP21. Overlimit samples for silver and lead were analyzed using Ag-GRA21 and Pb-OG62 respectively.

### **Silt Geochemical Samples**

All soil geochemical samples collected on the property were located by means of compass and topofil or handheld GPS units. Sample locations were marked with orange flagging tape and labelled with sample number. Soil samples were and were placed into individual pre-numbered kraft paper bags.

The soil samples were sent to ALS Chemex, where they were dried and screened to minus 180 microns. A 50 g split of the screened fraction was dissolved in aqua regia and analyzed by ME-ICP41. Gold was analyzed by AU-ICP21

**APPENDIX IV**  
**CERTIFICATES OF ANALYSIS**



# ALS Chemex

**EXCELLENCE IN ANALYTICAL CHEMISTRY**

ALS Canada Ltd.

2103 Dollarton Hwy

North Vancouver BC V7H 0A7

Phone: 604 984 0221 Fax: 604 984 0218 www.alschemex.com

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LIMITED  
1016 - 510 W HASTINGS STREET  
VANCOUVER BC V6B 1L8

Page: 1  
Finalized Date: 18-SEP-2009  
Account: ROCKHA

## CERTIFICATE VA09099776

Project: GROUNDHOG  
P.O. No.:  
This report is for 14 Rock samples submitted to our lab in Vancouver, BC, Canada on 14-SEP-2009.  
The following have access to data associated with this certificate:  
JOAN MARIACHER

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
FND-02	Find Sample for Adrn Analysis

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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VANCOUVER BC V6B 1L8

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Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: GROUNDHOG

Page: 2 - A

Total # Pages: 2 (A)

Finalized Date: 18-SEP-2009

Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09099776

Sample Description	Method Analyte Units LOR	Au-ICP21 Au ppm 0.001
H248940		0.005
H248941		0.023
H248942		0.103
H248943		0.046
H248944		0.007
H248945		0.081
H248946		0.015
H248947		0.041
H248948		0.017
H248949		0.135
H248955		0.056
H248956		0.031
H248957		0.379
H248962		0.002



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Page: 1  
Finalized Date: 18-SEP-2009  
Account: ROCKHA

## CERTIFICATE VA09099775

Project: Groundhog

P.O. No.:

This report is for 41 Soil samples submitted to our lab in Vancouver, BC, Canada on 14-SEP-2009.

The following have access to data associated with this certificate:

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
FND-02	Find Sample for Addn Analysis

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: Groundhog

Page: 2 - A

Total # Pages: 3 (A)

Finalized Date: 18-SEP-2009

Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09099775

Sample Description	Method Analyte Units LOR	Au-ICP21 Au ppm 0.001
CC57090		0.009
CC57275		0.113
CC57276		0.027
CC57277		0.045
CC57291		0.006
CC57306		0.034
CC57307		0.027
CC57308		0.029
CC57313		0.041
CC57314		0.026
CC57315		0.042
CC57319		0.008
CC57320		0.010
CC57321		0.008
CC57360		0.022
CC57361		0.020
CC57378		0.031
CC57381		0.010
CC57382		0.030
CC57383		0.020
CC57384		0.025
CC57385		0.014
CC57389		0.021
CC57400		0.010
CC57410		0.007
CC57420		0.005
CC57480		0.037
CC57481		0.096
CC57482		0.053
CC57483		0.031
CC57484		0.046
CC57485		0.327
CC57486		0.084
CC57487		0.019
CC57094		0.097
CC57095		0.100
CC57096		0.017
CC57097		0.022
CC57098		0.021
CC57099		0.024





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Project: Groundhog

Page: 3 - A  
Total # Pages: 3 (A)  
Finalized Date: 18-SEP-2009  
Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09099775

Sample Description	Method Analyte Units LOR	Au-HCP21 Au ppm 0.001
CC57100		0.016



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Page: 1  
Finalized Date: 7-SEP-2009  
Account: ROCKHA

## CERTIFICATE VO09087195

Project: GROUNDHOG

P.O. No.:

This report is for 40 Soil samples submitted to our lab in Vancouver, BC, Canada on 17-AUG-2009.

The following have access to data associated with this certificate:

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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VANCOUVER BC V6B 1L8

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Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: GROUNDHOG

Page: 2 - A  
Total # Pages: 2 (A - C)  
Finalized Date: 7-SEP-2009  
Account: ROCKHA

## CERTIFICATE OF ANALYSIS VO09087195

Sample Description	Method	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Recvd Wt.	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
	LOR	0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
CC57235		0.26	0.8	0.44	16	<10	80	<0.5	2	0.24	0.9	11	7	67	3.34	<10
CC57236		0.20	4.4	0.52	89	<10	100	<0.5	3	2.65	24.6	11	8	135	4.79	<10
CC57237		0.26	2.6	0.38	37	<10	130	<0.5	<2	1.36	3.8	12	7	82	3.81	<10
CC57238		0.27	0.6	0.73	42	<10	100	<0.5	<2	3.14	1.5	19	12	54	4.19	<10
CC57239		0.26	0.5	0.48	30	<10	80	<0.5	<2	6.40	0.7	14	8	36	2.62	<10
CC57240		0.30	16.0	0.17	200	<10	50	<0.5	2	12.65	17.1	5	3	106	3.13	<10
CC57241		0.13	1.9	0.54	45	<10	110	<0.5	<2	2.08	1.6	8	5	31	2.22	<10
CC57242		0.21	0.8	0.50	28	<10	70	<0.5	3	7.03	0.9	5	5	18	2.51	<10
CC57243		0.25	0.3	0.29	21	<10	60	<0.5	2	11.45	1.1	5	6	13	2.27	<10
CC57244		0.33	0.6	0.25	38	<10	60	<0.5	<2	11.60	2.1	9	4	12	2.45	<10
CC57245		0.27	4.4	0.38	57	<10	60	<0.5	2	9.02	7.1	6	4	41	1.96	<10
CC57246		0.28	<0.2	0.08	22	<10	20	<0.5	2	3.10	<0.5	4	3	7	1.46	<10
CC57247		0.18	0.6	0.59	32	<10	80	<0.5	3	0.88	1.1	6	8	27	2.72	<10
CC57248		0.16	0.2	0.60	32	<10	90	0.6	2	7.91	1.3	6	11	19	3.06	<10
CC57249		0.22	0.8	0.40	94	<10	70	0.5	2	0.64	2.6	17	9	72	6.28	<10
CC57250		0.17	1.2	0.51	41	<10	110	<0.5	2	4.75	1.2	8	8	29	3.49	<10
CC57251		0.23	2.3	0.33	42	<10	40	<0.5	2	9.59	0.6	5	8	20	2.51	<10
CC57252		0.25	0.8	0.43	92	<10	120	<0.5	2	0.47	1.5	11	9	57	4.38	<10
CC57253		0.23	0.6	0.69	68	<10	110	<0.5	3	0.88	0.6	8	17	45	3.89	<10
CC57254		0.27	1.4	0.78	55	<10	110	<0.5	2	4.36	0.6	10	27	33	3.89	<10
CC57255		0.16	2.3	0.70	69	<10	80	0.5	2	4.70	2.7	9	12	25	3.38	<10
CC57256		0.26	0.2	0.28	86	<10	90	<0.5	3	4.99	0.5	8	5	37	2.72	<10
CC57257		0.25	0.4	0.55	32	<10	120	0.5	3	0.18	1.8	14	7	86	5.74	<10
CC57258		0.27	<0.2	2.39	25	<10	100	<0.5	2	4.12	<0.5	26	28	32	6.12	10
CC57259		0.27	0.2	0.43	73	<10	80	<0.5	3	5.07	0.9	8	9	27	2.91	<10
CC57260		0.27	0.8	0.56	130	<10	130	<0.5	4	6.03	0.6	12	10	26	3.76	<10
CC57261		0.28	4.8	0.37	71	<10	170	<0.5	<2	6.52	5.6	14	14	58	3.44	<10
CC57262		0.25	5.7	0.49	71	<10	170	<0.5	3	5.29	7.0	12	7	66	3.16	<10
CC57263		0.19	5.0	0.58	62	<10	150	<0.5	2	4.06	5.7	10	7	57	2.94	<10
CC57264		0.26	1.6	0.38	53	<10	90	<0.5	3	6.84	2.1	9	9	25	2.62	<10
CC57265		0.20	1.0	0.50	54	<10	120	0.5	<2	3.71	1.8	10	7	27	2.61	<10
CC57266		0.21	0.4	0.47	51	<10	100	0.5	2	4.71	1.0	6	7	20	2.32	<10
CC57267		0.23	<0.2	0.35	30	<10	70	<0.5	2	7.41	0.6	4	5	10	1.70	<10
CC57268		0.25	0.7	0.17	30	<10	60	<0.5	2	8.84	0.6	4	8	10	2.03	<10
CC57269		0.20	0.3	0.43	36	<10	70	<0.5	3	3.56	1.0	7	10	16	2.44	<10
CC57270		0.18	2.2	0.89	37	<10	100	0.5	3	2.53	3.2	8	15	20	2.86	<10
CC57271		0.22	1.5	1.12	52	<10	80	<0.5	3	1.14	1.6	23	15	51	4.64	<10
CC57272		0.22	<0.2	0.37	18	<10	110	<0.5	2	2.31	0.8	6	11	27	2.53	<10
CC57273		0.33	<0.2	0.59	18	<10	620	<0.5	3	8.12	<0.5	13	14	53	4.82	<10
CC57274		0.29	0.3	1.52	24	<10	4380	0.5	3	5.18	6.0	17	19	45	9.23	10



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Project: GROUNDHOG

Page: 2 - B  
Total # Pages: 2 (A - C)  
Finalized Date: 7-SEP-2009  
Account: ROCKHA

## CERTIFICATE OF ANALYSIS VO09087195

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm
CC57235		<1	0.03	30	0.15	169	5	0.01	54	1330	37	0.03	6	2	41	<20
CC57236		1	0.03	20	1.25	809	12	0.02	55	840	634	0.09	31	2	35	<20
CC57237		<1	0.03	20	0.71	465	8	0.01	59	1150	244	0.06	17	2	52	<20
CC57238		<1	0.05	30	1.16	895	6	0.01	55	1350	89	0.02	8	3	75	<20
CC57239		<1	0.03	10	3.97	630	3	0.01	35	1470	53	0.06	10	2	53	<20
CC57240		1	0.01	10	8.39	988	3	0.02	17	380	2390	0.16	45	1	89	<20
CC57241		<1	0.03	30	1.07	518	4	0.03	23	770	236	0.04	14	1	18	<20
CC57242		1	0.03	20	4.58	981	4	0.02	21	480	142	0.03	7	1	43	<20
CC57243		<1	0.02	10	7.51	870	2	0.02	23	500	88	0.04	5	1	66	<20
CC57244		1	0.02	10	7.67	1215	2	0.02	27	470	115	0.06	7	1	69	<20
CC57245		<1	0.02	20	5.72	1390	2	0.02	20	380	967	0.06	44	1	66	<20
CC57246		<1	0.01	10	1.75	221	2	<0.01	21	480	29	0.02	6	1	16	<20
CC57247		<1	0.02	10	0.37	333	2	0.02	27	980	175	0.05	4	1	16	<20
CC57248		1	0.03	20	5.04	1085	2	0.02	28	870	91	0.06	3	1	51	<20
CC57249		1	0.02	20	0.29	1020	8	<0.01	74	1310	188	0.04	9	3	24	<20
CC57250		1	0.03	10	2.72	956	4	0.01	44	1230	167	0.08	8	1	39	<20
CC57251		<1	0.02	10	6.31	565	3	0.02	32	530	247	0.04	10	1	55	<20
CC57252		<1	0.03	20	0.26	899	8	<0.01	60	1100	88	0.04	8	3	22	<20
CC57253		<1	0.03	20	0.53	814	6	0.01	39	1050	75	0.05	7	2	23	<20
CC57254		<1	0.04	20	2.92	860	6	0.01	41	1040	111	0.04	11	3	33	<20
CC57255		1	0.03	20	2.79	993	2	0.02	30	940	257	0.04	10	2	29	<20
CC57256		<1	0.02	20	3.09	361	5	0.01	34	790	34	0.03	8	1	51	<20
CC57257		1	0.03	10	0.12	212	6	<0.01	74	2330	32	0.05	5	1	84	<20
CC57258		1	0.03	40	2.27	937	3	0.01	56	3470	20	0.04	6	5	83	<20
CC57259		<1	0.03	20	2.91	528	6	0.01	39	1290	40	0.05	8	2	85	<20
CC57260		<1	0.04	20	3.57	1060	6	0.01	37	1760	56	0.06	8	2	54	<20
CC57261		<1	0.04	20	4.16	662	5	0.02	41	1510	427	0.06	34	2	56	<20
CC57262		<1	0.03	30	3.22	908	6	0.02	37	1120	644	0.05	39	1	39	<20
CC57263		1	0.03	20	2.23	782	5	0.03	31	1080	551	0.05	33	1	30	<20
CC57264		<1	0.03	40	4.39	1285	5	0.02	27	690	178	0.04	12	1	41	<20
CC57265		<1	0.03	30	2.06	1485	8	0.02	28	780	135	0.04	10	1	26	<20
CC57266		<1	0.03	30	2.75	1375	5	0.02	19	580	96	0.05	7	1	27	<20
CC57267		<1	0.02	30	4.78	1085	5	0.02	12	330	47	0.05	4	1	44	<20
CC57268		<1	0.02	40	5.74	979	6	0.02	14	290	193	0.03	5	1	50	<20
CC57269		<1	0.02	30	1.97	1260	3	0.02	19	560	67	0.05	3	1	20	<20
CC57270		<1	0.02	10	1.32	1510	3	0.02	21	1020	409	0.09	9	1	19	<20
CC57271		1	0.03	20	0.89	1355	5	0.01	41	1440	237	0.04	9	4	23	<20
CC57272		1	0.02	20	1.23	846	4	0.01	28	820	45	0.04	5	1	29	<20
CC57273		<1	0.05	10	5.27	411	2	0.02	34	260	50	0.15	12	3	90	<20
CC57274		4	0.02	10	3.05	878	4	0.05	54	380	179	0.10	60	5	145	<20



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Total # Pages: 2 (A - C)

Finalized Date: 7-SEP-2009

Account: ROCKHA

Project: GROUNDHOG

## CERTIFICATE OF ANALYSIS VO09087195

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Au-ICP21
		Ti % 0.01	Ti ppm 10	U ppm 10	V ppm 1	W ppm 10	Zn ppm 2	Au ppm 0.001
CC57235		<0.01	<10	<10	14	<10	238	
CC57236		0.01	<10	<10	19	<10	4390	
CC57237		<0.01	<10	<10	17	<10	712	
CC57238		<0.01	<10	<10	30	<10	217	
CC57239		<0.01	<10	<10	17	<10	107	
CC57240		0.01	<10	<10	10	<10	3200	
CC57241		0.01	<10	<10	9	<10	525	
CC57242		0.01	<10	<10	13	<10	216	
CC57243		0.01	<10	<10	14	<10	280	
CC57244		<0.01	<10	<10	9	<10	504	
CC57245		0.01	<10	<10	11	<10	1510	
CC57246		<0.01	<10	<10	3	<10	26	
CC57247		0.02	<10	<10	21	<10	243	
CC57248		0.01	<10	<10	24	<10	223	
CC57249		<0.01	<10	<10	29	<10	435	
CC57250		0.01	<10	<10	19	<10	449	
CC57251		0.01	<10	<10	20	<10	217	
CC57252		0.01	<10	<10	22	<10	204	
CC57253		0.02	<10	<10	27	<10	135	
CC57254		0.03	<10	<10	35	<10	157	
CC57255		0.01	<10	<10	29	<10	562	
CC57256		<0.01	<10	<10	18	<10	98	
CC57257		<0.01	<10	<10	20	<10	457	
CC57258		<0.01	<10	<10	56	<10	69	
CC57259		0.01	<10	<10	20	<10	139	
CC57260		0.01	<10	<10	26	<10	156	
CC57261		<0.01	<10	<10	12	<10	1135	
CC57262		<0.01	<10	<10	9	<10	1470	
CC57263		0.01	<10	<10	10	<10	1245	
CC57264		0.01	<10	<10	11	<10	437	
CC57265		0.01	<10	<10	12	<10	343	
CC57266		0.01	<10	<10	11	<10	232	
CC57267		0.01	<10	<10	8	<10	129	
CC57268		<0.01	<10	<10	7	<10	96	
CC57269		0.01	<10	<10	12	<10	160	
CC57270		0.01	<10	<10	24	<10	368	
CC57271		0.01	<10	<10	42	<10	255	
CC57272		<0.01	<10	<10	12	<10	163	
CC57273		<0.01	<10	<10	18	<10	120	0.003
CC57274		<0.01	<10	<10	22	<10	2440	0.005



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Page: 1  
Finalized Date: 10-SEP-2009  
Account: ROCKHA

## CERTIFICATE VA09086497

Project: GROUNDHOG  
P.O. No.:  
This report is for 27 Rock samples submitted to our lab in Vancouver, BC, Canada on 17-AUG-2009.  
The following have access to data associated with this certificate:  
JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
EXTRA-01	Extra Sample received in Shipment
PUL-QC	Pulverizing QC Test
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize split to 85% <75 um

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
Ag-OG46	Ore Grade Ag - Aqua Regia	VARIABLE
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE
Ag-GRA21	Ag 30g FA-GRAV finish	WST-SIM
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE
Pb-VOL70	Pb by Titration	

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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: GROUNDHOG

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Total # Pages: 2 (A - C)

Finalized Date: 10-SEP-2009

Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09086497

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
H248937		0.94	2.0	0.10	7	<10	160	<0.5	<2	4.61	73.6	3	7	52	0.98	10
H248938		2.28	1.0	0.69	25	<10	1080	0.7	<2	0.18	10.0	2	14	24	1.76	10
H248939		2.72	3.0	0.25	19	<10	470	<0.5	<2	1.71	47.5	4	10	88	1.15	20
H248940		0.54	0.7	0.90	873	<10	40	<0.5	<2	5.50	<0.5	36	18	97	6.87	<10
H248941		1.32	91.0	0.16	250	<10	30	<0.5	<2	5.34	710	6	2	2830	3.94	<10
H248942		0.88	>100	0.14	2020	<10	70	<0.5	3	0.11	165.5	1	1	6570	13.6	<10
H248943		0.98	>100	0.01	336	<10	10	<0.5	18	0.03	41.8	<1	<1	1630	3.20	<10
H248944		1.60	4.2	0.36	38	<10	60	<0.5	<2	11.00	10.3	11	3	39	2.62	<10
H248945		3.26	>100	0.05	1940	<10	10	<0.5	4	3.21	714	5	<1	5810	2.73	<10
H248946		1.44	80.1	0.11	304	<10	20	<0.5	40	10.35	128.0	3	2	778	2.56	<10
H248947		2.76	>100	0.08	2940	<10	40	<0.5	118	0.61	278	4	1	9410	1.30	<10
H248948		1.42	34.2	0.09	209	<10	10	<0.5	7	9.89	322	5	2	3930	0.94	<10
H248949		1.04	89.3	0.14	472	<10	60	<0.5	3	11.80	45.9	7	3	408	2.30	<10
H248950		1.80	8.6	0.08	6	<10	120	<0.5	<2	3.26	121.5	11	5	87	1.44	<10
H248951		1.02	4.7	0.18	2	<10	280	<0.5	<2	9.17	34.2	7	5	42	2.67	<10
H248952		1.40	4.3	4.35	5	<10	10	<0.5	4	2.13	<0.5	29	29	313	26.1	10
H248953		1.62	5.9	0.31	27	<10	140	<0.5	<2	6.14	24.7	10	7	173	2.18	<10
H248954		1.06	0.2	2.05	2	<10	10	<0.5	3	10.85	<0.5	2	<1	101	18.8	<10
H248955		1.22	0.9	0.45	962	<10	110	0.5	<2	3.44	5.0	8	11	84	5.74	<10
H248956		1.64	0.7	0.03	290	<10	30	<0.5	<2	0.12	1.5	<1	10	5	4.07	<10
H248957		0.76	0.8	0.57	1080	<10	80	0.9	2	0.15	2.9	5	18	149	2.86	<10
H248958		1.42	<0.2	3.92	5	<10	30	<0.5	<2	1.28	<0.5	15	<1	5	9.02	10
H248959		1.00	<0.2	3.37	<2	<10	210	<0.5	<2	2.36	<0.5	16	<1	62	7.47	10
H248960		0.78	<0.2	3.92	5	<10	80	0.8	<2	5.74	<0.5	43	237	22	7.71	<10
H248961		0.82	<0.2	4.80	8	<10	20	<0.5	2	2.47	<0.5	30	8	33	9.97	10
H248962		0.56	>100	0.07	5	<10	20	<0.5	<2	0.11	36.3	1	2	641	0.74	<10
H248936		2.14	4.1	0.10	8	<10	110	<0.5	2	4.94	133.0	5	7	49	1.06	10



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 Total # Pages: 2 (A - C)  
 Finalized Date: 10-SEP-2009  
 Account: ROCKHA

Project: GROUNDHOG

## CERTIFICATE OF ANALYSIS VA09086497

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
	Analyte	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
Units		ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
LOR		1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
H248937		3	0.04	<10	2.60	565	1	0.01	<1	40	33	1.03	9	<1	42	<20
H248938		1	0.33	30	0.14	44	8	0.01	3	290	33	0.30	11	1	3	<20
H248939		6	0.11	10	0.93	274	2	0.01	2	120	115	0.34	23	1	24	<20
H248940		<1	0.45	<10	2.77	347	1	0.03	71	1410	7	6.88	3	4	51	<20
H248941		1	0.03	<10	3.32	1220	1	0.01	17	70	>10000	0.14	284	<1	22	<20
H248942		2	0.05	10	0.06	93	23	0.01	18	50	>10000	0.85	1585	<1	8	<20
H248943		<1	<0.01	<10	0.01	17	1	0.01	<1	10	>10000	9.26	1815	<1	8	<20
H248944		1	0.20	10	6.27	1485	1	0.02	6	820	1365	0.32	13	2	130	<20
H248945		4	0.02	10	1.03	3120	<1	0.01	2	350	>10000	3.07	4370	<1	25	<20
H248946		1	0.07	10	5.61	5010	1	0.01	<1	110	>10000	0.92	284	1	62	<20
H248947		4	0.03	<10	0.31	339	1	0.01	2	270	>10000	7.80	8980	<1	29	<20
H248948		<1	0.05	10	6.28	1685	<1	0.01	1	90	8590	0.15	152	<1	50	<20
H248949		1	0.05	<10	7.40	1350	2	0.01	37	60	>10000	0.32	422	2	83	<20
H248950		13	0.04	<10	1.26	844	<1	0.01	10	80	7750	0.63	14	<1	150	<20
H248951		4	0.10	<10	3.50	2140	1	0.02	5	70	3080	0.95	11	1	357	<20
H248952		1	<0.01	<10	1.24	6120	1	0.01	89	220	1105	2.83	5	6	67	<20
H248953		4	0.16	<10	0.68	899	1	0.01	12	100	3060	1.67	117	1	221	<20
H248954		<1	<0.01	<10	2.13	7680	<1	0.01	15	80	77	1.27	5	4	276	<20
H248955		<1	0.03	<10	1.95	469	4	<0.01	83	300	125	0.02	34	1	17	<20
H248956		1	0.01	<10	0.03	114	<1	<0.01	4	20	154	0.24	10	<1	2	<20
H248957		<1	0.03	<10	0.05	63	1	<0.01	51	520	55	0.06	35	1	57	<20
H248958		<1	0.04	30	2.41	278	2	0.04	<1	6100	48	0.82	<2	10	49	<20
H248959		1	0.23	20	2.09	333	2	0.05	3	5410	18	1.71	3	4	91	<20
H248960		1	0.17	10	2.87	629	<1	0.01	200	1590	36	0.27	2	9	83	<20
H248961		<1	0.01	40	3.17	743	1	0.04	13	9340	30	0.84	<2	15	91	<20
H248962		1	0.01	<10	0.07	28	<1	<0.01	3	80	>10000	8.42	3130	<1	35	<20
H248963		3	0.02	<10	2.76	703	<1	<0.01	<1	80	442	2.65	20	<1	74	<20





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Total # Pages: 2 (A - C)

Finalized Date: 10-SEP-2009

Account: ROCKHA

Project: GROUNDHOG

<b>CERTIFICATE OF ANALYSIS VA09086497</b>
---

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Ag-OG46	Zn-OG46	Ag-GRA21	Pb-OG46	Pb-VOL70
		Ti	Ti	U	V	W	Zn	Ag	Zn	Ag	Pb	Pb
		%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	%	%
		0.01	10	10	1	10	2	1	0.001	5	0.001	0.01
H248937		<0.01	<10	<10	6	<10	>10000		3.24			
H248938		<0.01	<10	<10	13	<10	4420					
H248939		<0.01	<10	<10	7	<10	>10000		1.795			
H248940		<0.01	<10	<10	23	<10	174					
H248941		<0.01	10	<10	2	10	>10000		10.40		1.290	
H248942		<0.01	<10	20	2	30	>10000	467	2.09		17.85	
H248943		<0.01	<10	10	<1	<10	1620	>1500		1665	>20.0	72.92
H248944		<0.01	<10	<10	12	<10	987					
H248945		<0.01	10	<10	1	40	>10000	685	12.30		>20.0	24.13
H248946		<0.01	<10	<10	3	10	>10000		1.985		4.81	
H248947		<0.01	10	<10	3	30	>10000	>1500	2.99	2440	>20.0	58.57
H248948		<0.01	<10	<10	1	<10	>10000		5.69			
H248949		<0.01	<10	<10	10	20	6490				2.03	
H248950		<0.01	<10	<10	2	<10	>10000		4.43			
H248951		<0.01	<10	<10	2	<10	>10000		1.330			
H248952		0.01	10	<10	32	10	228					
H248953		<0.01	<10	<10	4	10	7320					
H248954		<0.01	<10	<10	12	<10	45					
H248955		<0.01	<10	<10	23	<10	785					
H248956		<0.01	<10	<10	<1	<10	357					
H248957		<0.01	<10	10	23	<10	624					
H248958		0.01	<10	<10	48	<10	185					
H248959		0.01	<10	<10	22	<10	128					
H248960		0.01	<10	<10	100	<10	340					
H248961		0.02	<10	<10	137	<10	243					
H248962		<0.01	<10	10	2	<10	191	>1500		2230	>20.0	70.01
H248936		<0.01	<10	<10	6	<10	>10000		5.71			



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Page: 1  
Finalized Date: 7-SEP-2009  
Account: ROCKHA

## CERTIFICATE VA09085939

Project: Groundhog  
P.O. No.:  
This report is for 204 Soil samples submitted to our lab in Vancouver, BC, Canada on 17-AUG-2009.  
The following have access to data associated with this certificate:  
JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE

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Signature:   
Colin Ramshaw, Vancouver Laboratory Manager



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Project: Groundhog

Page: 2 - A

Total # Pages: 7 (A - C)

Finalized Date: 7-SEP-2009

Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09085939

Method Analyte Units LOR	WEI-21 Recvd Wt. kg	ME-ICP41 Ag ppm	ME-ICP41 Al %	ME-ICP41 As ppm	ME-ICP41 B ppm	ME-ICP41 Ba ppm	ME-ICP41 Be ppm	ME-ICP41 Bi ppm	ME-ICP41 Ca %	ME-ICP41 Cd ppm	ME-ICP41 Co ppm	ME-ICP41 Cr ppm	ME-ICP41 Cu ppm	ME-ICP41 Fe %	ME-ICP41 Ga ppm
CC57088	0.26	<0.2	0.09	30	<10	40	<0.5	<2	0.74	<0.5	5	2	20	1.26	<10
CC57089	0.24	0.8	0.88	76	<10	50	<0.5	<2	1.55	<0.5	26	24	70	4.47	10
CC57090	0.26	<0.2	0.84	302	<10	40	0.7	14	2.46	<0.5	26	61	287	37.3	20
CC57275	0.28	1.0	0.26	171	<10	30	<0.5	<2	11.90	1.1	6	8	20	2.30	<10
CC57276	0.30	3.3	0.30	111	<10	60	<0.5	<2	8.46	1.9	7	7	45	2.72	<10
CC57277	0.38	0.6	0.32	100	<10	30	<0.5	<2	12.10	0.6	6	11	14	2.49	<10
CC57278	0.38	2.8	0.34	64	<10	30	<0.5	<2	10.40	1.8	4	9	19	1.86	<10
CC57279	0.32	1.3	0.31	86	<10	30	<0.5	<2	10.20	1.5	5	8	14	1.58	<10
CC57280	0.18	0.6	0.37	77	<10	40	<0.5	<2	9.33	3.0	3	10	9	1.22	<10
CC57281	0.26	2.3	0.51	25	<10	130	<0.5	2	1.12	1.0	9	9	43	2.84	<10
CC57282	0.26	0.8	0.66	19	<10	140	<0.5	<2	0.43	0.8	7	10	35	2.72	<10
CC57283	0.18	0.5	0.75	18	<10	110	<0.5	<2	0.33	0.6	5	11	18	2.34	<10
CC57284	0.22	<0.2	0.93	24	<10	140	<0.5	2	0.16	<0.5	5	13	16	2.74	<10
CC57285	0.30	0.5	0.40	28	<10	80	0.5	<2	8.99	<0.5	5	8	15	2.42	<10
CC57286	0.34	0.8	0.70	41	<10	90	0.5	<2	2.23	1.0	10	12	29	3.94	<10
CC57287	0.24	0.6	0.27	59	<10	70	0.5	<2	11.75	<0.5	8	5	17	2.37	<10
CC57288	0.24	0.4	0.58	28	<10	100	<0.5	<2	1.69	<0.5	7	11	22	3.62	<10
CC57289	0.28	0.6	0.63	25	<10	130	<0.5	2	1.11	0.5	9	11	37	3.96	<10
CC57290	0.28	0.7	0.30	45	<10	60	<0.5	<2	7.30	0.6	12	7	32	4.79	<10
CC57291	0.30	1.7	0.39	100	<10	60	<0.5	3	3.66	1.5	16	16	54	4.60	<10
CC57292	0.28	0.9	0.51	22	<10	120	<0.5	<2	1.06	0.9	8	12	45	2.82	<10
CC57293	0.28	1.0	0.54	40	<10	120	<0.5	<2	0.33	1.0	10	16	59	3.42	<10
CC57294	0.30	2.4	0.21	71	<10	50	<0.5	2	6.24	0.9	15	5	68	5.37	<10
CC57295	0.30	0.7	0.54	49	<10	90	<0.5	<2	0.32	0.5	6	8	32	2.94	<10
CC57296	0.24	1.2	0.71	45	<10	90	<0.5	2	0.27	0.8	37	18	113	7.60	<10
CC57297	0.24	0.5	0.81	26	<10	70	0.5	<2	2.28	0.6	9	26	24	2.77	<10
CC57298	0.38	0.4	0.37	18	<10	30	<0.5	<2	10.65	<0.5	7	8	11	1.76	<10
CC57299	0.28	0.8	0.66	23	<10	50	<0.5	<2	6.17	0.9	7	12	22	2.53	<10
CC57300	0.24	0.7	1.04	27	<10	80	0.6	<2	1.92	0.6	11	22	26	3.52	<10
CC57301	0.22	1.8	0.29	8	<10	40	<0.5	<2	11.90	3.4	4	6	18	1.31	<10
CC57302	0.26	3.4	0.60	32	<10	40	<0.5	<2	5.23	4.4	8	14	31	2.89	<10
CC57303	0.20	0.6	1.00	34	<10	50	<0.5	<2	0.43	1.2	18	16	47	3.91	<10
CC57304	0.24	0.8	1.03	36	<10	60	0.5	<2	0.26	1.4	18	16	49	4.82	<10
CC57305	0.26	0.8	0.84	35	<10	70	0.5	<2	2.31	1.3	13	21	42	4.27	<10
CC57306	0.36	7.5	0.27	224	<10	30	<0.5	<2	9.94	8.2	9	7	95	3.23	<10
CC57307	0.14	1.3	2.65	103	<10	70	3.5	<2	0.62	4.7	11	21	939	7.99	<10
CC57308	0.32	21.5	0.32	234	<10	30	<0.5	<2	8.85	25.7	11	8	202	3.33	<10
CC57309	0.32	0.9	0.12	31	<10	10	<0.5	<2	4.60	0.7	4	5	10	1.22	<10
CC57310	0.32	0.4	0.12	58	<10	10	<0.5	<2	2.11	<0.5	7	7	12	1.31	<10
CC57311	0.32	0.7	0.10	52	<10	20	<0.5	<2	14.6	0.5	4	11	11	1.35	<10



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Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm
CC57088		<1	0.03	210	0.38	173	31	<0.01	8	110	19	0.02	14	<1	7	120
CC57089		<1	0.03	20	1.15	290	2	<0.01	57	1910	111	0.10	8	4	27	<20
CC57090		<1	0.08	10	1.35	296	2	<0.01	76	5960	10	0.23	21	10	25	<20
CC57275		1	0.02	10	7.71	855	2	<0.01	24	420	150	0.02	8	2	59	<20
CC57276		<1	0.03	10	5.46	721	6	<0.01	39	640	858	0.04	14	2	69	<20
CC57277		<1	0.02	10	7.42	823	2	0.01	22	450	67	0.02	7	1	54	<20
CC57278		1	0.02	10	6.98	512	1	0.01	14	440	341	0.03	10	1	55	<20
CC57279		<1	0.02	10	6.90	444	1	<0.01	19	390	333	0.02	9	1	55	<20
CC57280		<1	0.03	10	5.91	229	1	0.01	16	630	59	0.08	8	1	46	<20
CC57281		<1	0.03	20	0.67	497	3	<0.01	42	1260	297	0.02	7	1	27	<20
CC57282		<1	0.03	20	0.27	232	3	<0.01	32	1260	33	0.02	5	1	25	<20
CC57283		<1	0.04	20	0.29	316	4	<0.01	19	1000	47	0.03	6	1	19	<20
CC57284		<1	0.03	20	0.35	246	4	<0.01	18	850	46	0.02	3	1	8	<20
CC57285		1	0.02	10	5.90	1680	2	<0.01	19	790	23	0.02	3	1	58	<20
CC57286		<1	0.03	20	1.39	981	4	<0.01	35	910	127	0.02	9	3	22	<20
CC57287		<1	0.01	10	7.95	1115	2	0.01	31	390	64	0.01	6	2	60	<20
CC57288		<1	0.03	10	0.94	641	6	<0.01	29	810	35	0.03	7	2	24	<20
CC57289		<1	0.03	20	0.61	469	4	<0.01	37	960	53	0.03	7	2	27	<20
CC57290		1	0.02	10	4.69	1300	5	<0.01	42	480	84	0.01	10	2	42	<20
CC57291		<1	0.03	20	2.21	569	5	<0.01	66	890	194	0.03	9	2	36	<20
CC57292		<1	0.03	20	0.61	246	4	<0.01	41	1150	76	0.02	4	2	27	<20
CC57293		<1	0.04	20	0.26	213	6	<0.01	57	1310	62	0.03	7	2	32	<20
CC57294		1	0.02	10	3.54	1045	6	<0.01	76	510	210	0.05	16	2	51	<20
CC57295		<1	0.04	20	0.21	377	22	<0.01	39	930	68	0.04	10	1	20	<20
CC57296		1	0.02	10	0.29	672	7	<0.01	120	1730	39	0.24	8	3	27	<20
CC57297		1	0.03	20	1.62	329	3	0.01	34	910	60	0.04	3	3	22	<20
CC57298		<1	0.02	10	7.19	472	2	0.01	19	560	33	0.02	3	1	67	<20
CC57299		<1	0.03	10	4.17	504	3	0.01	25	830	96	0.03	4	2	47	<20
CC57300		<1	0.03	20	1.44	453	4	<0.01	35	1110	110	0.03	3	3	20	<20
CC57301		1	0.02	10	7.97	610	1	0.02	9	590	344	0.05	6	1	70	<20
CC57302		1	0.03	10	3.50	596	5	0.01	30	980	701	0.04	8	1	32	<20
CC57303		1	0.04	30	0.65	890	8	<0.01	54	1340	62	0.01	3	4	16	<20
CC57304		1	0.03	30	0.53	1095	9	<0.01	55	1270	65	0.01	4	4	10	<20
CC57305		1	0.03	20	1.50	727	8	<0.01	54	1250	41	0.03	5	3	23	<20
CC57306		1	0.02	10	6.47	1290	8	0.01	52	520	1465	0.16	32	1	70	<20
CC57307		1	0.04	20	0.25	201	15	<0.01	104	1300	93	0.58	5	12	54	<20
CC57308		1	0.02	10	5.74	985	5	0.01	57	510	4420	0.10	54	2	66	<20
CC57309		<1	0.02	10	2.73	294	3	<0.01	16	380	118	0.02	7	1	25	<20
CC57310		<1	0.02	10	1.10	401	3	<0.01	21	480	26	0.06	6	1	14	<20
CC57311		<1	0.01	10	9.15	1035	2	0.02	14	190	95	0.03	6	1	81	<20



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Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46
		Ti	Ti	U	V	W	Zn	Pb
		%	ppm	ppm	ppm	ppm	ppm	%
		0.01	10	10	1	10	2	0.001
CC57088		0.01	<10	<10	<1	<10	46	
CC57089		0.01	<10	<10	30	<10	135	
CC57090		<0.01	10	<10	112	<10	39	
CC57275		0.01	<10	<10	14	<10	303	
CC57276		0.01	<10	<10	18	<10	772	
CC57277		0.01	<10	<10	13	<10	208	
CC57278		0.02	<10	<10	16	<10	365	
CC57279		0.02	<10	<10	14	<10	328	
CC57280		0.02	<10	<10	13	<10	454	
CC57281		<0.01	<10	<10	17	<10	200	
CC57282		0.01	<10	<10	20	<10	170	
CC57283		0.01	<10	<10	20	<10	133	
CC57284		0.01	<10	<10	23	<10	123	
CC57285		0.01	<10	<10	16	<10	84	
CC57286		0.01	<10	<10	27	<10	176	
CC57287		<0.01	<10	<10	12	<10	74	
CC57288		0.01	<10	<10	24	<10	103	
CC57289		0.01	<10	<10	21	<10	137	
CC57290		<0.01	<10	<10	21	<10	117	
CC57291		<0.01	<10	<10	21	<10	262	
CC57292		0.01	<10	<10	22	<10	212	
CC57293		0.01	<10	<10	23	<10	216	
CC57294		<0.01	<10	<10	11	<10	159	
CC57295		0.01	<10	<10	27	<10	84	
CC57296		<0.01	<10	<10	20	<10	154	
CC57297		0.03	<10	<10	29	<10	185	
CC57298		<0.01	<10	<10	12	<10	92	
CC57299		0.01	<10	<10	21	<10	196	
CC57300		0.02	<10	<10	34	<10	207	
CC57301		<0.01	<10	<10	13	<10	508	
CC57302		0.01	<10	<10	26	<10	868	
CC57303		0.01	<10	<10	28	<10	214	
CC57304		<0.01	<10	<10	29	<10	232	
CC57305		0.01	<10	<10	39	<10	241	
CC57306		<0.01	<10	<10	14	<10	2150	
CC57307		<0.01	<10	30	42	<10	547	
CC57308		<0.01	<10	<10	13	10	4760	
CC57309		<0.01	<10	<10	4	<10	206	
CC57310		<0.01	<10	<10	4	<10	53	
CC57311		<0.01	<10	<10	4	<10	214	



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## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
CC57312		0.20	1.7	0.38	58	<10	50	<0.5	<2	4.00	6.0	4	6	41	1.51	<10
CC57313		0.30	4.2	0.41	257	<10	50	<0.5	<2	4.77	9.1	8	7	91	3.55	<10
CC57314		0.34	2.4	0.16	121	<10	20	<0.5	<2	11.05	7.2	5	4	63	2.21	<10
CC57315		0.30	1.2	0.21	136	<10	20	<0.5	<2	7.78	3.5	6	5	15	1.83	<10
CC57316		0.36	0.5	0.16	35	<10	10	<0.5	<2	4.51	0.7	8	7	15	1.50	<10
CC57317		0.30	1.3	0.13	47	<10	30	0.5	<2	4.04	1.9	12	4	61	3.11	<10
CC57318		0.30	1.9	0.15	97	<10	50	0.6	<2	4.98	1.0	14	6	69	3.58	<10
CC57319		0.28	2.4	0.23	114	<10	80	<0.5	<2	2.67	0.9	20	8	90	4.18	<10
CC57320		0.24	2.5	0.21	144	<10	130	<0.5	<2	1.18	2.2	21	4	75	4.11	<10
CC57321		0.26	3.5	0.12	107	<10	150	<0.5	<2	4.14	4.4	54	7	160	7.60	<10
CC57322		0.30	1.8	0.17	41	<10	40	<0.5	<2	7.25	2.9	22	4	69	3.86	<10
CC57323		0.22	1.2	0.22	42	<10	40	<0.5	<2	3.07	1.7	11	2	43	2.80	<10
CC57324		0.30	0.4	0.32	16	<10	40	<0.5	<2	2.58	0.5	9	8	10	1.95	<10
CC57325		0.28	0.4	0.31	19	<10	60	<0.5	<2	2.39	<0.5	7	7	14	2.84	<10
CC57326		0.24	0.8	0.59	25	<10	80	<0.5	<2	5.82	0.6	7	12	17	3.40	<10
CC57327		0.28	0.8	0.31	28	<10	70	<0.5	<2	6.74	<0.5	5	6	20	2.99	<10
CC57328		0.20	1.3	0.71	23	<10	130	<0.5	<2	4.77	3.1	8	16	26	3.61	<10
CC57329		0.44	2.2	0.36	19	<10	40	<0.5	<2	10.70	3.1	5	8	23	2.42	<10
CC57330		0.32	1.2	0.42	24	<10	110	<0.5	<2	9.39	1.4	6	10	24	2.94	<10
CC57331		0.38	0.9	0.32	17	<10	150	<0.5	<2	11.80	1.2	5	7	13	2.79	<10
CC57332		0.34	2.3	0.30	54	<10	130	<0.5	<2	8.38	1.0	46	7	68	5.53	<10
CC57333		0.24	2.4	0.75	33	<10	110	<0.5	<2	6.05	2.3	7	16	23	3.26	<10
CC57334		0.20	1.2	0.94	27	<10	190	<0.5	<2	2.33	1.2	7	17	21	3.26	<10
CC57335		0.26	0.9	0.68	19	<10	90	<0.5	<2	5.37	0.7	6	13	15	2.53	<10
CC57336		0.18	2.0	0.53	28	<10	130	<0.5	<2	5.05	2.1	6	9	23	3.12	<10
CC57337		0.22	0.5	0.69	17	<10	100	<0.5	<2	5.46	0.6	6	18	13	3.02	<10
CC57338		0.30	1.3	0.36	26	<10	150	<0.5	<2	11.95	1.9	4	7	15	3.11	<10
CC57339		0.32	2.3	0.51	21	<10	120	<0.5	<2	7.44	0.7	6	14	18	2.34	<10
CC57340		0.28	0.9	0.49	31	<10	180	<0.5	<2	2.02	0.7	9	10	45	3.15	<10
CC57341		0.32	0.7	0.26	54	<10	90	<0.5	<2	2.18	0.7	8	7	41	2.70	<10
CC57342		0.30	1.1	0.33	44	<10	120	<0.5	<2	0.46	0.5	10	7	44	4.04	<10
CC57343		0.32	0.7	0.20	47	<10	170	<0.5	<2	8.77	<0.5	7	7	25	2.93	<10
CC57344		0.30	0.3	0.41	19	<10	90	<0.5	<2	9.46	0.7	5	10	12	2.06	<10
CC57345		0.36	0.5	0.19	35	<10	60	<0.5	<2	8.63	<0.5	5	7	10	2.70	<10
CC57346		0.24	0.3	0.69	17	<10	60	<0.5	<2	6.62	<0.5	6	13	11	2.10	<10
CC57347		0.30	0.2	0.32	38	<10	40	<0.5	<2	6.17	<0.5	7	8	7	1.79	<10
CC57348		0.32	0.2	0.20	11	<10	50	<0.5	<2	12.45	<0.5	4	4	6	1.16	<10
CC57349		0.38	0.3	0.26	55	<10	40	<0.5	<2	10.70	<0.5	6	5	7	1.50	<10
CC57350		0.34	0.2	1.19	14	<10	30	<0.5	<2	4.41	<0.5	15	15	26	2.76	<10
CC57351		0.40	0.4	0.62	31	<10	50	<0.5	<2	6.30	<0.5	8	13	14	1.91	<10



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Project: Groundhog

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Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm
CC57312		<1	0.03	10	2.22	475	2	0.03	13	500	468	0.04	18	1	30	<20
CC57313		<1	0.05	10	2.87	801	18	0.01	57	880	987	0.15	45	2	52	<20
CC57314		<1	0.02	10	7.45	756	2	0.01	20	190	755	0.09	49	1	74	<20
CC57315		<1	0.02	10	4.93	739	3	0.01	12	830	289	0.03	9	1	51	<20
CC57316		<1	0.02	10	2.66	314	7	<0.01	28	940	50	0.03	11	1	37	<20
CC57317		<1	0.03	10	1.70	403	47	<0.01	85	870	48	0.04	19	2	72	<20
CC57318		<1	0.03	<10	1.83	547	68	0.01	129	860	59	0.21	16	2	70	<20
CC57319		1	0.06	10	0.53	653	42	<0.01	111	2890	41	0.08	16	2	72	<20
CC57320		<1	0.03	10	0.34	640	41	0.01	143	1700	53	0.12	13	2	57	<20
CC57321		<1	0.03	<10	1.08	885	35	0.01	128	1960	83	0.90	12	1	101	<20
CC57322		<1	0.03	10	0.39	457	9	0.01	65	1710	40	0.12	4	2	116	<20
CC57323		<1	0.03	10	0.14	409	4	0.01	30	1140	27	0.05	2	1	65	<20
CC57324		1	0.02	10	1.45	355	4	0.01	24	560	27	0.02	7	2	16	<20
CC57325		<1	0.02	10	1.19	530	5	0.01	34	970	22	0.04	3	2	31	<20
CC57326		<1	0.02	10	3.73	1265	2	0.01	19	630	88	0.02	3	2	47	<20
CC57327		<1	0.02	20	4.20	1040	5	0.02	12	400	27	0.03	6	1	44	<20
CC57328		1	0.05	10	3.03	1055	3	0.02	23	720	135	0.05	4	2	39	<20
CC57329		<1	0.02	10	6.98	730	3	0.02	12	350	362	0.02	5	1	59	<20
CC57330		<1	0.04	10	5.99	755	3	0.02	16	460	88	0.05	4	2	71	<20
CC57331		<1	0.02	10	7.73	1050	3	0.02	15	480	82	0.03	5	1	83	<20
CC57332		<1	0.02	10	5.08	1100	4	0.02	61	1180	423	0.13	9	4	82	<20
CC57333		<1	0.04	10	3.81	1105	2	0.01	20	870	385	0.06	5	2	52	<20
CC57334		<1	0.04	10	1.34	794	2	0.01	22	800	187	0.05	3	2	26	<20
CC57335		<1	0.04	10	3.51	647	2	0.02	19	530	100	0.02	2	2	35	<20
CC57336		<1	0.04	10	3.02	1050	4	0.02	22	930	183	0.07	7	1	48	<20
CC57337		<1	0.03	10	3.55	1005	2	0.01	18	780	59	0.02	2	2	41	<20
CC57338		<1	0.02	10	7.81	1175	3	0.02	14	570	154	0.05	3	1	89	<20
CC57339		<1	0.04	10	4.75	698	2	0.02	19	680	233	0.03	4	2	68	<20
CC57340		<1	0.03	20	1.08	476	5	0.01	45	1120	35	0.03	8	2	37	<20
CC57341		<1	0.03	20	1.11	417	4	0.01	38	1400	26	0.02	5	1	38	<20
CC57342		<1	0.03	20	0.13	350	4	<0.01	51	1650	27	0.02	5	2	34	<20
CC57343		<1	0.02	10	5.69	1205	4	0.01	35	600	36	0.02	8	2	104	<20
CC57344		<1	0.02	10	8.23	513	2	0.02	19	690	38	0.01	6	2	88	<20
CC57345		<1	0.02	10	5.39	549	2	0.02	21	410	27	0.02	8	2	109	<20
CC57346		<1	0.03	10	4.30	720	1	0.02	15	750	35	0.02	2	2	46	<20
CC57347		<1	0.02	10	3.91	860	1	0.01	20	800	12	0.01	3	2	47	<20
CC57348		<1	0.01	10	8.29	914	1	0.02	5	460	8	0.02	<2	1	77	<20
CC57349		<1	0.02	10	7.14	700	1	0.01	9	570	10	0.02	<2	1	70	<20
CC57350		<1	0.03	20	2.75	548	1	<0.01	22	1580	14	0.03	3	3	47	<20
CC57351		<1	0.03	10	4.07	705	1	0.01	19	740	34	0.02	<2	2	47	<20



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 Finalized Date: 7-SEP-2009  
 Account: ROCKHA

Project: Groundhog

**CERTIFICATE OF ANALYSIS VA09085939**

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46
		Ti	Ti	U	V	W	Zn	Pb
		% 0.01	ppm 10	ppm 10	ppm 1	ppm 10	ppm 2	% 0.001
CC57312		0.01	<10	<10	10	<10	1100	
CC57313		<0.01	<10	<10	20	<10	1360	
CC57314		<0.01	<10	<10	10	<10	1220	
CC57315		<0.01	<10	<10	8	<10	560	
CC57316		<0.01	<10	<10	9	<10	134	
CC57317		<0.01	<10	<10	27	<10	558	
CC57318		<0.01	<10	<10	38	<10	306	
CC57319		<0.01	<10	10	72	<10	172	
CC57320		<0.01	<10	<10	40	<10	429	
CC57321		<0.01	<10	<10	34	<10	645	
CC57322		<0.01	<10	<10	12	<10	296	
CC57323		0.01	<10	<10	11	<10	200	
CC57324		0.01	<10	<10	10	<10	92	
CC57325		0.01	<10	<10	15	<10	96	
CC57326		0.02	<10	<10	17	<10	161	
CC57327		0.01	<10	<10	13	<10	108	
CC57328		0.03	<10	<10	23	<10	651	
CC57329		0.02	<10	<10	14	<10	1360	
CC57330		0.02	<10	<10	16	<10	342	
CC57331		0.01	<10	<10	13	<10	236	
CC57332		0.01	<10	<10	15	<10	259	
CC57333		0.03	<10	<10	25	<10	449	
CC57334		0.03	<10	<10	27	<10	256	
CC57335		0.02	<10	<10	20	<10	154	
CC57336		0.01	<10	<10	18	<10	279	
CC57337		0.03	<10	<10	27	<10	111	
CC57338		0.01	<10	<10	15	<10	371	
CC57339		0.03	<10	<10	21	<10	166	
CC57340		0.01	<10	<10	22	<10	147	
CC57341		0.01	<10	<10	14	<10	145	
CC57342		0.01	<10	<10	18	<10	107	
CC57343		<0.01	<10	<10	18	<10	98	
CC57344		0.02	<10	<10	18	<10	122	
CC57345		0.01	<10	<10	7	<10	72	
CC57346		0.03	<10	<10	26	<10	78	
CC57347		0.01	<10	<10	11	<10	17	
CC57348		<0.01	<10	<10	10	<10	19	
CC57349		<0.01	<10	<10	9	<10	31	
CC57350		<0.01	<10	<10	33	<10	32	
CC57351		0.02	<10	<10	20	<10	67	





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Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
CC57352		0.28	0.2	0.15	4	<10	40	<0.5	<2	14.3	<0.5	3	3	5	0.85	<10
CC57353		0.30	3.6	0.54	28	<10	50	<0.5	<2	7.46	6.1	6	11	23	1.74	<10
CC57354		0.24	0.6	0.57	17	<10	70	<0.5	<2	8.22	1.1	5	8	15	2.58	<10
CC57355		0.34	0.4	0.43	10	<10	50	<0.5	<2	10.85	<0.5	4	9	9	1.74	<10
CC57356		0.28	2.4	0.43	32	<10	50	<0.5	<2	10.40	5.1	4	7	19	2.51	<10
CC57357		0.24	1.6	0.52	24	<10	50	<0.5	<2	8.39	2.7	5	8	17	2.16	<10
CC57358		0.30	4.9	0.35	26	<10	30	<0.5	<2	9.97	2.8	5	6	32	1.59	<10
CC57359		0.30	2.4	0.18	33	<10	20	<0.5	<2	7.80	4.3	6	4	41	1.48	<10
CC57360		0.32	2.0	0.16	142	<10	40	<0.5	<2	6.58	1.8	13	3	21	2.12	<10
CC57361		0.30	14.3	0.17	134	<10	30	<0.5	<2	11.00	10.4	4	4	106	2.23	<10
CC57362		0.34	1.3	0.36	88	<10	70	<0.5	<2	8.78	0.7	8	7	23	2.55	<10
CC57363		0.24	0.9	0.62	56	<10	90	<0.5	<2	4.63	<0.5	7	15	35	2.86	<10
CC57364		0.30	0.8	0.51	47	<10	100	<0.5	<2	4.36	<0.5	7	12	34	2.55	<10
CC57365		0.32	0.9	0.50	42	<10	90	<0.5	<2	5.52	0.5	8	14	32	2.50	<10
CC57366		0.30	1.0	1.02	41	<10	90	0.6	<2	4.03	0.6	11	18	31	3.12	<10
CC57367		0.26	0.7	1.33	42	<10	90	0.6	<2	1.73	<0.5	15	25	40	3.93	<10
CC57368		0.30	<0.2	1.56	8	<10	70	0.6	<2	1.71	<0.5	13	23	30	3.54	<10
CC57369		0.28	0.2	1.49	11	<10	60	0.5	<2	3.59	<0.5	12	23	31	3.25	<10
CC57370		0.26	0.2	1.79	4	<10	60	0.6	<2	0.62	<0.5	11	28	38	3.34	<10
CC57371		0.24	<0.2	1.66	7	<10	60	0.6	<2	0.43	<0.5	9	23	28	2.78	<10
CC57372		0.28	<0.2	2.05	3	<10	40	0.5	<2	0.55	<0.5	11	28	28	3.48	<10
CC57373		0.34	<0.2	2.28	4	<10	30	0.5	<2	1.33	<0.5	16	36	36	4.16	10
CC57374		0.32	<0.2	1.89	22	<10	50	0.6	<2	0.44	<0.5	12	40	24	3.22	10
CC57375		0.18	0.2	2.11	6	<10	40	0.5	<2	0.59	<0.5	11	32	32	3.35	10
CC57376		0.24	0.2	1.80	10	<10	60	0.5	<2	0.43	<0.5	16	31	36	3.30	<10
CC57377		0.24	<0.2	2.21	8	<10	50	0.6	<2	0.80	<0.5	14	38	41	3.54	10
CC57378		0.38	0.7	0.50	410	<10	140	<0.5	<2	10.30	0.6	5	7	55	3.82	<10
CC57379		0.34	0.8	0.30	76	<10	110	<0.5	<2	8.70	<0.5	5	6	29	2.37	<10
CC57380		0.30	0.8	0.46	66	<10	120	<0.5	<2	7.89	0.7	5	7	50	2.93	<10
CC57381		0.34	0.9	0.32	143	<10	70	<0.5	<2	11.05	1.1	10	10	33	3.21	<10
CC57382		0.34	2.7	0.26	165	<10	40	<0.5	<2	11.80	3.2	9	8	31	3.11	<10
CC57383		0.26	1.9	0.53	225	<10	70	0.5	<2	8.54	1.8	10	15	27	3.75	<10
CC57384		0.32	1.2	0.33	208	<10	80	<0.5	<2	11.75	1.1	7	8	18	3.61	<10
CC57385		0.28	1.1	0.45	151	<10	80	<0.5	<2	10.75	2.0	7	6	20	3.69	<10
CC57386		0.36	2.1	0.18	77	<10	140	<0.5	<2	3.65	0.9	3	5	24	2.00	<10
CC57387		0.22	0.9	1.04	70	<10	140	0.5	<2	2.88	2.0	13	18	29	5.15	<10
CC57388		0.28	0.9	0.81	38	<10	100	0.5	<2	2.24	1.0	10	30	35	3.47	<10
CC57389		0.30	9.4	0.51	229	<10	100	<0.5	<2	9.17	9.2	11	10	70	4.39	<10
CC57390		0.28	1.0	0.96	43	<10	70	<0.5	<2	0.38	1.5	14	20	44	3.98	<10
CC57391		0.28	<0.2	1.81	6	<10	60	0.6	<2	3.27	<0.5	15	26	33	3.94	<10



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Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm
CC57352		<1	0.01	10	9.06	644	<1	0.01	3	270	7	0.02	<2	1	75	<20
CC57353		<1	0.02	10	4.85	672	1	0.01	14	620	867	0.05	4	1	50	<20
CC57354		<1	0.02	10	5.19	1020	1	0.01	13	700	75	0.05	3	1	44	<20
CC57355		<1	0.02	10	7.32	711	1	0.01	10	590	22	0.03	<2	1	64	<20
CC57356		<1	0.02	10	6.75	1045	1	0.02	12	480	363	0.05	5	1	57	<20
CC57357		<1	0.02	10	5.48	752	1	0.01	13	550	293	0.04	7	1	53	<20
CC57358		<1	0.02	10	6.68	423	1	0.01	13	470	620	0.02	7	1	66	<20
CC57359		<1	0.01	10	4.99	328	1	<0.01	15	480	275	0.04	14	2	63	<20
CC57360		<1	0.02	10	4.11	408	1	0.01	16	1100	208	0.05	17	1	55	<20
CC57361		<1	0.02	10	7.33	567	3	0.02	16	370	1260	0.03	83	1	86	<20
CC57362		<1	0.03	10	5.62	771	4	0.01	26	1000	103	0.02	6	2	69	<20
CC57363		<1	0.03	20	2.80	454	5	0.01	36	1170	45	0.02	9	2	58	<20
CC57364		<1	0.03	10	2.53	441	5	0.01	38	1160	32	0.03	10	2	54	<20
CC57365		<1	0.03	20	3.51	534	5	0.01	37	1180	33	0.03	9	2	73	<20
CC57366		<1	0.03	20	2.34	636	7	<0.01	38	970	88	0.02	8	3	104	<20
CC57367		<1	0.03	30	0.94	517	4	0.01	43	1100	41	0.04	7	2	60	<20
CC57368		<1	0.03	40	0.96	440	1	<0.01	30	760	18	0.03	<2	3	61	<20
CC57369		<1	0.03	30	0.98	396	<1	0.01	28	620	14	0.02	<2	3	116	<20
CC57370		<1	0.02	40	1.12	298	1	0.01	30	710	16	0.03	3	3	33	<20
CC57371		<1	0.03	30	0.84	287	<1	0.02	24	800	17	0.03	<2	3	26	<20
CC57372		<1	0.02	30	1.44	143	<1	0.01	30	820	10	0.01	<2	3	23	<20
CC57373		<1	0.03	50	1.68	351	<1	0.01	38	900	20	0.02	<2	3	48	<20
CC57374		<1	0.02	20	1.24	623	<1	0.01	33	750	15	0.03	<2	5	27	<20
CC57375		<1	0.03	20	1.38	200	<1	0.01	29	810	12	0.04	<2	4	29	<20
CC57376		<1	0.03	20	1.20	739	<1	0.01	30	510	17	0.02	<2	5	24	<20
CC57377		<1	0.03	20	1.48	522	<1	0.01	31	860	14	0.04	3	3	38	<20
CC57378		1	0.05	10	6.33	834	8	0.02	34	530	30	0.10	23	2	63	<20
CC57379		<1	0.04	10	5.36	477	5	0.02	20	280	26	0.07	11	1	41	<20
CC57380		<1	0.05	10	4.91	580	6	0.02	28	500	33	0.09	10	1	47	<20
CC57381		<1	0.03	10	7.01	639	5	0.02	48	650	65	0.07	8	2	61	<20
CC57382		1	0.02	10	7.46	750	2	0.02	42	550	381	0.04	16	2	73	<20
CC57383		<1	0.03	10	5.38	967	3	0.02	34	1410	162	0.04	11	2	47	<20
CC57384		<1	0.02	10	7.26	1475	3	0.02	24	740	83	0.01	7	2	76	<20
CC57385		<1	0.02	10	6.71	1320	2	0.02	26	930	150	0.04	9	1	67	<20
CC57386		<1	0.06	10	2.07	337	15	0.01	25	370	76	0.11	13	1	40	<20
CC57387		<1	0.04	20	1.79	1585	3	0.01	41	1370	76	0.05	7	2	33	<20
CC57388		<1	0.03	20	1.40	698	2	0.01	36	1090	89	0.05	3	2	20	<20
CC57389		<1	0.03	10	5.68	1585	6	0.02	34	670	1300	0.06	33	2	79	<20
CC57390		<1	0.03	40	0.60	1265	5	0.01	55	1430	75	0.01	4	5	21	<20
CC57391		<1	0.03	40	1.12	484	<1	0.01	32	580	13	0.01	<2	3	108	<20



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Finalized Date: 7-SEP-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46
		Ti	Ti	U	V	W	Zn	Pb
		%	ppm	ppm	ppm	ppm	ppm	%
		0.01	10	10	1	10	2	0.001
CC57352		<0.01	<10	<10	7	<10	26	
CC57353		0.02	<10	<10	18	<10	1110	
CC57354		0.01	<10	<10	16	<10	163	
CC57355		0.01	<10	<10	16	<10	75	
CC57356		0.01	<10	<10	13	<10	806	
CC57357		0.01	<10	<10	16	<10	545	
CC57358		0.01	<10	<10	12	<10	658	
CC57359		0.01	<10	<10	7	<10	558	
CC57360		<0.01	<10	<10	7	<10	208	
CC57361		<0.01	<10	<10	8	<10	1870	
CC57362		0.01	<10	<10	16	<10	146	
CC57363		0.01	<10	<10	25	<10	131	
CC57364		0.01	<10	<10	24	<10	122	
CC57365		0.01	<10	<10	26	<10	141	
CC57366		0.01	<10	<10	22	<10	236	
CC57367		0.01	<10	<10	24	<10	142	
CC57368		0.01	<10	<10	19	<10	68	
CC57369		0.01	<10	<10	19	<10	67	
CC57370		0.01	<10	<10	23	<10	65	
CC57371		0.01	<10	<10	19	<10	78	
CC57372		0.01	<10	<10	15	<10	71	
CC57373		0.01	<10	<10	22	<10	106	
CC57374		0.01	<10	<10	25	<10	61	
CC57375		0.01	<10	<10	18	<10	69	
CC57376		0.02	<10	<10	24	<10	60	
CC57377		0.01	<10	<10	21	<10	69	
CC57378		<0.01	<10	<10	24	<10	64	
CC57379		<0.01	<10	<10	14	<10	29	
CC57380		<0.01	<10	<10	19	<10	47	
CC57381		0.01	<10	<10	20	<10	230	
CC57382		0.01	<10	<10	11	<10	570	
CC57383		0.01	<10	<10	20	<10	385	
CC57384		0.01	<10	<10	12	<10	306	
CC57385		0.01	<10	<10	14	<10	369	
CC57386		<0.01	<10	<10	21	<10	155	
CC57387		0.01	<10	<10	28	<10	341	
CC57388		0.01	<10	<10	25	<10	177	
CC57389		0.01	<10	<10	20	<10	2280	
CC57390		0.01	<10	<10	31	<10	227	
CC57391		0.01	<10	<10	17	<10	65	



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Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
CC57392		0.28	0.8	1.01	37	<10	80	0.5	<2	1.28	<0.5	11	22	29	3.34	<10
CC57393		0.28	0.8	1.08	33	<10	80	0.5	<2	2.62	0.6	11	20	31	3.32	<10
CC57394		0.26	0.2	1.48	16	<10	70	0.6	3	0.37	<0.5	9	21	19	4.28	<10
CC57395		0.26	0.4	1.59	19	<10	70	0.7	<2	0.64	0.6	13	27	33	4.03	<10
CC57396		0.32	0.3	2.12	11	<10	30	0.5	<2	0.67	<0.5	18	36	40	3.89	10
CC57397		0.26	<0.2	1.63	32	<10	80	<0.5	<2	0.25	<0.5	18	31	18	4.17	10
CC57398		0.26	<0.2	1.95	12	<10	50	0.5	<2	0.16	<0.5	14	37	19	3.76	<10
CC57399		0.30	0.2	1.83	19	<10	40	0.5	<2	1.12	<0.5	17	30	35	3.82	<10
CC57400		0.24	1.9	0.56	161	<10	90	0.6	<2	5.33	1.1	8	14	30	2.98	<10
CC57401		0.26	1.2	0.86	68	<10	110	0.5	<2	4.83	0.5	10	17	29	3.34	<10
CC57402		0.24	1.4	0.84	62	<10	120	0.6	<2	5.19	0.6	12	18	34	3.71	<10
CC57403		0.32	0.8	0.96	41	<10	90	0.5	<2	4.53	0.7	10	18	30	3.18	<10
CC57404		0.28	1.1	1.01	49	<10	90	0.6	<2	4.34	0.7	11	21	36	3.47	<10
CC57405		0.32	1.1	0.83	33	<10	50	<0.5	<2	7.86	0.8	8	17	23	2.55	<10
CC57406		0.26	1.6	1.02	32	<10	70	0.5	<2	2.78	0.9	11	18	45	3.56	<10
CC57407		0.28	2.5	1.07	44	<10	100	0.6	<2	1.98	1.3	13	20	77	3.76	<10
CC57408		0.30	1.3	1.03	64	<10	100	0.6	<2	1.73	1.0	12	20	74	3.75	<10
CC57409		0.30	2.2	0.89	75	<10	60	0.5	<2	3.73	1.4	11	19	48	3.30	<10
CC57410		0.32	1.3	0.63	110	<10	90	0.6	<2	6.83	0.5	8	15	22	3.44	<10
CC57411		0.26	0.8	1.04	56	<10	80	0.5	<2	3.55	0.6	12	30	35	3.51	<10
CC57412		0.28	0.7	0.90	47	<10	110	0.6	<2	4.36	0.7	11	21	32	3.52	<10
CC57413		0.26	0.7	1.09	36	<10	90	0.6	<2	2.63	0.7	13	20	38	3.59	<10
CC57414		0.24	0.8	1.22	32	<10	90	0.6	<2	2.98	0.6	14	22	37	3.80	<10
CC57415		0.28	0.6	1.09	28	<10	70	0.5	<2	4.48	1.0	13	19	36	3.49	<10
CC57416		0.24	1.9	0.89	52	<10	90	0.6	<2	3.61	1.3	10	17	37	3.53	<10
CC57417		0.26	2.2	0.94	40	<10	90	0.5	<2	4.56	1.4	11	18	41	3.35	<10
CC57418		0.26	2.3	1.13	35	<10	100	0.6	<2	3.53	1.3	14	19	128	3.80	<10
CC57419		0.24	1.0	0.97	46	<10	90	0.5	<2	4.05	1.1	12	16	75	3.56	<10
CC57420		0.26	1.2	0.82	107	<10	80	0.7	<2	6.16	0.5	9	21	26	3.13	<10
CC57421		0.30	0.6	1.28	20	<10	90	0.5	<2	2.40	0.6	12	24	34	3.64	10
CC57422		0.32	0.6	1.02	27	<10	80	0.5	<2	3.25	0.7	12	27	35	3.39	<10
CC57423		0.24	0.7	1.02	40	<10	100	0.6	<2	2.72	0.8	11	27	36	3.52	<10
CC57424		0.28	0.5	1.08	30	<10	70	0.5	2	3.94	0.7	13	24	38	3.51	<10
CC57425		0.24	1.2	1.25	32	<10	90	0.6	<2	2.29	0.9	14	29	41	4.00	<10
CC57426		0.26	1.3	0.97	68	<10	80	0.6	<2	3.92	2.6	13	23	40	3.84	<10
CC57427		0.28	1.3	0.99	35	<10	80	0.6	<2	2.18	1.2	15	21	48	3.90	<10
CC57428		0.30	4.3	0.94	47	<10	120	0.5	<2	3.49	1.8	10	22	43	3.05	<10
CC57429		0.24	0.3	1.04	15	<10	60	0.5	<2	7.14	<0.5	14	16	98	3.50	<10
CC57430		0.28	0.2	1.15	27	<10	80	0.5	<2	3.29	0.7	10	22	38	3.28	<10
CC57431		0.26	0.3	1.32	20	<10	90	0.6	<2	2.73	0.5	13	29	34	3.72	<10



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Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg ppm 1	K % 0.01	La ppm 10	Mg % 0.01	Mn ppm 5	Mo ppm 1	Na % 0.01	Ni ppm 1	P ppm 10	Pb ppm 2	S % 0.01	Sb ppm 2	Sc ppm 1	Sr ppm 1	Th ppm 20
CC57392		<1	0.04	20	0.99	680	3	0.01	37	880	64	0.03	5	3	29	<20
CC57393		<1	0.03	30	1.80	680	2	0.01	38	950	54	0.02	2	4	41	<20
CC57394		<1	0.03	40	0.58	1050	1	0.01	25	1140	44	0.04	2	4	19	<20
CC57395		<1	0.03	40	0.70	1535	1	0.01	31	1350	68	0.05	<2	4	30	<20
CC57396		<1	0.03	40	1.45	417	<1	0.01	39	740	19	<0.01	<2	4	29	<20
CC57397		<1	0.03	20	0.76	1520	2	0.01	25	1250	75	0.04	<2	2	17	<20
CC57398		<1	0.03	20	1.11	1240	<1	0.01	25	940	34	0.03	<2	2	12	<20
CC57399		<1	0.03	20	1.69	708	<1	0.01	37	790	28	0.01	<2	5	31	<20
CC57400		1	0.04	20	2.78	892	7	0.02	43	1370	206	0.06	11	2	94	<20
CC57401		<1	0.04	20	2.61	869	6	0.02	45	2070	60	0.03	7	2	254	<20
CC57402		<1	0.06	30	2.67	696	9	0.01	64	4140	67	0.04	11	3	309	<20
CC57403		<1	0.03	20	2.47	575	6	0.01	37	1100	62	0.02	6	2	113	<20
CC57404		<1	0.03	30	2.50	510	8	0.01	43	1140	69	0.02	10	3	118	<20
CC57405		<1	0.02	20	4.58	484	4	0.01	29	1500	88	<0.01	10	3	152	<20
CC57406		<1	0.03	30	1.41	395	7	<0.01	42	1140	104	<0.01	12	3	67	<20
CC57407		<1	0.03	30	1.02	455	7	<0.01	45	1010	140	<0.01	16	3	50	<20
CC57408		<1	0.03	30	0.74	398	8	<0.01	45	1040	90	<0.01	12	3	53	<20
CC57409		<1	0.03	30	1.79	534	6	<0.01	38	1360	196	<0.01	20	3	102	<20
CC57410		<1	0.03	20	4.13	1185	7	0.01	41	1840	55	0.01	10	2	207	<20
CC57411		<1	0.04	20	2.13	558	9	<0.01	50	1690	64	0.01	8	3	198	<20
CC57412		<1	0.03	20	2.57	723	10	<0.01	47	1530	62	<0.01	11	3	162	<20
CC57413		<1	0.03	30	1.76	516	11	<0.01	45	810	71	<0.01	9	3	72	<20
CC57414		<1	0.03	30	1.81	574	8	<0.01	44	980	60	<0.01	10	3	73	<20
CC57415		<1	0.03	30	1.44	584	7	<0.01	43	1060	53	<0.01	10	3	125	<20
CC57416		<1	0.04	20	1.95	499	8	<0.01	45	1450	117	0.02	18	2	104	<20
CC57417		<1	0.03	30	2.04	617	6	<0.01	44	1210	144	<0.01	15	3	103	<20
CC57418		<1	0.03	30	0.84	502	6	<0.01	42	910	89	0.01	14	3	101	<20
CC57419		<1	0.03	30	0.96	514	8	<0.01	41	1050	89	<0.01	12	3	111	<20
CC57420		<1	0.03	20	3.69	731	7	0.01	39	1170	49	0.02	10	2	128	<20
CC57421		<1	0.03	30	1.63	581	8	<0.01	40	780	48	0.01	6	3	62	<20
CC57422		<1	0.03	30	1.93	561	11	<0.01	46	910	61	<0.01	6	3	92	<20
CC57423		<1	0.03	30	1.54	534	10	<0.01	47	950	61	0.01	10	2	66	<20
CC57424		<1	0.03	30	1.77	605	10	<0.01	46	810	56	<0.01	7	3	99	<20
CC57425		<1	0.04	30	1.18	701	8	<0.01	51	1060	77	0.01	7	3	58	<20
CC57426		<1	0.04	30	1.78	729	9	<0.01	52	1150	123	<0.01	9	3	93	<20
CC57427		<1	0.03	30	1.19	545	10	<0.01	52	970	80	0.01	11	3	49	<20
CC57428		<1	0.03	30	1.56	623	6	<0.01	39	1080	292	<0.01	21	3	78	<20
CC57429		<1	0.03	30	0.73	628	4	<0.01	35	620	22	<0.01	4	3	225	<20
CC57430		<1	0.03	20	1.83	682	6	<0.01	36	770	53	0.02	2	2	68	<20
CC57431		<1	0.03	30	1.70	652	7	<0.01	42	730	37	0.01	4	3	67	<20



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## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46
		Ti	Ti	U	V	W	Zn	Pb
		% 0.01	ppm 10	ppm 10	ppm 1	ppm 10	ppm 2	% 0.001
CC57392		0.02	<10	<10	25	<10	118	
CC57393		0.01	<10	<10	23	<10	121	
CC57394		0.01	<10	<10	25	<10	111	
CC57395		0.01	<10	<10	24	<10	118	
CC57396		0.01	<10	<10	21	<10	81	
CC57397		0.01	<10	<10	34	<10	86	
CC57398		0.02	<10	<10	33	<10	69	
CC57399		0.01	<10	<10	26	<10	83	
CC57400		<0.01	<10	<10	29	<10	254	
CC57401		0.01	<10	<10	23	<10	184	
CC57402		0.01	<10	<10	29	<10	214	
CC57403		0.01	<10	<10	23	<10	216	
CC57404		0.01	<10	<10	22	<10	255	
CC57405		0.01	<10	<10	23	<10	206	
CC57406		0.01	<10	<10	20	<10	305	
CC57407		<0.01	<10	<10	21	<10	399	
CC57408		0.01	<10	<10	22	<10	340	
CC57409		0.01	<10	<10	24	<10	383	
CC57410		0.01	<10	<10	27	<10	136	
CC57411		<0.01	<10	<10	22	<10	203	
CC57412		0.01	<10	<10	24	<10	244	
CC57413		<0.01	<10	<10	21	<10	286	
CC57414		<0.01	<10	<10	20	<10	249	
CC57415		<0.01	<10	<10	17	<10	266	
CC57416		0.01	<10	<10	21	<10	370	
CC57417		0.01	<10	<10	22	<10	350	
CC57418		<0.01	<10	<10	16	<10	362	
CC57419		0.01	<10	<10	20	<10	300	
CC57420		0.01	<10	<10	28	<10	145	
CC57421		0.01	<10	<10	26	<10	192	
CC57422		<0.01	<10	<10	20	<10	229	
CC57423		0.01	<10	<10	24	<10	264	
CC57424		0.01	<10	<10	20	<10	268	
CC57425		<0.01	<10	<10	19	<10	335	
CC57426		<0.01	<10	<10	20	<10	609	
CC57427		<0.01	<10	<10	21	<10	352	
CC57428		0.02	<10	<10	26	<10	459	
CC57429		<0.01	<10	<10	12	<10	117	
CC57430		0.01	<10	<10	22	<10	172	
CC57431		0.01	<10	<10	27	<10	165	



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## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
CC57432		0.34	0.2	1.11	17	<10	80	0.5	<2	2.98	0.5	10	24	34	3.22	<10
CC57433		0.32	0.4	1.64	11	<10	70	0.6	2	1.81	<0.5	15	35	40	4.15	<10
CC57434		0.28	0.9	1.15	26	<10	80	0.5	<2	2.22	0.7	14	23	43	3.66	<10
CC57435		0.30	0.2	1.40	12	<10	70	0.5	<2	3.40	<0.5	16	24	42	3.76	<10
CC57436		0.22	0.2	1.77	13	<10	100	0.7	<2	1.08	<0.5	19	28	49	4.24	10
CC57437		0.24	0.5	0.94	30	<10	60	0.6	<2	5.89	1.1	13	20	40	3.59	<10
CC57438		0.24	<0.2	1.23	15	<10	60	0.6	<2	4.81	<0.5	14	18	52	3.74	<10
CC57439		0.24	0.2	0.94	27	<10	200	0.6	<2	6.24	<0.5	14	18	79	3.44	<10
CC57480		0.36	1.3	0.38	428	<10	60	<0.5	<2	12.10	1.3	9	7	24	3.50	<10
CC57481		0.36	2.0	0.76	530	<10	40	0.6	2	9.43	3.7	10	11	84	3.69	<10
CC57482		0.38	1.5	0.20	409	<10	80	<0.5	<2	12.65	2.1	4	5	39	3.32	<10
CC57483		0.28	1.1	0.32	335	<10	80	<0.5	2	9.91	1.1	9	8	20	4.00	<10
CC57484		0.30	2.1	0.42	375	<10	60	<0.5	<2	9.87	2.6	7	8	30	3.35	<10
CC57485		0.32	72.2	0.09	1940	<10	20	<0.5	<2	2.96	10.6	1	4	777	9.06	<10
CC57486		0.24	14.7	0.13	836	<10	10	<0.5	<2	4.38	38.3	6	4	932	9.97	<10
CC57487		0.30	1.1	0.78	109	<10	140	<0.5	2	5.53	3.5	6	16	28	5.65	<10
CC57488		0.22	0.3	0.33	45	<10	30	<0.5	<2	2.40	0.5	6	7	10	2.38	<10
CC57489		0.26	0.7	0.37	36	<10	20	<0.5	<2	5.50	1.2	12	9	24	3.13	<10
CC57490		0.26	1.5	0.53	33	<10	40	<0.5	<2	2.87	2.6	19	8	75	4.39	<10
CC57491		0.30	0.6	0.82	33	<10	30	<0.5	<2	7.17	2.6	21	12	58	3.75	<10
CC57492		0.30	0.6	0.80	35	<10	30	<0.5	3	5.83	1.1	25	10	71	4.43	<10
CC57493		0.26	0.2	0.97	26	<10	70	<0.5	2	0.20	<0.5	8	13	28	3.41	<10
CC57494		0.26	0.2	1.08	18	<10	80	<0.5	2	0.17	<0.5	5	15	37	3.40	<10
CC57495		0.26	0.6	0.58	42	<10	30	<0.5	2	9.34	1.6	20	9	56	3.70	<10
CC57496		0.28	0.5	0.83	35	<10	30	<0.5	<2	6.26	0.7	18	11	49	3.94	<10
CC57497		0.24	0.7	0.99	24	<10	40	<0.5	<2	4.93	0.6	28	15	64	4.68	<10
CC57498		0.22	0.8	0.94	26	<10	50	<0.5	<2	1.59	1.1	18	16	59	4.42	<10
CC57499		0.26	0.8	0.92	27	<10	90	<0.5	<2	0.36	0.9	10	15	47	3.82	<10
CC57500		0.22	0.6	0.93	26	<10	60	<0.5	<2	0.40	0.9	14	14	44	3.98	<10
CC57091		0.30	0.2	0.09	23	<10	<10	<0.5	2	15.5	<0.5	2	3	3	0.83	<10
CC57092		0.26	0.4	0.24	46	<10	30	<0.5	<2	7.35	<0.5	4	4	13	1.33	<10
CC57093		0.30	0.4	0.26	78	<10	30	<0.5	<2	9.98	0.6	6	7	14	2.06	<10
CC57094		0.34	1.4	0.17	190	<10	20	<0.5	2	10.95	5.4	6	4	17	1.94	<10
CC57095		0.24	1.1	0.18	200	<10	20	<0.5	2	7.14	<0.5	6	5	20	1.56	<10
CC57096		0.30	1.4	0.46	111	<10	80	<0.5	<2	10.50	0.9	6	9	32	3.74	<10
CC57097		0.24	0.8	0.75	130	<10	110	<0.5	2	5.99	8.7	5	11	24	4.45	<10
CC57098		0.34	1.9	0.42	154	<10	50	<0.5	2	9.94	1.2	4	6	30	3.34	<10
CC57099		0.38	25.8	0.41	177	<10	70	<0.5	2	8.37	10.4	11	9	178	5.54	<10
CC57100		0.40	0.7	0.30	111	<10	40	<0.5	<2	11.90	1.5	3	3	11	2.56	<10
CC56285		0.26	1.1	0.16	20	<10	50	<0.5	2	11.75	1.0	4	3	13	2.57	<10



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Finalized Date: 7-SEP-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
		ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
		1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
CC57432		<1	0.03	30	1.49	536	8	<0.01	35	770	32	<0.01	5	3	77	<20
CC57433		<1	0.03	40	1.54	431	7	<0.01	45	770	42	<0.01	4	3	52	<20
CC57434		<1	0.03	30	1.37	551	14	<0.01	48	720	75	0.01	7	2	58	<20
CC57435		<1	0.03	40	1.07	538	6	<0.01	43	870	30	<0.01	3	3	100	<20
CC57436		<1	0.03	50	1.12	867	5	<0.01	41	730	35	<0.01	4	4	37	<20
CC57437		<1	0.04	30	1.12	556	8	<0.01	51	990	34	<0.01	6	3	152	<20
CC57438		<1	0.03	40	0.82	510	3	<0.01	33	560	13	<0.01	4	3	140	<20
CC57439		<1	0.04	30	0.72	545	8	<0.01	45	1090	18	<0.01	4	3	184	<20
CC57480		<1	0.02	10	7.18	798	3	0.01	21	820	108	<0.01	11	2	67	<20
CC57481		<1	0.02	10	6.03	859	3	0.01	66	1070	260	0.04	20	2	76	<20
CC57482		<1	0.01	<10	8.40	1260	3	0.02	23	340	248	0.02	31	1	181	<20
CC57483		<1	0.02	10	6.29	1800	6	0.01	39	980	94	0.03	15	2	83	<20
CC57484		<1	0.02	10	6.47	1210	3	0.01	25	920	324	0.05	14	2	76	<20
CC57485		3	0.01	<10	1.71	308	4	<0.01	11	170	>10000	1.14	228	1	24	<20
CC57486		1	<0.01	<10	2.64	475	3	<0.01	17	220	7020	0.10	138	2	36	<20
CC57487		<1	0.02	20	3.67	2300	3	0.01	27	890	147	0.05	7	2	34	<20
CC57488		<1	0.02	10	1.32	1695	2	<0.01	15	600	44	0.04	2	1	16	<20
CC57489		<1	0.02	10	3.54	821	4	0.01	40	910	96	0.04	7	3	60	<20
CC57490		<1	0.03	20	0.37	859	6	<0.01	58	2050	41	0.05	3	3	56	<20
CC57491		<1	0.04	20	0.63	850	6	<0.01	51	1530	33	0.04	3	3	108	<20
CC57492		<1	0.03	20	0.61	815	4	<0.01	51	1250	37	0.08	3	2	120	<20
CC57493		<1	0.04	20	0.39	468	4	<0.01	25	1420	22	0.04	2	1	9	<20
CC57494		<1	0.04	30	0.56	247	2	<0.01	28	990	18	0.02	<2	3	8	<20
CC57495		<1	0.03	20	0.70	618	5	<0.01	49	1110	60	0.10	3	2	142	<20
CC57496		<1	0.04	20	0.69	824	4	<0.01	40	1320	39	0.10	3	2	160	<20
CC57497		<1	0.04	30	0.71	1055	4	<0.01	60	1450	48	0.09	<2	3	108	<20
CC57498		<1	0.04	30	0.62	550	4	<0.01	51	1580	42	0.08	3	3	38	<20
CC57499		<1	0.04	30	0.46	336	4	<0.01	37	1350	44	0.04	2	3	15	<20
CC57500		<1	0.03	30	0.47	547	4	<0.01	37	1480	46	0.05	3	3	16	<20
CC57091		<1	0.01	10	9.61	503	<1	0.02	3	150	29	<0.01	3	1	69	<20
CC57092		<1	0.02	30	4.82	409	5	0.01	13	400	30	0.05	6	1	41	<20
CC57093		<1	0.02	10	6.53	1140	2	0.01	15	550	43	0.04	5	2	63	<20
CC57094		1	0.02	10	7.29	1240	1	0.01	25	330	392	0.08	65	1	95	<20
CC57095		<1	0.02	10	4.60	634	1	0.01	20	340	343	0.03	50	2	59	<20
CC57096		<1	0.03	10	6.98	1250	5	0.02	26	590	154	0.04	11	2	74	<20
CC57097		<1	0.02	10	3.85	1290	3	0.01	20	910	69	0.08	5	2	50	<20
CC57098		<1	0.02	10	6.47	988	3	0.02	30	590	347	0.07	12	1	73	<20
CC57099		1	0.02	10	5.40	1225	11	0.01	48	900	2330	0.13	99	2	69	<20
CC57100		<1	0.02	<10	7.98	970	1	0.02	7	430	94	0.04	4	1	63	<20
CC56285		<1	0.01	10	7.75	1170	2	0.02	10	420	71	0.05	4	1	72	<20





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Finalized Date: 7-SEP-2009

Account: ROCKHA

Project: Groundhog

CERTIFICATE OF ANALYSIS VA09085939
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Sample Description	Method Analyte Units LOW	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46
		Ti	Ti	U	V	W	Zn	Pb
		%	ppm	ppm	ppm	ppm	ppm	%
		0.01	10	10	1	10	2	0.001
CC57432		0.01	<10	<10	24	<10	140	
CC57433		<0.01	<10	<10	24	<10	196	
CC57434		<0.01	<10	<10	20	<10	271	
CC57435		0.01	<10	<10	18	<10	169	
CC57436		0.01	<10	<10	20	<10	151	
CC57437		<0.01	<10	<10	15	<10	304	
CC57438		<0.01	<10	<10	12	<10	87	
CC57439		<0.01	<10	<10	13	<10	164	
CC57480		0.01	<10	<10	14	<10	309	
CC57481		0.02	<10	<10	19	<10	667	
CC57482		0.01	<10	<10	7	<10	549	
CC57483		0.02	<10	<10	12	<10	496	
CC57484		0.01	<10	<10	13	<10	469	
CC57485		0.01	<10	<10	5	<10	2020	3.42
CC57486		0.01	<10	<10	10	10	5430	
CC57487		0.02	<10	<10	28	<10	728	
CC57488		0.02	<10	<10	11	<10	188	
CC57489		0.02	<10	<10	12	<10	275	
CC57490		0.01	<10	<10	20	<10	343	
CC57491		0.01	<10	<10	25	<10	289	
CC57492		0.01	<10	<10	15	<10	189	
CC57493		0.02	<10	<10	20	<10	112	
CC57494		0.01	<10	<10	20	<10	118	
CC57495		0.01	<10	<10	15	<10	191	
CC57496		0.01	<10	<10	13	<10	138	
CC57497		0.01	<10	<10	15	<10	139	
CC57498		0.01	<10	<10	24	<10	196	
CC57499		0.01	<10	<10	34	<10	225	
CC57500		0.02	<10	<10	26	<10	195	
CC57091		0.01	<10	<10	5	<10	34	
CC57092		0.02	<10	<10	9	<10	54	
CC57093		0.02	<10	<10	10	<10	110	
CC57094		0.01	<10	<10	10	<10	927	
CC57095		0.01	<10	<10	9	<10	118	
CC57096		0.03	<10	<10	17	<10	193	
CC57097		0.02	<10	<10	22	<10	2200	
CC57098		0.02	<10	<10	13	<10	266	
CC57099		0.02	<10	<10	15	<10	2490	
CC57100		0.02	<10	<10	10	<10	261	
CC56285		0.02	<10	<10	7	<10	263	



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Total # Pages: 7 (A - C)

Finalized Date: 7-SEP-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Be ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ge ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
CC56286		0.28	1.4	0.17	27	<10	50	<0.5	2	15.6	1.2	2	3	15	2.59	<10
CC56287		0.26	0.6	0.28	17	<10	70	<0.5	<2	14.8	0.6	3	5	10	2.68	<10
CC56288		0.22	0.6	0.67	18	<10	90	<0.5	<2	6.45	0.7	5	10	18	3.86	<10
CC56289		0.20	0.8	1.14	22	<10	80	0.6	<2	2.41	1.6	6	16	21	4.42	<10



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Finalized Date: 7-SEP-2009

Account: ROCKHA

Project: Groundhog

**CERTIFICATE OF ANALYSIS VA09085939**

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
		ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
		1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
CC56286		<1	0.01	<10	9.43	1165	3	0.02	9	210	220	<0.01	5	1	105	<20
CC56287		<1	0.02	10	9.03	1210	2	0.03	9	250	48	0.02	2	1	88	<20
CC56288		<1	0.02	10	4.24	1455	2	0.02	17	520	80	0.03	5	2	40	<20
CC56289		<1	0.03	10	1.44	1700	2	0.02	19	870	147	0.05	4	2	20	<20



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Project: Groundhog

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Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09085939

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46
	Analyte	Ti	Tl	U	V	W	Zn	Pb
	Units	%	ppm	ppm	ppm	ppm	ppm	%
LOR		0.01	10	10	1	10	2	0.001
CC56286		0.02	<10	<10	7	<10	286	
CC56287		0.02	<10	<10	10	<10	139	
CC56288		0.03	<10	<10	19	<10	163	
CC56289		0.04	<10	<10	33	<10	345	



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Finalized Date: 2-SEP-2009  
Account: ROCKHA

## CERTIFICATE VA09082229

Project: Groundhog

P.O. No.:

This report is for 33 Rock samples submitted to our lab in Vancouver, BC, Canada on 4-AUG-2009.

The following have access to data associated with this certificate:

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
PUL-QC	Pulverizing QC Test
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
Cu-OG46	Ore Grade Cu - Aqua Regia	VARIABLE
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE
Ag-GRA21	Ag 30g FA-GRAV finish	WST-SIM
Ag-OG46	Ore Grade Ag - Aqua Regia	VARIABLE
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE
Pb-VOL70	Pb by Titration	
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09082229

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	0.01	10	
H248903		4.30	>100	0.04	1175	<10	60	<0.5	<2	0.02	357	<1	1	>10000	3.46	<10
H248904		4.68	>100	0.07	1390	<10	50	<0.5	<2	0.07	310	<1	1	>10000	4.86	<10
H248905		2.60	>100	0.05	1380	<10	40	<0.5	<2	0.01	336	<1	1	>10000	2.74	<10
H248906		4.00	>100	0.17	2000	<10	60	<0.5	<2	0.24	262	<1	2	>10000	10.50	<10
H248907		1.44	19.9	0.14	202	<10	60	<0.5	<2	13.15	401	2	1	2110	2.79	<10
H248908		2.84	>100	0.12	829	<10	80	<0.5	<2	11.70	468	3	1	1010	7.08	<10
H248909		0.64	10.2	0.21	58	<10	310	<0.5	<2	9.74	55.5	3	6	121	2.20	<10
H248910		1.58	19.5	0.10	92	<10	90	<0.5	<2	14.5	474	3	1	853	3.36	<10
H248911		1.66	>100	0.30	309	<10	130	<0.5	<2	8.18	649	2	3	1920	4.99	<10
H248912		4.02	>100	0.08	823	<10	50	<0.5	<2	5.38	378	1	1	4990	4.08	<10
H248913		0.92	14.4	0.07	77	<10	110	<0.5	<2	17.3	21.6	1	2	174	3.81	<10
H248914		3.10	>100	0.04	693	<10	60	<0.5	<2	11.40	47.9	1	1	696	4.77	<10
H248915		1.54	91.3	0.25	1005	<10	130	<0.5	<2	7.60	198.5	1	4	1270	7.34	<10
H248916		4.98	>100	0.10	959	<10	70	<0.5	<2	0.48	250	<1	2	>10000	6.74	<10
H248917		0.86	25.3	0.04	62	<10	40	<0.5	<2	16.6	102.5	1	1	559	2.90	<10
H248918		3.38	89.2	0.07	240	<10	100	<0.5	<2	14.4	101.0	1	2	350	3.14	<10
H248919		2.02	37.4	0.07	1110	<10	50	<0.5	<2	3.91	527	4	<1	1630	9.66	<10
H248920		0.68	9.3	0.10	43	<10	130	<0.5	<2	17.8	5.6	2	2	70	2.74	<10
H248921		0.86	23.2	0.38	59	<10	130	<0.5	2	8.96	140.5	2	6	209	2.08	<10
H248922		2.72	12.8	0.29	209	<10	100	<0.5	<2	13.15	108.5	5	4	184	4.60	<10
H248923		0.34	6.0	0.11	19	<10	70	<0.5	<2	18.6	39.3	1	2	41	0.76	<10
H248924		0.36	>100	0.28	173	<10	70	<0.5	<2	10.45	482	4	2	2400	4.66	10
H248925		0.50	4.3	0.08	22	<10	60	<0.5	<2	18.9	121.5	1	3	241	0.99	<10
H248926		1.38	26.6	0.07	135	<10	50	<0.5	<2	17.9	148.5	1	2	487	1.32	<10
H248927		1.28	3.4	0.03	67	<10	20	<0.5	2	19.4	102.5	1	1	320	0.71	<10
H248928		1.64	>100	0.03	1135	<10	40	<0.5	20	0.48	480	<1	4	7950	2.75	<10
H248929		6.40	>100	0.03	672	<10	20	<0.5	<2	0.02	257	1	1	>10000	1.67	<10
H248930		0.72	7.0	0.20	419	<10	250	<0.5	2	0.10	1.7	7	18	105	11.00	<10
H248931		0.58	2.9	0.49	17	<10	1140	<0.5	5	0.11	<0.5	7	58	284	41.1	20
H248932		0.82	0.9	0.40	367	<10	190	<0.5	<2	0.12	8.0	1	32	33	9.22	<10
H248933		0.40	0.2	0.54	5	<10	330	<0.5	<2	0.05	<0.5	<1	13	3	0.63	<10
H248934		0.78	0.3	0.08	8	<10	50	<0.5	<2	16.9	<0.5	1	1	3	0.86	<10
H248935		1.26	6.5	0.19	4	<10	40	<0.5	<2	5.28	29.1	8	3	57	1.65	<10



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Total # Pages: 2 (A - C)

Finalized Date: 2-SEP-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09082229

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Hg ppm 1	K % 0.01	La ppm 10	Mg % 0.01	Mn ppm 5	Mo ppm 1	Na % 0.01	Ni ppm 1	P ppm 10	Pb ppm 2	S % 0.01	Sb ppm 2	Sc ppm 1	Sr ppm 1	Th ppm 20
H248903		7	<0.01	<10	0.01	22	3	0.01	1	30	>10000	7.38	>10000	<1	8	<20
H248904		7	<0.01	<10	0.03	25	6	0.01	1	110	>10000	7.76	>10000	1	7	<20
H248905		4	<0.01	<10	<0.01	7	4	0.01	<1	100	>10000	9.11	>10000	1	10	<20
H248906		8	0.01	<10	0.12	96	21	0.01	2	250	>10000	4.58	>10000	1	8	<20
H248907		<1	0.02	<10	7.83	2450	1	0.01	3	70	3130	0.48	194	1	61	<20
H248908		1	0.03	<10	6.71	3160	5	0.02	11	170	>10000	0.85	626	1	74	<20
H248909		<1	0.10	10	5.79	865	1	0.02	8	100	1880	0.09	102	1	67	<20
H248910		1	0.03	<10	8.69	1350	<1	0.02	9	30	3450	0.18	288	<1	68	<20
H248911		3	0.06	<10	4.78	1200	1	0.01	14	100	>10000	0.43	1505	1	35	<20
H248912		6	0.01	<10	3.06	752	3	0.01	3	40	>10000	3.72	>10000	<1	27	<20
H248913		1	0.03	<10	10.15	1590	1	0.02	5	30	3020	<0.01	171	1	109	<20
H248914		2	0.01	<10	6.78	1200	1	0.02	2	30	>10000	1.97	1135	<1	66	<20
H248915		<1	0.04	<10	4.63	1060	4	0.02	12	120	>10000	0.56	322	1	51	<20
H248916		7	0.01	<10	0.24	125	6	0.01	2	130	>10000	5.15	>10000	1	8	<20
H248917		<1	0.01	<10	10.15	1355	1	0.02	3	20	3960	<0.01	301	<1	82	<20
H248918		<1	0.03	<10	8.94	924	1	0.02	3	60	>10000	0.34	480	<1	68	<20
H248919		2	0.01	<10	2.18	1185	11	0.01	21	520	4190	0.27	160	<1	12	<20
H248920		<1	0.04	<10	10.90	1180	1	0.02	8	80	1480	<0.01	76	1	57	<20
H248921		1	0.14	10	5.76	485	3	0.02	10	200	4580	0.16	59	2	80	<20
H248922		1	0.08	10	8.81	1515	8	0.02	27	130	3280	0.51	41	1	91	<20
H248923		1	0.03	10	11.60	396	<1	0.03	4	60	731	<0.01	33	<1	107	<20
H248924		4	0.03	10	6.95	729	8	0.02	39	100	>10000	0.15	900	<1	60	<20
H248925		1	0.03	10	11.85	447	<1	0.03	7	50	633	<0.01	41	<1	101	<20
H248926		1	0.02	10	11.25	538	<1	0.02	10	60	8730	<0.01	241	<1	100	<20
H248927		<1	0.01	10	12.20	365	<1	0.02	4	40	524	<0.01	156	<1	97	<20
H248928		3	<0.01	<10	0.25	24	2	<0.01	1	20	>10000	8.03	>10000	<1	6	<20
H248929		2	<0.01	<10	0.02	13	12	<0.01	1	10	>10000	>10.0	>10000	<1	12	<20
H248930		1	0.06	<10	0.09	98	2	0.01	13	280	993	0.06	146	<1	3	<20
H248931		1	0.10	<10	0.18	61	<1	0.02	24	310	423	0.16	23	2	6	<20
H248932		1	0.01	10	0.03	104	17	0.01	9	2230	120	0.08	42	<1	155	<20
H248933		<1	0.36	20	0.04	16	<1	<0.01	1	50	70	0.29	<2	2	7	<20
H248934		<1	0.02	<10	10.60	1025	<1	<0.01	<1	20	57	<0.01	3	1	75	<20
H248935		8	0.10	<10	0.31	473	<1	<0.01	12	90	5010	1.89	15	1	260	<20



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Project: Groundhog

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Finalized Date: 2-SEP-2009

Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09082229

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Cu-OG46	Pb-OG46	Ag-GRA21	Ag-OG46	Zn-OG46	Pb-VOL70	Au-ICP21
		Tl	Tl	U	V	W	Zn	Cu	Pb	Ag	Ag	Zn	Pb	Au
		%	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	%	ppm
		0.01	10	10	1	10	2	0.001	0.001	5	1	0.001	0.01	0.001
H248903		<0.01	<10	<10	2	<10	2880	1.280	>20.0	3180	>1500		63.11	
H248904		<0.01	10	10	4	<10	3280	1.095	>20.0	2420	>1500		60.06	
H248905		<0.01	<10	10	3	<10	2710	1.685	>20.0	3780	>1500		66.30	
H248906		<0.01	10	10	6	<10	9460	0.966	>20.0	1820	>1500		41.93	
H248907		<0.01	<10	<10	3	<10	>10000					2.82		
H248908		<0.01	<10	<10	6	10	>10000		4.69		169	6.01		
H248909		<0.01	<10	<10	7	10	9580							
H248910		<0.01	<10	10	3	10	>10000					4.04		
H248911		<0.01	<10	<10	4	10	>10000		5.07		197	4.46		
H248912		<0.01	<10	10	2	30	>10000		>20.0	1690	>1500	2.40	36.70	
H248913		<0.01	<10	<10	7	<10	2250							
H248914		<0.01	<10	<10	2	<10	3890		9.11		401			
H248915		<0.01	<10	<10	8	10	>10000		2.30			1.350		
H248916		<0.01	<10	<10	5	<10	7760	1.080	>20.0	2470	>1500		50.20	
H248917		<0.01	<10	10	2	10	>10000					1.770		
H248918		<0.01	<10	<10	2	10	8940		2.07					
H248919		<0.01	10	<10	1	<10	>10000					6.53		
H248920		<0.01	<10	<10	3	10	4410							
H248921		<0.01	<10	<10	6	<10	>10000					1.240		
H248922		<0.01	<10	<10	7	<10	>10000					1.095		
H248923		<0.01	<10	<10	5	<10	1085							
H248924		<0.01	<10	10	4	10	>10000		2.27		138	7.48		
H248925		<0.01	<10	<10	6	<10	>10000					1.200		
H248926		<0.01	<10	<10	6	<10	>10000					2.29		
H248927		<0.01	<10	<10	4	<10	7870							
H248928		<0.01	<10	<10	2	<10	4380		>20.0	3980	>1500		69.43	
H248929		<0.01	<10	10	1	<10	5050	1.600	>20.0	4010	>1500		73.77	
H248930		<0.01	<10	<10	5	<10	28							0.002
H248931		<0.01	<10	<10	78	<10	75							0.001
H248932		<0.01	<10	10	9	<10	2700							<0.001
H248933		<0.01	<10	<10	25	<10	15							<0.001
H248934		<0.01	<10	<10	4	<10	20							
H248935		<0.01	<10	<10	2	10	>10000					1.150		





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Finalized Date: 3-SEP-2009  
Account: ROCKHA

## CERTIFICATE VA09081269

Project: GROUNDHOG

P.O. No.:

This report is for 9 Rock samples submitted to our lab in Vancouver, BC, Canada on 17-AUG-2009.

The following have access to data associated with this certificate:

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE
Ag-OG46	Ore Grade Ag - Aqua Regia	VARIABLE
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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## CERTIFICATE OF ANALYSIS VA09081269

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ge ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	0.01	10	
C385152		0.38	<0.2	1.20	495	<10	100	2.0	12	0.15	2.9	31	6	776	41.1	20
C385153		0.22	<0.2	0.28	818	<10	120	<0.5	<2	0.13	4.5	6	4	48	7.44	<10
C385154		0.34	0.2	0.70	809	<10	70	0.8	9	0.09	2.0	14	39	661	29.1	10
C385155		0.10	<0.2	2.44	1075	<10	260	3.4	12	0.36	6.7	102	4	403	43.1	20
C385156		0.16	<0.2	17.60	9300	<10	280	5.7	9	1.04	5.3	9	251	283	3.44	30
C385157		0.52	<0.2	0.95	1935	<10	70	2.3	16	0.31	8.0	97	<1	380	40.7	10
C385158		0.26	<0.2	17.55	8170	<10	480	4.2	7	1.10	7.6	8	348	286	4.74	80
C385159		0.50	1.7	0.71	548	<10	120	2.1	5	0.10	1.7	24	6	428	20.1	10
C385160		0.12	>100	0.15	5880	<10	50	<0.5	12	0.07	80.0	<1	<1	2240	33.9	20



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Account: ROCKHA

Project: GROUNDHOG

<b>CERTIFICATE OF ANALYSIS VA09081269</b>
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Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
		ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
		1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
C385152		1	0.07	<10	0.13	365	1	<0.01	338	490	14	0.09	31	2	17	<20
C385153		<1	0.08	10	0.07	104	1	<0.01	78	100	10	0.01	13	<1	2	<20
C385154		1	0.04	<10	0.08	188	45	<0.01	159	990	11	0.04	49	1	<1	<20
C385155		<1	0.08	10	0.26	654	8	<0.01	1120	800	3	0.01	61	3	5	<20
C385156		2	0.04	<10	0.20	53	2	<0.01	442	8510	6	0.05	379	16	14	<20
C385157		1	0.04	10	0.21	602	5	<0.01	786	450	24	0.01	108	1	5	<20
C385158		1	0.02	<10	0.22	88	2	<0.01	550	8480	2	0.03	416	49	20	<20
C385159		<1	0.04	<10	0.07	408	28	<0.01	384	1610	103	0.07	158	2	20	<20
C385160		3	0.02	<10	0.02	<5	77	<0.01	3	2020	>10000	0.77	2230	1	<1	<20



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## CERTIFICATE OF ANALYSIS VA09081269

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46	Ag-OG46	Au-ICP21
		Ti %	Ti ppm	U ppm	V ppm	W ppm	Zn ppm	Pb %	Ag ppm	Au ppm
		0.01	10	10	1	10	2	0.001	1	0.001
C385152		<0.01	<10	10	54	10	1350			0.011
C385153		<0.01	<10	<10	11	<10	898			0.040
C385154		<0.01	<10	10	223	<10	359			0.037
C385155		<0.01	<10	10	44	10	2940			0.013
C385156		<0.01	<10	60	522	<10	627			0.002
C385157		<0.01	<10	10	37	10	2350			0.019
C385158		<0.01	<10	50	420	<10	665			0.002
C385159		<0.01	<10	20	26	10	1090			0.002
C385160		<0.01	<10	10	7	20	7510	14.90	486	1.805



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Page: 1  
Finalized Date: 23-AUG-2009  
Account: ROCKHA

## CERTIFICATE VA09076288

Project: GROUNDHOG  
P.O. No.:  
This report is for 32 Soil samples submitted to our lab in Vancouver, BC, Canada on 27-JUL-2009.  
The following have access to data associated with this certificate:  
JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:   
Colin Ramshaw, Vancouver Laboratory Manager



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Project: GROUNDHOG

Page: 2 - A

Total # pages: 2 (A - C)

Finalized Date: 23-AUG-2009

Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09076288

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	0.01	10	
CC57203		0.22	0.8	0.94	35	<10	60	<0.5	<2	3.40	2.7	11	20	47	3.86	<10
CC57204		0.34	0.4	1.18	18	<10	70	<0.5	<2	3.54	2.7	12	23	29	2.90	<10
CC57205		0.34	0.5	1.06	33	<10	110	<0.5	<2	5.91	4.6	23	23	32	3.54	<10
CC57206		0.34	0.3	1.17	22	<10	110	<0.5	<2	2.81	3.4	12	30	35	2.88	<10
CC57207		0.24	0.3	1.33	23	<10	120	<0.5	<2	4.07	3.4	11	30	37	2.71	<10
CC57208		0.24	<0.2	1.22	22	<10	130	<0.5	<2	2.74	3.5	15	20	43	3.22	<10
CC57209		0.34	0.3	1.11	24	<10	60	<0.5	<2	4.18	1.7	12	22	33	3.38	<10
CC57210		0.28	0.5	1.46	24	<10	80	<0.5	<2	0.97	1.0	15	32	36	3.35	<10
CC57211		0.22	0.3	1.23	38	<10	60	<0.5	<2	0.52	1.2	14	25	45	4.19	<10
CC57212		0.20	0.7	0.69	50	<10	70	<0.5	<2	3.99	3.4	11	18	50	3.36	<10
CC57213		0.22	1.4	1.25	40	<10	90	0.5	<2	3.18	1.6	14	31	48	3.56	<10
CC57214		0.24	0.7	1.12	38	<10	90	<0.5	2	2.93	1.5	12	34	41	3.39	<10
CC57215		0.26	1.2	0.60	41	<10	60	<0.5	<2	4.29	3.5	10	19	52	3.11	<10
CC57216		0.24	2.1	0.61	58	<10	190	<0.5	<2	3.37	3.7	14	15	90	3.86	<10
CC57217		0.24	1.4	0.62	41	<10	80	<0.5	<2	4.77	3.9	9	21	47	2.95	<10
CC57218		0.34	3.1	0.70	54	<10	100	<0.5	<2	4.51	3.8	12	16	66	3.70	<10
CC57219		0.22	0.5	1.27	35	<10	120	0.5	<2	2.21	2.7	11	40	41	3.07	<10
CC57220		0.28	1.1	0.67	52	<10	70	<0.5	<2	5.27	2.3	11	14	49	3.42	<10
CC57221		0.30	1.4	0.46	55	<10	70	<0.5	<2	6.12	2.8	9	11	45	3.02	<10
CC57222		0.22	0.7	1.05	39	<10	80	<0.5	<2	3.39	1.7	13	35	46	3.44	<10
CC57223		0.22	0.8	0.93	26	<10	70	<0.5	<2	3.89	0.9	11	20	39	2.98	<10
CC57224		0.26	1.4	0.64	30	<10	70	<0.5	<2	5.24	0.9	10	16	42	2.93	<10
CC57225		0.26	0.9	1.00	35	<10	70	<0.5	<2	2.98	2.3	11	25	44	3.30	<10
CC57226		0.20	0.8	0.98	45	<10	80	<0.5	<2	5.52	1.7	14	21	53	3.67	<10
CC57227		0.28	1.1	0.71	41	<10	100	<0.5	<2	6.27	2.5	11	18	48	3.13	<10
CC57228		0.24	1.5	0.57	47	<10	60	<0.5	<2	6.24	3.6	11	14	49	3.28	<10
CC57229		0.26	1.1	0.47	50	<10	50	<0.5	<2	3.75	3.2	11	12	57	3.11	<10
CC57230		0.22	1.5	1.58	35	<10	100	<0.5	2	0.52	2.0	14	32	46	4.13	10
CC57231		0.26	1.4	0.69	46	<10	90	<0.5	<2	5.70	3.3	12	19	52	3.46	<10
CC57232		0.20	0.9	0.97	38	<10	90	<0.5	2	0.66	2.0	12	24	40	3.19	<10
CC57233		0.26	1.2	1.05	33	<10	140	<0.5	<2	4.47	3.2	13	41	43	3.28	<10
CC57234		0.24	1.1	0.94	39	<10	80	<0.5	<2	2.40	2.9	11	22	50	3.35	<10



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Page: 2 - B

Total # pages: 2 (A - C)

Finalized Date: 23-AUG-2009

Account: ROCKHA

Project: GROUNDHOG

## CERTIFICATE OF ANALYSIS VA09076288

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm
CC57203		<1	0.02	20	1.19	468	5	0.02	42	900	225	0.37	3	2	78	<20
CC57204		<1	0.02	20	1.53	287	2	0.01	36	860	89	0.41	2	3	88	<20
CC57205		<1	0.03	20	1.26	2830	1	0.02	65	850	138	0.09	<2	2	93	<20
CC57206		<1	0.03	10	1.66	229	5	0.02	43	1010	90	1.15	3	3	65	<20
CC57207		<1	0.03	20	1.61	251	2	0.01	41	900	69	0.83	2	3	112	<20
CC57208		<1	0.03	20	1.59	1425	1	0.02	39	870	83	0.11	3	3	53	<20
CC57209		<1	0.03	20	1.94	403	1	0.02	32	800	81	0.05	<2	3	88	<20
CC57210		<1	0.04	20	1.32	252	1	0.01	43	880	119	0.10	<2	4	23	<20
CC57211		1	0.03	30	0.94	1140	3	0.01	51	980	131	0.02	3	3	22	<20
CC57212		<1	0.03	20	2.58	802	3	0.01	45	890	204	0.03	3	2	44	<20
CC57213		<1	0.05	30	2.39	623	3	0.02	51	910	461	0.03	3	3	47	<20
CC57214		<1	0.04	20	2.15	589	2	0.02	42	900	171	0.03	4	3	33	<20
CC57215		<1	0.03	20	2.71	619	3	0.01	46	1060	431	0.03	5	2	43	<20
CC57216		<1	0.04	20	2.13	632	4	0.01	63	1100	924	0.04	8	2	37	<20
CC57217		<1	0.03	20	2.90	592	2	0.01	39	890	442	0.04	5	2	55	<20
CC57218		<1	0.03	20	2.86	807	3	0.01	43	990	1320	0.03	7	2	48	<20
CC57219		<1	0.03	10	1.74	178	7	0.02	46	1020	153	1.29	4	4	52	<20
CC57220		<1	0.02	20	3.52	788	5	0.02	40	940	317	0.02	7	2	46	<20
CC57221		<1	0.02	20	4.05	686	4	0.01	39	990	442	0.03	6	2	57	<20
CC57222		<1	0.04	20	2.33	637	4	0.01	47	900	190	0.02	4	3	44	<20
CC57223		<1	0.03	20	2.35	572	3	0.02	33	780	189	0.05	2	2	62	<20
CC57224		<1	0.02	10	3.34	815	3	0.02	34	850	210	0.04	3	2	66	<20
CC57225		<1	0.03	20	2.16	629	3	0.02	38	860	175	0.03	3	3	37	<20
CC57226		<1	0.03	20	3.92	871	4	0.01	42	790	182	0.03	5	3	47	<20
CC57227		<1	0.03	10	4.30	1040	3	0.02	37	770	259	0.04	3	2	61	<20
CC57228		<1	0.02	10	4.18	793	4	0.02	36	850	336	0.03	6	2	64	<20
CC57229		<1	0.03	20	2.32	536	3	0.01	39	1040	473	0.02	6	2	42	<20
CC57230		1	0.03	30	1.18	870	2	0.01	49	880	805	0.02	3	3	15	<20
CC57231		1	0.03	20	3.79	824	3	0.01	40	720	393	0.03	4	2	45	<20
CC57232		1	0.04	30	0.73	583	4	0.01	47	1030	188	0.02	4	3	20	<20
CC57233		<1	0.09	20	3.36	793	2	0.02	49	1070	370	0.03	3	4	51	<20
CC57234		<1	0.03	20	1.74	509	3	0.01	42	900	308	0.02	5	2	35	<20



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Project: GROUNDHOG

Page: 2 - C  
Total # Pages: 2 (A - C)  
Finalized Date: 23-AUG-2009  
Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09076288

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Au-ICP21
		Ti %	Ti ppm	U ppm	V ppm	W ppm	Zn ppm	Au ppm
		0.01	10	10	1	10	2	0.001
CC57203		0.01	<10	<10	19	<10	392	0.002
CC57204		0.01	<10	<10	19	<10	292	0.002
CC57205		0.02	<10	<10	24	<10	525	0.002
CC57206		0.03	<10	<10	29	<10	339	0.004
CC57207		0.03	<10	<10	28	<10	317	0.002
CC57208		0.02	<10	<10	26	<10	238	0.002
CC57209		0.02	<10	<10	20	<10	250	0.002
CC57210		0.03	<10	<10	28	<10	222	0.002
CC57211		0.01	<10	<10	22	<10	382	0.004
CC57212		0.01	<10	<10	16	<10	583	0.007
CC57213		0.03	<10	<10	29	<10	379	0.003
CC57214		0.02	<10	<10	26	<10	308	0.004
CC57215		0.01	<10	<10	19	<10	532	0.004
CC57216		0.01	<10	<10	22	<10	837	0.008
CC57217		0.01	<10	<10	18	<10	804	0.003
CC57218		0.01	<10	<10	22	<10	1220	0.005
CC57219		0.05	<10	<10	37	<10	329	0.003
CC57220		0.01	<10	<10	19	<10	532	0.006
CC57221		0.01	<10	<10	16	<10	649	0.006
CC57222		0.02	<10	<10	24	<10	379	0.004
CC57223		0.01	<10	<10	21	<10	286	0.003
CC57224		0.01	<10	<10	17	<10	310	0.001
CC57225		0.01	<10	<10	24	<10	373	0.003
CC57226		0.02	<10	<10	23	<10	370	0.005
CC57227		0.01	<10	<10	20	<10	397	0.004
CC57228		0.01	<10	<10	17	<10	618	0.006
CC57229		<0.01	<10	<10	16	<10	790	0.008
CC57230		0.01	<10	<10	27	<10	373	0.003
CC57231		0.01	<10	<10	18	<10	498	0.007
CC57232		0.02	<10	<10	25	<10	304	0.007
CC57233		0.07	<10	<10	40	<10	411	0.004
CC57234		0.01	<10	<10	25	<10	506	0.005





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Page: 1  
Finalized Date: 15-AUG-2009  
Account: ROCKHA

## CERTIFICATE VA09075483

Project: Groundhog

P.O. No.:

This report is for 96 Soil samples submitted to our lab in Vancouver, BC, Canada on 21-JUL-2009.

The following have access to data associated with this certificate:

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Page: 2 - A  
Total # Pages: 4 (A - C)  
Finalized Date: 15-AUG-2009  
Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075483

Sample Description	Method Analyte Units LOR	WEI-21	Au-ICP21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
		0.02	0.001	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01
CC57107		0.24	0.198	3.9	0.50	29	<10	90	<0.5	<2	11.00	1.8	5	12	23	2.63
CC57108		0.26	0.005	1.2	0.53	19	<10	100	<0.5	<2	9.97	1.2	5	11	19	2.50
CC57109		0.28	0.006	1.1	0.47	15	<10	90	<0.5	<2	10.95	1.6	4	9	17	2.59
CC57110		0.30	0.005	1.4	0.67	12	<10	100	<0.5	<2	8.84	1.5	5	15	19	2.85
CC57111		0.22	0.005	0.9	0.87	15	<10	120	<0.5	<2	6.48	2.0	5	18	17	2.95
CC57112		0.26	0.006	1.9	0.86	23	<10	110	<0.5	<2	5.89	2.9	5	17	21	2.92
CC57113		0.22	0.007	1.3	0.67	10	<10	100	<0.5	<2	8.83	1.0	5	14	15	2.29
CC57114		0.32	0.005	2.3	0.49	20	<10	90	<0.5	<2	11.50	2.8	4	10	20	2.32
CC57115		0.20	0.005	0.8	0.80	11	<10	130	<0.5	<2	7.18	1.1	5	17	14	2.48
CC57116		0.24	0.005	0.5	0.91	11	<10	120	<0.5	<2	5.50	1.3	6	19	16	2.55
CC57117		0.26	0.005	0.5	0.99	11	<10	130	<0.5	<2	4.49	0.9	7	21	17	2.68
CC57118		0.24	0.011	12.4	0.57	49	<10	80	<0.5	<2	9.28	47.2	6	13	94	2.90
CC57119		0.20	0.005	0.8	0.85	12	<10	130	<0.5	<2	6.35	2.1	6	19	18	2.43
CC57120		0.22	0.004	0.6	0.89	12	<10	130	<0.5	<2	5.42	2.3	6	19	16	2.39
CC57121		0.22	0.004	0.8	0.88	18	<10	130	<0.5	<2	5.64	2.1	5	21	16	2.50
CC57122		0.20	0.005	0.4	0.93	12	<10	130	<0.5	<2	4.11	1.3	5	22	15	2.41
CC57123		0.20	0.004	0.6	0.92	12	<10	130	<0.5	<2	4.72	2.6	5	24	15	2.62
CC57124		0.22	0.005	0.9	0.92	12	<10	110	<0.5	<2	4.10	10.4	6	24	22	2.58
CC57125		0.28	0.009	1.8	0.42	46	<10	90	<0.5	<2	11.65	2.7	3	17	22	2.78
CC57126		0.18	0.005	1.2	0.59	22	<10	110	<0.5	<2	9.38	1.9	3	16	18	2.73
CC57127		0.22	0.006	1.3	0.51	24	<10	90	<0.5	<2	10.65	2.8	3	18	18	2.57
CC57128		0.28	0.009	1.8	0.28	58	<10	80	<0.5	<2	12.95	3.1	2	20	29	2.75
CC57129		0.26	0.010	2.7	0.48	56	<10	80	<0.5	<2	10.55	5.2	3	11	33	3.01
CC57130		0.18	0.012	4.2	0.35	76	<10	70	<0.5	<2	12.10	8.8	2	15	50	2.94
CC57131		0.20	0.007	0.5	0.46	38	<10	80	<0.5	<2	8.53	0.9	5	10	17	1.96
CC57132		0.22	0.015	0.9	0.09	67	<10	130	<0.5	<2	15.2	1.0	6	5	18	5.47
CC57133		0.20	0.015	0.8	0.84	66	<10	110	0.5	<2	1.75	1.5	7	18	31	3.87
CC57134		0.20	0.017	2.7	0.49	82	<10	70	<0.5	<2	4.57	6.2	8	13	53	3.02
CC57135		0.20	0.227	16.7	0.19	783	<10	90	<0.5	3	10.65	95.2	13	5	268	7.70
CC57136		0.12	0.009	0.9	0.43	96	<10	160	<0.5	<2	0.06	0.6	5	8	50	2.85
CC57137		0.14	0.006	0.9	0.42	64	<10	120	<0.5	<2	0.08	<0.5	3	9	25	2.13
CC57138		0.16	0.006	0.5	0.67	62	<10	60	<0.5	<2	0.06	<0.5	6	15	61	4.43
CC57139		0.20	0.008	0.5	0.72	78	<10	60	<0.5	<2	0.06	<0.5	7	15	50	3.80
CC57140		0.16	0.006	0.2	0.68	34	<10	90	<0.5	<2	0.06	<0.5	3	16	15	2.01
CC57141		0.14	0.011	0.6	0.60	50	<10	80	<0.5	<2	6.65	<0.5	5	16	21	2.22
CC57142		0.18	0.012	0.7	0.33	83	<10	40	<0.5	<2	10.90	<0.5	4	8	13	1.69
CC57143		0.18	0.004	0.4	0.25	21	<10	30	<0.5	<2	13.05	0.6	2	7	8	1.23
CC57144		0.16	0.007	0.6	0.40	34	<10	60	<0.5	<2	8.41	0.5	6	11	15	2.32
CC57145		0.20	0.008	0.6	0.28	50	<10	40	<0.5	<2	10.20	<0.5	5	7	17	2.39
CC57146		0.14	0.009	0.3	0.68	35	<10	60	<0.5	<2	7.48	<0.5	7	14	15	2.20



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 Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075483

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm
CC57107		<10	1	0.03	10	7.07	962	<1	0.02	13	360	751	0.04	10	1	100
CC57108		<10	<1	0.03	10	6.46	758	1	0.02	15	460	124	0.04	3	2	99
CC57109		<10	<1	0.02	10	7.09	972	<1	0.02	10	330	155	0.04	4	1	105
CC57110		<10	<1	0.03	10	5.79	1010	<1	0.02	15	400	109	0.04	4	2	81
CC57111		<10	<1	0.04	10	3.92	1005	<1	0.02	18	520	132	0.05	3	2	58
CC57112		<10	<1	0.03	10	3.64	966	<1	0.02	18	560	330	0.05	8	2	53
CC57113		<10	1	0.03	10	5.85	757	<1	0.02	14	470	140	0.04	5	2	71
CC57114		<10	<1	0.03	10	7.56	901	1	0.03	11	370	469	0.04	6	1	102
CC57115		<10	<1	0.04	10	4.50	861	<1	0.02	16	630	72	0.06	<2	2	55
CC57116		<10	<1	0.04	10	3.37	830	<1	0.02	17	610	51	0.05	<2	2	47
CC57117		<10	<1	0.04	10	2.82	757	<1	0.02	20	630	49	0.04	4	2	42
CC57118		<10	1	0.03	10	5.97	976	1	0.02	19	550	1115	0.09	41	1	98
CC57119		<10	<1	0.04	10	3.89	805	<1	0.03	18	660	89	0.05	3	2	59
CC57120		<10	<1	0.04	10	3.30	740	<1	0.02	19	720	74	0.05	<2	2	51
CC57121		<10	<1	0.04	10	3.45	817	1	0.02	21	630	139	0.04	<2	2	47
CC57122		<10	<1	0.04	10	2.59	685	1	0.02	21	600	63	0.03	<2	2	39
CC57123		<10	<1	0.03	10	2.90	834	1	0.02	21	620	40	0.03	<2	2	42
CC57124		<10	<1	0.03	10	2.53	714	1	0.02	21	640	138	0.03	2	2	43
CC57125		<10	<1	0.02	<10	7.35	1090	2	0.02	17	330	237	0.03	6	1	100
CC57126		<10	<1	0.03	10	5.86	1135	1	0.02	14	430	205	0.04	3	1	74
CC57127		<10	<1	0.03	10	6.72	1060	1	0.02	14	340	270	0.04	5	1	91
CC57128		<10	<1	0.02	<10	8.22	1220	1	0.02	15	190	310	0.04	12	1	117
CC57129		<10	1	0.02	<10	6.66	1130	1	0.02	14	320	586	0.06	5	1	99
CC57130		<10	<1	0.02	<10	7.69	1090	1	0.02	13	240	854	0.08	11	1	112
CC57131		<10	<1	0.02	10	5.47	706	2	0.02	24	640	80	0.03	6	1	50
CC57132		<10	<1	0.01	<10	8.97	3060	3	0.02	42	130	43	0.15	4	1	242
CC57133		<10	1	0.03	10	1.08	1015	5	0.01	40	840	121	0.04	7	2	21
CC57134		<10	1	0.03	10	2.69	746	4	0.01	41	920	589	0.04	10	2	45
CC57135		<10	1	0.02	<10	6.65	1950	8	0.01	54	330	5420	0.59	42	1	157
CC57136		<10	<1	0.08	20	0.04	79	30	0.01	34	1470	67	0.13	9	1	31
CC57137		<10	<1	0.08	20	0.07	105	25	0.01	19	1090	54	0.12	8	1	22
CC57138		<10	<1	0.03	20	0.14	136	10	<0.01	48	1920	33	0.04	7	1	22
CC57139		<10	<1	0.03	20	0.16	162	10	<0.01	42	1230	30	0.03	10	1	17
CC57140		<10	1	0.03	10	0.08	186	4	<0.01	20	1050	25	0.05	2	<1	12
CC57141		<10	<1	0.03	10	4.11	330	4	0.02	26	950	31	0.05	2	2	43
CC57142		<10	<1	0.02	10	7.01	519	1	0.02	19	510	70	0.03	<2	1	53
CC57143		<10	<1	0.02	<10	8.54	472	1	0.02	10	520	82	0.04	<2	1	63
CC57144		<10	<1	0.03	10	5.20	668	2	0.01	25	680	60	0.06	2	1	41
CC57145		<10	<1	0.02	10	6.25	630	6	0.02	24	510	40	0.02	2	1	44
CC57146		<10	<1	0.03	10	4.83	694	1	0.01	23	920	28	0.05	<2	1	39



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Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075483

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Zn-OG46
		Th	Ti	Ti	U	V	W	Zn	Zn
		ppm	%	ppm	ppm	ppm	ppm	ppm	%
		20	0.01	10	10	1	10	2	0.001
CC57107		<20	0.02	<10	<10	17	<10	479	
CC57108		<20	0.03	<10	<10	19	<10	339	
CC57109		<20	0.02	<10	<10	16	<10	430	
CC57110		<20	0.03	<10	<10	21	<10	302	
CC57111		<20	0.03	<10	<10	27	<10	360	
CC57112		<20	0.03	<10	<10	27	<10	582	
CC57113		<20	0.03	<10	<10	23	<10	223	
CC57114		<20	0.02	<10	<10	17	<10	768	
CC57115		<20	0.03	<10	<10	26	<10	223	
CC57116		<20	0.03	<10	<10	29	<10	203	
CC57117		<20	0.04	<10	<10	31	<10	180	
CC57118		<20	0.02	<10	<10	19	<10	7590	
CC57119		<20	0.03	<10	<10	28	<10	395	
CC57120		<20	0.04	<10	<10	29	<10	338	
CC57121		<20	0.04	<10	<10	29	<10	385	
CC57122		<20	0.04	<10	<10	31	<10	233	
CC57123		<20	0.04	<10	<10	30	<10	528	
CC57124		<20	0.04	<10	<10	31	<10	1815	
CC57125		<20	0.02	<10	<10	14	<10	639	
CC57126		<20	0.02	<10	<10	19	<10	398	
CC57127		<20	0.02	<10	<10	16	<10	614	
CC57128		<20	0.01	<10	<10	11	<10	750	
CC57129		<20	0.02	<10	<10	15	<10	1335	
CC57130		<20	0.02	<10	<10	12	<10	1800	
CC57131		<20	0.01	<10	<10	16	<10	200	
CC57132		<20	<0.01	<10	<10	16	<10	366	
CC57133		<20	0.02	<10	<10	29	<10	417	
CC57134		<20	0.02	<10	<10	24	<10	760	
CC57135		<20	0.01	<10	<10	16	20	>10000	1.385
CC57136		<20	<0.01	<10	<10	33	<10	126	
CC57137		<20	0.01	<10	<10	31	<10	61	
CC57138		<20	0.01	<10	<10	29	<10	214	
CC57139		<20	0.02	<10	<10	27	<10	152	
CC57140		<20	0.01	<10	<10	27	<10	81	
CC57141		<20	0.02	<10	<10	25	<10	85	
CC57142		<20	0.01	<10	<10	13	<10	109	
CC57143		<20	0.01	<10	<10	13	<10	98	
CC57144		<20	0.01	<10	<10	15	<10	96	
CC57145		<20	0.01	<10	<10	16	<10	60	
CC57146		<20	0.02	<10	<10	24	<10	96	



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Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075483

Sample Description	Method Analyte Units LOR	WEI-21	Au-ICP21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
CC57147		0.30	0.007	0.5	0.24	38	<10	650	<0.5	<2	10.80	<0.5	3	5	16	1.60
CC57148		0.22	0.004	0.2	1.91	78	<10	90	0.6	<2	0.59	0.5	22	29	29	4.45
CC57149		0.10	0.007	0.6	0.55	39	<10	140	0.6	<2	7.67	2.6	5	13	18	5.50
CC57150		0.18	0.007	0.6	0.85	27	<10	190	<0.5	<2	5.13	0.5	6	19	14	2.56
CC57151		0.20	0.007	0.5	0.70	43	<10	80	<0.5	<2	8.84	<0.5	4	14	14	2.51
CC57152		0.18	0.005	0.6	0.34	28	<10	50	<0.5	<2	10.25	<0.5	2	7	9	1.45
CC57153		0.18	0.018	1.1	1.04	50	<10	130	0.6	<2	3.47	0.9	7	21	24	4.31
CC57154		0.20	0.006	0.3	0.50	26	<10	60	<0.5	<2	9.27	0.5	4	14	13	1.83
CC57155		0.18	0.016	1.0	0.49	77	<10	130	<0.5	<2	7.69	1.2	5	10	24	3.09
CC57156		0.18	0.011	0.5	0.43	33	<10	80	<0.5	<2	10.15	0.5	3	8	11	3.05
CC57157		0.16	0.012	0.5	0.48	36	<10	80	<0.5	<2	10.00	0.5	3	14	15	3.26
CC57158		0.22	0.020	0.8	0.30	56	<10	40	<0.5	<2	9.99	<0.5	4	11	11	2.33
CC57159		0.30	0.013	0.8	0.15	32	<10	30	<0.5	<2	12.95	0.5	2	7	9	1.31
CC57160		0.20	0.019	0.5	0.45	26	<10	50	<0.5	<2	10.60	<0.5	3	14	12	1.48
CC57161		0.26	0.011	0.5	0.36	19	<10	40	<0.5	<2	13.3	<0.5	2	13	7	1.22
CC57162		0.22	0.004	0.2	0.26	19	<10	30	<0.5	<2	11.20	<0.5	2	8	4	1.20
CC57163		0.32	0.017	0.2	0.16	26	<10	20	<0.5	<2	13.2	<0.5	1	6	6	1.05
CC57164		0.18	0.019	0.5	0.21	29	<10	30	<0.5	<2	12.95	1.6	1	8	7	1.07
CC57165		0.22	0.090	0.6	0.49	140	<10	50	<0.5	<2	9.04	1.6	4	13	11	1.65
CC57166		0.26	0.018	0.7	0.27	64	<10	50	<0.5	<2	12.15	0.8	4	9	10	2.19
CC57167		0.18	0.040	1.8	1.17	107	<10	240	0.6	<2	2.58	5.8	6	25	27	6.24
CC57168		0.24	0.007	1.1	0.66	103	<10	110	0.5	2	1.60	0.8	9	17	52	4.45
CC57169		0.08	0.003	<0.2	0.44	4	<10	40	<0.5	<2	0.27	<0.5	2	7	8	0.60
CC57170		0.24	0.010	0.8	0.20	88	<10	90	<0.5	<2	0.05	<0.5	2	9	25	1.59
CC57171		0.24	0.004	0.5	0.44	143	<10	70	<0.5	<2	0.03	0.6	13	14	86	5.15
CC57172		0.22	0.009	1.5	0.54	60	<10	100	<0.5	<2	0.31	1.5	11	14	44	3.52
CC57173		0.26	0.013	1.0	0.52	86	<10	70	<0.5	<2	0.57	1.0	9	11	44	3.35
CC57174		0.24	0.007	0.8	0.34	21	<10	70	<0.5	<2	0.14	0.9	13	15	65	3.26
CC57175		0.20	0.008	1.3	0.29	50	<10	90	<0.5	<2	0.92	1.3	8	14	60	3.35
CC57176		0.22	0.006	0.9	0.38	40	<10	60	<0.5	<2	7.14	0.5	8	13	33	3.00
CC57177		0.14	0.004	0.8	0.31	48	<10	50	<0.5	<2	10.60	<0.5	4	10	25	2.29
CC57178		0.22	0.019	1.2	0.34	98	<10	40	<0.5	<2	4.13	1.3	6	9	28	2.34
CC57179		0.20	0.004	1.1	0.40	37	<10	50	<0.5	<2	9.10	0.8	6	10	22	1.92
CC57180		0.16	<0.001	0.8	0.49	19	<10	60	<0.5	<2	4.62	0.8	5	10	19	1.53
CC57181		0.22	0.001	1.1	0.31	31	<10	40	<0.5	<2	9.25	<0.5	5	9	20	2.04
CC57182		0.20	0.004	1.4	0.67	95	<10	70	0.5	<2	5.36	<0.5	13	14	34	3.58
CC57183		0.16	0.001	5.2	0.84	46	<10	80	0.6	<2	2.85	1.2	10	18	16	4.25
CC57184		0.24	0.004	2.4	0.93	37	<10	90	0.5	<2	0.34	0.9	6	17	26	3.13
CC57185		0.18	0.004	0.9	0.95	43	<10	150	0.6	<2	0.41	0.7	9	15	42	3.93
CC57186		0.18	0.003	0.2	0.69	50	<10	60	<0.5	<2	0.13	0.6	10	13	34	3.58



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Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr
		ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
CC57147		<10	<1	0.01	<10	6.88	414	2	0.02	13	340	64	0.05	3	1	81
CC57148		<10	1	0.03	20	1.19	1220	1	0.01	42	800	78	0.05	2	3	20
CC57149		<10	<1	0.02	10	4.78	3280	1	0.02	16	1000	53	0.06	3	1	41
CC57150		<10	1	0.04	10	3.04	1000	1	0.02	20	780	66	0.04	<2	2	39
CC57151		<10	<1	0.02	10	5.81	1110	1	0.02	15	550	37	0.03	2	1	49
CC57152		<10	<1	0.02	<10	6.54	700	1	0.03	7	410	231	0.03	5	1	57
CC57153		<10	1	0.03	20	2.12	2130	2	0.02	27	860	134	0.05	6	2	22
CC57154		<10	<1	0.03	10	5.95	599	1	0.02	15	460	22	0.02	<2	1	74
CC57155		<10	<1	0.04	10	4.79	1165	5	0.02	37	880	72	0.06	4	1	65
CC57156		<10	<1	0.02	10	6.52	1615	1	0.02	11	560	77	0.04	<2	1	41
CC57157		<10	<1	0.02	10	6.37	1835	1	0.03	14	440	107	0.02	<2	1	40
CC57158		<10	<1	0.02	10	6.35	908	1	0.01	17	280	119	0.02	<2	1	45
CC57159		<10	<1	0.01	<10	8.40	558	1	0.01	9	310	144	0.02	2	1	55
CC57160		<10	<1	0.03	10	6.96	589	1	0.02	16	380	89	0.02	2	1	52
CC57161		<10	<1	0.02	10	8.34	582	1	0.02	11	380	66	0.02	<2	1	60
CC57162		<10	<1	0.01	10	7.22	614	1	0.02	10	350	27	0.02	<2	1	49
CC57163		<10	<1	0.01	10	8.26	403	1	0.01	8	280	20	<0.01	2	1	56
CC57164		<10	<1	0.01	<10	8.55	480	1	0.02	9	390	90	0.02	2	1	52
CC57165		<10	<1	0.03	10	5.67	639	1	0.02	15	620	79	0.03	2	1	42
CC57166		<10	1	0.01	10	7.93	841	1	0.02	23	250	99	0.01	<2	1	72
CC57167		<10	<1	0.03	20	1.48	2790	3	0.01	28	1090	512	0.07	4	2	46
CC57168		<10	<1	0.03	20	0.90	618	5	0.01	61	720	105	0.02	5	2	21
CC57169		<10	<1	0.02	<10	0.09	114	<1	0.05	7	440	3	0.03	<2	<1	11
CC57170		<10	<1	0.05	20	0.04	85	16	<0.01	22	780	33	0.08	9	<1	31
CC57171		<10	1	0.03	20	0.07	437	15	<0.01	69	1620	65	0.05	10	1	21
CC57172		<10	<1	0.03	20	0.22	686	5	<0.01	54	1110	101	0.01	5	2	21
CC57173		<10	<1	0.03	20	0.31	389	4	<0.01	47	1050	90	0.02	6	1	21
CC57174		<10	1	0.03	30	0.08	243	5	<0.01	64	1090	27	0.01	4	1	21
CC57175		<10	<1	0.02	10	0.33	344	5	0.01	63	1080	143	0.05	4	1	23
CC57176		<10	<1	0.02	10	4.54	833	2	0.01	33	800	39	0.02	4	1	43
CC57177		<10	<1	0.02	10	6.81	899	1	0.02	14	700	17	0.04	5	1	60
CC57178		<10	<1	0.02	10	2.38	530	3	<0.01	28	650	241	0.02	8	1	27
CC57179		<10	<1	0.02	10	5.76	703	1	0.02	22	750	117	0.02	3	1	57
CC57180		<10	<1	0.03	10	2.51	907	1	0.03	15	710	91	0.05	3	1	30
CC57181		<10	<1	0.02	10	5.89	1260	2	0.01	19	640	81	0.02	3	1	50
CC57182		<10	<1	0.03	10	3.34	1390	3	0.01	37	1220	127	0.04	6	3	39
CC57183		<10	<1	0.03	20	1.60	2200	3	0.01	30	1060	875	0.04	4	2	24
CC57184		<10	<1	0.04	20	0.35	336	4	0.01	33	820	344	0.01	4	2	13
CC57185		<10	1	0.04	20	0.37	467	7	0.01	47	1540	64	0.03	3	2	18
CC57186		<10	<1	0.02	20	0.28	674	9	0.01	46	720	116	0.01	5	1	7



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Total # Pages: 4 (A - C)

Finalized Date: 15-AUG-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075483

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Zn-OG46
		Th	Ti	Tl	U	V	W	Zn	Zn
		ppm	%	ppm	ppm	ppm	ppm	ppm	%
		20	0.01	10	10	1	10	2	0.001
CC57147		<20	0.01	<10	<10	8	<10	152	
CC57148		<20	0.01	<10	<10	21	<10	159	
CC57149		<20	0.01	<10	<10	25	<10	462	
CC57150		<20	0.03	<10	<10	26	<10	151	
CC57151		<20	0.02	<10	<10	24	<10	106	
CC57152		<20	0.01	<10	<10	11	<10	62	
CC57153		<20	0.03	<10	<10	33	<10	195	
CC57154		<20	0.03	<10	<10	20	<10	185	
CC57155		<20	0.01	<10	<10	21	<10	287	
CC57156		<20	0.02	<10	<10	14	<10	113	
CC57157		<20	0.02	<10	<10	16	<10	120	
CC57158		<20	0.01	<10	<10	11	<10	67	
CC57159		<20	0.01	<10	<10	8	<10	166	
CC57160		<20	0.02	<10	<10	17	<10	101	
CC57161		<20	0.01	<10	<10	12	<10	84	
CC57162		<20	0.01	<10	<10	8	<10	53	
CC57163		<20	0.01	<10	<10	9	<10	44	
CC57164		<20	0.01	<10	<10	8	<10	180	
CC57165		<20	0.01	<10	<10	16	<10	233	
CC57166		<20	0.01	<10	<10	12	<10	232	
CC57167		<20	0.03	<10	<10	45	<10	1440	
CC57168		<20	0.01	<10	<10	26	<10	219	
CC57169		<20	0.03	<10	<10	15	<10	14	
CC57170		<20	<0.01	<10	<10	15	<10	46	
CC57171		<20	0.01	<10	<10	23	<10	192	
CC57172		<20	0.01	<10	<10	20	<10	266	
CC57173		<20	0.01	<10	<10	19	<10	250	
CC57174		<20	<0.01	<10	<10	13	<10	255	
CC57175		<20	<0.01	<10	<10	11	<10	298	
CC57176		<20	<0.01	<10	<10	17	<10	122	
CC57177		<20	<0.01	<10	<10	15	<10	69	
CC57178		<20	<0.01	<10	<10	11	<10	308	
CC57179		<20	0.01	<10	<10	14	<10	187	
CC57180		<20	0.01	<10	<10	13	<10	173	
CC57181		<20	0.01	<10	<10	13	<10	172	
CC57182		<20	0.01	<10	<10	22	<10	144	
CC57183		<20	0.01	<10	<10	28	<10	223	
CC57184		<20	0.02	<10	<10	28	<10	278	
CC57185		<20	0.01	<10	<10	32	<10	235	
CC57186		<20	0.01	<10	<10	25	<10	259	



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Total # Pages: 4 (A - C)

Finalized Date: 15-AUG-2009

Account: ROCKHA

Project: Groundhog

<b>CERTIFICATE OF ANALYSIS VA09075483</b>
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Sample Description	Method Analyte Units LOR	WEI-21	Au-ICP21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
		0.02	0.001	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01
CC57187		0.22	0.002	0.3	1.83	17	<10	50	0.7	<2	0.71	<0.5	22	40	45	4.15
CC57188		0.16	0.002	0.2	1.85	15	<10	40	0.6	<2	2.09	<0.5	19	87	36	3.98
CC57189		0.26	0.001	0.2	1.76	20	<10	40	0.6	<2	1.31	<0.5	18	66	36	3.85
CC57180		0.22	0.002	0.3	1.84	17	<10	40	0.6	<2	1.66	<0.5	18	67	35	4.03
CC57191		0.28	0.002	0.2	1.82	18	<10	30	0.5	<2	1.60	<0.5	16	66	34	3.93
CC57192		0.20	0.002	0.3	1.60	22	<10	40	0.5	<2	1.58	<0.5	17	52	35	3.73
CC57193		0.24	0.002	0.3	1.73	23	<10	40	0.6	<2	1.33	<0.5	18	59	38	4.07
CC57194		0.14	0.001	0.3	1.50	15	<10	40	0.5	<2	1.43	<0.5	14	60	35	3.29
CC57195		0.22	0.002	0.3	1.52	16	<10	40	0.5	<2	1.14	<0.5	15	56	33	3.37
CC57196		0.20	0.001	0.2	1.63	16	<10	40	0.5	<2	1.70	<0.5	16	108	33	3.63
CC57197		0.16	0.001	0.2	1.54	13	<10	40	0.5	<2	1.05	<0.5	15	54	30	3.50
CC57198		0.22	0.002	0.3	1.82	19	<10	40	0.6	2	1.04	<0.5	19	69	38	4.14
CC57199		0.22	0.002	0.2	1.86	18	<10	50	0.7	<2	0.66	<0.5	20	57	38	4.32
CC57200		0.20	<0.001	0.3	2.08	14	<10	40	0.7	<2	1.19	<0.5	20	79	37	4.56
CC57201		0.22	0.001	0.3	1.93	20	<10	50	0.6	<2	1.30	<0.5	19	82	38	4.30
CC57202		0.20	0.001	0.2	2.01	10	<10	40	0.6	<2	0.70	<0.5	15	72	33	4.01





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Total # Pages: 4 (A - C)

Finalized Date: 15-AUG-2009

Account: ROCKHA

Project: Groundhog

<b>CERTIFICATE OF ANALYSIS VA09075483</b>
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Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Ge	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr
	Units LOR	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
		10	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1
CC57187		10	<1	0.04	40	1.23	553	3	0.01	46	760	41	0.01	<2	3	31
CC57188		<10	1	0.04	40	1.30	569	3	0.01	53	770	23	0.03	<2	3	74
CC57189		<10	<1	0.04	40	1.19	504	3	0.01	50	780	19	0.01	<2	3	49
CC57190		10	1	0.04	40	1.31	579	3	0.01	49	770	19	0.01	<2	3	59
CC57191		10	<1	0.04	40	1.36	558	3	0.01	49	820	19	0.01	<2	3	57
CC57192		<10	<1	0.04	40	1.25	524	4	0.01	47	890	19	0.01	<2	3	55
CC57193		10	<1	0.04	40	1.22	694	2	0.01	51	800	22	0.02	2	3	49
CC57194		<10	<1	0.04	30	1.04	464	2	0.02	43	750	16	0.02	<2	2	53
CC57195		<10	<1	0.04	30	1.02	520	2	0.02	42	720	18	0.02	<2	2	43
CC57196		<10	<1	0.05	40	1.12	655	2	0.02	58	790	17	0.03	<2	3	62
CC57197		<10	<1	0.04	40	0.99	652	2	0.02	41	710	16	0.02	2	3	42
CC57198		<10	<1	0.04	40	1.22	663	2	0.01	52	780	21	0.01	3	3	41
CC57199		<10	<1	0.04	40	1.16	748	2	0.01	49	740	25	0.02	2	4	30
CC57200		<10	1	0.04	40	1.33	874	1	0.01	54	740	22	0.03	2	3	48
CC57201		<10	<1	0.04	40	1.28	784	3	0.01	56	790	22	0.02	2	3	52
CC57202		<10	<1	0.03	40	1.26	645	1	0.01	48	640	17	0.02	<2	3	34



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Total # Pages: 4 (A - C)

Finalized Date: 15-AUG-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075483

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Zn-OG46
		Th	Ti	Tl	U	V	W	Zn	Zn
		ppm	%	ppm	ppm	ppm	ppm	ppm	%
		20	0.01	10	10	1	10	2	0.001
CC57187		<20	0.01	<10	<10	19	<10	141	
CC57188		<20	<0.01	<10	<10	19	<10	110	
CC57189		<20	0.01	<10	<10	18	<10	103	
CC57190		<20	0.01	<10	<10	17	<10	103	
CC57191		<20	0.01	<10	<10	18	<10	107	
CC57192		<20	0.01	<10	<10	17	<10	110	
CC57193		<20	<0.01	<10	<10	18	<10	120	
CC57194		<20	0.01	<10	<10	16	<10	91	
CC57195		<20	0.01	<10	<10	16	<10	89	
CC57196		<20	0.01	<10	<10	18	<10	90	
CC57197		<20	0.01	<10	<10	15	<10	89	
CC57198		<20	0.01	<10	<10	19	<10	104	
CC57199		<20	<0.01	<10	<10	19	<10	112	
CC57200		<20	0.01	<10	<10	18	<10	110	
CC57201		<20	<0.01	<10	<10	18	<10	115	
CC57202		<20	0.01	<10	<10	17	<10	87	



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Page: 1  
Finalized Date: 20-AUG-2009  
Account: ROCKHA

## CERTIFICATE VA09077163

Project: GROUNDHOG

P.O. No.:

This report is for 27 Rock samples submitted to our lab in Vancouver, BC, Canada on 27-JUL-2009.

The following have access to data associated with this certificate:

JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
CRU-QC	Crushing QC Test
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Project: GROUNDHOG

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Total # Pages: 2 (A - C)

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Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09077163

Sample Description	Method Analyte Units LOR	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm
		0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	0.01	10	
H248876		2.26	<0.2	1.41	3	<10	130	<0.5	<2	11.85	<0.5	9	13	14	2.88	<10
H248877		2.96	23.3	0.16	19	<10	20	<0.5	<2	7.73	54.9	13	3	290	2.47	<10
H248878		1.28	0.2	0.83	5	<10	180	<0.5	2	9.52	<0.5	11	9	11	2.46	<10
H248879		2.08	<0.2	1.70	3	<10	190	<0.5	<2	9.56	<0.5	9	16	16	2.55	<10
H248880		1.18	0.2	1.11	16	<10	340	0.5	<2	5.74	1.2	14	15	25	2.82	<10
H248881		1.32	5.2	0.25	9	<10	230	<0.5	<2	10.25	32.0	12	3	82	2.10	<10
H248882		3.56	0.2	0.71	29	<10	240	<0.5	3	10.05	0.9	10	8	16	2.63	<10
H248883		0.90	1.6	0.49	90	<10	290	<0.5	<2	3.36	1.7	12	8	45	3.68	<10
H248884		1.30	0.2	0.29	28	<10	220	<0.5	<2	10.85	1.8	5	7	15	2.00	<10
H248885		1.22	<0.2	0.18	5	<10	90	<0.5	<2	14.00	<0.5	1	9	4	0.94	<10
H248886		1.68	<0.2	1.15	4	<10	240	<0.5	<2	7.78	<0.5	11	19	23	2.88	<10
H248887		2.38	6.0	0.13	13	<10	140	<0.5	<2	12.25	12.3	8	1	171	3.76	<10
H248888		1.08	2.2	0.89	5	<10	360	<0.5	<2	8.66	16.0	15	8	28	2.96	<10
H248889		3.16	13.9	0.33	11	<10	40	<0.5	<2	8.02	38.6	11	3	215	2.78	<10
H248890		0.34	0.8	0.84	17	<10	390	0.5	<2	5.38	1.2	17	11	26	2.86	<10
H248891		1.36	0.3	1.01	<2	<10	230	<0.5	<2	14.1	<0.5	7	11	13	2.22	<10
H248892		2.22	0.3	0.72	4	<10	430	<0.5	<2	11.85	<0.5	7	7	9	3.18	<10
H248893		1.64	0.4	0.62	6	<10	90	<0.5	<2	12.10	<0.5	7	7	10	2.03	<10
H248894		0.90	0.2	1.69	<2	<10	150	<0.5	<2	8.67	<0.5	8	15	16	2.88	<10
H248895		1.00	<0.2	0.79	5	<10	180	<0.5	<2	10.30	<0.5	8	8	13	2.58	<10
H248896		1.18	3.1	0.10	4	<10	60	<0.5	<2	9.16	19.4	6	2	132	3.96	<10
H248897		0.84	0.3	0.86	3	<10	330	<0.5	<2	8.73	<0.5	10	8	17	2.69	<10
H248898		0.86	<0.2	1.51	4	<10	230	<0.5	<2	9.16	<0.5	10	14	19	3.40	<10
H248899		3.08	<0.2	0.86	<2	<10	210	<0.5	<2	11.45	<0.5	8	8	12	2.37	<10
H248900		0.76	0.2	0.63	7	<10	390	<0.5	<2	12.00	<0.5	9	6	16	2.26	<10
H248901		1.80	3.4	0.19	6	<10	30	<0.5	<2	7.12	9.6	6	3	124	3.13	<10
H248902		1.76	0.4	0.72	<2	<10	250	<0.5	<2	16.9	<0.5	6	7	9	1.83	<10



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Project: GROUNDHOG

Page: 2 - B  
Total # Pages: 2 (A - C)  
Finalized Date: 20-AUG-2009  
Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09077163

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Hg ppm 1	K % 0.01	La ppm 10	Mg % 0.01	Mn ppm 5	Mo ppm 1	Na % 0.01	Ni ppm 1	P ppm 10	Pb ppm 2	S % 0.01	Sb ppm 2	Sc ppm 1	Sr ppm 1	Th ppm 20
H248876		<1	0.16	10	1.53	644	<1	0.02	16	350	10	0.06	<2	2	485	<20
H248877		23	0.06	<10	1.22	1230	<1	0.02	17	220	5790	3.05	87	1	479	<20
H248878		<1	0.13	10	1.23	699	<1	0.01	16	330	31	0.41	<2	2	350	<20
H248879		<1	0.18	20	1.11	539	<1	0.02	18	360	10	0.05	<2	2	396	<20
H248880		<1	0.16	20	0.94	518	<1	0.02	28	660	96	0.17	5	3	171	<20
H248881		4	0.10	<10	0.80	829	<1	0.01	16	200	4890	1.37	9	1	523	<20
H248882		1	0.20	20	1.11	632	<1	0.01	16	340	38	0.17	2	3	318	<20
H248883		<1	0.15	20	0.52	711	13	0.01	47	1280	26	0.27	12	3	98	<20
H248884		<1	0.12	20	5.62	470	12	0.02	44	4310	82	0.02	5	2	513	<20
H248885		<1	0.09	20	9.41	298	3	0.02	10	520	25	0.01	<2	1	395	<20
H248886		<1	0.22	20	1.54	852	2	0.02	24	1240	13	0.14	<2	2	274	<20
H248887		2	0.05	<10	0.83	1535	<1	0.02	13	290	3350	3.02	13	2	841	<20
H248888		4	0.20	10	1.24	1150	<1	0.02	18	450	1220	0.75	4	2	344	<20
H248889		11	0.08	<10	1.00	1445	<1	0.01	13	330	4980	2.10	29	1	389	<20
H248890		<1	0.15	10	1.05	861	1	<0.01	26	540	352	0.77	7	2	175	<20
H248891		<1	0.11	10	1.11	581	1	<0.01	13	270	17	0.10	8	2	538	<20
H248892		<1	0.11	10	2.25	1265	<1	<0.01	11	250	38	0.25	4	2	429	<20
H248893		1	0.07	10	0.91	819	<1	<0.01	10	360	12	0.08	3	2	480	<20
H248894		<1	0.16	20	1.12	557	<1	<0.01	17	320	8	0.04	2	2	360	<20
H248895		<1	0.13	20	1.06	780	<1	<0.01	17	360	10	0.16	5	1	453	<20
H248896		3	0.03	10	2.51	3410	<1	<0.01	21	140	2270	1.10	24	1	320	<20
H248897		<1	0.18	20	0.89	717	<1	<0.01	16	300	28	0.79	7	2	403	<20
H248898		<1	0.15	20	1.19	706	1	<0.01	18	330	12	0.15	6	2	398	<20
H248899		<1	0.15	20	0.90	534	<1	<0.01	14	300	32	0.10	6	2	479	<20
H248900		<1	0.19	20	0.52	883	1	<0.01	15	300	32	0.11	2	2	530	<20
H248901		<1	0.10	<10	1.88	1480	1	<0.01	13	160	2530	1.99	8	1	332	<20
H248902		<1	0.12	10	0.73	662	1	<0.01	13	270	30	0.22	4	2	900	<20



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Project: GROUNDHOG

Page: 2 - C  
 Total # Pages: 2 (A - C)  
 Finalized Date: 20-AUG-2009  
 Account: ROCKHA

## CERTIFICATE OF ANALYSIS VA09077163

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Zn-OG46
		Ti	Ti	U	V	W	Zn	Zn
		%	ppm	ppm	ppm	ppm	ppm	%
		0.01	10	10	1	10	2	0.001
H248876		<0.01	<10	<10	7	<10	51	
H248877		<0.01	<10	<10	3	<10	>10000	2.19
H248878		<0.01	<10	<10	5	<10	183	
H248879		0.01	<10	<10	8	<10	87	
H248880		<0.01	<10	<10	12	<10	974	
H248881		<0.01	<10	<10	3	<10	>10000	1.200
H248882		<0.01	<10	<10	6	<10	246	
H248883		<0.01	<10	<10	41	<10	248	
H248884		<0.01	<10	<10	33	<10	318	
H248885		<0.01	<10	<10	33	<10	31	
H248886		0.01	<10	<10	11	<10	97	
H248887		<0.01	<10	<10	2	10	2760	
H248888		<0.01	<10	<10	9	10	5430	
H248889		<0.01	<10	<10	6	<10	>10000	1.470
H248890		<0.01	<10	<10	8	<10	646	
H248891		<0.01	<10	<10	6	<10	67	
H248892		<0.01	<10	<10	5	<10	83	
H248893		<0.01	<10	<10	3	<10	51	
H248894		<0.01	<10	<10	8	<10	44	
H248895		<0.01	<10	<10	4	<10	28	
H248896		<0.01	<10	<10	2	10	7370	
H248897		<0.01	<10	<10	4	<10	175	
H248898		<0.01	<10	<10	7	<10	108	
H248899		<0.01	<10	<10	5	<10	126	
H248900		<0.01	<10	<10	4	<10	192	
H248901		<0.01	<10	<10	2	<10	2800	
H248902		<0.01	<10	<10	6	<10	149	



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Page: 1  
Finalized Date: 20-AUG-2009  
Account: ROCKHA

## CERTIFICATE VA09075049

Project: Groundhog  
P.O. No.:  
This report is for 25 Rock samples submitted to our lab in Vancouver, BC, Canada on 21-JUL-2009.  
The following have access to data associated with this certificate:  
JOAN MARIACHER

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
LOG-21d	Sample logging - ClientBarCode Dup
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE
Ag-OG46	Ore Grade Ag - Aqua Regia	VARIABLE
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE
Au-ICP21	Au 30g FA ICP-AES Finish	ICP-AES

To: ROCKHAVEN RESOURCES LTD.  
ATTN: JOAN MARIACHER  
C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
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VANCOUVER BC V6B 1L8

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:   
Colin Ramshaw, Vancouver Laboratory Manager



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Age: 2 - A

Total Ages: 2 (A - C)

Finalized Date: 20-AUG-2009

Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075049

Sample Description	Method Analyte Units LOR	WEI-21	AU-ICP21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
		Recvd Wt. kg	Au ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %
		0.02	0.001	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01
H248851		1.74	0.001	1.8	0.04	11	<10	80	<0.5	<2	13.15	3.0	<1	2	23	0.71
H248852		1.72	0.001	0.8	0.02	8	<10	90	<0.5	<2	18.0	13.2	1	1	63	0.63
H248853		2.02	0.003	21.2	0.05	25	<10	100	<0.5	<2	14.25	170.5	1	1	398	0.88
H248854		2.94	0.027	25.7	0.09	171	<10	180	<0.5	<2	11.30	242	1	6	558	4.31
H248855		2.42	0.063	>100	0.03	290	<10	90	<0.5	<2	6.88	545	<1	1	2190	4.32
H248856		2.78	0.003	7.9	0.04	36	<10	110	<0.5	<2	12.85	41.1	1	3	79	2.52
H248857		4.40	0.004	25.6	0.03	42	<10	100	<0.5	<2	19.5	47.2	1	2	152	1.19
H248858		4.32	0.004	3.7	0.03	7	<10	120	<0.5	<2	18.3	3.5	1	1	18	0.84
H248859		2.90	0.004	0.5	0.04	9	<10	100	<0.5	<2	17.6	1.9	3	1	8	0.99
H248860		1.04	<0.001	2.3	0.02	8	<10	30	<0.5	<2	5.19	2.2	<1	6	10	0.45
H248861		1.80	0.001	5.3	0.03	18	<10	80	<0.5	<2	17.5	17.0	1	1	23	0.89
H248862		3.68	<0.001	<0.2	0.02	3	<10	70	<0.5	<2	17.4	0.8	1	1	5	0.78
H248863		3.54	0.006	0.4	0.04	14	<10	80	<0.5	<2	17.7	5.1	1	1	10	1.18
H248864		1.28	0.013	5.4	0.08	20	<10	100	<0.5	<2	2.75	209	8	4	116	1.25
H248865		1.40	0.004	3.5	0.06	27	<10	110	<0.5	<2	11.30	294	16	1	68	2.01
H248866		3.56	0.008	3.9	0.06	15	<10	100	<0.5	<2	3.50	141.5	6	7	74	1.86
H248867		1.92	0.011	16.1	0.06	24	<10	80	<0.5	<2	2.28	118.0	5	6	111	1.43
H248868		1.80	0.006	1.6	0.03	13	<10	90	<0.5	<2	5.79	174.5	4	4	42	1.70
H248869		3.52	0.005	4.2	0.04	13	<10	90	<0.5	<2	3.44	261	7	5	110	1.41
H248870		3.88	0.003	0.3	0.15	8	<10	160	<0.5	2	11.75	2.3	7	1	3	2.03
H248871		7.40	0.005	8.5	0.07	8	<10	40	<0.5	<2	4.63	34.3	10	2	79	1.38
H248872		3.56	0.004	<0.2	0.42	4	<10	240	<0.5	<2	9.69	1.3	9	5	15	2.18
H248873		6.38	0.003	<0.2	0.88	7	<10	390	<0.5	<2	11.95	<0.5	8	9	14	2.20
H248874		2.16	0.006	1.2	0.25	222	<10	1360	<0.5	<2	1.23	0.5	13	5	55	5.33
H248875		2.30	0.002	<0.2	0.10	3	<10	310	<0.5	<2	15.6	<0.5	1	7	3	0.80





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Age: 2 - B  
Total Ages: 2 (A - C)  
Finalized Date: 20-AUG-2009  
Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075049

Sample Description	Method Analyte Units LOR	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	
		Ga ppm 10	Hg ppm 1	K % 0.01	La ppm 10	Mg % 0.01	Mn ppm 5	Mo ppm 1	Na % 0.01	Ni ppm 1	P ppm 10	Pb ppm 2	S % 0.01	Sb ppm 2	Sc ppm 1	Sr ppm 1
H248851		<10	<1	0.01	<10	8.83	489	<1	0.02	1	100	208	0.04	19	<1	134
H248852		<10	<1	0.01	10	11.55	583	<1	0.02	1	20	58	<0.01	18	<1	175
H248853		<10	1	0.02	10	9.57	748	<1	0.02	2	90	1625	0.09	122	<1	157
H248854		<10	1	0.04	10	7.24	2270	7	0.01	8	580	5070	0.63	68	2	365
H248855		<10	4	0.01	<10	4.35	1620	2	0.01	3	160	>10000	1.18	1240	<1	144
H248856		<10	<1	0.01	10	7.97	2130	1	0.02	5	190	1725	0.35	21	1	238
H248857		<10	1	0.01	10	12.05	1010	1	0.02	2	140	2410	<0.01	86	<1	180
H248858		<10	<1	0.01	10	11.70	590	1	0.02	4	70	597	<0.01	11	<1	153
H248859		<10	<1	0.01	10	11.25	561	1	0.02	6	110	121	<0.01	3	<1	159
H248860		<10	<1	0.01	<10	3.03	217	<1	<0.01	1	70	542	0.01	9	<1	48
H248861		<10	1	0.01	10	11.10	591	<1	0.02	1	70	3310	<0.01	9	<1	168
H248862		<10	<1	0.01	10	11.15	686	<1	0.02	2	60	24	<0.01	3	1	208
H248863		<10	<1	0.01	10	11.20	994	1	0.02	3	170	252	<0.01	6	1	160
H248864		30	7	0.03	<10	1.53	437	1	0.01	3	220	65	3.20	27	<1	31
H248865		<10	1	0.03	10	7.38	1205	1	0.02	6	50	56	0.57	24	1	194
H248866		10	4	0.03	<10	1.94	554	1	0.01	2	100	31	1.67	18	<1	41
H248867		10	3	0.02	<10	1.24	431	2	0.01	3	170	88	0.97	90	<1	25
H248868		10	2	0.01	<10	3.48	966	1	0.01	2	30	21	2.21	8	1	106
H248869		30	6	0.01	<10	1.91	548	<1	0.01	3	70	37	3.62	12	<1	80
H248870		<10	<1	0.10	10	1.27	1315	<1	0.01	9	220	309	0.24	2	2	450
H248871		<10	8	0.04	<10	0.66	637	<1	<0.01	18	150	7690	1.45	22	1	372
H248872		<10	<1	0.14	20	1.06	883	<1	0.01	14	420	33	0.19	2	2	345
H248873		<10	<1	0.10	10	0.94	684	1	0.01	15	340	22	0.12	2	2	494
H248874		<10	<1	0.08	20	0.22	480	3	0.01	43	1100	35	0.10	11	2	58
H248875		<10	<1	0.05	10	9.50	359	1	0.01	8	460	41	0.05	<2	1	373



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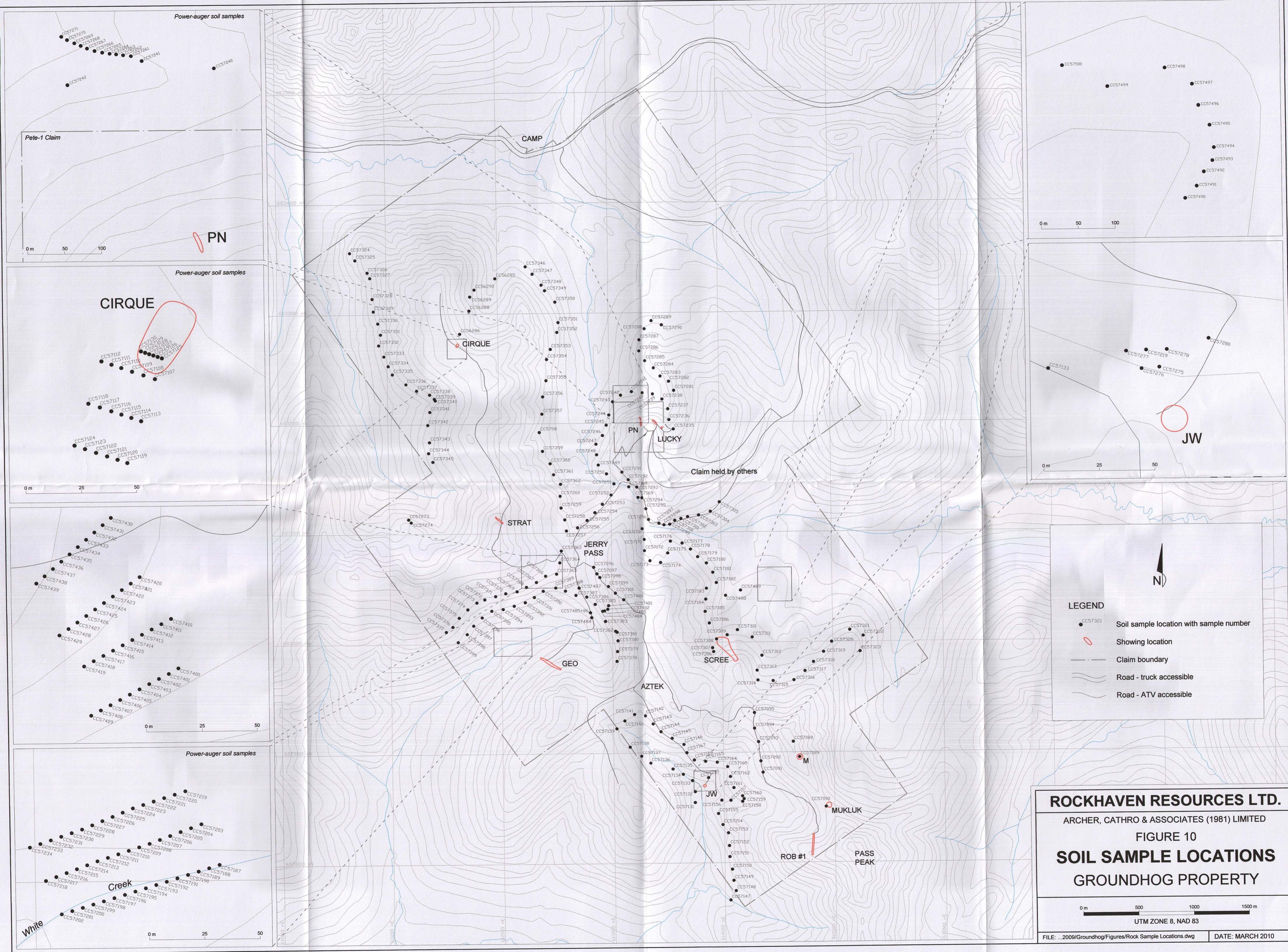
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Page: 2 - C  
Total Pages: 2 (A - C)  
Finalized Date: 20-AUG-2009  
Account: ROCKHA

Project: Groundhog

## CERTIFICATE OF ANALYSIS VA09075049

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Pb-OG46	Ag-OG46	Zn-OG46
	Analyte	Th	Ti	Tl	U	V	W	Zn	Pb	Ag	Zn
	Units	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	%
LOR	20	0.01	10	10	1	10	2	0.001	1	0.001	
H248851		<20	<0.01	<10	<10	4	<10	440			
H248852		<20	<0.01	<10	<10	2	<10	1885			
H248853		<20	<0.01	<10	<10	3	<10	>10000			2.65
H248854		<20	<0.01	<10	<10	10	<10	>10000			3.69
H248855		<20	<0.01	<10	<10	4	50	>10000	18.95	852	9.64
H248856		<20	<0.01	<10	<10	5	10	5530			
H248857		<20	<0.01	<10	<10	3	20	7280			
H248858		<20	<0.01	<10	<10	4	<10	693			
H248859		<20	<0.01	<10	<10	4	<10	454			
H248860		<20	<0.01	<10	<10	1	<10	186			
H248861		<20	<0.01	<10	<10	3	<10	2040			
H248862		<20	<0.01	<10	<10	3	<10	230			
H248863		<20	<0.01	<10	<10	4	<10	537			
H248864		<20	<0.01	<10	<10	5	<10	>10000			9.44
H248865		<20	<0.01	<10	<10	7	<10	>10000			5.69
H248866		<20	<0.01	<10	<10	6	<10	>10000			5.05
H248867		<20	<0.01	<10	<10	5	<10	>10000			3.91
H248868		<20	<0.01	<10	<10	7	<10	>10000			6.17
H248869		<20	<0.01	<10	<10	6	<10	>10000			10.95
H248870		<20	<0.01	<10	<10	1	<10	831			
H248871		<20	<0.01	<10	<10	1	<10	>10000			1.325
H248872		<20	<0.01	<10	<10	2	<10	595			
H248873		<20	<0.01	<10	<10	5	<10	125			
H248874		<20	<0.01	<10	<10	13	<10	153			
H248875		<20	<0.01	<10	<10	26	<10	104			

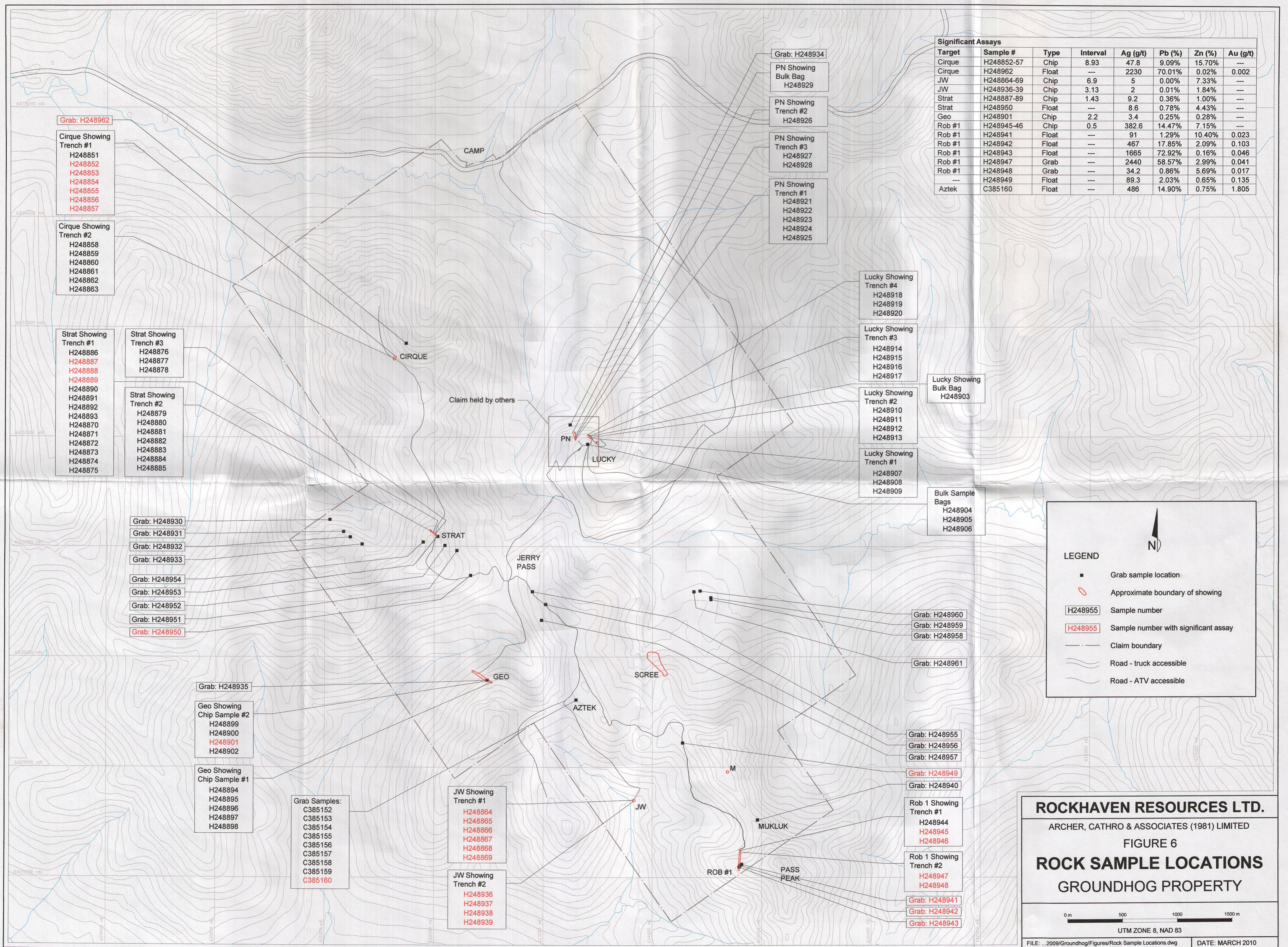


- LEGEND**
- CC57321 Soil sample location with sample number
  - Showing location
  - Claim boundary
  - Road - truck accessible
  - Road - ATV accessible

**ROCKHAVEN RESOURCES LTD.**  
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED  
 FIGURE 10  
**SOIL SAMPLE LOCATIONS**  
 GROUNDHOG PROPERTY

0 m 500 1000 1500 m  
 UTM ZONE 8, NAD 83

FILE: ...2009/Groundhog/Figures/Rock Sample Locations.dwg DATE: MARCH 2010



Significant Assays							
Target	Sample #	Type	Interval	Ag (g/t)	Pb (%)	Zn (%)	Au (g/t)
Cirque	H248852-57	Chip	8.93	47.8	9.09%	15.70%	---
Cirque	H248962	Float	---	2230	70.01%	0.02%	0.002
JW	H248864-69	Chip	6.9	5	0.00%	7.33%	---
JW	H248936-39	Chip	3.13	2	0.01%	1.84%	---
Strat	H248887-89	Chip	1.43	9.2	0.36%	1.00%	---
Strat	H248950	Float	---	8.6	0.78%	4.43%	---
Geo	H248901	Chip	2.2	3.4	0.25%	0.28%	---
Rob #1	H248945-46	Chip	0.5	382.6	14.47%	7.15%	---
Rob #1	H248941	Float	---	91	1.29%	10.40%	0.023
Rob #1	H248942	Float	---	467	17.85%	2.09%	0.103
Rob #1	H248943	Float	---	1665	72.92%	0.16%	0.046
Rob #1	H248947	Grab	---	2440	58.57%	2.99%	0.041
Rob #1	H248948	Grab	---	34.2	0.86%	5.69%	0.017
---	H248949	Float	---	89.3	2.03%	0.65%	0.135
Aztek	C385160	Float	---	486	14.90%	0.75%	1.805

**LEGEND**

- Grab sample location
- Approximate boundary of showing
- H248955 Sample number
- H248955 Sample number with significant assay
- Claim boundary
- Road - truck accessible
- Road - ATV accessible

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**FIGURE 6**  
**ROCK SAMPLE LOCATIONS**  
**GROUNDHOG PROPERTY**

0 m 500 1000 1500 m  
 UTM ZONE 8, NAD 83

FILE: ...2009/Groundhog/Figures/Rock Sample Locations.dwg DATE: MARCH 2010