Technical Assessment Report

Pend Oreille Iron Project

Nelson Mining Division
British Columbia, Canada

49° 1' 10" N
117° 18' 58" W

NTS Grid: 82F/3W

BC Mines Branch Event: 5379032

MGS Report ID: 13.9L.01

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24 June 2013

Prepared For:

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Tenure Numbers

- 621646
- 621683
- 621703
- 641724
- 641725
- 641727
- 641884
- 673464
- 673471
- 673504
- 706666
- 719402
- 771602
- 771603
- 794462
- 814822
- 817443
- 824383
- 831342
- 831884
- 831887
- 922429

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1.0 Summary

This report describes the results of an exploration project completed during April to June 2012, on the Pend Oreille Iron property located in southern-central British Columbia. The Pend Oreille Iron Property consists of twenty-two (22) mineral tenures with a total area of approximately three thousand, one hundred ninety-eight (3198) hectares on the NTS map sheet 82F/3W.

It was formerly known as the Lomond and International Lead and Zinc Mines Ltd. Property. Centerpoint Resources Inc. (a privately owned company based out of Vancouver, BC) undertook this evaluation project in 2012. Edward J Nunn, P. Eng., managed the project and Dave Wallach was the project coordinator assisted by Bob and Jack Denny. Spring MacAskill also provided technical support, conducted the magnetometer survey program and additional field investigation and sample collection during the course of her duties. It was determined from her field reports that roughly 25% of her time in the field was spent on the magnetometer program as she multi-tasked in the field.

The 2012 exploration program was focused on line cutting for reconnaissance rock sampling and a geophysical survey test for a FVM400 Vector Magnetometer survey over the Nelway Formation on claims 641724, 673464, 673471, and 673504. Fifty thousand, seven hundred thirty-one dollars and forty-eight cents ($50,731.48) was spent on the 2012 Pend Oreille project. The magnetic prospecting geophysical method proved to be unusable in the field as the goethite in the Pend Oreille area proved to be essentially non-magnetic. Seventeen (17) rock samples in total were taken; eleven (11) were assayed at Acme Analytical Lab, four (4) were assayed at SGS Canada Inc., at Lakefield Ontario and two were analyzed at Vancouver Petrographics Ltd., in Vancouver, BC.

Locations of these samples are located in Figure 4. Results from the lab indicate an iron oxide as great as 91.27%, a lead assay as high as 7150 ppm (g/t), and a zinc assays up to 13,600 ppm.(g/t). Only 5 of the samples submitted for assay had any analysis done

on the additional elements since the information was of little value. The property evaluation was for iron oxide values only since in practice, any other elements would simply be lost in the slag from the blast furnace.

A program of trenching and further rock analysis is recommended for the next stage of exploration in the area. If the results are feasible, a future drilling program is encouraged. The Ministry of Energy and Mines has reviewed an application for trenching and diamond drilling for the Pend Oreille Iron property and has issued the appropriate exploration permit.

2.0 Introduction and Terms of Reference

At the request of Edward J Nunn, P. Eng., Vice President of Centerpoint Resources Inc., the 2012 Pend Oreille Exploration program was conducted on the Pend Oreille Iron property (formerly Lomond property). Edward J Nunn, P. Eng., managed the project and Dave Wallach was the project coordinator. This project consisted of rock and mineral sampling, grid layout, and a vector magnetometer survey. Spring MacAskill managed the vector magnetometer survey and was the reconnaissance geologist. The 2012 exploration program was conducted during the period of 03 April to 25 June 2012. It is understood that this report may be required for material disclosure. Information from previous assessment reports filed for the Lomond Group has been used for the purpose of this report. The Geological Survey of Canada, Department of Energy, Mines and Resources supplement this report.

3.0 Property Description and Location

3.1 Accessibility and Infrastructure

The Pend Oreille Iron property is located 27 kilometres south of Salmo, BC, adjacent to the Metaline Falls / Nelway International Border crossing, between Canada and the United States (Figure 1). The property is accessible from Highway 3, which is located between Trail and Salmo, extending to highway 6, towards Nelway. The Pend Orielle claims are located one to three kilometres west of Nelway, on Pend D'Oreille Road / Nelway-Waneta road.

The small field camp was located at the Lomond Lake farm; a Crossfire recreational vehicle owned by Centerpoint Resources was used as an office and for occasional accommodation. Centerpoint Resources purchased a 4X drive pickup truck for the project. However, due to the remote location and restricted accommodations at the camp and services in the area the staff had to make frequent rotations in and out of this small front line operation. Since the project manager lives in Kelowna and the other staff live in Castlegar the rotation travel was a logistical issue. Samples also had to be taken to Salmo for secure storage since the camp was unattended while field work was being done and during the night.

The Nelway Substation is located on the property and two power lines are situated on the property. A metals smelter (Teck Metals Ltd.) is located within 60 kilometres of the property. Water for exploration is abundant, and a semi-skilled labor force is readily available. The majority of claims are available through several old logging roads, skidder trails and power line access roads.

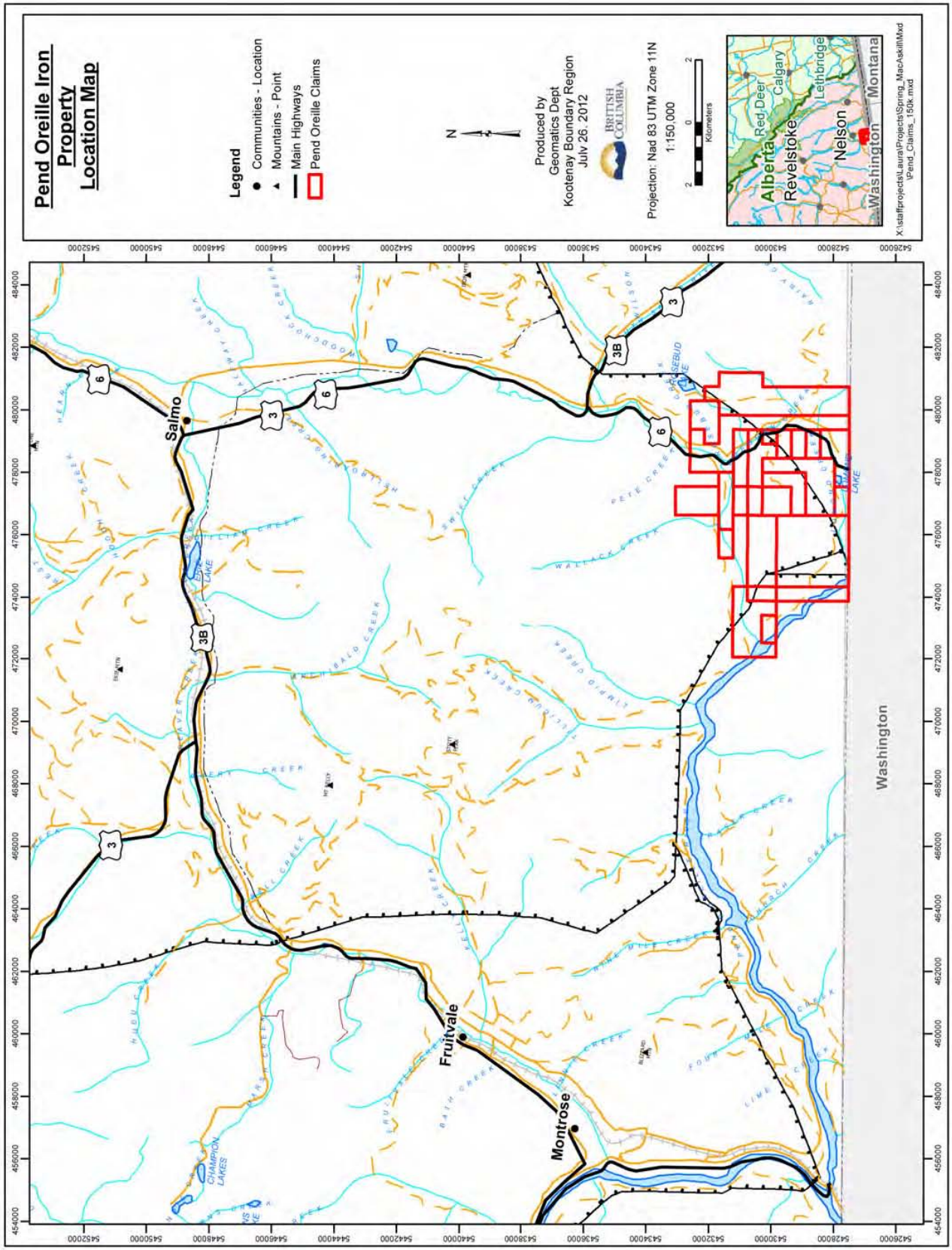


Figure 1 – Location Map

3.2 Mineral Tenure Information

The Pend Oreille claim group consists of twenty-two contiguous claims, Table 1 displays current status and Figure 2 exhibits their relative locations.

Tenure Number	Claim Name	Owner	Tenure Type	Tenure Sub Type	Map Number	Issue Date	Good To Date	Status	Area (ha)
621646	PEND ORELLE 2	269089 (100%)	Mineral	Claim	082F	2009/aug/19	2014/sep/01	GOOD	42.3658
621683	PEND ORELLE 3	269089 (100%)	Mineral	Claim	082F	2009/aug/19	2014/sep/01	GOOD	21.1817
621703	PEND ORELLE 4	269089 (100%)	Mineral	Claim	082F	2009/aug/19	2014/sep/01	GOOD	127.1392
641724	PEND ORELLE 1	269089 (100%)	Mineral	Claim	082F	2009/sep/27	2014/sep/01	GOOD	529.6857
641725	PEND ORELLE 2	269089 (100%)	Mineral	Claim	082F	2009/sep/27	2014/sep/01	GOOD	211.8132
641727	PEND ORELLE 3	269089 (100%)	Mineral	Claim	082F	2009/sep/27	2014/sep/01	GOOD	105.9395
641884	PEND ORELLE 4	269089 (100%)	Mineral	Claim	082F	2009/sep/27	2014/sep/01	GOOD	360.0486
673464	PEND ORIELLE 5	269089 (100%)	Mineral	Claim	082F	2009/nov/24	2014/sep/01	GOOD	233.0537
673471	PEND ORIELLE 6	269089 (100%)	Mineral	Claim	082F	2009/nov/24	2014/sep/01	GOOD	105.9213
673504	PEND OREILLE 7	269089 (100%)	Mineral	Claim	082F	2009/nov/24	2014/sep/01	GOOD	84.7307
706666	PEND OREILLE 12	269089 (100%)	Mineral	Claim	082F	2010/feb/20	2014/sep/01	GOOD	466.0094
719402	PEND OREILLE NORTH	269089 (100%)	Mineral	Claim	082F	2010/mar/10	2014/sep/01	GOOD	42.3536
771602	LOMOND 10	269089 (100%)	Mineral	Claim	082F	2010/may/11	2014/sep/01	GOOD	42.3738
771603	LOMOND 9	269089 (100%)	Mineral	Claim	082F	2010/may/11	2014/sep/01	GOOD	42.367
794462	LOMOND LAKE	269089 (100%)	Mineral	Claim	082F	2010/jun/18	2014/sep/01	GOOD	42.3811
814822	PEND OREILLE NORTH	269089 (100%)	Mineral	Claim	082F	2010/jul/12	2014/sep/01	GOOD	127.0388
817443	PEND OREILLE NORTH 1	269089 (100%)	Mineral	Claim	082F	2010/jul/13	2014/sep/01	GOOD	84.7066
824383	PEND OREILLE 22	269089 (100%)	Mineral	Claim	082F	2010/jul/22	2014/sep/01	GOOD	105.9018
831342	PEND O	269089 (100%)	Mineral	Claim	082F	2010/aug/11	2014/sep/01	GOOD	42.3566
831884		269089 (100%)	Mineral	Claim	082F	2010/aug/20	2014/sep/01	GOOD	42.3634
831887	PEND OREILLE WEST	269089 (100%)	Mineral	Claim	082F	2010/aug/20	2014/sep/01	GOOD	232.9868
922429	ROSEBUD	269089 (100%)	Mineral	Claim	082F	2011/oct/24	2014/sep/01	GOOD	105.8698

Table 1: Mineral Tenures and Status

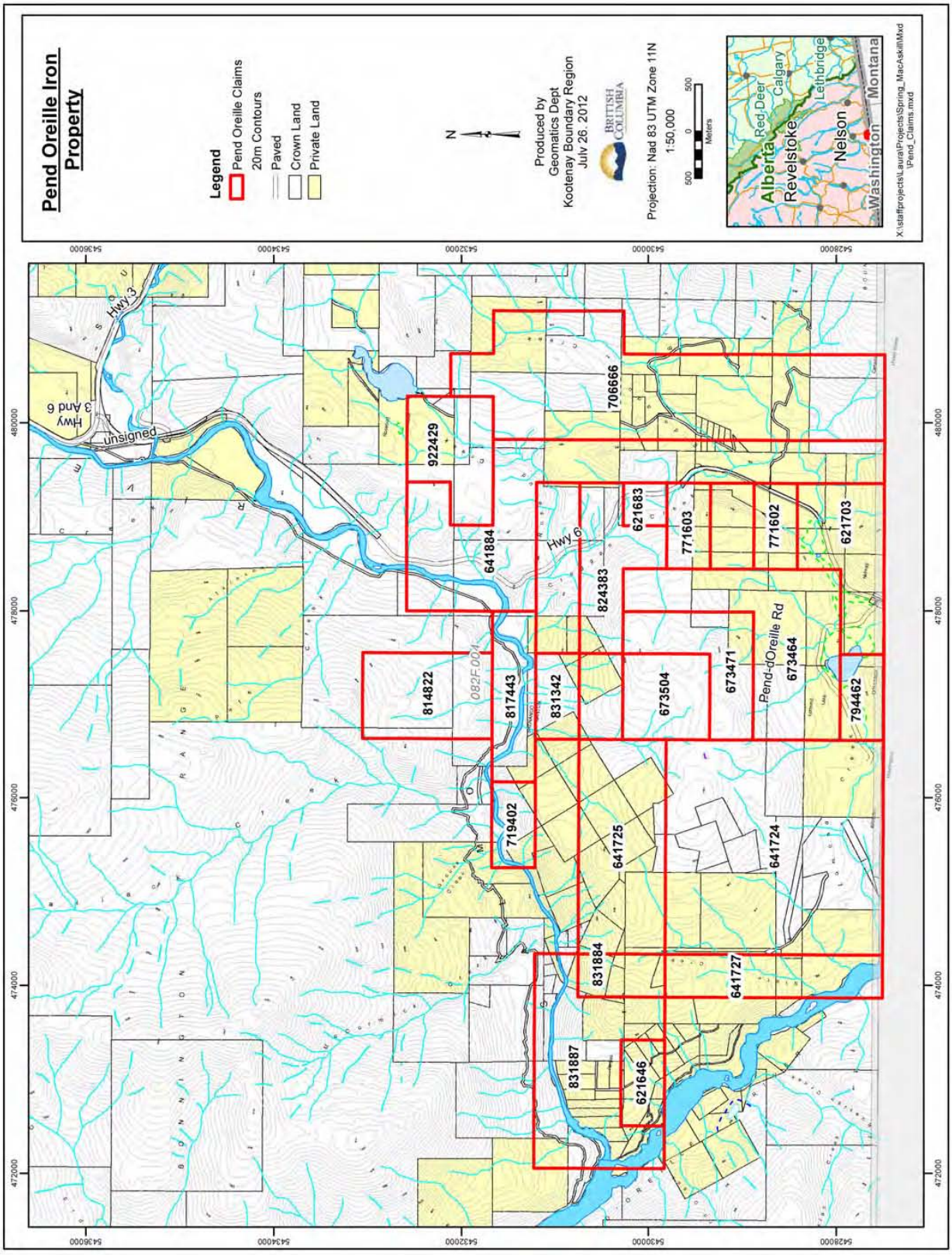


Figure 2: Claim Map

3.3 Physiography and Climate

Topography around the property is moderate, with an elevation variation between 580m and 1070m. Climate is moderate, with average temperatures ranging from approximately 27.7° C to -5.1°C, and precipitation ranging from 40.3mm to 92.3mm over the course of a year (Environment Canada). Second growth timber of Douglas fir, cedar, larch, and pine cover the land (Bristow, 1990).

4.0 History

Time Period	Property Historic Event Details
1908-1929	Sporadic prospecting and trenching of limonite seams and pods adjacent to Lomond Creek. Crown granted claims established by HH Shallenberger of Spokane, 1913
1929-1946	Property optioned to International Crown Mines Consolidated in 1929, no record of work being done.
1946-1947	Property optioned to Sheep Creek Gold Mines Limited. Diamond drilling program of 816 feet, in association with Gold Belt Mining Company Limited, and Calumat and Hecla Consolidated for sulphide mineralization. Results of drilling are reported to have been disappointing.
1948-1950	Property was worked under lease. 7292 tons of iron oxide was shipped to Lehigh Cement Company in Metaline Falls, WA for use in manufacturing in 1948, 1949, and 1950. 19 tons of galena rich nodules (lead ore) containing 38oz of silver, 9,703 pounds of lead and 962 pounds of zinc were shipped to the Trail smelter, with a grade of 2.0 oz./ton Ag, 25.5% Pb and 2.5% Zn.
1951-1976	International Lead and Zinc Mines Ltd acquired the property. In 1952 a geological study was carried out, along with bulldozer stripping. Further work was not reported. The Crown Grant Mineral Claims were reverted.
1976-1988	J.W. MacLeod of Carmac Resources Ltd became the registered owner. In 1977 a geological mapping, trenching and a soil geochemical program was conducted. A limited diamond drilling program followed in 1978. No record of work was found after 1978.
1988	Ashworth Explorations Limited acquired part of the property
1989-1990	Hawkeye Developments Ltd acquired property and carried out a program of trenching, sampling and diamond drilling.
1990-2000	Various owners – No work recorded
2009-2011	David Wallach acquired property. A small exploration of trenching, rock sampling and grid work was conducted.
2011-2012	Centerpoint Resources Ltd. acquired property. Project work included; rock sampling, grid work and a vector magnetometer survey that was conducted in 2012.

5.0 Geology

The Pend Oreille Iron property is located in the southern segment of a regional geological feature known as the Kootenay Arc. This early Paleozoic Sedimentary rock extends as a curving structure from northwestern Washington State, up to north Revelstoke. At least three economic carbonate hosted lead-zinc units have been found within this structure.

Reeves MacDonald, HB, and Jersey-Emerald properties are known as lead-zinc deposits in Canada; they are all hosted within the Reeves Member dolomitized limestone, of the Lower Laib Formation.

The host rock of the Pend Oreille Iron property is called the Nelway Formation (Lomond deposit). It is primarily dolomite from Middle Cambrian to Early Ordovician, and thought to be equivalent to the Metaline Limestone, in northwestern Washington State. The formation is divided into three sections: a lower limestone, a middle dolomite and an upper limestone.

Exact thicknesses have not been measured for the Nelway Formation, found in the southern part of the Eastern Belt. The top of the formation is not exposed likely due to faulting; therefore, no measurements could be made. The Metaline Limestone, south of the border is well exposed; therefore inferences can be made regarding stratigraphic thicknesses, as seen in the following section, measured by Park and Cannon (1943, p.18)

Bedrock Lithology	Thickness (m)
Limestone, mottled, dense, grey: few chert nodules	46
Limestone, mottled, dense, grey: many chert nodules	137
Dolomite, fine-grained, cream coloured, particularly in upper part: alternating layers of black and white dolomite	366
Limestone and limy shales, interbedded; locally dolomite	366
Total Thickness	**914**

Table 2 – Bedrock Lithology

The Lower part of the Nelway formation is dark blue-grey fine-grained limestone and argillaceous limestone. Primarily the argillaceous limestone is made up of calcareous beds a few centimetres thick alternating with brown weathering argillaceous beds less than a centimetre thick. The lower part of the member is more argillaceous than the upper. Near the base of the argillaceous limestone beds, several centimetres thick, calcareous phyllite occurs in similar thickness. It is difficult to pin point the base of the beds because of the almost complete gradation between the Nelway and the top of the Laib formation.

Generally speaking, the Middle Member of the Nelway Formation is a massive fine-grained, cream weathering, dolomitic sequence that underlies the Pend Oreille Iron property. In a few locations, a black and white mottled dolomite band occurs near the base and can be up to 60 metres thick. Non-sulphide mineralization occurs within the cream-grey banded dolomite, it contains gossanous zones that conform to dolomitic banding. The hand sample sent to Vancouver Petrographics Inc., described the mineralization as cellular (box work), botryoidal, vuggy and a massive microstructure made up of goethite-hematite (limonite). Irregular cavities and fine-grained aggregates of quartz-clay-white mica are also associated within the heterogeneous sample.

The upper member of the Nelway formation is less common and better known south of the International Boundary. It consists of a fine-grained grey/white massive limestone. In some areas it is dolomitized while other areas have pronounced banding. The thinly banded black and white limestone contains abundant, irregular masses of chert and is regarded as a product of deformation.

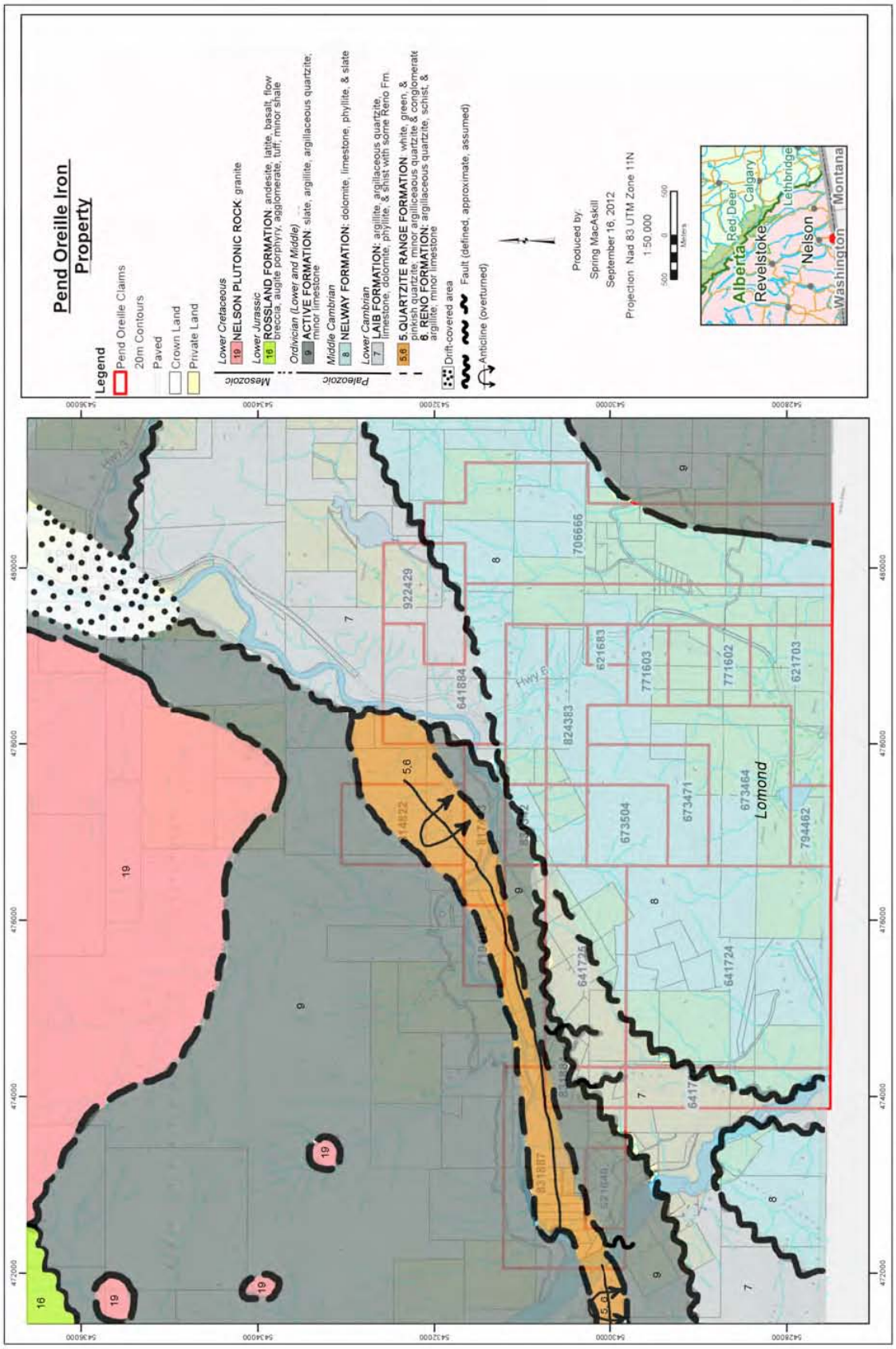


Figure 3: Geology Map

6.0 Exploration

6.1 Rock Sampling

The following seventeen (17) rock samples were collected from the area host rock. It is described as, the Middle Member of the Nelway Formation (a massive fine-grained, cream weathering, dolomitic sequence) found on claims 641724 and 673471; Figure 4 reveals their relative locations.

Sample ID	Easting	Northing	Elevation	Notes
21813A	475712	5428043	763 m	Dolomite chip sample taken 500m west of sub station, east side of the iron vein, sent for petrographic analysis
21816	475238	5427966	738 m	Dolomite chip samples taken 500m west of sub station, dolomite sample taken from west sides of the iron vain
21818B	474736	5428302	694 m	Chip sample from out crop taken 500m west of sub station, east side of the iron vein, sent for petrographic analysis
21817A	474736	5428302	694 m	Chip sample from out crop taken, 500m west of sub station
21819	474903	5428123	706 m	Chip sample from out crop taken, 300m west of sub station
21820	475389	5428416	839 m	Float taken road side 200m west of sub station
21809	476579	5428712	950 m	Approximately size of sample 10"x6"
21807	476517	5428414	947 m	Float boulder taken with rusty oxidized material (Goethite)
10180	476664	5429092	780 m	Pit sample
21815C	474736	5428302	694 m	Chip sample from out crop taken, 500m west of sub station
21814B	474736	5428302	780 m	Dolomite chip samples taken 500m west of sub station, from east sides of the iron vein for petrographic testing
VC120926.001	476958	5428907	973 m	Float sample
VC120926.002	476958	5428907	973 m	Float sample
VC120926.003	476958	5428907	973 m	Surface exposure sample
VC120926.004	476958	5428907	973 m	Surface exposure sample
120694D	476958	5428907	973 m	Surface exposure sample
120694G	476958	5428907	973 m	Surface exposure sample

Table 3 - Rock Sample Field Notes

The sampling was done generally along the baseline (centerline) of the grid cut lines. Samples were mostly taken at bedrock points where the mineralized rock could be found in outcrop. The sampling began close to where the surface float thinned and bedrock could be determined. Only 4 samples were taken from larger pieces of float along the line where bedrock could not be uncovered. The float and bedrock were very similar in character and the float samples are noted in the table above.

The two samples taken for petrographic analysis (21813A and 21818B) were collected in the old pit at the entrance to an old mine works. One sample was a simple rock sample representative of the hanging wall material and the other was from material that visually would be considered ore grade. The mineralogical differences between the hanging and foot walls are barely perceptible but the ore grade material was easily defined.

Sample Site Location Index

A: 21814B F: 10180
21817A G: 21809
21818B H: 21807
21815C I: VC120926.001
B: 21819 VC120926.002
C: 21820 VC120926.003
D: 21816 VC120926.004
E: 21813A 120694D
120694G

Pend Oreille Iron Property

Sample Site Location Map

Map ID: 13.9I.01

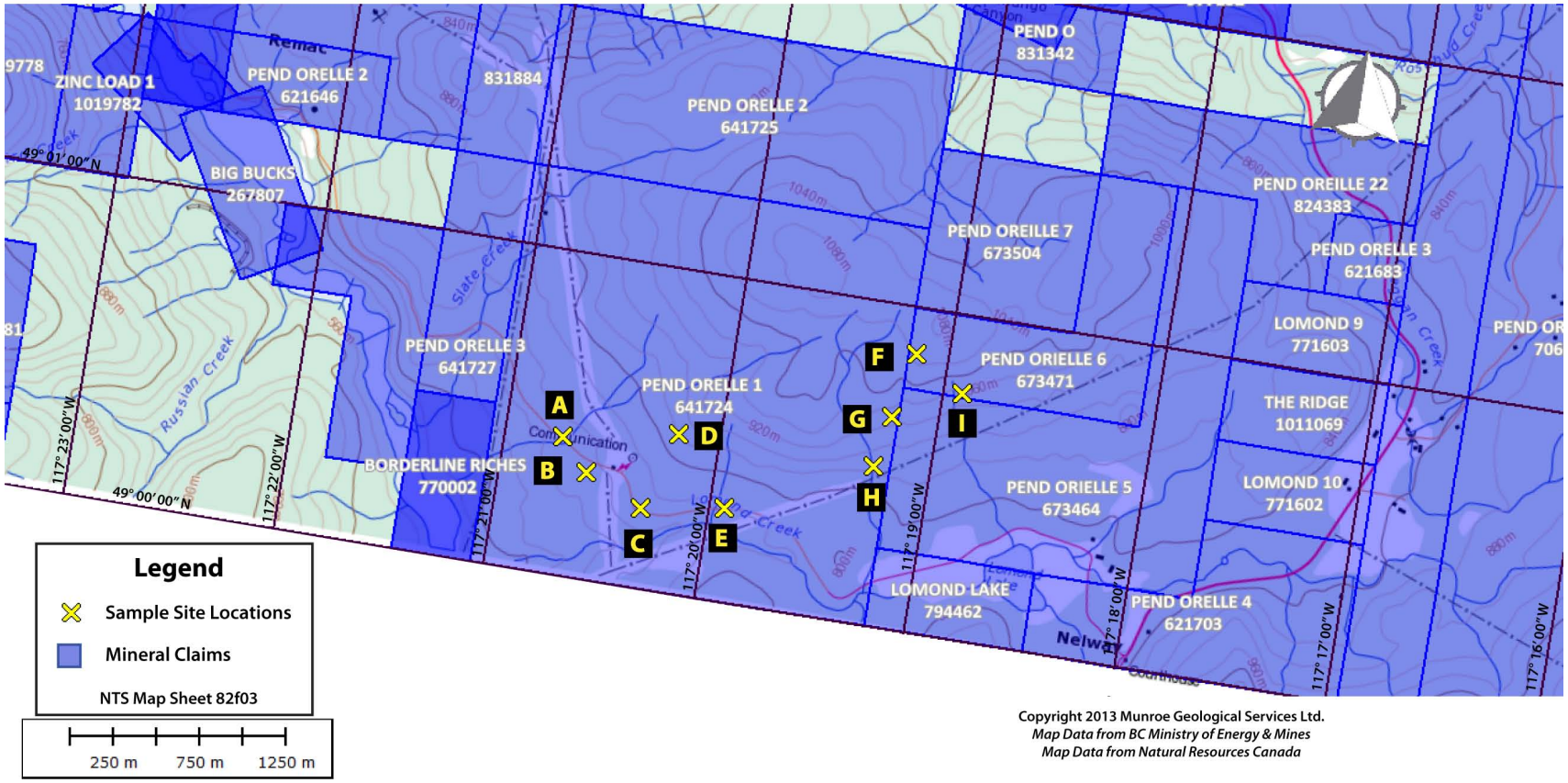


Figure 4: Rock Sample Location

6.2 Grid Layout & Magnetometer Survey

A grid was established and cut out for assisting in location of float and secondly a magnetometer survey as seen in Figure 5a. The grid was laid out using a compass, hip chain and Garmin 72CSX handheld GPS (using NAD83) on claims 641724, 673464, 673471, and 673504. Three line cutters were employed during this program. The total length of the grid consisted of 2.3 km, with 500 metre cross lines at 100 metre spacing's. Stations were placed at every 25-metre intervals. Line cutting made slow progress because of dense forest on slopes approximately at 25 degrees.

The magnetometer survey was conducted using a MEDA FVM400 Vector Magnetometer. The Vector Magnetometer was operating in the three (X,Y,Z) rectangular coordinates configuration. (No attempt was made to calculate total intensity).

The geophysical plan was to determine if a magnetometer was a useful exploration tool for typical goethite type deposits at the Pend Oreille area. The results indicate that this method is a failure and will not be used again The results of the survey were inconclusive due to the vector magnetometer jumping ten thousand Nanotesla (10,000 nT) at every metre interval with no continuity as shown in Figure 5b.

Vancouver Petrographics Inc. measured the magnetic susceptibility (SI) of the dolomite and goethite with a hand-held KT Magnetic Susceptibility Meter. The results of the dolomite and goethite were, $.008*10^{-3}$ and $.130*10^{-3}$, successively. With this knowledge the MEDA FVM400 Vector Magnetometer may have picked up a change in rock type if it was consecutive, but only one sample each was studied.

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L30E-45+25N	11	477820	5429313	949
L30E-45+50N	11	477803	5429332	956
L30E-45+75N	11	477789	5429351	961
L30E-46+00N	11	477780	5429378	973
L30E-46+25N	11	477763	5429401	980
L30E-46+50N	11	477755	5429417	983
L30E-46+75N	11	477737	5429428	996
L30E-47+00N	11	477724	5429459	1007
L30E-47+25N	11	477711	5429479	1015
L30E-47+50N	11	477699	5429512	1016
L30E-47+75N	11	477684	5429530	1024
L30E-48+00N	11	477669	5429552	1034
L30E-48+25N	11	477656	5429580	1034
L30E-48+50N	11	477645	5429602	1035
L30E-48+75N	11	477628	5429627	1043
L30E-49+00N	11	477621	5429639	1041
L30E-49+25N	11	477610	5429668	1048
L30E-49+50N	11	477594	5429688	1052
L30E-49+75N	11	477576	5429708	1057
L31E-45+25N	11	477735	5429246	957
L31E-45+50N	11	477725	5429266	971
L31E-45+75N	11	477713	5429294	985
L31E-46+00N	11	477698	5429316	990
L31E-46+25N	11	477687	5429348	997
L31E-46+50N	11	477668	5429354	1006
L31E-46+75N	11	477654	5429382	1015
L31E-47+00N	11	477637	5429405	1011
L31E-47+25N	11	477621	5429425	1020
L31E-47+50N	11	477606	5429444	1030
L31E-47+75N	11	477592	5429465	1041
L31E-48+00N	11	477581	5429487	1049
L31E-48+25N	11	477563	5429507	1056
L31E-48+50N	11	477548	5429534	1057
L31E-48+75N	11	477533	5429550	1062
L31E-49+00N	11	477518	5429572	1067
L31E-49+25N	11	477499	5429595	1078
L31E-49+50N	11	477487	5429616	1082
L31E-49+75N	11	477472	5429638	1085
L32E-45+25N	11	477640	5429188	976
L32E-45+50N	11	477623	5429216	989
L32E-45+75N	11	477612	5429234	997
L32E-46+00N	11	477587	5429251	1010
L32E-46+25N	11	477577	5429285	1019
L32E-46+50N	11	477560	5429310	1028
L32E-46+75N	11	477548	5429330	1033

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L32E-47+00N	11	477529	5429354	1038
L32E-47+25N	11	477523	5429369	1046
L32E-47+50N	11	477507	5429397	1046
L32E-47+75N	11	477484	5429422	1044
L32E-48+00N	11	477468	5429438	1046
L32E-48+25N	11	477455	5429468	1054
L32E-48+50N	11	477448	5429484	1059
L32E-48+75N	11	477425	5429510	1067
L32E-49+00N	11	477421	5429521	1070
L32E-49+25N	11	477407	5429545	1074
L32E-49+50N	11	477396	5429572	1075
L32E-49+75N	11	477383	5429592	1076
L33E-45+00N	11	477559	5429123	972
L33E-4S+25N	11	477544	5429146	981
L33E-45+50N	11	477530	5429168	991
L33E-4S+75N	11	477512	5429183	1001
L33E-46+00N	11	477499	5429203	1006
L33E-46+25N	11	477480	5429233	1010
L33E-46+50N	11	477476	5429245	1014
L33E-46+75N	11	477455	5429267	1014
L33E-47+00N	11	477443	5429282	1016
L33E-47+25N	11	477428	5429303	1020
L33E-47+50N	11	477412	5429324	1022
L33E-47+75N	11	477404	5429345	1025
L33E-48+00N	11	477385	5429364	1028
L33E-48+25N	11	477370	5429390	1033
L33E-48+50N	11	477356	5429410	1037
L33E-48+75N	11	477340	5429429	1043
L33E-49+00N	11	477328	5429448	1046
L33E-49+25N	11	477309	5429468	1049
L33E-49+50N	11	477293	5429486	1049
L33E-49+75N	11	477281	5429515	1050
L33E-50+00N	11	477269	5429536	1049
L34E-45+00N	11	477479	5429066	964
L34E-45+25N	11	477463	5429087	973
L34E-45+50N	11	477448	5429105	977
L34E-45+75N	11	477437	5429128	980
L34E-46+00N	11	477414	5429147	981
L34E-46+25N	11	477404	5429168	984
L34E-46+50N	11	477387	5429177	989
L34E-46+75N	11	477378	5429199	1003
L34E-47+00N	11	477361	5429227	1013
L34E-47+25N	11	477350	5429246	1021
L34E-47+50N	11	477331	5429277	1026
L34E-47+75N	11	477323	5429288	1031

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L30E-45+25N	11	477820	5429313	949
L30E-45+50N	11	477803	5429332	956
L30E-45+75N	11	477789	5429351	961
L30E-46+00N	11	477780	5429378	973
L30E-46+25N	11	477763	5429401	980
L30E-46+50N	11	477755	5429417	983
L30E-46+75N	11	477737	5429428	996
L30E-47+00N	11	477724	5429459	1007
L30E-47+25N	11	477711	5429479	1015
L30E-47+50N	11	477699	5429512	1016
L30E-47+75N	11	477684	5429530	1024
L30E-48+00N	11	477669	5429552	1034
L30E-48+25N	11	477656	5429580	1034
L30E-48+50N	11	477645	5429602	1035
L30E-48+75N	11	477628	5429627	1043
L30E-49+00N	11	477621	5429639	1041
L30E-49+25N	11	477610	5429668	1048
L30E-49+50N	11	477594	5429688	1052
L30E-49+75N	11	477576	5429708	1057
L31E-45+25N	11	477735	5429246	957
L31E-45+50N	11	477725	5429266	971
L31E-45+75N	11	477713	5429294	985
L31E-46+00N	11	477698	5429316	990
L31E-46+25N	11	477687	5429348	997
L31E-46+50N	11	477668	5429354	1006
L31E-46+75N	11	477654	5429382	1015
L31E-47+00N	11	477637	5429405	1011
L31E-47+25N	11	477621	5429425	1020
L31E-47+50N	11	477606	5429444	1030
L31E-47+75N	11	477592	5429465	1041
L31E-48+00N	11	477581	5429487	1049
L31E-48+25N	11	477563	5429507	1056
L31E-48+50N	11	477548	5429534	1057
L31E-48+75N	11	477533	5429550	1062
L31E-49+00N	11	477518	5429572	1067
L31E-49+25N	11	477499	5429595	1078
L31E-49+50N	11	477487	5429616	1082
L31E-49+75N	11	477472	5429638	1085
L32E-45+25N	11	477640	5429188	976
L32E-45+50N	11	477623	5429216	989
L32E-45+75N	11	477612	5429234	997
L32E-46+00N	11	477587	5429251	1010
L32E-46+25N	11	477577	5429285	1019

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L32E-47+00N	11	477529	5429354	1038
L32E-47+25N	11	477523	5429369	1046
L32E-47+50N	11	477507	5429397	1046
L32E-47+75N	11	477484	5429422	1044
L32E-48+00N	11	477468	5429438	1046
L32E-48+25N	11	477455	5429468	1054
L32E-48+50N	11	477448	5429484	1059
L32E-48+75N	11	477425	5429510	1067
L32E-49+00N	11	477421	5429521	1070
L32E-49+25N	11	477407	5429545	1074
L32E-49+50N	11	477396	5429572	1075
L32E-49+75N	11	477383	5429592	1076
L33E-45+00N	11	477559	5429123	972
L33E-45+25N	11	477544	5429146	981
L33E-45+50N	11	477530	5429168	991
L33E-45+75N	11	477512	5429183	1001
L33E-46+00N	11	477499	5429203	1006
L33E-46+25N	11	477480	5429233	1010
L33E-46+50N	11	477476	5429245	1014
L33E-46+75N	11	477455	5429267	1014
L33E-47+00N	11	477443	5429282	1016
L33E-47+25N	11	477428	5429303	1020
L33E-47+50N	11	477412	5429324	1022
L33E-47+75N	11	477404	5429345	1025
L33E-48+00N	11	477385	5429364	1028
L33E-48+25N	11	477370	5429390	1033
L33E-48+50N	11	477356	5429410	1037
L33E-48+75N	11	477340	5429429	1043
L33E-49+00N	11	477328	5429448	1046
L33E-49+25N	11	477309	5429468	1049
L33E-49+50N	11	477293	5429486	1049
L33E-49+75N	11	477281	5429515	1050
L33E-50+00N	11	477269	5429536	1049
L34E-45+00N	11	477479	5429066	964
L34E-45+25N	11	477463	5429087	973
L34E-45+50N	11	477448	5429105	977
L34E-45+75N	11	477437	5429128	980
L34E-46+00N	11	477414	5429147	981
L34E-46+25N	11	477404	5429168	984
L34E-46+50N	11	477387	5429177	989
L34E-46+75N	11	477378	5429199	1003
L34E-47+00N	11	477361	5429227	1013
L34E-47+25N	11	477350	5429246	1021

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L32E-46+50N	11	477560	5429310	1028
L32E-46+75N	11	477548	5429330	1033
L34E-48+00N	11	477299	5429315	1038
L34E-48+25N	11	477288	5429333	1041
L34E-48+50N	11	477275	5429353	1045
L34E-48+75N	11	477259	5429377	1048
L34E-49+00N	11	477243	5429397	1048
L34E-49+25N	11	477224	5429421	1051
L34E-49+50N	11	477213	5429440	1052
L34E-49+75N	11	477196	5429456	1045
L34E-50+00N	11	477179	5429477	1045
L35E-45+00N	11	477396	5428996	951
L35E-45+25N	11	477383	5429021	955
L35E-45+50N	11	477369	5429038	957
L35E-45+75N	11	477351	5429057	963
L35E-46+00N	11	477335	5429078	976
L35E-46+25N	11	477318	5429106	986
L35E-46+50N	11	477303	5429120	994
L35E-46+75N	11	477296	5429142	1000
L35E-47+00N	11	477272	5429161	1008
L35E-47+50N	11	477239	5429204	1024
L35E-47+75N	11	477256	5429183	1016
L35E-48+00N	11	477216	5429259	1035
L35E-48+25N	11	477199	5429272	1040
L35E-48+50N	11	477181	5429291	1044
L35E-48+75N	11	477171	5429311	1045
L35E-49+00N	11	477158	5429337	1046
L35E-49+25N	11	477146	5429359	1047
L35E-49+50N	11	477128	5429382	1051
L35E-49+75N	11	477119	5429404	1050
L36E-45+25N	11	477292	5428982	938
L36E-45+50N	11	477278	5429002	943
L36E-45+75N	11	477270	5429025	948
L36E-46+00N	11	477252	5429040	954
L36E-46+25N	11	477240	5429059	963
L36E-46+50N	11	477229	5429083	971
L36E-46+75N	11	477213	5429102	977
L36E-47+00N	11	477200	5429124	985
L36E-47+25N	11	477182	5429147	993
L36E-47+50N	11	477167	5429163	1001
L36E-47+75N	11	477150	5429185	1009
L36E-48+00N	11	477135	5429197	1018
L36E-48+25N	11	477117	5429220	1028
L36E-48+50N	11	477116	5429247	1036
L36E-48+75N	11	477098	5429268	1045
L36E-49+00N	11	477081	5429288	1052
L36E-49+25N	11	477072	5429307	1050

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L34E-47+50N	11	477331	5429277	1026
L34E-47+75N	11	477323	5429288	1031
L36E-49+50	11	477052	5429329	1053
L36E-49+75	11	477034	5429349	1051
L36E-50+00	11	477026	5429375	1049
L37E-45+00	11	477234	5428894	934
L37E-45+25	11	477210	5428915	940
L37E-45+50	11	477198	5428939	944
L37E-45+75	11	477186	5428957	955
L37E-46+00	11	477171	5428974	961
L37E-46+25	11	477159	5429003	966
L37E-46+50N	11	477147	5429018	974
L37E-46+75N	11	477133	5429042	984
L37E-47+00N	11	477120	5429063	991
L37E-47+25N	11	477105	5429083	1001
L37E-47+50N	11	477095	5429103	1009
L37E-47+75N	11	477082	5429124	1021
L37E-48+00N	11	477067	5429140	1033
L37E-48+25	11	477054	5429165	1047
L37E-48+50	11	477038	5429179	1060
L37E-48+75	11	477025	5429199	1071
l37E-49+00	11	477011	5429223	1080
L37E-49+25	11	476989	5429248	1085
L37E-49+50	11	476974	5429266	1085
L37E-49+75	11	476965	5429279	1081
L38E-45+25	11	477130	5428886	929
L38E-45+50	11	477111	5428903	934
L38E-45+75	11	477101	5428923	942
L38E-46+00	11	477085	5428951	949
L38E-46+25	11	477067	5428963	957
L38E-46+50N	11	477057	5428990	965
L38E-46+75N	11	477050	5429007	975
L38E-47+00N	11	477041	5429019	980
L38E-47+25N	11	477033	5429029	986
L38E-47+50N	11	477007	5429061	1010
L38E-47+75N	11	476995	5429066	1020
L38E-48+00N	11	476975	5429091	1035
L38E-48+25N	11	476958	5429115	1047
L38E-48+75N	11	476942	5429147	1070
L38E-49+00	11	476922	5429170	1074
L38E-49+25	11	476904	5429192	1078
L38E-49+50	11	476887	5429212	1079
L38E-49+75	11	476876	5429233	1079
L38E-50+00	11	476856	5429249	1080
L39E-45+00	11	477054	5428791	918
L39E-45+25	11	477045	5428810	924
L39E-45+50	11	477031	5428832	926

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L39E-45+75N	11	477024	5428850	934
L39E-46+00N	11	477005	5428870	940
L39E-46+25N	11	476996	5428895	949
L39E-46+50N	11	476981	5428911	958
L39E-46+75N	11	476965	5428937	970
L39E-47+00N	11	476953	5428960	981
L39E-47+25N	11	476933	5428977	988
L39E-47+50N	11	476911	5428997	1002
L39E-47+75N	11	476905	5429017	1020
L39E-48+00N	11	476890	5429032	1038
L39E-48+25N	11	476880	5429056	1054
L39E-48+50N	11	476864	5429073	1069
L39E-48+75N	11	476852	5429093	1076
L39E-49+00N	11	476832	5429111	1078
L39E-49+25N	11	476818	5429130	1080
L39E-49+50N	11	476808	5429152	1082
L39E-49+75N	11	476785	5429178	1083
L40E-45+25N	11	476953	5428761	920
L40E-45+50N	11	476939	5428781	927
L40E-45+75N	11	476930	5428794	926
L40E-46+00N	11	476914	5428821	934
L40E-46+25N	11	476900	5428842	946
L40E-46+50N	11	476886	5428865	959
L40E-46+75N	11	476883	5428865	967
L40E-47+00N	11	476857	5428898	974
L40E-47+25N	11	476842	5428924	984
L40E-47+50N	11	476826	5428945	993
L40E-47+75N	11	476815	5428958	1003
L40E-48+00N	11	476802	5428987	1016
L40E-48+25N	11	476788	5428994	1027
L40E-48+50N	11	476770	5429017	1036
L40E-48+75N	11	476757	5429041	1044
L40E-49+00N	11	476746	5429060	1052
L40E-49+25N	11	476733	5429080	1059
L40E-49+50N	11	476715	5429097	1064
L40E-49+75N	11	476705	5429116	1066
L40E-50+00N	11	476687	5429140	1067
L41E-45+25N	11	476871	5428702	919
L41E-45+50N	11	476857	5428723	929
L41E-45+75N	11	476842	5428742	938
L41E-46+00N	11	476830	5428759	941
L41E-46+25N	11	476809	5428782	947
L41E-46+50N	11	476794	5428817	953
L41E-46+75N	11	476783	5428829	967
L41E-47+00N	11	476774	5428850	977
L41E-47+25N	11	476758	5428872	986
L43E-49+00N	11	476481	5428900	1033

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L41E-47+50N	11	476743	5428890	994
L41E-47+75N	11	476730	5428910	1004
L41E-48+00N	11	476720	5428933	1011
L41E-48+25N	11	476703	5428952	1019
L41E-48+50N	11	476685	5428973	1025
L41E-48+75N	11	476672	5428993	1033
L41E-49+00N	11	476662	5429016	1039
L41E-49+25N	11	476643	5429036	1043
L41E-49+50N	11	476632	5429054	1043
L41E-49+75N	11	476615	5429082	1042
L42E-45+25N	11	476793	5428642	900
L42E-45+50N	11	476777	5428675	910
L42E-45+75N	11	476768	5428671	918
L42E-46+00N	11	476744	5428716	927
L42E-46+25N	11	476728	5428737	937
L42E-46+50N	11	476714	5428757	947
L42E-46+75N	11	476705	5428781	954
L42E-47+00N	11	476683	5428800	962
L42E-47+25N	11	476675	5428826	968
L42E-47+50N	11	476661	5428844	974
L42E-47+75N	11	476651	5428868	984
L42E-48+00N	11	476634	5428885	989
L42E-48+25N	11	476618	5428906	992
L42E-48+50N	11	476606	5428935	997
L42E-48+75N	11	476596	5428952	1001
L42E-49+00N	11	476581	5428972	1008
L42E-49+25N	11	476562	5428992	1014
L42E-49+50N	11	476548	5429009	1017
L42E-49+75N	11	476532	5429033	1023
L42E-50+00N	11	476518	5429055	1029
L43E-45+00N	11	476727	5428572	912
L43E-45+25N	11	476704	5428596	920
L43E-45+50N	11	476693	5428611	921
L43E-45+75N	11	476671	5428640	928
L43E-46+00N	11	476655	5428656	937
L43E-46+25N	11	476643	5428674	941
L43E-46+50N	11	476613	5428724	950
L43E-46+50N	11	476631	5428688	946
L43E-47+00N	11	476597	5428737	956
L43E-47+25N	11	476587	5428757	962
L43E-47+50N	11	476574	5428776	970
L43E-47+75N	11	476561	5428795	978
L43E-48+00N	11	476545	5428815	991
L43E-48+25N	11	476525	5428838	1006
L43E-48+50N	11	476516	5428853	1018
L43E-48+75N	11	476500	5428876	1028
L46E-46+25N	11	476396	5428525	890

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L43E-49+25N	11	476463	5428930	1038
L43E-49+50N	11	476453	5428938	1043
L43E-49+75N	11	476432	5428968	1038
L44E-45+25N	11	476611	5428538	894
L44E-45+50N	11	476602	5428560	902
L44E-45+75E	11	476590	5428596	906
L44E-46+00N	11	476572	5428615	921
L44E-46+25N	11	476555	5428629	925
L44E-46+50N	11	476536	5428653	925
L44E-46+75N	11	476530	5428666	943
L44E-47+00N	11	476512	5428689	952
L44E-47+25N	11	476499	5428718	961
L44E-47+50N	11	476496	5428736	970
L44E-47+75N	11	476471	5428749	980
L44E-48+00N	11	476456	5428774	994
L44E-48+25N	11	476447	5428795	999
L44E-48+50N	11	476433	5428815	1008
L44E-48+75N	11	476417	5428835	1011
L44E-49+00N	11	476398	5428853	1015
L44E-49+25N	11	476387	5428877	1014
L44E-49+50N	11	476379	5428907	1011
L44E-49+75N	11	476362	5428925	1010
L45E-45+25N	11	476548	5428484	886
L45E-45+50N	11	476525	5428507	892
L45E-45+75N	11	476516	5428511	899
L45E-46+00N	11	476492	5428542	903
L45E-46+25N	11	476490	5428560	912
L45E-46+50N	11	476474	5428590	924
L45E-46+75N	11	476462	5428601	930
L45E-47+00N	11	476448	5428616	936
L45E-47+25N	11	476433	5428641	945
L45E-47+50N	11	476410	5428669	956
L45E-47+75N	11	476395	5428700	962
L45E-48+00N	11	476373	5428718	969
L45E-48+25N	11	476366	5428728	967
L45E-48+50N	11	476353	5428756	974
L45E-48+75N	11	476337	5428763	987
L45E-49+00N	11	476321	5428795	993
L45E-49+25N	11	476306	5428813	987
L45E-49+50N	11	476286	5428841	999
L45E-49+75N	11	476273	5428857	1005
L46E-45+25N	11	476465	5428433	852
L46E-45+50N	11	476453	5428462	861
L46E-45+75N	11	476436	5428492	872
L46E-46+00N	11	476429	5428494	878
L48E-48+25N	11	476105	5428546	972
L48E-48+50N	11	476091	5428583	978

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L46E-46+50N	11	476392	5428554	897
L46E-46+75N	11	476377	5428568	905
L46E-47+00N	11	476368	5428597	917
L46E-47+25N	11	476354	5428606	922
L46E-47+50N	11	476333	5428643	928
L46E-47+75N	11	476315	5428658	930
L46E-48+00N	11	476312	5428666	937
L46E-48+25N	11	476283	5428690	943
L46E-48+50N	11	476278	5428714	953
L46E-48+75N	11	476261	5428731	961
L46E-49+00N	11	476239	5428750	963
L46E-49+25N	11	476223	5428769	970
L46E-49+50N	11	476225	5428780	978
L46E-49+75N	11	476204	5428810	986
L47E-45+25N	11	476357	5428377	865
L47E-45+50N	11	476345	5428401	879
L47E-45+75N	11	476329	5428416	886
L47E-46+00N	11	476317	5428431	893
L47E-46+25N	11	476306	5428456	900
L47E-46+50N	11	476293	5428476	910
L47E-46+75N	11	476277	5428491	916
L47E-47+00N	11	476268	5428518	925
L47E-47+25N	11	476250	5428532	935
L47E-47+50N	11	476241	5428549	945
L47E-47+75N	11	476223	5428576	958
L47E-48+00N	11	476215	5428602	968
L47E-48+25N	11	476203	5428617	977
L47E-48+50N	11	476187	5428645	987
L47E-48+75N	11	476171	5428665	1000
L47E-49+00N	11	476156	5428689	1001
L47E-49+25N	11	476140	5428710	999
L47E-49+50N	11	476121	5428747	977
L47E-49+75N	11	476121	5428751	989
L48E-45+25N	11	476268	5428338	825
L48E-45+50N	11	476249	5428347	829
L48E-45+75N	11	476239	5428379	844
L48E-46+00N	11	476229	5428398	857
L48E-46+25N	11	476226	5428403	857
L48E-46+50N	11	476205	5428435	875
L48E-46+75N	11	476188	5428452	890
L48E-47+00N	11	476176	5428468	892
L48E-47+25N	11	476162	5428492	914
L48E-47+50N	11	476143	5428507	934
L48E-47+75N	11	476131	5428514	952
L48E-48+00N	11	476114	5428540	965
L51E-45+50N	11	475981	5428164	794
L51E-45+75N	11	475968	5428185	799

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L48E-48+75N	11	476074	5428610	979
L48E-49+00N	11	476072	5428613	980
L48E-49+25N	11	476046	5428654	972
L48E-49+50N	11	476035	5428671	982
L48E-49+75N	11	476020	5428682	995
L49E-45+25N	11	476171	5428253	819
L49E-45+50N	11	476161	5428271	828
L49E-45+75N	11	476147	5428289	836
L49E-46+00N	11	476132	5428308	845
L49E-46+25N	11	476117	5428331	855
L49E-46+50N	11	476112	5428352	860
L49E-46+75N	11	476097	5428364	874
L49E-47+00N	11	476077	5428395	881
L49E-47+25N	11	476058	5428418	897
L49E-47+50N	11	476050	5428432	909
L49E-47+75E	11	476037	5428454	920
L49E-48+00N	11	476027	5428473	926
L49E-48+25N	11	476005	5428495	932
L49E-48+50N	11	475988	5428520	936
L49E-48+75N	11	475982	5428535	941
L49E-49+00N	11	475974	5428555	946
L49E-49+25N	11	475965	5428580	955
L49E-49+50N	11	475950	5428609	969
L49E-49+75N	11	475928	5428628	980
L50E-45+25N	11	476091	5428193	821
L50E-45+50N	11	476078	5428215	821
L50E-45+75E	11	476062	5428238	822
L50E-46+00N	11	476050	5428260	823
L50E-46+25N	11	476036	5428280	836
L50E-46+50N	11	476020	5428300	847
L50E-46+75N	11	476007	5428317	852
L50E-47+00N	11	475992	5428343	858
L50E-47+25N	11	475988	5428359	864
L50E-47+50N	11	475966	5428389	875
L50E-47+75N	11	475953	5428409	887
L50E-48+00N	11	475946	5428428	892
L50E-48+25N	11	475926	5428450	903
L50E-48+50N	11	475910	5428470	912
L50E-48+75N	11	475900	5428485	917
L50E-49+00N	11	475885	5428515	924
L50E-49+25N	11	475867	5428520	935
L50E-49+50N	11	475854	5428554	944
L50E-49+75N	11	475843	5428572	954
L51E-45+25N	11	475996	5428141	788
L53E-47+50N	11	475703	5428228	807
L53E-47+75N	11	475691	5428244	812
L53E-48+00N	11	475679	5428270	816

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L51E-46+00N	11	475957	5428206	803
L51E-46+25N	11	475946	5428228	805
L51E-46+50N	11	475933	5428244	818
L51E-46+75N	11	475916	5428268	830
L51E-47+00N	11	475904	5428285	839
L51E-47+25N	11	475892	5428305	848
L51E-47+50N	11	475877	5428328	852
L51E-47+75N	11	475862	5428347	860
L51E-48+00N	11	475846	5428363	865
L51E-48+25N	11	475834	5428389	872
L51E-48+50N	11	475823	5428406	877
L51E-48+75N	11	475809	5428427	884
L51E-49+00N	11	475797	5428447	892
L51E-49+25N	11	475779	5428464	902
L51E-49+50N	11	475767	5428493	910
L51E-49+75N	11	475759	5428519	922
L52E-45+25N	11	475915	5428089	766
L52E-45+50N	11	475900	5428115	774
L52E-45+75N	11	475891	5428134	777
L52E-46+00N	11	475881	5428152	780
L52E-46+25N	11	475859	5428174	784
L52E-46+50N	11	475846	5428194	790
L52E-46+75N	11	475835	5428216	798
L52E-47+00N	11	475822	5428239	798
L52E-47+25N	11	475802	5428259	817
L52E-47+50N	11	475794	5428286	823
L52E-47+75N	11	475784	5428314	829
L52E-48+00N	11	475777	5428319	832
L52E-48+25N	11	475759	5428339	838
L52E-48+50N	11	475740	5428365	844
L52E-48+75N	11	475730	5428389	854
L52E-49+00N	11	475722	5428419	863
L52E-49+25N	11	475696	5428440	870
L52E-49+50N	11	475697	5428443	879
L52E-49+75N	11	475673	5428477	881
L53E-45+25N	11	475825	5428039	767
L53E-45+50N	11	475814	5428060	767
L53E-45+75N	11	475797	5428077	771
L53E-46+00N	11	475787	5428102	775
L53E-46+25N	11	475774	5428127	780
L53E-46+50N	11	475755	5428142	787
L53E-46+75N	11	475745	5428164	792
L53E-47+00N	11	475732	5428185	796
L53E-47+25N	11	475719	5428206	802
Bl45N-40+25E	11	476950	5428721	905
Bl45N-40+50E	11	476936	5428714	908
Bl45N-40+75E	11	476909	5428690	904

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
L53E-48+25N	11	475663	5428288	826
L53E-48+50N	11	475651	5428311	837
L53E-48+75N	11	475635	5428325	846
L53E-49+00N	11	475624	5428343	849
L53E-49+25N	11	475609	5428362	856
L53E-49+50N	11	475601	5428385	857
L53E-49+75N	11	475587	5428409	872
Bl45N-30+00E	11	477829	5429282	940
Bl45N-30+25E	11	477811	5429273	939
Bl45N-30+50E	11	477793	5429260	936
Bl45N-30+75E	11	477769	5429246	940
Bl45N-31+00E	11	477751	5429222	944
Bl45N-31+25E	11	477724	5429213	956
Bl45N-31+50E	11	477701	5429201	961
Bl45N-31+75E	11	477673	5429190	958
Bl45N-32+00E	11	477648	5429169	965
bl45N-32+25E	11	477632	5429158	966
Bl45N-32+50E	11	477608	5429148	966
Bl45N-32+75E	11	477585	5429134	965
Bl45N-33+00E	11	477561	5429117	963
Bl45N-33+25E	11	477553	5429099	960
Bl45N-33+50E	11	477526	5429091	956
Bl45N-33+75E	11	477505	5429075	958
Bl45N-34+25E	11	477458	5429046	959
Bl45N-34+50E	11	477440	5429033	954
Bl45N-34+75E	11	477421	5429023	947
Bl45N-35+25E	11	477371	5428986	937
Bl45N-35+50E	11	477349	5428975	932
Bl45N-35+75E	11	477331	5428960	929
Bl45N-36+00E	11	477308	5428960	936
Bl45N-36+50E	11	477276	5428925	925
Bl45N-36+75E	11	477249	5428914	927
Bl45N-37+25E	11	477208	5428888	918
Bl45N-37+50E	11	477180	5428870	924
Bl45N-37+75E	11	477155	5428862	923
Bl45N-38+00E	11	477143	5428863	923
Bl45N-38+25E	11	477120	5428852	920
Bl45N-38+50E	11	477097	5428839	917
Bl45N-38+75E	11	477074	5428828	913
Bl45N-39+25E	11	477031	5428794	901
Bl45N-39+50E	11	477005	5428784	899
Bl45N-39+75E	11	476987	5428757	896
Bl45N-40+00E	11	476969	5428731	914
Bl45N-52+75E	11	475869	5428030	763
Bl45N-53+00E	11	475843	5428015	762
Bl50N-30+00E	11	477559	5429734	1063
Bl50N-30+25E	11	477545	5429722	1065

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
Bl45N-41+25E	11	476860	5428668	890
Bl45N-41+50E	11	476837	5428657	890
Bl45N-41+75E	11	476821	5428646	893
Bl45N-42+00E	11	476804	5428625	887
Bl45N-42+25E	11	476785	5428613	887
Bl45N-43+25E	11	476687	5428568	894
Bl45N-43+50E	11	476674	5428554	895
Bl45N-43+75E	11	476645	5428536	888
Bl45N-44+00E	11	476626	5428525	886
Bl45N-44+25E	11	476607	5428504	884
Bl45N-44+50E	11	476605	5428492	883
Bl45N-44+75E	11	476590	5428482	880
Bl45N-45+00E	11	476568	5428458	877
Bl45N-45+25E	11	476539	5428454	845
Bl45N-45+50E	11	476524	5428441	846
Bl45N-45+75E	11	476504	5428434	846
Bl45N-46+00E	11	476475	5428418	842
Bl45N-46+25E	11	476444	5428404	863
Bl45N-46+50E	11	476414	5428383	857
Bl45N-46+75E	11	476399	5428361	844
Bl45N-47+00E	11	476371	5428370	840
Bl45N-47+25E	11	476343	5428348	851
Bl45N-47+50E	11	476327	5428341	840
Bl45N-47+75E	11	476305	5428323	835
Bl45N-48+00E	11	476282	5428307	833
Bl45N-48+25E	11	476249	5428267	820
Bl45N-48+50E	11	476230	5428251	815
Bl45N-48+75E	11	476205	5428238	814
Bl45N-49+00E	11	476191	5428229	809
Bl45N-49+25E	11	476172	5428216	812
Bl45N-49+50E	11	476152	5428203	809
Bl45N-49+75E	11	476128	5428186	814
Bl45N-50+00E	11	476103	5428171	819
Bl45N-50+25E	11	476077	5428164	797
Bl45N-50+50E	11	476056	5428146	794
Bl45N-50+75E	11	476032	5428134	794
Bl45N-51+00E	11	476007	5428122	784
Bl45N-51+25E	11	475986	5428105	769
Bl45N-51+50E	11	475968	5428093	769
Bl45N-51+75E	11	475946	5428076	767
Bl45N-52+00E	11	475920	5428059	764
Bl45N-52+25E	11	475907	5428055	765
Bl45N-52+50E	11	475886	5428043	762
Bl50N-41+75E	11	476553	5429055	1025
Bl50N-42+25E	11	476490	5429005	1040
Bl50N-42+50E	11	476471	5428996	1028
Bl50N-42+75E	11	476445	5428988	1034

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
BI50N-30+50E	11	477524	5429711	1069
BI50N-30+75E	11	477500	5429693	1077
BI50N-31+00E	11	477459	5429666	1082
BI50N-31+25E	11	477439	5429650	1083
BI50N-31+50E	11	477417	5429638	1083
BI50N-31+75E	11	477391	5429619	1084
BI50N-32+00E	11	477370	5429612	1079
BI50N-32+25E	11	477352	5429592	1068
BI50N-32+50E	11	477330	5429575	1063
BI50N-32+75E	11	477309	5429557	1057
BI50N-33+25E	11	477246	5429521	1048
BI50N-33+50E	11	477226	5429506	1047
BI50N-33+75E	11	477202	5429498	1047
BI50N-34+25E	11	477161	5429465	1035
BI50N-34+50E	11	477138	5429450	1035
BI50N-34+75E	11	477117	5429438	1039
BI50N-35+00E	11	477100	5429424	1045
BI50N-35+25E	11	477086	5429410	1048
BI50N-35+50E	11	477067	5429396	1048
BI50N-35+75E	11	477048	5429383	1047
BI50N-36+25E	11	477010	5429346	1061
BI50N-36+50E	11	476995	5429335	1067
BI50N-36+75E	11	476975	5429316	1072
BI50N-37+00E	11	476940	5429312	1075
BI50N-37+25E	11	476923	5429296	1079
BI50N-37+50E	11	476906	5429279	1082
BI50N-37+75E	11	476885	5429264	1082
BI50N-38+25E	11	476847	5429237	1088
BI50N-38+50E	11	476819	5429220	1084
BI50N-38+75E	11	476798	5429211	1086
BI50N-39+00E	11	476776	5429194	1085
BI50N-39+25E	11	476753	5429182	1083
BI50N-39+50E	11	476733	5429166	1080
BI50N-39+75E	11	476714	5429154	1075
BI50N-40+25E	11	476663	5429124	1065
BI50N-40+50E	11	476648	5429121	1058
BI50N-40+75E	11	476629	5429111	1052
BI50N-41+00E	11	476596	5429100	1039
BI50N-41+25E	11	476580	5429092	1034
BI50N-41+50E	11	476568	5429075	1029

Grid Coordinates	UTM Zone	Easting	Northing	Elev (m)
BI50N-43+25E	11	476401	5428972	1022
BI50N-43+50E	11	476390	5428969	1018
BI50N-43+75E	11	476377	5428951	1010
BI50N-44+00E	11	476350	5428943	1007
BI50N-44+25E	11	476328	5428937	998
BI50N-44+50E	11	476325	5428934	1001
BI50N-44+75E	11	476290	5428902	999
BI50N-45+00E	11	476266	5428882	1006
BI50N-45+25E	11	476259	5428860	985
BI50N-45+50E	11	476230	5428851	990
BI50N-45+75E	11	476212	5428841	993
BI50N-46+00E	11	476204	5428822	993
BI50N-46+25E	11	476161	5428815	998
BI50N-46+50E	11	476143	5428796	1003
BI50N-46+75E	11	476127	5428774	1002
BI50N-47+00E	11	476112	5428782	997
BI50N-47+25E	11	476073	5428757	991
BI50N-47+50E	11	476045	5428742	993
BI50N-47+75E	11	476028	5428728	994
BI50N-48+00E	11	475998	5428719	996
BI50N-48+25E	11	475972	5428694	983
BI50N-48+50E	11	475956	5428679	983
BI50N-48+75E	11	475935	5428666	980
BI50N-49+00E	11	475917	5428648	986
BI50N-49+25E	11	475895	5428640	986
BI50N-49+50E	11	475872	5428631	986
BI50N-49+75E	11	475853	5428610	972
BI50N-50+00E	11	475822	5428585	959
BI50N-50+25E	11	475807	5428583	952
BI50N-50+50E	11	475780	5428561	944
BI50N-50+75E	11	475763	5428551	935
BI50N-51+00E	11	475737	5428539	929
BI50N-51+25E	11	475710	5428519	922
BI50N-51+50E	11	475686	5428512	914
BI50N-51+75E	11	475674	5428491	901
BI50N-52+00E	11	475663	5428484	891
BI50N-52+25E	11	475628	5428462	896
BI50N-52+50E	11	475614	5428460	891
BI50N-52+75E	11	475586	5428441	890
BI50N-53+00E	11	475570	5428428	885

Table 3 – Grid Nomenclature and Coordinates
(Locations Plotted on Figure 5a)

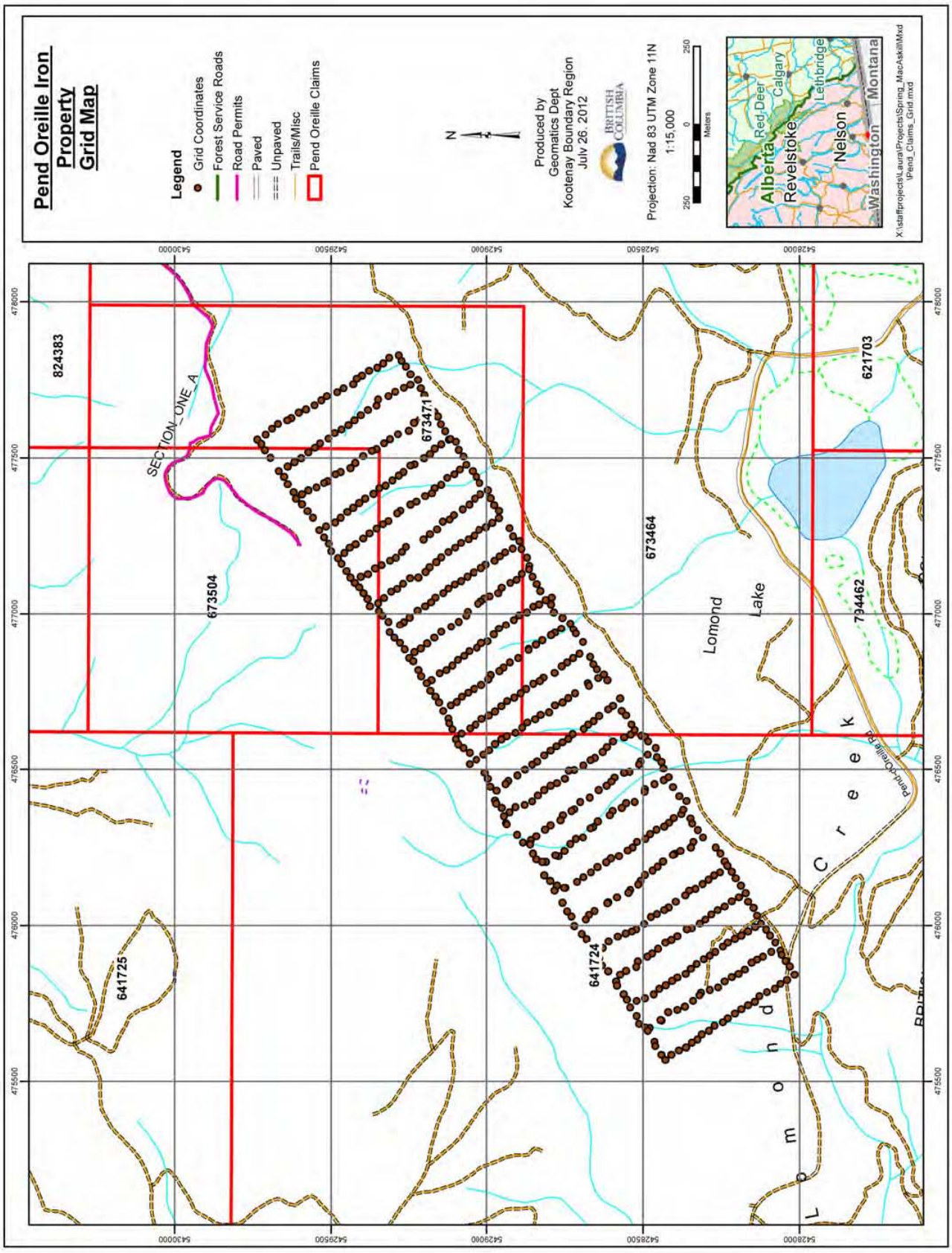


Figure 5a: Grid Map

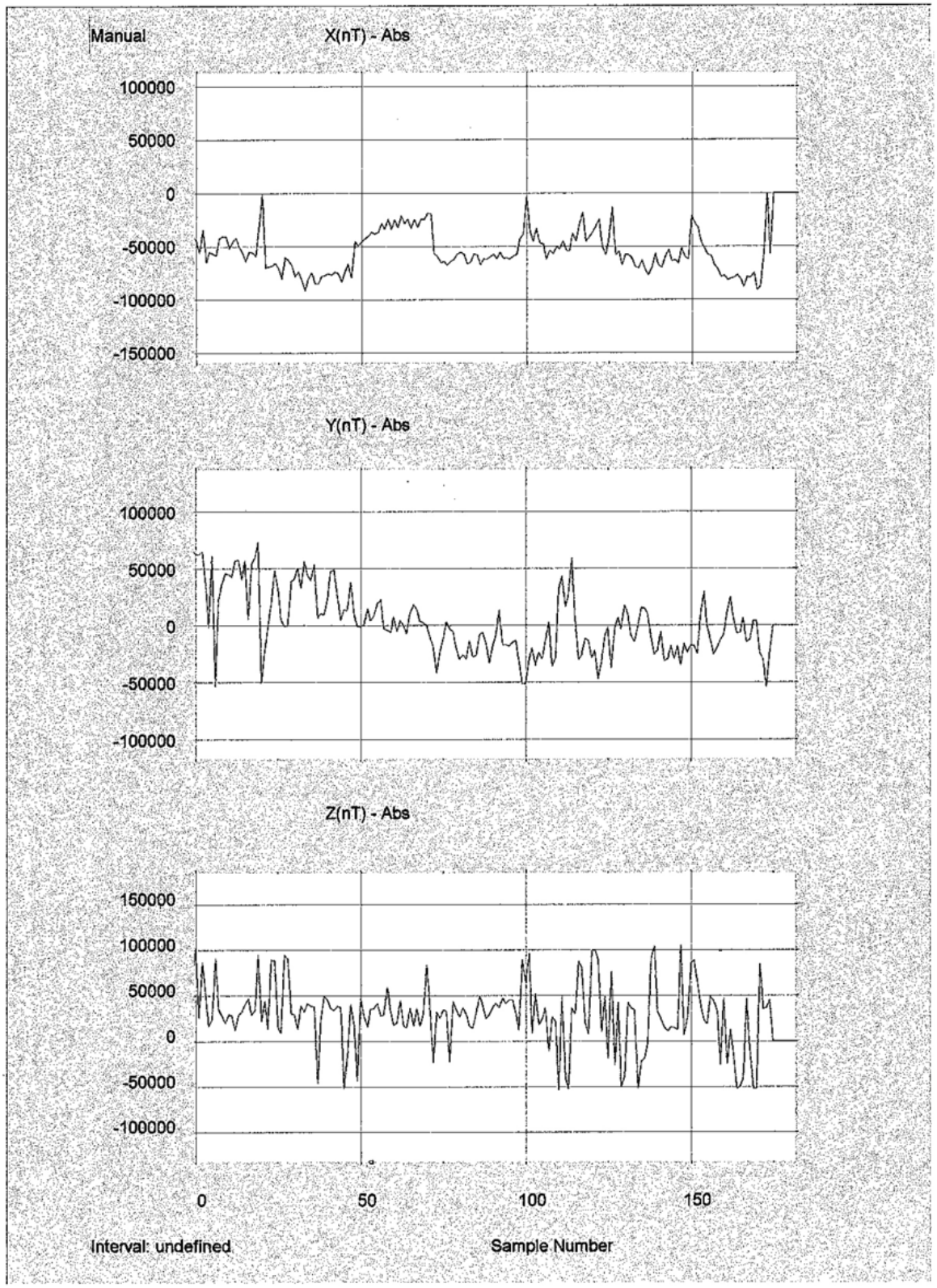


Figure 5b: Vector Magnetometer Survey

6.3 Data Verification

Seventeen (17) representative rock samples collected for the Pend Oreille 2012 program were carefully selected, bagged, and sent to three different labs. Eleven (11) samples were sent to Acme Laboratories in Vancouver BC. A few different methods were used including: Assay Peroxide Fusion Digestion, FeO Determination by Titration, Lithogeochemical Whole Rock Fusion, and Whole Rock by XRF. The following instruments used in these analyses were: titration, ICP-ES, ICP-MS and an X-ray Spectrometer.

Two (2) rock samples were sent to Vancouver Petrographics Ltd., in Vancouver BC for petrographic analysis. Thin sections of the rock samples were produced in the lab and a detailed description of the polished thin sections in reflected light (for opaque minerals) and transmitted light, and of thin sections in transmitted light only were created.

Four (4) rock samples were sent to SGS Canada Inc., in Lakefield Ontario for assaying. Four methods were used in this analysis: multi-element preparation and determination of highly mineralized samples by strong acid digest and ICP-OES (ores, concentrates and metallurgical test products), determination of Fe2+ and Fe3+ by H_2SO_4/HF acid digest, potassium dichromate titration, determination of major element oxides and rare earth oxides by borate fusion – XRF, and determination of sulfur and carbon by combustion-infrared detection.

All certificates of analysis are included in Appendix I and analytical methods are located in Appendix II.

7.0 Conclusions and Recommendations

Higher assay results for iron, lead, and zinc indicate potential for the Lomond property, therefore a major trenching and rock sampling program is recommended for the next phase. Trenching and rock sampling will give a good indication whether a drilling program should commence.

8.0 Statement of Costs

Exploration Work Type	Comment				
Personnel/Position	**Field Days**	**Days**	**Rate**	**Subtotal**	**Totals**
David Wallach/Project Coordinator	Some prospecting	27	$ 465.00	$ 13,200.00	
Bob Denny/Prospector	Subcontractor to D. Wallach				
Spring MacAskill/Geologist	Consultant				
Bryan Edgren/Expeditor	Centerpoint employee	8.46	$ 484.59	$ 4,099.59	
Harold Eigl/Line Cutter	Contractor	8.75	$ 180.00	$ 1,575.00	
Matthew Mackay/Line Cutter	Contractor	6.33	$ 300.00	$ 1,900.00	
Dillen Garne Stroughton	Centerpoint employee	19.75	$ 180.00	$ 3,555.00	
				$ 24,329.59	**$ 24,329.59**
Office Studies	**Personnel**				
Literature search	Spring MacAskill	3	$ 370.00	$ 1,110.00	
Datebase comoilation	Spring MacAskill	2	$ 370.00	$ 740.00	
Computer modelling	Spring MacAskill	3	$ 370.00	$ 1,110.00	
Reprocessing of date	Spring MacAskill	3	$ 370.00	$ 1,110.00	
General research	Spring MacAskill	2	$ 370.00	$ 740.00	
Report preparation	Spring MacAskill	10	$ 370.00	$ 3,700.00	
Report preparation	David Wallach (maps)	1.18	$ 465.00	$ 550.00	
Other(specify)	backroad mapbook purchase		$ 24.95	$ 24.95	
Other(specify)	Computer Software Update purchase		$ 232.96	$ 232.96	
				$ 9,317.91	**$ 9,317.91**
Airborne Exploration Surveys	**Line Kilometres**				
Aeromagnetics			0.00	0.00	
Radiometrics			0.00	0.00	
Electromanetics			0.00	0.00	
Gravity			0.00	0.00	
Digital terrain			0.00	0.00	

modelling					
Other(specify)			0.00	0.00	
				0.00	$ 0.00
Remote Sensing	**Area in Hectares/Enter total invoiced amount**				
Aerial photography			0.00	0.00	
LANDSAT			0.00	0.00	
Other(specify)			0.00	0.00	
				0.00	**$ 0.00**
Ground Exploration Surveys	**Area in Hectares/List Personnel**				
Geological mapping					
Regional					
Reconnaissance	230 ha/Spring MacAskill	6	370.00	$ 2,220.00	
Prospect	230 ha/Bob Denny	11.6	300.00	$ 3,472.00	
Underground			0.00	0.00	
Trenches			0.00	0.00	
				$ 5,692.00	**$ 5,692.00**
Ground Geophysics	**Line kilometres/ Enter total amount invoiced**				
Radiometrics			0.00	0.00	
Magnetics			0.00	0.00	
Gravity			0.00	0.00	
Digital terrain modelling			0.00	0.00	
Electromagnetics			0.00	0.00	
SP/AP/EP			0.00	0.00	
IP			0.00	0.00	
AMT/CSAMT			0.00	0.00	
Residtivity			0.00	0.00	
Complex residtivity			0.00	0.00	
Seismic reflection			0.00	0.00	
Well logging			0.00	0.00	
Geophysical interpretation			0.00	0.00	
Petrophysics			0.00	0.00	

Other(specify)			0.00	0.00	
				0.00	**$ 0.00**
Geochemical Surveying	**Number of Samples**	**No.**	**Rate**	**Subtotal**	
Drill(cuttings,core,etc.)			0.00	0.00	
Stream sediment			0.00	0.00	
Soil			0.00	0.00	
Rock(assay)		15		$ 665.60	
Water			0.00	0.00	
Biogeochemistry			0.00	0.00	
Whole rock			0.00	0.00	
Petrology(analyze)		2		$ 571.00	
Other(specify)	sample preparation	2		$ 540.00	
Other(specify)	courier		0.00	$ 26.57	
				$ 1,803.17	**$ 1,803.17**
Drilling	**No.of Holes,Size of core and Metres**	**No.**	**Rate**	**Subtotal**	
Reverse circulation(RC)			0.00	0.00	
Rotary air blast(RAB)			0.00	0.00	
Other(specify)			0.00	0.00	
				0.00	
Other Operations	**Clarify**	**No.**	**Rate**	**Subtotal**	
Trenching			0.00	0.00	
Bulk sampling			0.00	0.00	
Underground development			0.00	0.00	
Other(specify)			0.00	0.00	
				0.00	
Reclamation			0.00	0.00	
After drilling			0.00	0.00	
Monitoring			0.00	0.00	
Other(specify)			0.00	0.00	
				0.00	**$0.00**

Transportation		**NO.**	**Rate**	**Subtotal**	
Airfare			0.00	0.00	
Taxi			0.00	0.00	
trucl rental			0.00	0.00	
Kilometers			0.00	0.00	
ATV			0.00	0.00	
fuel			0.00	0.00	
Helicopter(hours)					
Fuel(Litres)	Bob Denny/Prospector			$ 310.04	
Fuel(Litres)	David Wallach from Kelowna			$ 745.62	
Other(fuel allowance)	David Wallach from Kelowna	1671	0.52	$ 868.92	
Other(fuel allowance)	David Wallach - local	762	0.51	$ 388.62	
Other(fuel allowance)	Spring MacAskill	32.8	0.51	$ 16.72	
Other(fuel allowance)	Spring MacAskill	294.4	0.52	$ 153.08	
Other(fuel allowance)	Spring MacAskill	258.8	0.51	$131.99	
				$ 2,614.99	**$ 2,614.99**
Accommodation & Food	**Rates per day**				
Hotel	Dave Wallach		0.00	$ 578.00	
Camp			0.00	0.00	
Meals	Spring MacAskill	3	51.00	$ 153.00	
Meals	David Wallach	24	51.00	$ 1,224.00	
				$ 1,955.00	**$ 1,955.00**
Miscellaneous					
Telephone				93.34	
Other(specify)	Land Rental:11/day	129.55	11.00	1,425.00	
				$ 1,518.34	**$ 1,518.34**

Equipment Rentals and Purchase					
Field Gear(specify)	Coveralls,Compasses,GPS, Bear Spray			$ 109.00	
Field Gear(specify)				$ 1,539.15	
Field Gear(specify)				$ 463.43	
Equipment Rentals		50		$ 585.00	
Purchase				$ 745.19	
Other(specify)	Safety		58.71	$ 58.71	
				$ 3,500.48	$ 3,500.48
Freight, rock samples					
	-		-	-	
				$ 0.00	**$ 0.00**
Total Expenditures: $ 50,731.48					

9.0 References

Bristow, J. F. and F.F. Yacoub (1990); Trenching, Sampling and Diamond Drilling on the Lomond Claim Group; *BC Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 19817.

"National Climate Data and Information Archive". *Environment Canada,* 29 May 2012. Web. 24 Jul. 2012. <http://www.climate.weatheroffice.gc.ca>

Fyles, J.T., and Hewlett, C.G., (1959): Stratigraphy and structure of the Salmo Zn-Pb area; *BC Ministry of Energy, Mines and Petroleum Resources*, Bulletin 41. p. 1-162.

Park, C.F. Jr., and Cannon, R.S. Jr. (1943): Geology and Ore Deposits of the Mealine Quadrange, Washington; *U.S. Geol. Surv.,* Prof. Paper 202.

Reesor, J.E. (1983): Geology of the Nelson Map-Area, East Half; *Geological Survey of Canada.*

Santos, P. J. (1984): Assessment Report on the Self-Potential Survey of the Lomond Group Nelway Area; *BC Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 12927.

10.0 Statement of Qualifications

Letter of Qualification

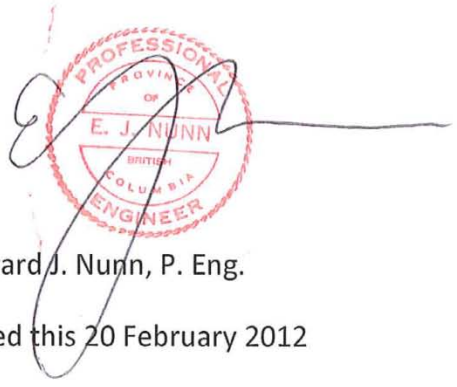
I, Edward John Nunn, am a Registered Professional Engineer in British Columbia graduating in Mining Engineering from Queen's University and Mineral Resource Geology from Northern Alberta Institute of Technology.

I have been associated with the mining industry for 46 years primarily working in project engineering and management for mine operating companies. Twenty six of these years were experienced in the coal and industrial mineral industries for: Kaiser Resources, An Tai Bao Surface Coal Mine (China), Greymouth Coal (New Zealand), Crystal Graphite Corporation (China & Canada), and Centermount Coal Ltd. My metal mining experience included Cominco (four operations), Lornex Mining Corporation, Echo Bay Mines, Reeves MacDonald Mine, and Granduc Operating Company. My experience includes exploration, geological engineering, civil/structural engineering, mine engineering, contract management, safety programs, financial analyses, governmental affairs, and project/construction/operations supervision and management in both surface and underground mining environments.

My experience with my previous two projects was to complete the predevelopment drilling program, prove the resource and reserves, develop the optimal mine plan and associated budget, achieve Board and governmental approval, assist in marketing, then develop and construct the project to the production stage. At present, my work includes Centermount Coal Senior Management duties for the exploration and development of the Bingay Main Coal Project.

My place of residence is 4226 Granger Road, Nelson, B.C., Canada, V1L 6T1.

I am presently working on a full time basis for Centerpoint Resources Inc. as Vice President of Technical Services, and as President of its Centershield Gold and Centermount Coal companies.



Edward J. Nunn, P. Eng.

Dated this 20 February 2012

Letter of Qualification

I, Richard George Ross Munroe, am a Registered Professional Geoscientist in both British Colombia and Manitoba, graduation from the University of Manitoba, Department of Earth Science in 1977. I was installed as a Fellow of the Geological Association of Canada in 1984.

I have been associated with the mining industry for 36 years primarily working in exploration geology and resource development for both metals and industrial minerals. Since graduation my time has been mainly split between consulting for construction materials and cement production divisions of large multinational cement companies and metal deposit exploration for a host of mining companies. My early work also included land management, industrial mineral resource development and geological consulting for Dome Petroleum, Amoco Canada, and Canada Cement (later Lafarge).

My metals exploration work has taken me to China, Mongolia, and Russia, much of Canada, Greenland, Mexico, Colombia, Peru, Brazil, Chile, Argentina, Vietnam and Malaysia. My experience includes all phases of mineral exploration, diamond drilling programs, surface resource and underground mine development, project/construction/operations supervision, governmental affairs and developing First Nations consultation programs.

I am the past President of Sutherland Minerals Corporation in Manitoba, Wind River Resources in BC and currently CEO of Tiberius Gold Corp., and President of Munroe Geological Services Ltd.

My place of residence is 3701-2980 Atlantic Ave., Coquitlam, BC, Canada, V3B 0G2.

I am currently involved in underground gold/silver mine development at two locations in Mexico and a gold property in Manitoba.

Richard G.R. Munroe, FGAC, P.Geo.

Dated this 24 June 2013

Letter of Qualification

I, Spring Chelsea MacAskill, of 4199 Broadwater Road, Castlegar, BC V1N 4V6 do hereby certify that:

1. I obtained a Bachelor of Science Degree in Geology from the University of Calgary in 2011

2. I have been practicing my profession as a Junior Geologist in mineral (metal) exploration continuously since 2011

3. I am a Member-in-Training in good standing of the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and have been since August 2011 (#112049)

4. I am currently employed as a Geologist for Centerpoint Resources Inc., 1385-1095 Pender St W, Vancouver, BC V6E 2M6

I am not aware of any material fact or change with respect to the subject matter of the report that is not disclosed in the report, which, by its omission makes the report misleading. The author was not involved with the project until June 2012, and therefore is not responsible for the data collected and prepared by others.

Spring MacAskill, G.I.T
26 September 2012

Appendix I

Certificates of Analysis

Acme Analytical Laboratories (Vancouver) Ltd.
1020 Cordova St. East Vancouver BC V6A 4A3 Canada

www.acmelab.com

Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Submitted By: Ted Nunn
Receiving Lab: Canada-Vancouver
Received: June 12, 2012
Report Date: June 27, 2012
Page: 1 of 2

CERTIFICATE OF ANALYSIS VAN12002674.1

CLIENT JOB INFORMATION

Project: Pend Oreille
Shipment ID:
P.O. Number
Number of Samples: 2

SAMPLE DISPOSAL

RTRN-PLP Return
RTRN-RJT Return

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

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Method Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
R200-250	2	Crush, split and pulverize 250 g rock to 200 mesh			VAN
XWSH	2	Extra Wash with Glass between each sample			VAN
4X03	2	Li2B4O7/LiBO2 fusion, analysis by XRF		Completed	VAN
2A Leco	2	Analysis by Leco	0.1	Completed	VAN
G822	2	Fe by Hydrobromic acid digestion for magnetite & AA finish	0.25	Completed	VAN

ADDITIONAL COMMENTS

Invoice To: Centerpoint Resources Inc.
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6
Canada

CC: Mimi Chien

BRITISH COLUMBIA CERTIFIED ASSAYER
CLARENCE LEONG
GENERAL MANAGER

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

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

Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Pend Oreille
Report Date: June 27, 2012

CERTIFICATE OF ANALYSIS VAN12002674.1

	Method	WGHT	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	MnO	TiO2	P2O5	Cr2O3	Ba	LOI	SUM	Cu	Ni	Pb	SO3	Sr
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	MDL	0.01	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	-5.11	0.01	0.001	0.001	0.001	0.002	0.002
POI 21809 CHECK	Rock	2.10	2.5	0.23	82.85	0.12	0.15	<0.01	0.03	0.06	<0.01	0.64	0.003	0.01	11.80	98.35	0.004	0.002	0.348	0.005	<0.002
POI 21807 CHECK	Rock	0.99	2.3	0.37	91.27	0.12	0.31	<0.01	0.03	0.05	<0.01	0.50	0.002	<0.01	3.29	98.22	0.006	0.004	0.454	0.009	<0.002

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Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Pend Oreille
Report Date: June 27, 2012

CERTIFICATE OF ANALYSIS VAN12002674.1

	Method	4X	4X	4X	2A Leco	2A Leco	G822
	Analyte	V2O5	Zn	Zr	TOT/C	TOT/S	Fe
	Unit	%	%	%	%	%	%
	MDL	0.002	0.001	0.002	0.02	0.02	0.01
POI 21809 CHECK	Rock	0.003	1.388	<0.002	0.39	0.02	55.86
POI 21807 CHECK	Rock	0.007	0.594	<0.002	0.19	<0.02	62.23

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Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Pend Oreille
Report Date: June 27, 2012

QUALITY CONTROL REPORT VAN12002674.1

	Method	WGHT	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	MnO	TiO2	P2O5	Cr2O3	Ba	LOI	SUM	Cu	Ni	Pb	SO3	Sr
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	MDL	0.01	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	-5.11	0.01	0.001	0.001	0.001	0.002	0.002
Pulp Duplicates																					
REP G1	QC																				
POI 21807 CHECK	Rock	0.99	2.3	0.37	91.27	0.12	0.31	<0.01	0.03	0.05	<0.01	0.50	0.002	<0.01	3.29	98.22	0.006	0.004	0.454	0.009	<0.002
REP POI 21807 CHECK	QC		2.3	0.35	92.03	0.12	0.32	<0.01	0.03	0.06	<0.01	0.50	0.002	<0.01	3.33	100.3	0.005	0.007	0.477	0.007	<0.002
Reference Materials																					
STD FER-2	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD SCH-1	Standard																				
STD SO-18	Standard		58.6	14.31	7.68	6.29	3.46	3.89	2.17	0.41	0.69	0.83	0.581	0.05	1.90	101.1	0.004	0.003	<0.001	0.021	0.038
STD SY-4(D)	Standard		50.2	20.86	6.27	8.00	0.54	7.28	1.62	0.11	0.26	0.13	<0.001	0.05	4.56	100.5	0.002	<0.001	<0.001	0.415	0.125
STD SY-4(D) Expected			49.9	20.69	6.21	8.05	0.54	7.1	1.66	0.108	0.287	0.131		0.034	4.56						0.1191
STD SO-18 Expected			58.47		7.67	6.42	3.35	3.71	2.17	0.39	0.69	0.83		0.0514							
STD FER-2 Expected																					
STD SCH-1 Expected																					
STD GS910-4 Expected																					
STD GS311-1 Expected																					
BLK	Blank		<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	0.00	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
G1	Prep Blank	<0.01	66.7	15.88	3.44	3.50	1.10	3.83	3.56	0.10	0.41	0.18	<0.001	0.11	0.63	99.43	<0.001	<0.001	<0.001	0.008	0.079
G1	Prep Blank																				

Acme Analytical Laboratories (Vancouver) Ltd.
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Phone (604) 253-3158 Fax (604) 253-1716
www.acmelab.com

Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Pend Oreille
Report Date: June 27, 2012

QUALITY CONTROL REPORT VAN12002674.1

	Method	4X	4X	4X	2A Leco	2A Leco	G822
	Analyte	V2O5	Zn	Zr	TOT/C	TOT/S	Fe
	Unit	%	%	%	%	%	%
	MDL	0.002	0.001	0.002	0.02	0.02	0.01
Pulp Duplicates							
REP G1	QC						2.36
POI 21807 CHECK	Rock	0.007	0.594	<0.002	0.19	<0.02	62.23
REP POI 21807 CHECK	QC	0.004	0.604	<0.002	0.19	<0.02	
Reference Materials							
STD FER-2	Standard						27.72
STD GS311-1	Standard				1.00	2.31	
STD GS910-4	Standard				2.77	8.27	
STD SCH-1	Standard						60.84
STD SO-18	Standard	0.036	0.008	0.027			
STD SY-4(D)	Standard	<0.002	0.010	0.056			
STD SY-4(D) Expected				0.0517			
STD SO-18 Expected				0.028			
STD FER-2 Expected							27.57
STD SCH-1 Expected							60.73
STD GS910-4 Expected					2.65	8.27	
STD GS311-1 Expected					1.02	2.35	
BLK	Blank	<0.002	<0.001	<0.002			
BLK	Blank						<0.01
BLK	Blank				<0.02	<0.02	
Prep Wash							
G1	Prep Blank	0.009	0.005	0.012	0.03	<0.02	
G1	Prep Blank						2.37

Acme Analytical Laboratories (Vancouver) Ltd.
1020 Cordova St. East Vancouver BC V6A 4A3 Canada

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Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Submitted By: Ted Nunn
Receiving Lab: Canada-Vancouver
Received: July 24, 2012
Report Date: August 27, 2012
Page: 1 of 2

CERTIFICATE OF ANALYSIS VAN12003434.1

CLIENT JOB INFORMATION

Project: Centerpoint PO
Shipment ID: 2
P.O. Number PO20120724B
Number of Samples: 8

SAMPLE DISPOSAL

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

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

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Method Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
R200-250	8	Crush, split and pulverize 250 g rock to 200 mesh			VAN
4X	8	Li2B4O7/LiBO2 fusion, analysis by XRF		Completed	VAN
2A Leco	8	Analysis by Leco	0.1	Completed	VAN
4A02	8	LiBO2/Li2B4O7 fusion ICP-ES analysis	0.2	Completed	VAN

ADDITIONAL COMMENTS

Invoice To: Centerpoint Resources Inc.
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6
Canada

CC: Mimi Chien

BRITISH COLUMBIA CERTIFIED ASSAYER
CLARENCE LEONG
GENERAL MANAGER

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

Acme Analytical Laboratories (Vancouver) Ltd.
1020 Cordova St. East Vancouver BC V6A 4A3 Canada
Phone (604) 253-3158 Fax (604) 253-1716
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Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Centerpoint PO
Report Date: August 27, 2012

CERTIFICATE OF ANALYSIS VAN12003434.1

Method		WGHT	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	2A Leco	2A Leco	4A	4A	4A
Analyte		Wgt	LOI	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	MnO	TiO2	P2O5	Cr2O3	Ba	SUM	TOT/C	TOT/S	SiO2	Al2O3	Fe2O3
Unit		kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
MDL		0.01	-5.11	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.02	0.02	0.01	0.01	0.04
G1	Prep Blank	<0.01	0.78	67.2	15.45	3.63	3.44	1.26	3.64	3.58	0.10	0.41	0.19	0.003	0.11	99.80	0.03	<0.02	67.23	15.78	3.66
21818B MAY24	Rock	3.50	27.71	1.7	0.13	43.54	22.96	3.83	<0.01	<0.01	0.04	<0.01	0.07	0.002	<0.01	99.95	6.28	<0.02	1.53	0.14	42.10
21817A MAY24	Rock	1.27	43.76	0.5	0.08	6.13	33.57	16.27	<0.01	<0.01	0.04	<0.01	0.05	<0.001	<0.01	100.4	12.48	<0.02	0.35	0.08	6.15
21815C MAY24	Rock	2.90	12.45	2.9	0.24	80.80	0.27	0.19	0.02	0.04	0.01	<0.01	0.34	0.005	<0.01	97.27	0.22	0.06	2.78	0.25	79.79
21813A MAY24	Rock	2.38	12.45	2.6	0.26	81.37	0.31	0.18	0.02	0.04	0.02	<0.01	0.22	0.005	<0.01	97.46	0.26	0.03	2.49	0.28	80.86
21816 MAY24	Rock	2.47	46.70	0.5	0.04	0.40	30.85	22.08	<0.01	<0.01	0.04	<0.01	<0.01	<0.001	<0.01	100.6	13.12	<0.02	0.47	0.03	0.42
21819 MAY24	Rock	1.38	46.70	0.2	0.05	0.40	30.88	22.15	<0.01	<0.01	0.02	<0.01	<0.01	0.005	<0.01	100.4	13.36	<0.02	0.20	0.05	0.40
21820 MAY24	Rock	2.67	12.50	2.5	0.43	82.31	1.05	0.37	0.03	0.06	0.02	<0.01	0.17	0.020	<0.01	99.43	0.41	0.04	2.41	0.44	82.17
21814B MAY24	Rock	2.13	12.49	3.9	0.47	80.15	0.34	0.27	0.04	0.08	0.01	<0.01	0.30	0.006	<0.01	98.06	0.31	0.03	3.51	0.44	79.05

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

Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Centerpoint PO
Report Date: August 27, 2012

CERTIFICATE OF ANALYSIS VAN12003434.1

	Method	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A
	Analyte	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sr	Zr	Y	Nb	Sc	LOI	Sum
	Unit	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	5	20	2	5	3	5	1	-5.1	0.01
G1	Prep Blank	1.25	3.54	3.48	3.58	0.41	0.18	0.10	<0.002	1052	<20	731	146	17	22	6	0.5	99.95
21818B MAY24	Rock	3.81	23.74	<0.01	0.03	<0.01	0.08	0.04	<0.002	9	89	6	<5	<3	<5	<1	28.0	99.46
21817A MAY24	Rock	15.90	33.16	<0.01	0.02	<0.01	0.06	0.04	<0.002	12	21	25	<5	<3	<5	<1	43.9	99.65
21815C MAY24	Rock	0.17	0.26	0.03	0.04	0.01	0.31	<0.01	0.002	16	42	6	<5	<3	<5	<1	13.1	96.75
21813A MAY24	Rock	0.17	0.32	0.03	0.05	0.01	0.21	0.02	0.003	23	85	7	<5	<3	<5	<1	12.9	97.29
21816 MAY24	Rock	21.28	30.44	0.01	0.01	<0.01	<0.01	0.04	<0.002	<5	<20	31	<5	<3	<5	<1	46.9	99.63
21819 MAY24	Rock	21.16	30.53	0.01	0.02	<0.01	<0.01	0.02	<0.002	<5	<20	26	<5	<3	<5	<1	47.2	99.64
21820 MAY24	Rock	0.36	1.08	0.05	0.06	0.02	0.14	0.02	<0.002	28	43	10	10	<3	<5	<1	12.4	99.20
21814B MAY24	Rock	0.24	0.32	0.05	0.08	0.02	0.27	0.01	0.003	32	49	12	7	3	<5	1	12.9	96.85

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Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Centerpoint PO
Report Date: August 27, 2012

QUALITY CONTROL REPORT VAN12003434.1

	Method	WGHT	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	2A Leco	2A Leco	4A	4A	4A
	Analyte	Wgt	LOI	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	MnO	TiO2	P2O5	Cr2O3	Ba	SUM	TOT/C	TOT/S	SiO2	Al2O3	Fe2O3
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	MDL	0.01	-5.11	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.02	0.02	0.01	0.01	0.04
Pulp Duplicates																					
21818B MAY24	Rock	3.50	27.71	1.7	0.13	43.54	22.96	3.83	<0.01	<0.01	0.04	<0.01	0.07	0.002	<0.01	99.95	6.28	<0.02	1.53	0.14	42.10
REP 21818B MAY24	QC																		1.70	0.13	42.42
21815C MAY24	Rock	2.90	12.45	2.9	0.24	80.80	0.27	0.19	0.02	0.04	0.01	<0.01	0.34	0.005	<0.01	97.27	0.22	0.06	2.78	0.25	79.79
REP 21815C MAY24	QC																0.22	0.08			
21814B MAY24	Rock	2.13	12.49	3.9	0.47	80.15	0.34	0.27	0.04	0.08	0.01	<0.01	0.30	0.006	<0.01	98.06	0.31	0.03	3.51	0.44	79.05
REP 21814B MAY24	QC		12.49	3.9	0.46	79.92	0.34	0.27	0.04	0.09	0.01	<0.01	0.29	0.001	<0.01	100.9					
Reference Materials																					
STD GS311-1	Standard																1.03	2.44			
STD GS910-4	Standard																2.79	8.21			
STD OREAS72B	Standard		5.27	51.1	8.89	9.54	3.92	16.23	1.36	1.33	0.13	0.40	0.06	0.143	0.03	99.67					
STD SO-18	Standard																		58.11	14.01	7.62
STD SO-18	Standard																		58.18	13.91	7.64
STD SO-18	Standard																		58.39	14.00	7.57
STD SO-18	Standard																		58.18	14.03	7.66
STD SY-4(D)	Standard		4.56	50.2	20.78	6.19	7.99	0.53	7.22	1.60	0.11	0.28	0.13	<0.001	0.04	99.90					
STD SY-4(D) Expected			4.56	49.9	20.69	6.21	8.05	0.54	7.1	1.66	0.108	0.287	0.131		0.034						
STD OREAS72B Expected					0																
STD GS311-1 Expected																	1.02	2.35			
STD GS910-4 Expected																	2.65	8.27			
STD SO-18 Expected																			58.47	14.23	7.67
BLK	Blank		0.00	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.001	<0.01	<0.01					
BLK	Blank																		<0.01	<0.01	<0.04
BLK	Blank																<0.02	<0.02			
BLK	Blank																		0.08	0.02	<0.04
Prep Wash																					
G1	Prep Blank	<0.01	0.78	67.2	15.45	3.63	3.44	1.26	3.64	3.58	0.10	0.41	0.19	0.003	0.11	99.80	0.03	<0.02	67.23	15.78	3.66

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1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Centerpoint PO
Report Date: August 27, 2012

QUALITY CONTROL REPORT VAN12003434.1

	Method	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A
	Analyte	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sr	Zr	Y	Nb	Sc	LOI	Sum
	Unit	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	5	20	2	5	3	5	1	-5.1	0.01
Pulp Duplicates																		
21818B MAY24	Rock	3.81	23.74	<0.01	0.03	<0.01	0.08	0.04	<0.002	9	89	6	<5	<3	<5	<1	28.0	99.46
REP 21818B MAY24	QC	3.82	23.25	<0.01	0.03	<0.01	0.07	0.03	<0.002	9	86	6	<5	<3	<5	<1	28.0	99.46
21815C MAY24	Rock	0.17	0.26	0.03	0.04	0.01	0.31	<0.01	0.002	16	42	6	<5	<3	<5	<1	13.1	96.75
REP 21815C MAY24	QC																	
21814B MAY24	Rock	0.24	0.32	0.05	0.08	0.02	0.27	0.01	0.003	32	49	12	7	3	<5	1	12.9	96.85
REP 21814B MAY24	QC																	
Reference Materials																		
STD GS311-1	Standard																	
STD GS910-4	Standard																	
STD OREAS72B	Standard																	
STD SO-18	Standard	3.36	6.42	3.69	2.13	0.70	0.81	0.40	0.553	497	54	390	305	30	15	24	1.9	99.86
STD SO-18	Standard	3.39	6.39	3.67	2.16	0.69	0.80	0.41	0.551	497	49	397	306	30	15	24	1.9	99.86
STD SO-18	Standard	3.34	6.40	3.62	2.08	0.69	0.80	0.40	0.540	491	44	388	301	30	14	24	1.9	99.88
STD SO-18	Standard	3.38	6.35	3.63	2.12	0.70	0.81	0.40	0.541	497	48	395	307	30	18	25	1.9	99.88
STD SY-4(D)	Standard																	
STD SY-4(D) Expected																		
STD OREAS72B Expected																		
STD GS311-1 Expected																		
STD GS910-4 Expected																		
STD SO-18 Expected		3.35	6.42	3.71	2.17	0.69	0.83	0.39	0.55	515	44	402	280	31	21.3	25		
BLK	Blank																	
BLK	Blank	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<5	<20	<2	<5	<3	<5	<1	0.0	<0.01
BLK	Blank																	
BLK	Blank	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<5	<20	<2	<5	<3	<5	<1	0.0	0.15
Prep Wash																		
G1	Prep Blank	1.25	3.54	3.48	3.58	0.41	0.18	0.10	<0.002	1052	<20	731	146	17	22	6	0.5	99.95

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Client: **Centerpoint Resources Inc.**
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Submitted By: Mimi Chien
Receiving Lab: Canada-Vancouver
Received: September 26, 2011
Report Date: November 03, 2011
Page: 1 of 2

CERTIFICATE OF ANALYSIS VAN11005007.1

CLIENT JOB INFORMATION

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

SAMPLE DISPOSAL

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

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

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Method Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
R200-250	1	Crush, split and pulverize 250 g rock to 200 mesh			VAN
4X4B	1	XRF Whole Rock & ICP-MS Trace Elements		Completed	VAN
G806	1	FeO by titration	0.5	Completed	VAN

ADDITIONAL COMMENTS

Invoice To: Centerpoint Resources Inc.
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6
Canada

CC:

BRITISH COLUMBIA CERTIFIED ASSAYER
RAYMOND CHAN
CHIEF ASSAYER

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

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1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Lomond
Report Date: November 03, 2011

CERTIFICATE OF ANALYSIS VAN11005007.1

Method		WGHT	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	2A Leco	2A Leco	4B	4B	4B
Analyte		Wgt	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	MnO	TiO2	P2O5	Cr2O3	Ba	LOI	SUM	TOT/C	TOT/S	Ba	Be	Co
Unit		kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm
MDL		0.01	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	-5.11	0.01	0.02	0.02	1	1	0.2
10180	Rock	1.49	1.6	0.09	84.82	0.05	0.06	0.05	0.01	0.01	<0.01	0.23	0.003	0.01	12.31	99.20	0.13	<0.02	4	<1	<0.2

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Report Date: November 03, 2011

CERTIFICATE OF ANALYSIS VAN11005007.1

	Method	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B
	Analyte	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02
10180	Rock	<0.1	2.0	<0.1	0.3	0.2	<1	1.7	<0.1	<0.2	1.3	9	0.7	0.8	0.4	0.5	0.5	0.08	<0.3	<0.05	<0.02

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Report Date: November 03, 2011

CERTIFICATE OF ANALYSIS VAN11005007.1

Method		4B	4B	4B	4B	4B	4B	4B	4B	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX
Analyte		Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm
MDL		0.05	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5	0.01
10180	Rock	<0.05	0.02	<0.05	<0.02	<0.03	<0.01	<0.05	0.02	3.9	5.7	5717	>10000	15.8	231.2	7.5	6.6	0.1	0.4	<0.5	4.58

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Project: Lomond
Report Date: November 03, 2011

CERTIFICATE OF ANALYSIS VAN11005007.1

	Method	1DX	1DX	G806
	Analyte	Tl	Se	FeO
	Unit	ppm	ppm	%
	MDL	0.1	0.5	0.01
10180	Rock	0.1	1.2	0.15

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Project: Lomond
Report Date: November 03, 2011

QUALITY CONTROL REPORT VAN11005007.1

		Method	WGHT	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	4X	2A Leco	2A Leco	4B	4B	4B
		Analyte	Wgt	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	MnO	TiO2	P2O5	Cr2O3	Ba	LOI	SUM	TOT/C	TOT/S	Ba	Be	Co
		Unit	kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm
		MDL	0.01	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	-5.11	0.01	0.02	0.02	1	1	0.2
Pulp Duplicates																						
REP G1	QC																					
Reference Materials																						
STD CSC	Standard																	3.07	4.03			
STD DS8	Standard																					
STD FER3	Standard																					
STD OREAS45CA	Standard																					
STD OREAS76A	Standard																	0.16	17.25			
STD SO-18	Standard																			492	<1	25.3
STD SO-18	Standard																			493	<1	25.8
STD SO-18	Standard			58.6	14.18	7.62	6.40	3.38	3.78	2.17	0.40	0.74	0.82	0.582	0.05	1.90	100.8					
STD SY-4(D)	Standard			49.8	20.80	6.20	7.97	0.52	7.01	1.61	0.11	0.28	0.12	<0.001	0.04	4.56	99.33					
STD DS8 Expected																						
STD OREAS45CA Expected																						
STD FER3 Expected																						
STD CSC Expected																		2.94	4.25			
STD OREAS76A Expected																		0.16	18			
STD SY-4(D) Expected				49.9	20.69	6.21	8.05	0.54	7.1	1.66	0.108	0.287	0.131		0.034	4.56						
STD SO-18 Expected				58.47		7.67	6.42	3.35	3.71	2.17	0.39	0.69	0.83		0.0514					514	1	26.2
BLK	Blank																					
BLK	Blank																	<0.02	<0.02			
BLK	Blank																			<1	<1	<0.2
BLK	Blank			<0.1	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	0.00	<0.01					
Prep Wash																						
G1	Prep Blank			67.1	15.99	3.49	3.71	1.19	3.69	3.57	0.11	0.45	0.19	0.003	0.11	0.68	100.3	0.02	<0.02	1048	2	4.3
G1	Prep Blank																					

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Project: Lomond
Report Date: November 03, 2011

QUALITY CONTROL REPORT VAN11005007.1

	Method	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B	4B
	Analyte	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02
Pulp Duplicates																					
REP G1	QC																				
Reference Materials																					
STD CSC	Standard																				
STD DS8	Standard																				
STD FER3	Standard																				
STD OREAS45CA	Standard																				
STD OREAS76A	Standard																				
STD SO-18	Standard	6.5	16.4	8.7	19.0	26.6	14	392.4	6.7	9.3	15.1	193	12.7	273.1	28.7	11.7	24.9	3.14	12.8	2.67	0.81
STD SO-18	Standard	6.6	17.1	9.4	19.2	27.0	14	394.8	6.9	9.2	15.3	196	13.3	274.0	29.5	11.9	25.3	3.20	12.6	2.68	0.84
STD SO-18	Standard																				
STD SY-4(D)	Standard																				
STD DS8 Expected																					
STD OREAS45CA Expected																					
STD FER3 Expected																					
STD CSC Expected																					
STD OREAS76A Expected																					
STD SY-4(D) Expected																					
STD SO-18 Expected		7.1	17.6	9.8	21.3	28.7	15	407.4	7.4	9.9	16.4	200	14.8	280	31	12.3	27.1	3.45	14	3	0.89
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.1	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02
BLK	Blank																				
Prep Wash																					
G1	Prep Blank	3.5	18.9	4.1	23.7	120.1	1	782.0	1.3	9.6	3.0	61	2.7	150.3	16.9	37.2	68.5	7.60	25.8	4.13	1.13
G1	Prep Blank																				

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Vancouver BC V6E 2M6 Canada

Project: Lomond
Report Date: November 03, 2011

QUALITY CONTROL REPORT VAN11005007.1

	Method	4B	4B	4B	4B	4B	4B	4B	4B	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX
	Analyte	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm
	MDL	0.05	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5	0.01
Pulp Duplicates																					
REP G1	QC																				
Reference Materials																					
STD CSC	Standard																				
STD DS8	Standard									13.2	115.5	125.9	317	39.7	28.1	2.6	4.7	6.9	1.6	88.4	0.19
STD FER3	Standard																				
STD OREAS45CA	Standard									0.7	508.5	20.0	60	242.3	4.8	0.1	<0.1	0.2	0.3	50.4	0.01
STD OREAS76A	Standard																				
STD SO-18	Standard	2.73	0.47	2.68	0.61	1.75	0.27	1.63	0.26												
STD SO-18	Standard	2.79	0.47	2.68	0.61	1.74	0.26	1.82	0.26												
STD SO-18	Standard																				
STD SY-4(D)	Standard																				
STD DS8 Expected										13.44	110	123	312	38.1	26	2.38	4.8	6.67	1.69	107	0.192
STD OREAS45CA Expected										1	494	20	60	240	3.8	0.1	0.13	0.19	0.275	43	0.03
STD FER3 Expected																					
STD CSC Expected																					
STD OREAS76A Expected																					
STD SY-4(D) Expected																					
STD SO-18 Expected		2.93	0.53	3	0.62	1.84	0.27	1.79	0.27												
BLK	Blank									<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	<0.01
BLK	Blank																				
BLK	Blank	<0.05	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01												
BLK	Blank																				
Prep Wash																					
G1	Prep Blank	3.27	0.51	2.81	0.56	1.64	0.28	1.72	0.29	0.1	3.0	3.5	47	4.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.5	<0.01
G1	Prep Blank																				

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

Client: **Centerpoint Resources Inc.**
1385 - 1095 West Pender Street
Vancouver BC V6E 2M6 Canada

Project: Lomond
Report Date: November 03, 2011

QUALITY CONTROL REPORT VAN11005007.1

		Method	1DX	1DX	G806
		Analyte	Tl	Se	FeO
		Unit	ppm	ppm	%
		MDL	0.1	0.5	0.01
Pulp Duplicates					
REP G1	QC				1.86
Reference Materials					
STD CSC	Standard				
STD DS8	Standard		5.3	5.3	
STD FER3	Standard				13.97
STD OREAS45CA	Standard		<0.1	0.8	
STD OREAS76A	Standard				
STD SO-18	Standard				
STD SO-18	Standard				
STD SO-18	Standard				
STD SY-4(D)	Standard				
STD DS8 Expected			5.4	5.23	
STD OREAS45CA Expected			0.07	0.5	
STD FER3 Expected					13.63
STD CSC Expected					
STD OREAS76A Expected					
STD SY-4(D) Expected					
STD SO-18 Expected					
BLK	Blank		<0.1	<0.5	
BLK	Blank				
BLK	Blank				
BLK	Blank				
Prep Wash					
G1	Prep Blank		0.2	<0.5	
G1	Prep Blank				1.96

Vancouver Petrographics Ltd.
8080 GLOVER ROAD, LANGLEY, B.C. V1M 3S3
PHONE: 604-888-1323 • FAX: 604-888-3642
email: vanpetro@vanpetro.com
Website: www.vanpetro.com

Report for: Centerpoint Resources Inc.
Suite 1385-1095 West Pender Street
Vancouver, B.C. V6E 2M6
Canada

Sent to: Mimi Chien
mimichien@centerpointcanada.com

Report 120694

August 13, 2012

Table of Contents

Summary:

Two samples were submitted for petrographic analysis (see details in Table 1).

Table 1: List of samples and their petrographic classification.

Sample No.	*Sample ID*	*Lithology*
1	“Dolomite”	Dolomite
2	“Iron Ore”	Iron-oxide replacement zone

Sample 1 is made up of inequigranular (up to 0.5 mm) blocky to interlobate dolomite and rare calcite. I also suspect the presence of ankerite; this should be ascertained by electron-optical analysis, as the distinction between dolomite and anhydrite is not possible under the microscope. The almost monomineralic aggregate could have originated from sedimentary processes and/or strong hydrothermal alteration and metasomatic replacement. Further field evidence is necessary before we can infer its origin.

Sample 2 is dominated by goethite. Within the polished thin section, boxwork microstructure suggests the replacement of pyrite and possibly sphalerite. The replacement occurred in highly oxidizing conditions and the abundance of iron, zinc, and lead (as reported in the certificate of analysis kindly provided by the client) is in agreement with a possible alteration/weathering of pyrite-sphalerite-bearing (and galena-bearing?) protolith. Some portions of the sample show epiclastic features, which point to a possible epiclastic origin for at least part of this sample.

The magnetic susceptibility measurements are listed in Table 2. The magnetic susceptibility of the sample offcuts was measured with a hand-held KT Magnetic Susceptibility Meter, and is intended to provide only an approximate estimate of the relative content of magnetic minerals within the samples.

Table 2: Magnetic susceptibility of the offcuts.

Sample No.	*Magnetic Susceptibility (SI)*
1	$0.008 \cdot 10^{-3}$
2	$0.130 \cdot 10^{-3}$

Signed by
F. Colombo, Ph.D., P.Geo.
Email: fab.petrologic@gmail.com

Selected Bibliography:

Delvigne, J.E., 1998, *Atlas of Micromorphology of Mineral Alteration and Weathering*, The Canadian Mineralogist Special Publication No. 3. Mineralogical Association of Canada, 494 pp.

Gillespie, M.R., Barnes, R.P., and Milodowski, A., 2011, *British Geological Survey Scheme for Classifying Discontinuities and Fillings,* British Geological Survey Research Report, RR/10/05, 56 pp.

Passchier, C.W. and Trouw, R.A.J., 1998, *Microtectonics*, Springer, 289 pp.

Ramdohr, P., 1980, *The Ore Minerals and Their Intergrowths*, 2nd edition, Vol. 1 and 2, Pergamon Press, 1207 pp.

Tröger, W.E., 1979, *Optical Determination of Rock-Forming Minerals. Part 1, Determinative Tables.* E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller), 188 pp.

Vernon, R.H., 2004, *A Practical Guide to Rock Microstructure*. Cambridge University Press, 594 pp.

Petrographic Descriptions

Sample 1: "Dolomite"

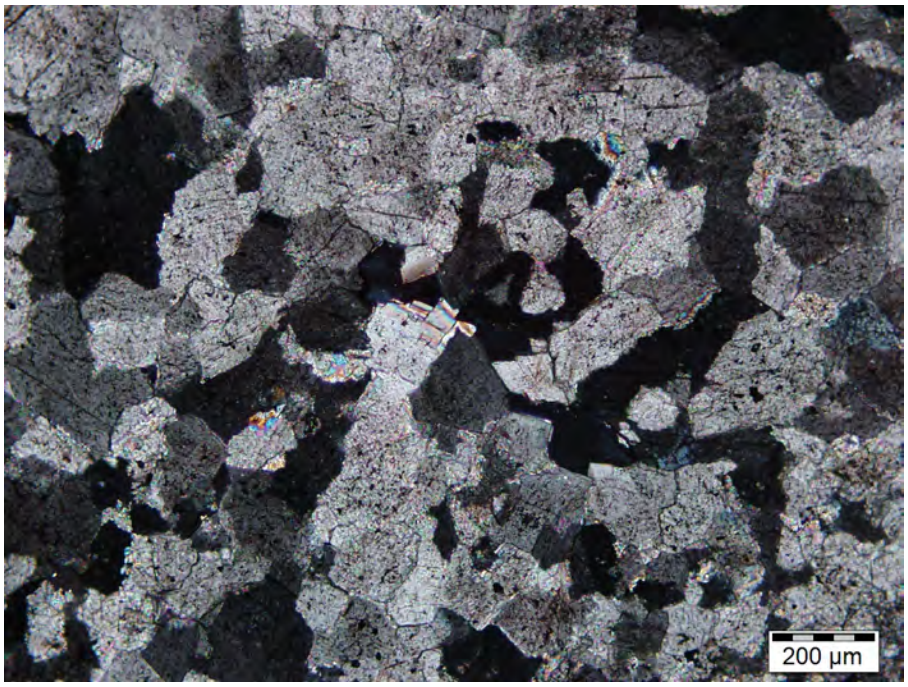
Dolomite

The isotropic microstructure is made up of inequigranular (up to 0.5 mm) blocky to interlobate dolomite. Rare calcite is concentrated within the irregular fractures and close to the cavities that are irregularly dispersed throughout the polished thin section.

Mineral	***Modal %***	***Main Size Range (mm)***
dolomite (and ankerite?)	100	up to 0.5
calcite	tr	up to 0.3

Dolomite forms blocky to interlobate crystals (up to 0.5 mm) which dominate this sample's composition and define an isotropic microstructure. The dolomite was distinguished by its slow reaction to cold dilute (10%) HCl. The slow reaction to the acid also suggests the presence of ankerite; however, the distinction between the dolomite and ankerite would require electron-optical analysis. The dolomite aggregate is crosscut by irregular and open fractures (up to 0.3 mm wide).

Calcite is rare. It occurs as fine-grained (up to 0.25 mm) crystals close to the fractures and irregular cavities (0.1–0.3 mm) that are dispersed throughout the isotropic microstructure. The calcite was distinguished by its brisk reaction to the hydrochloric acid test on the offcut.



***Photomicrograph 1**: The dolomite forms an inequigranular blocky to interlobate aggregate, which dominates this sample's composition. Crossed Nicols transmitted light.*

Sample 2: "Iron Ore"

Iron-oxide replacement zone

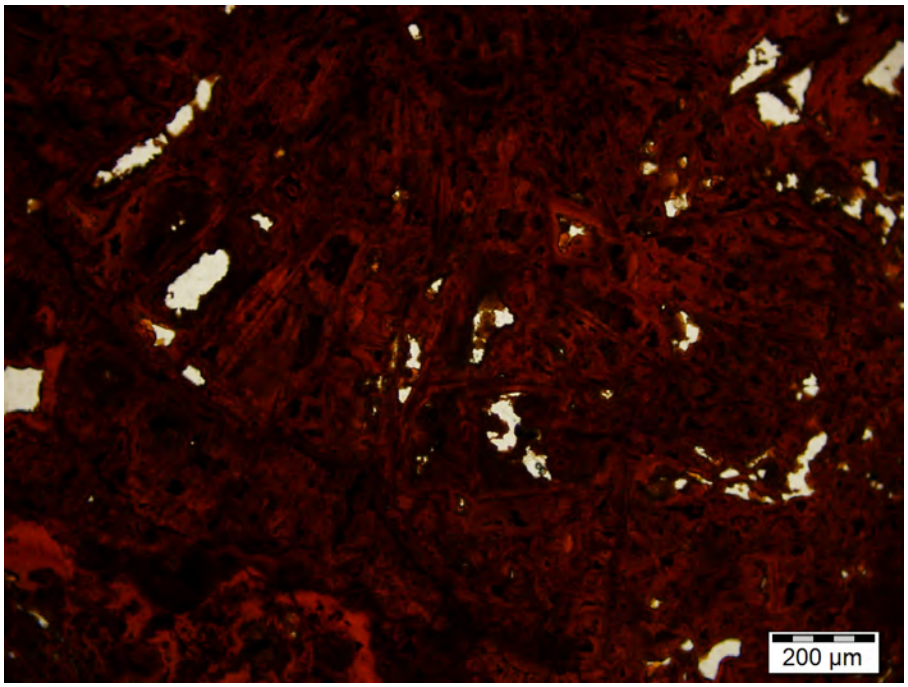
This polished thin section is dominated by cellular (boxwork), botryoidal, vuggy and massive microstructures made up of goethite-hematite (*limonite*). Irregular cavities and fine-grained aggregates of quartz-clay-white mica are also associated within the heterogeneous sample.

Mineral	***Modal %***	***Main Size Range (mm)***
goethite and hematite?	95 – 100	up to 1
quartz	1.5 – 2	up to 0.1
clay	1 – 1.5	up to 0.02
plagioclase	tr	up to 0.1
white mica	tr	up to 0.02
biotite	tr	up to 0.3

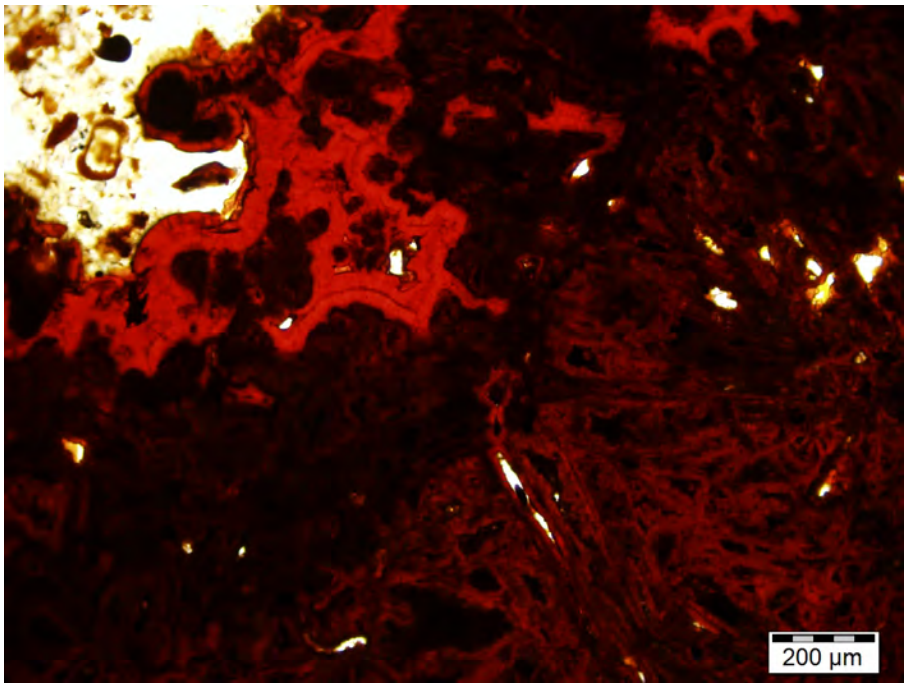
I tentatively interpret the heterogeneous iron-oxide aggregate as a mixture of **goethite** (because of the orange-brown streak) and subordinate possible **hematite** (which imparts a moderate reflectance to the aggregate). Under plane-polarized transmitted light, the iron-rich aggregate shows botryoidal to mammillary shapes and vuggy to massive textures. In some portions of the polished thin section, narrow "ribs" indicate that minerals have precipitated along the rock or mineral discontinuities (see Photomicrographs 2a–c). The ribs represent the less-soluble component left after alteration/weathering and reflects the original crack pattern. The hardness of the iron-rich aggregate (less than 5.5) indicates that the silica precipitation did not occur (at least in this sample) during the development of the ribs. The presence of rectangular boxwork microstructures (Photomicrographs 2a and c) possibly reflects the alteration of pyrite, while the acute-angle rib pattern could indicate the dissolution of sphalerite (Photomicrograph 2b).

Quartz occurs within irregular domains in the lower left part of the polished thin section, where it forms fine-grained (up to 0.1 mm) angular to blocky crystals. The quartz is associated with very fine-grained **clay**, subordinate **biotite** lamellae, blocky **plagioclase**, and **white mica** flakes. Within this fine-grained aggregate, the blocky and angular fragment shapes and the presence of angular clay-rich fragments (up to 0.3 mm) suggest a sedimentary (siliclastic sandstone) origin for these domains.

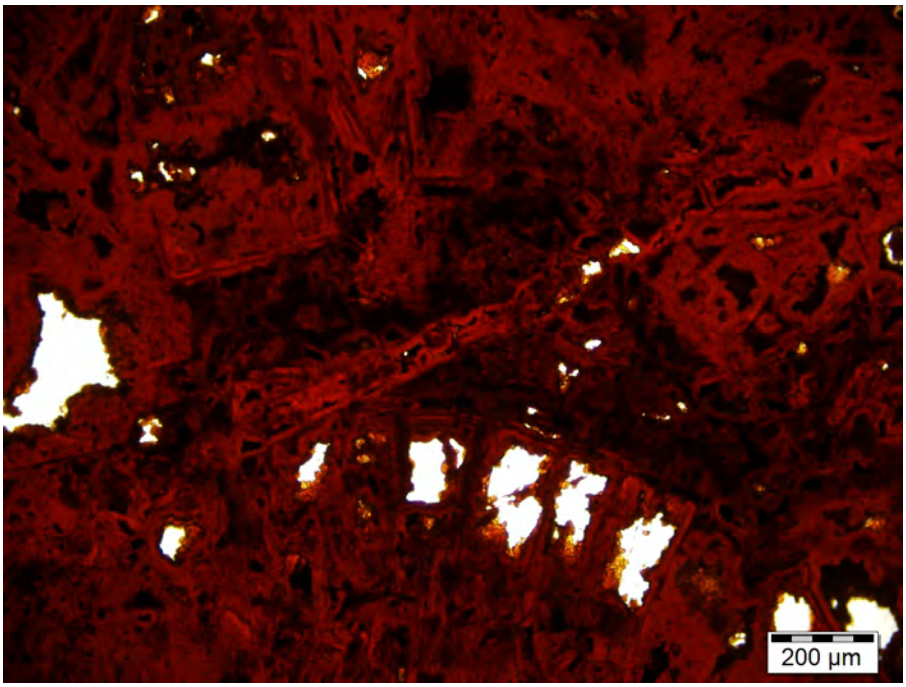
The irregular cavities are heterogeneously distributed within the sample and in most cases are coated by mammillary and botryoidal goethite (see Photomicrograph 2b).



***Photomicrograph 2a**: The "limonitic" aggregate shows cellular microstructures (boxwork) in which rectangular shapes are defined by iron-oxide (goethite and hematite) aggregates. The white domains are vugs. Plane-polarized transmitted light.*



***Photomicrograph 2b**: Botryoidal to mammillary goethite (bright orange in the upper left part of the photomicrograph) coats irregular cavities (white). The boxwork microstructure shows an acute-angle pattern in the lower right part. I tentatively interpret this as the replacement after possible sphalerite. Plane-polarized transmitted light.*



***Photomicrograph 2c**: The cellular microstructure is characterized by prevailing rectangular shapes, which are possibly derived from the pyrite replacement. Plane-polarized transmitted light.*

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Fax:604-568-9378

August 2, 2012

Date Rec. : 17 July 2012
LR Report : **CA02800-JUL12**

CERTIFICATE OF ANALYSIS

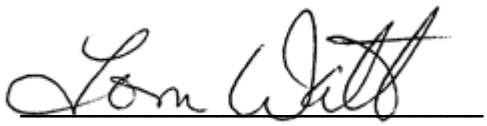
Final Report

Sample ID	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	V2O5 %
1: VC120926.001	2.45	0.15	82.7	0.29	0.20	0.45	0.01	< 0.01	0.10	0.02	< 0.01	< 0.01
2: VC120926.002	1.67	0.05	84.3	0.27	0.04	0.12	< 0.01	< 0.01	0.15	0.03	< 0.01	< 0.01
3: VC120926.003	1.49	0.12	82.9	0.27	0.46	0.24	0.01	< 0.01	0.26	< 0.01	< 0.01	< 0.01
4: VC120926.004	1.99	0.38	80.2	0.54	1.79	0.46	0.07	0.02	1.11	0.03	< 0.01	< 0.01

Sample ID	LOI %	Sum %	Ag g/t	As g/t	Ba g/t	Be g/t	Bi g/t	Cd g/t	Co g/t	Cr g/t	Cu g/t	Li g/t
1: VC120926.001	12.9	99.2	< 2	1010	17.3	0.04	< 20	< 20	< 40	< 4	112	< 30
2: VC120926.002	12.4	99.0	< 2	182	8.9	0.04	< 20	< 20	< 40	< 4	34.4	< 30
3: VC120926.003	12.9	98.7	< 2	429	11.4	0.06	< 20	< 20	< 40	< 4	103	< 30
4: VC120926.004	12.4	99.0	< 2	258	26.8	0.30	< 20	< 20	< 40	6	43.2	< 30

Sample ID	Mo g/t	Ni g/t	Pb g/t	Sb g/t	Se g/t	Sn g/t	Sr g/t	Tl g/t	U g/t	V g/t	Y g/t	Zn g/t	Fe2+ as FeO %	S %
1: VC120926.001	< 5	530	7150	25	< 30	21	1.67	< 30	< 100	< 4	2.3	13500	0.42	0.04
2: VC120926.002	< 5	61	4200	11	< 30	< 20	1.39	< 30	< 100	6	1.5	2930	0.35	0.03
3: VC120926.003	< 5	193	4900	< 10	< 30	< 20	1.53	< 30	< 100	< 4	2.3	6910	0.46	0.05
4: VC120926.004	< 5	27	2330	< 10	< 30	< 20	4.32	< 30	< 100	16	3.3	13600	0.49	0.03

Control Quality Assay
Not Suitable for Commercial Exchange



Tom Watt
Project Coordinator

Email: mimichien@centerpointconcad.com

OnLine LIMS

Appendix II

Analytical Methods

AcmeLabs
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METHOD SPECIFICATIONS
GROUP 8: FeO DETERMINATION BY TITRATION

Package Codes: G806
Sample Digestion: H_2SO_4 and HF digestion
Determination Method: Titration
Applicability: Rock and Drill Core

Method Description:

Samples are first digested with sulfuric acid. Solutions are allowed to cool and then digested with hydrofluoric acid. Indicator solution consisting of distilled water, sulfuric acid, phosphoric acid, boric acid and diphenylamine sulfonate is added to every sample solution. Solutions are then titrated using a standard dichromate ($K_2Cr_2O_7$) solution. The end point of the titration is determined when a purple color persists in the sample solution for 30 seconds.

Sample splits of 0.5g can be analyzed.

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CARECOMMITMENTPERFORMANCE

METHOD SPECIFICATIONS
GROUP 7PF – ASSAY PEROXIDE FUSION DIGESTION

Package Codes: **7PF1, 7PF2, 7PF1-Li**
Sample Digestion: **Na_2O_2 fusion**
Instrumentation Method: **ICP-ES**
Applicability: **Rock and Drill Core**

Fusion is an excellent choice for materials that are difficult to dissolve in acids, such as silicates and some metal oxides. The sodium peroxide fusion is ideal for breaking down chromite, magnetite, ilmenite, rutile, silicates, and carbides.

Method Description:

Prepared sample is mixed with sodium peroxide flux and fused. After cooling the sample is digested in hot water and concentrated HCl then made up to volume in Class A volumetric flasks. Sample splits of 0.25g or 0.1g can be analyzed. Very high-grade samples are reweighed at lower weight to accommodate analysis up to 100% upper limit.

Element	Group 7PF Detection
B	0.01%
Cr	0.01%
Cu	0.01%
Fe	0.01%
Nb	0.01%
Ni	0.01%
Sn	0.01%
Ta	0.01%
W	0.01%
Zn	0.01%
Optional	**Elements**
Li	0.01%

AcmeLabs
CARECOMMITMENTPERFORMANCE

METHOD SPECIFICATIONS
GROUP 4A & 4B – LITHOGEOCHEMICAL WHOLE ROCK FUSION

Package Codes: 4A, 4B
Sample Digestion: Lithium metaborate/tetraborate fusion
Instrumentation Method: ICP-ES (4A), ICP-MS (4B)
Applicability: Sediment, Soil, Vegetation, Moss-mat, Non-mineralized Rock and Drill Core

Method Description:

Prepared sample is mixed with $LiBO_2/Li_2B_4O_7$ flux. Crucibles are fused in a furnace. The cooled bead is dissolved in ACS grade nitric acid. Loss on ignition (LOI) is determined by igniting a sample split then measuring the weight loss. Total Carbon and Sulphur are determined by the Leco method (Group 2A).

Element	Group 4A Detection	Upper Limit
SiO_2	0.01 %	100 %
Al_2O_3	0.01 %	100 %
Fe_2O_3	0.04 %	100 %
CaO	0.01 %	100 %
MgO	0.01 %	100 %
Na_2O	0.01 %	100 %
K_2O	0.04 %	100 %
MnO	0.01 %	100 %
TiO_2	0.01 %	100 %
P_2O_5	0.01 %	100 %
Cr_2O_3	0.002%	100 %
LOI	0.1 %	100 %
C	0.01 %	100 %
S	0.01 %	100 %

Element	Group 4A Detection	Group 4B Detection	Upper Limit
Au	-	0.5 ppb	100 ppm
Ag	-	0.1ppm	100 ppm
As	-	1 ppm	10000 ppm
Ba	5 ppm	1 ppm	50000 ppm
Be	-	1 ppm	10000 ppm
Bi	-	0.1 ppm	2000 ppm
Cd	-	0.2 ppm	2000 ppm
Co	20 ppm	0.2 ppm	10000 ppm
Cs	-	0.1 ppm	10000 ppm
Cu	5 ppm	0.1 ppm	10000 ppm
Ga	-	0.5 ppm	10000 ppm
Hf		0.1 ppm	10000 ppm
Hg		0.1 ppm	100 ppm
Mo		0.1 ppm	2000 ppm
Nb	5 ppm	0.1 ppm	50000 ppm
Ni	20 ppm	0.1 ppm	10000 ppm
Pb		0.1 ppm	10000 ppm
Rb		0.1 ppm	10000 ppm
Sb		0.1 ppm	2000 ppm
Sc	1 ppm	-	10000 ppm
Se		0.5 ppm	100 ppm

Element	Group 4A Detection	Group 4B Detection	Upper Limit
Sn	-	1 ppm	10000 ppm
Sr	2 ppm	0.5 ppm	50000 ppm
Ta	-	0.1 ppm	50000 ppm
Th	-	0.2 ppm	10000 ppm
Tl	-	0.1 ppm	1000 ppm
U	-	0.1 ppm	10000 ppm
V	-	8 ppm	10000 ppm
W	-	0.5 ppm	10000 ppm
Y	3 ppm	0.1 ppm	50000 ppm
Zn	5 ppm	1 ppm	10000 ppm
Zr	5 ppm	0.1 ppm	50000 ppm
La	-	0.1 ppm	50000 ppm
Ce	30 ppm	0.1 ppm	50000 ppm
Pr	-	0.02 ppm	10000 ppm
Nd	-	0.3 ppm	10000 ppm
Sm	-	0.05 ppm	10000 ppm
Eu	-	0.02 ppm	10000 ppm
Gd	-	0.05 ppm	10000 ppm
Tb	-	0.01 ppm	10000 ppm
Dy	-	0.05 ppm	10000 ppm
Ho	-	0.02 ppm	10000 ppm
Er	-	0.03 ppm	10000 ppm
Tm	-	0.01 ppm	10000 ppm
Yb	-	0.05 ppm	10000 ppm
Lu	-	0.01 ppm	10000 ppm

Note: Highlighted elements by 1DX Aqua Regia – ICP-MS analysis

AcmeLabs
CARECOMMITMENTPERFORMANCE

METHOD SPECIFICATIONS
GROUP 4X AND 8X - WHOLE ROCK BY XRF

Package Codes: 4X, 8X
Sample Digestion: $LiBO_2$ fusion
Instrumentation Method: X-ray Spectrometer
Applicability: Sediment, Soil, Non-mineralized Rock and Drill Core
The 4X package is commonly used for rock characterization and is not susceptible to incomplete dissolution and matrix effects as the wet methods are. Use the 8X package as an add on to get quick and accurate information about your samples

Method Description:

A predetermined amount of sample is roasted to determine the loss on ignition (LOI). The roasted sample is then fused in a platinum-gold crucible with a commercial lithium tetraborate flux. The molten material is cast in a platinum mold. Fused discs are analyzed by XRF. Total Carbon and Sulphur are determined by the Leco method (Group 2A).

Element	Group 4X Detection	Upper Limit
SiO2	0.1 %	100 %
Al2O3	0.01 %	100 %
Fe2O3	0.01 %	100 %
CaO	0.01 %	100 %
MgO	0.01 %	100 %
Na2O	0.01 %	100 %
K2O	0.01 %	100 %
MnO	0.01 %	100 %
TiO2	0.01 %	100 %
P2O5	0.01 %	100 %
Ba	0.01 %	100 %
LOI	0.1 %	100 %
C	0.02 %	100 %
S	0.02 %	100 %

Element	Group 8X Detection
Ba	0.01 %
Ce	0.01 %
La	0.01 %
Nb	0.01 %
Nd	0.01 %
Sn	0.01 %
Sr	0.01 %
Ta	0.01 %
Th	0.01 %
Ti	0.01 %
U	0.01 %
W	0.01 %
Y	0.01 %
Zr	0.01 %

Requires a 5g sample pulp.

SGS	**Minerals Services** **Geochemistry** **Lakefield Laboratory**	Revision **2.2** Doc Type **Method Summary** Method No: Code **GC_ICP46C (9.4.40)** Service **Testing** Issued Date **29/Mar/2012** Review Date **29/Mar/2014** Approved by **S. Meyers**
Minerals Services	**Multi-Element Preparation and Determination of Highly Mineralized Samples by Strong Acid Digest and ICP-OES (ores, concentrates and metallurgical test products)** [Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Sn, Sr, Tl, Ti, V, Y, Zn; ICP-OES]	

1. **Parameter(s) measured, unit(s):**
   Silver (Ag), Aluminum (Al), Arsenic (As)*, Barium (Ba), Beryllium (Be), Bismuth (Bi), Cadmium (Cd), Calcium (Ca), Chromium (Cr), Cobalt (Co), Copper (Cu), Iron (Fe), Potassium (K), Lithium (Li), Magnesium (Mg), Manganese (Mn), Molybdenum (Mo), Sodium (Na), Nickel (Ni), Phosphorous (P), Lead (Pb)*, Antimony (Sb)*, Selenium (Se)*, Tin (Sn), Strontium (Sr), Thallium (Tl), Titanium (Ti), Vanadium (V), Yttrium (Y), Zinc (Zn) in g/t
   * volatilization losses may occur for some mineral forms.

2. **Typical sample size:**
   0.5 g

3. **Type of sample applicable (media):**
   Ores, concentrates and metallurgical test products

4. **Sample preparation technique used:**
   Sample is digested using a 4-acid mixture of HNO_3, HF, $HClO_4$, and HCL to obtain a near total digest of 30 elements on highly mineralized samples. Residue remaining from the acid digest is filtered, ashed and mixed with sodium peroxide in a zirconium crucible. The sodium peroxide and sample are fused until they form a homogenous melt. The fusion melt is then cooled and re-dissolved in dilute hydrochloric acid. The acid digest portion and the fused residue portion are now ready for analysis by ICP-OES.

5. **Method of analysis used:**
   Highly mineralized samples are analyzed by ICP-OES. These samples are analyzed as prepared and/or diluted within the linear range of the instrument calibration. Results from the acid portion and fusion portion are combined after analysis to give a total.

6. **Data reduction by:**
Computer, on line, data fed to Laboratory Information Management System with secure audit trail

7. **Figures of Merit:**
This method has been fully validated for the range of samples typically analyzed. Method validation includes the use of certified reference materials, replicates and blanks to calculate accuracy, precision, linearity, range, reporting limit, specificity and measurement uncertainty (MU). The estimated Measurement Uncertainty has been established for the following parameters at the concentration ranges (as available) and is based on laboratory replicate data (comprising of different samples, analysts, laboratory conditions, equipment, etc.,) for a period of greater than 3 months.

Note: N/E cells indicate insufficient data/information for MU determination at this time. Measurement Uncertainty estimates may vary due to instrumentation differences.

Concentration range (g/t)	Estimated Measurement Uncertainty +/- g/t						
	Ag	Al	As	Ba	Be	Bi	Ca
Reporting Limit (g/t)	2.0	5.0	20	1.0	1.0	20	20
0.01-0.055	N/E	N/E	N/E	N/E	0.014	N/E	N/E
0.055-0.1	N/E	N/E	N/E	N/E	0.014	N/E	N/E
0.1-0.55	N/E	N/E	N/E	N/E	0.030	N/E	N/E
0.55-1	N/E	N/E	N/E	0.42	0.145	N/E	N/E
1-5.5	0.77	N/E	N/E	0.57	0.213	N/E	N/E
5.5-10	1.99	N/E	N/E	1.78	0.620	N/E	N/E
10-55	2.67	N/E	4.28	3.87	0.908	4.15	N/E
55-100	5.45	N/E	20.39	17.47	N/E	7.28	20.78
100-550	15.98	37.67	36.72	20.39	N/E	5.50	23.48
550-1000	N/E	77.60	N/E	97.11	N/E	21.50	60.15
1000-5500	N/E	117.48	233.82	207.06	N/E	60.11	83.59
5500-10000	N/E	557.13	N/E	491.28	N/E	N/E	461.38
10000-55000	N/E	1021.44	N/E	2283.93	N/E	N/E	629.36
55000-100000	N/E	4305.48	N/E	N/E	N/E	N/E	2534.55
100000-550000	N/E	N/E	N/E	N/E	N/E	N/E	10051.81
550000-1000000	N/E	N/E	N/E	N/E	N/E	N/E	N/E

Concentration range (g/t)	Estimated Measurement Uncertainty +/- g/t						
	Cd	Co	Cr	Cu	Fe	K	Li
Reporting Limit (g/t)	2.0	6.0	10	2.0	10	10	2.0
0.01-0.055	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.055-0.1	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.1-0.55	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.55-1	0.23	N/E	N/E	N/E	N/E	N/E	0.29
1-5.5	0.43	0.74	0.89	0.75	N/E	N/E	0.47
5.5-10	0.96	0.91	2.96	2.60	N/E	N/E	1.22
10-55	1.51	1.87	2.14	3.94	N/E	9.27	1.39
55-100	6.21	3.18	8.86	6.27	13.67	18.54	4.37
100-550	13.27	10.41	12.28	27.95	38.99	20.62	6.96
550-1000	N/E	58.11	63.86	101.82	71.36	58.26	19.25
1000-5500	156.96	94.78	111.07	162.46	110.96	112.04	67.04
5500-10000	N/E	N/E	N/E	632.44	297.66	552.54	140.02
10000-55000	N/E	N/E	N/E	N/E	609.69	992.96	N/E

55000-100000	N/E	N/E	N/E	N/E	2978.99	N/E	N/E
100000-550000	N/E	N/E	N/E	N/E	5253.49	N/E	N/E
550000-1000000	N/E	N/E	N/E	N/E	23880.92	N/E	N/E

Concentration range (g/t)	Estimated Measurement Uncertainty +/- g/t						
	Mg	Mn	Mo	Na	Ni	P	Pb
Reporting Limit (g/t)	2.0	4.0	10	20	10	50	10
0.01-0.055	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.055-0.1	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.1-0.55	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.55-1	N/E	N/E	N/E	N/E	N/E	N/E	N/E
1-5.5	N/E	0.79	0.51	N/E	N/E	N/E	N/E
5.5-10	N/E	1.77	1.73	N/E	1.41	N/E	2.48
10-55	4.01	3.43	2.10	5.57	2.69	4.89	3.17
55-100	11.71	10.43	9.86	14.01	11.39	11.02	7.36
100-550	15.03	15.66	25.21	24.91	14.67	12.03	10.07
550-1000	55.92	67.68	199.02	42.18	46.93	45.01	20.46
1000-5500	86.45	102.37	344.62	105.57	87.37	68.56	65.18
5500-10000	350.54	331.08	504.42	349.33	424.14	N/E	N/E
10000-55000	620.37	522.46	633.38	749.27	677.43	N/E	N/E
55000-100000	2744.47	N/E	N/E	N/E	N/E	N/E	N/E
100000-550000	5521.56	N/E	N/E	N/E	N/E	N/E	N/E
550000-1000000	N/E	N/E	N/E	N/E	N/E	N/E	N/E

Concentration range (g/t)	Estimated Measurement Uncertainty +/- g/t						
	Sb	Se	Sn	Sr	Ti	Tl	V
Reporting Limit (g/t)	20	50	50	0.2	2.0	50	4.0
0.01-0.055	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.055-0.1	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.1-0.55	N/E	N/E	N/E	N/E	N/E	N/E	N/E
0.55-1	N/E	N/E	N/E	N/E	N/E	N/E	N/E
1-5.5	N/E	N/E	0.99	0.49	0.70	0.95	0.62
5.5-10	N/E	N/E	2.78	1.25	2.29	2.74	0.96
10-55	3.32	6.17	4.95	2.07	2.69	4.02	1.65
55-100	11.60	14.16	14.82	10.92	7.03	N/E	4.01
100-550	20.61	23.11	17.33	18.68	12.82	15.45	8.39
550-1000	N/E	N/E	56.12	53.36	43.81	N/E	N/E
1000-5500	N/E	N/E	160.66	46.01	78.67	N/E	N/E
5500-10000	N/E	N/E	N/E	102.05	320.39	N/E	N/E
10000-55000	N/E	N/E	N/E	N/E	555.75	N/E	N/E
55000-100000	N/E	N/E	N/E	N/E	2616.66	N/E	N/E
100000-550000	N/E	N/E	N/E	N/E	N/E	N/E	N/E
550000-1000000	N/E	N/E	N/E	N/E	N/E	N/E	N/E

Concentration range (g/t)	Estimated Measurement Uncertainty +/- g/t	
	Y	Zn
Reporting Limit (g/t)	2.0	5.0
0.01-0.055	N/E	N/E
0.055-0.1	N/E	N/E
0.1-0.55	N/E	N/E
0.55-1	N/E	N/E
1-5.5	0.32	0.91

5.5-10	0.70	2.85
10-55	1.48	2.87
55-100	2.77	6.58
100-550	17.28	12.42
550-1000	N/E	43.81
1000-5500	N/E	76.58
5500-10000	N/E	304.24
10000-55000	N/E	473.56
55000-100000	N/E	N/E
100000-550000	N/E	2701.11
550000-1000000	N/E	N/E

8. **Quality control:**
   Two digestion blanks per 20 samples; 1 duplicate per 20 samples; 1 certified reference material per 20 samples; calibration materials that cover the linear range; one instrument blank per 14 samples, secondary source materials every 14 samples.

9. **Accreditation:**
   The Standards Council of Canada has accredited this test in conformance with the requirements of ISO/IEC 17025. See www.scc.ca for scope of accreditation.

Method 9-11-47 The Determination of Fe2+ and Fe3+ by H_2SO_4/HF acid Digest, Potassium Dichromate Titration

1. **Parameter(s) measured, unit(s):**
   Fe^{3+} and Fe^{2+} (%)

2. **Typical sample size:**
   0.25g

3. **Type of sample applicable (media):**
   Ores/Mill Products

4. **Sample preparation technique used:**
   Weigh the sample, digest with sulphuric and hydrofluoric acids. Add boric acid. Cool to room temperature and titrate with a standardized solution of potassium dichromate to determine Fe^{2+}.

5. **Method of analysis used:**
   The Fe^{3+} is determined by subtracting Fe^{2+} from the total iron obtained from AAS or ICP.

6. **Data reduction by:**
   Manual entry into the worksheet, then export to the laboratory information management system with secure audit trail.

7. **Figures of Merit:**

Element	Limit of Quantification (LOQ) %
Fe^{2+}	N/A
Fe^{3+}	N/A

8. **Quality control:**
   For every 24 samples, 1 blank, 1 duplicate and 2 certified reference material are analyzed.

9. **Accreditation status:**
   This method is currently not accredited.

METHOD XRF76C Determination of Major Element Oxides and Rare Earth Oxides by Borate Fusion - XRF

1. **Parameter(s) measured, unit(s):**
   SiO_2; Al_2O_3; Fe_2O_3; MgO; CaO; Na_2O; K_2O; P_2O_5; MnO; TiO_2; Cr_2O_3; V_2O_5; LOI; additions BaO; Ce_2O_3; Nd_2O_3; La_2O_3; Pr_2O_3; Sm_2O_3; Nb_2O_5; ThO_2; Ta_2O_5; SnO_2; U_3O_8; Co; Ni; SrO; ZrO_2; HfO_2; Y_2O_3; WO_3

2. **Typical sample size:**
   0.2 to 0.5g

3. **Type of sample applicable (media):**
   Rocks, oxide ores, concentrates and catalysts

4. **Sample preparation technique used:**
   Samples are crushed and pulverized to -150 mesh. This method is used to report, in percentage, the whole rock suite (SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, P_2O_5, MnO, TiO_2, Cr_2O_3, V_2O_5) and Ni, Co as well as the rare earth oxides (La_2O_3, Ce_2O_3, Nd_2O_3, Pr_2O_3, Sm_2O_3) and other major element oxides BaO, SrO, ZrO_2, HfO_2, Y_2O_3, Nb_2O_5, ThO_2, Ta_2O_5, SnO_2, WO_3, U_3O_8). Sample preparation entails the formation of a homogenous glass disk by the fusion of the sample and a lithium tetraborate/lithium metaborate mixture. The LOI is determined separately and gravimetrically at 1000°C g.

5. **Method of analysis used:**
   The prepared disks are analyzed by wavelength dispersion X-ray fluorescence (WD-XRF). The LOI is included in the matrix correction calculations, which are performed by the XRF software.

6. **Data reduction by:**
   Computer, on line, data fed to Laboratory Information Management System with secure audit trail.

7. **Figures of Merit:**
   This method has been fully validated for the range of samples typically analyzed. Method validation includes the use of certified reference materials, replicates and blanks to calculate accuracy, precision, linearity, range, limit of detection, limit of quantification, specificity and measurement uncertainty (MU). The estimated Measurement Uncertainty has been

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This method is accredited by the Standards Council of Canada (SCC) in conformance with the requirements of ISO/IEC 17025. See www.scc.ca for scope of accreditation.

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Method 9-9-1 Determination Sulphur and Carbon by Combustion-Infrared Detection

1. **Parameter(s) measured, unit(s):**
   Carbon, Sulphur %

2. **Typical sample size:**
   0.1 to 0.5 g

3. **Type of sample applicable (media):**
   Rocks, ores, concentrates, metals and metallurgical products

4. **Sample preparation technique used:**
   Samples are crushed and pulverized to -150 mesh. A weighed sample is mixed with an accelerator, combusted and analyzed.

5. **Method of analysis used:**
   Combustion followed by infrared detection on LECO instrumentation.

6. **Data reduction by:**
   The results are exported via computer, on line, data fed to the Laboratory Information Management System with secure audit trail.

7. **Figures of Merit:**
   This method has been fully validated for the range of samples typically analyzed. Method validation includes the use of certified reference materials, replicates and blanks to calculate accuracy, precision, linearity, range, limit of detection, limit of quantification, specificity and measurement uncertainty.

   The Limit of Quantitation has been determined according to the following:

element	Limit of Quantification (LOQ) %
C	0.01
S	0.01

   The estimated Measurement Uncertainty (MU) has been established for the following parameters of this method at the following concentration ranges and is based on laboratory replicate data (comprising of different samples, analysts, laboratory conditions, equipment, etc.,) for a period of greater than 3 months.

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Concentration range (%)	Estimated Measurement Uncertainty (MU) +/- %	
	S	C
0 – 1.0	0.010	0.010
1.0 - 10	0.087	0.131
10 - 100	0.715	1.19

8. **Quality control:**
   One blank, one replicate and a matrix-suitable certified or in-house reference material per batch of 20 samples.

9. **Accreditation:**
   The Standards Council of Canada has accredited this test in conformance with the requirements of ISO/IEC 17025. See www.scc.ca for scope of accreditation.

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Appendix III

Photographs

Photo 1: Typical sample of Pend Oreille goethite

Photo 2: Pend Oreille goethite

Photo 3: Cut and polished goethite sample as shown in photo 2

Photo 4: Dolomite sample adjacent to the goethite