

**Prospecting Report
on the
Troitsa Project**

**BC Geological Survey
Assessment Report
31748**

**Omineca Mining Division
Tenure Numbers:**

591929, 610463, 610466, 626523, 637152

NTS: 093E11W

Latitude 53 31 25 N Longitude 127 21 03 W

**UTM Zone: 09 (NAD 83)
5931752N 0609179E**

Work performed July, 2010
By Shawn Turford and Ralph Keefe

**For
Shawn Turford/Ralph Keefe/Ken Galambos
P.O. Box 201
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November 10, 2010

1.0 EXECUTIVE SUMMARY

On July 19, 2010, Shawn Turford and Ralph Keefe flew into the west end of Troitsa Lake to check on the snow conditions present at the Troitsa Main showing located approximately 2.8 km south of the lake in preparation for property visits by a number of interested companies. Access was gained by fixed wing aircraft owned and operated by Mr. Turford. While in the area the two men landed and prospected the creeks draining the steep slopes immediately to the south of Troitsa Lake as the heavy snow accumulations and recent thaw had flushed the creek beds exposing new outcroppings that the pair had not seen before. A number of newly uncovered mineralized porphyry dikes were prospected. Five grab samples were collected during the course of the day of the variously mineralized rock that was encountered.

Table of Contents

	Page
1.0 Executive Summary	i
2.0 Introduction and Terms of Reference	1
2.1 Qualified Person and Participating Personnel.....	1
2.2 Terms, Definitions and Units.....	1
2.3 Source Documents.....	1
2.4 Scope.....	2
3.0 Property Description and Location	2
3.1 Location and Access.....	2
3.2 Physiography and Climate.....	4
3.3 Land Tenure.....	4
4.0 History	7
5.0 Geological Setting	8
5.1 Regional Geology.....	8
5.2 Property Geology.....	11
6.0 Mineralization	12
7.0 Previous Exploration	12
8.0 Current Exploration Program	13
8.1 Prospecting Survey Method and Approach.....	13
8.2 Sample Preparation, Analysis and Security.....	14
8.3 Prospecting Survey Results.....	14
9.0 Interpretation and Conclusions	14
10.0 Recommendations and Budget	15
11.0 References	16
12.0 Statement of Costs	18
13.0 Certification, Date and Signature	19
14.0 Appendices	20
Appendix A – Assay Certificates	
Appendix B – Analytical Procedures and Detection Limits	

List of Illustrations

Figure 1 Property Location map.....	3
Figure 2 Claim map.....	6
Figure 3 Regional Geology map.....	8
Figure 4 Property Geology map.....	11
Figure 5 Sample Location map.....	14

List of Tables

Table 1 Claim Data.....	5
Table 2 Regional Geology Legend.....	9
Table 3 Results.....	14

List of Photographs

Steep Hillside south of Troitsa Lake.....	4
Malachite in Rhyolite.....	12
Chalcopyrite in BFP dike.....	13

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 Qualified Person and Participating Personnel

Mr. Kenneth D. Galambos, P.Eng. was commissioned by Shawn Turford and Ralph Keefe of Francois Lake, British Columbia to evaluate the Troitsa “Lake” Project and to make recommendations for the next phase of exploration work in order to test the economic potential of the area.

This report describes the property and is based on historical information and an examination and evaluation of the property by the author on August 25, 2010. Subsequent programs conducted during the summer of 2010 entailed the services of personnel under the employ of Callinan Mines Limited.

2.2 Terms, Definitions and Units

- All costs contained in this report are denominated in Canadian dollars.
- Distances are primarily reported in metres (m) and kilometers (km) and in feet (ft) when reporting historical data.
- GPS refers to global positioning system.
- Minfile showing refers to documented mineral occurrences on file with the British Columbia Geological Survey.
- The term ppm refers to parts per million, equivalent to grams per metric tonne (g/t).
- ppb refers to parts per billion.
- The abbreviation oz/t refers to troy ounces per imperial short ton.
- The symbol % refers to weight percent unless otherwise stated. 1% is equivalent to 10,000ppm.
- Elemental and mineral abbreviations used in this report include: gold (Au), pyrite (Py) chalcopyrite (Cpy) and molybdenite (Mo).

2.3 Source Documents

Sources of information are detailed below and include the available public domain information and private company data.

- Research of the Minfile data available for the area at <http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/Pages/default.aspx>
- Research of mineral titles at <https://www.mtonline.gov.bc.ca/mtov/home.do>
- Review of company reports and annual assessment reports filed with the government at <http://www.empr.gov.bc.ca/Mining/Geoscience/ARIS/Pages/default.aspx>
- Review of geological maps and reports completed by the British Columbia Geological Survey at <http://www.empr.gov.bc.ca/Mining/Geoscience/MapPlace/MainMaps/Page/default.aspx> .
- Published scientific papers on the geology and mineral deposits of the region and on mineral deposit types.

- Work on the property by the author on August 25, 2010 and by Keefe and Turford, July 19, 2010.

2.4 Scope


This report describes the July prospecting program, geology, previous exploration history and mineral potential of the Troitsa “Lake” Project. Research included a review of the historical work that related to the immediate and surrounding area of the property. Regional geological data and current exploration information have been reviewed to determine the geological setting of the mineralization and to obtain an indication of the level of industry activity in the area. The property was examined and evaluated by the author on August 25, 2010 after the prospecting visit by Mr. Turford and Mr. Keefe. Work consisted of limited geological mapping, rock and geochemical sampling of the recently exposed bedrock near the Troitsa “Lake” showing.

3.0 PROPERTY DESCRIPTION AND LOCATION



3.1 Location and Access

The Troitsa project area lies on the south side of Troitsa Lake in west central British Columbia. The centre of the area lies approximately 18 km SW of the Huckleberry mine site and 140km south of the community of Smithers, BC on mapsheet 93E11W. The property is currently accessed with a floatplane landing on Troitsa Lake or via chartered helicopter bases located in Smithers, Houston or Terrace, BC. The author accessed the Troitsa property using a contract helicopter based in the Coles Creek camp approximately 10km to the east of the property. The claims lie within the Omineca Mining Division and are administered out of Smithers, BC.


Troitsa Location Map

 Troitsa Location

Topographic Layers

-  Lakes 1:6M
-  Rivers 1:6M

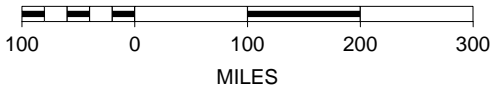
BC Border Layers

-  BC Border 1:6M



Map Center: 54.4781N 124.7082W

SCALE 1 : 10,780,312



3.2 Physiography and Vegetation

The general area of the Troitsa property is located in the Tahtsa Ranges near the north-western edge of the Interior Plateau, on the eastern flank of the Coast Mountains. Rugged peaks and steep serrated ridges rise to more than 2250m. Well developed cirques sculpted by alpine glaciers are common on the higher peaks and associated morainal deposits cover many of the upland valleys and plateaus.



Steep hillside south of Troitsa Lake

On the property relief is pronounced. With a base level at Troitsa Lake of 898m there is a mountain ridge which rises steeply to the south to an elevation of 1982m over a horizontal distance of 1200m. The south side of the ridge settles to an upland valley measuring approximately 1500m x 2500m with elevations between 1220m and 1460m. Further to the south, glaciers reside in steep cirques below rugged mountain peaks which rise to nearly 2050m in height. Most of the property lies above timber line which is situated at approximately 1370m. Here, scrub alder, willow and dwarf balsam fir grow near creeks while lower in elevation, balsam fir and spruce dominate. Devil's Club is sparse with the exception of shaded hillsides below mature stands of evergreen trees and near creeks at lower elevations near Troitsa and Blanket lakes.

3.3 Land Tenure

The Troitsa claim group consists of seventeen contiguous quartz claims consisting of 247 cells and covering an area of 4746.4 ha. A listing of the tenures

covering the Troitsa project is contained in Table 1 below. Upon acceptance of this report for assessment purposes, the highlighted tenures will have Expiry dates moved to February 1, 2011.

Table 1: Claim Data

Tenure #	Claim name	Issue date	Expiry date	Registered Owner
530747	Troitsa	28-Mar-06	19-Jun-11	Turford, Shawn A
562810	Troitsa 1	10-Jul-07	20-Jun-11	Turford, Shawn A
591929	TSA105	25-Sep-08	1-Feb-11	Turford, Shawn A
637152	Troitsa	19-Sep-09	1-Feb-11	Galambos, Kenneth D
610463		23-Jul-09	1-Feb-11	Galambos, Kenneth D
610466	Troitsa	23-Jul-09	1-Feb-11	Keefe, Ralph R
626523		1-Sep-09	1-Feb-11	Galambos, Kenneth D
818105	TSA 202	14-Jul-10	14-Jul-11	Turford, Shawn A
821422	TSA WEST	19-Jul-10	19-Jul-11	Turford, Shawn A
822483	TSA10901	21-Jul-10	21-Jul-11	Turford, Shawn A
829162	TSA NORTH	27-Jul-10	27-Jul-11	Turford, Shawn A
830887		30-Jul-10	30-Jul-11	Galambos, Kenneth D
830888		30-Jul-10	30-Jul-11	Galambos, Kenneth D
830889		30-Jul-10	30-Jul-11	Galambos, Kenneth D
830890		30-Jul-10	30-Jul-11	Galambos, Kenneth D
830891		30-Jul-10	30-Jul-11	Galambos, Kenneth D
830892		30-Jul-10	30-Jul-11	Galambos, Kenneth D

Troitsa Claim Map

Mineral Titles Layers

- Troitsa Tenure
- All Mineral Tenures

Mineral Inventory Layers

- MINFILE name label
- Developed Prosp...
- Past Producer
- Producer
- Prospect
- Showing
- All Others

Topographic Layers

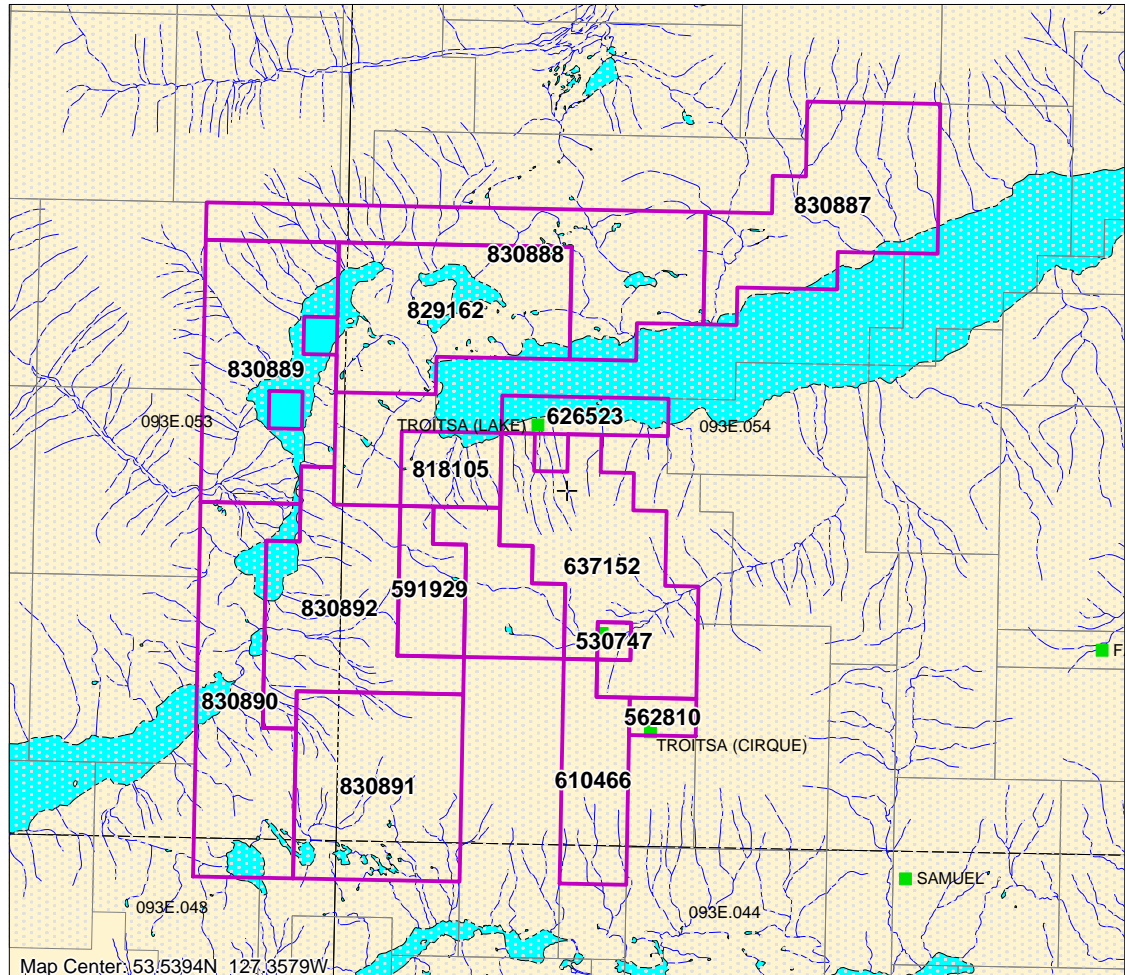
- Railways 1:20K
- Roads 1:20K
 - Gravel Road
 - Paved Road
 - Rough Road
- Lakes 1:20K
- Rivers 1:20K

Grid Layers

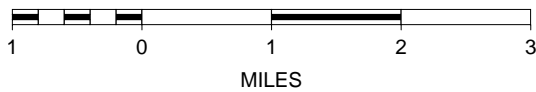
- Grid 1:20K - labels
- Grid 1:20K - outline

BC Border Layers

- BC Border 1:50K



SCALE 1 : 93,840



4.0 HISTORY

The Troitsa Lake area has been explored at least since the mid-1960s by numerous companies involved in the porphyry rush that occurred at that time. The Troitsa property was discovered in 1966 by G. Bleiler and F. Giauque. And subsequently staked and optioned to Silver Standard Mines. The company explored the property over the next two years with a number of geochemical and geophysical surveys and drilled three holes totaling 370.33m, presumably into the Troitsa Lake showing. Silver Standard staked an additional 60 claims in 1967 to cover new mineralization south of Troitsa Lake and conducted geological mapping; trenching and a very limited IP geophysical survey over what has become the Troitsa Main showing. The company diamond drilled two holes totaling 361.80m of "A" sized core in 1968 prior to returning the property to the vendors.

In 1969, Aston Resources Ltd. optioned the property and conducted additional geological mapping, geochemical and ground geophysical surveys primarily in the vicinity of the Troitsa Main showing. The company also conducted a helicopter based airborne magnetic and electromagnetic survey over the area.

In 1971 Cerro Mining Company of Canada Limited optioned the property from Aston Resources Limited and completed various geochemical surveys. Quintana completed a single 457m diamond drill hole the following season.

N. Cawthorn completed detailed geologic mapping over the property in 1973 as part of his M. Sc. Thesis at the University of British Columbia, titled Geology and Petrology of the Troitsa Lake Property, Whitesail Lake Map Area, B.C.

The claim group lapsed and was restaked in part by Payday Resources Inc. as the Nuswat, Core Lode 1 and Core Lode 2 mineral claims in 1983. Payday focused on the central and northwestern areas of the property and outlined numerous multi-element anomalies for both base and precious metals. Follow up work included geochemical and magnetic surveys and geological mapping on the western and northern areas of the property where precious metals appeared to be concentrated.

No further work has been recorded for the area with the exception of prospecting programs completed by Shawn Turford under the British Columbia Prospectors Assistance Program.

5.0 GEOLOGICAL SETTING

5.1 Regional Geology

Regionally, the Troitsa Lake area lies within the Stikinia Terrane, approximately 15 km east of the main granitic and metamorphic rocks of the Coast Plutonic Complex. Lower Jurassic Hazelton Group-Telkwa Formation calc-alkaline volcanic rocks and middle Jurassic Smithers Formation undivided sedimentary rocks are the oldest rock units in the area. Overlying the Hazelton Group in the claim region and to the north are sediments of the Lower Cretaceous Skeena Group and a thick sequence of subaerial andesitic volcanic rocks of the Kasalka Group. Intimately related to Cretaceous volcanism are various quartz diorite and granodiorite intrusions grouped as Bulkeley or Kasalka type.

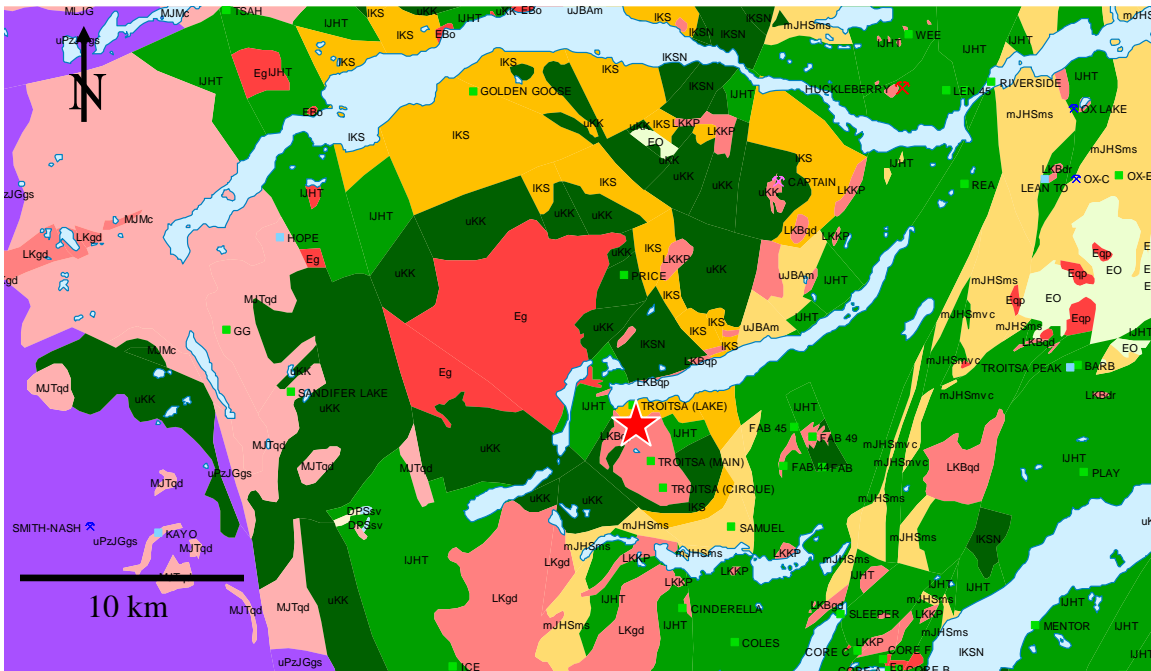


Figure 3: Regional Geology map



Block faulting, ring and radial faults, and subsequent intrusion by dykes and/or hydrothermal fluids may have affected a large part of the area between Tahtsa and Troitsa lakes where a large caldera, 22 km in diameter, is believed to have formed during Cretaceous volcanism. The Troitsa property straddles the southern rim of this obscure collapse feature.

Geology Legend


Bounding Box: North: 53.717 South: 53.429 West: -127.801 East: -127.001

NTS Mapsheet: 093E


Eocene

-  **EBo** **Boundary Stock:** granodioritic intrusive rocks
-  **Eqp** high level quartz phyrlic, felsitic intrusive rocks

Coast Plutonic Complex(?)


-  **Eg** intrusive rocks, undivided

Ootsa Lake Group

-  **EO** rhyolite, felsic volcanic rocks

Cretaceous






Kasalka Group

-  **uKK** andesitic volcanic rocks

Late Cretaceous

-  **LKgd** granodioritic intrusive rocks

Bulkley Plutonic Suite



-  **LKBdr** dioritic intrusive rocks
-  **LKBfp** feldspar porphyritic intrusive rocks
-  **LKBgd** granodioritic intrusive rocks
-  **LKBqp** high level quartz phyrlic, felsitic intrusive rocks
-  **LKBqd** quartz dioritic intrusive rocks

Kasalka Plutonic Suite

-  **LKKP** granodioritic intrusive rocks

Lower Cretaceous

Skeena Group

-  **IKS** undivided sedimentary rocks
-  **IKSN** **Mt. Ney Volcanics:** undivided volcanic rocks


Upper Jurassic

Bowser Lake Group

-  **uJBAm** **Ashman Formation:** mudstone, siltstone, shale fine clastic sedimentary rocks

Middle Jurassic to Late Jurassic

Gamsby Complex

 **MLJG** quartz dioritic intrusive rocks

Middle Jurassic

 **MJMc** **Mount Choquette Pluton:** dioritic intrusive rocks

Hazelton Group

 **mJHSms** **Smithers Formation:** undivided sedimentary rocks

 **mJHSmvc** **Smithers Formation:** volcaniclastic rocks

Trapper Plutonic Suite

 **MJTqd** quartz dioritic intrusive rocks


Lower Jurassic

Hazelton Group

 **IJHT** **Telkwa Formation:** calc-alkaline volcanic rocks


Upper Triassic

Stuhini Group

 **uTrSsv** marine sedimentary and volcanic rocks


Upper Paleozoic to Middle Jurassic

Gamsby Complex

 **uPzJGgs** greenstone, greenschist metamorphic rocks

Devonian to Permian

Stikine Assemblage

 **DPSsv** marine sedimentary and volcanic rocks

*[British Columbia Ministry of Energy, Mines and Petroleum Resources](#)
[Geological Survey Branch](#)*

5.2 Property Geology

The Troitsa property is underlain, in large part, by a compositionally zoned stock of granodiorite to quartz monzonite which intrudes Hazelton, Skeena and Kasalka groups rocks. It is referred to as the Troitsa stock and is ellipsoid in plan with its long axis trending roughly northwest-southeast. The stock measures approximately 4km long and 2.5km wide. A thick lensoid-shaped plug of rhyolite intrudes along the stock's western margin and strikes to the north-northeast. The rhyolite is exposed as multiple sills in the north facing walls of steep cirques to the south of the broad upland plateau. Quartz porphyry, feldspar porphyry, biotite-feldspar porphyry (BFP), basalt, andesite and lamprophyre dikes cut both the main intrusion and rhyolite plug and often core northwest and northeast trending shear zones. These dikes are believed to be late intrusions and seldom carry any significant alteration or mineralization.

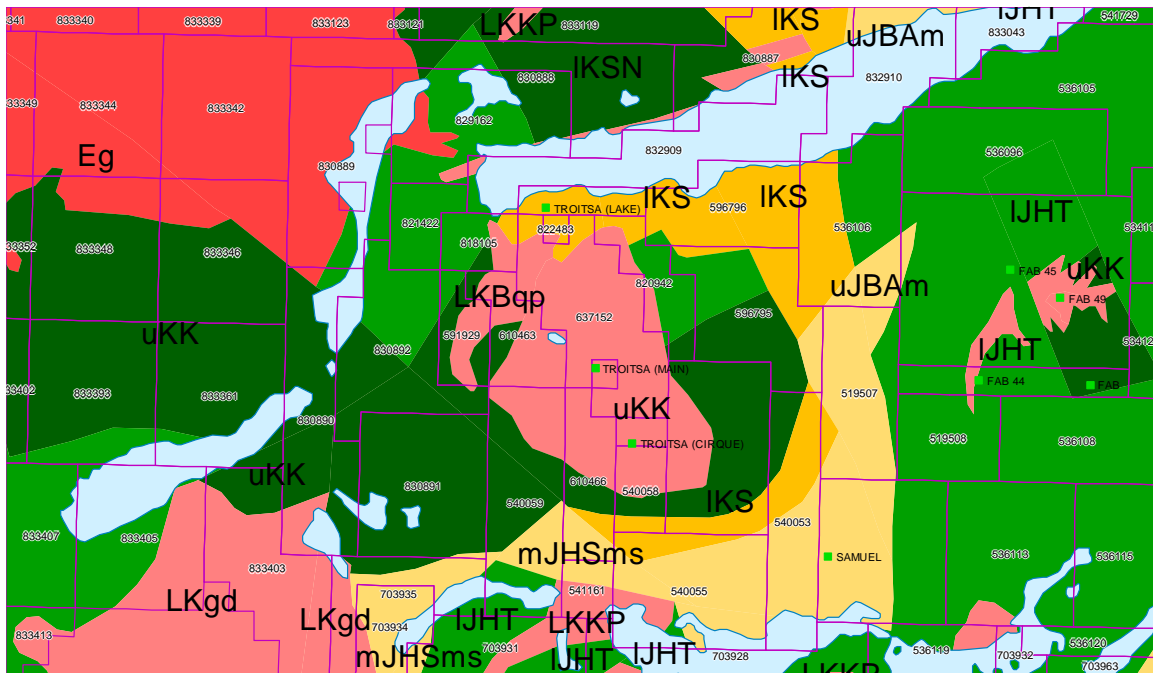


Figure 4: Property Geology map

6.0 MINERALIZATION

Mineralization at the Troitsa Lake showing is described as at least five closely spaced sets of quartz-pyrite-chalcopyrite veins and mineralized fractures occurring in granodiorite and altered volcanic rocks over 100feet (30m). The host rocks and the stockwork mineralization have been cut by at least three ages of andesitic and dioritic dikes. Previous trenching indicated average grades in the order of 0.60% Cu



Malachite in rhyolite

in the stockworks mineralization and values of 0.30% to 0.40% Cu in one of the late dikes. Minor amounts of molybdenite were noted in some veins and fractures. (D.A. Davidson and R. Wolverson 1969)

7.0 PREVIOUS EXPLORATION

Mineralization was discovered in the Troitsa Lake area in 1966 by G. Bleiler and F. Giaque. The two prospectors staked the OVP 1-76 group of claims in August and September and optioned the property to Silver Standard Mines. The company carried out geological mapping, trenching and sampling programs in 1966 and 1967 and drilled three holes totaling 370.33m. Silver Standard staked an additional 60 claims (MK Group) in 1967 over new mineralization discovered in an upland valley south of Troitsa Lake. A program consisting of geological mapping; trenching of the known showings; and a very limited IP geophysical survey were completed. The company diamond drilled two holes totaling 361.80m of "A" sized core in 1968 prior to returning the property to the vendors.

The following summer, Aston Resources Ltd. entered into an agreement to further explore the area. Aston conducted additional geological mapping, geochemical and ground geophysical surveys and a helicopter based airborne magnetic and electromagnetic surveys.

The property sat dormant during the 1970 season and in 1971 Cerro Mining Company of Canada Limited optioned the property from Aston Resources Limited. Work completed in 1971 included various geochemical surveys including silt, soil, talus and rock chip sampling programs in an effort to focus future exploration. In 1972, Quintana Minerals Corporation completed a single 457m diamond drill hole.

Detailed geologic mapping was carried out by N. G. Cawthorn in 1973 and published as part of his M. Sc. Thesis at the University of British Columbia, titled Geology and Petrology of the Troitsa Lake Property,. Whitesail Lake Map Area, B.C.

The claim group lapsed and was restaked in 1983 in part by Payday Resources Inc. as the Nuswat, Core Lode 1 and Core Lode 2 mineral claims. Payday completed extensive geochemical soil surveys over the central and northwestern areas of the property and outlined numerous multi-element anomalies for both base and precious metals. Subsequent geochemical and geophysical magnetic surveys and geological mapping focused on the western and northern areas of the property where precious metals appeared to be concentrated.

No further work has been recorded for the area with the exception of two limited prospecting programs by Shawn Turford under the British Columbia Prospectors Assistance Program. Mr Turford re-examined the Troitsa Lake showings and prospected the areas covered by the Payday Resources geochemical surveys in 1999 and 2000.

8.0 CURRENT EXPLORATION PROGRAM

8.1 Prospecting Survey Method and Approach

The evaluation program consisted of a one day prospecting program in the vicinity of the Troitsa Lake showing. Prospectors Shawn Turford and Ralph Keefe flew into the area with a Cessna 180 float plane owned by Mr. Turford. The pair noted that the recent snow melt had flushed the creeks draining into Troitsa Lake



Chalcopyrite in BFP dike

and uncovered bedrock that they had not seen before. They landed on the south shore of the lake and hiked into the creeks from the western end of the lake. There they prospected and sampled new outcroppings in the creek beds. Two new porphyry dike exposures were noted crossing the creek bed that contained pyrite and chalcopyrite mineralization.

8.2 Sample Preparation, Analysis and Security

Prospecting samples were bagged and assigned unique labels in the field. The samples were transported to Francois Lake by float plane and later to Burns Lake by truck where they were shipped by Greyhound Bus to ACME Analytical's Vancouver laboratory for processing.

8.3 Prospecting Survey Results

The five rock samples collected during the one day prospecting trip returned the following results:

Table 3 Results

Sample #	Cu (ppm)	Mo (ppm)	Au (gm/t)	Ag (ppb)
1	5347	6.26	0.043	5420
2	>10000	1.70	0.166	18883
3	1168	34.50	0.016	826
4	1347	8.77	0.026	615
5	1091	0.19	0.008	1127

Sample 2 returned over-limit results for Cu and was analyzed using ICP emission spectrometry. Results obtained from this method were 1.542% Cu. A complete set of results for the sampling can be found in Appendix A

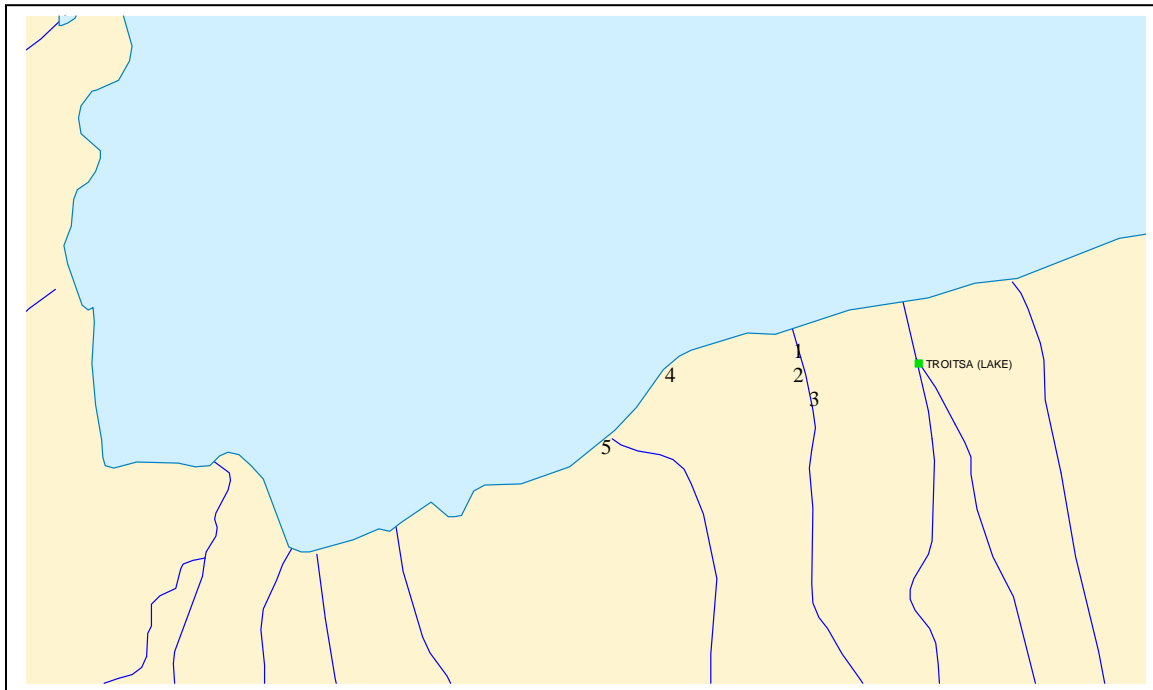


Figure 5: Sample location map

9.0 INTERPRETATION AND CONCLUSIONS

Results from the program identified what is thought to be new showings of copper mineralization on the south shore of Troitsa Lake. Representative grab

samples were collected during the program but no attempt was made to determine possible widths and grades of the mineralization. Results as high as 1.542% Cu were collected from the two creeks examined. All samples returned values greater than 0.1% Cu. Molybdenum was noted in one of the samples which returned 34.5ppm Mo. Values for gold were anomalous with sample #2 containing 0.166gm/t Au.

The results of the program demonstrate that possibly significant copper mineralization exists outside of the known showings and that the area contains a number of BFP dikes that host mineralization. The width of these intrusions and average grade of the mineralization at this time are unknown. Further exploration is warranted.

10.0 RECOMMENDATIONS AND BUDGET

A systematic program of mapping, prospecting and sampling should be completed on all of the creeks draining the large ridge to the south of Troitsa Lake. As most of the exposed outcroppings exist only in the creek channels at lower elevations, a cut grid followed by geophysical programs of a magnetic survey to “map” the buried intrusive dikes followed by an IP survey to measure the abundance of sulphide material present should be completed prior to any further physical work in the area.

Project Geologist (30 days @ 600/day)	\$18000
Geologist (7days @ \$500/day)	3500
Prospector (7 days @ \$400/day)	2800
Line-cutting (20km @\$1500/km)	30000
Geophysical surveys mag/IP (20km @ \$2500/km)	50000
Mob/demob	2000
Helicopter (50 hrs @ \$2000 wet)	100000
Camp costs (150 person days @ \$100/day)	15000
Reporting	10000
Contingency (15%)	<u>34800</u>
	\$266100

Contingent on the results obtained from these surveys, additional trenching or diamond drilling should target favorable anomalies.

Respectfully submitted,

Ken Galambos P.Eng.
KDG Exploration Services

Victoria, BC.
November 10, 2010

11.0 REFERENCES

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Panteleyev, A. (1995): Porphyry Cu-Au: Alkalic, in Selected British Columbia Mineral Deposit Profiles, Volume 1 - Metallics and Coal, Lefebure, D.V. and Ray, G.E., Editors, British Columbia Ministry of Energy of Employment and Investment, Open File 1995-20, pages 83-86.

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Turford, S. (1999): PAP 99-23 British Columbia Prospectors Assistance Program Prospecting Report Form – TSA

Turford, S. (2000): PAP 00-8 British Columbia Prospectors Assistance Program Prospecting Report Form – Reach; TSA Target

12.0 STATEMENT OF COSTS

Personnel

Shawn Turford July 19, 2010	\$325.00
Ralph Keefe July 19, 2010	\$325.00

Transportation

Cessna 180 1.9hr @ \$275.00/hr	\$522.50
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Analyses

5 Rock samples @ \$52.42/sample	\$262.10
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Report

1.5 days @ \$550/day	<u>\$825.00</u>
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TOTAL =	\$2259.60
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13.0 CERTIFICATION, DATE AND SIGNATURE

1) I, Kenneth Daryl Galambos of 1535 Westall Avenue, Victoria, British Columbia am self-employed as a consultant geological engineer, authored and am responsible for this report entitled "Prospecting Report on the Troitsa Project", dated November 10, 2010.

2) I am a graduate of the University of Saskatchewan in Saskatoon, Saskatchewan with a Bachelors Degree in Geological Engineering (1982). I began working in the mining field in 1974 and have more than 26 years mineral exploration and production experience, primarily in the North American Cordillera. Highlights of this experience include the discovery and delineation of the Brewery Creek gold deposit, near Dawson City, Yukon for Noranda Exploration Ltd.

3) I am a registered member of the Association of Professional Engineers of Yukon, registration number 0916 and have been a member in good standing since 1988.

4) I have visited the subject mining property of this report and am a "Qualified Person" in the context of and have read and understand National Instrument 43-101 and the Companion Policy to NI 43-101.

5) This report is based upon a site visit to the property from August 21-September 25, 2010, the author's personal knowledge of the region and a review of additional pertinent data.

6) As stated in this report, in my professional opinion the property is of potential merit and further exploration work is justified.

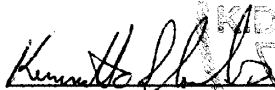
7) To the best of my knowledge this report contains all scientific and technical information required to be disclosed so as not to be misleading.

8) I am partners with Shawn Turford and Ralph Keefe on the Troitsa property and a number of other properties in British Columbia. My professional relationship is as a non-arm's length consultant, and I have no expectation that this relationship will change.

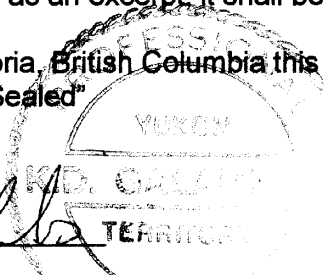
9) I consent to the use of this report by Ralph Keefe, Shawn Turford for such assessment and/or regulatory and financing purposes deemed necessary, but if any part shall be taken as an excerpt, it shall be done only with my approval.

Dated at Victoria, British Columbia this 10th day of November, 2010.

"Signed and Sealed"



Kenneth Daryl Galambos



Ken Galambos, P.Eng. (APEY Reg. No. 0916)
KDG Exploration Services
1535 Westall Ave.
Victoria, British Columbia V8T 3G6

14.0 Appendices

Appendix A

Assay Certificates



1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Acme Analytical Laboratories (Vancouver) Ltd.

www.acmelab.com

Client: Callinan Mines Limited
Suite 1100 - 736 Granville Street
Vancouver BC V6Z 1G3 Canada

Submitted By: Narissa Saretsky
Receiving Lab: Canada-Vancouver
Received: August 16, 2010
Report Date: September 20, 2010
Page: 1 of 2

CERTIFICATE OF ANALYSIS

VAN10003915.1

CLIENT JOB INFORMATION

Project: Troitsa
Shipment ID:
P.O. Number
Number of Samples: 5

SAMPLE DISPOSAL

STOR-PLP Store After 90 days Invoice for Storage
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.

Invoice To: Callinan Mines Limited
Suite 1100 - 736 Granville Street
Vancouver BC V6Z 1G3
Canada

CC: Ken Galambos

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Table with 6 columns: Method Code, Number of Samples, Code Description, Test Wgt (g), Report Status, Lab. Rows include R200-250, G601, 1F05, and 7AR.

ADDITIONAL COMMENTS



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. ** 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: Callinan Mines Limited
 Suite 1100 - 736 Granville Street
 Vancouver BC V6Z 1G3 Canada

Project: Troitsa
Report Date: September 20, 2010

Page: 2 of 2 **Part** 1

CERTIFICATE OF ANALYSIS

VAN10003915.1

Method	WGHT	G6	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	
Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	
Unit	kg	gm/t	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.01	0.005	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	2	
1	Rock	2.47	0.043	6.26	5347	2.64	38.6	5420	17.9	16.4	250	2.43	0.4	0.4	36.7	4.7	14.7	0.15	0.11	0.67	62
2	Rock	1.15	0.166	1.70	>10000	1.92	202.4	18883	18.8	10.1	400	6.78	11.7	8.9	141.6	1.1	52.5	2.00	0.32	6.28	98
3	Rock	0.69	0.016	34.50	1168	1.77	26.1	826	21.5	22.0	174	2.88	0.6	0.4	14.8	3.9	33.4	0.05	0.05	0.84	54
4	Rock	0.64	0.026	8.77	1347	2.79	40.8	615	12.6	12.7	227	2.63	0.4	0.8	24.4	5.1	28.9	0.07	0.05	0.70	87
5	Rock	0.52	0.008	0.19	1091	5.11	99.8	1127	160.2	33.1	548	10.33	4.6	<0.1	7.1	0.3	41.7	0.21	0.41	10.23	125



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Project: Troitsa
Report Date: September 20, 2010

Page: 2 of 2 **Part** 2

CERTIFICATE OF ANALYSIS

VAN10003915.1

	Method	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	
	Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs
	Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm
	MDL	0.01	0.001	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1	0.02
1	Rock	0.31	0.042	2.7	18.1	0.88	55.6	0.155	<1	1.05	0.056	0.49	0.2	5.7	0.22	1.23	8	1.7	0.12	5.8	1.16
2	Rock	0.58	0.177	3.4	26.5	1.71	28.1	0.152	1	2.52	0.115	1.21	45.5	5.4	1.18	3.83	<5	1.0	1.20	10.9	5.39
3	Rock	0.36	0.057	3.4	27.7	1.17	78.6	0.093	<1	1.65	0.102	0.62	0.2	3.6	0.30	1.54	8	1.2	0.32	4.8	1.88
4	Rock	0.35	0.086	6.2	29.2	1.21	106.5	0.210	<1	1.35	0.098	0.80	0.3	5.9	0.31	1.00	<5	0.8	0.20	7.0	0.99
5	Rock	0.55	0.106	3.7	240.0	2.56	36.7	0.199	1	3.63	0.205	1.48	8.7	11.9	1.83	3.75	<5	0.4	2.70	16.4	9.61



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Project: Troitsa
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Page: 2 of 2 Part 3

CERTIFICATE OF ANALYSIS

VAN10003915.1

Method	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	7AR	
Analyte	Ge	Hf	Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt	Cu	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb	%	
MDL	0.1	0.02	0.02	0.1	0.1	0.05	0.1	0.01	0.1	0.02	1	0.1	0.1	10	2	0.001	
1	Rock	0.1	0.02	0.07	21.0	0.7	<0.05	0.3	4.74	6.8	0.19	9	<0.1	9.5	<10	<2	
2	Rock	<0.1	0.07	0.03	73.9	1.4	<0.05	1.4	4.65	8.8	1.59	<1	0.2	17.9	<10	<2	1.542
3	Rock	<0.1	0.02	0.02	23.7	0.3	<0.05	0.5	5.13	7.9	<0.02	25	0.1	7.2	<10	<2	
4	Rock	0.1	0.10	0.08	34.5	0.4	<0.05	2.9	5.93	15.1	0.02	17	0.1	12.4	<10	<2	
5	Rock	0.2	<0.02	0.03	110.8	0.7	<0.05	0.3	5.32	9.5	0.08	<1	0.4	37.3	<10	<2	



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Project: Troitsa

Report Date: September 20, 2010

Page: 1 of 1 **Part** 1

QUALITY CONTROL REPORT

VAN10003915.1

Method	WGHT	G6	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15
Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	
Unit	kg	gm/t	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.01	0.005	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	2	
Pulp Duplicates																					
2	Rock	1.15	0.166	1.70	>10000	1.92	202.4	18883	18.8	10.1	400	6.78	11.7	8.9	141.6	1.1	52.5	2.00	0.32	6.28	98
REP 2	QC			1.75	>10000	1.83	194.7	19343	19.5	9.9	410	6.72	11.4	8.9	148.7	1.0	52.2	1.93	0.29	6.36	98
Reference Materials																					
STD DS7	Standard			20.18	82.99	67.36	377.9	954	53.4	9.3	614	2.32	49.6	4.8	57.3	4.7	68.3	6.01	5.13	4.42	78
STD GC-7	Standard																				
STD OXH66	Standard																				
STD OXK79	Standard																				
STD R4A	Standard																				
STD DS7 Expected				20.5	109	70.6	411	890	56	9.7	627	2.39	48.2	4.9	70	4.4	68.7	6.38	4.6	4.51	84
STD GC-7 Expected																					
STD R4A Expected																					
STD OXH66 Expected																					
STD OXK79 Expected																					
BLK	Blank			<0.01	4.80	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	<0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<2
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
G1	Prep Blank	<0.01	<0.005	0.09	1.78	2.90	45.0	4	3.3	4.1	540	1.90	0.2	1.6	<0.2	5.3	51.9	0.01	<0.02	0.05	32



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Page: 1 of 1 Part 2

QUALITY CONTROL REPORT

VAN10003915.1

Method		1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15		
Analyte		Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Cs	
Unit		%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	ppm	
MDL		0.01	0.001	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1	0.02	
Pulp Duplicates																						
2	Rock	0.58	0.177	3.4	26.5	1.71	28.1	0.152	1	2.52	0.115	1.21	45.5	5.4	1.18	3.83	<5	1.0	1.20	10.9	5.39	
REP 2	QC	0.59	0.162	3.5	26.8	1.62	24.3	0.149	<1	2.45	0.108	1.18	44.9	5.4	1.16	3.75	9	0.9	1.17	10.8	5.39	
Reference Materials																						
STD DS7	Standard	0.88	0.079	12.8	183.5	1.02	376.8	0.117	39	0.98	0.097	0.42	3.3	2.5	4.06	0.21	229	3.4	1.39	4.7	6.38	
STD GC-7	Standard																					
STD OXH66	Standard																					
STD OXK79	Standard																					
STD R4A	Standard																					
STD DS7 Expected		0.93	0.08	11.7	179	1.05	410	0.124	38.6	0.959	0.089	0.44	3.4	2.5	4.19	0.19	200	3.5	1.08	4.6	6.36	
STD GC-7 Expected																						
STD R4A Expected																						
STD OXH66 Expected																						
STD OXK79 Expected																						
BLK	Blank	<0.01	<0.001	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1	<0.02	
BLK	Blank																					
BLK	Blank																					
BLK	Blank																					
Prep Wash																						
G1	Prep Blank	0.46	0.081	9.8	9.7	0.55	195.4	0.117	2	0.92	0.077	0.41	<0.1	1.9	0.30	0.04	5	0.1	<0.02	4.8	2.61	



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Project: Troitsa
Report Date: September 20, 2010

Page: 1 of 1 **Part** 3

QUALITY CONTROL REPORT

VAN10003915.1

Method		1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	1F15	7AR	
Analyte		Ge	Hf	Nb	Rb	Sn	Ta	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt	Cu
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppb	ppb	%
MDL		0.1	0.02	0.02	0.1	0.1	0.05	0.1	0.01	0.1	0.02	1	0.1	0.1	10	2	0.001
Pulp Duplicates																	
2	Rock	<0.1	0.07	0.03	73.9	1.4	<0.05	1.4	4.65	8.8	1.59	<1	0.2	17.9	<10	<2	1.542
REP 2	QC	<0.1	0.05	0.03	73.4	1.5	<0.05	1.5	4.56	9.0	1.57	<1	0.3	17.3	<10	<2	1.549
Reference Materials																	
STD DS7	Standard	<0.1	0.11	0.41	37.0	4.7	<0.05	5.3	6.05	37.4	1.49	2	2.3	30.0	68	40	
STD GC-7	Standard																0.564
STD OXH66	Standard																
STD OXK79	Standard																
STD R4A	Standard																0.511
STD DS7 Expected		0.1	0.11	0.71	35.8	4.61		5.4	5.18	36	1.57	4	1.6	29.3	58	37	
STD GC-7 Expected																	0.555
STD R4A Expected																	0.502
STD OXH66 Expected																	
STD OXK79 Expected																	
BLK	Blank	<0.1	<0.02	<0.02	<0.1	<0.1	<0.05	<0.1	<0.01	<0.1	<0.02	<1	<0.1	<0.1	<10	<2	
BLK	Blank																<0.001
BLK	Blank																
BLK	Blank																
Prep Wash																	
G1	Prep Blank	<0.1	0.09	0.30	35.6	0.5	<0.05	1.4	5.24	20.6	<0.02	<1	0.3	31.2	<10	<2	

Appendix B

Analytical Procedures and Detection Limits

METHOD SPECIFICATIONS

GROUP 1D AND 1F – GEOCHEMICAL AQUA REGIA DIGESTION

Package Codes:	1D01 to 1D03, 1DX1 to 1DX3, 1F01 to 1F07
Sample Digestion:	HNO₃-HCl acid digestion
Instrumentation Method:	ICP-ES (1D), ICP-MS (1DX, 1F)
Applicability:	Sediment, Soil, Non-mineralized Rock and Drill Core

Method Description:

Prepared sample is digested with a modified Aqua Regia solution of equal parts concentrated HCl, HNO₃ and DI H₂O for one hour in a heating block of hot water bath. Sample is made up to volume with dilute HCl. Sample splits of 0.5g, 15g or 30g can be analyzed.

Element	Group 1D Detection	Group 1DX Detection	Group 1F Detection	Upper Limit
Ag	0.3 ppm	0.1 ppm	2 ppb	100 ppm
Al*	0.01%	0.01%	0.01%	10%
As	2 ppm	0.5 ppm	0.1 ppm	10000 ppm
Au	2 ppm	0.5 ppb	0.2 ppb	100 ppm
B*^	20 ppm	20 ppm	20 ppm	2000 ppm
Ba*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Bi	3 ppm	0.1 ppm	0.02 ppm	2000 ppm
Ca*	0.01%	0.01%	0.01%	40%
Cd	0.5 ppm	0.1 ppm	0.01 ppm	2000 ppm
Co	1 ppm	0.1 ppm	0.1 ppm	2000 ppm
Cr*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Cu	1 ppm	0.1 ppm	0.01 ppm	10000 ppm
Fe*	0.01%	0.01%	0.01%	40%
Ga*	-	1 ppm	0.1 ppm	1000 ppm
Hg	1 ppm	0.01 ppm	5 ppb	50 ppm
K*	0.01%	0.01%	0.01%	10%
La*	1 ppm	1 ppm	0.5 ppm	10000 ppm
Mg*	0.01%	0.01%	0.01%	30%
Mn*	2 ppm	1 ppm	1 ppm	10000 ppm
Mo	1 ppm	0.1 ppm	0.01 ppm	2000 ppm
Na*	0.01%	0.001%	0.001%	5%
Ni	1 ppm	0.1 ppm	0.1 ppm	10000 ppm
P*	0.001%	0.001%	0.001%	5%
Pb	3 ppm	0.1 ppm	0.01 ppm	10000 ppm
S	0.05%	0.05%	0.02%	10%

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

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

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

Limitations:

Au solubility can be limited by refractory and graphitic samples.

METHOD SPECIFICATIONS

GROUP 3B AND G6 – PRECIOUS METALS BY FIRE ASSAY FUSION

Package Codes: 3B01 to 3B04, G601 to G614
Sample Digestion: Lead-collection fire assay fusion
Instrumentation Method: ICP-ES (3B, G6), ICP-MS (3B-MS), AA (3B, G6), Gravimetric (G6)
Applicability: Rock, Drill Core

Method Description:

Prepared sample is custom-blended with fire-assay fluxes, PbO litharge and a Ag inquart. Firing the charge at 1050 °C liberates Ag ± Au ± PGEs that report to the molten Pb-metal phase. After cooling the Pb button is recovered, placed in a cupel and fired at 950 °C to render a Ag ± Au ± PGEs dore bead. The bead is digested for ICP analysis or weighed and parted in ACS grade HNO₃ to dissolve Ag leaving a Au sponge. Au is weighed for Gravimetric determination; ACS grade HCl is added dissolving the Au ± PGE sponge for Instrument determination.

Element	3B Detection	3B Upper Limit	3B-MS Detection	3B-MS Upper Limit
Au	2 ppb	10 ppm	1 ppb	10 ppm
Pt	3 ppb	10 ppm	0.1 ppb	10 ppm
Pd	2 ppb	10 ppm	0.5 ppb	10 ppm

Element	G6 (Inst) Detection	G6 (Inst) Upper Limit	G6 (Grav) Detection	G6 (Grav) Upper Limit
Ag	--	--	5 g/t	1 ton
Au	0.005 g/t	10 ppm	0.17 g/t	1 ton
Pt	0.01 g/t	100 ppm	--	--
Pd	0.01 g/t	100 ppm	--	--

Note:

*Sulphide-rich samples require a 15g or smaller sample for proper fusion.