

**Ministry of Energy & Mines** Energy & Minerals Division Geological Survey Branch



## ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)]	DECTING an	d Roc.	t Groc	HEMISTA	TOTAL COST # 4024.00
JTHOR(S) CRAIG KENNEDY	SIGN	ATURE(	S) Cray	Kenne	dy
TICE OF WORK PERMIT NUMBER(S)/DATE(S)	خ 55192 DATE(S)	63 //A			YEAR OF WORK 2014
ROPERTY NAME BIG SMOKE					
AIM NAME(S) (on which work was done) <u><b>へ</b>のち</u> <b>43 し</b> , し	030526	1030	527	10E	5438, 1030529
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AILING ADDRESS					
KINBERIDY BC VILIPS					
PERATOR(S) (who naid for the work)					
CRAIG KENNEDY	2)		·····		
IAILING ADDRESS					·····
2290 DEWOLFE AVE					
KIMBERLEY B.C. VIR-1P5					
ROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy,	structure, alte	ration, m	ineralizati	on, size ar	nd attitude):
LOWER / MIDDLE ALDRIDGE LONTACT - FRAGMENI	AL ROCKS	IRO	N RICH	WITH	FRACTURE -STRATABOUND PB /
MINERALIZATION - STRONG ALTERATION, TOUR	MALINE	VEEDLE	S, GAR	NET A	LBITE - LIESEGANG - FRAGME
ROCKS CONTROLLED BY EXTENSIVE N/S S	TRUCTURE	- GAL	BRO,	SILLS A	IND DIKES
		11.0			

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS\_

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airbome		i	
GEOCHEMICAL			
(number of samples analysed for)			
Soil			
Silt		· · · · · · · · · · · · · · · · · · ·	
Rock	7 samples		1424.00
Other			
(total metres, number of noies, size)			
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Sampling/assaving			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)	1:10,000		2600.00
PREPARATORY/PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST	\$ 4024.00

BC Geological Survey Assessment Report 34915

ASSESSMENT REPORT

# **PROSPECTING & ROCK GEOCHEM PROGRAM**

# **BIG SMOKE**

FORT STEELE MINING DIVISION

N.T.S. MAP SHEETS 082F.069

# UTM COORDINATES 553647E - 5498545

Owner Darlene Lavoie 2290 Dewolfe Ave Kimberley BC V1A 1P5

<u>Report by</u> Craig Kennedy 2290 Dewolfe Ave. Kimberley BC V1A 1P5

August 2014

# TABLE OF CONTENTS

1.00 Introduction	3
1.10 Location & Access	3
1.20 Property & Physiography	3
1.30 History of Previous Exploration	3
1.40 Geology	3
2.00 Prospecting & Rock Geochemistry Program Summary	4
3.00 Conclusion	8
4.00 Statement of Expenditures	8
5.00 Author's Qualifications	9
6.00 Rock Sample Descriptions	10

# List of Illustrations

Figure 1.	Regional Property Location Map	6
Figure 2.	Claim Location Map	7
Appendix 1	. Acme Rock Geochem Analyses	11
Appendix 2	. Maps	16

## **BIG SMOKE PROPERTY**

## **PROSPECTING & ROCK GEOCHEM REPORT**

Craig Kennedy August 2014

#### 1.00 Introduction

During the field season of 2014 a program consisting of prospecting and rock geochemistry was conducted on the Big Smoke mineral claims in southeast BC. The purpose of the work was to search for indications of a geological environment similar to the one that hosts the world-class Sullivan sedex deposit at Kimberley.

#### 1.10 Location & Access

The property is located 20km west of the city of Kimberley in the St. Mary River Valley. The property is accessed by the main St. Mary River FSR and additional logging spur roads.

### 1.20 Property & Physiography

The property is wholly owned by Darlene Lavoie of Kimberley, BC and consists of tenures 705432, 1030526, 1030527, 1030528 & 1030529. The area is located north of the St. Mary River along steep and mountainous terrain in the Purcell Mountains. Forest cover is typified by a mix of fir and lodgepole pine with some larch. Brush is generally comprised of mountain alder, kinikinik, and dwarf huckleberry.

#### **1.30 History of Previous Exploration**

The area has been worked previously by a number of junior and major mining companies. The purpose has generally been to evaluate the area for sedex (Sullivan-type) mineralization.

### 1.40 Geology

The Big Smoke area is underlain by siliciclastic rocks of the Neoproterozoic Belt-Purcell Supergroup. The Belt-Purcell is a failed intracratonic rift. The basal members of the sequence which underlay the property can be divided into the Lower and Middle Aldridge formations. The Lower Aldridge is a rusty weathering shisty quartzitic unit that often contains disseminated pyrrhotite. It is generally massive with a strong cleavage. The Middle Aldridge conformably overlies the Lower Aldridge across the main basin and is characterized by blocky massive grey weathering wacke and siltstone as fining upward turbidites. These rocks have been intruded by a number of syngenetic gabbro/diorite dykes and sills. Pegmatitic dykes have also been found within the area and are likely related to the East Kootenay Orogeny (Hellroaring Creek Stock, Matthew Creek Pegmatites etc).

The property is situated along a north trending structural corridor host to a number of sheet conglomerate/fragmentals, a feature that underlies the Sullivan deposits at Kimberley. In addition to the conglomerate/fragmental (named the Claire Fragmental) the area also has a number of syngenetic gabbro/diorite bodies that locally can be both dyke and sill like, another feature at Sullivan. The area covers the contact between the Middle and Lower Aldridge stratigraphies, the host time for the mineralization at Sullivan. Other key indicators include albitization, chloritization, and local tourmaline enrichment in the sediments, all features at Sullivan. In addition to this a number of massive sulphide (Pb/Zn/Ag) veins are located within the structural block (Dominion etc.).

#### 2.00 Prospecting & Rock Geochemistry Program Summary

Detailed prospecting has indicated a zone of anomalous mineralization within a system of stacked sulphide rich conglomerates/fragmental at the Big Smoke property. Adjoining area thought to be the footwall of the system shows many signs of active structure and alteration. Structures have little apparent offset; their orientations are strongly associated with a north south fabric. Initial observations shows structure is associated or responsible for folding within the footwall package, folds are tight chevron type and maybe slump folds.

Alteration along structures is indicated by a buildup of silica, albite (?) and fracturing with increased limonite alteration. Rock sampling was conducted around an area with the most alteration and structure. The area is hosted by poorly exposed outcrops which cover an area in excess of fifty meters across slope. The alteration is typical of liesegang with different colors of limonite after sulphide, yellow through to dark brown rock penetrating lineation and circular features. Regional proximity to mineralization is indicated by red through purple hues with associated hematite and magnetite. The liesegang in this area also has these colors. To reiterate liesegang with limonite and oxide

coloration, narrow quartz veining and limonite coated fractures is diagnostic of a base metal or precious metal systems. The interpretation would be late structures cutting anomalous footwall sediment in the base of the stacked fragmental conglomerate units has remobilized in situ pre-existing metals. Abundant sericite biotite and localized tourmaline (crystal form) are associated with this structural zone.

Sediments adjoining the conglomerate/fragmental zones in general have more iron sulphide (pyrrhotite) and tourmaline crystals than normal back ground. Float with abundant pink garnet was noted in a number of areas. Some float blocks indicate alteration maybe replacement associated with pre-existing calcareous beds. The mineralized stratabound package is hosted by shisty/silicified (albitized?) sediments across a panel in excess of 30 meters wide. The panel can be traced along contour for at least 300 meters before losing it in a cliff area to the west and into the dirt to the east. The mineralized stratabound unit also contains both crosscutting and conformable diogabbro intrusions, one of which is very altered with abundant tremolite and actinolite. This altered mafic rock includes disseminated, fracture and quartz vein hosted Pbs/Zns and CuPy. In general terms this may denote an area of higher temperature within the fragmental/conglomerate complex and indicate potential association with the prominent north south structural feature. Considerable time was also spent trying to find crosscutting structures in what is thought to be the footwall quartzites exposures along the south eastern boundary of the Big Smoke Property. The footwall quartzites form a marker unit of 150 meters of thicker bedded siltstone and fine to medium quartzite approximately 150 meters below the base of the Sullivan horizon. These Middle Aldridge style rocks delineate a geological setting which hosts anomalous base metals throughout its known existence, mineralization occurs in the footwall zone. Unfortunately the base of the footwall quartzites on the Big Smoke claims is covered by overburden.

Figure 1: Regional Location Map



**Big Smoke Property Location** 



## 3.00 Conclusion

Prospecting has defined a panel of north north-west discrete shear fracture zones with very limited apparent movement. The conglomerate fragmental zone has been known for quite a long time. It is interpreted to cross the St. Mary River to the south and here has seen considerable drilling. There is little doubt the fragmental complex is associated with a general north south trending structural zone. Work has to be done to delineate where more heat was concentrated, this will provide a focus for cross cutting structures which may have hosted hydrothermal systems with metals. A power line which provided power for the Sullivan Mine, the mill and concentrator was removed two years ago; it had prevented any magnetic or EM geophysical surveys in the St Mary Valley bottom. A geophysical EM/magnetic survey targeting the area of the fragmental complex could prove important in developing a target.

## 4.00 Statement of Expenditures

# Big Smoke Property Work performed: May 15 – Aug 15, 2014

Craig Kennedy - 5 days @ 500/day	\$2500.00
May 15, 27, Aug 4, 13 & 15	
Vehicle Charge – 5@ 100/day	500.00
Acme Labs – 7 samples	224.00
Report & Maps	800.00
Total:	<u>\$4024.00</u>

## 5.00 Author's Qualifications

As the author of this report I, Craig Kennedy, certify that:

- 1. I am an independent prospector residing at 2290 Dewolfe Avenue, Kimberley, BC.
- 2. I have been actively prospecting in the East and West Kootenays district of BC for the past 34 years and have made my living prospecting for the past 25 years.
- 3. I have been employed as a professional prospector by major and junior mineral exploration companies.
- 4. I own and maintain mineral claims in BC and have optioned numerous claims to various exploration companies.

Craig Kenned,

Craig Kennedy Prospector

## 6.00 ROCK SAMPLE DESCRIPTIONS

Sample	UTM E	UTM N	Property	Description
СК-14-20	554781	5497512	Big Smoke	Liesegang alteration shear zone, siliceous, chloritized sericite, some Lm & Mn. A little oxide Hem , red/purple coloration. Part of NW structure
СК-14-21	554694	5497463	Big Smoke	Liesegang alteration, more orange rusty pockets associated with folding Qtz wacke medium beds, Ser, Chl, Lm & Mn. Part of NW trend
СК-14-22	554715	5497437	Big Smoke	Roughly North-South structure, larger fold, liesegang alteration - siliceous foliated, some Lm
СК-14-23	554698	5497400	Big Smoke	Liesegang altered material in talus below fold zone, Lm, siliceous Ser & Chl
СК-14-24	554721	5497377	Big Smoke	Qtz vein float, narrow, vugs w/Lm crystalline character "dry" looking , has Mn
СК-14-25	554738	5497370	Big Smoke	Float in talus, liesegang narrow vuggy Lm hosting Qtz veins in micaceous schists
СК-14-07	554705	5497460	Big Smoke	Folding, strong foliation to shearing, albitized? To siliceous alteration zones in nose of fold, Lm.



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Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA PHONE (604) 253-3158

# CERTIFICATE OF ANALYSIS

MID ST. MARY

#### **CLIENT JOB INFORMATION**

SAMPLE DISPOSAL

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

CC:

Client:

Kootenay Silver Inc. Suite 1820 - 1055 W. Hastings St. Vancouver BC V6E 2E9 CANADA

Submitted By:	Email Distribution List - Soil & Rock
Receiving Lab:	Canada-Vancouver
Received:	August 14, 2014
Report Date:	August 27, 2014
Page:	1 of 2

# VAN14002630.1

#### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	7	Crush, split and pulverize 250 g rock to 200 mesh			VAN
AQ202	7	1:1:1 Aqua Regia digestion ICP-MS analysis	30	Completed	VAN

#### **ADDITIONAL COMMENTS**

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

7

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

Kootenay Silver Inc. Invoice To: Suite 1820 - 1055 W. Hastings St. Vancouver BC V6E 2E9 CANADA

MARCUSTAL

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. Acre 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.



	I	Method	WGHT	AQ202																		
		Analyte	Wgt	Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	v	Ca	Р
		Unit	kg	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%							
		MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
CK14-20	Rock		0.32	2.3	57.2	78.9	157	0.1	8.8	6.5	97	2.45	0.8	7.3	7.5	22	0.3	<0.1	0.2	9	0.04	0.048
CK14-21	Rock		0.45	0.4	41.5	38.3	54	0.1	3.9	3.8	98	1.54	16.2	4.7	9.0	3	<0.1	0.7	0.4	4	0.02	0.012
CK14-22	Rock		0.45	0.5	10.7	70.5	102	<0.1	3.5	3.1	162	1.19	2.8	2.5	6.8	5	0.1	0.3	0.4	8	0.02	0.013
CK14-23	Rock		0.36	0.7	80.9	49.0	305	0.1	1.1	2.0	63	3.77	6.6	2.3	6.1	4	0.4	0.4	0.6	10	0.02	0.016
CK14-24	Rock		0.52	0.1	12.9	18.9	49	<0.1	1.6	2.6	243	0.91	4.1	<0.5	0.8	1	0.2	<0.1	<0.1	<2	<0.01	0.015
CK14-25	Rock		0.44	0.4	22.4	253.2	103	0.4	1.0	0.5	138	2.37	45.3	<0.5	4.2	3	0.6	<0.1	1.3	<2	<0.01	0.041
CK14-07	Rock		0.40	0.4	80.4	53.6	129	0.1	4.9	10.8	99	3.53	14.0	<0.5	5.8	4	0.2	0.1	0.4	7	0.04	0.009



CERTIFICATE OF ANALYSIS

PHONE (604) 253-3158

<sup>t:</sup> Kootenay Silver Inc.

2 of 2

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Project: MID ST. MARY Report Date: August 27, 2014

Page:

Part: 2 of 2

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	Method	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202
	Analyte	La	Cr	Mg	Ba	Ti	В	AI	Na	κ	w	Hg	Sc	TI	S	Ga	Se	Те
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
CK14-20 Roc	ζ.	25	10	0.27	90	0.017	2	0.77	0.026	0.37	<0.1	<0.01	1.5	0.1	0.08	3	<0.5	<0.2
CK14-21 Roc	(	28	4	0.01	34	0.002	2	0.27	0.015	0.13	<0.1	<0.01	1.1	<0.1	<0.05	<1	<0.5	<0.2
CK14-22 Roc	(	8	7	0.02	30	<0.001	<1	0.32	0.014	0.11	<0.1	<0.01	1.3	<0.1	<0.05	<1	<0.5	<0.2
CK14-23 Roc	ζ.	46	6	0.01	35	0.006	1	0.34	0.019	0.12	<0.1	<0.01	2.3	<0.1	<0.05	2	<0.5	<0.2
CK14-24 Roc	ζ	3	1	<0.01	14	0.001	1	0.06	0.003	0.03	<0.1	<0.01	0.2	<0.1	<0.05	<1	<0.5	<0.2
CK14-25 Roc	(	14	2	0.01	51	0.002	10	0.21	0.005	0.14	0.2	<0.01	0.7	0.2	<0.05	<1	<0.5	<0.2
CK14-07 Roc	(	30	6	0.03	39	<0.001	<1	0.41	0.014	0.11	0.4	0.01	1.5	<0.1	<0.05	1	<0.5	<0.2

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Method	WGHT	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202												
Analyte	Wgt	Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	v	Ca	Р			
Unit	kg	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%										
MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001			

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Reference Materials STD DS10

STD DS10 Expected

STD OXC109 Expected

STD OXC109

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BLK

Standard

Standard

Blank

Prep Blank

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150.1

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3.2

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382

42

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<1

44

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	Method	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202	AQ202
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	TI	S	Ga	Se	Те
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
Reference Materials																		
STD DS10	Standard	18	56	0.77	335	0.085	6	1.07	0.068	0.34	3.1	0.29	2.7	4.8	0.29	4	2.5	4.8
STD OXC109	Standard	12	58	1.45	59	0.380	2	1.52	0.679	0.40	0.2	<0.01	1.3	<0.1	<0.05	6	<0.5	<0.2
STD DS10 Expected		17.5	54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	0.3	2.8	5.1	0.29	4.3	2.3	5.01
STD OXC109 Expected																		
BLK	Blank	<1	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
Prep Wash																		
G1	Prep Blank	11	5	0.50	157	0.115	2	0.97	0.092	0.47	<0.1	<0.01	2.3	0.3	<0.05	5	<0.5	<0.2



