Major Elements by

# **GEOSTATS PTY LTD**

Mining Industry Consultants
Reference Material Manufacture and Sales

### **Certified Gold Reference Material Product Code**

G314-10

### **Certified Control Values**

### 50 gram Fire Assay

Gold Grade 0.38 ppm Standard Deviation 0.02 ppm Confidence Interval +/- 0.003 ppm

## Aqua Regia Digest

Gold Grade 0.38 ppm Standard Deviation 0.03 ppm Confidence Interval +/- 0.008 ppm



**Neutron Activation** 

#### **CRM Details**

#### **Control Statistic Details**

Control statistics were produced from results accumulated in the April-2014 round robin. A total of 168 fire assay results and 69 results from an aqua regia technique were used to certify this material.

### **Material Description**

This material is described as a Cut off oxide ore.

### Colour Designation (ISCC-NBS, SP440)

This material is light gray in colour.

#### Usage

This product is for use in the mining industry as a reference material for monitoring and testing the accuracy of laboratory assaying.

## Preparation and Packaging

All CRMs are dried in an oven for a minimum of 12 hours at 110°C. The dry material is then pulverised to better than 75 micron (nominal mean of 45 micron) using an air classifier. The material is then homogenised and stored in a sealed, stable container ready for final packaging.

Materials are statistically sampled from stores, then packaged into either heat sealed, air tight, plastic pulp packets or screw top sealed plastic containers ready for distribution. All packaging has been chosen to ensure minimal contamination from outside sources during shipment, use and storage.

## Assay Testwork

All standards are tested thoroughly in the Geostats bi-annual laboratory survey. This involves assaying by multiple laboratories from around the world. Results are compiled into a comprehensive report detailing statistics for each standard. Assay distributions are checked and processed statistically, producing monitoring statistics for these standards. Materials are tested regularly to ensure stability and homogeneity.

### Stability 5 4 1

This product remains stable in its original packaging, away from direct sunlight.

### Material Safety

This product is not hazardous and non-toxic.

Arsenic         <1         SiO2         61.8           Barium         580         Al2O3         14.7           Bromine         1         TiO2         1           Cadmium         <5         MnO         0.11           Caesium         3.8         CaO         5.64           Calcium (%)         nr         P         0.05           Cerium         45         S         0.04           Chromium         120         MgO         3.16           Chromium         120         MgO         3.16           Cobalt         28         K2O         2.25           Europium         2         Na2O         3.4           Gold (ppb)         440         LOI1000         0.56           Hafnium         5         Neutron Activation           Iron (%)         5.1         Analyses and Fusic           Lanthanum         24         XRF Analyses are           Lutetium         <0.2         Mercury           Molybdenum         8         are provided for main identification           Nickel         36         purposes.           Potassium (%)         nr         nr           Rubidium         13	Analysis Results (ppm,		Fusion / XRF (%)	
Arsenic         <1         SiO2         61.5           Barium         580         Al2O3         14.7           Bromine         1         TiO2         1           Cadmium         <5         MnO         0.11           Caesium         3.8         CaO         5.64           Calcium (%)         nr         P         0.05           Cerium         45         S         0.04           Chromium         120         MgO         3.16           Cobalt         28         K2O         2.25           Europium         2         Na2O         3.4           Gold (ppb)         440         LOl1000         0.56           Hafnium         5         Neutron Activation           Iron (%)         5.1         Analyses and Fusic           Lanthanum         24         XRF Analyses are           Lutetium         <0.2         single results and a           Mercury         nr         indicative only. The           Mency         36         purposes.           Potassium (%)         nr           Rubidium         13         'nr': Not Reported           Selenium         <5	unless otherwise noted)			
Barium         580         Al2O3         14.7           Bromine         1         TiO2         1           Cadmium         <5	Antimony	<0.1	Fe	5.08
Bromine         1         TiO2         1           Cadmium         <5	Arsenic	<1	SiO <sub>2</sub>	61.5
Cadmium         <5	Barium	580	Al <sub>2</sub> O <sub>3</sub>	14.75
Caesium         3.8         CaO         5.64           Calcium (%)         nr         P         0.05           Cerium         45         S         0.04           Chromium         120         MgO         3.16           Cobalt         28         K2O         2.25           Europium         2         Na2O         3.4           Gold (ppb)         440         LOI1000         0.56           Hafnium         5         Neutron Activation           Iron (%)         5.1         Analyses and Fusic           Lanthanum         24         XRF Analyses are           single results and a         indicative only. The           Mercury         nr         indicative only. The           Mencymium         nr         identification           Nickel         36         purposes.           Potassium (%)         nr         rr': Not Reported           Samarium         5.1         Scandium         18.6           Selenium         <5	Bromine	1	TiO <sub>2</sub>	1
Calcium (%)         nr         P         0.05           Cerium         45         S         0.04           Chromium         120         MgO         3.16           Cobalt         28         K2O         2.25           Europium         2         Na2O         3.4           Gold (ppb)         440         LOI1000         0.56           Hafnium         5         Neutron Activation           Iridium (ppb)         5.1         Analyses and Fusic           Lanthanum         24         XRF Analyses are           Lutetium         <0.2	Cadmium	<5	MnO	0.11
Cerium	Caesium	3.8	CaO	5.64
Chromium         120         MgO         3.16           Cobalt         28         K2O         2.25           Europium         2         Na2O         3.4           Gold (ppb)         440         LOI1000         0.56           Hafnium         5         Neutron Activation           Iridium (ppb)         5.1         Analyses and Fusion           Lanthanum         24         XRF Analyses are single results and a indicative only. The are provided for maindicative only. The are provided for maindicative only. The are provided for maindication purposes.           Nickel         36         potassium (%)         nr           Rubidium         13         'nr': Not Reported           Samarium         5.1         Scandium         18.6           Selenium         <5	Calcium (%)	nr	Р	0.057
Cobalt         28         K2O         2.25           Europium         2         Na2O         3.4           Gold (ppb)         440         LOI1000         0.56           Hafnium         5         Neutron Activation           Iridium (ppb)         5.1         Analyses and Fusic           Lanthanum         24         XRF Analyses are           Lutetium         <0.2	Cerium	45	S	0.044
Europium 2 Na2O 3.4 Gold (ppb) 440 LOI1000 0.56 Hafnium 5 Neutron Activation Analyses and Fusic XRF Analyses are Lutetium 40.2 Single results and a indicative only. The Molybdenum Neodymium nr Nickel 36 Potassium (%) Rubidium 5.1 Scandium 5.1 Scandium 5.1 Sclenium 40.56	Chromium	120	MgO	3.16
Gold (ppb) Hafnium Iridium (ppb) Iron (%) Lanthanum Lutetium Mercury Molybdenum Neodymium Nickel Potassium (%) Rubidium Samarium Selenium  Iridium (ppb) 440 LOI1000 0.56  Neutron Activation Analyses and Fusio XRF Analyses are single results and a indicative only. The are provided for maindentification purposes.  In I	Cobalt	28	K <sub>2</sub> O	2.25
Hafnium   5   Neutron Activation   Iridium (ppb)   5.1   Analyses and Fusic   XRF Analyses are   Single results and a   indicative only. The   Molybdenum   Neodymium   Nickel   36   Potassium (%)   Rubidium   13   Samarium   5.1   Scandium   18.6   Selenium   55   Neutron Activation   Analyses and Fusic   XRF Analyses are   single results and a   indicative only. The   are provided for ma   identification   purposes.   indicative only. The   are provided for ma   identification   purposes.   indicative only. The   indicati	Europium	2	Na <sub>2</sub> O	3.4
Iridium (ppb)   <50   Neutron Activation   Analyses and Fusion   XRF Analyses are   Single results and a   Indicative only. The   Molybdenum   Neodymium   Nickel   Neutron Activation   Analyses and Fusion   XRF Analyses are   Single results and a   Indicative only. The   are provided for main   Identification   Nickel   36   Potassium   90   Neutron Activation   Analyses and Fusion   Indicative only. The   are provided for main   Identification   Purposes.   Potassium   90   Neutron Activation   Analyses and Fusion   Indicative only. The   Identification   Purposes.   Indicative only. The   Identification   Purposes.   Indicative only. The   Identification   Purposes.   Indicative only. The   Identification   I	Gold (ppb)	440	LOI1000	0.56
Iron (%) Lanthanum Lutetium Mercury Molybdenum Neodymium Nickel Potassium (%) Rubidium Samarium Selenium  Iron (%)  5.1 Analyses and Fusic XRF Analyses are single results and a indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.  Indicative only. The are provided for ma identification purposes.	Hafnium	5		
Lanthanum 24 XRF Analyses are single results and a indicative only. The Analyses are single results and a indicative only	Iridium (ppb)	<50	Neutron Act	ivation
Lutetium	Iron (%)	5.1	Analyses and Fusion /	
Mercury nr indicative only. The are provided for ma identification purposes.  Potassium (%) nr Rubidium 13 'nr': Not Reported Samarium 5.1 Scandium 18.6 Selenium <55	Lanthanum	24	XRF Analyses are	
Molybdenum Neodymium Nickel Potassium (%) Rubidium Samarium Scandium Selenium  Nodymium Nr Nr Nr identification purposes. 'nr' Not Reported 18.6 Selenium  Samarium Scandium Selenium  Samarium Selenium  Are provided for matical identification purposes. 'nr': Not Reported Selenium  Samarium Scandium Selenium  Selenium  Are provided for matical identification purposes.  'nr': Not Reported Selenium  Selenium  Are provided for matical identification purposes.  'nr': Not Reported Selenium  Seleniu	Lutetium	<0.2	single results and are	
Neodymium nr identification purposes. Potassium (%) nr Rubidium 13 'nr': Not Reported Samarium 5.1 Scandium 18.6 Selenium <55	Mercury	nr	indicative only. These	
Nickel 36 purposes. Potassium (%) nr Rubidium 13 'nr': Not Reported Samarium 5.1 Scandium 18.6 Selenium <55	Molybdenum	8	are provided for matrix	
Potassium (%) nr Rubidium 13 'nr': Not Reported Samarium 5.1 Scandium 18.6 Selenium <5	Neodymium	nr	identification	
Rubidium 13 'nr': Not Reported Samarium 5.1 Scandium 18.6 Selenium <55	Nickel	36	purposes.	
Samarium 5.1 Scandium 18.6 Selenium <5	Potassium (%)	nr		
Scandium 18.6 Selenium <5	Rubidium	13	'nr': Not Rep	orted
Selenium <5	Samarium	5.1		
	Scandium	18.6		
0.1	Selenium	<5		
Silver <2	Silver	<2		
Sodium (%) 2.57	Sodium (%)	2.57		
Strontium nr	Strontium	nr		
Tantalum 1.5	Tantalum	1.5		
Tellurium nr	Tellurium	nr		
Terbium 0.9	Terbium	0.9		
Thorium 17.2	Thorium	17.2		
Tin nr	Tin	nr		
Tungsten 1	Tungsten	1		
Uranium 8.7	Uranium	8.7		
Ytterbium 2	Ytterbium	2		
Zinc 90	Zinc	90		
Zirconium nr	Zirconium	nr		

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