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CERTIFICATE OF ANALYSIS FOR

COPPER ORE REFERENCE MATERIAL OREAS 97

SUMMARY STATISTICS OREAS 97

Constituent	Recommended value	95% Confidence Interval		Tolerance limits 1-α=0.99, ρ=0.95	
		Low	High	Low	High
4 Acid					
Silver, Ag (ppm)	19.6	19.1	20.2	19.2	20.1
Bismuth, Bi (ppm)	40.1	38.5	41.8	39.0	41.3
Cobalt, Co (ppm)	62.9	59.9	65.8	61.1	64.6
Copper, Cu (wt.%)	6.31	6.22	6.40	6.20	6.42
Lead, Pb (ppm)	147	141	153	143	151
Sulphur, S (wt.%)	~6.07	4.75	7.39	5.83	6.31
Antimony, Sb (ppm)	9.23	8.38	10.1	8.90	9.57
Selenium, Se (ppm)	71.4	69.6	73.2	69.5	73.3
Tin, Sn (ppm)	95.7	92.3	99.2	93.8	97.6
Zinc, Zn (ppm)	646	624	669	628	665
Aqua Regia					
Silver, Ag (ppm)	19.5	19.1	19.9	19.0	20.0
Bismuth, Bi (ppm)	40.3	39.0	41.7	39.5	41.1
Cobalt, Co (ppm)	62.5	58.9	66.2	60.6	64.5
Copper, Cu (wt.%)	6.28	6.19	6.36	6.18	6.37
Lead, Pb (ppm)	142	135	149	139	145
Antimony, Sb (ppm)	8.10	7.05	9.15	7.81	8.38
Selenium, Se (ppm)	67.3	61.2	73.4	65.1	69.5
Tin, Sn (ppm)	83.8	77.3	90.3	81.7	85.9
Zinc, Zn (ppm)	635	612	658	624	646
Sulphur by LECO (wt.%)	6.71	6.47	6.96	6.65	6.78

~ approximate value based on results from 4 to 5 labs; intervals may appear asymmetric due to rounding

Prepared by:
Ore Research & Exploration Pty Ltd
February 2006

REPORT 06/556H

INTRODUCTION

OREAS certified reference materials (CRMs) are intended to provide a low cost method of evaluating and improving the quality of precious and base metal analysis of geological samples. To the analyst they provide an effective means of calibrating analytical equipment, assessing new techniques and routinely monitoring in-house procedures. To the geologist they provide a means of implementing quality control in analytical data sets generated in exploration, from the grass roots level through to prospect evaluation, and in grade control at mining operations.

SOURCE MATERIAL

Reference material OREAS 97 is one of a suite of nine copper CRMs (OREAS 90 to OREAS 98) prepared from material from the CSA mine located near the town Cobar in central western New South Wales, Australia. The copper ore body is hosted by the Early Devonian CSA Siltstone, a thinly bedded turbiditic sequence of carbonaceous siltstones and mudstones with minor coarser units. The CSA Siltstone is part of the Cobar Supergroup, consisting of lower syn-rift sediments and upper post-rift sag phase sediments. The mineralisation is structurally controlled and confined to a number of steeply dipping bodies within a major shear zone on the eastern margin of the Early Devonian Cobar Basin. It is characterised by low-grade greenschist alteration and epigenetic low-grade mineralisation enveloping higher-grade shoots of vein complexes or sub-massive to massive sulphides. The sulphides include chalcopyrite, pyrrhotite, pyrite, sphalerite, galena, bornite and cubanite. Iron-rich chlorite and silica are prominent alterations in the siltstone host.

Table 1. Indicative (uncertified) major and trace element composition of OREAS 97 (values are means of duplicate determinations; SiO_2 to C in wt.%, As to Zr in ppm).

Constituent	Mean value	Constituent	Mean value	Constituent	Mean value
SiO_2	50.8	As	22.0	Ni	37.0
Al_2O_3	11.5	Ba	300	Pr	8.57
CaO	0.36	Be	1.80	Rb	126
Fe_2O_3	17.4	Cd	1.50	Re	<0.1
K_2O	2.22	Ce	74.35	Sb	9.20
MgO	3.30	Cs	4.55	Sc	10.0
Na_2O	0.06	Dy	4.38	Sm	5.95
P_2O_5	0.14	Er	2.45	Sr	15.3
SO_3	17.7	Eu	0.90	Ta	0.65
TiO_2	0.57	Ga	12.8	Tb	0.78
MnO	0.12	Gd	5.20	Te	<0.2
LOI	4.70	Hf	3.00	Th	14.1
		Ho	0.85	Tl	0.70
C	0.07	In	6.45	Tm	0.35
		La	35.7	U	3.30
		Li	29.0	W	4.00
		Lu	0.31	Y	22.4
		Mo	<0.5	Yb	2.30
		Nb	9.00	Zr	96.5
		Nd	31.0		

The approximate major and trace element composition of OREAS 97 has been determined by various total methods. These values, presented in Table 1, are based on the means of duplicate determinations at one laboratory and are uncertified. The constituents SiO_2 to MnO (excluding Na_2O) have been determined by borate fusion X-ray fluorescence analysis, LOI by thermo-gravimetric analysis, C by total combustion analysis, Na_2O, Co, Ni and Sc by 4-acid ICPOES and the remaining trace constituents by 4-acid ICP-MS.

COMMINUTION AND HOMOGENISATION PROCEDURES

The material constituting OREAS 97 was prepared in the following manner:

a) drying to constant mass at 65^0 C;
b) crushing;
c) milling to minus 75 microns;
d) homogenisation;
e) packaging into 10g lots sealed under nitrogen in laminated foil pouches.

ANALYTICAL PROGRAM FOR OREAS 97

Sixteen commercial laboratories participated in the analytical program to certify Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn by both total and partial methods. Their results together with uncorrected means, medians, one sigma standard deviations, relative standard deviations and percent deviation of lab means from the corrected mean of means (PDM[3]) are presented in an appendix (Tables A2 – A21). The analytical methods employed by each laboratory are indicated as codes at the head of each laboratory data set and explained in Table A1 of the appendix.

The intent of the certification program was to characterise the analytes by a) total methods (mainly HF-HCl-HNO_3-$HClO_4$ digest ICP-OES and ICP-MS), and b) aqua regia digest ICP-OES, ICP-MS or AAS. A batch of five dried and vacuum-packed samples were submitted to each of the participating laboratories for analysis. Each batch was composed of two 10g sub-samples scoop-split from each of two separate 1kg test units taken during the bagging stage and immediately following homogenisation. This two-stage nested design for the interlaboratory programme was amenable to analysis of variance (ANOVA) treatment and enables a comparative assessment of within- and between-unit homogeneity. A fifth randomly chosen sample was included from a third 1kg test unit to make up batches of five samples.

STATISTICAL EVALUATION OF OREAS 97

Recommended Value and Confidence Limits

The certified value is the mean of means of accepted replicate values of accepted participating laboratories computed according to the formulae

$$\bar{x}_i = \frac{1}{n_i} \sum_{j=1}^{n_i} x_{ij}$$

$$\ddot{x} = \frac{1}{p} \sum_{i=1}^{p} \bar{x}_i$$

where

x_{ij} *is the jth result reported by laboratory i;*

p is the number of participating laboratories;

n_i *is the number of results reported by laboratory i;*

$\overline{x}_i$ *is the mean for laboratory i;*

$\ddot{x}$ *is the mean of means.*

The confidence limits were obtained by calculation of the variance of the consensus value (mean of means) and reference to Student's-*t* distribution with degrees of freedom (*p*-1).

$$\hat{V}(\ddot{x}) = \frac{1}{p(p-1)} \sum_{i=1}^{p} (\overline{x}_i - \ddot{x})^2$$

$$\text{Confidence limits} = \ddot{x} \pm t_{1-x/2}(p-1)(\hat{V}(\ddot{x}))^{1/2}$$

where $t_{1-x/2}(p-1)$ *is the 1-x/2 fractile of the t-distribution with (p-1) degrees of freedom.*

The distributions of the values are assumed to be symmetrical about the mean in the calculation of the confidence limits.

The test for rejection of individual outliers from each laboratory data set was based on *z* scores (rejected if $|z_i| > 2.5$) computed from the robust estimators of location and scale, *T* and *S*, respectively, according to the formulae

$$S = 1.483 \underset{j=1\ldots n}{\text{median}} / x_j - \underset{i=1\ldots n}{\text{median}} (x_i) /$$

$$z_i = \frac{x_i - T}{S}$$

where

T is the median value in a data set;
S is the median of all absolute deviations from the sample median multiplied by 1.483, a correction factor to make the estimator consistent with the usual parameter of a normal distribution.

Individual outliers and, more rarely, laboratory means deemed to be outlying are shown in bold in the tabulated results (Appendix) and have been omitted in the determination of recommended values. The magnitude of the confidence interval is inversely proportional to the number of participating laboratories and interlaboratory agreement. It is a measure of the reliability of the recommended value, i.e. the narrower the confidence interval the greater the certainty in the recommended value.

Table 2. Recommended values and 95% confidence intervals for OREAS 97

Constituent	Recommended value	95% Confidence Interval	
		Low	High
4 Acid			
Silver, Ag (ppm)	19.6	19.1	20.2
Bismuth, Bi (ppm)	40.1	38.5	41.8
Cobalt, Co (ppm)	62.9	59.9	65.8
Copper, Cu (wt.%)	6.31	6.22	6.40
Lead, Pb (ppm)	147	141	153
Sulphur, S (wt.%)	~6.07	4.75	7.39
Antimony, Sb (ppm)	9.23	8.38	10.1
Selenium, Se (ppm)	71.4	69.6	73.2
Tin, Sn (ppm)	95.7	92.3	99.2
Zinc, Zn (ppm)	646	624	669
Aqua Regia			
Silver, Ag (ppm)	19.5	19.1	19.9
Bismuth, Bi (ppm)	40.3	39.0	41.7
Cobalt, Co (ppm)	62.5	58.9	66.2
Copper, Cu (wt.%)	6.28	6.19	6.36
Lead, Pb (ppm)	142	135	149
Antimony, Sb (ppm)	8.10	7.05	9.15
Selenium, Se (ppm)	67.3	61.2	73.4
Tin, Sn (ppm)	83.8	77.3	90.3
Zinc, Zn (ppm)	635	612	658
Sulphur by LECO (wt.%)	6.71	6.47	6.96

~ approximate value based on results from 4 to 5 labs; intervals may appear asymmetric due to rounding

Statement of Homogeneity

The standard deviation of each laboratory data set includes error due to both the imprecision of the analytical method employed and to possible inhomogeneity of the material analysed. The standard deviation of the pooled individual analyses of all participating laboratories includes error due to the imprecision of each analytical method, to possible inhomogeneity of the material analysed and, in particular, to deficiencies in accuracy of each analytical method. In determining tolerance intervals the component of error attributable to measurement inaccuracy was eliminated by transformation of the individual results of each data set to a common mean (the uncorrected grand mean) according to the formula:

$$x'_{ij} = x_{ij} - \bar{x}_i + \frac{\sum_{i=1}^{p}\sum_{j=1}^{n_i} x_{ij}}{\sum_{i=1}^{p} n_i}$$

where

x_{ij} *is the jth raw result reported by laboratory i;*

x'_{ij} *is the jth transformed result reported by laboratory i;*

n_i *is the number of results reported by laboratory i;*

p *is the number of participating laboratories;*

$\bar{x}_i$ *is the raw mean for laboratory i.*

The homogeneity of each constituent was determined from tables of factors for two-sided tolerance limits for normal distributions (ISO 3207) in which

$$\text{Lower limit is } \ddot{x} - k_2'(n,p,1-\alpha)s_g''$$
$$\text{Upper limit is } \ddot{x} + k_2'(n,p,1-\alpha)s_g''$$

where

n *is the number of results*;

$1-\alpha$ *is the confidence level*;

p *is the proportion of results expected within the tolerance limits*;

k_2' *is the factor for two – sided tolerance limits* (m, α *unknown*);

s_g'' *is the corrected grand standard deviation.*

The meaning of these tolerance limits may be illustrated for copper by 4 acid digest, where 99% of the time at least 95% of subsamples will have concentrations lying between 6.20 and 6.42% (see Table 3). Put more precisely, this means that if the same number of subsamples were taken and analysed in the same manner repeatedly, 99% of the tolerance intervals so constructed would cover at least 95% of the total population, and 1% of the tolerance intervals would cover less than 95% of the total population (IS0 Guide 35).

The corrected grand standard deviation, s_g'', used to compute the tolerance intervals is the weighted means of standard deviations of all data sets for a particular constituent according to the formula:

$$s_g'' = \frac{\sum_{i=1}^{p}\left(s_i\left(1-\frac{s_i}{s_g'}\right)\right)}{\sum_{i=1}^{p}\left(1-\frac{s_i}{s_g'}\right)}$$

where

$$1-\left(\frac{s_i}{2s_g'}\right) \text{ is the weighting factor for laboratory } i\,;$$

$$s_g' \text{ is the grand standard deviation computed from the transformed (i.e. means-adjusted) results}$$

according to the formula:

$$s_g' = \left[\frac{\sum_{i=j}^{p}\sum_{j=i}^{n_i}(x_{ij}' - \bar{x}_i')^2}{\sum_{i=1}^{p} n_i - 1}\right]^{1/2}$$

$$\text{where } \bar{x}_i' \text{ is the transformed mean for laboratory } i$$

Table 3. Recommended values and tolerance limits for OREAS 97

Constituent	Recommended value	Tolerance limits 1-α=0.99, ρ=0.95	
		Low	High
4 Acid			
Silver, Ag (ppm)	19.6	19.2	20.1
Bismuth, Bi (ppm)	40.1	39.0	41.3
Cobalt, Co (ppm)	62.9	61.1	64.6
Copper, Cu (wt.%)	6.31	6.20	6.42
Lead, Pb (ppm)	147	143	151
Sulphur, S (wt.%)	~6.07	5.83	6.31
Antimony, Sb (ppm)	9.23	8.90	9.57
Selenium, Se (ppm)	71.4	69.5	73.3
Tin, Sn (ppm)	95.7	93.8	97.6
Zinc, Zn (ppm)	646	628	665
Aqua Regia			
Silver, Ag (ppm)	19.5	19.0	20.0
Bismuth, Bi (ppm)	40.3	39.5	41.1
Cobalt, Co (ppm)	62.5	60.6	64.5
Copper, Cu (wt.%)	6.28	6.18	6.37
Lead, Pb (ppm)	142	139	145
Antimony, Sb (ppm)	8.10	7.81	8.38
Selenium, Se (ppm)	67.3	65.1	69.5
Tin, Sn (ppm)	83.8	81.7	85.9
Zinc, Zn (ppm)	635	624	646
Sulphur by LECO (wt.%)	6.71	6.65	6.78

~ approximate value based on results from 4 to 5 labs; intervals may appear asymmetric due to rounding

The weighting factors were applied to compensate for the considerable variation in analytical precision amongst participating laboratories. Hence, weighting factors for each data set have been constructed so as to be inversely proportional to the standard deviation of that data set. A weighting factor of zero was applied to those data sets where $s_l / 2s_g' > 1$ (i.e. where the weighting factor $1 - s_l / 2s_g' < 0$). It should be noted that estimates of tolerance by this method are considered conservative as a significant proportion of the observed variance, even in those laboratories exhibiting the best analytical precision, can presumably be attributed to measurement error. Outliers were removed prior to the calculation of tolerance intervals and a weighting factor of zero was applied to those data sets where $s_l / 2s_g' > 1$ (i.e. where the weighting factor $1 - s_l / 2s_g' < 0$).

Performance Gates

Performance gates provide an indication of a level of performance that might reasonably be expected for a particular analyte from a laboratory being monitored by this standard in a QA/QC program. They incorporate errors attributable to measurement (analytical bias and precision) and standard variability. For an effective standard the contribution of the latter should be negligible in comparison to measurement errors. Two methods have been employed to calculate performance gates.

The first method uses the standard deviation of the pooled individual analyses generated from the certification program. All individual and lab dataset (batch) outliers are removed prior to determination of the standard deviation. These outliers can only be removed if they can be confidently deemed to be analytical rather than arising from inhomogeneity of the CRM. Performance gates have been calculated for one, two and three standard deviations of the accepted pool of certification data and are presented in Table 4. As a guide these intervals may be regarded as informational (1σ), warning or rejection for multiple outliers (2σ), or rejection for individual outliers (3σ) in QC monitoring although their precise application should be at the discretion of the QC manager concerned.

For the second method a ±5% error bar on the recommended value is used as the window of acceptability (refer Table 4).

Both methods should be used with caution when concentration levels approach lower limits of detection of the analytical methods employed, as performance gates calculated from standard deviations tend to be excessively wide whereas those determined by the 5% method are too narrow.

Table 4. Performance gates for OREAS 97

Constituent	Recommended value	Performance Gates							
		1σ		2σ		3σ		5%	
		Low	High	Low	High	Low	High	Low	High
4 Acid									
Silver, Ag (ppm)	19.6	18.3	21.0	17.0	22.3	15.7	23.6	18.7	20.6
Bismuth, Bi (ppm)	40.1	35.8	44.5	31.5	48.8	27.1	53.1	38.1	42.1
Cobalt, Co (ppm)	62.9	57.2	68.5	51.6	74.1	45.9	79.8	59.7	66.0
Copper, Cu (wt.%)	6.31	5.97	6.65	5.63	6.99	5.28	7.33	5.99	6.62
Lead, Pb (ppm)	147	134	160	121	173	108	186	140	154
Sulphur, S (wt.%)	~6.07	5.04	7.10	4.01	8.13	2.99	9.16	5.77	6.37
Antimony, Sb (ppm)	9.23	7.70	10.8	6.17	12.3	4.63	13.8	8.77	9.70
Selenium, Se (ppm)	71.4	64.2	78.5	57.1	85.6	50.0	92.8	67.8	74.9
Tin, Sn (ppm)	95.7	85.2	106	74.8	117	64.3	127	90.9	101
Zinc, Zn (ppm)	646	599	694	551	741	504	789	614	679
Aqua Regia									
Silver, Ag (ppm)	19.5	16.9	22.0	14.4	24.6	11.9	27.1	18.5	20.5
Bismuth, Bi (ppm)	40.3	36.5	44.1	32.7	47.9	28.9	51.7	38.3	42.3
Cobalt, Co (ppm)	62.5	55.6	69.5	48.7	76.4	41.8	83.3	59.4	65.7
Copper, Cu (wt.%)	6.28	5.92	6.63	5.57	6.99	5.21	7.35	5.96	6.59
Lead, Pb (ppm)	142	130	154	118	166	106	178	135	149
Antimony, Sb (ppm)	8.10	5.99	10.2	3.89	12.3	1.79	14.4	7.69	8.50
Selenium, Se (ppm)	67.3	57.2	77.4	47.1	87.5	37.1	97.6	63.9	70.7
Tin, Sn (ppm)	83.8	71.9	95.7	60.0	108	48.0	120	79.6	88.0
Zinc, Zn (ppm)	635	497	773	358	911	220	1050	603	667
Sulpur by LECO (wt.%)	6.71	6.21	7.22	5.70	7.73	5.20	8.23	6.38	7.05

~ approximate value based on results from 4 to 5 labs; intervals may appear asymmetric due to rounding

PARTICIPATING LABORATORIES

Acme Analytical Laboratories, Vancouver, BC, Canada
Activation Laboratories, Ancaster, ON, Canada
Actlabs Pacific, Redcliffe, WA, Australia
ALS Chemex, Malaga, WA, Australia
ALS Chemex, Stafford, QLD, Australia
ALS Chemex, North Vancouver, BC, Canada
Amdel Laboratories, Thebarton, SA, Australia
Amdel Laboratories, Wangara, WA, Australia
Genalysis Laboratory Services, Maddington, WA, Australia

Intertek Testing Services, Jakarta, Indonesia
Kalgoorlie Assay Laboratories, Kalgoorlie WA, Australia
McPhar Geoservices (Phil.) Inc., Makati, Philippines
OMAC Laboratories, Loughrea, Co. Galway, Ireland
SGS, Don Mills, Ontario, Canada
SGS, Welshpool, WA, Australia
Ultra Trace Laboratories, Canning Vale, WA, Australia

PREPARER AND SUPPLIER OF THE REFERENCE MATERIAL

The siltstone reference material OREAS 97 has been prepared and certified and is supplied by:

Ore Research & Exploration Pty Ltd
6-8 Gatwick Road
Bayswater North, VIC 3153
AUSTRALIA

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It is available in unit sizes of 10g in laminated foil packets.

INTENDED USE

OREAS 97 is a reference material intended for the following:

i) for the calibration of instruments used in the determination of the concentration of Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn;
ii) for the verification of analytical methods for Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn;
iii) for the preparation of secondary reference materials of similar composition;

STABILITY AND STORAGE INSTRUCTIONS

OREAS 97 has been prepared from a sediment-hosted sulphide-bearing copper ore. To prolong its shelf life it has been packaged under nitrogen in robust foil laminate pouches. It is considered to have long-term stability under normal storage conditions.

INSTRUCTIONS FOR THE CORRECT USE OF THE REFERENCE MATERIAL

The recommended values for OREAS 97 refer to the concentration levels of Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn after removal of hygroscopic moisture by drying in air to constant mass at the reduced temperature of 65^0 C. If the reference material is not dried prior to analysis, the recommended value should be corrected to the moisture-bearing basis.

LEGAL NOTICE

Ore Research & Exploration Pty Ltd has prepared and statistically evaluated the property values of this reference material to the best of its ability. The Purchaser by receipt hereof releases and indemnifies Ore Research & Exploration Pty Ltd from and against all liability and costs arising from the use of this material and information.

CERTIFYING OFFICER

Dr Paul Hamlyn

CERTIFICATION DATE

February 25, 2006

REFERENCES

ISO Guide 35 (1985), Certification of reference materials - General and statistical principals.
ISO Guide 3207 (1975), Statistical interpretation of data - Determination of a statistical tolerance interval.
Kleeman, A. W. (1967), *J. Geol. Soc. Australia*,

APPENDIX

Analytical Results for OREAS 97

Table A1. Explanation of abbreviations used in Tables A2 – A22.

Abbreviation	Explanation
Std.Dev.	one sigma standard deviation
Rel.Std.Dev.	one sigma relative standard deviation
PDM[3]	percent deviation of lab mean from corrected mean of means
-	outlying values shown in bold
AF	alkali fusion
BF	borate fusion
4A	four acid (HF-HNO3 -HClO4 -HCl) digestion
AR	aqua regia digest
OES	inductively coupled plasma optical emission spectrometry
MS	inductively coupled plasma mass spectrometry
AAS	atomic absorption spectrometry
Leco	Leco infrared furnace

Table A2. Analytical results for 4 acid silver in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	19.0	20.6	19.3	21.0	**17.6**	19.3	19.7	20.1	19.8	23.2	17.4	19.9	19.9	20.2	>10	19
2	18.5	**22.0**	19.8	19.9	18.2	20.2	19.5	18.7	20.1	23.1	17.3	19.9	20.7	20.1	>10	19
3	19.0	20.5	**21.6**	22.3	18.2	20.3	19.4	18.8	19.8	**22.4**	18.5	19.7	21.9	20.0	>10	19
4	19.5	20.7	19.3	22.5	18.3	19.6	20.0	19.7	19.6	23.0	18.4	19.8	20.2	19.9	>10	19
5	19.5	21.0	19.4	21.3	**18.9**	20.6	19.0	19.5	19.7	23.5	18.5	20.2	19.7	20.1	>10	19
Mean	19.1	21.0	19.9	21.4	18.2	20.0	19.5	19.3	19.8	**23.0**	18.0	19.9	20.5	20.1	>10	19.0
Median	19.0	20.7	19.4	21.3	18.2	20.2	19.5	19.5	19.8	23.1	18.4	19.9	20.2	20.1	>10	19.0
Std.Dev.	0.4	0.6	1.0	1.1	0.4	0.5	0.4	0.6	0.2	0.4	0.6	0.2	0.9	0.1	-	0.0
Rel.Std.Dev.	2.19%	2.91%	4.95%	5.01%	2.43%	2.67%	1.90%	3.01%	0.94%	1.73%	3.46%	0.94%	4.29%	0.57%	-	0.00%
PDM[3]	-2.76%	6.71%	1.21%	8.90%	-7.24%	1.82%	-0.62%	-1.50%	0.80%	17.3%	-8.21%	1.31%	4.26%	2.13%	-	-3.27%

Table A3. Analytical results for 4 acid bismuth in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	42.7	39.2	38.5	37.2	37.5	53.1	40.9	33.9	46.8	38.5	40.6	37.7	39.6	42	40.4	NR
2	**41.2**	38.5	39.0	34.6	38.0	52.2	40.9	33.5	47.1	38.7	40.1	36.9	41.3	42	40.9	NR
3	42.9	39.3	38.7	43.9	38.1	52.7	41.0	36.9	46.3	37.4	42.4	37.3	43.1	42	40.2	NR
4	41.8	40.0	38.6	42.2	38.4	52.6	41.8	35.7	47.0	38.0	42.7	36.5	40.3	44	41.5	NR
5	43.0	39.0	39.2	37.2	**40.1**	**54.2**	40.1	36.0	46.7	39.1	43.2	37.1	40.6	44	39.1	NR
Mean	42.3	39.2	38.8	39.0	38.4	**53.0**	40.9	35.2	46.8	38.3	41.8	37.1	41.0	42.8	40.4	
Median	42.7	39.2	38.7	37.2	38.1	52.7	40.9	35.7	46.8	38.5	42.4	37.1	40.6	42.0	40.4	
Std.Dev.	0.8	0.5	0.3	3.9	1.0	0.8	0.6	1.5	0.3	0.7	1.3	0.4	1.3	1.1	0.9	
Rel.Std.Dev.	1.86%	1.36%	0.75%	9.93%	2.59%	1.44%	1.47%	4.15%	0.67%	1.70%	3.20%	1.21%	3.25%	2.56%	2.21%	
PDM[3]	5.44%	-2.41%	-3.33%	-2.78%	-4.28%	31.9%	2.00%	-12.3%	16.5%	-4.51%	4.11%	-7.57%	2.10%	6.63%	0.70%	

Table A4. Analytical results for 4 acid cobalt in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	65	64.7	65	55.8	53.6	71	63.6	64.7	70.0	59.3	62.3	62.7	58.7	62	53.6	70
2	68	62.6	65	**52.7**	55.8	73	63.0	62.4	69.5	59.1	**61.4**	62.3	63.7	63	53.5	70
3	66	62.5	67	**65.3**	48.3	**77**	62.7	60.4	68.0	58.6	65.2	61.4	65.6	63	54.3	70
4	66	65.7	65	56.5	56.4	74	64.1	62.9	68.5	58.9	65.9	60.9	61.6	62	55.3	70
5	66	65.0	65	55.9	50.2	73	60.9	61.1	68.5	**60.3**	66.2	62.4	60.3	63	52.4	70
Mean	66.2	64.1	65.4	57.2	52.9	73.6	62.9	62.3	68.9	59.2	64.2	61.9	62.0	62.6	53.8	70.0
Median	66.0	64.7	65.0	55.9	53.6	73.0	63.0	62.4	68.5	59.1	65.2	62.3	61.6	63.0	53.6	70.0
Std.Dev.	1.1	1.5	0.9	4.7	3.5	2.2	1.2	1.7	0.8	0.7	2.2	0.8	2.7	0.5	1.1	0.0
Rel.Std.Dev.	1.65%	2.28%	1.37%	8.29%	6.66%	2.98%	1.94%	2.68%	1.19%	1.12%	3.46%	1.22%	4.40%	0.87%	1.99%	0.00%
PDM[3]	5.33%	1.98%	4.05%	-8.93%	-15.9%	17.1%	0.01%	-0.87%	9.62%	-5.78%	2.16%	-1.45%	-1.39%	-0.40%	-14.4%	11.4%

Table A5. Analytical results for 4 acid copper in OREAS 97 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	6.51	6.15	6.57	NR	6.03	6.28	6.40	6.24	7.31	6.33	5.94	6.16	6.65	6.17	6.21	6.51
2	6.58	6.25	6.24	NR	5.97	6.37	6.42	**5.94**	7.45	6.38	5.85	6.31	6.81	6.22	6.23	6.49
3	6.61	6.21	6.44	NR	5.99	6.48	6.27	6.26	7.43	6.43	6.24	6.19	6.44	6.20	6.20	6.42
4	6.60	6.30	6.49	NR	6.02	6.54	6.35	6.05	7.39	6.38	6.22	6.12	6.07	6.23	6.26	6.40
5	6.48	6.25	6.27	NR	6.02	6.64	6.36	6.21	**7.61**	6.40	6.28	6.33	6.67	6.25	6.24	6.40
Mean	6.56	6.23	6.40		6.01	6.46	6.36	6.14	**7.44**	6.38	6.11	6.22	6.53	6.21	6.23	6.44
Median	6.58	6.25	6.44		6.02	6.48	6.36	6.21	7.43	6.38	6.22	6.19	6.65	6.22	6.23	6.42
Std.Dev.	0.06	0.06	0.14		0.03	0.14	0.06	0.14	0.11	0.04	0.20	0.09	0.29	0.03	0.02	0.05
Rel.Std.Dev.	0.88%	0.90%	2.22%		0.42%	2.18%	0.91%	2.27%	1.48%	0.58%	3.21%	1.48%	4.41%	0.46%	0.38%	0.81%
PDM[3]	3.91%	-1.23%	1.47%		-4.81%	2.40%	0.80%	-2.69%	17.9%	1.17%	-3.21%	-1.40%	3.46%	-1.50%	-1.29%	2.13%

Table A6. Analytical results for 4 acid lead in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	139	148	134	148	132	151	140	149	171	150	122	161	162	150	138	154
2	141	**193**	136	**138**	128	140	140	142	168	151	120	170	165	153	137	154
3	143	140	138	154	129	147	139	148	170	146	128	165	167	154	139	156
4	138	140	136	150	135	147	143	146	166	148	128	164	165	152	142	155
5	142	139	134	148	137	151	**135**	150	167	153	130	160	163	154	134	154
Mean	141	152	136	147	132	147	139	147	168	149	126	164	164	153	138	155
Median	141	140	136	148	132	147	140	148	168	150	128	164	165	153	138	154
Std.Dev.	2	23	2	6	4	4	3	3	2	3	4	4	2	2	3	1
Rel.Std.Dev.	1.47%	15.3%	1.23%	4.04%	2.83%	3.01%	2.07%	2.23%	1.23%	1.72%	3.41%	2.40%	1.19%	1.10%	2.11%	0.58%
PDM[3]	-4.33%	3.43%	-7.73%	0.17%	-10.2%	0.11%	-5.14%	0.07%	14.6%	1.72%	-14.5%	11.6%	11.9%	3.84%	-6.09%	5.20%

Table A7. Analytical results for 4 acid sulphur in OREAS 97 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	7.21	NR	7.01	NR	5.16	NR	NR	NR	NR	NR	6.27	NR	NR	NR	4.57	NR
2	7.40	NR	6.60	NR	5.15	NR	NR	NR	NR	NR	6.17	NR	NR	NR	**4.03**	NR
3	7.45	NR	6.38	NR	5.19	NR	NR	NR	NR	NR	**6.08**	NR	NR	NR	4.87	NR
4	7.38	NR	6.60	NR	5.18	NR	NR	NR	NR	NR	6.32	NR	NR	NR	**>5**	NR
5	7.15	NR	7.39	NR	5.25	NR	NR	NR	NR	NR	6.29	NR	NR	NR	4.94	NR
Mean	7.32		6.80		5.19						6.23				4.60	
Median	7.38		6.60		5.18						6.27				4.72	
Std.Dev.	0.13		0.40		0.04						0.10				0.41	
Rel.Std.Dev.	1.78%		5.92%		0.75%						1.59%				9.00%	
PDM[3]	20.5%		11.9%		-14.6%						2.55%				-24.2%	

Table A8. Analytical results for 4 acid antimony in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	9.8	10.2	12.2	9.05	8.40	10.2	10.3	**7.52**	NR	8.85	8.47	7.90	10.3	NR	9.18	6
2	9.5	10.4	12.4	8.62	8.47	10.2	10.2	6.54	NR	8.80	8.46	8.20	10.8	NR	8.74	9
3	10	10.2	12.5	9.53	8.54	9.7	10.1	6.46	NR	8.55	9.29	8.10	11.7	NR	8.63	5
4	9.4	**10.6**	12.3	9.43	8.68	9.6	**10.9**	**5.50**	NR	8.76	9.06	8.20	10.9	NR	9.03	8
5	9.8	10.3	12.1	9.24	8.88	10.9	10.0	6.53	NR	9.03	9.06	8.00	9.80	NR	8.50	8
Mean	9.70	10.3	12.3	9.17	8.59	10.1	10.3	6.51		8.80	8.87	8.08	10.7		8.82	7.20
Median	9.80	10.3	12.3	9.24	8.54	10.2	10.2	6.53		8.80	9.06	8.10	10.8		8.74	8.00
Std.Dev.	0.24	0.19	0.16	0.36	0.19	0.52	0.35	0.72		0.17	0.38	0.13	0.71		0.28	1.64
Rel.Std.Dev.	2.53%	1.82%	1.29%	3.93%	2.22%	5.11%	3.43%	11.0%		1.94%	4.28%	1.61%	6.64%		3.20%	22.8%
PDM[3]	5.04%	12.0%	33.2%	-0.65%	-6.93%	9.59%	11.5%	-29.5%		-4.73%	-3.99%	-12.5%	15.9%		-4.53%	-22.0%

Table A9. Analytical results for 4 acid selenium in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	60	74	70	71.4	71	NR	70	**77.7**	64.5	59.9	70.5	58.8	73.4	NR	70	85
2	65	71	70	**68.0**	73	NR	70	71.5	66.2	59.9	68.0	59.2	76.4	NR	73	87
3	60	72	70	**74.7**	72	NR	70	**68.1**	65.8	**58.2**	71.9	59.6	80.1	NR	73	88
4	60	76	70	72.4	72	NR	70	71.1	65.3	60.3	75.7	60.4	73.8	NR	75	85
5	60	78	70	72.0	73	NR	70	71.0	65.4	61.0	76.0	60.8	66.9	NR	70	88
Mean	**61.0**	74.2	70.0	71.7	72.2		70.0	71.9	65.4	**59.9**	72.4	**59.8**	74.1		72.2	**86.6**
Median	60.0	74.0	70.0	72.0	72.0		70.0	71.1	65.4	59.9	71.9	59.6	73.8		73.0	87.0
Std.Dev.	2.2	2.9	0.0	2.4	0.8		0.0	3.5	0.6	1.0	3.4	0.8	4.8		2.2	1.5
Rel.Std.Dev.	3.67%	3.86%	0.00%	3.37%	1.16%		0.00%	4.92%	0.97%	1.70%	4.76%	1.39%	6.53%		3.00%	1.75%
PDM[3]	-14.5%	3.97%	-1.92%	0.46%	1.16%		-1.92%	0.70%	-8.31%	-16.1%	1.47%	-16.3%	3.85%		1.16%	21.3%

Table A10. Analytical results for 4 acid tin in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	95	97	97	88	**71**	99	97	97	103	108	119	89	97	NR	88	90
2	92	95	98	**83**	73	93	95	93	101	105	116	89	102	NR	88	**97**
3	96	95	99	92	73	93	96	93	102	103	124	89	108	NR	88	90
4	97	99	97	90	74	102	**100**	94	104	108	124	88	102	NR	**89**	91
5	95	98	97	89	**76**	101	**93**	95	100	112	124	88	97	NR	**86**	91
Mean	95	97	98	88	**73**	98	96	94	102	107	**121**	89	101		88	92
Median	95	97	97	89	73	99	96	94	102	108	124	89	102		88	91
Std.Dev.	2	2	1	3	2	4	3	2	2	3	4	1	4		1	3
Rel.Std.Dev.	1.97%	1.93%	0.92%	3.47%	2.51%	4.46%	2.67%	1.82%	1.55%	3.03%	3.06%	0.84%	4.35%		1.22%	3.21%
PDM[3]	-0.76%	0.96%	1.96%	-7.57%	-23.2%	1.96%	0.41%	-1.40%	6.55%	12.0%	26.7%	-7.44%	5.84%		-8.28%	-4.10%

Table A11. Analytical results for 4 acid zinc in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	640	669	630	NR	573	700	610	634	710	671	604	646	670	647	606	596
2	640	664	620	NR	585	700	596	**591**	710	692	598	640	800	643	617	616
3	**620**	662	610	NR	580	700	598	637	700	689	640	**655**	690	646	613	609
4	645	671	620	NR	597	700	**616**	617	690	675	643	644	600	639	625	601
5	650	677	620	NR	610	700	599	628	720	680	645	643	850	644	**585**	615
Mean	639	669	620		589	700	604	621	706	681	626	646	722	644	609	607
Median	640	669	620		585	700	599	628	710	680	640	644	690	644	613	609
Std.Dev.	11.4	5.9	7.1		14.6	0.0	8.7	18.6	11.4	8.8	22.9	5.7	101.3	3.1	15.2	8.7
Rel.Std.Dev.	1.78%	0.89%	1.14%		2.49%	0.00%	1.45%	2.99%	1.61%	1.29%	3.66%	0.88%	14.0%	0.48%	2.49%	1.44%
PDM[3]	-1.15%	3.43%	-4.09%		-8.88%	8.29%	-6.59%	-3.87%	9.22%	5.41%	-3.15%	-0.13%	11.7%	-0.40%	-5.76%	-6.03%

Table A12. Analytical results for aqua regia silver in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	19.9	19.9	NR	21.7	15.5	16.0	18.8	18.4	19.8	19.9	19.8	19.5	11.8	19.6	>10	NR
2	18.7	20.1	NR	21.1	15.6	16.4	18.5	19.8	19.6	19.8	20.1	19.8	11.8	19.2	>10	NR
3	19.4	20.4	NR	20.7	15.5	**14.6**	18.8	19.0	19.9	19.3	19.6	20.0	11.8	19.2	>10	NR
4	19.2	21.1	NR	21.3	15.7	16.2	18.7	18.9	19.5	19.4	19.9	19.6	11.5	19.3	>10	NR
5	18.6	20.8	NR	21.6	15.4	15.9	18.5	19.9	19.3	19.9	19.1	19.4	11.4	19.2	>10	NR
Mean	19.2	20.5		**21.3**	**15.5**	**15.8**	18.7	19.2	19.6	19.7	19.7	19.7	**11.7**	19.3	>10	
Median	19.2	20.4		21.3	15.5	16.0	18.7	19.0	19.6	19.8	19.8	19.6	11.8	19.2	>10	
Std.Dev.	0.5	0.5		0.4	0.1	0.7	0.2	0.6	0.2	0.3	0.4	0.2	0.2	0.2	-	
Rel.Std.Dev.	2.78%	2.46%		1.89%	0.70%	4.48%	0.81%	3.38%	1.22%	1.41%	1.99%	1.22%	1.67%	0.90%	-	
PDM[3]	-1.70%	4.96%		9.18%	-20.4%	-18.8%	-4.27%	-1.38%	0.66%	0.88%	0.96%	0.87%	-40.2%	-0.98%	-	

Table A13. Analytical results for aqua regia bismuth in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	41.8	38.3	NR	40.4	40.3	45.1	38.8	**39.6**	43.6	38.4	39.2	38.6	49.8	39.0	48.3	NR
2	40.3	**37.2**	NR	39.3	40.6	**46.6**	38.3	42.6	43.2	38.2	**35.8**	38.3	48.8	40.0	46.2	NR
3	40.6	38.5	NR	39.2	41.1	**41.8**	38.6	42.0	43.2	37.2	39.6	38.4	50.6	42.0	48.3	NR
4	42.3	38.6	NR	38.9	40.6	44.9	38.6	40.8	40.8	37.8	38.0	37.6	49.8	41.0	47.1	NR
5	40.1	38.0	NR	40.4	40.4	45.1	38.6	42.6	41.6	38.7	38.9	37.9	50.9	42.0	51.2	NR
Mean	41.0	38.1		39.6	40.6	44.7	38.6	41.5	42.5	38.1	38.3	38.2	**50.0**	40.8	**48.2**	
Median	40.6	38.3		39.3	40.6	45.1	38.6	42.0	43.2	38.2	38.9	38.3	49.8	41.0	48.3	
Std.Dev.	1.0	0.6		0.7	0.3	1.8	0.2	1.3	1.2	0.6	1.5	0.4	0.8	1.3	1.9	
Rel.Std.Dev.	2.37%	1.49%		1.79%	0.76%	3.94%	0.46%	3.13%	2.86%	1.48%	4.02%	1.06%	1.64%	3.20%	3.91%	
PDM[3]	1.78%	-5.45%		-1.64%	0.74%	10.9%	-4.27%	3.03%	5.41%	-5.59%	-4.99%	-5.31%	24.0%	1.24%	19.6%	

Table A14. Analytical results for aqua regia cobalt in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	65.0	72.4	NR	54.7	47.4	64.3	65.2	69.7	59.0	65.0	63.9	58.3	55.2	62	58.1	NR
2	64.5	70.6	NR	53.5	48.5	63.8	64.1	75.7	58.5	65.1	58.9	58.2	**63.5**	62	59.7	NR
3	65.5	74.4	NR	52.9	48.3	61.1	65.3	76.1	60.5	63.4	59.7	57.6	55.8	63	59.4	NR
4	65.5	73.0	NR	53.4	47.8	66.0	66.2	68.1	59.5	63.9	64.4	53.6	55.3	61	59.3	NR
5	65.5	75.5	NR	54.4	47.9	65.9	65.8	73.7	59.0	65.2	67.6	52.4	53.7	61	**62.9**	NR
Mean	65.2	73.2		53.8	**48.0**	64.2	65.3	72.7	59.3	64.5	62.9	56.0	56.7	61.8	59.9	
Median	65.5	73.0		53.5	47.9	64.3	65.3	73.7	59.0	65.0	63.9	57.6	55.3	62.0	59.4	
Std.Dev.	0.4	1.9		0.7	0.4	2.0	0.8	3.6	0.8	0.8	3.6	2.8	3.9	0.8	1.8	
Rel.Std.Dev.	0.69%	2.57%		1.39%	0.90%	3.11%	1.21%	4.93%	1.28%	1.25%	5.72%	5.00%	6.85%	1.35%	3.00%	
PDM[3]	4.25%	17.0%		-14.0%	-23.3%	2.68%	4.44%	16.2%	-5.18%	3.16%	0.57%	-10.4%	-9.34%	-1.19%	-4.26%	

Table A15. Analytical results for aqua regia copper in OREAS 97 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	6.39	**5.70**	6.42	6.10	>1	6.24	6.37	5.94	7.29	6.35	6.19	6.35	6.41	6.09	NR	NR
2	6.43	6.14	6.22	6.22	>1	6.18	**5.63**	6.47	7.43	6.31	6.25	**6.30**	6.55	6.08	NR	NR
3	6.41	6.14	6.51	5.98	>1	6.25	6.37	5.89	7.48	6.32	6.30	6.34	6.55	6.10	NR	NR
4	6.48	6.18	6.36	6.20	>1	6.16	6.03	6.59	7.29	6.21	6.08	6.34	6.67	6.10	NR	NR
5	**6.24**	6.19	6.55	6.00	>1	6.11	6.29	6.54	7.31	6.32	6.24	6.35	6.51	6.10	NR	NR
Mean	6.39	6.07	6.41	6.10	>1	6.19	6.14	6.29	**7.36**	6.30	6.21	6.34	6.54	6.09		
Median	6.41	6.14	6.42	6.10	>1	6.18	6.29	6.47	7.31	6.32	6.24	6.34	6.55	6.10		
Std.Dev.	0.09	0.21	0.13	0.11	-	0.06	0.32	0.34	0.09	0.05	0.08	0.02	0.09	0.01		
Rel.Std.Dev.	1.41%	3.43%	2.04%	1.81%	-	0.94%	5.16%	5.46%	1.21%	0.86%	1.33%	0.34%	1.43%	0.14%		
PDM[3]	1.79%	-3.31%	2.14%	-2.83%	-	-1.46%	-2.23%	0.14%	17.2%	0.40%	-1.04%	0.95%	4.14%	-2.92%		

Table A16. Analytical results for aqua regia lead in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	129	149	NR	142	135	143	134	155	160	141	130	131	160	145	136	NR
2	125	**143**	NR	139	134	146	133	170	165	140	132	130	156	145	140	NR
3	128	151	NR	138	133	136	134	161	160	137	124	131	160	148	138	NR
4	131	150	NR	137	132	142	135	162	150	138	121	129	156	146	142	NR
5	126	151	NR	140	133	147	134	168	155	142	125	129	163	146	**152**	NR
Mean	128	149		139	133	143	134	163	158	140	126	130	159	146	142	
Median	128	150		139	133	143	134	162	160	140	125	130	160	146	140	
Std.Dev.	2	3		2	1	4	1	6	6	2	4	1	3	1	6	
Rel.Std.Dev.	1.87%	2.25%		1.55%	0.90%	3.09%	0.53%	3.59%	3.61%	1.38%	3.56%	0.77%	1.89%	0.84%	4.40%	
PDM[3]	-10.0%	4.77%		-2.13%	-6.14%	0.44%	-5.65%	14.9%	11.3%	-1.59%	-11.0%	-8.46%	12.0%	2.80%	-0.30%	

Table A17. Analytical results for aqua regia antimony in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	7.26	7.19	NR	8.88	3.61	9.1	8.7	9.35	NR	8.25	10.4	**6.8**	3.9	NR	4.42	NR
2	7.18	7.45	NR	8.75	3.69	8.9	8.5	9.82	NR	8.19	10.1	7.1	4.0	NR	5.13	NR
3	7.24	7.73	NR	8.50	3.46	**8.3**	8.4	9.49	NR	8.14	10.2	7.5	4.0	NR	4.52	NR
4	7.16	7.80	NR	8.37	3.78	**9.8**	8.5	9.12	NR	8.23	9.9	7.5	3.6	NR	5.38	NR
5	7.08	7.50	NR	8.02	3.46	8.7	8.6	9.73	NR	**8.41**	10.8	7.4	3.9	NR	5.28	NR
Mean	7.18	7.53		8.50	**3.60**	8.96	8.54	9.50		8.24	10.3	7.26	**3.88**		4.95	
Median	7.18	7.50		8.50	3.61	8.90	8.50	9.49		8.23	10.2	7.40	3.90		5.13	
Std.Dev.	0.07	0.24		0.34	0.14	0.55	0.11	0.28		0.10	0.34	0.30	0.16		0.44	
Rel.Std.Dev.	0.99%	3.22%		3.96%	3.92%	6.19%	1.34%	3.00%		1.24%	3.35%	4.20%	4.23%		9.00%	
PDM[3]	-11.3%	-6.96%		5.02%	-55.5%	10.6%	5.46%	17.4%		1.80%	27.1%	-10.3%	-52.1%		-38.9%	

Table A18. Analytical results for aqua regia selenium in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	55	79	NR	64.3	54.4	87	57	76.5	66.4	66.6	61.6	59.9	69.1	NR	75	NR
2	51	83	NR	62.1	55.2	83	58	77.6	66.8	66.3	61.1	60.2	77.3	NR	74	NR
3	51	79	NR	61.8	53.8	**75**	62	79.7	66.7	66.2	61.4	**91.1**	75.0	NR	71	NR
4	54	80	NR	63.2	56.1	88	61	**68.6**	65.8	66.1	62.6	57.9	73.0	NR	73	NR
5	54	84	NR	64.0	54.9	85	62	77.7	65.3	67.1	62.9	58.0	68.9	NR	**78**	NR
Mean	53.0	81.0		63.1	54.9	83.6	60.0	76.0	66.2	66.5	61.9	65.4	72.7		74.2	
Median	54.0	80.0		63.2	54.9	85.0	61.0	77.6	66.4	66.3	61.6	59.9	73.0		74.0	
Std.Dev.	1.9	2.3		1.1	0.9	5.2	2.3	4.3	0.6	0.4	0.8	14.4	3.7		2.6	
Rel.Std.Dev.	3.53%	2.90%		1.76%	1.57%	6.19%	3.91%	5.70%	0.96%	0.62%	1.29%	22.0%	5.05%		3.49%	
PDM[3]	-21.3%	20.3%		-6.29%	-18.5%	24.2%	-10.9%	12.9%	-1.65%	-1.26%	-8.04%	-2.81%	7.94%		10.2%	

Table A19. Analytical results for aqua regia tin in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	81.4	93.3	NR	99.3	56.1	94.0	81	70.2	89	87.2	97.8	70.4	71.9	NR	75.1	NR
2	80.8	94.2	NR	96.0	56.9	94.0	80	75.4	90	87.7	96.4	72.2	69.1	NR	73.7	NR
3	82.6	96.0	NR	95.0	56.5	**81.0**	80	72.5	88	85.8	97.2	**74.2**	71.2	NR	74.7	NR
4	83.0	96.0	NR	94.8	56.7	92.0	81	71.1	89	85.9	95.9	71.6	65.7	NR	75.0	NR
5	80.8	93.1	NR	96.7	55.4	88.0	80	72.9	88	88.9	97.2	71.8	68.4	NR	**79.9**	NR
Mean	81.7	94.5		96.4	**56.3**	89.8	80.4	72.4	88.8	87.1	96.9	72.0	69.3		75.7	
Median	81.4	94.2		96.0	56.5	92.0	80.0	72.5	89.0	87.2	97.2	71.8	69.1		75.0	
Std.Dev.	1.0	1.4		1.8	0.6	5.5	0.5	2.0	0.8	1.3	0.7	1.4	2.5		2.4	
Rel.Std.Dev.	1.26%	1.49%		1.88%	1.05%	6.12%	0.68%	2.72%	0.94%	1.46%	0.76%	1.92%	3.55%		3.20%	
PDM[3]	-2.48%	12.8%		15.0%	-32.8%	7.16%	-4.05%	-13.6%	5.97%	6.61%	18.6%	-11.8%	-15.2%		-7.35%	

Table A20. Analytical results for aqua regia zinc in OREAS 97 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	594	**561**	600	600	522	700	608	609	685	683	691	640	1000	606	600	NR
2	582	599	600	600	523	700	595	639	680	672	700	650	950	**617**	627	NR
3	606	609	700	600	527	700	601	608	685	668	705	650	900	606	614	NR
4	592	619	600	600	520	700	608	626	690	644	684	640	**1600**	603	608	NR
5	586	600	600	600	533	700	609	624	685	653	699	640	850	604	627	NR
Mean	592	598	620	600	**525**	700	604	621	685	664	696	644	**1060**	607	615	
Median	592	600	600	600	523	700	608	624	685	668	699	640	950	606	614	
Std.Dev.	9	22	45	0	5	0	6	13	4	15	8	5	307	6	12	
Rel.Std.Dev.	1.55%	3.68%	7.21%	0.00%	0.98%	0.00%	1.00%	2.11%	0.52%	2.32%	1.21%	0.85%	29.0%	0.93%	1.93%	
PDM[3]	-6.75%	-5.87%	-2.34%	-5.49%	-17.3%	10.3%	-4.83%	-2.15%	7.90%	4.57%	9.62%	1.44%	67.0%	-4.35%	-3.09%	

Table A21. Analytical results for leco sulphur in OREAS 97 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	NR	7.35	7.00	6.67	6.79	6.81	6.53	**6.44**	NR	NR	6.03	7.87	**7.78**	NR	6.77	6.88
2	NR	7.36	7.03	6.78	6.81	6.91	6.62	6.25	NR	NR	6.13	7.86	6.62	NR	6.59	6.87
3	NR	7.34	7.11	6.63	6.87	6.76	**6.71**	6.23	NR	NR	6.13	7.89	6.43	NR	6.67	6.90
4	NR	**7.41**	7.07	7.08	6.89	6.98	6.52	6.24	NR	NR	5.97	7.89	6.41	NR	6.57	6.93
5	NR	7.35	7.03	6.93	6.90	6.89	6.56	**5.57**	NR	NR	5.97	7.91	6.64	NR	6.74	6.85
Mean		7.36	7.05	6.82	6.85	6.87	6.59	6.15			6.05	**7.88**	6.78		6.67	6.67
Median		7.35	7.03	6.78	6.87	6.89	6.56	6.24			6.03	7.89	6.62		6.67	6.67
Std.Dev.		0.03	0.04	0.19	0.05	0.09	0.08	0.33			0.08	0.02	0.57		0.09	0.09
Rel.Std.Dev.		0.38%	0.61%	2.74%	0.72%	1.26%	1.19%	5.43%			1.33%	0.25%	8.43%		1.33%	1.33%
PDM[3]		9.64%	4.97%	1.54%	2.05%	2.31%	-1.89%	-8.47%			-10.0%	17.4%	0.91%		-0.69%	-0.7%