COAL CONCEPTS

PTS0008

COAL CONCEPTS PROFICIENCY TESTING

GENERAL ANALYSIS SAMPLE

REPORT – ONE HUNDRED AND THIRTY-SEVEN

Revision 00

Final report

DATE ISSUED 31 MARCH 2023

PARTICIPANT

LABORATORY CODE: a

R BABOOLAL (SCHEME MANAGER)

Disclaimer: Opinions and interpretations expressed herein are outside the scope of SANAS accreditation
**Moisture in the analysis sample is not included in the SANAS schedule of accreditation as robust statistics cannot be applied.*
Chlorine, Fluorine, Quick ash, ASTM ash and ASTM Volatiles is not included in the scope of accreditation.

REGISTRATION NUMBER: 2006/149731/23 (RMB INDUSTRIAL STATIONERS cc t/a)

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EXECUTIVE SUMMARY

1. One hundred and eighteen samples were sent to participants with 116 results submitted timeously.
2. The total number of outliers detected were as follows (dry base):

    - ISO Ash x 3
    - Quick Ash x 1
    - Volatile matter x 5
    - Calorific value x 2
    - Total Sulphur x 4
    - Phos x 2
    - Hydrogen x 1

3. Chlorine, ASTM Ash, ASTM Volatile Matter participants were insufficient to warrant robust statistical calculations.
4. Trending for your laboratory is as follows:

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Dear Participant

RE: PROFICIENCY TESTING RESULTS FOR THE MONTH OF MARCH 2023

Thank you for your participation in the Coal Concepts proficiency testing scheme.

Your laboratory code is as per the cover page.

All results are totally confidential. Any results in ***Bold, Italics and Underlined*** are outliers. Where applicable, the most extreme outliers have been eliminated from calculations using the Grubbs estimate for outliers. Robust statistics has been applied where possible. Analysis results have been reported on air dry and dry base. The dry base results have been used to calculate the z-scores.

Please take note of the following:

1. Z-scores between -1 and +1 is deemed acceptable

2. Z-scores between -2 and -3 should serve as a warning that the analysis result could get worse

3. Z-scores between +2 and +3 should also serve as a warning that analysis results could get worse.

4. Z- scores lower than -3 and exceeding +3 should warrant an investigation

5. Compare your result to the robust average which will be the assigned value. The measurement of uncertainty (UoM) of the results is also stated.

6. Z-Score calculations can be made available upon request

The Coal Concepts scheme adheres to the requirements of ISO/IEC 17043:2010 – Conformity assessment – General requirements for proficiency testing.

Statistical analysis has been carried out using ISO/IEC 13528:2015-Statistical methods for use in proficiency testing by interlaboratory comparisons.

Please find results attached together with Z-score trends.

Best Regards

R Baboolal

LIST OF PARTICIPANTS

Afisam Dudfield	Jindal Kiepersol
Africoal	Jugoinspekt Belgrade AD Serbia
Afrisam Ulco	
AH Knight	Laboratory for solid fuels-Mining Institute Belgrade
Anglo Coal Goedehoop North Plant	Leon Testing Pakistan
Anglo Coal Nyosi Coal (Kriel)	Mafube Coal
Anglo Greenside	Ministry of Energy and Mineral Resources - Kingdom of Jordan
Anglo Landau	Mitra SK Richards Bay
Anglo New Vaal	ML Coal
Aqua Specto	Moruple
ArcelorMittal VDP	Mpumamanzi
Best enough - Rietkuil	Msobo Coal
Best enough Laboratory -Witbank	Nelson Mandela University
Bestech Anthra Siding- Ermelo	Noko Analytical laboratories (Witbank)
Bestech Madini Mining Witbank	Noko NCC
Bestech Vlakfontein Mine-Ogies	Noko Piet Retief
Bestech Zomhlaba Resource Mine -Delmas	Noko Welgemeend
Botswana Power Corp - B Power Station	Quality Ensure Eastide Lab - Shift A
Botswana Power Corporation - A Power Station	Quality Ensure Eastide Lab - Shift B
Bureau Veritas Beira	Richards Bay Minerals
Bureau Veritas Inspectorate Laboratories - Alton	Ronewa Lab
Bureau Veritas Inspectorate Laboratories - Middelburg	Ronewa Lab Vele
BV BELFAST	Ronewa Ubuntu
BV Moatize	Ronewa Wescoal
BV Nacala	SA Labs Ihtuba – Kangra
BV Tendele	SA Labs Ihtuba – Khanye
BVTISA -PTA	SA Labs Ihtuba – Phalandwa
Castle Peak Power Station	SA Labs Ihtuba – ZAC
CCIC Richards Bay	SA Labs Ihtuba – Ruvuma Coal LTD
Coal Concepts Richards Bay Lab	SABS CSIR
CoalLab Tselentis	SABS Newcastle
Cotecna Phola	SABS Richards Bay
Cotecna Foresight Ubumbene	SABS Secunda
Cotecna Klarinet	SABS Uitkomst
Cotecna Lurco	Sappi
Cotecna Mimosa	SB Mining Solutions - Middelburg
Cotecna Nasonti	Seriti New Denmark
Cotecna Richards Bay Lab	Sibonisiwe Clewer
Cotecna Umbumbene DroogVallei	Sibonisiwe Elandsfontein
Cotecna Umlabu	Sibonisiwe Kleinfontein
Cotecna Witbank	Sibonisiwe Middelburg
Ensayos técnicos Labmin SRL-Peru	Sibonisiwe Ritvlei
Eskom Arnot	Sibonisiwe Vlakfontien
Eskom Duvha	Sibonisiwe WCP
Eskom Erid	Siboniswe Mzimkhulu
Eskom Erid TGA	Siza Arnotopco
Eskom Grootvlei	Siza Carolina
Eskom Hendrina	Siza Coal Services - Botswana
Eskom Kendal	Siza Coal Services - Kinross
Eskom Komati	Siza Leeuwpan
Eskom Kriel	Siza Middelburg
Eskom Lethabo	Siza Minerals Lab - Gaborone
Eskom Majuba	Siza Mooiplaats
Eskom Matimba	Siza NBC
Eskom Matla	Siza Sasol
Eskom Medupi	Siza Umlalazi
Eskom Tutuka	Siza Vlakfontein
Exxaro Grootegeluk	Siza WestCoal
Exxaro Matla	Siza Wildfontein
Eyethu Coal - Mooifontein	South 32 Khutala
Fauji Fertilizer Bin Qasim Limited	SPT
G & W Minerals	Tata Steel Wales - Europe
General Directorate of Coal Enterprises of Turkey	Turkey ELI
Genet Inyanda	UAS
Genet Klipfontein	UAS Main Lab
Genet Welgelegen	UAS Overlooked
Geoscience	UAS Sudor
Glencore Boshoek	UAS Twistdraai
Glencore Lion	UAS VDD
Glencore Rustenburg	UIS
Glencore Wonderkop	Universal Geominerals Sdn Bhd - Malaysia
HighVeld Lab	Vitrovian
Hwange Colliery	Yildiz Labs - Turkey
Idwala Lime	

1. TYPE OF SAMPLE USED

The coal used in this proficiency testing round was bituminous coal.

2. PREPARATION OF SAMPLE

Approximately 1000kg's of coal with an approximate top size of 50mm was sourced. This was crushed to -4mm using a jaw crusher. The -4mm material was reduced to -212um using a cross beat pulveriser. The 212 material was sieved using a 212um screen. Any +212um material was pulverised and sieved until all material passed through the 212-um sieve.

All the -212um material was then mixed in a mixing drum for 4 hours.

3. HOMOGENEITY CHECK

There were 118 participants in this round, 10 portions of sample were randomly extracted. These were packaged in their final form i.e. in 200ml sample bottles. The bottles were labelled 1 to 10. The results were as follows:

SAMPLE NO.	TEST PORTION 1	TEST PORTION 2	sample av (Xt)	range (Wt)	range sqd
1	16,08	16,19	16,14	0,11	0,0121
2	16,14	16,12	16,13	0,02	0,0004
3	16,17	16,18	16,18	0,01	0,0001
4	16,03	16,21	16,12	0,18	0,0324
5	16,21	16,23	16,22	0,02	0,0004
6	16,17	16,23	16,20	0,06	0,0036
7	16,17	16,27	16,22	0,10	0,0100
8	16,15	16,29	16,22	0,14	0,0196
9	16,17	16,26	16,22	0,09	0,0081
10	16,21	16,22	16,22	0,01	0,0001

GENERAL AVERAGE	16,19
STANDARD DEVIATION	0,042
WITHIN SAMPLE STANDARD DEVIATION	0,066
BETWEEN SAMPLE STANDARD DEVIATION	0,021

The between sample standard deviation must be ≤ 0.3 x σ

(σ = std deviation for the proficiency assessment)

σ = 2% of the mean was used, which is the repeatability for ISO ash (Ash % < 10%)
Hence = 0.324 x 0.3 = 0.097

Since 0.021 < 0.097, the samples are homogenous.

4. STABILITY CHECK

Samples were retained for sales as reference material. Ten of them were randomly chosen for stability testing.
In order for the proficiency testing samples to be declared stable the general average from the homogeneity check and that of the stability check the difference in the general average should not differ by more than 0.3 X precision.
This test has been carried out about a month after the samples were received by the participating laboratories.

SAMPLE NO.	TEST PORTION 1	TEST PORTION 2	sample av (Xt)	range (Wt)	range sqd
1	16,22	16,17	16,20	0,05	0,0025
2	16,21	16,14	16,18	0,07	0,0049
3	16,25	16,15	16,20	0,10	0,0100
4	16,13	16,22	16,18	0,09	0,0081
5	16,21	16,21	16,21	0,00	0,0000
6	16,18	16,14	16,16	0,04	0,0016
7	16,23	16,27	16,25	0,04	0,0016
8	16,17	16,18	16,18	0,01	0,0001
9	16,19	16,19	16,19	0,00	0,0000
10	16,18	16,12	16,15	0,06	0,0036

GENERAL AVERAGE	16,19
STANDARD DEVIATION	0,028
WITHIN SAMPLE STANDARD DEVIATION	0,040
BETWEEN SAMPLE STANDARD DEVIATION	0,002

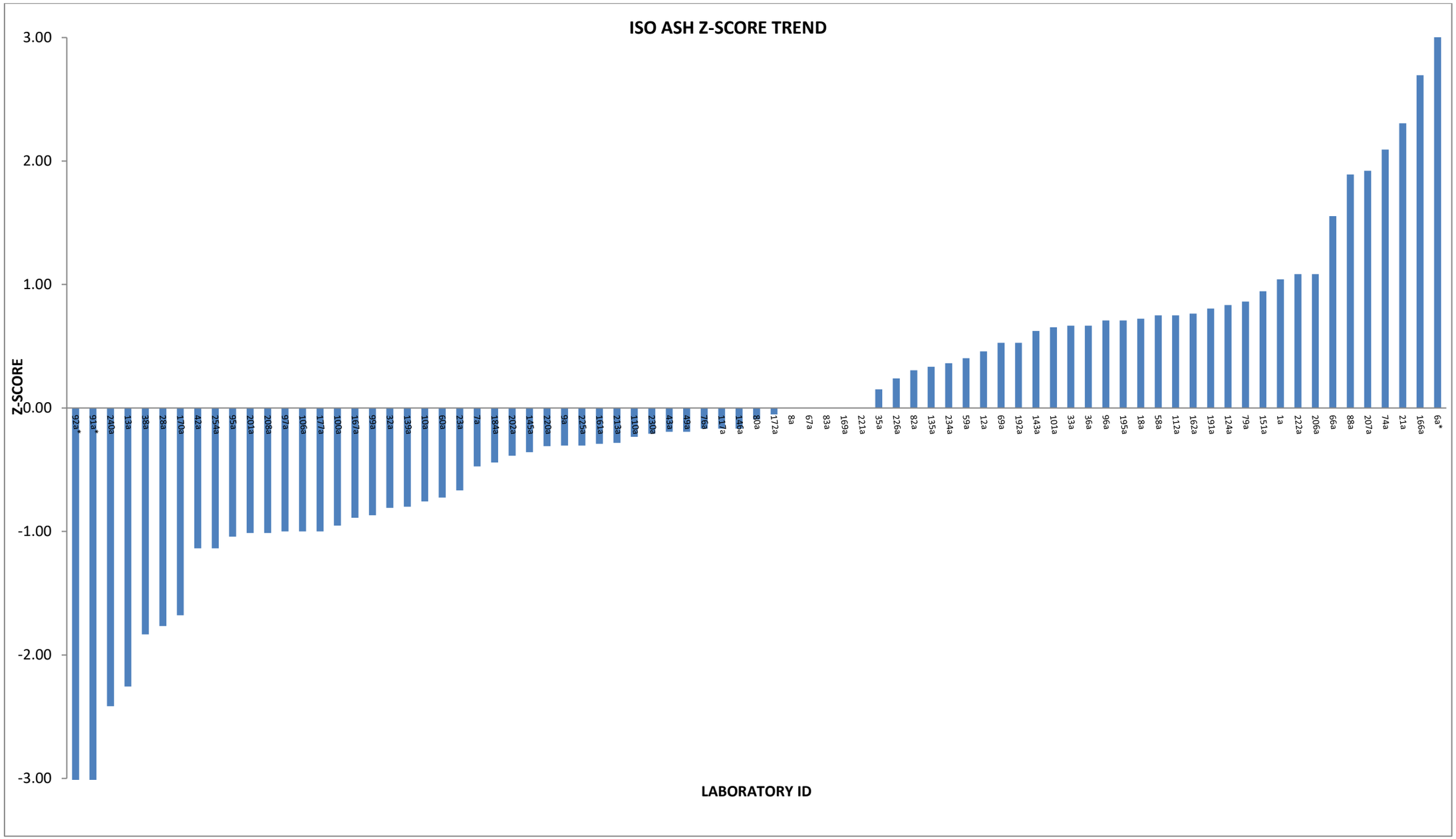
(σ = 0.324 was used)

For this report 0.3 x 0.324 = 0.097

Absolute value of (16.19 – 16.19) = 0

<u>Since 0 < 0.097 the proficiency testing samples were stable</u>

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023				
ANALYTICAL PARAMETER: ISO ASH (%)				
LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY (%)	DRY BASE (%)	Z-SCORE (DRY BASE)
1a	1,97	16,35	16,68	1,04
6a*	2,76	16,56	***17,03***	***3,91***
7a	2,02	16,16	16,49	-0,47
8a	2,10	16,20	16,55	0,00
9a	1,90	16,20	16,51	-0,30
10a	1,63	16,19	16,46	-0,76
12a	1,97	16,28	16,61	0,46
13a	2,18	15,92	16,27	-2,26
18a	1,80	16,34	16,64	0,72
21a	1,98	16,50	16,83	2,31
23a	2,00	16,14	16,47	-0,67
28a	2,05	16,00	16,33	-1,77
32a	2,14	16,10	16,45	-0,81
33a	2,00	16,30	16,63	0,67
35a	2,23	16,20	16,57	0,15
36a	2,00	16,30	16,63	0,67
38a	2,00	16,00	16,33	-1,83
42a	1,90	16,10	16,41	-1,14
43a	1,86	16,22	16,53	-0,19
49a	1,80	16,23	16,53	-0,19
58a	2,18	16,28	16,64	0,75
59a	1,93	16,28	16,60	0,40
60a	2,20	16,10	16,46	-0,73
66a	1,68	16,46	16,74	1,55
67a	2,10	16,20	16,55	0,00
69a	1,90	16,30	16,62	0,53
74a	1,53	16,55	16,81	2,09
76a	2,00	16,20	16,53	-0,17
79a	1,96	16,33	16,66	0,86
80a	1,63	16,27	16,54	-0,09
82a	2,10	16,24	16,59	0,31
83a	1,80	16,25	16,55	0,00
88a	2,10	16,43	16,78	1,89
91a*	2,40	***15,60***	***15,98***	***-4,64***
92a*	1,80	***15,14***	***15,42***	***-9,26***
95a	2,03	16,09	16,42	-1,04
96a	1,91	16,32	16,64	0,71
97a	2,00	16,10	16,43	-1,00
99a	1,67	16,17	16,44	-0,87
100a	1,67	16,16	16,43	-0,95
101a	1,93	16,31	16,63	0,65
106a	2,00	16,10	16,43	-1,00
110a	1,77	16,23	16,52	-0,23
112a	2,06	16,30	16,64	0,75
117a	2,00	16,20	16,53	-0,17
124a	1,88	16,34	16,65	0,83
135a	1,94	16,27	16,59	0,33
139a	1,66	16,18	16,45	-0,80
143a	2,21	16,26	16,63	0,62
145a	1,80	16,21	16,51	-0,36
146a	2,00	16,20	16,53	-0,17
151a	2,20	16,30	16,67	0,95
161a	1,91	16,20	16,52	-0,29
162a	2,07	16,30	16,64	0,76
166a	1,96	16,55	16,88	2,69
167a	1,29	16,23	16,44	-0,89
169a	1,79	16,26	16,56	0,00
170a	1,93	16,03	16,35	-1,68
172a	1,66	16,27	16,54	-0,05
177a	2,00	16,10	16,43	-1,00
184a	1,80	16,20	16,50	-0,44
191a	2,10	16,30	16,65	0,81
192a	1,90	16,30	16,62	0,53
195a	1,91	16,32	16,64	0,71
201a	2,60	16,00	16,43	-1,01
202a	1,84	16,20	16,50	-0,39
206a	2,30	16,30	16,68	1,08
207a	2,30	16,40	16,79	1,92
208a	2,60	16,00	16,43	-1,01
213a	1,25	16,31	16,52	-0,28
220a	2,26	16,14	16,51	-0,31
221a	2,10	16,20	16,55	0,00
222a	1,70	16,40	16,68	1,08
225a	1,90	16,20	16,51	-0,30
226a	1,51	16,33	16,58	0,24
230a	2,03	16,19	16,53	-0,21
234a	1,90	16,28	16,60	0,36
240a	1,94	15,94	16,26	-2,42
254a	1,90	16,10	16,41	-1,14
Number of results	**-**	**79**	**79**	**79**	**-**
OUTLIERS	**-**	**-**	**2**	**3**	**-**
AVERAGE	**-**	**1,96**	**16,23**	**16,55**	**-**
STD DEVIATION	**-**	**-**	**0,13**	**0,12**	**-**
MEDIAN			**16,23**	**16,54**	
%RSD	-	-	**0,81**	**0,74**	
ROBUST AVERAGE	**-**	**-**	**16,23**	**16,55**	**-**
ROBUST STD DEVIATION	**-**	**-**	**0,14**	**0,13**	**-**
UoM			**0,02**	**0,02**	-


ISO ASH Z-SCORE TREND
Z-SCORE
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
92a*
91a*
240a
13a
38a
28a
170a
42a
254a
95a
201a
208a
97a
106a
177a
100a
167a
99a
32a
139a
10a
60a
23a
7a
184a
202a
145a
220a
9a
229a
161a
213a
110a
230a
43a
49a
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36a
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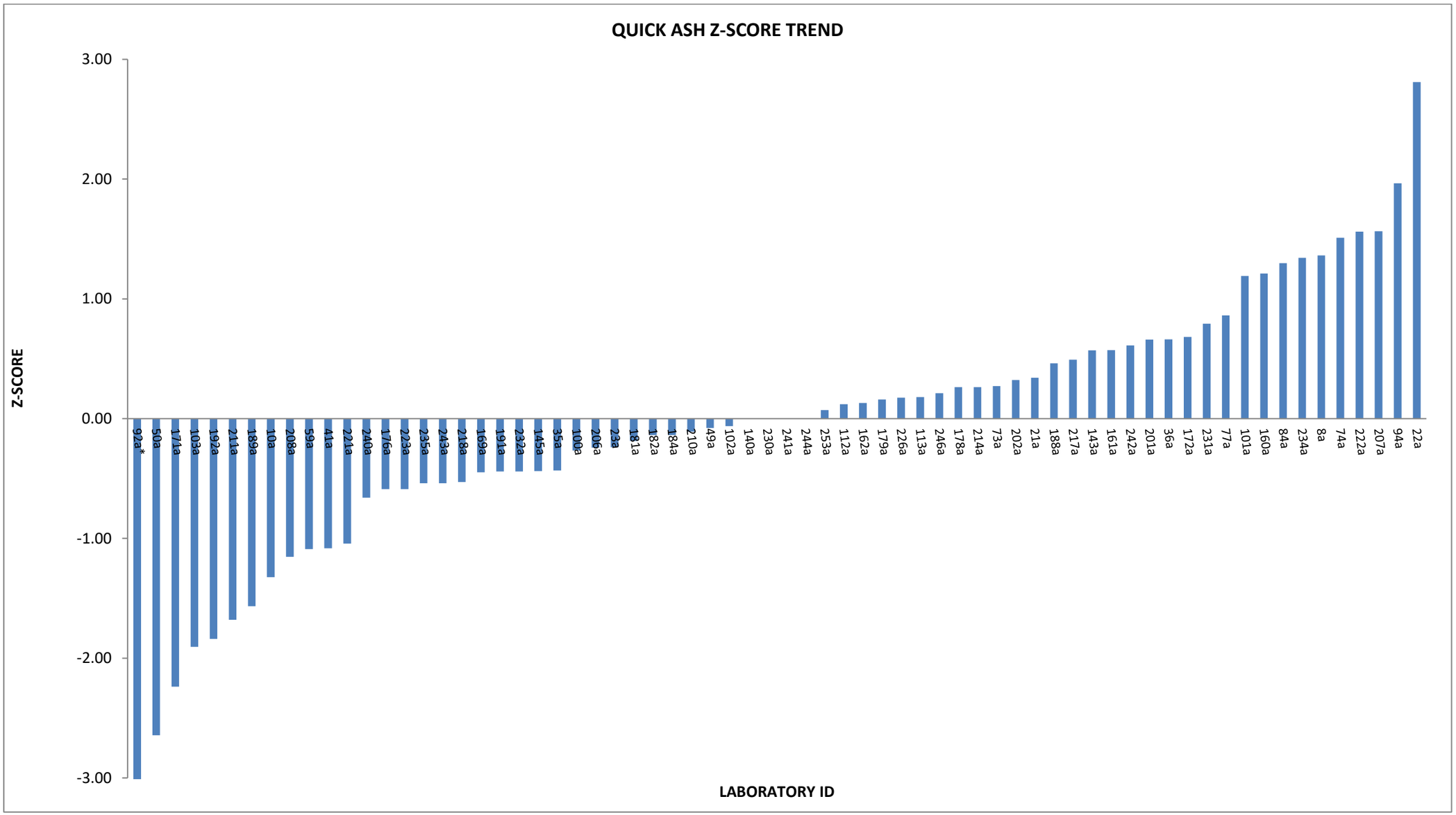
195a
18a
58a
112a
162a
191a
124a
79a
151a
1a
222a
206a
66a
88a
207a
74a
21a
166a
6a*
LABORATORY ID

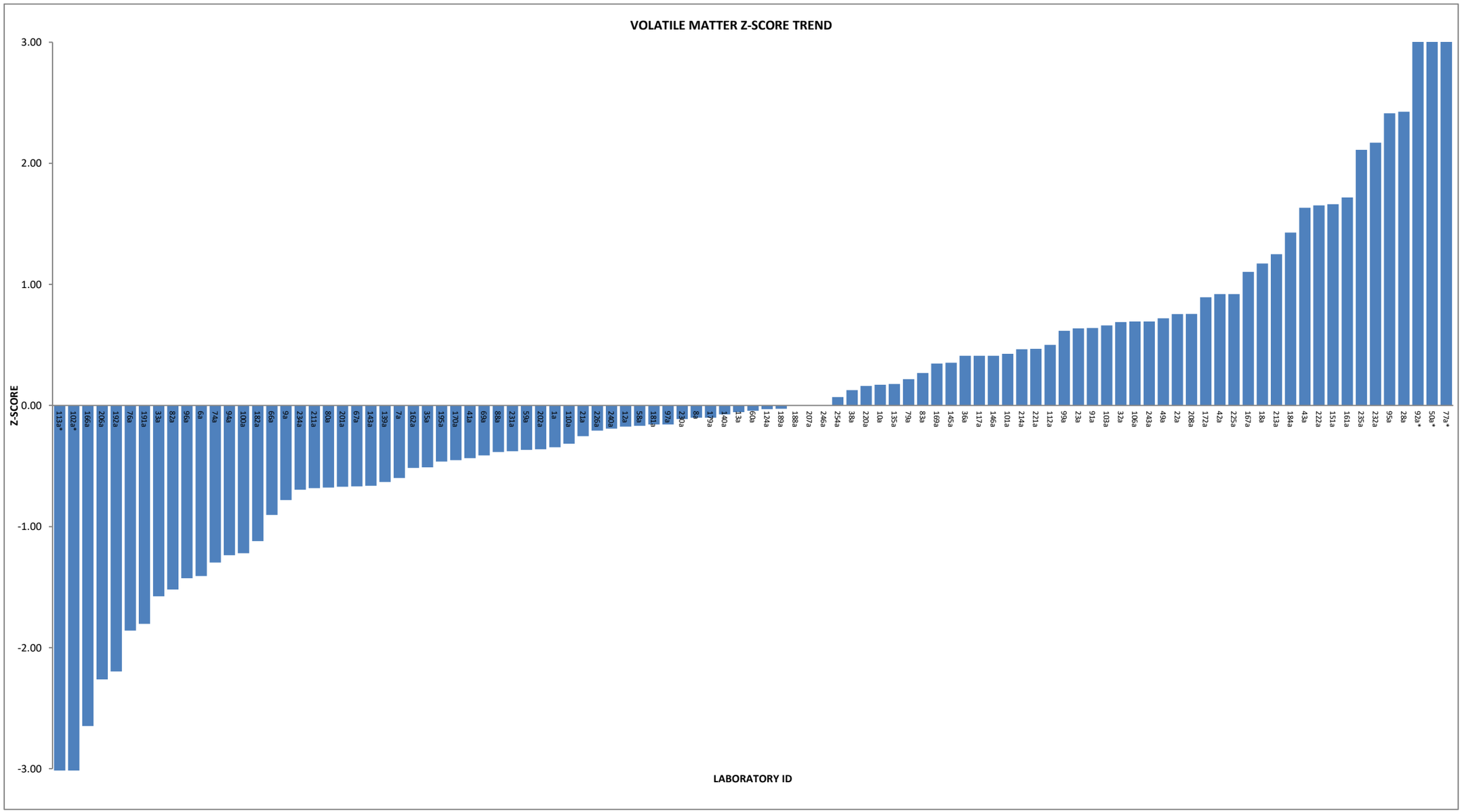
COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: QUICK ASH (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY (%)	DRY BASE (%)	Z-SCORE (DRY BASE)
	8a	2,10	16,40	16,75	1,36
	10a	1,63	16,03	16,30	-1,32
	21a	1,98	16,25	16,58	0,34
	22a	1,81	16,69	17,00	2,81
	23a	2,00	16,15	16,48	-0,24
	35a	2,23	16,08	16,45	-0,43
	36a	2,00	16,30	16,63	0,66
	41a	2,06	16,00	16,34	-1,08
	49a	1,80	16,21	16,51	-0,08
	50a	2,00	15,75	16,07	-2,64
	59a	1,93	16,02	16,34	-1,09
	73a	1,97	16,24	16,57	0,27
	74a	1,53	16,52	16,78	1,51
	77a	2,80	16,20	16,67	0,86
	84a	3,47	16,16	16,74	1,30
	92a*	1,80	***15,10***	***15,38***	***-6,73***
	94a	2,10	16,50	16,85	1,96
	100a	1,67	16,20	16,48	-0,27
	101a	1,93	16,40	16,72	1,19
	102a	1,27	16,30	16,51	-0,06
	103a	1,40	15,97	16,20	-1,90
	112a	2,06	16,20	16,54	0,12
	113a	2,12	16,20	16,55	0,18
	140a	1,80	16,22	16,52	0,00
	143a	2,21	16,25	16,62	0,57
	145a	1,80	16,15	16,45	-0,44
	160a	1,95	16,40	16,73	1,21
	161a	1,91	16,30	16,62	0,57
	162a	2,07	16,20	16,54	0,13
	169a	1,79	16,15	16,44	-0,45
	171a	1,55	15,89	16,14	-2,24
	172a	1,66	16,36	16,64	0,68
	176a	1,95	16,10	16,42	-0,59
	178a	1,60	16,30	16,57	0,26
	179a	2,10	16,20	16,55	0,16
	181a	1,75	16,20	16,49	-0,19
	182a	1,80	16,20	16,50	-0,14
	184a	1,80	16,20	16,50	-0,14
	188a	1,80	16,30	16,60	0,46
	189a	2,18	15,90	16,25	-1,57
	191a	2,10	16,10	16,45	-0,44
	192a	1,90	15,90	16,21	-1,84
	201a	2,60	16,20	16,63	0,66
	202a	1,84	16,27	16,57	0,32
	206a	2,30	16,10	16,48	-0,24
	207a	2,30	16,40	16,79	1,56
	208a	2,60	15,90	16,32	-1,15
	210a	1,95	16,18	16,50	-0,11
	211a	1,57	15,98	16,23	-1,68
	214a	1,60	16,30	16,57	0,26
	217a	1,95	16,28	16,60	0,49
	218a	1,95	16,11	16,43	-0,53
	221a	2,10	16,00	16,34	-1,04
	222a	1,70	16,50	16,79	1,56
	223a	1,95	16,10	16,42	-0,59
	226a	1,51	16,30	16,55	0,17
	230a	2,03	16,18	16,52	0,00
	231a	1,71	16,37	16,65	0,79
	232a	2,10	16,10	16,45	-0,44
	234a	1,90	16,43	16,75	1,34
	235a	2,00	16,10	16,43	-0,54
	240a	1,94	16,09	16,41	-0,66
	241a	1,95	16,20	16,52	0,00
	242a	1,95	16,30	16,62	0,61
	243a	2,00	16,10	16,43	-0,54
	244a	1,95	16,20	16,52	0,00
	246a	1,79	16,26	16,56	0,21
	253a	1,95	16,21	16,53	0,07
Number of results	-	**68**	**68**	**68**	-
OUTLIERS	-	-	**1**	**1**	-
AVERAGE	-	**1,95**	**16,20**	**16,52**	-
STD DEVIATION	-	-	**0,17**	**0,17**	-
MEDIAN			**16,20**	**16,52**	
%RSD	-	-	**1,02**	**1,03**	
ROBUST AVERAGE	-	-	**16,20**	**16,52**	
ROBUST STD DEVIATION	-	-	**0,17**	**0,17**	
UoM			**0,03**	**0,03**	


QUICK ASH Z-SCORE TREND
Z-SCORE
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
92a*
50a
171a
103a
192a
211a
189a
10a
208a
59a
41a
221a
240a
176a
223a
235a
243a
218a
169a
191a
232a
145a
35a
100a
206a
23a
181a
182a
184a
210a
49a
102a
140a
230a
241a
244a
253a
112a
162a
179a
226a
113a
246a
178a
214a
73a
202a
21a
188a
217a
143a
161a
242a
201a
36a
172a
231a
77a
101a
160a
84a
234a
8a
74a
222a
207a
94a
22a
LABORATORY ID

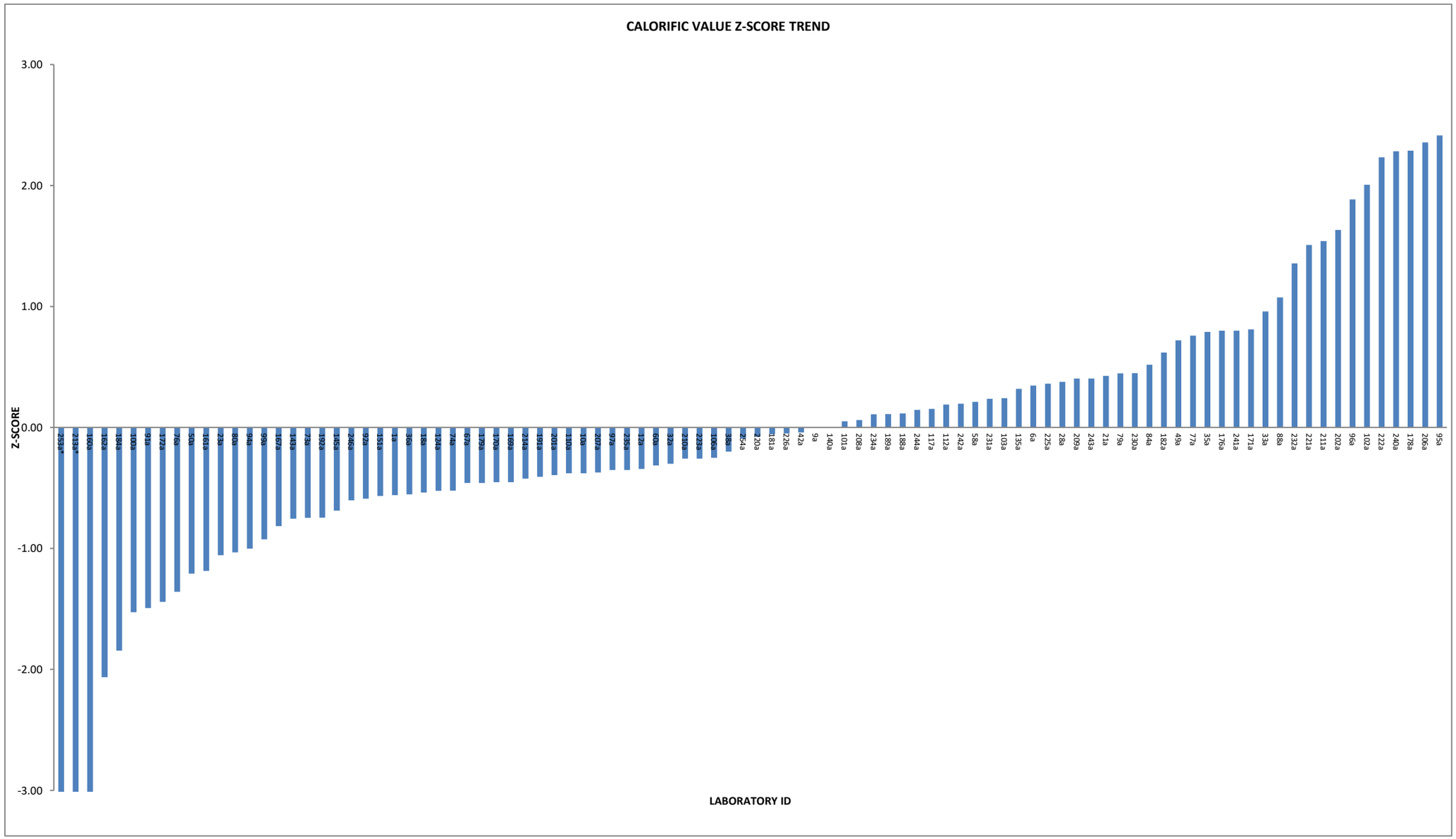
COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023

ANALYTICAL PARAMETER: ISO VOLATILE MATTER (%)

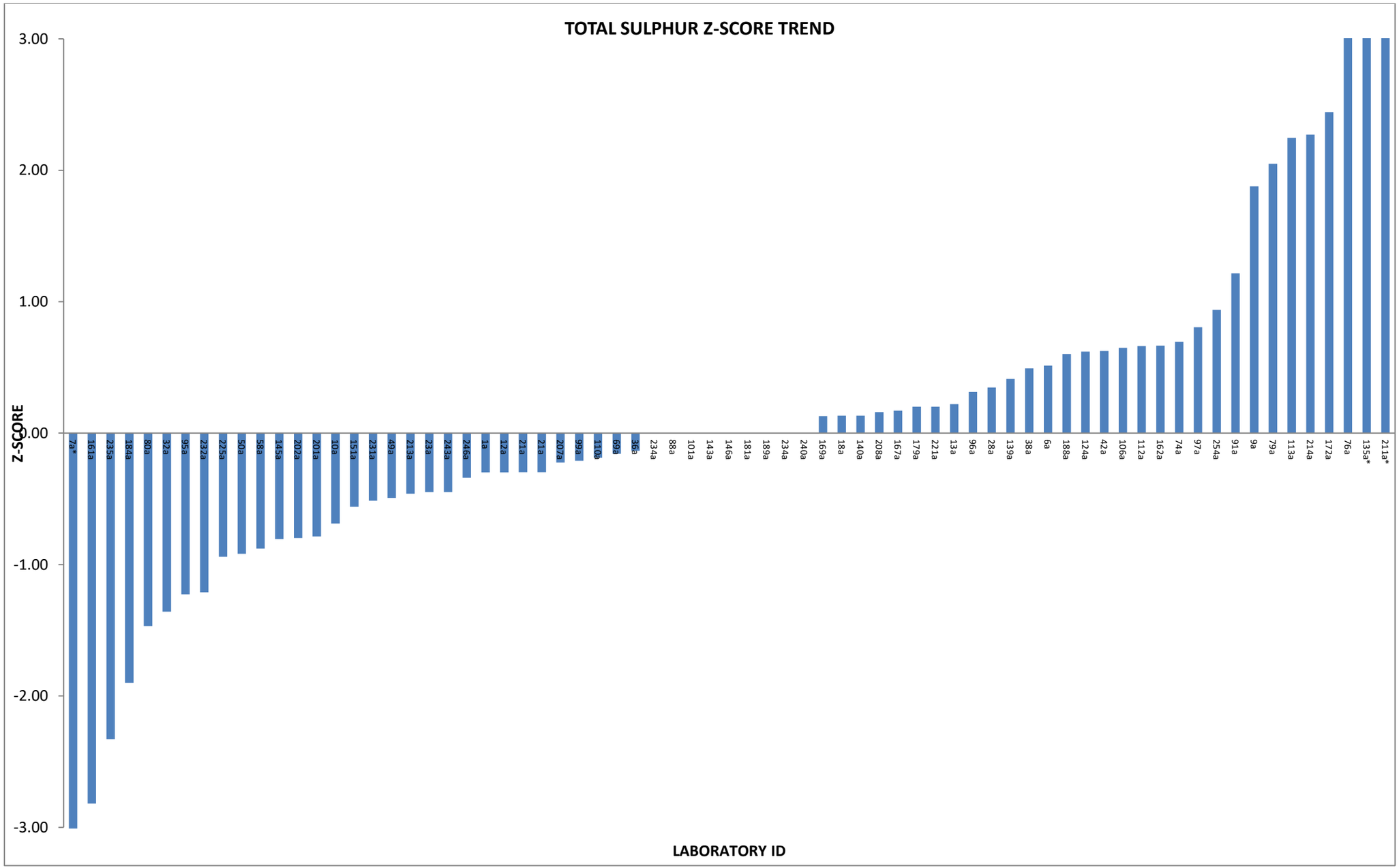
LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
1a	1,97	19,54	19,93	-0,34
6a	2,76	19,01	19,55	-1,41
7a	2,02	19,44	19,84	-0,60
8a	2,10	19,60	20,02	-0,10
9a	1,90	19,40	19,78	-0,78
10a	1,63	19,79	20,12	0,17
12a	1,97	19,60	19,99	-0,17
13a	2,18	19,60	20,04	-0,06
18a	1,80	20,11	20,48	1,17
21a	1,98	19,57	19,97	-0,25
22a	1,81	19,96	20,33	0,75
23a	2,00	19,88	20,29	0,64
28a	2,05	20,50	20,93	2,43
32a	2,14	19,87	20,30	0,69
33a	2,00	19,10	19,49	-1,58
35a	2,23	19,43	19,87	-0,51
36a	2,00	19,80	20,20	0,41
38a	2,00	19,70	20,10	0,13
41a	2,06	19,49	19,90	-0,44
42a	1,90	20,00	20,39	0,92
43a	1,86	20,26	20,64	1,63
49a	1,80	19,95	20,32	0,72
50a*	2,00	***22,20***	***22,65***	***7,22***
58a	2,18	19,56	20,00	-0,17
59a	1,93	19,54	19,92	-0,37
60a	2,20	19,60	20,04	-0,04
66a	1,68	19,40	19,73	-0,90
67a	2,10	19,40	19,82	-0,67
69a	1,90	19,53	19,91	-0,41
74a	1,53	19,29	19,59	-1,30
76a	2,00	19,00	19,39	-1,86
77a*	2,80	***22,10***	***22,74***	***7,45***
79a	1,96	19,74	20,13	0,22
80a	1,63	19,49	19,81	-0,68
82a	2,10	19,10	19,51	-1,52
83a	1,80	19,79	20,15	0,27
88a	2,10	19,50	19,92	-0,38
91a	2,40	19,80	20,29	0,64
92a*	1,80	***21,51***	***21,90***	***5,14***
94a	2,10	19,20	19,61	-1,24
95a	2,03	20,5	20,92	2,41
96a	1,91	19,17	19,54	-1,43
97a	2,00	19,60	20,00	-0,16
99a	1,67	19,94	20,28	0,62
100a	1,67	19,29	19,62	-1,22
101a	1,93	19,82	20,21	0,43
102a*	1,27	18,50	***18,74***	***-3,67***
103a	1,40	20,01	20,29	0,66
106a	2,00	19,90	20,31	0,69
110a	1,77	19,59	19,94	-0,32
112a	2,06	19,82	20,24	0,50
113a*	2,12	***18,10***	***18,49***	***-4,35***
117a	2,00	19,80	20,20	0,41
124a	1,88	19,67	20,05	-0,03
135a	1,94	19,73	20,12	0,18
139a	1,66	19,50	19,83	-0,63
140a	1,80	19,67	20,03	-0,07
143a	2,21	19,38	19,82	-0,66
145a	1,80	19,82	20,18	0,35
146a	2,00	19,80	20,20	0,41
151a	2,20	20,20	20,65	1,66
161a	1,91	20,28	20,67	1,72
162a	2,07	19,46	19,87	-0,52
166a	1,96	18,73	19,10	-2,65
167a	1,29	20,19	20,45	1,10
169a	1,79	19,82	20,18	0,35
170a	1,93	19,51	19,89	-0,45
172a	1,66	20,04	20,38	0,89
179a	2,10	19,60	20,02	-0,10
181a	1,75	19,65	20,00	-0,16
182a	1,80	19,30	19,65	-1,12
184a	1,80	20,20	20,57	1,43
188a	1,80	19,70	20,06	0,00
189a	2,18	19,61	20,05	-0,03
191a	2,10	19,00	19,41	-1,80
192a	1,90	18,90	19,27	-2,20
195a	1,91	19,51	19,89	-0,46
201a	2,60	19,30	19,82	-0,67
202a	1,84	19,56	19,93	-0,36
206a	2,30	18,8	19,24	-2,26
207a	2,30	19,60	20,06	0,00
208a	2,60	19,80	20,33	0,76
211a	1,57	19,50	19,81	-0,68
213a	1,25	20,25	20,51	1,25
214a	1,60	19,90	20,22	0,46
220a	2,26	19,66	20,11	0,16
221a	2,10	19,80	20,22	0,47
222a	1,70	20,30	20,65	1,65
225a	1,90	20,00	20,39	0,92
226a	1,51	19,68	19,98	-0,21
230a	2,03	19,61	20,02	-0,11
231a	1,71	19,58	19,92	-0,38
232a	2,10	20,4	20,84	2,17
234a	1,90	19,43	19,81	-0,70
235a	2,00	20,40	20,82	2,11
240a	1,94	19,60	19,99	-0,19
243a	2,00	19,9	20,31	0,69
246a	1,79	19,70	20,06	0,00
254a	1,90	19,70	20,08	0,07
NUMBER OF RESULTS	-	99	99	99	-
OUTLIERS	-	-	**4**	**5**	-
AVERAGE	-	**1,94**	**19,65**	**20,06**	-
STD DEVIATION	-		**0,38**	**0,36**	-
MEDIAN			**19,61**	**20,04**	
%RSD	-	-	**1,93**	**1,79**	
ROBUST AVERAGE	-	-	**19,66**	**20,06**	-
ROBUST STD DEVIATION	-	-	**0,41**	**0,39**	-
UoM	-	-	**0,05**	**0,05**	-


VOLATILE MATTER Z-SCORE TREND
Z-SCORE
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
LABORATORY ID
113a* 102a* 166a 206a 192a 76a 191a 33a 82a 96a 6a 74a 94a 100a 182a 66a 9a 234a 211a 80a 201a 67a 143a 139a 7a 162a 35a 195a 170a 41a 69a 88a 231a 59a 202a 1a 110a 21a 226a 240a 12a 58a 181a 97a 20a 8a 179a 140a 13a 60a 124a 189a 188a 207a 246a 254a 38a 220a 10a 135a 79a 83a 169a 145a 36a 117a 146a 101a 214a 221a 112a 99a 23a 91a 103a 32a 106a 243a 49a 22a 208a 172a 42a 225a 167a 18a 213a 184a 43a 222a 151a 161a 235a 232a 95a 28a 92a* 50a* 77a*

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023				
ANALYTICAL PARAMETER: CALORIFIC VALUE (MJ/kg)				
LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY (MJ/kg)	DRY BASE (MJ/kg)	Z-SCORE (DRY BASE)
1a	1,97	27,97	28,53	-0,56
6a	2,76	27,92	28,71	0,35
9a	1,90	28,10	28,64	0,00
10a	1,63	28,10	28,57	-0,38
12a	1,97	28,01	28,57	-0,34
18a	1,80	28,02	28,53	-0,54
21a	1,98	28,16	28,73	0,43
23a	2,00	27,86	28,43	-1,06
28a	2,05	28,13	28,72	0,38
32a	2,14	27,97	28,58	-0,30
33a	2,00	28,26	28,84	0,96
35a	2,23	28,16	28,80	0,79
36a	2,00	27,96	28,53	-0,55
38a	2,00	28,03	28,60	-0,20
42a	1,90	28,09	28,63	-0,04
49a	1,80	28,27	28,79	0,72
50a	2,00	27,83	28,40	-1,21
58a	2,18	28,06	28,69	0,21
60a	2,20	27,95	28,58	-0,31
67a	2,10	27,95	28,55	-0,46
73a	1,97	27,93	28,49	-0,75
74a	1,53	28,10	28,54	-0,52
76a	2,00	27,80	28,37	-1,36
77a	2,80	27,99	28,80	0,76
79a	1,96	28,17	28,73	0,45
80a	1,63	27,97	28,43	-1,03
84a	3,47	27,75	28,75	0,52
88a	2,10	28,25	28,86	1,07
91a	2,40	27,66	28,34	-1,49
92a	1,80	28,01	28,52	-0,59
94a	2,10	27,84	28,44	-1,00
95a	2,03	28,54	29,13	2,41
96a	1,91	28,47	29,02	1,89
97a	2,00	28,00	28,57	-0,35
99a	1,67	27,98	28,46	-0,92
100a	1,67	27,86	28,33	-1,53
101a	1,93	28,10	28,65	0,05
102a	1,27	28,68	29,05	2,01
103a	1,40	28,29	28,69	0,24
106a	2,00	28,02	28,59	-0,25
110a	1,77	28,06	28,57	-0,38
112a	2,06	28,09	28,68	0,19
117a	2,00	28,10	28,67	0,15
124a	1,88	28,00	28,54	-0,52
135a	1,94	28,15	28,71	0,32
140a	1,80	28,12	28,64	0,00
143a	2,21	27,86	28,49	-0,75
145a	1,80	27,99	28,50	-0,69
151a	2,20	27,90	28,53	-0,57
160a	1,96	27,44	27,99	-3,23
161a	1,91	27,86	28,40	-1,18
162a	2,07	27,64	28,22	-2,07
167a	1,29	28,11	28,48	-0,82
169a	1,79	28,04	28,55	-0,45
170a	1,93	28,00	28,55	-0,45
171a	1,55	28,36	28,81	0,81
172a	1,66	27,88	28,35	-1,44
176a	1,96	28,24	28,80	0,80
178a	1,60	28,64	29,11	2,29
179a	2,10	27,95	28,55	-0,46
181a	1,75	28,13	28,63	-0,06
182a	1,80	28,25	28,77	0,62
184a	1,80	27,76	28,27	-1,84
188a	1,80	28,15	28,67	0,12
189a	2,18	28,04	28,66	0,11
191a	2,10	27,96	28,56	-0,41
192a	1,90	27,95	28,49	-0,75
201a	2,60	27,82	28,56	-0,39
202a	1,84	28,44	28,97	1,63
206a	2,30	28,45	29,12	2,36
207a	2,30	27,91	28,57	-0,37
208a	2,60	27,91	28,66	0,06
209a	2,25	28,08	28,72	0,40
210a	1,96	28,03	28,59	-0,26
211a	1,57	28,50	28,95	1,54
213a*	1,25	27,52	***27,87***	***-3,82***
214a	1,60	28,10	28,56	-0,42
220a	2,26	27,98	28,63	-0,08
221a	2,1	28,34	28,95	1,51
222a	1,70	28,60	29,09	2,23
223a	1,96	28,03	28,59	-0,26
225a	1,90	28,17	28,72	0,36
226a	1,51	28,20	28,63	-0,05
230a	2,03	28,15	28,73	0,45
231a	1,71	28,20	28,69	0,24
232a	2,10	28,31	28,92	1,36
234a	1,90	28,12	28,66	0,11
235a	2,00	28,00	28,57	-0,35
240a	1,94	28,54	29,10	2,28
241a	1,96	28,24	28,80	0,80
242a	1,96	28,12	28,68	0,20
243a	2,00	28,15	28,72	0,40
244a	1,96	28,11	28,67	0,15
246a	1,79	28,01	28,52	-0,60
253a*	1,96	27,31	***27,86***	***-3,88***
254a	1,90	28,08	28,62	-0,09
NUMBER OF RESULTS	-	96	96	96	-
OUTLIERS	-	-	**0**	**2**	-
AVERAGE	-	**1,96**	**28,07**	**28,64**	-
STD DEVIATION	-	-	**0,23**	**0,20**	-
MEDIAN			**28,05**	**28,63**	
%RSD	**-**	**-**	**0,84**	**0,71**	
ROBUST AVERAGE	-	-	**28,07**	**28,64**	-
ROBUST STD DEVIATION	-	-	**0,25**	**0,22**	-
UoM	-	-	**0,03**	**0,02**	-


CALORIFIC VALUE Z-SCORE TREND
Z-SCORE
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
LABORATORY ID
253a*
213a*
160a
162a
184a
100a
91a
172a
76a
50a
161a
23a
80a
94a
99a
167a
143a
73a
192a
145a
246a
92a
151a
1a
36a
18a
124a
74a
67a
179a
170a
169a
214a
191a
201a
110a
10a
207a
97a
235a
12a
60a
32a
210a
223a
106a
38a
54a
220a
81a
226a
42a
9a
140a
101a
208a
234a
189a
188a
244a
117a
112a
242a
58a
231a
103a
135a
6a
225a
28a
209a
243a
21a
79a
230a
84a
182a
49a
77a
35a
176a
241a
171a
33a
88a
232a
221a
211a
202a
96a
102a
222a
240a
178a
206a
95a

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: TOTAL SULPHUR (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	1a	1,97	1,42	1,45	-0,30
	6a	2,76	1,46	1,50	0,50
	7a*	2,02	***0,90***	***0,91***	***-8,39***
	9a	1,90	1,56	1,59	1,85
	10a	1,63	1,40	1,42	-0,68
	12a	1,97	1,42	1,45	-0,30
	13a	2,18	1,45	1,48	0,21
	18a	1,80	1,45	1,48	0,13
	21a	1,98	1,42	1,45	-0,30
	23a	2,00	1,41	1,44	-0,45
	28a	2,05	1,46	1,49	0,34
	32a	2,14	1,35	1,38	-1,34
	36a	2,00	1,43	1,46	-0,14
	38a	2,00	1,47	1,50	0,48
	42a	1,90	1,48	1,51	0,61
	49a	1,80	1,41	1,44	-0,49
	50a	2,00	1,38	1,41	-0,91
	58a	2,18	1,38	1,41	-0,87
	69a	1,90	1,43	1,46	-0,16
	74a	1,53	1,49	1,51	0,68
	76a	2,00	***1,70***	***1,73***	***4,04***
	79a	1,96	1,57	1,60	2,02
	80a	1,63	1,35	1,37	-1,45
	88a	2,10	1,44	1,47	0,00
	91a	2,40	1,51	1,55	1,19
	95a	2,03	1,36	1,39	-1,21
	96a	1,91	1,46	1,49	0,31
	97a	2,00	1,49	1,52	0,79
	99a	1,67	1,43	1,45	-0,21
	101a	1,93	1,46	1,49	0,00
	106a	2,00	1,48	1,51	0,64
	110a	1,77	1,43	1,46	-0,19
	112a	2,06	1,48	1,51	0,65
	113a	2,12	1,58	1,61	2,21
	124a	1,88	1,48	1,51	0,61
	135a*	1,94	***1,74***	***1,77***	***4,64***
	139a	1,66	1,47	1,49	0,40
	140a	1,80	1,45	1,48	0,13
	143a	2,21	1,44	1,47	0,00
	145a	1,80	1,39	1,42	-0,80
	146a	2,00	1,42	1,45	0,00
	151a	2,20	1,40	1,43	-0,56
	161a	1,91	1,26	1,28	-2,78
	162a	2,07	1,48	1,51	0,65
	167a	1,29	1,46	1,48	0,16
	169a	1,79	1,45	1,48	0,12
	172a	1,66	1,60	1,63	2,40
	179a	2,10	1,45	1,48	0,19
	181a	1,75	1,51	1,54	0,00
	184a	1,80	1,32	1,34	-1,88
	188a	1,80	1,48	1,51	0,59
	189a	2,18	1,44	1,47	0,00
	201a	2,60	1,38	1,42	-0,78
	202a	1,84	1,39	1,42	-0,79
	207a	2,30	1,42	1,45	-0,22
	208a	2,60	1,44	1,48	0,15
	211a*	1,57	***1,76***	***1,79***	***4,84***
	213a	1,25	1,42	1,44	-0,46
	214a	1,60	1,59	1,62	2,24
	221a	2,10	1,45	1,48	0,19
	223a	1,94	1,55	1,58	1,70
	225a	1,90	1,38	1,41	-0,93
	226a	1,51	1,36	1,38	-1,32
	231a	1,71	1,41	1,43	-0,51
	232a	2,10	1,36	1,39	-1,20
	234a	1,90	1,44	1,47	-0,01
	235a	2,00	1,29	1,32	-2,30
	240a	1,94	1,44	1,47	0,00
	243a	2,00	1,41	1,44	-0,45
	246a	1,79	1,42	1,45	-0,34
	254a	1,90	1,50	1,53	0,92
NUMBER OF RESULTS		**71**	**71**	**71**	-
OUTLIERS	-	-	**4**	**4**	-
AVERAGE	-	**1,94**	**1,44**	**1,47**	
MEDIAN		-	**1,44**	**1,47**	
STD DEVIATION	-	-	**0,06**	**0,07**	
%RSD	-	-	**4,50**	**4,50**	
ROBUST AVERAGE	-	-	**1,44**	**1,47**	-
ROBUST STD DEVIATION	-	-	**0,07**	**0,07**	-
UoM	-	-	**0,01**	**0,01**	-


TOTAL SULPHUR Z-SCORE TREND
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
Z-SCORE
7a*
161a
235a
184a
80a
32a
95a
232a
225a
50a
58a
145a
202a
201a
10a
151a
231a
49a
213a
23a
243a
246a
1a
12a
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21a
207a
99a
110a
69a
36a
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143a
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139a
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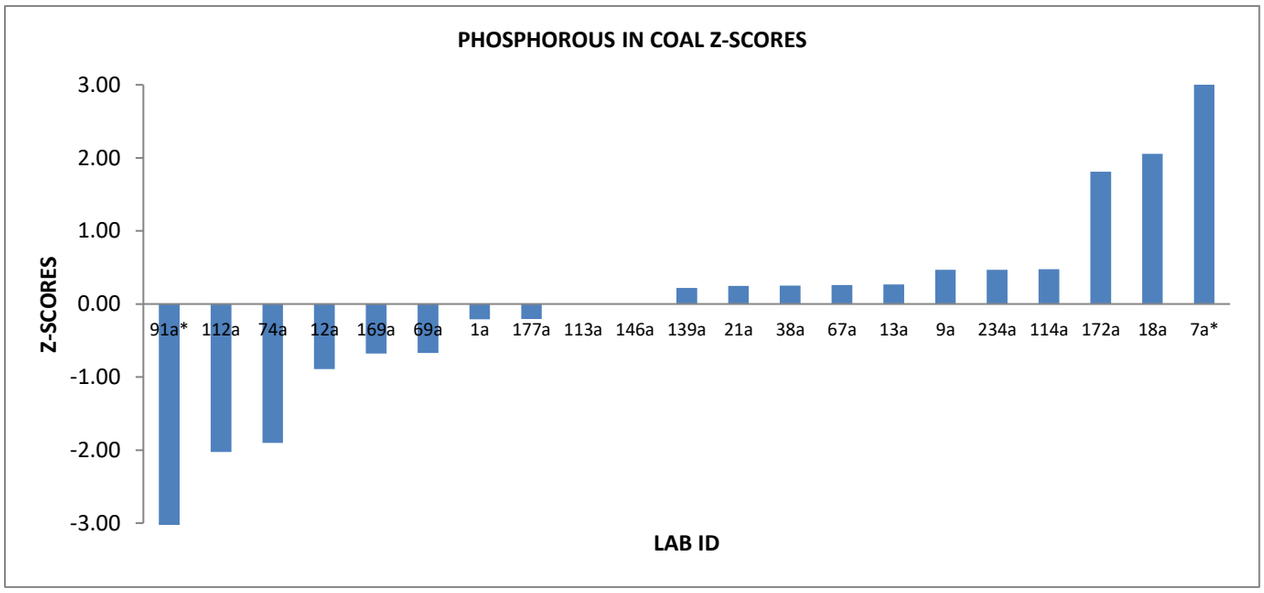
188a
124a
42a
106a
112a
162a
74a
97a
254a
91a
9a
79a
113a
214a
172a
76a
135a*
211a*
LABORATORY ID

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: PHOSPHOROUS IN COAL (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	1a	1,97	0,037	0,038	-0,21
	7a*	2,02	***0,095***	***0,097***	***13,03***
	9a	1,90	0,040	0,041	0,47
	12a	1,97	0,034	0,035	-0,89
	13a	2,18	0,039	0,040	0,27
	18a	1,80	0,047	0,048	2,05
	21a	1,98	0,039	0,040	0,25
	38a	2,00	0,039	0,040	0,25
	67a	2,10	0,039	0,040	0,26
	69a	1,90	0,035	0,036	-0,67
	74a	1,53	0,030	0,030	-1,90
	91a*	2,40	***0,018***	***0,018***	***-4,52***
	112a	2,06	0,029	0,030	-2,03
	113a	2,12	0,038	0,039	0,00
	114a	1,95	0,040	0,041	0,47
	139a	1,66	0,039	0,040	0,22
	146a	2,00	0,038	0,039	0,00
	169a	1,79	0,035	0,036	-0,68
	172a	1,66	0,046	0,047	1,81
	177a	2,00	0,037	0,038	-0,21
	234a	1,90	0,040	0,041	0,47
Number of results	-	**21**	**21**	**21**	-
OUTLIERS	-	-	**2**	**2**	-
AVERAGE	-	**1,95**	**0,038**	**0,039**	-
STD DEVIATION	-	-	**0,004**	**0,004**	-
MEDIAN		-	**0,039**	**0,040**	
ROBUST AVERAGE	-	-	**0,038**	**0,039**	
ROBUST STD DEVIATION	-	-	**0,004**	**0,004**	
UoM	-	-	**0,001**	**0,001**	



COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: TOTAL CARBON (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	1a	1,97	69,50	70,90	-1,06
	9a	1,90	70,07	71,43	-0,26
	12a	1,97	70,69	72,11	0,77
	18a	1,80	69,40	70,67	-1,40
	21a	1,98	69,95	71,36	-0,36
	88a	2,10	71,10	72,63	1,55
	177a	2,00	69,70	71,12	-0,72
	202a	1,84	70,91	72,24	0,96
	234a	1,90	70,58	71,95	0,52
Number of results	-	9	9	9	-
OUTLIERS	-	-	**0**	**0**	-
AVERAGE	-	**1,94**	**70,21**	**71,60**	-
MEDIAN	-	-	**70,07**	**71,43**	-
STD DEVIATION	-	-	**0,63**	**0,66**	-
%RSD	-	-	**0,89**	**0,93**	
ROBUST AVERAGE	-	-	-	-	
ROBUST STD DEVIATION	-	-	-	-	
UoM	-	-	-	-	

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: HYDROGEN (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	1a	1,97	3,71	3,78	0,30
	9a	1,90	3,60	3,67	-1,02
	12a	1,97	3,61	3,68	-0,87
	18a	1,80	3,68	3,75	-0,13
	21a	1,98	3,67	3,74	-0,16
	88a*	2,10	***4,11***	***4,20***	***5,05***
	177a	2,00	3,84	3,92	1,84
	202a	1,84	3,77	3,84	0,94
	234a	1,90	3,61	3,68	-0,90
Number of results		**9**	**9**	**9**	
OUTLIERS	-	-	**1**	**1**	-
AVERAGE	-	**1,94**	**3,69**	**3,76**	-
MEDIAN		-	**3,68**	**3,75**	-
STD DEVIATION	-	-	**0,09**	**0,09**	-
%RSD	-	-	**2,31**	**2,32**	
ROBUST AVERAGE	-	-	-	-	
ROBUST STD DEVIATION	-	-	-	-	
UoM	-	-	-	-	

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: NITROGEN (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	1a	1,97	1,83	1,87	-0,29
	9a	1,90	1,88	1,92	1,39
	12a	1,97	1,80	1,84	-1,33
	18a	1,80	1,81	1,84	-1,09
	88a	2,10	1,86	1,90	0,92
	177a	2,00	1,85	1,89	0,42
	202a	1,84	1,84	1,87	-0,03
Number of results		7	7	7	-
OUTLIERS	-	-	**0**	**0**	-
AVERAGE	-	**1,94**	**1,84**	**1,88**	-
MEDIAN		-	**1,84**	**1,87**	-
STD DEVIATION	-	-	**0,03**	**0,03**	-
%RSD	-	-	**1,54**	**1,57**	-
ROBUST AVERAGE	-	-	-	-	-
ROBUST STD DEVIATION	-	-	-	-	-
UoM	-	-	-	-	-

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023				
ANALYTICAL PARAMETER: ASH FUSION TEMPERATURES (°C)				
LAB ID	**DEFORMATION**	**SOFTENING**	**HEMISPHERE**	**FLOW**
9a	1340	1360	1380	1410
10a	1310	1330	1360	1400
18a	1310	1330	1360	1410
21a	1320	1340	1380	1400
23a	1310	1350	1420	1460
28a	1360	1380	1410	1440
36a	1340	1360	1390	1420
38a	1320	1340	1370	1400
42a	1390	1400	1410	1430
49a	1350	1380	1420	1460
60a	1294	1326	1353	1495
80a	1340	1370	1390	1410
95a	1370	1400	1420	1450
106a	1320	1340	1360	1480
145a	1330	1350	1380	1410
151a	1260	1360	1440	1500
167a	1390	1420	1450	1480
234a	1320	1340	1380	1400
Number of results	**18**	**18**	**18**	**18**
Outliers	**0**	**0**	**0**	**0**
AVERAGE	**1332**	**1360**	**1393**	**1436**
MEDIAN	**1325**	**1355**	**1385**	**1425**
STDEV	**33**	**27**	**29**	**35**

Z-SCORES				
LAB ID	**DEFORMATION**	**SOFTENING**	**HEMISPHERE**	**FLOW**
9a	0,25	0,00	-0,45	-0,75
10a	-0,67	-1,10	-1,14	-1,04
18a	-0,67	-1,10	-1,14	-0,75
21a	-0,36	-0,73	-0,45	-1,04
23a	-0,67	-0,36	0,93	0,67
28a	0,86	0,75	0,59	0,10
36a	0,25	0,00	-0,10	-0,47
38a	-0,36	-0,73	-0,79	-1,04
42a	1,78	1,49	0,59	-0,18
49a	0,55	0,75	0,93	0,67
60a	-1,16	-1,25	-1,38	1,67
80a	0,25	0,38	-0,10	-0,75
95a	1,17	1,49	0,93	0,39
106a	-0,36	-0,73	-1,14	1,24
145a	-0,06	-0,36	-0,45	-0,75
151a	-2,20	0,00	1,62	1,81
167a	1,78	2,22	1,97	1,24
234a	-0,36	-0,73	-0,45	-1,04

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: CHLORINE (ppm)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	12a	1,97	238	243	-
	177a	2,00	298	304	-
Number of results	-	**2**	**2**	**2**	-
OUTLIERS	-	-	-	-	-
AVERAGE	-	**1,99**	**268**	**273**	-
STD DEVIATION	-	-	-	-	-
MEDIAN	-	-	-	-	-

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: FLUORINE (ppm)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY	DRY BASE	Z-SCORE (DRY BASE)
	169a	1,79	155	158	-
	177a	2,00	134	137	-
Number of results	-	**2**	**2**	**2**	-
OUTLIERS	-	-	-	-	-
AVERAGE	-	**1,90**	**145**	**147**	-
STD DEVIATION	-	-	**na**	**na**	-
MEDIAN	-	-	**na**	**na**	-

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: ASTM ASH (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY (%)	DRY BASE (%)	Z-SCORE (DRY BASE)
	1a	1,97	16,34	16,67	0,88
	12a	1,97	16,30	16,63	0,77
	73a	1,97	16,24	16,57	0,60
	92a	1,80	15,42	15,70	-1,77
	202a	1,84	16,00	16,30	-0,13
	209a	2,25	15,86	16,23	-0,34
Number of results	-	**6**	**6**	**6**	-
OUTLIERS	-	-	**0**	**0**	-
AVERAGE	-	**1,97**	**16,03**	**16,35**	-
STD DEVIATION	-	-	**0,35**	**0,36**	-
MEDIAN	-	-	**16,12**	**16,43**	
%RSD	-	-	**2,19**	**2,23**	-

COAL CONCEPTS - PROFICIENCY TESTING -MARCH 2023					
ANALYTICAL PARAMETER: ASTM VOLS (%)					
	LAB ID	MOISTURE IN ANALYSIS SAMPLE (%)	AIR DRY (%)	DRY BASE (%)	Z-SCORE (DRY BASE)
	1a	1,97	20,33	20,74	0,06
	12a	1,97	20,38	20,79	0,10
	73a	1,97	18,83	19,21	-1,43
	92a	1,80	21,51	21,90	1,18
	202a	1,84	20,55	20,94	0,25
	209a	2,25	18,61	19,04	-1,59
Number of results	-	**6**	**6**	**6**	-
OUTLIERS	-	-	**0**	**0**	-
AVERAGE	-	**1,97**	**20,28**	**20,68**	-
STD DEVIATION	-	-	**1,05**	**1,03**	-
MEDIAN	-	-	**20,38**	**20,79**	
%RSD	-	-	**5,16**	**5,00**	-

CONCLUSIONS

1. The ISO Ash z-score trend is evenly distributed. The Robust average, Average and Median are the similar. The low RSD of 0.74 % indicates a high precision of results received. Three outliers were detected.
2. The overall ISO volatile trend is evenly distributed. Five outliers were detected. These were due to analytical errors. An RSD of 1.79 % indicated a high precision of results received.
3. Calorific value trend is evenly distributed. Two outliers detected. The Average and Median are similar a high precision of results received.
4. The sulphur z-score trend is evenly distributed. Four outliers detected. These were analytical errors.
5. Phosphorous analysis: The z-score trend is evenly distributed. Low standard deviation of results, indicating a low distribution of results received.
6. Generally acceptable results were obtained on Carbon, Hydrogen and Nitrogen.
7. Ash fusion: Generally, well done.

8. Assessment criterion for homogeneity check

8.1 Comparison of the between sample standard deviation with the standard deviation for proficiency testing
Standard deviation for ISO ash = 0.13
Check value = 0.13 x 0.3 = 0.039

Between sample standard deviation = 0.021

Homogeneity is re-confirmed.

COAL CONCEPTS: Terms and Conditions

Return of results:
Laboratories participate in proficiency testing programs on the understanding that they will be sharing their results and information **anonymously** with other laboratories performing the same analysis. No return of results compromises the spirit of the programs, and reports will not be sent to laboratories unless they return results. Payment in full is required from all laboratories enrolling whether they return results or not.
Errors in Participant Proficiency Testing Results:
Proficiency testing reports should reflect the level of accuracy that a regular testing client would receive.
If a participant finds an error in their proficiency testing results, they may notify us in writing and change their submission **PRIOR** to the due date for return. Changes after this time will not be accepted.
Coal Concepts' reports results *as submitted* by participants.
On occasion, it seems as though participants have mixed up the samples or not processed the samples according to the instructions. Coal Concepts cannot make assumptions of this nature and change results 'to suit'. We also cannot compromise the integrity of the programs by suggesting to some participants that they should review their results prior to the due date. (This is unfair to other participants) It is the responsibility of the participants to check all aspects of the program, including sample identification, preparation, testing instructions, calculations and reporting of the results prior to results submission.
If samples are not in good condition on arrival to the participant laboratory, Coal Concepts must be notified in writing IMMEDIATELY, as often samples can be replaced in good time. Claims about samples received in bad condition will not be accepted after the report has been issued.
Late Enrolments and Late Results:
Late enrolment requests cannot always be accommodated, as sample manufacture must be scheduled well in advance to the shipping date of the program to allow all necessary quality assurance activities to be carried out.
Shipping of PT materials and evaluating test results from PTPs out of cycle with the mainstream programs is considerably time consuming and therefore costly.
In order not to disadvantage participants able to comply with time frames, Coal Concepts may charge a late fee in the following circumstances:
Requests that Coal concepts staff enters results on behalf of participants.
Requests to record results after the due date.
Requests for PTP participation that is out of cycle with the scheduled dates.
Shipping fees and Customs clearance:
Costs incurred for shipping samples and clearance of same through customs are the responsibility of the participating laboratory unless otherwise indicated.
Non-payment of fees:
Coal Concepts retains the right to withhold reports and/or test materials and services when invoices are outstanding.
Confidentiality of results:
All data and information received by Coal Concepts from its clients are considered confidential unless the client has given express permission to pass on information.
Definitions:
The dictionary definitions of "collusion" and "falsification" are as follows.
· *Collusion:* A secret agreement or cooperation for a fraudulent or
deceitful purpose.
· *Falsification:* Deliberately changing something to be false. In proficiency testing terms, collusion is comparing data (and perhaps changing data) to fit in with a believed "correct" result. This is contrary to the spirit of proficiency testing programs, which are issued with the intention of providing an objective comparison of a laboratory's performance with others. Coal Concepts tries to minimise the occurrence of collusion by being aware that laboratories should be objective when they report their results and should therefore not know the intended results at the time, they are reporting to us.
Answers are not provided to clients until results have been submitted.
To prevent collusion and falsification our advice to clients is:
DON'T confer with others about PT samples or results.
DO accept the fact that everyone makes errors.
DON'T average the results or opinions of every person in the laboratory before selecting the answer to be submitted. Instead, use one of the answers AS SUBMITTED to you and take advantage of the Coal Concepts internal QA services and submit all answers generated by the technicians.
DO have confidence in your own results.
Proficiency Testing (PT) is a compulsory part of laboratory accreditation, but it is also an important tool for giving you confidence in your results. "Enhancing" your PT results with assistance from another participant cannot increase.
confidence in your laboratory's performance.
Coal concepts' testing staff are not told what the expected results are, nor what we are expecting.
We subject ALL results to analysis, even if they are different.
The staff have the right to check that the results we enter on their behalf are correctly transcribed.
Clients are always welcome to contact Coal Concepts to seek advice or information about collusion or falsification of data.
Policy for Participant Appeal of PT Performance Assessment:
If participants disagree with their performance assessment in a proficiency report, they should inform Coal Concepts in writing.
The response will include Coal Concepts interpretation of the outcome of the reassessment and an explanation of that outcome. (For example, explanation of a calculation, or the rationale for the outcome of the evaluation.)
If a mistake has been made by Coal Concepts, it will be dealt with via Coal Concepts' non-conformance system.
Liability
In no event shall a party's liability to the other party for direct damages exceed an amount equal to the value of the amount for the PT Programme, under that specific month.
End of report