



## **AZURESKY PTY LTD PROFICIENCY TESTING**

### **GENERAL ANALYSIS REPORT**

LABORATORY CODE:

**Report No: 3**

**Final Report**

**Date Issued: 2<sup>nd</sup> July 2025**

**Document compiled by:**

**Laboratory Manager - Sifiso Nyambi**

**Signature:**

**Document authorised by:**

**Managing Director - Nonhlanhla Msibi**

**Signature:**

## 1. Letter to participant

Azuresky (Pty) Ltd would like to express gratitude that [REDACTED] participated in this round of the proficiency testing scheme.

Each participant is allocated a random unique number for the programme to enable total confidentiality of results.

Your laboratory has been allocated unique identification number [REDACTED].

Participants are encouraged to submit any comments and queries regarding results or the operation of the scheme to email: [info@azuresky.it.com](mailto:info@azuresky.it.com) or [nonhlanhla@azuresky.it.com](mailto:nonhlanhla@azuresky.it.com).

## **2. Executive summary**

Azuresky Pty Ltd is a proficiency testing scheme provider and certified reference material producer. We aim to produce a homogenous proficiency test sample and stable certified reference material to be used for the evaluation of participant performance against pre-defined criteria in interlaboratory comparison programs specific to coal testing methods and calibration of coal testing equipment.

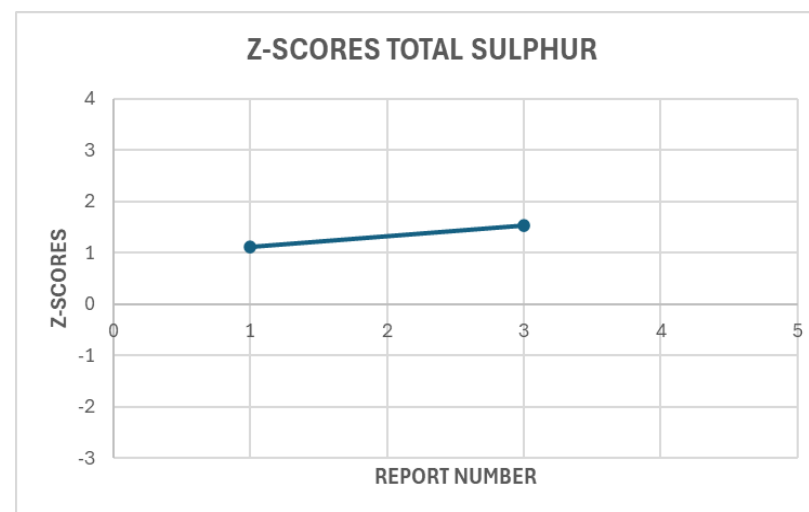
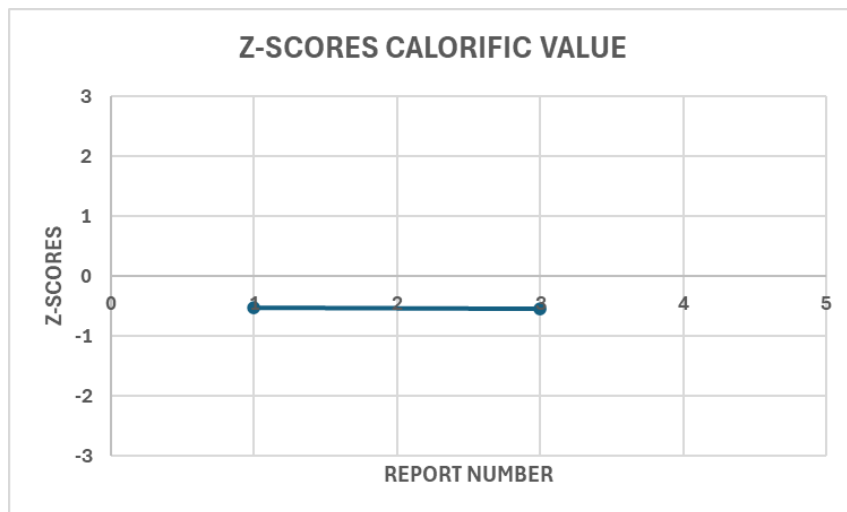
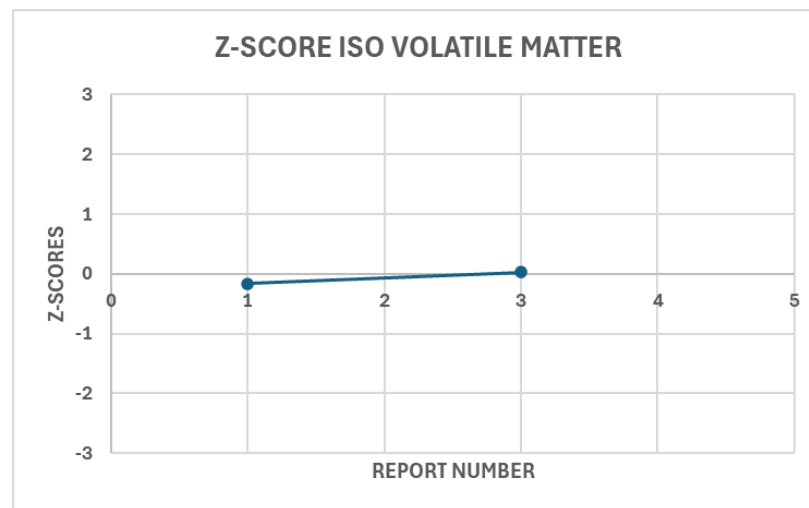
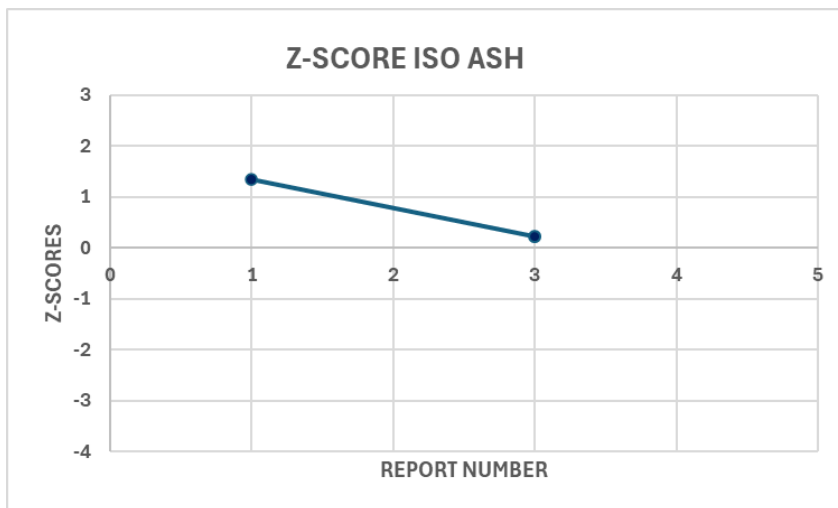
The source of the coal samples for this round was acquired from a mine located in Mpumalanga, and the coal type is bituminous.

The identity of PT samples dispatched for the month of June: "Coal: General Analysis 06/2025".

The number of participants for this round was 34.

When  $n$  is large enough, the sampling distribution will follow normal distribution curve regardless of the original population distribution. This assumption is applied to all statistical calculations in this report.

There are three detected outliers for this round, the first in volatile matter, second in ISO ash and finally calorific value analysis; LAB ID, 2, 17 and 57; respectively.



***Comments on the trends requires at least 5 data points, and also at least two points are required for graphical representation.***

### **3. List of participants**

| <b>No</b> | <b>Participants</b>                                 |
|-----------|-----------------------------------------------------|
| <b>1</b>  | <b>Best Enough Lab (TNC/2 Seam)</b>                 |
| <b>2</b>  | <b>Best Enough Laboratory Services NCC</b>          |
| <b>3</b>  | <b>Best Enough Laboratory Services Overlooked</b>   |
| <b>4</b>  | <b>Bestech Diepsruit Collieries</b>                 |
| <b>5</b>  | <b>Bestech Zomhlaba Lakeside</b>                    |
| <b>6</b>  | <b>Eskom Hendrina</b>                               |
| <b>7</b>  | <b>Exxaro Matla Laboratory</b>                      |
| <b>8</b>  | <b>Mfulawamanzi Kleinfontein</b>                    |
| <b>9</b>  | <b>Mfulawamanzi Piet Retief</b>                     |
| <b>10</b> | <b>Noko Analytical Services Piet Retief</b>         |
| <b>11</b> | <b>Noko Analytical Services Witbank</b>             |
| <b>12</b> | <b>PJS Middelburg Lab</b>                           |
| <b>13</b> | <b>PJS Salaria Lab</b>                              |
| <b>14</b> | <b>Ronewa Gugulethu</b>                             |
| <b>15</b> | <b>Ronewa Main Lab</b>                              |
| <b>16</b> | <b>Ronewa Wescoal</b>                               |
| <b>17</b> | <b>SA Lab Middelburg</b>                            |
| <b>18</b> | <b>Seriti Kriel</b>                                 |
| <b>19</b> | <b>Sibonisiwe Coal Laboratory Services Clewer</b>   |
| <b>20</b> | <b>Sibonisiwe Coal Laboratory Services Main Lab</b> |
| <b>21</b> | <b>Sibonisiwe Coal Laboratory Services RMC</b>      |
| <b>22</b> | <b>Siza Coal Dundee</b>                             |
| <b>23</b> | <b>Siza Coal Kinross</b>                            |
| <b>24</b> | <b>Siza Coal Leeuwpan</b>                           |
| <b>25</b> | <b>Siza Coal NBC</b>                                |
| <b>26</b> | <b>Siza Coal Umlalazi</b>                           |
| <b>27</b> | <b>Siza labs Matsambisa</b>                         |

| No | Participants                                   |
|----|------------------------------------------------|
| 28 | Siza Labs Sasolburg                            |
| 29 | Siza Mgayo                                     |
| 30 | Siza Middelburg                                |
| 31 | Umzamo Analytical Services (Sasol Coal Supply) |
| 32 | Umzamo Analytical Services Khashani            |
| 33 | Umzamo Analytical Services Twistdraai          |
| 34 | Umzamo Laboratory Services A re shomeng        |

#### 4. Homogeneity check

10 random samples were extracted from the batch during packaging. These were used to test for homogeneity before the distribution of samples to participants.

| #<br>Sample        | Air-dry basis |       |                 | Range<br>(Wt) | Range<br>sqd |
|--------------------|---------------|-------|-----------------|---------------|--------------|
|                    | %R1           | %R2   | %Sample av (Xt) |               |              |
| 1                  | 19.86         | 19.99 | 19.925          | 0.13          | 0.0169       |
| 2                  | 19.87         | 20.23 | 20.05           | 0.36          | 0.1296       |
| 3                  | 20.1          | 20.21 | 20.155          | 0.11          | 0.0121       |
| 4                  | 20.02         | 20.05 | 20.035          | 0.03          | 0.0009       |
| 5                  | 20.25         | 20.13 | 20.19           | 0.12          | 0.0144       |
| 6                  | 20.27         | 20.21 | 20.24           | 0.06          | 0.0036       |
| 7                  | 20.16         | 20.2  | 20.18           | 0.04          | 0.0016       |
| 8                  | 20.26         | 20.23 | 20.245          | 0.03          | 0.0009       |
| 9                  | 20.39         | 20.51 | 20.45           | 0.12          | 0.0144       |
| 10                 | 20.58         | 20.16 | 20.37           | 0.42          | 0.1764       |
| Overall Average    |               |       | 20.18           |               |              |
| Standard Deviation |               |       | 0.18            |               |              |
| SSwithin           |               |       | 0.625           |               |              |
| SSbetween          |               |       | 0.0013          |               |              |
| ōpt                |               |       | 5.596           |               |              |
| Check value        |               |       | 1.679           |               |              |

where:  $\tilde{o}pt$  is the standard deviation from the pt

Conclusion : Since  $SS_{between} < \text{Check value}$ . Thus, homogeneity is sufficient.

## 5. Stability check

10 samples taken from the batch sent to participants were used to test for stability 3 weeks later.

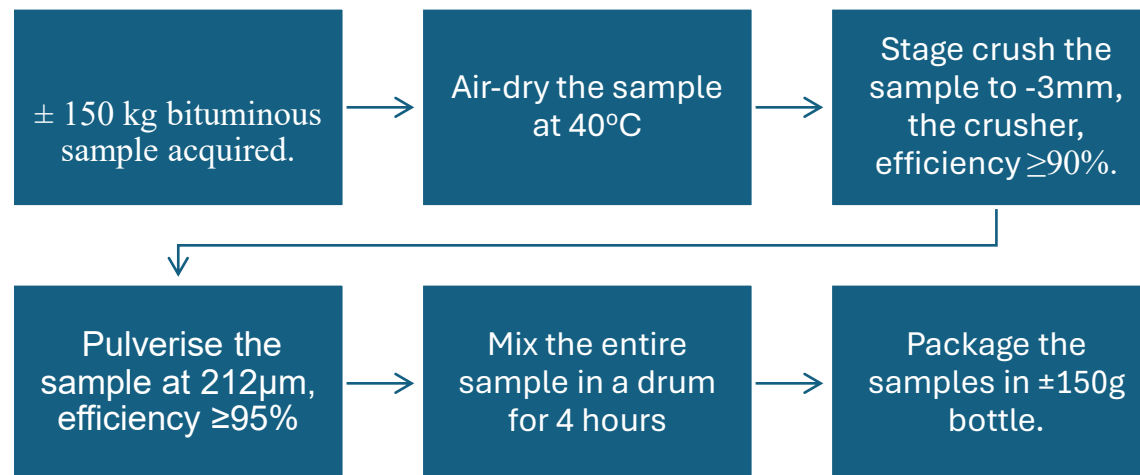
| # Sample                                                                   | Initial Test | Final Test | Sample av (Xt) | Range (Wt) | Range sqd |
|----------------------------------------------------------------------------|--------------|------------|----------------|------------|-----------|
| 1                                                                          | 20.14        | 20.37      | 20.255         | 0.23       | 0.0529    |
| 2                                                                          | 20.65        | 20.7       | 20.675         | 0.05       | 0.0025    |
| 3                                                                          | 20.72        | 20.78      | 20.75          | 0.06       | 0.0036    |
| 4                                                                          | 21.14        | 20.86      | 21             | 0.28       | 0.0784    |
| 5                                                                          | 20.75        | 21.14      | 20.945         | 0.39       | 0.1521    |
| 6                                                                          | 20.66        | 20.27      | 20.465         | 0.39       | 0.1521    |
| 7                                                                          | 20.91        | 20.68      | 20.795         | 0.23       | 0.0529    |
| 8                                                                          | 20.97        | 20.9       | 20.935         | 0.07       | 0.0049    |
| 9                                                                          | 21.1         | 21.05      | 21.075         | 0.05       | 0.0025    |
| 10                                                                         | 21.38        | 21.2       | 21.29          | 0.18       | 0.0324    |
| Overall Average                                                            |              |            | 20.82          |            |           |
| Standard Deviation                                                         |              |            | 0.30           |            |           |
| SSwithin                                                                   |              |            | 0.611          |            |           |
| SSbetween                                                                  |              |            | 0.013          |            |           |
| σ <sub>opt</sub>                                                           |              |            | 5.772          |            |           |
| Check value                                                                |              |            | 1.731          |            |           |
| Check value 1.731<br>Ssbetween < Check value. Thus,<br>samples are stable. |              |            |                |            |           |

## 6. Sample preparation

Sample preparation method followed the guidelines stipulated as per ISO 13909-4, ISO/IEC 17025, ISO/IEC 17043 and ISO 17034. Prior to the distribution of the samples, 10 random samples of  $\pm 150\text{g}$  were extracted by the flat-and-heap method from the 600g taken from the homogeneity drum.

None of the activities for the PT program were subcontracted.

Sample preparation process flow:



## **7. Measurement Protocol and identification of the measurement standard**

The analysis performed for this round together with the SI units are stipulated below:

- Calorific Value measured in MJ/Kg
- ISO Ash in % m/m
- Quick Ash in % m/m
- Total Sulphur %
- Moisture in Analysis sample % m/m
- Ash Fusion Temperature (°C)
- Total Moisture in % m/m
- HGI (no SI unit)

## 8. Measurement Results

| Lab ID | AIR DRY BASIS |            |           |                |                       |                | ASH FUSION TEMPERATURE (°C) |      |      |      |
|--------|---------------|------------|-----------|----------------|-----------------------|----------------|-----------------------------|------|------|------|
|        | %Moisture     | %Quick Ash | % ISO Ash | % ISO Volatile | Calorific Value MJ/Kg | %Total Sulphur | DT                          | ST   | HT   | FT   |
| 1      | 3.9           | 20.3       | ***       | ***            | 24.53                 | 0.99           | ***                         | ***  | ***  | ***  |
| 2      | 5.1           | 20.8       | 20.3      | 26.9           | 24.27                 | 0.82           | ***                         | ***  | ***  | ***  |
| 3      | 3.0           | 20.6       | ***       | 25.3           | 24.59                 | 1.03           | ***                         | ***  | ***  | ***  |
| 4      | 3.0           | 20.1       | 20.4      | 23.8           | 24.55                 | 0.99           | ***                         | ***  | ***  | ***  |
| 5      | 3.5           | ***        | 20.4      | 23.4           | 24.52                 | 0.90           | ***                         | ***  | ***  | ***  |
| 6      | 4.7           | ***        | 20.2      | 23.5           | 24.41                 | 0.97           | 1480                        | 1500 | 1500 | 1500 |
| 7      | 4.9           | 19.5       | 19.8      | 23.7           | 24.52                 | 0.90           | ***                         | ***  | ***  | ***  |
| 8      | 4.9           | 20.3       | ***       | 23.7           | 24.22                 | ***            | ***                         | ***  | ***  | ***  |
| 10     | 4.6           | ***        | 20.4      | 23.2           | 24.20                 | ***            | ***                         | ***  | ***  | ***  |
| 12     | 4.8           | 20.0       | 20.3      | 23.1           | 24.23                 | 0.93           | ***                         | ***  | ***  | ***  |
| 15     | 4.4           | ***        | 20.3      | 23.8           | 24.63                 | 0.87           | ***                         | ***  | ***  | ***  |
| 17     | 3.6           | ***        | 19.5      | 23.6           | 24.66                 | 1.00           | ***                         | ***  | ***  | ***  |
| 20     | 4.9           | ***        | 19.9      | 23.6           | 24.48                 | 0.84           | ***                         | ***  | ***  | ***  |
| 25     | 4.9           | ***        | 19.9      | 23.6           | 24.50                 | 0.90           | ***                         | ***  | ***  | ***  |
| 27     | 4.2           | ***        | 20.3      | 23.6           | 24.26                 | 1.02           | ***                         | ***  | ***  | ***  |
| 28     | 3.6           | ***        | 20.4      | 24.2           | 24.18                 | 0.97           | 1420                        | 1440 | 1470 | 1490 |
| 29     | 4.0           | ***        | 19.9      | 23.3           | 24.32                 | 0.98           | ***                         | ***  | ***  | ***  |
| 31     | 3.7           | 20.4       | ***       | 23.8           | 24.43                 | 0.93           | ***                         | ***  | ***  | ***  |
| 34     | 4.6           | 20.4       | ***       | 23.3           | 24.54                 | 0.90           | ***                         | ***  | ***  | ***  |
| 35     | 4.7           | 20.2       | ***       | 23.1           | 24.19                 | 0.87           | ***                         | ***  | ***  | ***  |
| 36     | 3.9           | 20.3       | ***       | 23.0           | 24.28                 | 0.93           | ***                         | ***  | ***  | ***  |
| 44     | 4.9           | 20.2       | ***       | 23.7           | 24.25                 | ***            | ***                         | ***  | ***  | ***  |
| 47     | 4.8           | 20.0       | ***       | 23.8           | 24.89                 | 0.93           | ***                         | ***  | ***  | ***  |
| 48     | 4.1           | ***        | 20.2      | 23.5           | 24.53                 | ***            | ***                         | ***  | ***  | ***  |
| 49     | 4.4           | 20.1       | 20.2      | 23.2           | 24.28                 | 0.82           | ***                         | ***  | ***  | ***  |

| Lab ID | AIR DRY BASIS |            |           |                |                       |                | ASH FUSION TEMPERATURE (°C) |      |      |      |
|--------|---------------|------------|-----------|----------------|-----------------------|----------------|-----------------------------|------|------|------|
|        | %Moisture     | %Quick Ash | % ISO Ash | % ISO Volatile | Calorific Value MJ/Kg | %Total Sulphur | DT                          | ST   | HT   | FT   |
| 50     | 4.2           | 20.4       | 20.3      | 23.1           | 24.16                 | 0.94           | 1470                        | 1500 | 1500 | 1500 |
| 51     | 4.6           | 20.0       | ***       | 23.7           | 23.92                 | 0.93           | ***                         | ***  | ***  | ***  |
| 52     | 4.5           | 19.9       | ***       | 23.7           | 23.95                 | ***            | ***                         | ***  | ***  | ***  |
| 53     | 3.3           | 20.1       | 20.4      | 23.5           | 24.70                 | ***            | ***                         | ***  | ***  | ***  |
| 54     | 4.5           | ***        | 20.2      | 22.8           | 24.05                 | 0.75           | ***                         | ***  | ***  | ***  |
| 55     | 3.5           | ***        | 20.4      | 24.4           | 24.46                 | ***            | ***                         | ***  | ***  | ***  |
| 56     | 3.8           | 20.6       | ***       | 23.6           | 24.27                 | 0.93           | ***                         | ***  | ***  | ***  |
| 57     | 5.3           | 20.0       | ***       | 23.1           | 25.08                 | ***            | ***                         | ***  | ***  | ***  |
| 58     | 4.2           | ***        | 20.5      | 23.3           | 24.46                 | ***            | ***                         | ***  | ***  | ***  |

Key: “ \*\*\* “represents no participation

|        | Dry basis      |             |         |           |         |            |         |                         |         |                 |         |
|--------|----------------|-------------|---------|-----------|---------|------------|---------|-------------------------|---------|-----------------|---------|
| Lab ID | % ISO Moisture | % Quick Ash | Z-score | % ISO Ash | Z-score | % Volatile | Z-score | Calorific Value (MJ/Kg) | Z-score | % Total Sulphur | Z-score |
| 1      | 3.9            | 21.2        | 0.13    | ***       | ***     | ***        | ***     | 25.53                   | 0.31    | 1.03            | 1.01    |
| 2      | 5.1            | 21.9        | 2.71    | 21.4      | 1.00    | 28.3       | 4.90    | 25.57                   | 0.51    | 0.86            | -1.46   |
| 3      | 3.0            | 21.2        | 0.24    | ***       | ***     | 26.1       | 1.95    | 25.34                   | -0.47   | 1.06            | 1.48    |
| 4      | 3.0            | 20.7        | -1.27   | 21.0      | -0.47   | 24.5       | -0.12   | 25.31                   | -0.60   | 1.02            | 0.87    |
| 5      | 3.5            | ***         | ***     | 21.1      | 0.03    | 24.2       | -0.47   | 25.41                   | -0.19   | 0.93            | -0.44   |
| 6      | 4.7            | ***         | ***     | 21.2      | 0.25    | 24.7       | 0.07    | 25.61                   | 0.68    | 1.02            | 0.83    |
| 7      | 4.9            | 20.5        | -2.08   | 20.8      | -1.21   | 24.9       | 0.41    | 25.78                   | 1.40    | 0.95            | -0.23   |
| 8      | 4.9            | 21.3        | 0.77    | ***       | ***     | 24.9       | 0.41    | 25.47                   | 0.06    | ***             | ***     |
| 10     | 4.6            | ***         | ***     | 21.4      | 1.02    | 24.3       | -0.46   | 25.36                   | -0.42   | ***             | ***     |
| 12     | 4.8            | 21.0        | -0.38   | 21.3      | 0.74    | 24.3       | -0.45   | 25.45                   | -0.01   | 0.98            | 0.22    |
| 15     | 4.4            | ***         | ***     | 21.2      | 0.39    | 24.9       | 0.38    | 25.76                   | 1.31    | 0.91            | -0.77   |
| 17     | 3.6            | ***         | ***     | 20.2      | -3.52   | 24.5       | -0.17   | 25.58                   | 0.54    | 1.04            | 1.12    |
| 20     | 4.9            | ***         | ***     | 20.9      | -0.81   | 24.8       | 0.27    | 25.74                   | 1.22    | 0.88            | -1.17   |
| 25     | 4.9            | ***         | ***     | 20.9      | -0.81   | 24.8       | 0.27    | 25.76                   | 1.31    | 0.95            | -0.23   |
| 27     | 4.2            | ***         | ***     | 21.2      | 0.22    | 24.6       | 0.03    | 25.32                   | -0.55   | 1.06            | 1.53    |
| 28     | 3.6            | ***         | ***     | 21.2      | 0.16    | 25.1       | 0.63    | 25.09                   | -1.57   | 1.01            | 0.66    |
| 29     | 4.0            | ***         | ***     | 20.7      | -1.54   | 24.3       | -0.43   | 25.34                   | -0.48   | 1.02            | 0.88    |
| 31     | 3.7            | 21.2        | 0.18    | ***       | ***     | 24.7       | 0.11    | 25.37                   | -0.36   | 0.97            | 0.05    |
| 34     | 4.6            | 21.4        | 0.90    | ***       | ***     | 24.4       | -0.24   | 25.72                   | 1.14    | 0.94            | -0.28   |
| 35     | 4.7            | 21.2        | 0.18    | ***       | ***     | 24.2       | -0.49   | 25.38                   | -0.33   | 0.91            | -0.73   |
| 36     | 3.9            | 21.1        | 0.02    | ***       | ***     | 24.0       | -0.83   | 25.27                   | -0.80   | 0.97            | 0.08    |
| 44     | 4.9            | 21.2        | 0.41    | ***       | ***     | 24.9       | 0.41    | 25.50                   | 0.19    | ***             | ***     |
| 47     | 4.8            | 21.0        | -0.38   | ***       | ***     | 24.9       | 0.44    | 26.14                   | 2.93    | 0.98            | 0.22    |
| 48     | 4.1            | ***         | ***     | 21.1      | -0.27   | 24.5       | -0.09   | 25.58                   | 0.53    | ***             | ***     |
| 49     | 4.4            | 21.1        | -0.21   | 21.1      | -0.05   | 24.3       | -0.41   | 25.40                   | -0.24   | 0.86            | -1.55   |
| 50     | 4.2            | 21.3        | 0.59    | 21.2      | 0.30    | 24.2       | -0.59   | 25.22                   | -1.00   | 0.98            | 0.28    |
| 51     | 4.6            | 21.0        | -0.52   | ***       | ***     | 24.8       | 0.31    | 25.07                   | -1.62   | 0.97            | 0.19    |
| 52     | 4.5            | 20.8        | -0.95   | ***       | ***     | 24.8       | 0.27    | 25.08                   | -1.60   | ***             | ***     |
| 53     | 3.3            | 20.8        | -1.19   | 21.1      | -0.04   | 24.3       | -0.34   | 25.55                   | 0.40    | ***             | ****    |
| 54     | 4.5            | ***         | ***     | 21.2      | 0.11    | 23.9       | -0.98   | 25.17                   | -1.21   | 0.78            | -2.63   |
| 55     | 3.5            | ***         | ***     | 21.2      | 0.09    | 25.2       | 0.84    | 25.34                   | -0.48   | ***             | ***     |

|                              | Dry basis |                |             |         |           |         |            |         |                         |         |                 |         |
|------------------------------|-----------|----------------|-------------|---------|-----------|---------|------------|---------|-------------------------|---------|-----------------|---------|
|                              | Lab ID    | % ISO Moisture | % Quick Ash | Z-score | % ISO Ash | Z-score | % Volatile | Z-score | Calorific Value (MJ/Kg) | Z-score | % Total Sulphur | Z-score |
|                              | 56        | 3.8            | 21.4        | 0.86    | ***       | ***     | 24.5       | -0.13   | 25.23                   | -0.96   | 0.97            | 0.07    |
|                              | 57        | 5.3            | 21.1        | 0.00    | ***       | ***     | 24.4       | -0.28   | 26.48                   | 4.37    | ***             | ***     |
|                              | 58        | 4.2            | ***         | ***     | 21.4      | 0.88    | 24.4       | -0.32   | 25.54                   | 0.34    | ***             | ***     |
| # of participants            | ***       | ***            | 20          | ***     | 21        | ***     | 33         | ***     | 34                      | ***     | 25              | ***     |
| Outliers                     | ***       | ***            | 0           | ***     | 1         | ***     | 1          | ***     | 1                       | ***     | 0               | ***     |
| # of participants            | ***       | ***            | 20          | ***     | 20        | ***     | 32         | ***     | 33                      | ***     | 25              | ***     |
| Average                      | ***       | ***            | 21.1        | ***     | 21.1      | ***     | 24.6       | ***     | 25.45                   | ***     | 0.96            | ***     |
| Standard deviation           | ***       | ***            | 0.29        | ***     | 0.26      | ***     | 0.76       | ***     | 0.24                    | ***     | 0.07            | ***     |
| %RSD                         | ***       | ***            | 1.40        | ***     | 1.22      | ***     | 3.10       | ***     | 0.92                    | ***     | 7.00            | ***     |
| Median                       | ***       | ***            | 21.1        | ***     | 21.2      | ***     | 24.5       | ***     | 25.41                   | ***     | 0.97            | ***     |
| Min                          | ***       | ***            | 20.5        | ***     | 20.2      | ***     | 23.9       | ***     | 25.07                   | ***     | 0.78            | ***     |
| Max                          | ***       | ***            | 21.9        | ***     | 21.4      | ***     | 28.3       | ***     | 26.48                   | ***     | 1.06            | ***     |
| UoM                          | ***       | ***            | 0.066       | ***     | 0.058     | ***     | 0.135      | ***     | 0.041                   | ***     | 0.013           | ***     |
| standard error               | ***       | ***            | 0.14        | ***     | 0.12      | ***     | 0.28       | ***     | 0.08                    | ***     | 0.03            | ***     |
| Lower confidence limit       | ***       | ***            | 21.0        | ***     | 21.0      | ***     | 24.3       | ***     | 25.37                   | ***     | 0.93            | ***     |
| Upper confidence limit       | ***       | ***            | 21.3        | ***     | 21.3      | ***     | 24.9       | ***     | 25.54                   | ***     | 0.99            | ***     |
| Lower confidence limit 3x SE | ***       | ***            | 20.7        | ***     | 20.8      | ***     | 23.8       | ***     | 25.20                   | ***     | 0.88            | ***     |
| Upper confidence limit 3x SE | ***       | ***            | 21.5        | ***     | 21.5      | ***     | 25.4       | ***     | 25.70                   | ***     | 1.05            | ***     |

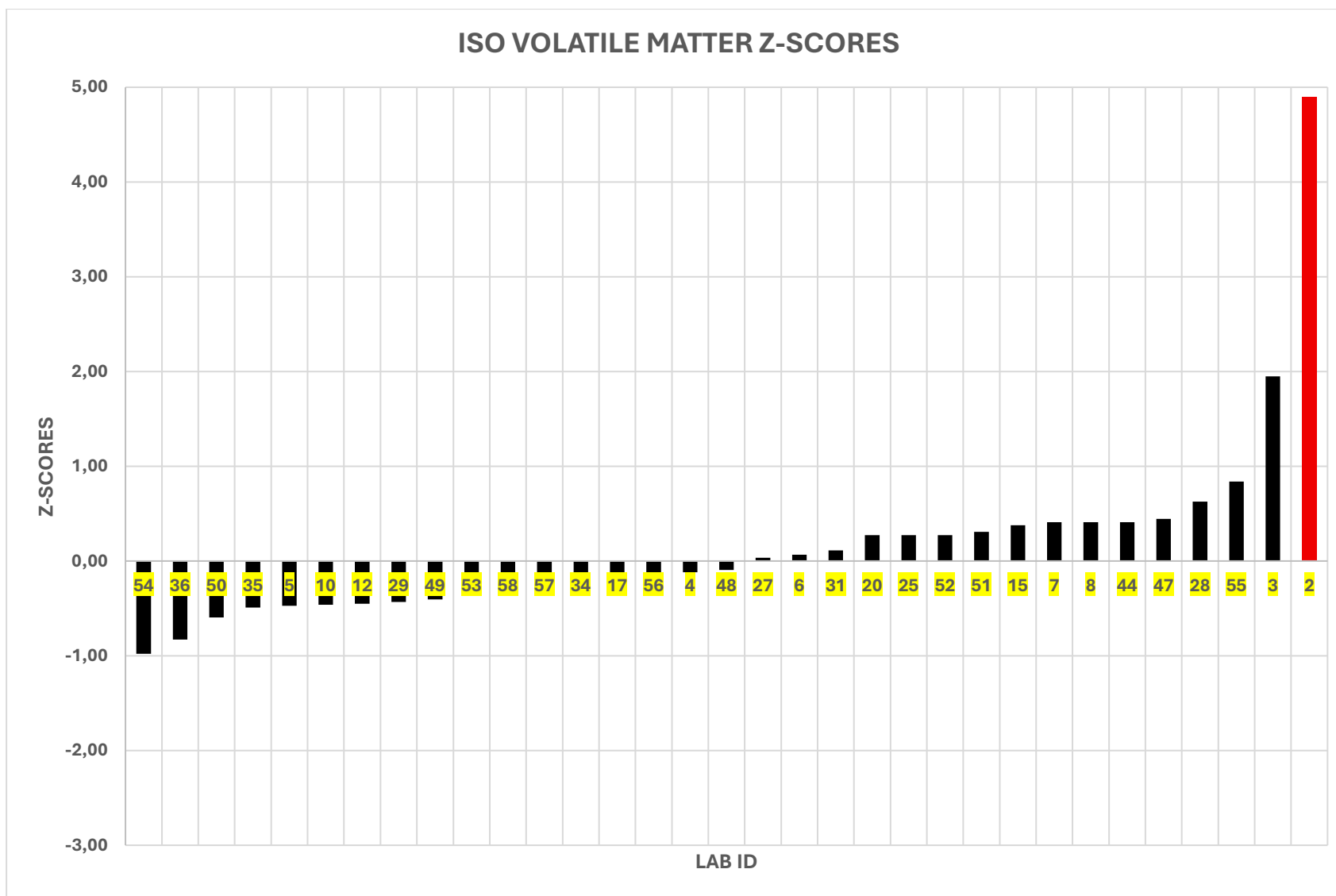
## 9. Evaluation of the measurement results

- There are three outliers detected for Lab IDs 2, 57 and 17; ISO volatile Matter, Calorific Value and ISO Ash; respectively.
- All results are accepted as correct and cannot be changed after the release of the report.

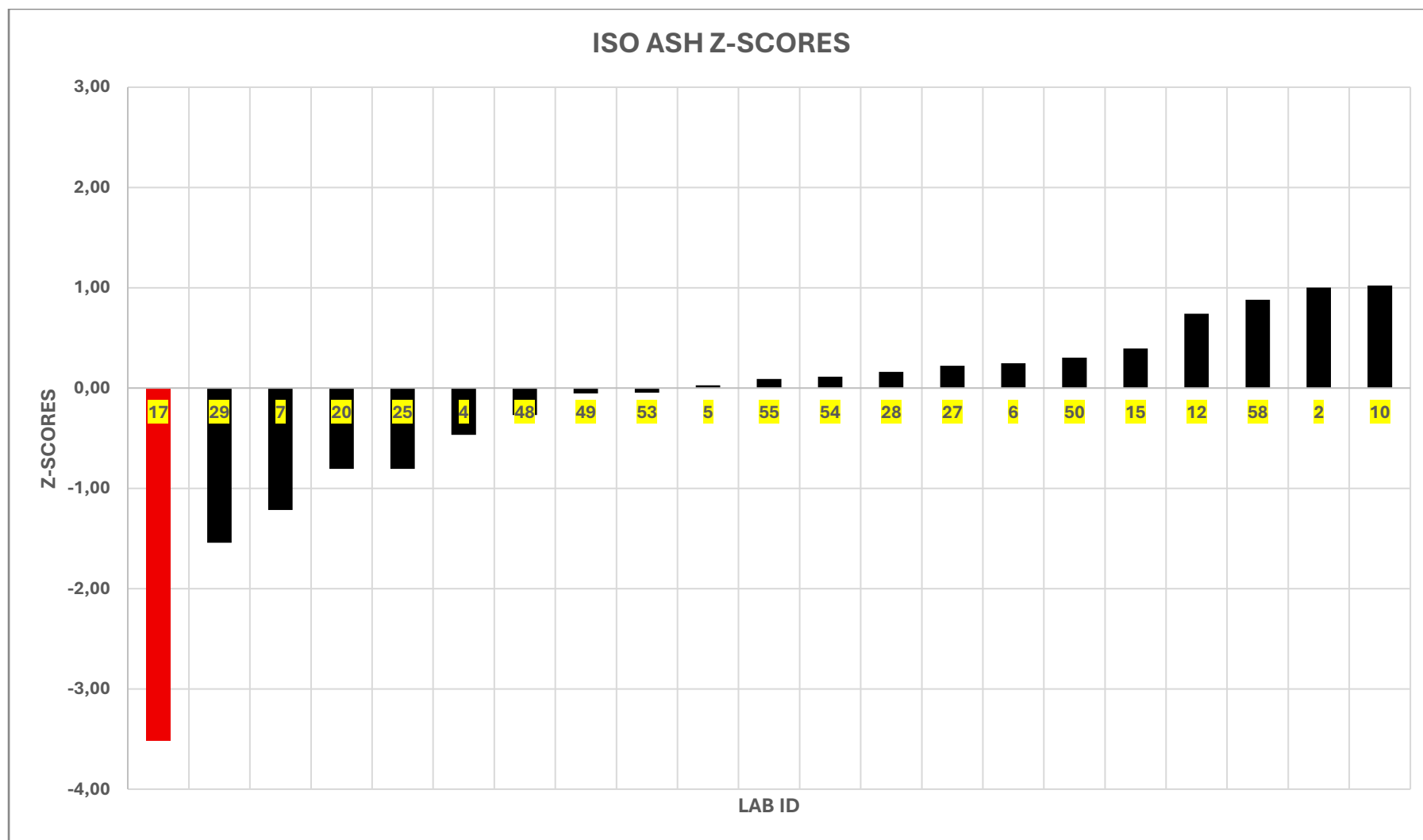
### ***Z-scores evaluation criteria:***

- A z-score that lies between +1 and -1 is acceptable.
- A z-score that lies between +2 and -2 is deemed satisfactory.
- A z-score that lies between +2/+3 and -2/-3 is questionable.
- A z-score  $>3$ / $<-3$  is unsatisfactory (outlier).

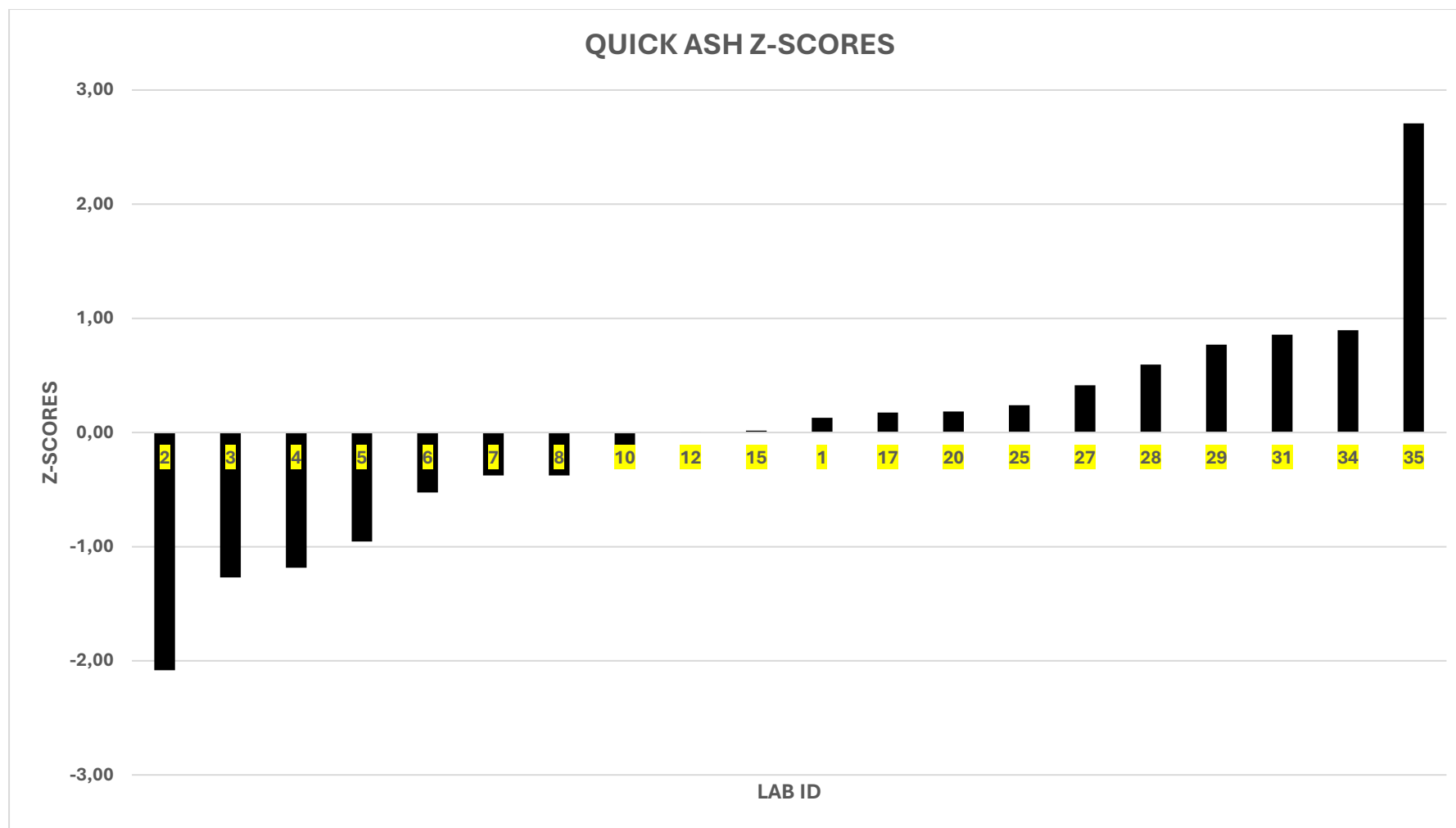
**Figure 1: Volatile matter z-scores**



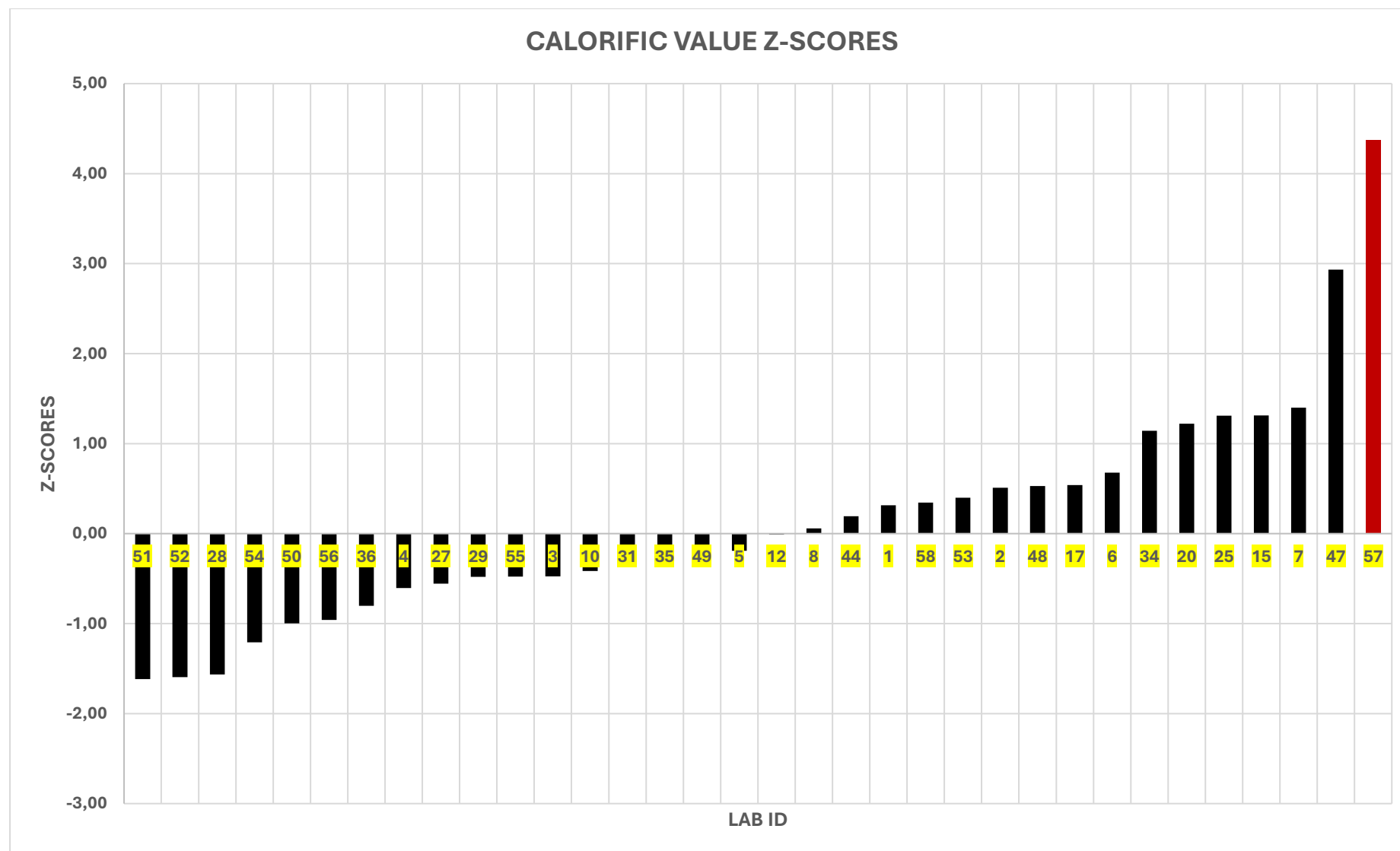
**figure 2: ISO ash z-scores**



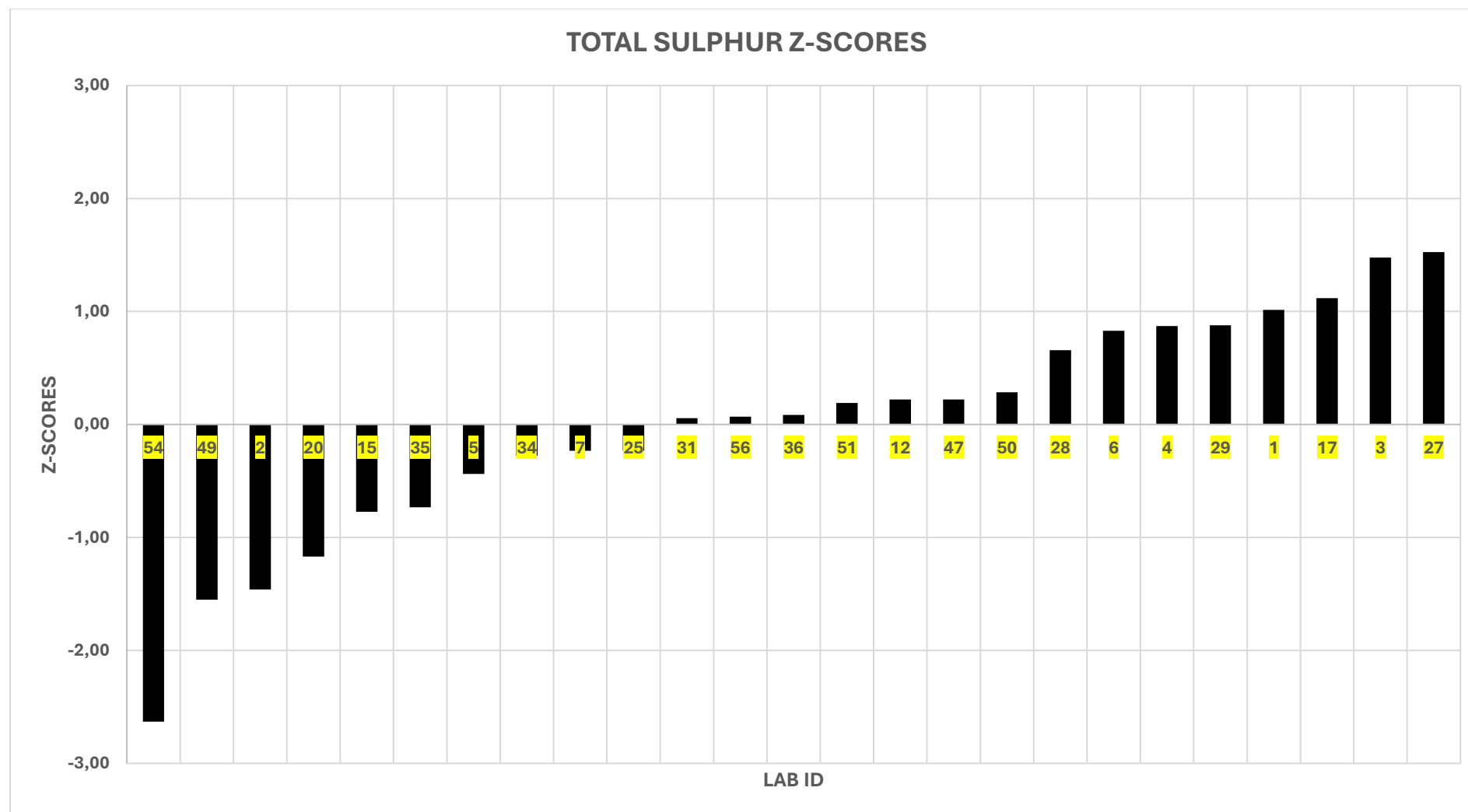
**figure 3: Quick Ash z-scores**



**Figure 4: Calorific Value z-scores**



**Figure 5: Total Sulphur z-scores**



## **10. General Conclusions**

- 10.1. Quick ash analysis: Participants did extremely well. The RSD value is 1.40% which is a good indication of results being clustered around the mean. Most participants also lie within the confidence limits.
- 10.2. ISO ash analysis: The lab ID 17 is an outlier. The vast majority of the other labs performed extremely well, there is not a lab whose z-score fell over the  $\pm 2$  line.
- 10.3. Statistical evaluation for Volatile Matter analysis revealed that over 90% of the labs obtained Z-scores that are between 1 and -1, an excellent performance. Only one outlier was identified, lab ID 2 whose z-score is 4.90.
- 10.4. Calorific Value analysis: one outlier was identified (LAB ID 57, z-score of 4.37).
- 10.5. Good performance for Total Sulphur analysis, no outliers detected.
- 10.6. There were only 3 participants for Ash Fusion Temperature, given that n is so small; no statistical analysis has been provided.