Response to the Referee 1, 2017/12:
“Simulation of a Coal Stacking Process using an Online X-Ray Fluorescence (XRF) Analyser.”

December 7, 2017

We thank the Referee for the constructive comments.

The observation of the reviewer on the treatment of the data is very good and valid. However, the objective of the study was to develop a simulation model for the stacking/reclaiming process, and as a result an assumption on the distribution of the data had to be made. The objective was not to determine the best fitting theoretical distribution, and for the current application the assumption of normality was considered to be sensible given the final objective and amounts (tonnages) of coal passing under the online instrument. We have tested alternatives such as the bootstrap sampling but found that it does not improve the results and practical significance. However, the examiner is correct in that more formal tests can be applied for normality or other statistical distributions, even in real time, and this will be pursued in future as the application of the technology and the developed methodology grows.

We offer the following response on the detail comments:

1. The spelling was corrected.
2. The capitalisation was corrected.
3. The sentence was updated.
4. The redundant “data” was deleted.
5. The sentence was updated.
6. The redundant “end” was deleted.
7. “too discrete” was changed to “too long”.
8. The coal rate was updated to 555.
9. The stacker speed was update to $\frac{1}{2}$ m/s, and the appropriate equations updated.
10. The sentence was updated to “the tons will be constant for long periods”.
11. The “Weight” was updated to “Mass” in the table heading and the discussion.
12. The sentence was updated to clarify that $k_{n,j}$ indicates the length of the interval.
13. The sentence was corrected.
14. Approached was updated to approach.
15. The sentence was corrected.

16. The sentence was updated as suggested.

17. The sentence was updated to “where \(\lceil x \rceil\) is defined as ceiling\((x)\) (the smallest integer not less than \(x\)) and \(s\) is defined as the stacker speed in m/s.”

18. “effect” was changed to “affect”.

19. The notation was updated to indicate that \(a_{pi}\) is a scalar.

20. The sentence was corrected.

21. A description of the PI DCS system was included.