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## **SDI FINAL EVALUATION FORM 1.1**

## PART 1:

| Journal Name:            | Advances in Research                                      |
|--------------------------|---|
| Manuscript Number:       | 2014_AIR_11625  |
| Title of the Manuscript: | Heat transfer and solidification of molten iron in a pipe |
| Type of the Article      | Research  |

## PART 2:

| FINAL EVALUATOR'S comments on revised paper (if any)   | Authors' response to final evaluator's comments   |
|--|---|
| 1) The details of "mesh-independence analysis" should to be added to the manuscript. It means that at least 1-2 graph or figure should be added to the present manuscript to show the mesh-independence analysis.  | A mesh-independence analysis was carried out, and the corresponding Section was added to the manuscript.<br>Several meshes with different number of elements were tested in order to achieve consistent results. Computer<br>simulations showed that beyond 56 000 elements no significant changes in the numerical results were exhibited<br>by the system variables, so this number of elements was employed in the subsequent numerical runs. The<br>intermediate files have been erased, so we don't have the graphs required by the reviewer.  |
| 2) At least 1-2 "Numerical Procedure Validation" should be added to the manuscript. It means this work should be compared with other works now, not in the future! Without this validation, the reliability of the present numerical procedure is not clear. | A Validation Section was added to the manuscript. Validation is defined as the process of determining the degree<br>to which a model is an accurate representation of the real world from the perspective of the intended uses of the<br>model \cite{Aiaa98}. The process for validation assessment of a CFD simulation encompasses, among other<br>factors, mesh-independence, temporal convergence and comparison of CFD results to experimental data<br>\cite{Aiaa98}. Mesh-independence is considered in Section \ref{sec:mesh}. Temporal convergence is obtained by<br>considering a time step of 1x10\$^{-4}\$ s, which yielded residuals under 0.01. However, a direct comparison of CF<br>results to experimental or published ones is not possible given that no data are available. |

