MODELLING OF STEEL PLATE RESPONSE TO BLAST LOADING USING A COUPLED CFD/CSD METHODOLOGY

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ABSTRACT

This paper describes the results of a combined experimental and computational effort intended to validate predictions of a coupled CFD/CSD methodology. The coupled methodology was initially used to predict the response of a complex, steel multi-column and plate structure response to blast loading. As several interacting physical mechanisms control this process, it became too difficult to evaluate the prediction accuracy of any individual process. Hence, a simplified precision test of a single event, namely: the response of a single steel plate to a bare charge in close vicinity, was performed. Results of these tests and simulations are presented here. The results validated the capability of the coupled CFD/CSD methodology to model these events, and highlighted the role of minute experimental details on the overall results and conclusions.