

IMPORTANCE OF TRACEABLE AND ACCURATE DATA RECORDING IN LARGE SCALE EXPERIMENTAL EXPLOSIONS

L. Tang¹, D.Bird²

^{1,2}*DNV GL Spadeadam, MOD R5, Gilsland, Brampton, Cumbria CA8 7AU United Kingdom*

ABSTRACT

Large scale experimental blast tests are carried out for various civilian and military reasons including testing to standards such as ISO 16933 for blast resistant glazing or for research into new types of explosives or structures. Whether these blast tests are carried out either for research or for commercial reasons, it is critical to have a thorough understanding of the blast effects of the charge. A test is characterized by the pressures and the impulses produced by the charge – if these are not recorded in a consistent and accurate way, the blast data cannot be considered satisfactory. It is also important for all data recorded to have a clear traceability back to calibration standards to ensure accurate data.

A testing programme was developed at DNV GL Spadeadam Testing and Research Centre to improve the accuracy and repeatability of the data recorded during Blast Tests. This was carried out through an investigation in to the type of gauges used, atmospheric and physical test conditions and the impact of equipment including the Data Acquisition Equipment and the cables and stands used for the gauges. The aim of this programme was to determine a consistent method for the accurate measurement of blast pressure and impulse from a free field and reflected point of view of open air hemispherical blasts. Tests included a number of 100kg TNT Equivalence charges with both reflected and free field pressure gauges set out at variable distances. This poster discusses the outcomes of the trials and makes suggestions on the improvement of measurement from blast tests.