Title	Research Report 118: Influence of non-linear material behaviour on strong vibration effects due to explosion loading
Publisher/Author	HSE
Publication Date	2003
Executive Summary	In order to investigate the effects of introducing non-linear material behaviour on the dynamic response of a topsides structure to explosion, a series of analyses has been carried out using a geometrically detailed finite element model. The work reported in this document builds upon that carried out during Phase 2 of the Strong Vibration Working Group JIP, in which purely elastic models were used in predicting the strong vibration demands placed upon Safety Critical Elements. A series of nine analyses was undertaken to determine the influence of non-linear material modelling on secondary response spectra, generated at discrete locations throughout the topsides structure. Previously, direct scaling of peak spectral accelerations obtained by linear analysis had been used to obtain results for explosions of differing peak overpressure. This report and the work it describes were funded by the Health and Safety Executive (HSE). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect HSE policy.
Table of Contents	