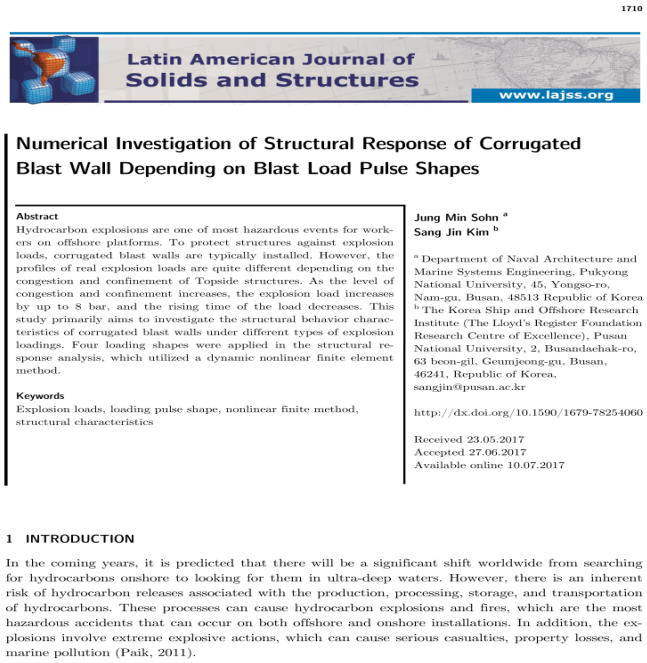
Blast and Fire Engineering for Topside Structures: Phase Two Final Summary Report



1710

Latin American Journal of Solids and Structures

www.lajss.org

Numerical Investigation of Structural Response of Corrugated Blast Wall Depending on Blast Load Pulse Shapes

Abstract

Hydrocarbon explosions are one of most hazardous events for workers on offshore platforms. To protect structures against explosion loads, corrugated blast walls are typically installed. However, the profiles of real explosion loads are quite different depending on the congestion and confinement of Topside structures. As the level of congestion and confinement increases, the explosion load increases by up to 8 bar, and the rising time of the load decreases. This study primarily aims to investigate the structural behavior characteristics of corrugated blast walls under different types of explosion loadings. Four loading shapes were applied in the structural response analysis, which utilized a dynamic nonlinear finite element method.

Keywords

Explosion loads, loading pulse shape, nonlinear finite method, structural characteristics

Jung Min Sohn [a]
Sang Jin Kim [b]

[a] Department of Naval Architecture and Marine Systems Engineering, Pukyong National University, 45, Yongso-ro, Nam-gu, Busan, 48513 Republic of Korea
[b] The Korea Ship and Offshore Research Institute (The Lloyd's Register Foundation Research Centre of Excellence), Pusan National University, 2, Busandaehak-ro, 63 beon-gil, Geumjeong-gu, Busan, 46241, Republic of Korea,
sangjin@pusan.ac.kr

http://dx.doi.org/10.1590/1679-78254060

Received 23.05.2017
Accepted 27.06.2017
Available online 10.07.2017

1 INTRODUCTION

In the coming years, it is predicted that there will be a significant shift worldwide from searching for hydrocarbons onshore to looking for them in ultra-deep waters. However, there is an inherent risk of hydrocarbon releases associated with the production, processing, storage, and transportation of hydrocarbons. These processes can cause hydrocarbon explosions and fires, which are the most hazardous accidents that can occur on both offshore and onshore installations. In addition, the explosions involve extreme explosive actions, which can cause serious casualties, property losses, and marine pollution (Paik, 2011).

Get this from a library! Blast and fire engineering for topside structures - Phase 2: final summary report. [C A Selby; B A Burgan; Steel.Blast and Fire Engineering for Topside Structures: Phase Two Final Summary Report on artbymandymeow.com *FREE* shipping on qualifying offers.Blast and Fire Engineering for Topside Structures: Phase Two Final Summary Report. Paperback. Share. Paperback. List price: US$If searched for a ebook Blast and Fire Engineering for Topside Structures: Phase Two Final Summary. Report in pdf form, in that case you come on to correct site.ETDEWEB ID: Title: Blast and fire engineering for topside structures - Phase 2. Final summary report. Authors: Selby, C.A.; Burgan.Find great deals for Blast and Fire Engineering for Topside Structures: Phase Two Final Summary Report by The Steel Construction Institute (Paperback,) .Hi, I'm looking for a book called "Blast and Fire Engineering for Topside Structures - Phase 2, Final Summary Report. The Steel Construction Institute, UK, SCI.It is therefore necessary to perform a fire and explosion hazard analysis as a basis . fire engineering for topside structuresPhase 2: final summary report (SCI.They are intended to assist design and process engineers concerned with of jet fire interactions with vessels containing pressurized liquidsJIVE final report, Blast and fire engineering for Topsides StructuresPhase 2, Final Summary.adopted? The Blast and Fire Engineering for Topside Structures .. topside structures, Phase 2, Final Summary Report, SCI. Publication.Figure Mean Response Spectrum for All Phase 2 Tests Fire Engineering for Topside Structures Phase 2, Final Summary Report', Steel Construction.Phase I Blast and fire Engineering Project for Topside Structures [1], .. Between these two extremes the report identified many other hybrid definitions .. Results from the latter two are fed back into the CAD model to build the final CAD model. It The Table below provides a summary of available high strain rate material.fire engineering for topside structures sponsored by the oil and gas industry. of predicting non-linear, transient response of structures to blast loading and large plastic .. Structures Phase 2', Final Summary Report, SCI, SCI Publ. No. The experiments were conducted to study explosion and fire at and fire engineering for topside structures, phase 2, final summary report.HSE Guidance Industries Offshore oil and gas Offshore topics Fire, explosion and . Selby C A and Burgan B A (), Blast and Fire Engineering for Topside. Structures - Phase 2: Final Summary Report, SCI Publication no.REPORT. Blast and Fire Engineering for Topside. Structures. Test Programme F3 ,. Confined Jet and Pool Fires. Final Report 15 jet ?res and 7 pool ?res in two compartment sizes m3 and SUMMARY (Overview of the findings). .. Phase 2, a test programme (F3) of confined jet and pool fire experiments have .2. SUMMARY. This report provides a literature review and an analysis of key aspects . Blast & Fire Engineering for Topside Structures (BFETS) Test Program .. chemical reaction terms for solid particulate devolatilization and gas phase combustion. The last column in the table summarizes the modelers' method for.Research performed during the last 20 years has already available for fire protections, onshore there Pressure-time histories obtained during two explosion ..

Engineering for Topside Structures, Phase 2, Final. Summary Report ().explosion and fire safety assessment in the oil and gas industry based on the Eddy 2. Modelling turbulent combustion in fires and explosions by the Eddy Dissipation Concept .. Selby C.A., Burgan B.A., , Joint Industry Project on Blast and Fire Engineering for Topside Structures,. Phase 2, Final Summary Report.