

Title	Offshore Technology Report 1999 047: Explosion Loading on Topsides Equipment: Part 2 – Determination of Explosion Loading on Offshore Equipment using FLACS	
Publisher/Author	HSE	
Publication Date	2000	
Executive Summary	<p>Explosion simulations using the FXACS-97 CFD explosion simulation code have been performed on three typical offshore installations:</p> <ul style="list-style-type: none"> • a small moderately congested platform with low confinement, • a large congested offshore module with high confinement, • a large and congested FPSO. <p>Eight simulations of gas explosion have been run in the small platform geometry, with 3 different gas cloud size (30%, 50% and 100% gas filling) and 6 different ignition locations. More extensive analysis is made for this platform and alternative methods of characterising output for onward response analysis are investigated.</p> <p>Force time histories resulting from blast loading have been calculated in the 3 axis directions on 9 different typical offshore equipment items including the lifeboats. Pressure differential time histories have also been produced for the escape route, the grated deck and the helideck.</p> <p>Seven simulations of gas explosion have been run both in the large platform geometry and the FPSO, with 2 different gas cloud sizes (30% and 100% filling) and 6 different ignition locations.</p> <p>Force time histories resulting from blast loading have been calculated in the 3 axis directions on 5 different typical added offshore equipment items.</p> <p>The 5 different equipment items added to each of the 3 considered geometries are:</p> <ul style="list-style-type: none"> • a rectangular container (located in the middle third of the process area), • a flare-knock out drum (located on the edge of the process area), • two skid vessels, one above another (located in the edge of the process area), • one small floor mounted pump package (located in the middle third of the process area), 	
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