

AN ADVANCED COURSE

GAS EXPLOSION HAZARDS ON OFFSHORE FACILITIES

3rd – 4th MAY 2010



VENUE: GEXCON AS, BERGEN, NORWAY

INCLUDING LIVE LARGE-SCALE EXPLOSION DEMONSTRATION

LEGISLATION EXPLOSION MODELLING RELEASE AND DISPERSION IGNITION
PREVENTIVE MEASURES MITIGATION PROBABILISTIC RISK ASSESSMENTS
ACCIDENTS SELECTED CASES OUTLOOK

AGENDA MONDAY 3rd MAY 2010

09:00	Registration and Coffee
09:30	Opening
09:45	Gas Explosion Basics <i>Combustion mechanisms, Fuel reactivity, Positive feedback mechanism, Effect of geometrical aspects, Explosion tests</i>
10:45	Coffee Break
11:00	Explosion Accidents: Statistics and Examples <i>Overview and analysis of explosion incidents offshore</i>
11:30	Release and Dispersion in Offshore Facilities <i>Statistics, Potential leak sources, Process streams, High and low momentum releases, Phase transition, Ventilation, Congestion and confinement, Modelling examples</i>
12:30	Lunch
13:30	Ignition Sources <i>Statistics, Mechanical ignition sources, Static electricity, Electrical ignition sources, Ignition source modelling</i>
14:30	Coffee Break
14:45	Preventive Measures <i>Hazardous area classification, Ventilation, Choice of equipment, Maintenance and procedures, Inventory, ESD</i>
15:30	Mitigation and Control <i>Layout, Use of explosion venting devices, Effect of waterspray, Escalation: Loading on equipment and piping, Passive fire protection, Escape routes</i>
16:15	Coffee Break
16:30	Legislation and Standards <i>ATEX, NORSOK, ISO, UK/US/Australia/Brazil/Canada</i>
17:15	Questions and Answers
18:15	Departure to Bergen City
19:30	Dinner

The lecturers include explosion experts Dr. Kees van Wingerden, M.Sc. Prankul Middha, M.Sc. Trygve Skjold, M.Sc. Geir H. Pedersen, M.Sc. Lars Rogstadkjernet, Mr. Bob Brewerton and several others.

AGENDA TUESDAY 4th MAY 2010

08:00 Arrival and Coffee

08:30 Explosion Modelling
Explosion modelling, Why simple models do not work, CFD, FLACS

09:15 Explosion Analyses
Part 1: Objective and Motivation
Risk acceptance criteria, What to protect

09:35 Part 2: Explosion Risk Analyses – Simple Approach
Worst case, Case study, Advantages/disadvantages

10:00 Coffee Break

10:15 Part 3: Explosion Risk Analyses – Advanced Approach
Probabilistic Analysis, Advantages/disadvantages

11:00 Part 4: Selected Analyses Examples
Layout optimisation, Screening analyses for concept choice, Gas detection system optimisation, Analysis of floating production facility and LNG terminal

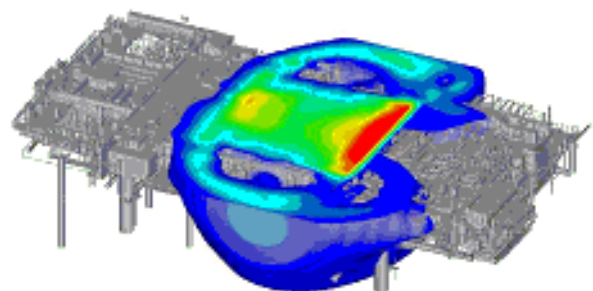
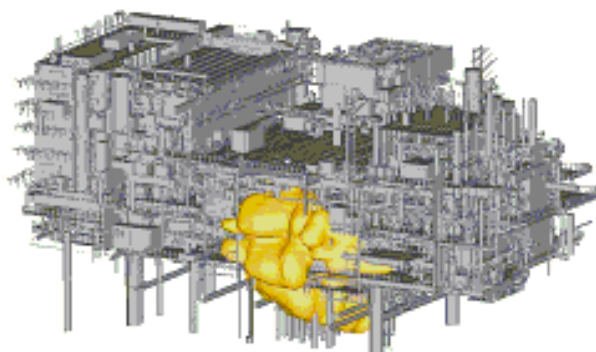
11:45 Lunch

12:30 Structural Response
Static pressure versus dynamic pressure loads, SDOF versus FEM

13:15 Outlook
Arctic regions, Alternative mitigation approaches: Soft barriers, enclosure around piperacks

13:45 Close

14:00 Demonstration of Large-scale Explosion
Departure to GexCons large-scale explosion field on the Island of Sotra. Bus arrival in Bergen City or at Flesland Airport, approximate time 17:00.



PRACTICAL INFORMATION

Registration before March 12th 2010

Pre-registration is required.

Please send an e-mail to offshore@gexcon.com or <mailto:offshore@gexcon.com> in order to receive a registration form. Your registration must be submitted before March 12th 2010.

Attendance fee NOK 9.500.

Hotel booking

If you need overnight accommodation a limited number of rooms have been reserved at Rica Hotel Bergen. The room reservation expires on March 12th 2010.

Bookings are made directly to rica.hotel.bergen@rica.no or tel +47 55 36 29 00. Please use ref.no. 91531 (prices NOK 810/1.065 per night).

How to reach GexCon

Address: Fantoftvegen 38, 5072 Bergen, Norway.

GexCon AS is located at Fantoft, about 20 minutes from Flesland Airport and the city centre of Bergen. For more information about GexCon, please visit our website at www.gexcon.com.

The City of Bergen

Bergen has given a warm welcome to its visitors for more than 900 years. Bryggen has become a symbol of the cultural heritage and has gained a place on UNESCO's World Heritage List. Bergen is surrounded by one of the World's most spectacular tourist attractions – the Norwegian Fjords.

Find out more on www.visitbergen.com/en.



GexCon www.gexcon.com is an R&D and consulting company specializing in industrial explosion risk. 30 years of dedicated experimental research in the field of explosion safety has been carried out in parallel to the development of the commercial CFD-software FLACS for explosion and dispersion calculations. GexCon offers highly qualified services and explosion consequence software worldwide.