

Update to Explosion and Fire Guidance

Agenda 19th April 2001 - Institute of Petroleum

- Welcome to all interested stakeholders
- Recent research initiatives
- HSE comments on assessment difficulties
- Proposed outline scope for guidance and schedule
- Consortia Requirements

Lunch

- Logistics for pre-qualification, bidding and review
- Award, execution and monitoring of guidance
- Other issues and discussion



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Welcome to all interested stakeholders and
potential contractors

Ian Tope – Shell Expro

UKOOA Hazard Management Sub-Committee

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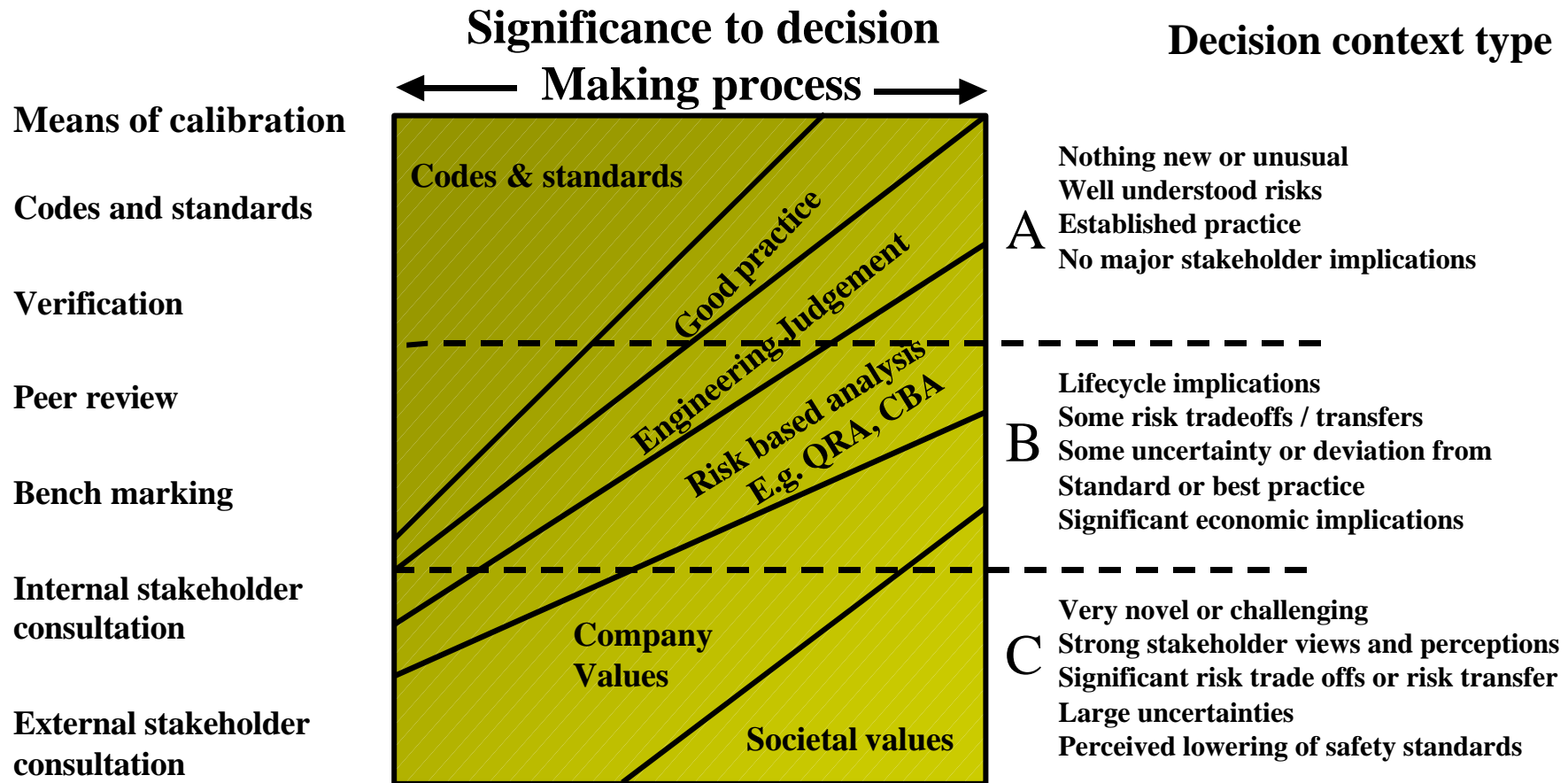
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Introduction

- Why are you here
- Need to move F&B design to Type A
 - Reduction in need for complex analysis
- Sponsors of this initiative
- Previous attempt to update guidance
- UKOOA aware of bidders costs in preparing bids
- High level commitment this time

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Recent research initiatives

Andrew Sekulin – Marathon Oil
HSE/UKOOA Fire & Explosion Work Group

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HSE perspective on safety case assessments
using current guidance and other information

Roland Martland - HSE Specialist Topic Leader,
Fire & Explosions

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Cost to industry & HSE (1)

- HSE report 8938/3714 estimates total costs to industry since 1988 around £4 billion (Cullen, SCR, PFEER, DCR, MAR)
- Ongoing compliance costs (for SCR, DCR, PFEER) approximately £145-160 million per annum
- 60-75% of remedial modifications on fire & explosion related hazards

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Cost to Industry & HSE (2)

- Approximately 300 JIPs and sole HSE R&D projects in fire & blast since 1988
- R&D Cost to HSE about £7.1m
- Total R&D costs about £31m
- Guidance nearly 10 years old – political exposure of stakeholders

Other initiatives










- US
 - MMS keen to produce engineering guidance
 - October, 2001 workshop
 - API RP2a Supplement Dec 96, Sect 18
- Norway
 - Norsok, QRA document (Draft), GEEJIP Handbook
- Europe/International
 - EN ISO 13702

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Proposed schedule and outline scope for new
guidance

Ed Terry - Supervisory Team, Guidance Update Project

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CTR	Activity	Q1	Q2	Q3	Q4	Q5	Q6
1.1	Consensus						
1.2	ITT Package						
1.3	Web Site						
2.1	Bid Queries						
2.2	Assessment						
3.1	Guidance						
4.1	Tech Editing						
4.2	Web Site						
4.3	Roll out						

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Outline scope for new guidance - overview

- The design guidance is intended to comprise 3 parts
 - Part 1 “Design considerations for the avoidance and mitigation of explosions”
 - Part 2 “Design considerations for the avoidance and mitigation of fires”
 - Part 3 “Design practices for fire and explosion engineering”

Outline scope for new guidance - part1

- “Design considerations for the avoidance and mitigation of explosions” should include:
 - An outline philosophy to explosion hazard definition
 - An approach to risk management of explosion hazards
 - Outline guidance on detailed design
 - Notes on the constraints and/or impacts of on fire hazards
 - Consideration of fires preceding or following explosions
 - An update to the IGN

An outline philosophy for explosion major accident hazard
definition

- Review & define the parameters & dependencies
- Can we justify setting a Bounding Case?
- What are the characteristics that impact us?

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Review the approach to risk management of explosion
major accident hazards

- How can we simplify/stratify current approaches?
- Can we categorise certain decision types? (as per UKOOA framework)
- Link the approach to the Bounding Case definition

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Outline guidance on detailed design

- Provide guidance for detailed design activities
- Support new build and re-assessment
- More international flavour
- Clear customers in mind

Constraints and/or impacts of on fire hazards

- Develop a listing of possible impacts of explosion design on fire management techniques
- Review the conflicting issues of potential solutions

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Consideration of fires preceding or following explosions

- Develop a listing of interactions between fire and explosion major accident hazards
- Review in outline only and note as considerations in guidance

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An update to the IGN

- Note that the revised guidance is intended to have widespread use
- This guidance is hoped to have a wider geographic appeal
- It is intended as reference for operators, designers and regulators

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Subsequent parts of the new guidance - part 2

- Design considerations for the avoidance and mitigation of fires should include
 - Fire hazard definition
 - Risk management of fire hazards
 - Outline guidance on design
 - Interactions with explosions

Subsequent parts of the new guidance - part 3

- Design practices for fire and explosion engineering
 - Detail design requirements for plant and equipment
 - Detail design requirements for structures
 - Discussions on detailed interactions of fire and explosion engineering solutions

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Requirements for consortia and expertise

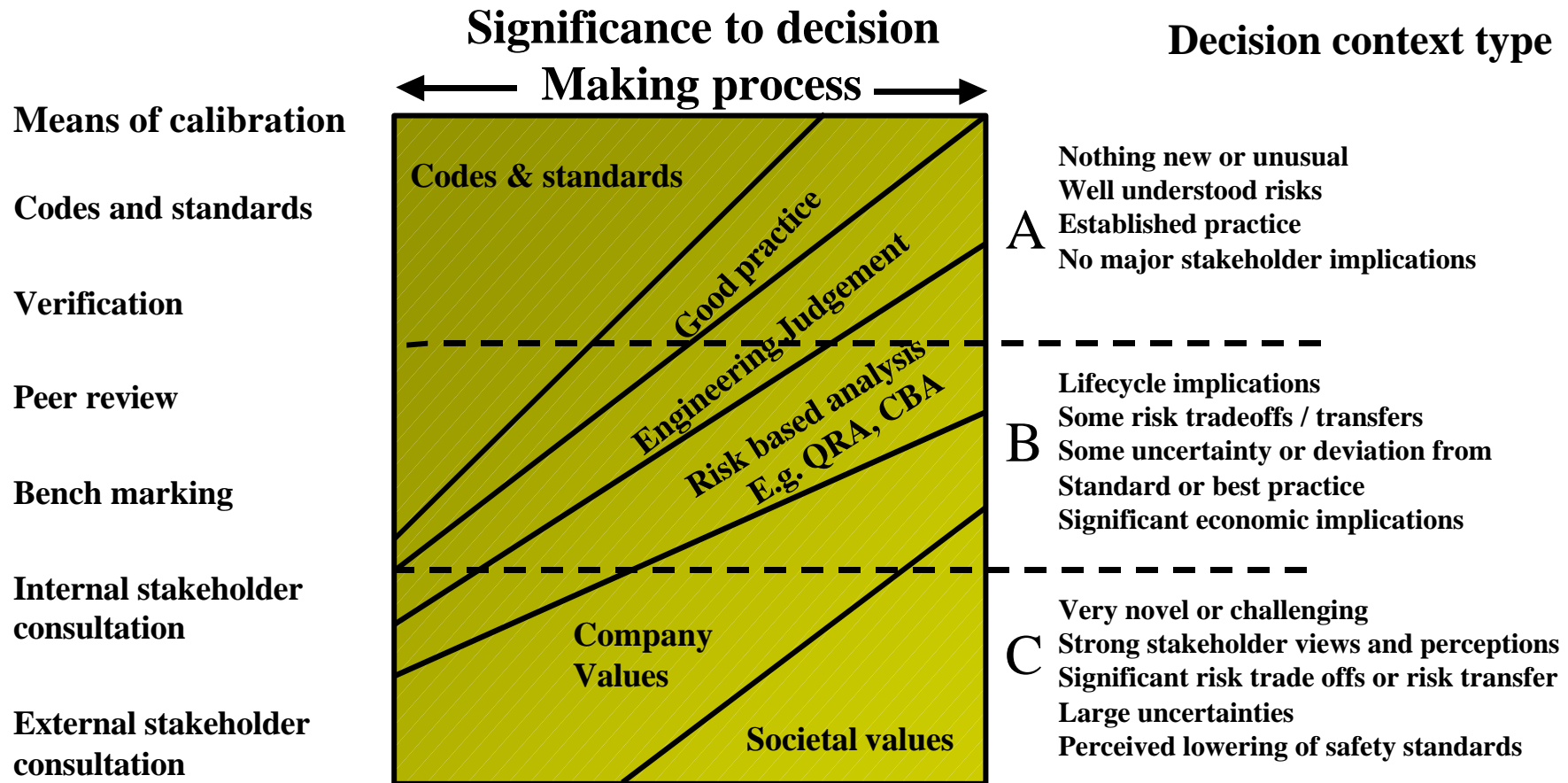
David Galbraith – Supervisory Team, Guidance Update
Project

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Recap on project objective

- Simple methodology for fire and explosion design
- Design and assessment to UKOOA Type A approach
- Incorporate learnings from past R&D
- Create and document industry consensus
- Implemented in design

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Consortia requirements

- Research – familiarity and interpretation
- “Real” design experience – preferably new build
 - Interactions Process / Structural / Safety etc
 - Schedule issues
 - e.g. Shearwater / Elgin
- Operational issues
- Guidance writing ability
- Project management

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Creation of consortia

- Limited number of researchers per discipline
- Varying levels of ability to write useful guidance
- Desire for “the best achievable” team
- Possibility (desirability) of one consortium for all phases
- Non exclusive agreements for consortia – i.e. we expect that certain organisations will be proposed in different consortia
- To provide a level playing field for bidders

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Our concerns

- No preconceptions as to consortia make up
- Limited numbers of certain specialities
- Varying level of recent research knowledge within some organisations
- Need to normalise bids for varying knowledge



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Logistical arrangements for pre-qualification,
bidding and review

Ed Terry - Supervisory Team, Guidance Update Project

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Pre-qualification

- Develop or join suitable consortia
- Notify via david@fireandblast.com
- Advise within 4 weeks of your proposed arrangements, that is by Friday 18th May
- Demonstrate that the consortium meets the skill needs

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Example pre-qualification requirements of consortia

	Design processes	Operational considerations	Research - overpressures and drag forces	Research - structural behaviour and response	Assessment of fire loading	Modelling structural behaviour and response	Implementation of fire & explosion into design	Operational impacts on fire & explosion management	Compilation of technical guidance	Project management skills
Consortium member A	✓			✓	✓	✓	✓			
Consortium member B		✓	✓		✓	✓				✓
Consortium member C							✓	✓		

Bidding

- The bid package from your consortium should contain
 - A description of consortium members, how the consortium is arranged, members relevant expertise and experience
 - A general execution method of how the work is intended to be carried out plus a listing by CTRs to describe the work packages in more detail
 - A proposed and achievable timetable plus a schedule of rates

*Confirmation of the above and further information
will be provided in the ITT*

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Review

- Review of consortia arrangements
 - Consortium members and arrangements
 - The individuals nominated
- Review of the bid contents
 - Review of proposed work programme
 - Schedule
- Review of technical knowledge
 - Familiarity with JIPs and design processes
 - Arrangements for filling the gaps
 - Ability to write guidance

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Arrangements for award, execution and
monitoring of guidance update

David Galbraith - Supervisory Team, Guidance Update
Project

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Award, execution and monitoring

- Details will be formulated as award decision is made
- Immediate supervision by fireandblast.com
 - Interface with UKOOA work group and other sponsors
 - Single point of contact for sponsor
 - Need to get on with the work
 - Reduce dependence on multiple sponsor interface
 - Additional resource for contractor
 - Particularly relevant if differing consortia for parts 2 & 3

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Contract

- Single contract between sponsor's representative and consortia's representative
- Consortia will need internal contract arrangements
- Sponsors will have own internal contract arrangements

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Publication

- Publication as early as possible
- Wide distribution for comment
 - to obtain industry consensus
- Intended to publish under aegis of an international independent industry body
 - Not HSE nor UKOOA
- Possibility of ultimate publication as ISO?

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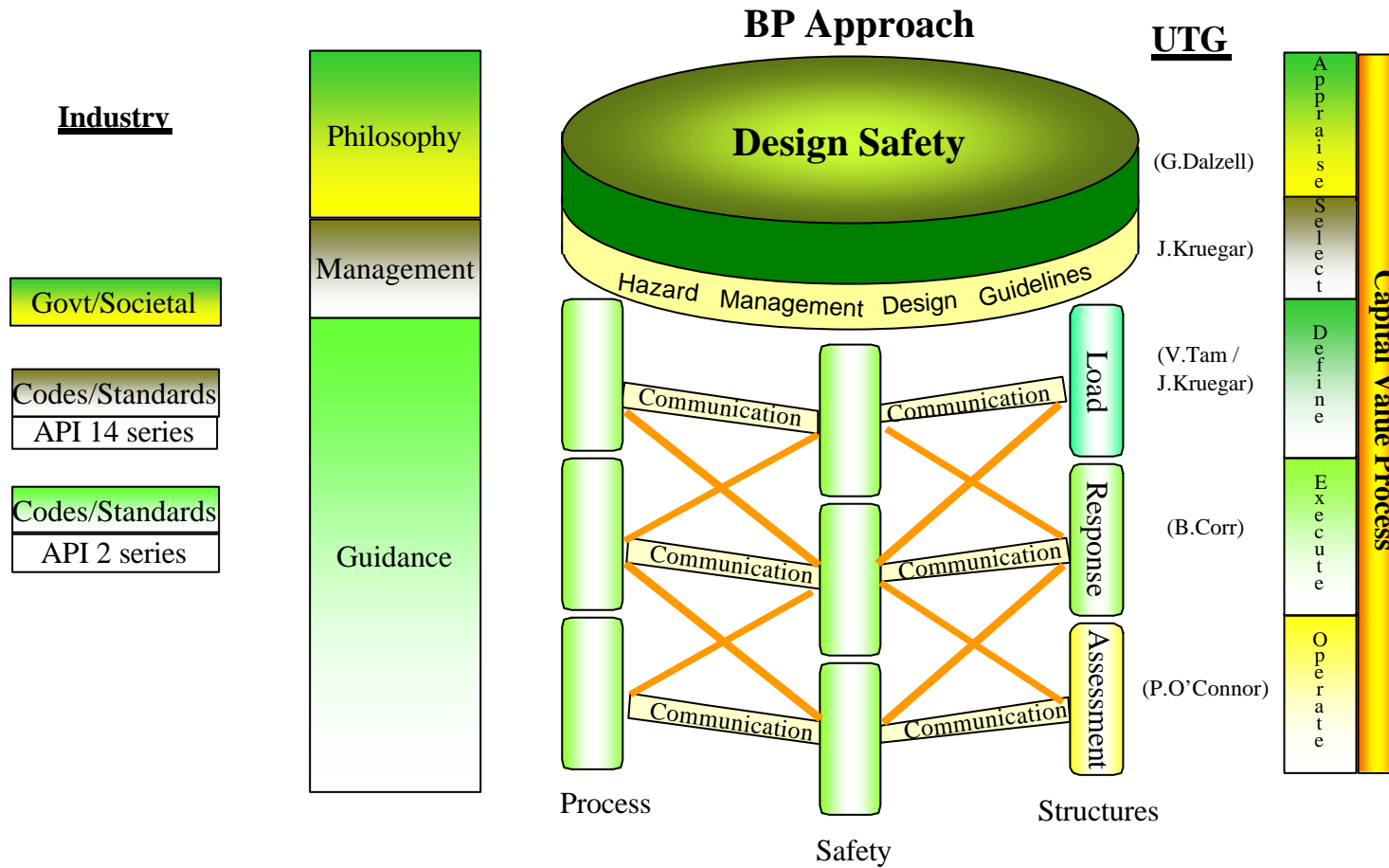
- Web site to be used throughout project
- Will be maintained to publicise current status through project
- Draft texts will be available on site
- Copyright will reside with fireandblast but will be waived (i.e. open copying and referencing)
- All documents will be electronically available

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Other contributions and discussion

Brian Corr, BP

Minaz Lalani, MSL



Objectives

- To provide a forum for Industry to influence future regulations in the G.O.M.
- To identify present day technology in the areas of fire and blast loading and response.
- Compare and contrast Industry design practices as described in codes and standards worldwide.
- To establish best practice as a basis for future regulations

The Workshop will invite representatives from:-

- Operators
- Certifying Authorities
- Regulatory Bodies
- Contractors

- Hazard Management
- Inherent Safety

- Protection – Loading
- Response

