Safety in design: An Australian Offshore Petroleum regulatory perspective

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Regulatory functions

- **Compliance**
  - Monitor and Enforce
  - Investigate

- **Improvement**
  - Promote
  - Advise

- **Governance**
  - Co-operate
  - Report
NOPSEMA’s coverage

• Operations
  – Offshore petroleum operations
  – Offshore greenhouse gas storage operations

• Scope
  – Occupational health and safety at facilities
  – Structural integrity of facilities and wells
  – Environmental management of petroleum activities
NOPSEMA’s jurisdiction

Commonwealth Waters

Western Australia
Northern Territory
South Australia
Queensland
New South Wales
Australian Capital Territory
Victoria
Tasmania

Relevant State/NT Minister or
NOPSEMA where powers conferred
Commonwealth Attorney-General’s website: comlaw.gov.au
Legal framework (OHS)

• A ‘General Duties’ regime

• Performance-based, but with prescriptive elements

• An independent Regulator (NOPSEMA)

• A facility operators safety case is used as a permissioning document, i.e. must be accepted in order to undertake activities.
Validation

Scope of Validation
- Overview of facility/ modification & process for Safety Critical Element (SCE) selection
- Codes & standards for each SCE
- Validator selection process
- Appropriateness of codes and standards
- Deliverables

Validation Statement
- Codes and standards are appropriate
- If codes and standards are applied the facility will incorporate measures to protect Health & Safety
- Consistency with Formal Safety Assessment

Agreed by NOPSEMA

Safety Case Decision-making
Safety case contents

Facility Description
- Activities and Operating Parameters
- General Description (the layout of the facility)
- Machinery and Equipment

Formal Safety Assessment Description
- HAZID

Safety Management System Description
- Scope (Activities)
- Comprehensive and Integrated

Description of Procedural Controls including:
- OHS Risk Management
- Maintenance
- Communication
- Safety Measures
- Emergencies

Identification of Control Measures (Necessary to reduce the level of risk to ALARP)

Monitor, Audit and Review
- Implementation and Improvement of the SMS
- Corrective & Preventative action
- Implemented & Functional?
Reasonable Practicability

Cost to avert

Risk
Early engagement

1. **Operator Registration**
2. **Agree Scope of Validation (SoV)**
3. **Safety Case Submission**
4. **Safety Case Acceptance (commence activities)**
5. **Validation Statement**
6. **Cease Operation**
7. **Decommission**
8. **Submission of Revised Safety Case**
9. **Agree SoV (for modification or decommissioning)**
10. **Proposed change, request by NOPSEMA, or 5-yearly revision**

- **Entry to Regime**
- **Exit Regime**

90 days

30 days

Outdated technical knowledge
Modification/decommissioning
Significant change in overall risk
Significant change in SMS
Different Activities
Different fluid composition in pipeline

Construction/Installation/Operation

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Window of opportunity

Concept Selected

Concept Evaluation

Conceptual Design

FEED

Detailed Design

Overseas Construction

Field Construct & Install

Field activities

Cost to change

Production

Timeline and costs for project development.
• Design notification style scheme:
  – Focus on concept selection & design
  – Required for production facilities
  – Basis for ongoing dialog, transitioning into submission of a safety case
Industry leadership challenge

• Shaping and supporting an organisational culture which embraces and values inherent safety to effectively manage risk, by:
  – Early application;
  – Minimising hazards at their source;
  – Designing out hazards in preference to designing in control measure complexity;
  – Ensuring systems fail safe when things go wrong.
Questions?