Health, Safety and Integrity Regulation

Australian Oil and Gas Law
CMENRL, UWA

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NOPSEMA
9 February 2012
Accident history – still learning!
Occidental
Piper Alpha, UK
July 1988
167 fatalities
BP Texas City Refinery, US
March 2005
15 fatalities
BP Texas City Refinery, US
March 2005
15 fatalities
ONGC
Mumbai High, India
July 2005
22 fatalities
Immediate Cause: Primary cementing integrity failure

Root Cause:
Systemic failure of management systems, non-compliance with operating procedures
Immediate Cause:
Primary cementing integrity failure and BOP

Root Cause:
Systemic failure of management systems, failure to interpret test, no operating procedures

BP, Macondo, 2010
• NOPSEMA
• History of Legislative Change
• Health and Safety Regime
• Safety cases
• Well Integrity and Well Operations Management Plans (WOMPs)
OPGGSA s646: NOPSEMA’s functions

- Monitor & Enforce
  - Investigate
- Promote
  - Advise
- Co-operate
  - Report

- Compliance
- Improvement
- Governance
• **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
• A ‘General Duties’ regime

• Performance-based, but with prescriptive elements

• An independent Safety and Environmental Management Authority

• A duty holder’s management plan, accepted by government is used as a permissioning document:
  - Safety case, well operations management plan, environment plan are required in order to undertake activities
Legislation administered by NOPSEMA

- Schedule 3 to Cth OPGGSA
- OPGGS (Safety) Regulations 2009
- Part 5 of the OPGGS (Resource Management and Administration) Regulations 2011 [Wells regulations]
- OPGGS (Environment) Regulations 2009

Commonwealth Attorney-General’s website: comlaw.gov.au
Extent of NOPSEMA’s jurisdiction

• Offshore petroleum operations:
  – Under the Commonwealth OPGGSA 2006 in Commonwealth waters
  – Conferred on it by the Victorian OPGGSA 2010 in relation to offshore petroleum operations in Victorian designated coastal waters
  – Conferred on it by some other State/Territory PSLAs (Tas & SA) in relation to offshore petroleum operations in the designated coastal waters of that State/Territory
  – Recent changes include removal of health and safety conferral for WA coastal waters
1. OPGGSA

**PETROLEUM ACTS**

2. WA - Petroleum Submerged Lands Act 1982
3. WA - Petroleum & Geothermal Energy Resources Act 1987
4. WA - Petroleum Act 1936

*Note: Internal Waters = Coastal Waters + Internal Waters*

- [ ] Commonwealth Offshore Area
- [ ] Coastal Waters
- [ ] Internal Waters

- [ ] 3 Nm Limit of State Coastal Waters
- ・Baseline
NORTH WEST SHELF PETROLEUM TITLES
COMMONWEALTH WATERS - (PETROLEUM (SUBMERGED LANDS) 1967)
DESIGNATED COASTAL WATERS - (PETROLEUM (SUBMERGED LANDS) 1982)
AND INTERNAL WATERS - (PETROLEUM ACT 1967)

Now OPGGSA 2006
Cost Recovery to fund NOPSEMA

- *Offshore Petroleum and Greenhouse Gas Storage (Regulatory Levies) Act 2003*
- Safety case levy: annual levy payable by operator with safety case for a facility, takes account of type and number of facilities
- Safety investigation Levy: charged when incident investigation costs exceed a threshold
- Annual well levy: payable by titleholder for eligible wells (non-abandoned)
- Well activity levy: submission of WOMP
- Well investigation levy: contravention related to wells with threshold
- Values worked out in accordance with the Regulations
CHANGES TO LEGISLATION
History of change (1)

2003

– P(SL) Amendment Act: established NOPSA, amended OHS provisions to impose operator duties
– disapplied maritime law at facilities

2005

– NOPSA commenced January

2008

– PSLA 67 repealed and OPA 2006 commenced
– OHS inspector powers to search and seize
– clarified disapplication of maritime legislation
– qualified operator specific duties by ‘all reasonably practicable steps’
History of change (2)

2009

- OPA 2006 to OPGGSA 2006
- facilities re-defined to extend to greenhouse gas storage operations
- negligence as the fault element in OHS duties
- addition of titleholder duty (Cl. 13A) responsible for design of facilities
- Ministerial power to initiate a Commission of Inquiry
History of change (3)

2010 - January

– OP (Safety) Regulations 2009 - MoSOF, OHS & Diving Safety Regulations consolidated
– licensed pipelines subject to a Safety Case
– exclusion of some vessels from facility definition

2010 - June

– OP (Safety) Regulations to OPGGS (Safety) Regulations
– safety case for a proposed facility may be submitted without an agreed Scope of Validation (early engagement)
2010 - November

- Extended the Authority’s functions to structural integrity of facilities and wells
- Clarified the titleholder duty (Cl. 13A) to reduce risk from wells to ALARP
- Extended powers of OHS inspectors regarding titleholders

2011 – April

- The authority administers Part 5 of RMAR (Wells Regulations)
  - WOMPs and Applications for Approval to Undertake Well Activities (AAUWAs)
  - Titleholder to control well integrity hazards
Commenced 1 January 2012

- Creation of National Offshore Petroleum Titles Administrator (NOPTA) replaced the Designated Authorities in Commonwealth waters
- Joint Authority (JA) retained as decision-maker for petroleum title decisions
- NOPTA is a branch within RET, administer titles and petroleum data and advise the JA
- NOPSA’s functions (s646) expanded to include environment protection and general administration and is continued in existence as the National Offshore Petroleum Safety and Environmental Authority (NOPSEMA)
- Fully cost recovered from industry levies
Extension of functions

• NOPSEMA functions include monitoring and enforcement strategies to ensure compliance with obligations under the OPGGSA and its regulations – could include compliance with title conditions or field development plans

• Capacity to enter into contracts for regulatory services to other jurisdictions (States or NT for offshore and onshore and foreign countries)

• Provides for States & Territories to confer OHS, structural integrity and environmental functions and powers in designated coastal waters. If any function is conferred, OHS and structural integrity must be conferred together

• Resource Management Regulations added to the listed OHS laws to the extent they relate to OHS matters
• Direction-giving powers under s574 (general) and s586 (remedial) to NOPSEMA.
• Ministerial directions (s574A) related to resource management, resource security and data management and will prevail over NOPSEMA directions, if there is inconsistency
• NOPSEMA administers petroleum safety zones
• NOPSA Advisory Board becomes NOPSEMA Advisory Board with increase in Board membership by one
• 3 year operational review to every 5 years
• NOPSEMA must co-operate with NOPTA regarding administration and enforcement
• NOPSEMA will appoint and deploy petroleum project inspectors (PPIs)
• NOPTA may give directions to a PPI regarding information gathering
• Where a PPI undertakes activities related to a NOPTA function, NOPSEMA costs can be recovered
• Amendment to *Offshore Petroleum and Greenhouse Gas Storage (Regulatory Levies) Act 2003*:  
  – Environment plan levy: on submission of EP and payable by titleholder
• Titles administration levy to fund NOPTA
• Regulations amended:
  – OPGGS (Regulatory Levies) Regulations 2004 amended to establish EP levy amounts
  – OPGGS (Environment) Regulations 2009 amended to replace DA with NOPSEMA
• The OPGGS Amendment (Significant Incident Directions) Bill 2011 before Parliament
• s576B will enable NOPSEMA to direct a titleholder, in the event of a significant offshore petroleum incident (similar to that for Inquiries) that has caused or might cause an escape of petroleum, to:
  – take action (prevent, eliminate, mitigate, manage or remediate) or not to take an action, and
  – may be unconditional or subject to conditions
• The direction may apply either within or outside the titleholder’s title area
• A standing or permanent direction requires JA approval
• If there is inconsistency with s574 or s574A, s576B directions prevail
Montara Col recommendations

- **Civil Penalties R71**: “There should be a review to determine whether it is appropriate to introduce a rigorous civil penalty regime and/or substantially increase some or all of the penalties that can be imposed for breaches of legislative requirements relating to well integrity and safety.”

- **Good Oilfield Practice R68**: “The definition of ‘good oilfield practice’ in the OPGGS Act is unduly narrow. The current definition is incapable of application except where things ‘are generally acceptable as good and safe’. The definition should be amended such that ‘good oilfield practice includes...’.”
## NOPSEMA regime

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<th>General Administration</th>
<th>Environment</th>
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<td>Safety Levy</td>
<td>Well Levy</td>
<td>Reimbursement from NOPTA</td>
<td>Environment Levy</td>
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Performance-based regimes

• Advocated by Robens (1972), recommended by Cullen, Piper Alpha Report (1990)

• Clarity of responsibility – those who create risk at work are responsible for protecting members of the workforce from the consequences

• Sets a safety objective and allows variation in the means of achieving the goal – flexibility with capacity to manage technological change and deliver improved safety outcomes
What does the regulator do?

Challenge the operator

– Assessments – rigorous & targeted
– Inspections – thorough & sampled
– Incident Investigation - depending on severity
– Enforcement - verbal / written and prosecutions
– Provide a level of assurance that facility health, safety, integrity and environmental risks are properly controlled through securing compliance with the OPGGSA
Approach to Decisions

• Independent and Professional
  - Transparent, coherent policies and processes, shared with industry and consistent with the requirements of the regulations, administered by a critical mass of skilled professionals that focus on ensuring dutyholders, and the regulator, comply with their obligations specified in law

• Respect for “due process”
  - Timely and competent decisions based on criteria set out in the regulations
  - Processes outside the regulatory requirements are not created
  - Requirements and interventions by the regulator are not arbitrary

• Certainty for industry and a reduction in regulatory burden

• Ongoing dialogue
Schedule 3 to the OPGGSA

1. Facility definition
2. General duties (from employers to Operators)
3. Workplace arrangements (DWGs, HSRs) at a facility
4. OHS inspections
5. Accident and Dangerous Occurrence reporting
Facility – a broad definition

- Facility: as defined by OPGGSA, Schedule 3, Clause 3 and includes:
  - a facility being constructed or installed
  - an associated offshore place

- Associated offshore place:
  - any offshore place near the facility where activities (including diving activities) relating to construction, operation, maintenance or decommissioning of the facility take place
Vessels and structures undertaking activities

• Clause 4: Vessels/structures being used/prepared for use

• Categories of activities:
  – recovery, processing, storage and offloading of petroleum and injection, storage, compression, processing, pre-injection storage, offloading, monitoring of storage of greenhouse gas
    • Includes any wells, associated plant, equipment used, and any pipes, or secondary lines connected to the facility
  – accommodation, drilling or servicing a well, laying pipes, erection/dismantling
  – licensed pipelines

• Ceases when returned to a navigable form or can be towed
Vessels and structures that are **not** facilities

- Off-take tankers
- Tugboats
- Anchor handlers
- Vessels supplying a facility
- Those excluded by OPGGS (Safety) Regulation 1.6
  - supporting ROVs;
  - supporting diving operations;
  - laying an umbilical or cable;
  - Laying clump weights or rock dumping;
  - Placing support structures; and
  - Undertaking pipe trenching, etc
<table>
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<tr>
<th>Facility Group</th>
<th>Based on Current (2011) data *</th>
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<tbody>
<tr>
<td>Platforms</td>
<td>58</td>
</tr>
<tr>
<td>FPSOs</td>
<td>14</td>
</tr>
<tr>
<td>MODUs</td>
<td>15</td>
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<tr>
<td>Vessels</td>
<td>13</td>
</tr>
<tr>
<td>Pipelines</td>
<td>109</td>
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<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>209</strong></td>
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</table>

*Numbers fluctuate slightly as facilities enter and leave the regime e.g. mobile facilities and inactive facilities*
Clause 9 (1) of Schedule 3

• the operator of a facility must take all reasonably practicable steps to ensure that:
  – the facility is safe and without risk to the health of any person at or near the facility
  – all work and other activities are carried out in a safe manner and without risk to the health of any person at or near the facility
Specific duties of the operator

Clauses 9(2)(a), (b) & (c):
• maintenance of a safe physical environment; facilities for welfare of workforce; plant, equipment, materials and substances that are safe and without risk to health

Clauses 9(2)(d) & (e):
• implementation and maintenance of safe system of work and procedures and equipment for control of emergencies
Dutyholders

- Cl.9: Operator
- Cl.10: Persons in control of parts of a facility or particular work (supervisors)
- Cl.11: Employers
- Cl.12: Manufacturers in relation to plant and substances
- Cl.13: Suppliers of facilities, plant and substances
- Cl.13(a): Titleholders in relation to wells
- Cl.14: Persons erecting facilities or installing plant
- Cl.15: Persons regarding OHS
Recognition that it is not possible to entirely remove all risk. OHS legislation duties qualified by:

– ‘all reasonably practicable steps’;
– ‘reduce so far as is reasonably practicable’;
– ‘reduce to as low as reasonably practicable’ (ALARP)
Schedule 3: Inspections

**Cl.50:** An OHS inspector may, for the purposes of an inspection, at any reasonable time, enter and search a facility

**Cl.51:** An OHS inspector may at any reasonable time, enter any regulated business premises if OHS inspector believes that there are likely to be documents that relate to the inspection

Verification of compliance with general duties and Safety Case for the facility
Schedule 3: Notices

• **Cl.77**: An OHS inspector may issue a Prohibition Notice (PN) to the Operator if they believe there is a need to remove an immediate threat to health or safety

• **Cl.78**: An OHS inspector may issue an Improvement Notice (IN) to the responsible person if they believe that a person:
  – is contravening or has contravened the OHS laws
• **Cl. 82 Accident and Dangerous Occurrences**

• Operators are required to **notify** and to **report**

• Accident: caused harm, death or serious injury

• Dangerous Occurrence: incident that did not cause but could have reasonably caused harm

• Listed incidents including fire, hydrocarbon release

• Reporting to include details as determined by NOPSEMA
SUBORDINATE LEGISLATION: SAFETY CASES
Background to ‘Duty of Care’ Safety Case Regime

Safety Case into UK legislation; CIMAH Regulations. 1984

Flixborough UK 1974
UK Cullen Report 1990
Safety Case regime

• Primarily used to regulate high-hazard industries
  — failures cause large-scale consequences

• Permissioning regime
  — hazardous activities can only be undertaken subject to “permission” from a regulator
  — provides a level of assurance that significant risks will be properly controlled by the operator

• Direct responsibility for the management of safety on facilities is the responsibility of the operator and not the regulator
• Facility (including licensed pipelines) must have a registered operator
• A safety case must be in force (accepted by NOPSEMA) to conduct activities
• Work at a facility must not be contrary to the safety case in force for the facility
• Operators of offshore facilities make a ‘case for safety’ which includes:
  – facility description
  – detailed description of Formal Safety Assessment
  – detailed description of Safety Management System
• Operators must demonstrate that they have taken all the steps necessary to reduce risks ALARP
• 9 safety measure requirements:
  e.g. Standards, command structure, competency, PTW

• 7 emergency response measure requirements:
  e.g. EERA, FERA, communication, emergency preparedness
Operators need to address the requirements, for example:

- *Specify* the command structure for the facility and responsibility for safe operation and what applies in the event of an emergency; and

- *Describe* the means by which each member of the workforce has the skills, training and ability to undertake routine and non-routine tasks
• The Safety Authority **must** accept a safety case if:
  
  – The safety case is **appropriate** to the facility and to the activities conducted at the facility; and

  – The safety case complies with contents and any validation requirements
• Validation may be required for a facility by NOPSEMA as part of the safety case assessment process
• A scope of validation must be agreed with NOPSEMA
• Validation is included within safety case acceptance criteria
• Independent confirmation that appropriate standards have been selected and applied for the design, construction and installation of an agreed set of structures, equipment and systems
• Validation in this context does not include such steps as CFT typical of verification protocols
Standards in the Regime

- Standards applied must be listed in the safety case [OPGGS(S) 2.7] and the operator must comply with these standards [OPGGS(S) 2.45]
- Performance standards must be specified (e.g. OPGGS(S) 2.5(3) – for the SMS & OPGGS(S) 2.20(2) for emergency preparedness)
- Standards can also take the form of prescriptive requirements embedded in the legislation which describe how to achieve a desired outcome, e.g. development of an OHS policy
- Standards can be called up directly by the regulations e.g. hazardous substances and noise exposure standards [OPGGS(S) 3.4 and 3.5]
• Prescribes OHS such as fatigue, control of drugs, prohibits or limits exposure to certain hazardous substances and to noise
• Elections of Health and Safety Representatives (HSRs)
• Specifies the form of notices: do not disturb, prohibition notice, improvement notice
• Lists laws that do not apply
• No diving without an accepted Diving Safety Management System (DSMS)

• No diving without a Diving Project Plan (DPP) approved by the Operator or accepted by NOPSA

• Diving supervisors must be qualified under the Australian Diver Accreditation Scheme (ADAS)
Part 5 of RMAR – Well Integrity (1)

- Performance-based regime that requires the titleholder to control well integrity hazards or risks where integrity means:
  - under control in accordance with an accepted WOMP
  - able to contain reservoir fluids
  - subject only to risks that have been reduced to a level that is as low as reasonably practicable

- Risks managed in accordance with sound engineering principles, standards, specifications and good oil field practice
• NOPSEMA decides:
  – WOMP acceptance/rejection
  – individual well activities approval / rejection
• Integrity definition includes that the well is subject only to risks have been reduced to a level that is as low as reasonably practicable
• Part 5 is a listed OHS law => NOPSEMA powers apply
• Accepted WOMP
• Undertake activities in accordance with accepted WOMP
• Approval of applications for specific well activities that change well bore
• Control well integrity hazard or risk
Accidents are still occurring...

Shell announces worst oil spill in a decade. Up to 40,000 barrels of crude oil was spilled on Wednesday while it was transferred from a floating oil platform to a tanker 75 miles off the coast of the Niger delta....

22 Dec 2011
The Bonga field.
Spill ~ 70 km long.

17 Jan 2012
The KS Endeavor jack-up rig on fire at the Funiwa field in Nigeria. 2 people missing.
Photograph: Chevron
THANK YOU