A Regulatory Perspective on Human Factors

Joelle Mitchell
Technical Officer – Human Factors
Outline

• What is NOPSEMA’s role?
• How do we define Human Factors?
• What is NOPSEMA’s approach?
• What can duty-holders expect?
NOPSEMA's role in Safety Performance Improvement
A History of Human Error

- Costa Concordia
- Deepwater Horizon
- Montara
- Texas City
- Columbia
- Glenbrook Train
- Longford
- Piper Alpha

- Kings Cross Fire
- Chernobyl
- Challenger
- Exxon Valdez
- Three Mile Island
- West Gate Bridge
- Titanic
Human Error in Australian Offshore Petroleum

- Human Factors identified as a causal factor:
  - in **nine out of ten** notified accidents and dangerous occurrences
  - in **100%** of actual or potential deaths and serious injuries

- Possible interpretations:
  - inaccurate reporting
  - blame-focused investigations
  - **human factors are critical to safe operations**
So What?

• If Human Factors contribute to accidents and dangerous occurrences...

• ...then regulator activity must address human as well as technical factors
Regulators

• NOPSEMA’s functions¹:
  – Compliance
  – Improvement
  – Governance

Duty Holders – Operators and Employers

- Provide and maintain a physical environment that is safe and without health risk
- Implement and maintain safe systems of work
- Provide information, instruction, training and supervision
Defining Human Factors
“Failure of a Planned Action to Achieve a Desired Outcome”

- Plan
  - Adequate
  - Inadequate

- Action
  - Unintentional
  - Intentional

Desire
Human Reliability

Humans are inherently unreliable
- 1 error per 100 steps for procedure-based tasks
- 1 error per 10 steps for critical alarm diagnosis and response

What influences human reliability?
Human Factors

• Individual
  – Personality
  – Competence and skill
  – Mood

• Job
  – Human-machine interface
  – Workload
  – Procedures
  – Task requirements

• Organisational
  – Culture
  – Resource Availability
  – Communication Systems
  – Supervisor Commitment
An Interaction

Organisational

Individual ↔ Job
Model of Human Factors

Organisation

Individual

Job

Human Reliability

Safe Performance

Human Error

Event

Near Miss
NOPSEMA’s Human Factors Definition

• The ways in which the organisation, the job, and the individual interact to influence human reliability in major accident event causation in the offshore petroleum industry.
A Series of National Programs
NOPSEMA’s Functions

Compliance
- Monitor & Enforce
- Investigate

Improvement
- Promote
- Advise

Governance
- Co-ordinate
- Report
## NOPSEMA’s Approach to Human Factors

<table>
<thead>
<tr>
<th>Compliance</th>
<th>Improvement</th>
<th>Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection Tools</td>
<td>Industry Research</td>
<td>Inter-Agency Reporting</td>
</tr>
<tr>
<td>Inspection Reports</td>
<td>Guidance and Advice</td>
<td></td>
</tr>
</tbody>
</table>
Promoting Human Factors

• Human Factors ‘Modules’, e.g.:
  – Safety Culture
  – Human Reliability in Risk Assessments
  – Psychosocial Risk Management

• Successive National Programs
  – Inspections
  – Industry Research
  – Guidance
Module 1 - Safety Culture

• Project Outline:
  – Defining Safety Culture
  – Tool development
  – Tool validation
  – Implementation
  – Results

• Project Launch
  – Coming soon...
What can Duty Holders Expect?
Duty Holders – Operators and Employers

Provide and maintain a physical environment that is safe and without health risk

Implement and maintain safe systems of work

Provide information, instruction, training and supervision
NOPSEMA’s Activities

• During inspections:
  – Increased focus on human factors
  – Participation in research
  – Human Factors specialists

• Guidance and Advice
  – Access to research findings
  – Published materials
  – Forums, conferences, etc.
Outline

• What is NOPSEMA’s role?
• How do we define Human Factors?
• What is NOPSEMA’s approach?
• What can duty-holders expect?
Key Messages

• Human Factors are important

• Individual, Job, and Organisational interaction

• NOPSEMA will be focusing on Human Factors in Major Accident Event prevention