Good afternoon

Formal Safety Assessment

Some early experiences

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Introduction

Purpose of today

- Keep FSA fresh
- Share experiences
- Identify good/best practice
- Discuss areas for development

Background to FSA

Nuclear, chemical and offshore industries, 60s 70s 80s
UK House of Lords, Lord Carver, 1992
MSC 62, FSA proposals, 1993
MSC 68 Interim Guidelines, 1997
MSC Circ 1023, April 2002, FSA Guidelines

Jim Peachey
Introduction

FSA: Being recognised as useful tool for IMO

Today’s purpose:
   Stimulate dissemination, understanding, improvement

In light of experience to date:
   Selecting topics for FSA studies
   Ensuring relevant data is available
   Addressing the human element
   Considering stakeholder roles / influence
   Setting risk acceptance criteria
   IMO process for dealing with FSAs
   Collating good / best practice

Jim Peachey
Issues arising from the application of FSA

Treatment of Uncertainty

Many casualty records do not show clear cause of the casualties.
Uncertainty analysis is necessary in STEP 2.
This uncertainty also affects STEP 4: Cost Benefit Analysis.
(Reference MSC76/INF.17)

Indices of Cost Benefit Analysis (CBA)

Consideration to Stakeholders for cost and/or benefit
Calculation of Cost and Benefit for combined RCO
(Reference MSC76/5/12)

Koichi Yoshida
Purpose of FSA

- Supportive tool for rule-making at IMO with the intention
  - to make the decision process at IMO more rational, reduce ad-hoc proposals and implementations
  - to provide a proactive and holistic approach, comprising technical as well as human & operational aspects

- Generate and achieve information in a way which is:
  - systematic, objective, comprehensive, auditable, documented, transparent, accountable

- Demonstrate that
  - suitable up-to-date techniques have been applied
  - sufficient efforts have been made to identify hazards and manage the associated risk

Rolf Skjong
FSA and Challenges

• Where data lacks, qualitative assessments through expert judgement is unavoidable
• Confidence in achieved results highly depends on:
  – the confidence in the experts, i.e. their qualification and competence, and
  – the effectiveness of assessment procedures
• However, uncertainties will be revealed and documented, rather than suppressed
• With proper training and understanding an FSA is very transparent

Rolf Skjong
Challenges

- IMO is not the place to suggest new scientific methods
  - Use the guidelines or suggest amendments
  - Do not use methods that have been proposed and not accepted
- New scientific methods may be included in Guidelines if accepted in the scientific community
- Competence on reviewing FSAs needs to be improved
- Review process must not be used to delay decisions
- Everything dependent. Need to learn how to split up FSA studies into manageable part projects

- How do you eat an elephant?
  - Bite by bite
  - May be more complicated in an FSA (by function, by operation, etc.)

Rolf Skjong
Need to review future FSAs

FSA study Results → Consideration by IMO

Review ?

Yes

Correspondence or Working Group established for review

• Open to all Members
• Participation voluntarily
• Must be independent and not have been involved in FSA study

No

Using Results for decision making

• Verification of results
• FSA methodology applied correctly?
• Scenarios applied appropriate?
• Assumptions made appropriate?
• Risk and RCOs evaluated properly?
• Study transparent, comprehensive?
Main Challenges

- General need for training
- Review by experts prior to decision is a must!
- Agreeing on acceptance criteria, or at least on the decision parameters would help
- Use standard techniques from QRA
- Use also available probabilistic models (Structural Reliability, Probabilistic Damage Stability)

Rolf Skjong
Utility of FSA

Excellent aid to decision-making
Evolutionary
Bespoke within guidelines
Short and sweet / long and complex continuum
SAR prevention effort
Monitoring Classification Societies
Ship inspection model

Keith Tatman
Panel discussion and questions

What are the most difficult elements of FSA? How can these difficulties be overcome? What common issues emerge from the FSAs completed to date? What FSA method improvements are suggested by studies to date? What other national FSA studies are underway and what results are emerging? Need for IMO correspondence or working group?