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Revised method for reviewing Human Factors in the design of CCR`S

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Human Factors Solutions - Norway
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- **Idea**
  - ABB – NPD – Safetec

- **Concept**
  - Super Eva – Kristin

- **Detailed**
  - Grane – Balder – West Future II

- **Operation**
  - Jotun A

- **Modification**
  - Eldfisk – Petrojarl – MMI-2

- **V & V**
  - Kristin – Kvitebjørn – Oseberg C
ABBREVIATIONS

MMI-1


MMI-2

Revision of "A method for reviewing Human Factors in Control Centre Design”, NPD October 2002
HFW 2002 GOALS

- MMI-2 - October 2002
- Share experience - MMI -1
- Gain YOUR experience - reviewing HF in CCR design
AGENDA

MMI-1
Background
Goals
Preliminary results

MMI-2
Goals
Project plan
Preliminary requirements
Preliminary Concepts

ISSUES
BACKGROUND MMI -1 - NPD - AUDITS

• Too many alarms
• New functions in CCR
• Increased complexity and demand on staff
• New technology challenges established safety philosophy
• Reduced manning in CCR
• Remote control - onshore

Illustration: Courtesy of Maritime Hydraulics, Norway
Consoles

- Space for paper, pens
- Location - contrast
- Large fixed keyboards
- Not adjustable
Alarm systems

- No philosophy
- Alarm list
- Too many
- Inconsistent
- No priority
- No grouping
- Incomprehensible
Navigation

- Inconsistent
- Difficult - hierarchical
- Remember screen nr.
- Limited search functions
Colour /graphics

- Grå
- Rød
- Blå
- Grønn
- Orange
- Gult
- Hvit

Like farver - Mørkt på mørkt
Komplimentær farver - Lyst på lyst

Mønstret bakgrunn
CCR Layout

Working surface

Radio
Support system

Process

Marine

Fax

Environmental data

Barometer

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GOALS MMI-1

Goals: Provide NPD & industry with common basis for:
- safe working practices in CCR
- acceptable total workload in CCR
- reduction - human error
- structured HF methods
- evaluation of solutions vs regulations

Product: Systematic CCR audit tool (design - mod -incidents)

Users & Use: Authority - revision, incidents

Industry - management, planing, development
revision, updates, modification

Based on: ISO 11064 structure and requirements
Introduction

Information sources

Review guidance

167 pages in English
GOALS MMI-2

As for MMI -1

Revise and update, simplify and improve
DELIVERABLES MMI-2

1. Revision - Norwegian and English
2. Presentation material - MMI-2
3. Project plan - other cabins
PROJECT PLAN MMI-2

1. Clarify goals, requirements and specification
2. Interview stakeholders
3. Observe use/audit of MMI-1
4. Test use of MMI-1
5. Review alternative methods, standards etc.
6. Develop and test concepts
7. - Develop MMI-2
   - Presentation material
   - Project plan for other cabins
PRELIMINARY RESULTS - MMI 1

+ Systematic / useful
  Professional content
  Checklists useful
  Puts HF on map

-- Not easy to use / Too large
  Where to start ?
  Iterative process unclear
  Not related to oil industry
  No change - human error
PRELIMINARY REQUIREMENTS 1/2

TECHNICAL CONTENTS

- Reduce volume - BUT more examples, checklists, guidance!
- Simplify / userfriendly - navigation
- Process vs results based?
- Audit tool / design guide?
- Add Human Error Assessment, HCI, Alarm Philosophy, +++
- MMI-2 - tool to get 1 answer from 10 different operators
PRELIMINARY REQUIREMENTS 2/2

ORGANISATION

• Experience transfer first
• Merge chapters
• Emphasize iteration
• Separate parts: Users

INTRODUCTION MMI-2

• Involve industry: (Ref. group)
• Overview & detailed workshops
Preliminary Concepts

Organisation

- Requirements
- Regulations
- Topic
- Design process
- Users
- Examples

Combinations Etc.

Picture book / Design guide / Revision tool
DATABASE

1. Was a system developed that can assure the CCR operators are updated concerning relevant regulations and standards?
   - [ ] Documented
   - [x] Unknown
   - [ ] Not documented

Simplified Checkmarks:
- SHALL
- SHOULD
- MAY
- CAN
ISSUES

• Who should ”own” HF / MMI -2 ?

• How should HF requirements be presented? (process, performance criteria, detailed specs.)

• Your experience with ISO 11064 ?

• Your experience reviewing Human Factors in CCR design procesess?