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

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

Adam Balfour
Human Factors Solutions - Norway
Human Factors Solutions - Norway

- 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

1. _____________
2. _____________
3. _____________

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

Like farver
Mørkt på mørkt
Komplimentær farver
Lyset på lyset

Mønstret bakgrunn
CCR Layout

- Working surface
- Radio
- Support system
- Process
- Marine
- Fax
- Environmental data
- Barometer
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, planning, development
revision, updates, modification

Based on: ISO 11064 structure and requirements
MMI 1 = ISO 11064 +

- Introduction
- Information sources
- Review guidance
- Audit questions
- 167 pages in English
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
<table>
<thead>
<tr>
<th><strong>PRELIMINARY RESULTS - MMI 1</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>+</strong></td>
</tr>
<tr>
<td>Systematic / useful</td>
</tr>
<tr>
<td>Professional content</td>
</tr>
<tr>
<td>Checklists useful</td>
</tr>
<tr>
<td>Puts HF on map</td>
</tr>
<tr>
<td><strong>--</strong></td>
</tr>
<tr>
<td>Not easy to use / Too large</td>
</tr>
<tr>
<td>Where to start ?</td>
</tr>
<tr>
<td>Iterative process unclear</td>
</tr>
<tr>
<td>Not related to oil industry</td>
</tr>
<tr>
<td>No change - human error</td>
</tr>
</tbody>
</table>
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 / Designguide / Revision tool
DATABASE

1. Was a system developed that can assure the CCR operators are updated concerning relevant regulations and standards?

- ✓ Documented
- □ Unknown
- □ Not documented
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 process?