2002

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

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Human Factors Solutions

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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

ISSUES

1. _____________
2. _____________
3. _____________
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
Red
Grun
Orange
Komplementær farver
Lyset på lys

Grå
Blå
Gult
Hvitt
Mørkt på mørkt
Lyset på lys

Mønstret bakgrunn

Mønstret bakgrunn
CCR Layout
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
MMI 1 = ISO 11064 +

- Introduction
- Information sources
- Review guidance
- Audit questions
- 167 pages in English
MMI-2
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
<table>
<thead>
<tr>
<th><strong>+</strong></th>
<th><strong>--</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic / useful</td>
<td>Not easy to use / Too large</td>
</tr>
<tr>
<td>Professional content</td>
<td>Where to start ?</td>
</tr>
<tr>
<td>Checklists useful</td>
<td>Iterative process unclear</td>
</tr>
<tr>
<td>Puts HF on map</td>
<td>Not related to oil industry</td>
</tr>
<tr>
<td></td>
<td>No change - human error</td>
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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.
### DATABASE

<table>
<thead>
<tr>
<th>CHECKLIST</th>
<th>GUIDE</th>
<th>REGULATIONS</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was a system developed that can assure the CCR operators are updated concerning relevant regulations and standards?</td>
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<td>Not documented</td>
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</tbody>
</table>

- **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 process?