Risk Management

Improving DP Operational Reliability through Application of the IMCA FMEA Management Guide

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Purpose of Presentation

- Background
- History
- Incidents
- Development of the IMCA Guide
- Using the FMEA Management Guide
- Example
- Conclusions
Background

- Origins of Dynamic Positioning in USA
- Oil majors developing DP
- Commercialisation in Europe
- Oil majors auditing DSVs
- Need for structured approach
Example

- MSV Stadive was a learning curve
- No structured format available
- No regulations
- No classification society guidance
- FMEA trials developed in-house
- Incidents occurred over initial operating period
History

- UKOOA Diving Committee
- DPVOA
- IMCA (construction vessels)
- MTS (drilling rigs and ships)
Annual DP Trial Concept

- More auditors chasing less work
- Same auditor often performed successive audits
- Vessel’s crew had less failure mode experience
- Audit became a routine task to be got out of the way
- DP Conferences for some years have been warning of deficiencies
Recent Incidents

• Three incidents in the North Sea in 2002
• No injuries or fatalities, but with potential
• SIGNIFICANTLY THEY WERE REPORTED
• UK Health, Safety & Environment Agency acted
• Joint HSE/DNV report on the incidents
• Lessons learned and weaknesses addressed
• Industry took note and acted through IMCA
Development of the IMCA Guide

- Many in the industry are not surprised
- IMCA looked at guidance and commissioned new guidance
- Not MORE guidance but CLEARER guidance - directed
- Initial consultation process with users
- Management Guidance - short and CONCISE
- Assistance to DP Vessel Operating Company Managers
FMEA Management Guide Structure

• Purpose of Guide
• Initial FMEA Management - Flowsheet
• Specifying an FMEA - Flowsheet
• Verifying an FMEA - Flowsheet
• Updating an FMEA - Flowsheet
So you need a DP Vessel FMEA?
(See Sections 2.1 & 2.2)

New

New or Existing Vessel?

No

Is There a Detailed Design?

Yes

Develop FMEA Design and Philosophy

Specify an FMEA
See Flowsheet 2 & See Section 2.4

Is There an FMEA?

No

Verify FMEA
See Flowsheet 3 & See Section 2.7

Yes

Specify an FMEA
See Flowsheet 2 & See Section 2.4

Is There an FMEA?

No

Owner to Specify the FMEA
Charterer to Verify the FMEA See Flowsheets 2 & 3 & See Sections 2.4 & 2.7

Third Party

Yes

Owner Ship or Third Party?

Third Party

Return to Session Director
Use of Flowsheets and Guidance

• Specifying an FMEA - Flowsheet
• Verifying an FMEA - Flowsheet
• Updating an FMEA - Flowsheet
• Guidance Notes
• Use of Existing Guidance Documents
• Change Control Procedure
Using the FMEA Management Guide

• Reacting to a DP incident or a Routine Review?
• Assessing the state of the FMEA
• Justifying the workscope required
• Ensuring the process is thorough
• Finding the right FMEA practitioners
Gap Analysis Technique

• Reviewing the existing FMEA
• Comparing contents with a standard checklist
• Guidance for updating the existing FMEA
Crew Familiarity and Experience

- Lack of a correct FMEA and regular trials
- Vital that crew are familiar with FMEA contents
- FMEA should be a valuable source of information
- FMEA trials should be understood and experienced by crew
- Engineers need to work as team
- Bridge and engine room teams should work together
- Need to understand each others problems
Conclusions

- A high quality FMEA document is a key factor
- Bring DP FMEA auditing skills up to date
- Maintain a discipline in the FMEA review
- Ensure the FMEA is part of the ISM process
- Adopt a change control procedure

Don’t just leave it on the shelf!