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Risk Management

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

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Group Company

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Purpose of Presentation

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



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Background

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

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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



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History

- UKOOA Diving Committee
- DPVOA
- IMCA (construction vessels)
- MTS (drilling rigs and ships)

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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



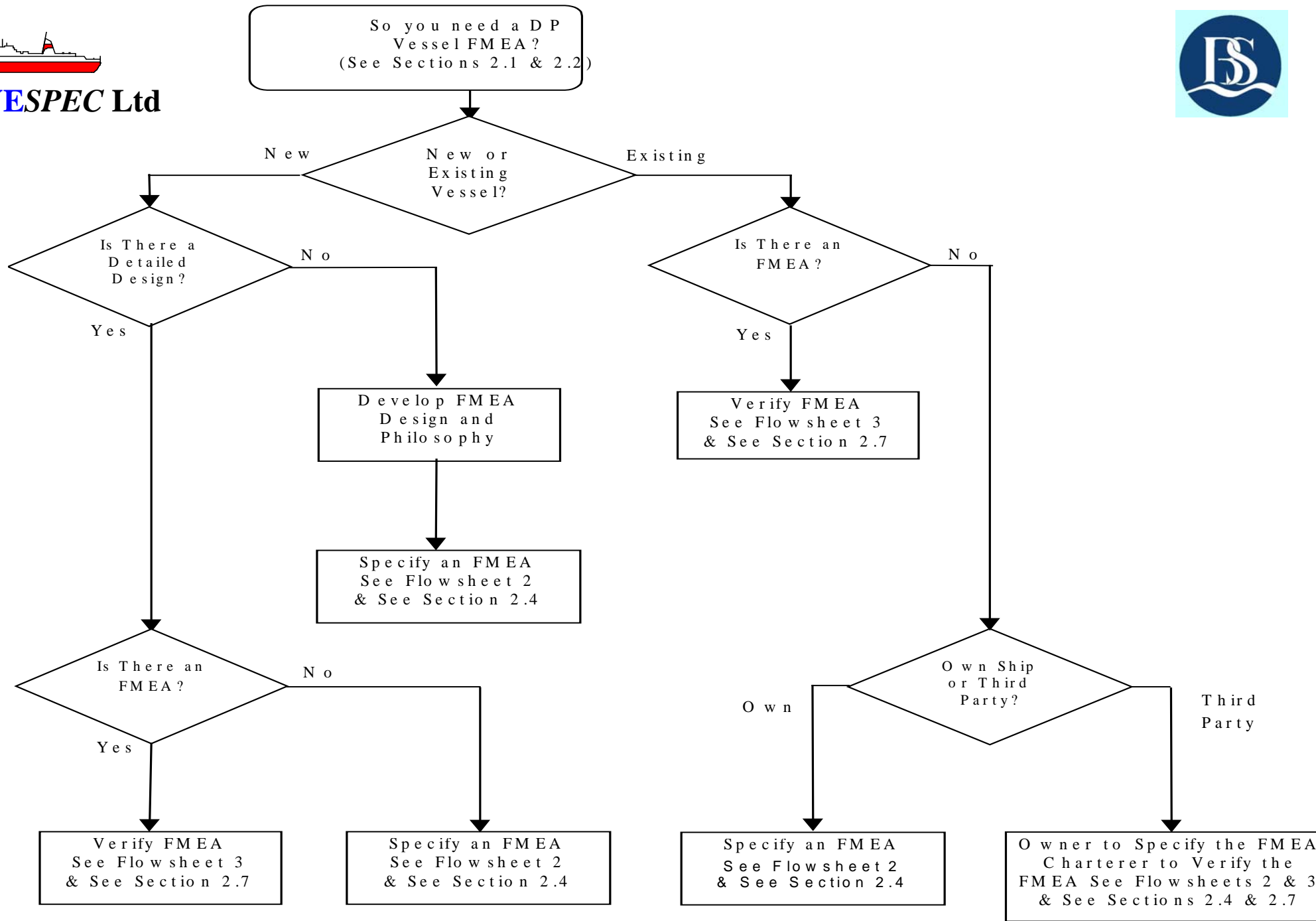
Development of the IMCA Guide

- 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





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!