

SMS MANUAL 2015

Bourbon Offshore Surf

SMS Contents 3

BOS-DRT-11.900002	SMS Contents	3

SMS Introduction 7

BOS-SPC-11.900000	SMS Introduction	7
BOS-FRM-11.900001	SMS Acknowledgment Form	18

Section 1: Management, Leadership and Accountability 19

BOS-MNL-01.900100	SMS Section 1 – Management, Leadership and Accountability	19
B-VIS-01.01	BOURBON Charter	23
B-POL-01.0002	Quality Policy	24
B-POL-01.0003	Stop Work Policy	25
B-POL-01.0004	Health and Safety Policy	26
B-POL-01.0005	Environment Policy	27
B-POL-01.0006	Drug and Alcohol Policy	28
B-POL-01.0007	Smoking Policy	29
B-POL-01.0008	Anti-Harassment Policy	30
B-POL-01.0009	Equal Opportunities Policy	31
B-POL-01.0014	Crewing Policy	32
B-POL-01.0015	Security Policy	33
B-POL-01.0018	Maintenance Policy	34
B-POL-01.0028	BOURBON Supplier Code of Conduct	35
B-POL-01.0033	Fuel Management Policy	37
B-POL-01.0034	Compliance and Ethics Policy	38
B-POL-01.0035	Clear Deck Policy	39
BOS-POL-01.0001	BOS Yearly Management Statement (check SMS Vessel Filling System, check BOS-DRT-11.0003)	
BOS-POL-01.0010	BOS Fishing Policy	40
BOS-PRD-01.900101	Management Responsibility	41
B-CHR-01.0001	BOURBON Organisation Chart	69
B-CHR-1201.0004	Customer Focus	70
BOS-PRD-11.900101	Vessel Documentation	71

Section 2: Personnel Management 83

BOS-MNL-02.900200	SMS Section 2 – Personnel Management	83
BOS-PRD-0203.900201	Management of Shore Based Personnel	87

Section 3: Management of Vessel Personnel 95

BOS-MNL-02.900300	SMS Section 3 – Management of Vessel Personnel	95
BOS-PRD-2603.900301	Crew Management	99
BOS-PRD-0204.900302	Competence and Training	122

Section 4: Reliability and Maintenance Standards 139

BOS-MNL-2601.900400	SMS Section 4 – Reliability and Maintenance Standards	139
BOS-PRD-2601.900401	Reliability and Maintenance Procedure	143
BOS-PRD-2601.900402	Planned Maintenance Period Management Procedure	164
BOS-PRD-2602.900401	Purchasing and Supply Chain Procedure	182

Section 5: Navigational Safety 197

BOS-MNL-07.900500	SMS Section 5 – Navigational Safety	197
BOS-PRD-07.900501	Standing Orders	201
BOS-PRD-07.900502	Navigation and Watch Keeping	210
BOS-PRD-07.900503	Passage Planning and Manoeuvring	227
BOS-PRD-07.900504	Navigation at Offshore Locations	240
BOS-PRD-07.900505	Navigation Standards and Equipment	252

Section 6: Operations and Contract Management 263

BOS-MNL-07.900600	SMS Section 6 – Operations and Contract Management	263
BOS-PRD-07.900608	Managing Contractors and Third Parties	267
BOS-PRD-07.900601	Vessel Stability	279
BOS-PRD-07.900602	Cargo Operations	292
BOS-PRD-03.900601	Cargo and Hazardous Materials	309
BOS-PRD-07.900603	Bunkering Operations	327
BOS-PRD-07.900604	Lifting and Hoisting Operations	335
BOS-PRD-07.900605	Personnel Transfer Operations	355
BOS-PRD-07.900606	DP Operations	369
BOS-PRD-07.900609	Methanol Operations	380
BOS-PRD-07.900607	Mooring Operations	395
BOS-PRD-03. 900603	Tank Cleaning Operations	414
BOS-PRD-07.900610	Helicopter Operations procedure	423
BOS-PRD-07.900611	Helicopter Winching and Hoisting procedure	445

Section 7: Management of Change 455

BOS-MNL-06.900700	SMS Section 7 – Management of Change	455
BOS-PRD-06.900701	Management of Change	459

Section 8: Incident Investigation and Analysis 481

BOS-MNL-03.900800	SMS Section 8 – Incident Investigation and Analysis	481
BOS-PRD-0302.900801	Incident Reporting, Investigation and Management	485
B-FRM-03.0004	Incident Report (excel form, check SMS Vessel Filling System, check BOS-DRT-11.0003)	

Section 9: Safety Management 507

BOS-MNL-03.900900	SMS Section 9 – Safety Management	507
BOS-PRD-03.900901	Job Safety Analysis	511
BOS-PRD-03.900902	Permit To Work	525
BOS-PRD-03.900903	HSE Meetings	542
BOS-PRD-03.900904	B Safe Hazard Observation and Hazard Hunt	549
BOS-PRD-03.900905	Personal Protective Equipment	560
BOS-PRD-03.900906	Personal Safety	571
BOS-PRD-03.900907	Dangers of Hydrogen Sulphide (H2S)	589
BOS-PRD-0304.900901	Health	596
BOS-PRD-0304.900902	Hygiene	611
BOS-PRD-0304.900903	Hazardous Substances	629
B-FRM-03.0005	Specific Job Safety Analysis (S-JSA) (check SMS Vessel Filling System, check BOS-DRT-11.0003)	

Section 10: Environmental Management 639

BOS-MNL-03.901000	SMS Section 10 – Environmental Management	639
BOS-PRD-0303.901001	Environmental Management	644
BOS-PRD-07.901001	Fuel Management and Reporting	665

Section 11: Emergency and Contingency 673

BOS-MNL-03.901100	SMS Section 11 – Emergency and Contingency	673
BOS-PRD-0301.901101	Emergency and Contingency	677
BOS-PRD-15.901101	Ship Security	691

Section 12: Measurement, Analysis and Improvement 701

BOS-MNL-12.901200	SMS Section 12 – Measurement, Analysis and Improvement	701
BOS-PRD-1202.901201	SMS Measurement and Analysis	705
BOS-PRD-1201.901201	Corrective Action	722
BOS-PRD-1201.901202	Preventive Action	735
B-FRM-1202-0009	Description of Non-Conformities and Observations (Ship Manager use)	
B-FRM-1202.0019	Management Vessel Visit Check-List (Ship Manager use)	

SMS
Introduction

BOS-SPC-11.900000-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Safety Management System Approval 3

2 BOURBON OSM Philosophy 4

3 BOURBON OSM Golden Rules 5

4 BOURBON Charts and Policies 6

4.1 Corporate policies 6

4.2 B.O.S. policies 6

5 Masters overriding authority 7

5.1 Skills and Competence 7

6 ISM Code/SMS Reference 8

8

1 Safety Management System Approval

The Safety Management System (SMS) is under ownership of each Affiliate Organisation (Company) and forms part of the BOURBON Quality Management System (QMS.). The SMS is approved and updated in accordance with the best practices of Quality Management Principals and the requirements of the QMS.

This specification describes the structure of the SMS. The Affiliate QHSE Manager has the authority, responsibility and accountability to request applicable BOURBON Process Owners to develop documents that *shall* meet the requirements of the *OSM Guidelines*.

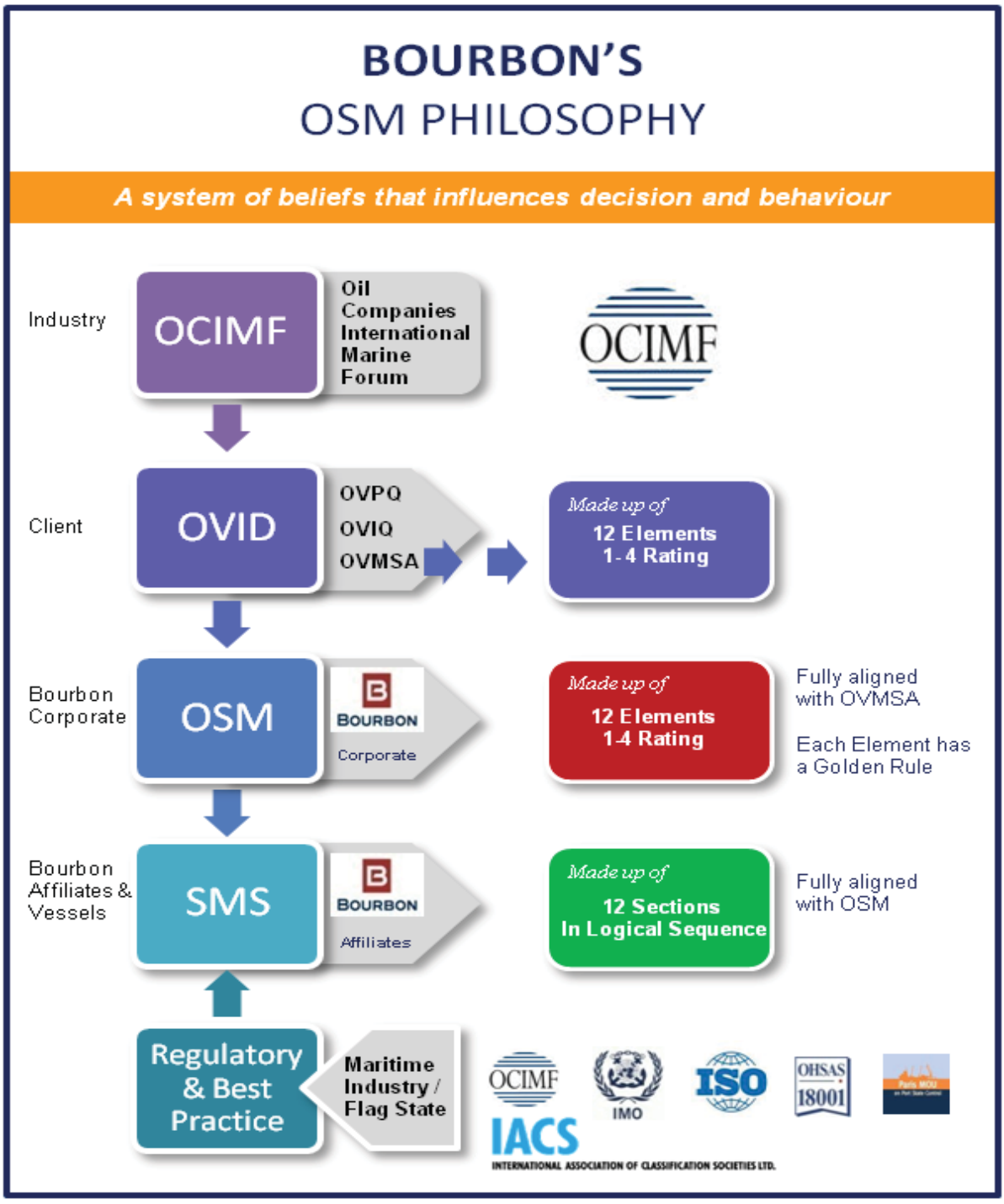
BOURBON policies issued by Corporate Organisation *shall* be applicable at the Affiliate Organisation level and *shall* form an integral part of this Safety Management System.

SMS Support Documentation:

- Corporate policies;
- Affiliate policies;
- B-GDL-03.0007 – OSM Guidelines;
- B-CHR-1201.0012 – The Management Systems in the QMS;
- BOURBON QMS Site: http://intranet.bourbon-online.com/QMS/Processes/Pages/default.aspx
- B-GDL-11.0001 – Document Control Guidelines;
- Affiliate Safety Management System (SMS);
- Affiliate SMS documentation (manuals, procedures, instructions, memos…);
- Affiliate Head Office and Vessels Specifics Manuals;
- Affiliate Head Office and Vessels Contingency and Emergency Response plans (if applicable);
- Industry Best practices and guidelines as referenced throughout the SMS.

9

2 BOURBON OSM Philosophy



10

3 BOURBON OSM Golden Rules

1. **LEAD BY EXAMPLE**
   OSM Driver: Management, Leadership and Accountability

2. **DEVELOP EXPERIENCE AND COMPETENCE**
   OSM Driver: Recruitment and management of shore based-personnel

3. **MAINTAIN COMPLIANCE TO STANDARDS**
   OSM Driver: Recruitment and management of vessel personnel

4. **MAINTENANCE FOR RELIABILITY - RELIABILITY FOR SAFETY**
   OSM Driver: Reliability and maintenance standards

5. **PLAN AHEAD - STAY VIGILANT**
   OSM Driver: Navigational safety

6. **IF IT IS NOT SAFE - STOP WORK**
   OSM Driver: Offshore operations

7. **CHANGE NEEDS TO BE ASSESSED**
   OSM Driver: Management of change

8. **EFFECTIVE INVESTIGATION PREVENTS REOCCURRENCE**
   OSM Driver: Incident investigation and analysis

9. **ACCIDENTS ARE PREVENTABLE**
   OSM Driver: Safety management

10. **RESPECT AND PROTECT THE ENVIRONMENT**
    OSM Driver: Environmental Management

11. **PREPARE FOR THE UNEXPECTED**
    OSM Driver: Emergency preparedness and contingency planning

12. **YOU CAN'T MANAGE WHAT YOU DON'T MEASURE**
    OSM Driver: Measurement, analysis and improvement

11

4 BOURBON Charts and Policies

4.1 Corporate policies

B-VIS-01.01 – BOURBON Charter
B-POL-01.0002 – Quality Policy
B-POL-01.0003 – Stop Work Policy
B-POL-01.0004 – Health and Safety Policy
B-POL-01.0005 – Environment Policy
B-POL-01.0006 – Drug and Alcohol Policy
B-POL-01.0007 – Smoking Policy
B-POL-01.0008 – Anti-Harassment Policy
B-POL-01.0009 – Equal Opportunities Policy
B-POL-01.0014 – Crewing Policy
B-POL-01.0015 – Security Policy
B-POL-01.0018 - Maintenance Policy.
B-POL-01.0028 – BOURBON Supplier Code of Conduct
B-POL-01.0033 – Fuel Management Policy
B-POL-01.0034 – Compliance and Ethics Policy.
B-POL-01.0035 – Clear Deck Policy.

NOTE: Please note that Corporate policies may not be changed. The text of these Corporate policies is fixed but Affiliate Organisations may add to the policies if and when deemed necessary. These addtions are to be validated as per the *Document Control Guidelines* given in the QMS.

12

4.2 B.O.S. policies

BOS-POL-01.0001 – BOS Managing Director's Yearly Statement (check the Vessel Filing System).
BOS-POL-01.0010 – Fishing Policy.

5 Masters overriding authority

"The Company *shall* establish in the Safety Management System that the Master has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary."

Mandatory – as based in ISM Code Element 5.2

5.1 Skills and Competence

Using overriding authority assumes the vessel Master has the skills, intelligence, experience and in-depth understanding of the risks to personnel, vessel, assets and the environment and assumes that the Master will conduct an objective risk assessment of applicable situations, free from any irrelevant feelings or prejudices.

Overriding authority must never be made to excuse or hide lack of competence. It would clearly degrade the whole concept of HSE management and would degrade the Master's authority in the long run.

A certain amount of calculated risk is inevitable in shipping, and can largely be overcome with knowledge, experience and application of best practices. The myriad rules, checklists and ISM-manuals in use onboard are a very poor substitute for a competent crew.

13

6 ISM Code/SMS Reference

ISM (2010 Edition)/ Previous QSMS		Affiliate SMS / OSM sections
SAFETY AND ENVIRONMENTAL-PROTECTION POLICY		
2.1	The Affiliate Organisation *shall* establish a safety and environmental-protection policy which describes how the objectives given in paragraph 1.2 will be achieved.	**ALL Sections of SMS**
2.2	The Affiliate Organisation *shall* ensure that the policy is implemented and maintained at all levels of the Organisation, both ship-based and shore-based.	**Section 1 -** Management Responsibility
AFFILIATE ORGANISATION RESPONSIBILITIES AND AUTHORITY		
3.1	If the entity that is responsible for the operation of the ship is other than the owner, the owner must report the full name and details of such entity to the Administration.	**Introduction** - Affiliate Organisation information
3.2	The Affiliate Organisation *shall* define and document the responsibility, authority and interrelation of all personnel who manage, perform and verify work relating to and affecting safety and pollution prevention.	**Section 1 -** Job Descriptions - Shore **Section 3** - Job Descriptions - Vessel **ALL Procedures** - Definition of Responsibility
3.3	The Affiliate Organisation is responsible for ensuring that adequate resources and shore-based support are provided to enable the designated person or persons to carry out their functions.	**Section 1** - Organisational Charts **Section 1 -** Management Responsibility **Section 2 -** Personnel Management
DESIGNATED PERSON(S)		
4.0	To ensure the safe operation of each ship and to provide a link between the Affiliate Organisation and those on board, every Affiliate Organisation, as appropriate, *shall* designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons *shall* include monitoring the safety and pollution-prevention aspects of the operation of each ship and ensuring that adequate resources and shore-based support are applied, as required.	**Section 1 -** Management Responsibility **Section 1 -** DPA Job Description
MASTER'S RESPONSIBILITY AND AUTHORITY		
5.1	The Affiliate Organisation *shall* clearly define and document the Master's responsibility with regard to:	**Section 12 -** Management responsibility-(Masters SMS review)
	5.1.1 Implementing the Safety and Environmental Protection Policy of the Affiliate Organisation;	**Section 3** - Master Job Description **Section 5 -** Standing Orders & Procedures
	5.1.2 Motivating the crew in the observation of that policy;	**ALL Procedures** - Definition of Responsibility
	5.1.3 Issuing appropriate orders and instructions in a clear and simple manner;	
	5.1.4 Verifying that specified requirements are observed;	
	5.1.5 Periodically reviewing the Safety Management System and reporting its deficiencies to the shore-based management.	
5.2	The Affiliate Organisation *shall* ensure that the Safety Management System operating on board the ship contains a clear statement emphasising the Master's authority. The Affiliate Organisation *shall* establish in the Safety Management System that the Master has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request	**Introduction -** Masters Overriding Authority **All Procedures -** Responsibility and Accountability

the Affiliate Organisation's assistance as may be necessary.

RESOURCES AND PERSONNEL

6.1	The Affiliate Organisation *shall* ensure that the Master is:	**Section 3** - Crew Management **Section 3** - Competence & Training
6.1.1	Properly qualified for command;	
6.1.2	Fully conversant with the Affiliate Organisation's Safety Management System	
6.1.3	Given the necessary support so that the Master's duties can be safely performed.	
6.2.1	The Affiliate Organisation *shall* ensure that each ship is manned with qualified, certified and medically fit seafarers in accordance with national and international requirements.	**Section 3** - Crew Management
6.2.2	The Affiliate Organisation shall appropriately manned in order to encompass all aspects of maintaining safe operations on board.	**Section 3** - Crew Management
6.3	The Affiliate Organisation *shall* establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of the environment are given proper familiarization with their duties. Instructions which are essential to be provided prior to sailing *shall* be identified, documented and given.	**Section 3** - Crew Management
6.4	The Affiliate Organisation *shall* ensure that all personnel involved in the Affiliate Organisation's Safety Management System have an adequate understanding of relevant rules, regulations, codes and guidelines.	**Section 3** - Crew Management **Section 3** - Competence & Training
6.5	The Affiliate Organisation *shall* establish and maintain procedures for identifying any training which may be required in support of the Safety Management System and ensure that such training is provided for all personnel concerned.	**Section 3** - Crew Management **Section 3** - Competence & Training
6.6	The Affiliate Organisation *shall* establish procedures by which the ship's personnel receive relevant information on the Safety Management System in a working language or languages understood by them.	**Section 1** - Management Responsibility (4.2) **Section 3** - Crew Management
6.7	The Affiliate Organisation *shall* ensure that the ship's personnel are able to communicate effectively in the execution of their duties related to the Safety Management System.	**Section 3** - Crew Management **Section 3** - Competence & Training

SHIPBOARD OPERATIONS

7.0	The Affiliate Organisation *shall* establish procedures,plans and instructions, including checklists as appropriate, for key shipboard operations concerning the safety of the personnel, ship and protection of the environment. The various tasks *shall* be defined and assigned to qualified personnel.	**Section 3 -** Competence & Training **Section 6 -** Operations **Section 9** - Safety Management **ALL Procedures** - Responsibility & Authority

EMERGENCY PREPAREDNESS

8.1	The Affiliate Organisation *shall* identify potential emergency shipboard situations annd procedures to respond to them	**Section 11 -** Emergency Preparedness
8.2	The Affiliate Organisation *shall* establish programmes for drills and exercises to prepare for emergency actions.	**Section 11 -** Emergency Preparedness
8.3	The Safety Management System *shall* provide for measures ensuring that the Affiliate Organisation's	**Introduction -** Organisation **Section 11 -** Emergency Preparedness

organisation can respond at any time to hazards, accidents and emergency situations involving its ships.

REPORTS & ANALYSIS OF NON-CONFORMITIES, ACCIDENTS & HAZARDOUS OCCURRENCES

9.1	The Safety Management System *shall* include procedures ensuring that non-conformities, accidents and hazardous situations are reported to the Affiliate Organisation, investigated and analysed with the objective of improving safety and pollution prevention.	**Section 8 -** Incident Management, Reporting & Investigation **Section 9 -** Safety Management **Section 12** - Management of Non Conformity (4.3)
9.2	The Affiliate Organisation *shall* establish procedures for the implementation of corrective action, including measures to prevent recurrence.	**Section 8 -** Incident Management, Reporting & Investigation **Section 12 -** Management of Non Conformity (4.3)

MAINTENANCE OF THE SHIP AND EQUIPMENT

10.1	The Affiliate Organisation *shall* establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant rules and regulations and with any additional requirements which may be established by the Affiliate Organisation.	**Section 4 -** Reliability and Maintenance Standards **Section 5 -** Navigational Safety **Section 6 -** Operations Procedures
10.2	In meeting these requirements the Affiliate Organisation *shall* ensure:	**Section 4 -** Reliability & Maintenance Standards **Section 5 -** Navigation Standards & Equipment **Section 6 -** Operations **Section 12 -** Vessel Inspections **Section 12 -** Management of Non Conformity
	10.2.1 Inspections are held at appropriate intervals;	
	10.2.2 Any non-conformity is reported, with its possible cause, if known;	
	10.2.3 Appropriate corrective action is taken; and	
	10.2.4 Records of these activities are maintained.	
10.3	The Affiliate Organisation *shall* establish procedures in its Safety Management System to identify equipment and technical systems and sudden operational failure of which may result in hazardous situations. The Safety Management System *shall* provide for specific measures aimed at promoting the reliability of such equipment or systems. These measures *shall* include the regular testing of stand-by arrangements and equipment or technical systems that are not in continuous use.	**Section 4 -** Reliability & Maintenance Standards
10.4	The inspections mentioned in 10.2 as well as the measures referred to in 10.3 *shall* be integrated into the ship's operational maintenance routine.	**Section 4 -** Reliability & Maintenance Standards

DOCUMENTATION

11.1	The Affiliate Organisation *shall* establish and maintain procedures to control all documents and data which are relevant to the Safety Management System.	**Section 1 -** Management Responsibility **ALL Sections of SMS**
11.2	The Affiliate Organisation *shall* ensure that:	**Section 1** - Management Responsibility
	11.2.1 Valid documents are available at all relevant locations;	
	11.2.2 Changes to documents are reviewed and approved by authorised personnel;	
	11.2.3 Obsolete documents are promptly removed.	
11.3	The documents used to describe and implement the Safety Management System may be referred to as the Safety Management Manual. Documentation *shall* be kept in a form that the Affiliate Organisation considers most effective. Each ship *shall* carry on board all documentation relevant to that ship.	**Section 1** - Management Responsibility

AFFILIATE ORGANISATION VERIFICATION, REVIEW AND EVALUATION

12.1	The Affiliate Organisation *shall* carry out internal safety audits on board and ashore at intervals not exceeding 12 months to verify whether safety and pollution-prevention activities comply with the Safety Management System. In exceptional circumstances, this interval may be exceeded by not more than 3 months.	**Section 12** - Measurement & Analysis
12.2	The Affiliate Organisation *shall* periodically verify whether all those undertaking delegated ISM-related tasks are acting in conformity with the Company's Responsibilities under the Code.	**Section 12** - Measurement & Analysis
12.3	The Affiliate Organisation *shall* periodically evaluate the effectiveness of the Safety Management System in accordance with procedures established by the Affiliate Organisation.	**Section 12** - Measurement & Analysis
12.4	The audits and possible corrective actions *shall* be carried out in accordance with documented procedures.	**Section 12** - Measurement & Analysis
12.5	Personnel carrying out audits *shall* be independent of the areas being audited unless this is impracticable due to the size and the nature of the Affiliate Organisation.	**Section 12** - Measurement & Analysis
12.6	The results of the audits and reviews *shall* be brought to the attention of all personnel having responsibility in the area involved.	**Section 12** - Measurement & Analysis
12.7	The management personnel responsible for the area involved *shall* take timely corrective action on deficiencies found.	**Section 12** - Measurement & Analysis

Bourbon Offshore Surf

SMS ACKNOWLEDGMENT FORM

BOS-FRM-11.900001

By signing this form, I, the Person Signatory, certify that I have read the documents and procedures that are present in the Safety Management System (SMS) during the period of my boarding.

Position	Printed Name	Signature	Date

Version n°: 01. Original Date: 31/12/2014. Version Date: N/A. Valid version only on QMS site.
Form prepared by: BOS Deputy QHSES Manager. Approved by: BOS QHSES Manager. Validated by: BOS Quality Representative.

SMS
Section 1

Management, Leadership and Accountability

BOS-MNL-01.900100-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3

1.1 Main Objective 3

1.2 Safety and Environmental Excellence 3

1.3 The Quality Management System 3

1.4 Roles and Responsibilities 3

1.5 Communication 3

2 Review, approval, revision and identification of changes 4

3 Related contents 4

20

1 Introduction

1.1 Main Objective

To provide direction and clearly define responsibilities, authorities and accountabilities at all levels within the Company.

An effective Quality Management System requires commitment at the highest levels of the Organisation and clear definitions of the roles, responsibilities, authorities and accountabilities for everyone involved in its administration. HSE Driver 1 establishes these principles.

1.2 Safety and Environmental Excellence

The concepts of safety and environmental excellence *shall* be understood at all levels in the Company and actively promoted through leadership and the disciplined use of documented management systems.

1.3 The Quality Management System

The Company *shall* establish and maintain a documented Quality Management System that can accomplish the stated fleet management policies and objectives. In addition, all Managers *shall* be held accountable for achieving the targets and objectives established for them.

Management activities that require instructions and procedures *shall* be systematically identified. Where instructions and procedures are required, they *shall* be suited to the purpose and easy to understand and follow. Where appropriate, these instructions *shall* be developed in consultation with those who will be affected by them, or who have to apply them.

The Quality Management System *shall* promote feedback and appropriate responses within the Company. It *shall* also provide, at a minimum, information on incidents, vessel inspections, fleet performance, serious near misses and lessons learnt. This information *shall* be made available to those who charter vessels as applicable.

The vessel's Safety Management System *shall* be the basis for all HSE controls for all operations carried out onboard. Supplementary bridging documents from charterer or field operator may be appropriate but *shall not* take final responsibility or control of any process onboard the vessel away from the vessel **Master** and Management Systems.

1.4 Roles and Responsibilities

The Company *shall* ensure that management roles and individual responsibilities, authorities and accountabilities are clearly established, documented, assigned and understood.

1.5 Communication

The Company *shall* establish and maintain effective communication procedures between shore based management and the fleet. This *shall* include communication related to requirements of OSM and the Quality Management System to all areas and personnel within the Company as applicable.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	rev.01- 11/03/2013	Adding in related documents BOS-SPC-02.0110 Job Description Specification- Affiliate Regulatory Compliance Coordinator.
BOS Managing Director	BOS Managing Director		Ver.03- 03/12/2013	-
BOS Managing Director	BOS Managing Director		Ver.04- 31/12/2014	§3. Related contents Added some policies. Deleted Job Specifications

3 Related contents

1. B-VIS-01.01 – BOURBON Charter
2. B-POL-01.0002 – Quality Policy
3. B-POL-01.0003 – Stop Work Policy
4. B-POL-01.0004 – Health and Safety Policy
5. B-POL-01.0005 – Environmental Policy
6. B-POL-01.0006 – Drug and Alcohol Policy
7. B-POL-01.0007 – Smoking Policy
8. B-POL-01.0008 – Anti-Harassment Policy
9. B-POL-01.0009 – Equal Opportunities Policy
10. B-POL-01.0014 – Crewing Policy
11. B-POL-01.0015 – Security Policy
12. B-POL-01.0033 – Maintenance Policy
13. B-POL-01.0028 – BOURBON Supplier Code of Conduct Policy
14. B-POL-01.0033 – Fuel Management Policy
15. B-POL-01.0034 – Compliance and Ethics Policy
16. B-POL-01.0035 – Clear Deck Policy
17. BOS-POL-01.0001 – BOS Yearly Management Statement (available on the Vessel Filing System)
18. BOS-POL-01.0010 – BOS Fishing Policy
19. BOS-PRD-01.900101 – Management Responsibility (SMS Section 1)
20. B-CHR-01.0001 – BOURBON Organisation Chart
21. B-CHR-1201.0004 – Customer Focus
22. BOS-PRD-11.900101 – Vessel Documentation (SMS Section 1)

22

BOURBON Charter

BOURBON is committed to Excellence with all parties interested in its activities, namely customers, employees, shareholders, communities and all other stakeholders.
To lead and manage its operations successfully, BOURBON relies on a systematic and transparent management, through the following policies:

Stop work
No business operations will be pursued at the sacrifice of safety. All employees have the right and obligation to stop any work that they consider may create any unmanaged risk to personnel, environment or assets.

Leadership
Lead by example. Leaders are focussed on achieving organisation objectives and behaving in accordance with its values.

Customer focus
BOURBON is focussed on understanding current and future customer needs, meeting their requirements and striving to exceed expectations.

Safe working place
Provide and ensure safe and healthy working conditions. Encourage each employee to be involved in the improvement of safety performance and to behave proactively in preventing accidents or property damage.

Social responsibility
Contribute to sustainable development issues in all countries where BOURBON operates, taking into account the environment, human rights, health and wealth, employment creation, and access to education and technology.

Empowerment of people
People at all levels are the essence of BOURBON. BOURBON commits to provide them with proper equipment, training and responsibilities enabling them to be fully involved.

Anti-discrimination and harassment
All employees have the right to conduct their employment in an environment free from any offensive, hostile or intimidating attitude that may affect their job performance, safety and well-being.

Business ethics
BOURBON shall conduct its business in accordance with all applicable laws, regulations and specific code of ethics.

Supplier relationships
A mutually beneficial relationship enhances the ability of both the company and the supplier to create value.

Process approach
BOURBON runs its business through process approach, pursuing continuous improvement and taking decisions based on facts.

Risk management
BOURBON seeks to identify, evaluate and continuously manage threats to achieve safe operations and to meet BOURBON's vision, objective and strategy.

Reporting
BOURBON reporting system shall provide all its stakeholders with transparent, timely and effective information to properly conduct their activities.

Environmental respect
BOURBON is committed to preserve the environment from the impact of its activities at sea, on land and in the air, notably by using efficient resources, optimizing fuel consumption and by minimizing adverse consequences.

Sharing best practices
BOURBON works as a team, prioritizes dialogue, promotes sharing of experience and provides adequate information throughout the company.

Christian Lefèvre
Chief Executive Officer

Gaël Bodénès
Chief Operating Officer

Laurent Renard
Chief Financial Officer

BOURBON
Building together a sea of trust

B-VIS-01.01-rev.04

BOURBON is committed to Excellence with all interested parties of its activities, namely customers, employees, shareholders, public authorities, banks, insurances, professional and academic associations, its business environment and society in general.

To lead and operate its organisation successfully, BOURBON considers necessary to direct and control it in a systematic and transparent manner. BOURBON believes that success will result from implementing and maintaining its Quality Management System (QMS) that is designed to continually improve performance while addressing the needs of all interested parties. Managing BOURBON organisation encompasses quality management amongst all other management disciplines.

Eight quality management principles have been identified and are used by BOURBON in order to lead the organisation towards improved performance.

1. Customer focus
Organisations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations.

2. Leadership
Leaders establish unity of purpose and direction of the organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisation's objectives.

3. Involvement of people
People at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit.

4. Process approach
A desired result is achieved more efficiently when activities and related resources are managed as a process.

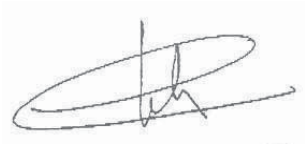
24

5. System approach to management
Identifying, understanding and managing interrelated processes as a system contributes to the organisation's effectiveness and efficiency in achieving its objectives.

6. Continual improvement
Continual improvement of the organisation's overall performance should be a permanent objective of the organisation.

7. Factual approach to decision making
Effective decisions are based on the analysis of data and information.

8. Mutually beneficial supplier relationships
An organisation and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value.

Christian Lefèvre Chief Executive Officer	Gaël Bodenes Chief Operating Officer	Laurent Renard Chief Financial Officer
		

BOURBON believes that all incidents are preventable.

All persons, employees and contractors, working at or visiting any BOURBON vessels, shore bases and offices *shall* follow these two key principles with regard to working safely at all times:

1. Engage in all work safely or not at all.

2. There is always time to conduct all tasks correctly and therefore SAFELY.

All persons working at or visiting any BOURBON vessels, shore bases and offices have the right and obligation to **STOP ANY WORK** that they consider may create any unmanaged risk to personnel, the environment or assets. All persons *shall* also support the STOP WORK decisions of others.

THIS IS YOUR RESPONSIBILITY AND YOU HAVE FULL AUTHORITY.

It is also an expectation and obligation for anyone stopping work in such circumstances to bring such conditions immediately to the attention of their immediate supervisor, who is responsible for informing the Vessel and/or Operational Management (as applicable.) Such Management must be involved in the assessment and resolving process.

No work will resume until all STOP WORK issues and concerns have been properly assessed and resolved.

BOURBON encourages and *shall* fully support STOP WORK decisions.

No form of retribution will be tolerated against any person who in good faith exercises his or her authority in conformance with the intent of this Policy.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer

Employee Health and Safety is fundamental to the operating philosophy of BOURBON and we are committed to preserve the environment from the impact of our activities at sea, on land and in the air.

Therefore: **No Business Operations will be pursued at the Sacrifice of Safety.**

All employees have the right and obligation to:

- Stop any work that they consider may create any unmanaged risk to personnel, environment or assets.
- Provide and ensure safe, healthy working conditions.
- Be involved in the improvement of safety performance and to behave proactively in preventing accidents or property damage.
- Identify, evaluate and continuously manage risks to achieve safe operations.
- Promote individual behavior through a proactive “Culture of Intervention”.
- Properly apply procedures that prepare employees to respond to emergency situations.

26

Christian Lefèvre	Gaël Bodénès	Laurent Renard
Chief Executive Officer	Chief Operating Officer	Chief Financial Officer

BOURBON is committed to:

Preserve the environment from the impact of our activities at sea, on land and in the air, notably by using efficient resources, optimising fuel consumption and by minimising adverse consequences.

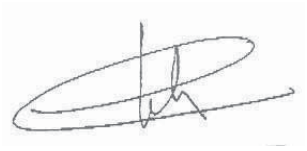
Fully comply with or exceed all applicable environmental legislation, regulations and rules and endeavour to develop and apply complementary voluntary standards.

Prevent any kind of pollution and be prepared for a quick and efficient response in case of incident.

Put environment as a top priority and take it into consideration in our business decisions.

Participate in international community efforts in resolving global environmental issues.

Promote environmental-friendly technologies, materials, goods and services within the company and towards our stakeholders.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer
		

BOURBON has **ZERO TOLERANCE** to drug or alcohol use in the workplace.

Therefore possession, consumption, distribution or sale of alcohol and/or drugs in any form is strictly prohibited on BOURBON vessels, shore bases and offices. By violating this, the employee may lend him/herself liable to summary dismissal/termination of employment, or other disciplinary actions.

"Onboard vessels" – is additionally defined as:

- The entire length of any given sailing period on a vessel - from signing on until signing off.
- Applies equally to those on temporary contracts, permanent rotation, and permanent employees on temporary relief trips on other vessel than one's permanent vessel.

Employees (defined as ALL employees regardless of sea-going or shore-based) *shall not* consume any alcohol or drugs later than 8 hours prior to reporting for duty or starting any work, or in general be under any influence of alcohol or drugs when reporting for duty or starting any work.

Any employee traveling on BOURBON cost or representing BOURBON *shall* represent BOURBON in a decent and honorable way.

Employees that due to drugs and/or alcohol:

- Display behaviour that may cause an individual to be denied use of public transport, including airlines;
- Deliberately or negligently fail to return to the vessel at the expected time;
- Deliberately or negligently fail to use planned travel arrangements;
- Do not attend/is not able to follow curriculum of planned training sessions;
- Do not attend/follow planned meetings (internally/externally);
- Act in a manner that may damage BOURBON reputation.

28

Will lend themselves liable to disciplinary reactions, ranging from (and not limited to) cover of all additional cost for BOURBON to summary dismissal/termination of employment.

BOURBON reserves the right to carry out unscheduled inspections to detect the presence of alcohol and/or drugs on BOURBON vessels, shore bases and offices. Testing following accidents (and other incidents as deemed necessary) or on a random basis is applicable to all BOURBON employees (sea-going or shore-based.)

Any employee involved in an accident may undergo alcohol and drug testing. Similarly, testing may be carried out for any reasonable cause or suspicion should any employee demonstrate suspicious and/or dangerous behavior individually or involving others.

Alcohol and drug testing will be performed either by trained BOURBON personnel or at a subcontracted medical facility and any confirmed positive results can lead to termination of employment for professional misconduct.

BOURBON acknowledges and adopts the direction given in Section B-VIII/2 Part 5 – "Guidance on prevention of drug and alcohol abuse" of The Seafarers Training, Certification and Watch-Keeping Code (STCW 95 Code).

BOURBON personnel *shall not* consume alcohol or drugs in any country where the consumption of alcohol or drugs is forbidden by law.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer
		

All employees are required to observe the smoking regulations in their work location, whether onboard a vessel, or at any other BOURBON facility.

Smoking regulations are designed to protect you and your fellow employees. Smoking is a recognised health and safety hazard and is therefore only permitted in designated areas, both onboard vessels and at BOURBON shore bases and offices.

Designated smoking areas are to be assigned at the discretion of the Master onboard vessels and the senior management at shore bases and offices, having due consideration for those employees who do not smoke and are entitled to work and spend their off-duty time in a smoke free atmosphere.

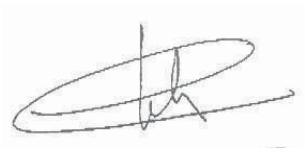
On vessels not equipped with a purpose designed smoking room inside the accommodation, designated smoking areas *shall* be outside of all accommodation, living and rest areas. Additionally, smoking is not permitted in any interior work areas such as the bridge or engine control room.

At shore bases and offices, smoking is only permitted outside of buildings in safe designated areas.

All non-smoking areas should be explained during familiarisation at all BOURBON vessels, shore bases, offices and other areas as applicable. Similarly, safe designated smoking areas should be explained.

“No Smoking” signs may be posted as deemed necessary.

There is strictly no smoking on deck if the vessel is working within the 500 metres safety zone of an installation and wherever there is any other recognised risk or fire, explosion or any other form of combustion.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer
		

It is the policy of BOURBON that all employees have the right to conduct their employment in an environment that is free from any offensive, hostile or intimidating influences that may affect their job performance, safety and/or mental and physical well-being.

All employees have full responsibility to maintain the highest standards of personal behaviour within the workplace at all times. All employees are expected to conduct themselves in a courteous and professional manner, to treat their fellow employees and all other persons from any other Affiliate, workgroup or local population with respect and consideration.

BOURBON will not tolerate any form of harassment from any source against any person including, but not limited to unwanted physical contact, verbal slurs and/or insults, uninvited and unwelcomed sexual advances or offensive or intimidating comments.

Reporting Procedure

If any employee has reason to believe that he or she is the victim of any form of discrimination or harassment, he or she should follow the steps below:

- Inform the offending person(s) that their behaviour is offensive and/or insulting and request them to stop immediately.

- If any person feels uncomfortable confronting the perpetrator of the offensive/insulting behaviour for any reason, they should instead report the situation to their supervisor who will take the appropriate action by reporting the incident to a Senior Manager. On receiving any report of discrimination or harassment, Senior Managers are to report the circumstances and details of the case to the Vice President Human Resources.

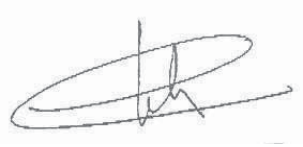
30

- If the complaint of discrimination or harassment is against a Supervisor or Manager, or if any individual is uncomfortable discussing the complaint with a Supervisor or Manager, all employees have the right to report any complaint of discrimination or harassment to the Affiliate Human Resources Manager, a Senior Manager and/or the Vice President Human Resources at any time.

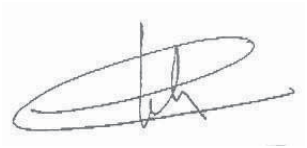
- All complaints of discrimination and/or harassment will be dealt with by BOURBON in a timely manner and all related details will remain highly confidential.

- Following investigation, any person found guilty of discrimination or harassment against any fellow employee will be disciplined by BOURBON. Such disciplinary action may include any measure from reprimand to termination of employment.

Under no circumstances shall any form of retaliation be accepted against any employee who in good faith makes any complaint against any other person or persons regarding discrimination or harassment.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer
		

BOURBON is fully committed to ensuring equal opportunity and fairness for all people regardless of race, religion and belief, social origin, gender, physical disability, age, or sexual orientation with regard to hiring, promotion, professional training, employment and working conditions, and social protection.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer
		

Revision 01. Original date: 24 February 2010. Revision date: 25 October 2011.
Policy prepared by: Vice President Human Resources. Approved by: COMEX. Validated by: Quality Director of BOURBON.

The BOURBON Crewing Policy is supporting the strategic goals of BOURBON. Through this policy, BOURBON is defining the standards of crewing and the principles on which Crewing is conducted throughout the company.

BOURBON recognizes our seafarers as a primary asset and our most valuable resource. BOURBON considers all positions and ranks as equally important to operate vessels in a safe, professional and efficient manner. All seafarers have a contributing part in BOURBON's commitment safety, to our clients, and the operational standard and quality that is BOURBON.

To meet our standards BOURBON will give priority to:

- **Crew competence** is defined as the sum of skill, experience and application. It is a priority to train all seafarers according to the standards of BOURBON and to value level of experience. When applying both skills and experience to a situation, BOURBON defines this as Application. BOURBON does its utmost to improve skills and development potential of each seafarer through a specific skill development program.

- **Working and living conditions:** BOURBON commits to abide by the international legislation and agreements that regulate the crewing and employment of seafarers. When operating in areas, regions, countries where the working conditions of seafarers are regulated by mutual collective agreements, BOURBON commits to respect and abide by such agreements.

  BOURBON believes that a total remunerations and benefits package is a vital part of building a long term relationship with our employees.

  BOURBON commits to monitor its retention rate for senior officers and does its utmost to improve it.

32

- **Safe Working environment:** Employee health and safety is fundamental to the operating philosophy of BOURBON. BOURBON believes that safety comes through knowledge, communication and co-worker trust.

- **Equal Opportunities** whatever nationalities are. BOURBON operates vessel wherever in the world and promulgates a "blind" policy regarding nationalities of seafarers, offering equal opportunities whatever nationalities are for seafarers complying with BOURBON's standards.

- **Crewing tools:** BOURBON will evaluate and implement tools to support the crewing functions on both management and Affiliate level. BOURBON will strive to deploy uniform tools that enhance and facilitate the quality of our crewing services and promotes transparency and functional reporting.

Christian Lefèvre	Gaël Bodénès	Laurent Renard
Chief Executive Officer	Chief Operating Officer	Chief Financial Officer

Group BOURBON's security policy seeks to protect persons, assets and information from any malicious or inadvertent act that might undermine integrity, availability or confidentiality.

Security is one of the pillars underlying the preparation and execution of BOURBON's activities. The security process is conducted in accordance with current legislation, standards and regulation.

Group Security Goals

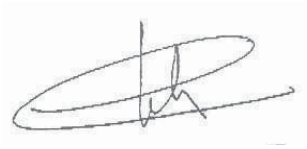
- Protect personnel in performance of their duties whether they are seafarers, shore personnel, expatriates or local personnel.
- Protect shore bases, offices and vessels whether they are at berth, at anchorage, at sea in operations or in transit.
- Protect strategic information and data.
- Ensure the integrity of our image, reputation and notoriety.

Our objectives and values

To achieve these goals, BOURBON has set out the following objectives:

- Assess risks associated with each activity by gathering information and data and analyzing the level of risk.
- Design measures and procedures suited to responding to threats and allowing operations to continue at each level of risk.
- Adapt each measure taken as necessary.
- In a crisis situation, adopt relevant action plans in coordination with clients as well as any governmental and local authorities involved.
- Prepare all personnel as fully as possible for risk situations. Enhance awareness of the security process to ensure that each person is aware of his role and duties at his level.
- Organize the security process in each affiliate and involve each hierarchical and functional chain of command in the implementation of security measures.
- Blend as closely as possible in the local environment to increase understanding of specific risks and conditions.
- Conduct audits and endeavor to improve security performance. Collect and share feedback in this domain.
- Protect strategic information by preventing intentional or accidental communication to unauthorized persons.

33

Christian Lefèvre Chief Executive Officer	Gaël Bodenes Chief Operating Officer	Laurent Renard Chief Financial Officer
		

Maintenance Policy

B-POL-01.0018

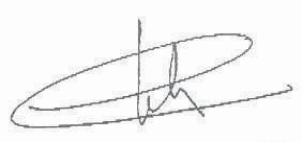
MAINTENANCE is a key driver for BOURBON to deliver operational excellence.

BOURBON's maintenance approach is to provide local support services for all BOURBON vessels, anywhere in the seven seas, by using a unique "One Stop Shop" approach based on a dedicated worldwide network of in-house services and dedicated spares stocks.

To provide a high level of technical availability, BOURBON deploys a combination of marine engineering expertise and technical experience to:

- Ensure the safety of crews, customers and operating environment;
- Optimise reliability and productivity of the fleet.

BOURBON's commitment to the highest standards of fleet maintenance guarantees continuous vessel performance at design capacity and efficiency.

Christian Lefèvre Chief Executive Officer	Gaël Bodénès Chief Operating Officer	Laurent Renard Chief Financial Officer
		

34

BOURBON is committed to ensuring that workers are treated with respect and dignity, that working conditions are safe, that all activities are environmentally responsible and that the highest standards of ethical behaviour are maintained. BOURBON expects the same level of social responsibility from its suppliers (Suppliers).

BOURBON suppliers must comply with all applicable laws, rules, and regulations in all their activities and locations of operation. This compliance will be considered as a minimum standard from which to measuring excellence in corporate social responsibility.

I. Labour and Human rights

Suppliers must uphold the human rights of workers and treat them with dignity and respect as understood by the international community.

Human Rights
BOURBON expects its suppliers to support and respect the protection of internationally proclaimed human rights and to ensure that they are not complicit in human rights abuse.

Labour
Suppliers are expected to prohibit any use of forced, bonded or indentured labour. Suppliers shall not employ children and must be compliant with applicable laws in the countries in which they operate.

II. Health, Safety and Environment

Suppliers must commit themselves to creating safe working conditions and maintaining a healthy work environment for all of their workers. BOURBON also expects its Suppliers to have an effective environmental policy and to comply with existing environmental protection legislation and regulations.

Promoting a Positive Workplace
All employees want and deserve a workplace where they feel respected, satisfied and appreciated.

Suppliers shall promote excellence in the workplace and create an environment that supports honesty, integrity, respect, trust, and responsibility.

Worker Health and Safety Committees
Suppliers are encouraged to initiate and support worker health and safety committees to promote continuous health and safety education and to encourage worker input regarding health and safety issues in the workplace.

Environment
Suppliers shall strive to reduce the environmental impact of their designs, manufacturing processes and waste emissions.

III. Ethics

Suppliers must be committed to the highest standards of ethical conduct when dealing with workers, subcontractors and customers.

Business Integrity
Suppliers shall not violate applicable anti-corruption laws and regulations in countries where they operate.

Suppliers shall not offer or accept bribes or other means to obtain an undue or improper advantage.

Suppliers must uphold fair business standards in advertising, sales, and competition.

Conflicts of Interest
Suppliers are expected to disclose to BOURBON any situation that may appear as a conflict of interest.

BOURBON expects its Suppliers to avoid any relationship, influence, or activity that might impair BOURBON's employees' ability to make objective and fair decisions. Conflict of interest laws and regulations must be abided by fully and carefully.

Business Courtesies to BOURBON Employees
Although an employee may not use his or her position within BOURBON to obtain business courtesies, it is permissible to accept unsolicited meals, refreshments, entertainment, and other business courtesies on an occasional basis, provided that courtesies:

- Foster goodwill and successful business relations.
- Are not lavish or extravagant under the circumstances.
- Do not recur on a frequent basis or reflect a pattern or appearance of a pattern of frequent acceptance of courtesies from the same entities or persons.

The employee accepting the courtesies must feel comfortable about discussing the courtesies with his or her manager or co-worker, or about public disclosure of the courtesies.

Giving Gifts
BOURBON employees are not permitted to accept compensation, funds or monetary incentives in any form or amount, or any tangible gift (including tickets to sporting, recreational, or other events) that has a market value of 200 Euros or more, from any entity, representatives of any entity, or any person doing or seeking to do business with BOURBON, without the approval of his/her supervisor. BOURBON expects its suppliers not to offer any favour including free goods or services or job or sales opportunity to a BOURBON employee in order to facilitate the supplier's business with BOURBON.

Community Engagement
Suppliers are encouraged to foster the social and economic development and to contribute to the sustainability of the communities in which they operate.

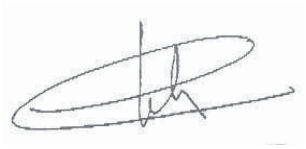
36 **Protection of Intellectual Property**
Suppliers must respect intellectual property rights and safeguard customer information. Transfer of technology and expertise must be done in a manner that protects intellectual property rights BOURBON

IV. Management

Suppliers are expected to establish a management system designed to ensure continuous improvement regarding Corporate Social Responsibility performance. Suppliers should peruse this Code and ensure that their employees are familiar with its content.

We encourage our suppliers to inform us of any actions taken to improve their Corporate Social Responsibility practices and send any suggestions.

Christian Lefèvre	Gaël Bodénès	Laurent Renard
Chief Executive Officer	Chief Operating Officer	Chief Financial Officer





BOURBON is committed to continually improving its fuel management system by undertaking the following:

- Ensure integrity of fuel clients assets per vessel by using fuel reporting, measurements and procedures.
- Improve energy efficiency of each vessel through efficiency measures, tools, guidelines and procedures.
- Be deeply involved in fuel consumption optimization to preserve the environment from the impact of vessels activities.
- Develop a fuel management culture to all our employees.
- **ZERO TOLERANCE** regarding any unauthorized fuel transfers.

BOURBON works simultaneously on these four following main axes to lead the organization towards an improved fuel management:

1. **Vessel design and propulsion**

    - Continue investing in diesel electrical propulsion.
    - Improve vessel design and propulsion for lowest fuel consumption.

2. **Vessel management**

    - Continually improve energy efficiency management by developing guidelines and procedures.
    - Education:
        - Inform, train and mobilize our employees to develop a fuel management culture behaviour,
        - Develop fuel efficiency workshop on board and in simulator training sessions,
        - Vessel crew to be the main actor of fuel management policy implementation.
    - Be in line with environmental regulations:
        - Comply with applicable environmental laws, regulations and industry standards,
        - Regulatory surveillance on coming regulations.
    - Environmental risk management:
        - BOURBON is deeply involved for environmental protection to reach key performance indicators objective of zero pollutant spills.

3. **Fuel database development**

    - Collect, maintain and share accurate fuel data to assess environmental impact and fuel cost per vessel and client.

4. **Joint management with clients**

    - Implement best practices to decrease fuel cost and environmental impact of vessels activities.
    - Ensure follow-up of fuel clients assets.

All employees commitment is fundamental to follow and contribute to BOURBON fuel management enhancement.

Christian Lefèvre	Gaël Bodenes	Laurent Renard
Chief Executive Officer	Chief Operating Officer	Chief Financial Officer

Version 01. Original date: 05 June 2013. Version date: N/A. Valid version only on QMS site.
Policy prepared by: VP Business Management Marine Services. Approved by: COMEX. Validated by: Quality Director of BOURBON.

Compliance requires BOURBON employees to abide by laws and regulations as well as by BOURBON self-regulatory procedures & policies, internal directives and ethical principles.

Compliance and Ethics Policy **is designed in the frame of BOURBON Compliance Program. It is a key pillar of our sustainability.**

BOURBON is committed to conducting business with integrity, transparency and ethics, in compliance with applicable laws and regulations and with BOURBON's policies and guidelines.

Business partners and third parties are strongly encouraged to adopt BOURBON compliance standards.

The BOURBON Compliance Program was designed to help BOURBON and its employees to secure business operations. The key elements of BOURBON's Compliance Program are:

- **Tone at the top – compliance culture**: The **COMEX, VP, Directors** and **Managers** are committed to promote compliance and to maintain a culture of ethical business decision in respect of laws and BOURBON's policies. Compliance is contributing to the Corporate Social Responsibility efforts of BOURBON.
- **Risk Assessment**: The compliance risk assessment is driving constant mitigation plans through the design and deployment of adequate procedures, which strengthen internal controls activities.
- **Policies, Guidelines and Procedures**: They are being developed constantly to address complex situations (e.g.: corruption and bribery, facilitation payment, conflicts of interests, gifts and business courtesy, travel expenses for employees and third parties, charitable and political contributions, sponsoring, donations, insider dealing, etc.). They provide all employees with guidance, instructions and tools in relation to expected behavior to adopt while conducting business operations and dealing with business partners and third parties.
- **Communication and Training**: Regular communication on compliance is settled up. They will remind constantly employees the proper expected behavior as well as key point of contact to whom concerns *shall* be raised. In addition, compulsory Compliance trainings will be given yearly to all BOURBON's employees. If any concerns arise while conducting business, it is important to address the potential issue with the highest care together with the Corporate Compliance Team, rather than ignoring it.
- **Monitoring and Review:** BOURBON Compliance Program is driven by a **Group Compliance Officer** together with his Corporate Compliance Team. Compliance chimney at Region/Affiliate level is directly reporting to the Corporate Central Compliance function.
- **Sanctions**: BOURBON has zero tolerance to fraud and corruption. Any breach will lead to adequate sanctions for interested employees or business partners.

Intangible Principles:

- Compliance with Laws: BOURBON will conduct its business in accordance with all applicable international and local laws and regulations.
- Compliance with Ethics: Maintaining the trust and confidence of our stakeholders, employees, clients, third parties and business partners is highly connected to the respect of ethics principles enacted by BOURBON.
- Compliance with anti-bribery and corruption Compliance guidelines: BOURBON prohibits the offering, giving, accepting or soliciting of improper payments, whatever its form (gifts, facilitation payment, donation, sponsoring, conflicts of interests, etc.) whether made directly or indirectly, for purposes of influencing any act or decision to improperly obtain or gain business.
- Compliance with Internal BOURBON rules: BOURBON requires all employees to respect and apply internal guidelines and procedures.

38

Christian Lefèvre	Gaël Bodénès	Laurent Renard
Chief Executive Officer	Chief Operating Officer	Chief Financial Officer

Clear Deck Policy

B-POL-01.0035

This policy is applicable to all persons working or travelling onboard any BOURBON vessel or at any port, base, dry dock or other facility.

All personnel engaged in or in the vicinity of any operations involving a suspended load *shall* respect and comply with this CLEAR DECK POLICY.

- All personnel *shall* remain within designated safe areas until suspended loads have been finally positioned and landed by crane operators and wires are slack and free from tension.
- Safe areas are considered as areas being fully clear of the suspended load, such as behind crash-rails or an area of the foredeck fully clear of lifting operations.

The CLEAR DECK POLICY *shall* also apply whenever a vessel is carrying out towing or anchor handling operations, when wires are deployed and under tension.

In all situations, the duty officer responsible for supervising the operation *shall* ensure the CLEAR DECK POLICY is applied.

All personnel have responsibility, authority and accountability to ensure that the requirements of the CLEAR DECK POLICY are constantly respected and applied.

39

Christian Lefèvre	Gaël Bodénès	Laurent Renard
Chief Executive Officer	Chief Operating Officer	Chief Financial Officer

Fishing Policy

BOS-POL-01.0010

All employees are required to observe the Bourbon Offshore Surf regulations during their work time, whether onboard a vessel, at shore base or any other facility.

Fishing is strictly prohibited onboard vessels, at shore base or any other facility.

“Onboard vessels” is additionally defined as:

- The entire length of any given sailing period on a vessel – from signing on until signing off.
- Applies equally to those on temporary contracts, permanent rotation, and permanent employees on temporary relief trips on other vessel than one’s permanent vessel.

By failing to comply with this policy, employee will expose himself/herself to disciplinary measures.

Master is in charge onboard of the proper implementation and follow-up of this policy.

Eric VERRIERE
General Manager
BOURBON OFFSHORE SURF

40

Management Responsibility

BOS-PRD-01.900101-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Purpose ... **3**

2 Scope ... **3**

3 Responsibility, authority and accountability ... **4**

4 Description ... **5**

4.1 Organisation, vessel management ... 5
4.1.1 Affiliate Contracting management roles and responsibilities ... 5
4.1.2 Managing Director ... 5
4.1.3 Designated Person Ashore ... 5
4.1.4 Operations Manager ... 6
4.1.5 Contracts Manager ... 6
4.1.6 Logistics Manager ... 7
4.1.7 Fleet Technical Manager ... 7
4.1.8 HR and Crewing Manager ... 7
4.1.9 Deputy Crewing Manager ... 8
4.1.10 Crewing Coordinator ... 8
4.1.11 HR Coordinator ... 9
4.1.12 Crewing Officer ... 9
4.1.13 HR Assistant ... 9
4.1.14 Q&HSE Manager ... 9
4.1.14.1 Quality part ... 9
4.1.14.2 HSE part ... 10
4.1.15 Regulatory Compliance Coordinator ... 11
4.1.16 Vessels responsibilities ... 11
4.1.16.1 Master ... 11
4.1.16.2 Chief Officer ... 13
4.1.16.3 Second Officer/DPO ... 14
4.1.16.4 Vessel Safety Officer (OSV) ... 15
4.1.16.5 Vessel Safety Officer / SSO / Trainee DPO (MPSV) ... 15
4.1.16.6 Admin Mate / Trainee DPO (MPSV) ... 17
4.1.16.7 Chief Engineer ... 18
4.1.16.8 Second / Assistant Engineer ... 19
4.1.16.9 Third / Assistant Engineer ... 20
4.1.16.10 Electrical Engineer ... 20
4.1.16.11 Boatswain (bosun) ... 21
4.1.16.12 Deck Ratings ... 21
4.1.16.13 Deck Foreman (MPSV) ... 22
4.1.16.14 Crane Operator (MPSV) ... 23
4.1.16.15 Rigger/AB (MPSV) ... 23
4.1.16.16 Engine Room Rating ... 24
4.1.16.17 Steward ... 24
4.1.16.18 Cook ... 25
4.2 Company Organisation Chart ... 25

5 Records ... **26**

6 Related documents ... **26**

7 Terms and definitions ... **26**

8 Review, approval, revision and identification of changes ... **28**

42

1 Purpose

To provide a structure to maintain operational integrity and achieve Company objectives and describe Assigned roles and responsibilities.

Organisation

- Line management with assigned roles and responsibilities;
- Appointment of '**Designated Person's Ashore' (DPA's)**;
- Accountability for Quality and HSE management and delivery at all levels of the organisation.

Procedures and activities

- Management SMS reviews and planning;
- Management steering team reviews of performance;
- **Master**'s Annual Review of the SMS;
- Ship and shore based safety meetings;
- Internal Audit;
- External Audit;
- Management Self Assessment.

SMS documentation

The documentation *shall* be in a common language and include:

- Policies;
- Processes;
- Procedures;
- Instructions;
- Guidelines;
- Records;
- Charts;
- Forms;
- Plans.
- And other types of documents as defined in the QMS *Document Control Guidelines* and *Document Type Definitions*.

43

2 Scope

The implementation of an effective SMS requires commitment at the highest levels of the Company with clearly defined roles, responsibilities, accountabilities and lines of communication.

It is the commitment, competence, attitude and motivation of individuals at all levels that will determine success.

Safety and environmental excellence *shall* be achieved through managing and communicating at all levels of the Company and actively promoted through leadership and the disciplined use of the documented SMS.

Health and personal well-being *shall* be managed in accordance to international conventions and Risk Assessment methodology as an integral part of the SMS.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained.
b) Ensuring compliance with *OSM Guidelines*;
c) Defining and documenting specific requirements of the Company;
d) Approving requirements related to specific review and revision of the SMS;
e) Ensuring compliance of this procedure.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under their command;
b) Ensuring compliance with, and application of the Company SMS onboard the vessel under his/her command as applicable.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Management Responsibility are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager the responsibility, authority and accountability for:

a) Ensuring compliance of this document to the related Corporate *Client Satisfaction Process* requirements.
b) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

44

All Employees have the responsibility, authority and accountability for:

a) Ensuring compliance with and application of the Company SMS requirements.

4 Description

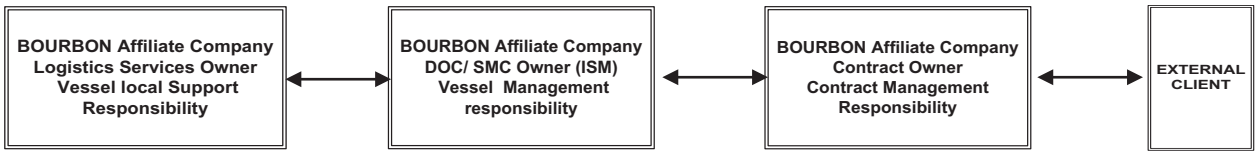
4.1 Organisation, vessel management

BOURBON is composed of multiple Affiliate Organisations which are either 100% owned or in partnership in joint ventures with other investors and publicly listed companies.

Affiliate Organisations, specific roles, responsibilities and accountabilities have been developed for shore based management to better define the relationship and liabilities. BOURBON Affiliate Ship Management Organisations have the legal and regulatory responsibility for vessel day to day management. BOURBON Affiliate Contracts Management Organisations have the contractual responsibility for the provision of Marine Services and/or vessel charter to an external client - (e.g. an Oil Major). Both Management and Contract responsibilities can be with different Affiliates.

4.1.1 Affiliate Contracting management roles and responsibilities

Simplified scheme refer to *Customer Focus* Chart:



4.1.2 Managing Director

Responsible for the Ship Management function and integration and coordination of the following:

- Manage the Company in line with the strategy and the budget approved by the board and in accordance with local legal requirements.
- Implement BOURBON policies with an emphasis on Q&HSE policies.
- Proposing the strategy and the budget to the board for approval;
- Executing the strategy and the budget approved by the board;
- For the day-to-day management of the Company's business:
    - Q&HSE activity;
    - Contract Management activity in the dedicated area;
    - Vessel Management activity over the dedicated fleet;
    - Vessel Support activity in the dedicated area;
    - Responsible for day-to-day managing JV partners.
- Manage the Human Resources (along with BOURBON central functions concurrence regarding key people);
- Promoting BOURBON guidelines and policies;
- Complying to legal requirements regarding business management;
- Responsible for the production of statutory accounts.
- Functional liaison with **Regional Managing Director** or **SVP Fleet Management**.

4.1.3 Designated Person Ashore

The DPA provides a link between the Company and the personnel onboard the vessels.

The DPA maintains direct access to the highest level of Ship Manager Management and has the authority an d independence to report deficiencies to the most Senior Management, requesting action where deficiencies exist.

The DPA is responsible for the Ship Management function and integration and coordination of the following:

- Monitor the safety and pollution prevention aspects of the operation of vessels;
- Ensure that adequate resources and Head office Support are available;
- Administer, monitor and report on the effectiveness of the Safety Management System implementation onboard and ashore.
- Periodically liaise with HR, Operational, Technical and Q&HSE Department Management to discuss and arrange as applicable for training and other requirements for ashore personnel in support of the Safety Management System.
- Ensure the verification of compliance with Safety Management System requirements through the organisation of audits and inspections; and for ensuring that corrective actions, as required, are followed-up.
- To assist and advise Management with all vessel training requirements, information, issues and advice regarding the Safety Management System.
- Provide, as required, statistics, data and advice related to the performance of the Safety Management System to the Management Review Committee and be a member of such.
- Functional liaison with **Managing Director**.

4.1.4 Operations Manager

To ensure client day-to-day satisfaction through competitive and quality operations in a safe manner.
To lead BOURBON QHSE policy in the vessel operations.
To integrate and coordinate ship management functions: QHSE, vessel, Maintenance, Procurement, Crewing.
To ensure proper mitigation by Contract Manager of any non-conformity.
To manage the Logistics Agreement.

46 He/she is responsible for the Ship Management function and integration and coordination of the following:

- Operating the dedicated vessels (max: 15 supply vessels) in a competitive and safe manner by coordinating all his related Affiliate's Departments.
- Single point of accountability for his/her dedicated vessels relative to Contract Managers, Logistics Managers and his/her related Affiliate's Departments (QHSE, Vessel, Maintenance, Procurement, Crewing);
- Leading BOURBON QHSE policy implementation;
- Issuing the Logistic Agreement;
- Responsible for clearly and timely reporting on all aspects of the Marine/Subsea Agreement (in charge of drafting and updating the Marine/Subsea Agreement action plan report);
- Responsible for timely paying his/her suppliers (BOURBON Affiliates or Third parties).
- Functional liaison with **Managing Director**, **Designated Person Ashore, Regional Managing Director** and **Subsea Managing Director**.

4.1.5 Contracts Manager

Responsible for delegation to client nominated representative(s) as single point of contact for operations and customer satisfaction as follows:

- Ensure day-to-day client satisfaction through compliance with all contractual clauses and client needs taking into account BOURBON'S interests (main contract management);
- Ensure prompt, reliable, exhaustive invoicing and speedy debt collection;
- Single point of accountability vis-à-vis the client's Contract Manager and all BOURBON's contract stakeholders;
- Reporting clearly and timely all aspects of the main contract (in charge of drafting and updating the client action plan report);
- Transmitting contractual invoicing data to his accounting department;
- Responsible for timely paying his suppliers (BOURBON Affiliates or Third parties);
- Manage the Marine Services Agreement, Quality, HSE, KPI control, payment, invoicing and cash collection information;
- Lead QHSE awareness in the contract management.

- Functional liaison with **Regional Managing Director**, **Subsea Managing Director, Affiliate Managing Director**, **Operations Manager** and **Logistics Manager**;

4.1.6 Logistics Manager

Responsible for support to Company and **Vessel Masters** for logistics (agency) and local services as follows:

- To ensure client day-to-day satisfaction through local, competitive and quality operations in a safe manner;
- To lead QHSE policy in the vessel operations.
- To integrate and coordinate local ship management functions: Quality, HSE, vessel maintenance, procurement (food, local purchases,…), crewing (protocol, local crewing);
- To ensure proper mitigation by **Contracts Manager** of any non conformity;
- To manage and issue the Logistic Agreement;
- Responsible for operating his dedicated vessels (max: 15 supply vessels) in a competitive and safe manner by coordinating all his related Departments.
- Single point of accountability for his dedicated vessels vis-à-vis Contract Managers, Logistics Managers and his related Affiliate's Departments (QHSE, Vessel, Maintenance, Procurement, Crewing).
- Responsible for clearly and timely reporting on all aspects of the Marine/Subsea Agreement (in charge of drafting and updating the Marine/Subsea agreement action plan report).
- Responsible for timely paing his suppliers (BOURBON Affiliates or Third parties).
- Liaison with Company Departments, Suppliers and **Contracts Managers** to ensure continuity of operations;

47

4.1.7 Fleet Technical Manager

- To manage the Technical Department to support the day-to-day operations and to ensure the integrity of the BOURBON fleet;
- Responsible for implementing and monitoring the BOURBON maintenance policy according to class and Flag regulations;
- Defining and monitoring the OPEX / CAPEX technical budgets;
- Managing the Technical Department (Purchasing, Maintenance, Field Service Team, etc…);
- Implementing and monitoring the BOURBON fleet integrity policy;
- Reporting the Technical Department activities (defects, feedbacks, improvements, etc…);
- Ensuring the BOURBON Q & HSE policy;
- Contributing to the improvement to the BOURBON Maintenance policy;
- Functional liaison with **Managing Director**.

4.1.8 HR and Crewing Manager

Responsible for the Ship Management function and integration and coordination of the following:

- Create, preserve a competitive advantage through guidance for an optimized sourcing and retention of qualified crews for Affiliate Organisations;
- Responsible of all Crewing Activities including seafarers employment, staffing, compensation, labor relations, training and development for Affiliate Organisations.
- Developp and implement guidelines and procedures level 2 in line with the group crew management policies and guidelines.
- Define a strategic and tactical recruitment plans designed to meet the business needs.
- Recruit suitable qualified seagoing employees and ensuring their qualifications meet statutory and regulatory requirements.
- Insure all overall control that all **Masters, Officers** and ratings are in possession of the required certificates and documentation as per flag state, STCW and Company regulations and procedures.

- Establish and follow-up crew budgets for all vessels and maintain comparative cost budgets for all potential crew sources.
- Define and revise annually the training plan & training budget with the **Crewing Manager** and **Crewing Coordinator**.
- Participate to the set-up of the crewing plan.
- Insure the follow-up and update of the seafarers' qualifications via the HR assistants.
- Insure the follow-up of the skill assessments of the seafarers. Ensure the administration and follow-up of the personnel
- Develop and insure the career management policy for shore-based personnel and vessel personnel.
- Conduct the People reviews for management personnel Collect key information for Bourbon reporting and Bourbon Offshore Surf.
- Maintain and coordinate with management for training programs for onshore, Officers and ratings to meet current and future projected requirement of the Company.
- Assessments and promotions for **Officers** and ratings.
- Organize his department and supervise the HR/Crewing personnel.
- Insure the good implementation and daily use of the different HR/Crewing software systems and data bases.
- Insure timely payment and settlement of wages/leave.
- Overall responsibility for all personnel matters concerning sea staff and/or onshore staff.
- Reporting overall control as for e.g. that all personnel records are updated and well maintained.
- Insure a reporting reliable with the relevant information.
- Review relevant accidents/near misses involving crew and contribute towards corrective actions and to prevent recurrence.
- Follow-up and finalize crew claims in co-operation with P&I clubs and/or insurance instances.
- Functional liaison with **Managing Director**.

4.1.9 Deputy Crewing Manager

48

- Define the crewing need for Bourbon Offshore Surf's OSV fleet
- Collect from the operation managers the crewing requirements for the OSV fleet
- Set-up on a yearly basis, the crewing plan,
- Validate recruitments and promotions of seafarers
- Supervise the crewing department for the OSV under the responsibility of the crewing manager :
- Set-up and review the crewing procedures
- Set-up and review the crewing KPI
- Develop and update the crewing plan
- Follow the crewing budget and follow the corrective actions
- Is in charge of the client satisfaction KPI and follow the corrective actions.
- Control and validate particular payroll elements
- Control & audit the manning agencies
- Relay the crewing policies to the OSV vessels
- Represent the crewing manager toward external instances in case of unavailability of the crewing manager

4.1.10 Crewing Coordinator

- Dispatch and inform the crewing officers of the "crew requirements" and measure the differences
- Measure the direct "labour cost", availabilities and overtimes,
- Measure the indirect cost (travel expenses, visas ..)
- Monitor the client satisfaction indicator
- Participate to the update and dispatch the Crewing Plan
- Validate the quality of the crewing information for the payroll
- Regular individual interviews
- Coordinate workload between the crewing officers
- Communicate the objectives and policies fixed by the deputy crewing manager or the corporate head of crewing

- Collect and dispatch external requests and demands
- Control with the Manning coordinator the respect of the contracts and the quality of the service.

4.1.11 HR Coordinator

- Define and revise annually the training plan & training budget with the crewing manager and crewing coordinator
- Participate to the set-up of the crewing plan
- Insure the follow-up and update of the seafarers' qualifications via the HR assistants.
- Insure the follow-up of the skill assessments of the seafarers. Ensure the administration and follow-up of the personnel
- Develop and insure the career management policy for shore-based personnel and vessel personnel.
- Conduct the People reviews for management personnel Collect key information for Bourbon reporting and Bourbon Offshore Surf.

4.1.12 Crewing Officer

- Collect and update the quantitative and qualitative crew needs from the Operation manager and assign accordingly seafarers in compliance with the regulations and standards.
- Contribute to the Crewing plan under the supervision of the Crewing coordinator
- According to client's request, prepare seafarer's resume and profile presentation Collect and sign the crew performance appraisal
- Propose assignment in line with the seafarer's profile (experience, documents validity) and performance
- Check and valid the activities of the seafarers Plan crew changes in line with the operation and the local agents
- Launch the travel procedure with the travel agency
- Validate the travel costs and exceeding bonus

4.1.13 HR Assistant

- Check seafarers' documents required to sail
- Launch flag state endorsement, dispense or detachment procedure according to seafarers' assignment.
- Follow the seafarer's file between the French maritime authorities, insurances and internal services (crewing, payroll, finance services)
- Update payroll information in the HR information system Collect the training demands from the seafarer
- Contribute to the yearly training plan
- Follow and support seafarers starting long-term training or acquire experience validation and informa the crewing department
- Prepare and post the job requisition for recruitment
- Collect and analyse applications
- Insure the interface between the temporary work agency and the department manager Contribute to data collection for monthly report and quaterly report Store the crew performance appraisal Organise safety meeting, work council, HSWC council.

4.1.14 Q&HSE Manager

4.1.14.1 Quality part

- Ensures the deployment, implementation and improvement of the BOURBON Quality Management System (QMS) at the Affiliate Organisation in line with Quality Management principles stated in the Quality Policy.
- Promotes Quality achievement and performance improvement throughout the Affiliate Organisation.

- Ensures the application of annual Corporate Quality Plans and develops the compliant and corresponding Affiliate Annual Quality Plan.
- Manages, maps and optimises the Organisation processes and ensures its interfaces with the respective Corporate processes.
- Ensures that the Plan-Do-Check-Act cycle is applied in all Affiliate processes, in a continual improvement path.
- Supports Affiliate Process Owners in developing their processes and documentation.
- Ensures tests and procedures are properly understood, carried out and evaluated.
- Coordinates planned and extraordinary Quality meetings for improvement actions.
- Ensures the distributions of Quality Dispatch to the Designated Affiliate recipients.
- Analyses and reports the performance of the QMS through key performances indicators measurement and follow-up.
- Manages the Audits and Inspections Programme, applies and ensures compliance to the Audit Protocol and manages the certification processes.
- Manages non-conformities, awards, complaints and suggestions for improvement.
- Ensures root cause analysis to each non-conformity raised and effective closure base on evident facts.
- Works with AffiliatePurchasing to establish Quality requirements from Affiliate Suppliers, in line with the Audits and Inspections Programme.
- Manages the QMS Auditors Pool and ensures the competence of its audit team members.
- Liaising with Customer's auditors and ensuring the execution of corrective action and compliance with Customer's specifications.
- Deploys and manages the Corproate Quality Training Programmes at the Affiliate Organisation.
- Ensures control of documents and records indicated in the Affiliate processes and recommends new documents or records to the corresponding Process Owner whenever deemed necessary.
- To administrative the Affilliate area of the QMS site of BOURBON intranet (Affiliate area to be launched during 2012) and ensures each Affiliate process records are managed.
- Manages awards and complaints, and incentivates all Affiliate employees to provide improvement suggestions.
- Develops the Affiliate Quality Manual and detailed Quality Manual, in compliance with the corresponding Corporate Quality Manuals.
- Persuades reluctant employees to change their way of working to incorporate the QMS methods.
- Functional liaison with **Managing Director** and **Quality Director of BOURBON**.

50

4.1.14.2 HSE part

- To lead the Affiliate Organisation HSE team in ensuring continual improvement of operational safety management knowledge and application within the Affiliate Organisation. The mission is to support the vessels and Client Satisfaction Chain Management in achieving and maintaining sustainable high levels of compliance with Affiliate Organisation HSE expectations, based on and aligned with BOURBON HSE Plan requirements. The key emphasis is on continual, measurable and sustainable improvement.
- To deliver and report on HSE expectations as directed and required by the **Affiliate Managing Director** (hierarchical) and **BOURBON HSE Manager** (functional).
- Management and motivation of the Affiliate HSE team. Manage all HSE related resource inventories. Develop positive HSE culture through active leadership and example.
- Lead HSE performance by providing knowledge and advice to onshore and offshore personnel. Encourage compliance with OSM/SMS standards, regulatory requirements and industry best practice.
- Lead HSE performance by conducting assessments and verification of onshore and offshore compliance with OSM/SMS standards, regulatory requirements and industry best practice.
- Manage the accurate and timely reporting of statistics pertaining to HSE. Analyse HSE statistics to identify trends and develop Action plans to minimize rates and improve HSE performance.
- Assist Client Satisfaction Chain management to maintain adequate bridging and gap analysis of requirements between Client and Affiliate Safety Management Systems and processes.
- Manage individual issues and trends by leading specific campaigns (BOURBON and/or Affiliate) to improve HSE performance.

- Functional liaison with **Managing Director** and **BOURBON HSE Manager.**

4.1.15 Regulatory Compliance Coordinator

- Management of Maritime Regulatory Watch (for e.g. : SOLAS, MARPOL, French Regulations, etc…).
- Management of vessels technical folders sent for approbation to Maritime Authorities.
- Participate to meeting with Maritime Authorities.
- Analyze non-conformances regarding Maritime Regulations.
- Responsible for communicating with French Flag Commission all regulatory documents for new vessels release.
- Responsible for technical and regulatory files in case of flag transfer for European Vessels.
- Proceeding all technical files that need French Flag Commission approbation.
- Proceeding Regulatory Watch, analysing Regulations and advising the Affiliate Company.

Functional liaison with **Head of Operations Manager.**

4.1.16 Vessels responsibilities

4.1.16.1 Master

Line Management:

- Reporting to: The **Operations Manager** or **Senior Ship Management Company Managing Director** (as applicable).
- Functional reporting: The **Contracting Company Operations Manager / Contract Manager or Area Managing Director** (for vessels under Contract management)

Responsibilities:

- The **Master** has the overriding authority and responsibility for making decisions and taking all necessary actions regarding safety, pollution prevention and the efficient operation of the vessel and to request the company's assistance as may be necessary.
- The management of Bourbon will support the **Master** in any decisions to refuse any activity when such decisions are made in good faith with regard to the safety of personnel, assets or for protection of the environment.
- The **Master** has overriding authority and responsibility onboard the vessel to meet QHSE and Operational Objectives as required by Company SMS and Client expectations.
- *Shall* ensure that the vessel remains within compliance of the requirements of all applicable rules, laws, regulations, guidelines and practices of good seamanship at all times.
- In all matters which are, or may affect safety or the environment, the **Master** shall report directly to the **Senior Line Manager** and the **QHSE Manager** in the operating area. If the necessary action from shore line management is deficient, he may report directly to the **Area DPA** and / or **Bourbon Offshore Corporate QHSE Management**.

Additional Duties include but not limited to:

- Familiarise him / herself with all sections and parts of the company Safety Management System (SMS) and all company policies, procedures and instructions.
- Implement and maintain the company's policies and procedures and instructions.
- Motivate the crew to observe the company policies, procedures and instructions by demonstrating knowledge of, and a positive attitude to the company SMS.
- Issue appropriate written or verbal orders and instructions in a clear and simple manner
- Verify that all specific requirements of the company policies and procedures are observed.
- Complete the annual "**Master**'s Review" in accordance with the requirements of the SMS.

- Propose improvements to the SMS in order to improve the quality and safety of Bourbon Offshore services to its customers.
- Report situations to improve/correct (eg. hazardous situations, inadequate equipment, undesirable events) via the Situation Report (*B-FRM-1201.0012*).
- Understand that raising inappropriate situation involves responsibility for Corrective Action and shall prepare a written report of the result in accordance with established company procedures (Incident Report or Situation Report).
- Ensure that the vessel and crew are prepared for any emergency situation at all times.
- Ensure that all emergency drills, safety meetings and other SMS requirements, including but not limited to, Pre-Task Planning, Checklist use and PPE use are carried out in a correct, timely and thorough manner according to SMS procedures.
- Maintain in good order all shipboard files, certificates and records, including the documentation and reporting of all applicable information in the company and vessel logbooks.
- Verify that any revised pages for controlled documents, manuals and other publications are replaced as instructed and that obsolete documents, pages or other publications are destroyed by signing and returning the applicable letter of acknowledgement or through other approved accepted methods as instructed.
- Ensure that the watch keeping regimes and practices, including those related to security, are maintained at all times to the highest standards of good seamanship and in accordance with the directives documented in the SMS Manual and any other applicable publications.
- Identify training requirements of shipboard personnel and also assist in developing their professional abilities.
- Complete personnel evaluation as stipulated in the Company SMS directions.
- Ensure that the cargo is properly and safely loaded, stowed, secured and discharged so as at no time to endanger the crew, property, the environment or the stability of the vessel.
- Ensure that the company's policies and procedures are strictly observed by all crew.
- Ensure that all work is undertaken in a safe and efficient manner at all times, with care to allow crew members sufficient time for rest periods in accordance with the STCW Convention guidelines, for maintenance and for other essential tasks.
- May sign the Lloyds Open Form (or equivalent) in cases were the vessel is in an immediate emergency situation. If time allows, the **Master** shall contact the relevant shore base operations office and the insurance company for support.
- May sign the Lloyds Open Form (or equivalent) in cases were the vessel is in charge of a rescue situation with another vessel in an emergency situation.
- When the vessel is on hire the **Master** is to maintain communication with the Charterer's representatives as directed.
- Complete and forward as applicable, all reports and other documentation in an acceptable time frame.
- Any delegation of the **Master**'s responsibility to complete the various reports and other documentation shall be included in the **Master**'s standing orders. However, the **Master** is personally responsible for completing his part of the company's non-conformance report form.
- In most circumstances, shall function as the Ship Security Officer (SSO) but may delegate this position to the **Chief Officer**.
- Implement hazard hunts on board, at a rate of one per month.

52

The **Master** shall keep himself updated on:

- Laws and regulations issued by competent authorities and / or governments by keeping a library list of all relevant IMO publications and check Flag State web-sites monthly if new regulations apply and if able.
- Recommendations from the Classifications Society.
- The Owners instructions and any revisions to the SMS.

Certificates / Exemptions

The **Master** shall maintain the following:

- Ship's certificates and classification documents
- Recommendations and reports issued by the Flag State, the Classification Society or the corresponding Port State authority.
- The original certificates shall be filed onboard and a copy shall be maintained at the vessel owning company office and any other locations as deemed appropriate.
- During his / her tour of duty, the **Master** should indicate which certificates are, or will become due during the next duty period using a copy of the vessel's certificate record. This shall be forwarded to the vessel owning company office for applicable follow up.
- Should the **Master** receive an original certificate directly from the Classification Society or the Authorities; he / she shall forward a copy to the vessel owning company office, who in turn will forward a copy to any other locations as deemed appropriate.

Budgeting and Cost Control

- The **Master** shall make all efforts and encourage the crew to continuously improve the ships operational economy.

Hand-over Report

- The **Master** departing the vessel shall complete and sign a hand-over report for the **Master** joining the vessel at each crew-change.
- The joining **Master** shall also sign this hand-over report to demonstrate readiness to take over command of the vessel.
- A copy of this hand over report is to be forwarded to the applicable Operation Manager and any other destination as may be required and as advised.

4.1.16.2 Chief Officer

- Is directly responsible and accountable to the **Master** for the supervision and management of the deck departments, including the navigational watch keeping and stability aspects of the vessel and for overseeing the management of the galley, catering and housekeeping duties.
- Has whatever authority the **Master** delegates upon him / her and is to support the **Master** by carrying out any legal orders and / or instructions issued by the **Master** when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall plan and supervise deck related operations including the loading, stowage, securing and discharge of cargo items, towage and anchor handling equipment in accordance with all safe working practices and with regard to the **Master's** orders.
- Load and discharge bulk cargoes as applicable and in conjunction with the vessels accepted procedures.
- Is responsible for ensuring compliance with the cargo, bunker and ballast plan.
- Shall ensure that Company policy and procedure is rigorously maintained with all deck related job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall ensure that the vessel's emergency preparedness readiness is kept to a high standard; including the responsibility for overseeing the maintenance of all safety, fire fighting and other emergency equipment, ensuring that the emergency station notices, muster lists and any other applicable notification is properly updated as and when required. The specific requirements needed to ensure that these tasks are fulfilled may be delegated to the Second Officer; however the **Chief Officer** has the responsibility to ensure compliance.

- Shall oversee the correct maintenance of the navigational and deck equipment, including the vessel cosmetics in cooperation with the **Chief Engineer** as applicable.
  The specific requirements needed to ensure that these tasks are fulfilled may be delegated; however the **Chief Officer** has the responsibility to ensure compliance.
- Has responsibility for ordering deck stores, parts and consumables including paints and chemicals.
- Shall ensure that the vessel's medical supplies, medicine chests and related stores and equipment are maintained within any expiration dates and in good order. The **Chief Officer** shall also ensure that the vessel's hospital (if applicable) and associated equipment is kept in good order.
- Shall stand his / her own watch and assigning the watch keeping rotas and daily duties of the junior deck officers and ratings.
- Shall assist the **Master** in maintaining the good order, morale and motivation of the crew, will assist as necessary with crew evaluation and any reporting including those that may be required for disciplinary reasons.
- Has authority to assume temporary emergency command of the vessel and act in the place of the **Master** in the event that the **Master** is absent or unable to fulfil his / her functions due to accident, illness, or other cause.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with the **Master's** standing orders and fully comply therewith.
- Shall directly supervise or responsibly delegate all required training and familiarisation of deck and galley personnel, particularly when such personnel are new to the vessel.
- The **Chief Officer** shall under normal conditions act as the **vessel Safety Officer** as delegated by the **Master**
- The **Chief Officer** may be delegated by the **Master** to act as **Ship Security Officer** (SSO)

54 *4.1.16.3 Second Officer/DPO*

- Is directly responsible and accountable to the **Master**, however it is usual and accepted that the immediate orders and instructions will be issued by the **Chief Officer** to the Second Officer.
- Has whatever authority is delegated upon him / her by the **Master**.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall perform and supervise as required, all deck related operations including the loading, stowage, securing and discharge of cargo items, towage and anchor handling equipment in accordance with all safe working practices and with regard to the **Chief Officer**'s and / or **Master**'s instructions and orders.
- Shall ensure that Company policy and procedure is rigorously maintained with all deck related job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pretask "tool box talks" and all other safety precautions relating to job and task performance.
- Shall stand his / her own watch duties as assigned by the **Chief Officer**.
- Shall maintain and correct the vessel's chart folios, publications and documentation as applicable.
- Shall maintain the vessel's medical locker, medical stores, pharmacy and / or all other medical and first aid equipment and stores as applicable and in compliance with company and flag state requirements and regulations.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with the **Master**'s standing orders and fully complying therewith.
- Shall supervise and assist the Boatswain with the preparation readiness of the vessel's Fast Rescue Craft (FRC) and any other similar ship's craft.

4.1.16.4 Vessel Safety Officer (OSV)

- The Vessel Safety Officer will be an officer designated onboard each vessel (as applicable) by the **Master**. Usually, the designated Vessel Safety Officer is the **Chief Officer**.

The duties of the Vessel Safety Officer include (but are not limited to):

- Apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Ensure that Company policy and procedure is rigorously maintained with all vessel job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Maintain a close relationship with the **Master** and **Chief Engineer** with regards to planning and executing all requirements with regards to the onboard functions of the Quality Safety Management System including (but not limited to); arranging emergency drills and exercises, vessel safety committee meetings, crew safety meetings and related discussions, co-ordinating the vessel safety and security activities and the necessary documentation of all such activities.
- Maintain a close relationship with the **Master** with regards to planning and executing all requirements with regards to the onboard security maintenance as required by the ISPS Code.
- Familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Any other duties that the **Chief Officer** (if applicable) or **Master** may assign to him / her.

4.1.16.5 Vessel Safety Officer / SSO / Trainee DPO (MPSV)

TRAINEE DP Officer

Pre-requisite:

- Must be familiar with the safety management system and emergency procedures of the company (SMS / Contingency manual).Allocated time for Training:
- The minimum time allocated per day is 2 consecutive hours.
- Captains will determine the allocated hours according to operational requirements.
- Training hours shall be included in day working schedule of Safety officer.
- Responsabilities :
- As defined in IMCA 117 REV 1 FEBRUARY 2006 –Guidelines training and experience of key DP personnel.

6.5 Trainee DPO

A trainee DPO is defined in these guidelines as a trained DP operator meeting the competence requirements outlined in 6.4.2 and who has completed training to a minimum of Phase 2 as defined by the NI. The trainee DPO would have no watchkeeping responsibilities and should be regarded as a supernumerary.

NB *It should be noted that the Nautical Institute would define a trainee as someone working toward obtaining a DPO certificate, irrespective of whatever designation a company or vessel might use for that person. Similarly, the Nautical Institute regard a DPO as someone who holds a valid DPO certificate.*

- **Trainee DPO has NO WATCHKEEPING responsabilities.**

- DPO on desk: As defined in IMCA 117 : Chapter 6.4.2:

6.4.2 Knowledge and Experience

A junior DPO's knowledge and experience should include:

- controlling the vessel using manual and joystick controls;
- changing operational modes between auto DP to joystick to manual controls to autopilot and vice versa;
- principles and planning of DP operations;
- basic knowledge of the practical operation of DP control system, including changing between systems and the various modes of operation;
- knowledge and use of reference systems and other peripheral equipment;
- system redundancy, alarms and warnings;
- knowledge of vessel systems and their limitations;
- knowledge of DP alarm sequences and communications with reference to operational condition;
- knowledge of the vessel's operations manuals and communications system;
- knowledge of the vessel's FMEA and its implications;
- training on any other systems relevant to the DP that they are responsible for.

SAFETY/SECURITY Officer

- In charge of:
- Master Safety Document updating and insuring crew familiar with it.
- Meeting preparation: identify with captain hazardous step of process, supervise with captain and shift supervisor minute meeting, pre job meeting tool box meeting.
- Develop or adapt JSA to operation
- Develop and record safety procedure for new operation and record them.
- Develop check list
- Operation on deck:
  - Delimit hazard area on deck
  - Establish hazard report
  - Run pre job meeting with captain
  - Check PPE compliance
  - Use and explain stop card system
    - Ship safety officer is sponsor of the Master Safety Document
- Ship's safety:
- Perform ship's safety familiarization for all passengers and new crew members boarding the vessel.(as exemple:Two safety tour per day 11h30/17h30)
- Conduct or Assist chief mate for monthly safety meeting
- Prepare, conduct or assist chief mate for any emergency drills
- Perform safety equipment maintenance and update PMS accordingly.
- Reporting: in charge of daily, weekly and monthly report
- Safety observation recording
- Assist Captain for hazard, near miss, event report recording
- Manage pre task planning system according to the company policy, update JSA, PTW, check list
- ISM safety action plan: assist Captain for filling action plan and organize safety action to be performed in all services: Bridge, Deck, Engine, ROV.
- Assist chief mate for updating ships safety organization: muster list, emergency procedure: Fire, MOB, Gas alert, Collision, Grounding, Spillage
- Assist chief mate for safety instruction: work on deck, use of taglines, hazard in galley, cargo lifting, crane operation
- In charge of training and implementation of pre task planning for all services (use JSA, work permit, tbt)
- Assist chief mate for updating training scope for AB and riggers. Record it in logs
- Develop adequate tagging on board.
- Ensure that safety issues from subcontractor and/or 3dr party have been integrated to the vessel's safety system
- Ensure Ship's MSDS file is up to date and include sub-contractor MSDS
- Manage PPE stock onboard

56

- Ship's security:
- Conduct ship's security familiarization for passenger and new crew members boarding the vessel
- SSO is in charge of keeping SSP and key register updated
- Apply security measure according to current ISPS level
- Conduct security drills and training for ship's crew

4.1.16.6 Admin Mate / Trainee DPO (MPSV)

TRAINEE DP Officer

Pre-requisite:

- Must be familiar with the safety management system and emergency procedures of the company (SMS / Contingency manual).Allocated time for Training:
- The minimum time allocated per day is 2 consecutive hours.
- Captains will determine the allocated hours according to operational requirements.
- Training hours shall be included in day working schedule of Safety officer.
- Responsabilities :
- As defined in IMCA 117 REV 1 FEBRUARY 2006 –Guidelines training and experience of key DP personnel.

> **6.5 Trainee DPO**
>
> A trainee DPO is defined in these guidelines as a trained DP operator meeting the competence requirements outlined in 6.4.2 and who has completed training to a minimum of Phase 2 as defined by the NI. The trainee DPO would have no watchkeeping responsibilities and should be regarded as a supernumerary.
>
> NB *It should be noted that the Nautical Institute would define a trainee as someone working toward obtaining a DPO certificate, irrespective of whatever designation a company or vessel might use for that person. Similarly, the Nautical Institute regard a DPO as someone who holds a valid DPO certificate.*

- **Trainee DPO has NO WATCHKEEPING responsabilities.**

- DPO on desk: As defined in IMCA 117 : Chapter 6.4.2:

> **6.4.2 Knowledge and Experience**
>
> A junior DPO's knowledge and experience should include:
>
> - controlling the vessel using manual and joystick controls;
> - changing operational modes between auto DP to joystick to manual controls to autopilot and vice versa;
> - principles and planning of DP operations;
> - basic knowledge of the practical operation of DP control system, including changing between systems and the various modes of operation;
> - knowledge and use of reference systems and other peripheral equipment;
> - system redundancy, alarms and warnings;
> - knowledge of vessel systems and their limitations;
> - knowledge of DP alarm sequences and communications with reference to operational condition;
> - knowledge of the vessel's operations manuals and communications system;
> - knowledge of the vessel's FMEA and its implications;
> - training on any other systems relevant to the DP that they are responsible for.

Admin Mate

- In charge of:
- Passenger recording-Client and Bourbon.
- Communication with Bourbon offices for crew members' changes
- Follow up of vessel crew and passengers changes (planning and assistance)
- Follow up of local immigration rules (Embark/disembark manifest).

- Checking of medical fitness
- Management/Follow up of T cards panel
- Helicopter/Surfer Bookings and registration /updating of PTS datas .
- Communication with Bourbon offices for crew members' certification. Inform Captain if any certificate is missing when crew member is boarding.
- Manage crew details archiving (copies of seaman's book, passport, certificates)
- Scheduling of catering services with camp boss.
- Catering Contract Supervision.
- Cabin management & inspection. (Internet/TV/telephone).
- On board goodies management (cigarettes & phone cards/etc.)
- POB/ Meals and bedding daily and monthly reporting and sending .
- Crew hours reporting
- Affiliate crew working days reporting
- Update of vessel crew matrix.
- Management of cabin in accordance with vessel contract.
- Interface with IT dept for related defects.
- Port call preparation with Agent & client.

4.1.16.7 Chief Engineer

- Is directly responsible and accountable to the **Master** for the supervision and management of all technical and related departments onboard.
- Shall provide reliable operation of the vessel's engines, machinery and all other mechanical equipment.
- Has whatever authority the **Master** delegates upon him / her with regard to the Technical Departments onboard and the crew members assigned to work therein.
- Shall support the **Master** by carrying out any legal orders and / or instructions issued by the **Master** when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Must always inform the **Master** whenever he believes that an operation may place any of the vessel's machinery or other equipment at risk of damage.
- Is not authorised to refuse a machinery operation order after the **Master** has been adequately informed of the associated risks.
- May supervise or delegate responsible supervision to another Engineering Officer for any "hot work" performed onboard
- Apply, follow and encourage Company policy and procedures in the performance of all tasks, with special emphasis on the protection of the environment and pollution prevention.
- Shall ensure that Company policy and procedure is rigorously maintained with all technical and engineering related job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Checklists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall plan and supervise technical and engineering related operations including the corrective and preventative maintenance and inspection of the vessel's equipment, machinery and associated plants in accordance with all safe working practices and with regard to the **Master**'s orders.
- Shall comply with all statutory regulations and classification guidelines applicable to vessel machinery and related spaces.
- Shall analyse and report any technical problems, making recommendations and assisting as applicable with any corrective maintenance, temporary and permanent repairs.
- Shall prepare and maintain all technical department related log-books, documentation and filing including when necessary, the preparation of dry dock and other repair related reports.
- Shall stand his / her own watch and assigning the watch keeping rotas and daily duties of the Junior Engineering Officers and engine room assigned ratings.
- Shall load and discharge fuel and other bulk cargoes as applicable and in conjunction with the vessel's accepted procedures.
- Is responsible for ensuring compliance with the cargo, bunker and ballast plan.

- Shall monitor, check and report as necessary, fuel and lubricating oil consumption, shall maintain accountability of fuel and lubricating oils through regular soundings and other methods as applicable.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with the **Master**'s standing orders and fully complying therewith.
- Ordering, loading, stowing as applicable all fuel and lubricants.
- Shall order all engine department stores and supplies as and when necessary.
- Shall supervise and instruct with regard to loading, stowing and issuing engine department stores as applicable
- Shall assist the **Master** in preparing bunkers before getting underway and whenever applicable.
- Shall maintain discipline, reviewing the performance and providing written evaluations of officers and ratings assigned to work in the Technical / Engineering Department, including those reports that may be required for disciplinary reasons.
- Shall operate winches and other deck equipment as applicable and in conjunction with the vessels accepted procedures.
- Shall directly supervise or responsibly delegate all required training and familiarisation of Engine Room Personnel, particularly when such personnel are new to the vessel.

4.1.16.8 Second / Assistant Engineer

- Is directly responsible and accountable to the **Chief Engineer**, but with due consideration for the **Master**'s overall command, from whom the Second Engineer also has a duty to comply with any legal orders and instructions.
- Has whatever authority the **Chief Engineer** delegates upon him / her with regard to the Technical Department's onboard, Subordinate Engineering Officers and Ratings assigned to work therein.
- Shall support the **Chief Engineer** by carrying out any legal orders and / or instructions issued by the **Chief Engineer** when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks, with special emphasis on the protection of the environment and pollution prevention.
- Shall ensuring that Company policy and procedure is rigorously maintained with all technical and engineering related job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Checklists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- In accordance with the **Chief Engineer**'s orders and instructions, plan, perform and supervise technical and engineering related operations including the corrective and preventative maintenance and inspection of the vessel's equipment, machinery and associated plants in accordance with all safe working practices.
- Shall report any technical problems to the **Chief Engineer** and assisting as applicable with any corrective maintenance, temporary and permanent repairs.
- Shall stand his / her own watch and supervising as required the daily duties of the Subordinate Engineering Officers and Engine Room Assigned Ratings.
- Shall load and discharge fuel and other bulk cargoes as applicable in conjunction with the **Chief Engineer**s instructions and orders and the vessel's accepted procedures.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with the **Chief Engineer**'s standing orders and fully complying therewith.
- Shall supervise as required all required training and familiarisation of Junior Engine Room Personnel, particularly when such personnel are new to the vessel.
- Shall assume temporary emergency command of the engine room and act in the place of the **Chief Engineer** in the event that the **Chief Engineer** is absent or unable to fulfil his / her functions due to accident, illness, or other cause.
- Shall assist as required in the routine housekeeping, care, cleaning and maintenance of the vessel's machinery, plant and other applicable spaces as may be required or as directed by the **Chief Engineer**.

4.1.16.9 Third / Assistant Engineer

- Is directly responsible and accountable to the **Chief Engineer**, but with due consideration for the Second Engineer's superior ranking and the **Master**'s overall command, both of whom the Third Engineer also has a duty to comply with any legal orders and instructions.
- Has whatever authority the **Chief Engineer** delegates upon him / her with regard to the Technical Departments onboard and Ratings assigned to work therein.
- Shall carry out any legal orders or instructions issued by the **Chief Engineer** when such orders or instructions are sound and within the accepted practices of good seamanship.
- Shall ensure that Company policy and procedure is rigorously maintained with all technical and engineering related job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Checklists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- In accordance with the **Chief Engineer**'s orders and instructions, shall plan, perform and supervise technical and engineering related operations including the corrective and preventative maintenance and inspection of the vessel's equipment, machinery and associated plants in accordance with all safe working practices.
- Shall report any technical problems to the **Chief Engineer** and assisting as applicable with any corrective maintenance, temporary and permanent repairs.
- Shall stand his / her own watch and supervising as required the daily duties of the engine room assigned ratings.
- Shall load and discharge fuel and other bulk cargoes as applicable in conjunction with the **Chief Engineer**'s instructions and orders and the vessel's accepted procedures.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall supervise as required all required training and familiarisation of engine room ratings, particularly when such personnel are new to the vessel.
- Shall assist as required in the routine housekeeping, care, cleaning and maintenance of the vessel's machinery, plant and other applicable spaces as may be required or as directed by the **Chief Engineer**.

60

4.1.16.10 Electrical Engineer

- Is directly responsible and accountable to the **Chief Engineer**, but with due consideration for the **Master**'s overall command, from whom the Electrical Officer also has a duty to comply with any legal orders and instructions.
- Has whatever authority the **Chief Engineer** delegates upon him / her with regard to the electrical systems and equipment onboard.
- Shall provide support to the **Chief Engineer** by carrying out any legal orders and / or instructions issued by the **Chief Engineer** when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall ensuring that Company policy and procedure is rigorously maintained with all electrical related job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- In accordance with the **Chief Engineer**'s orders and instructions, shall plan and perform electrical related operations including the corrective and preventative maintenance and inspection of the vessel's electrical equipment, machinery and associated plants in accordance with all safe working practices.
- Shall report any electrical problems to the **Chief Engineer** and assisting as applicable with any corrective maintenance, temporary and permanent repairs.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with the **Chief Engineer**'s standing orders and fully complying therewith.

- Shall assist as required in the routine housekeeping, care, cleaning and maintenance of the vessel's electrical machinery, plant and other applicable items as may be required or as directed by the **Chief Engineer**.

4.1.16.11 Boatswain (bosun)

- Is directly responsible and accountable to the **Chief Officer**, but with due consideration for the **Master**'s overall command and other Deck Officers, all of whom have a superior standing onboard and from whom the Boatswain also has a duty to comply with any legal orders and instructions.
- Shall support the Vessel Officers by carrying out any legal orders and / or instructions issued by them when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall ensure that Company policy and procedure is rigorously maintained with all job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, JSA use, Check-lists, Risk Assessment, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall supervise the deck ratings and perform as required, in all deck related operations including the loading, stowage, securing and discharge of cargo items, towage and anchor handling equipment in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall supervise the deck ratings and perform as required, in all deck related tasks including any involving the loading, stowage, and discharge of liquid and dry bulk products as may be requested, including any tank cleaning duties as may be required in accordance with all safe working practices and with regard to the Vessel Officer's instructions and orders.
- Shall supervise the deck ratings and perform as required, in all deck operations relating to towage, anchor handling and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall supervise the deck ratings and perform as required, in all deck operations relating to mooring, shifting, anchoring and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall supervise the deck ratings and perform as required, in all deck operations relating to cosmetic maintenance, painting, cleaning, loading, moving, stowing and discharging stores, equipment and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- The Boatswain will usually be assigned as person in charge and coxswain (driver) for the vessel's Fast Rescue Craft (FRC) and / or other ship's craft. It is the Boatswain's duty to ensure that such craft are kept well maintained, ready to launch and prepared with fuel and all necessary safety, rescue and other applicable equipment to conduct the tasks that are reasonably to be expected of such craft. The Boatswain should enlist the assistance of the Second Officer as required for all such preparation.
- Shall stand watches as assigned instructed and directed by the **Chief Officer** or another Deck Officer delegated by the **Master** or **Chief Officer**.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with any applicable standing orders and fully complying therewith.

4.1.16.12 Deck Ratings

- Deck Ratings (OS, EDH, AB etc.) are directly responsible and accountable to the **Chief Officer**, but with due consideration for the **Master**'s overall command, other Officers and the Boatswain, all of whom have a superior standing onboard and from whom the Deck Ratings have a duty to comply with any legal orders and instructions.
- In normal day to day routines, the Boatswain has the authority and responsibility to supervise and instruct the Deck Ratings in their daily tasks and duties.

- Shall support the vessel officers and Boatswain by carrying out any legal orders and / or instructions issued by them when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall ensure that Company policy and procedure is rigorously maintained with all job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall perform as required in all deck related operations including the loading, stowage, securing and discharge of cargo items, towage and anchor handling equipment in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall perform as required in all deck related tasks including any involving the loading, stowage, and discharge of liquid and dry bulk products as may be requested, including any tank cleaning duties as may be required in accordance with all safe working practices and with regard to the vessel officer's and the Boatswain's instructions and orders.
- Shall perform as required in all deck operations relating to towage, anchor handling and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall perform as required in all deck operations relating to mooring, shifting, anchoring and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall perform as required in all deck operations relating to cosmetic maintenance, painting, cleaning, loading, moving, stowing and discharging stores, equipment and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Deck Ratings will usually be assigned as crewmembers for the vessel's Fast Rescue Craft (FRC) and / or other ship's craft. When assigned, it is the Deck Ratings duty to assist the
- Boatswain as necessary and applicable to ensure that such craft are kept well maintained, ready to launch and prepared with fuel and all necessary safety, rescue and other applicable equipment to conduct the tasks that are reasonably to be expected of such craft.
- Shall stand watches as assigned instructed and directed by the **Chief Officer** or another deck officer delegated by the **Master** or **Chief Officer**.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with any applicable standing orders and fully complying therewith.

62

4.1.16.13 Deck Foreman (MPSV)

- Under the supervision of the Shift Supervisor, the Master or the Chief Mate, the Deck Foreman is responsible for the preparation and execution of all lifting, slinging and rigging operations according to the related procedures and plans and when certified as Bosun the preparation and execution of all deck operations (mooring, shifting, anchoring, loading, moving & stowing) and overall maintenance operations (painting, chipping, cleaning)
- Supervise all lifting, slinging and rigging operations, deck operations and maintenance
- Co-ordinate the AB / riggers and the crane operator during above mentioned operations and organise their work schedule
- Check all rigging equipment and accessories, and Cargo Carrying Units (CCU) prior to and during above mentioned operations
- Maintain rigging equipment and accessories inventory
- Assist in producing lifting plans
- Acts as banksman during lifting operations until crane is put in parked position
- Confirm and control reliable communications between all relevant parties during above mentioned operations
- Participate to Job Safety Analysis (JSA) regarding above mentioned operations; and assess risk during their execution
- Conduct toolbox talks at the start of each shift according to relevant JSA
- Perform skills and competency appraisals for riggers at the end of each rotation
- Provide support to develop riggers towards reaching competency and verify their recorded activities

- Perform detailed hand-over at the end of each shift with opposite shift's deck foreman

4.1.16.14 Crane Operator (MPSV)

- The Offshore Crane Operator is responsible for safe handling of loads executed with regards to all lifting procedures as determined in the work plan procedure and task plan.
- In direct and close liaison with the Deck Foreman and/or the Shift Supervisor/OIM and/or the captain
- Participate in all lifting activities in a safe and reasonable manner as per standard industry practice, at all times as per Deck Foreman and/or Shift Supervisor/OIM instructions.
- Assist to pre-jobs meeting and liaise with the different party involved in the achievement of the subsea works (Marine, ROV, SPS Technicians, Deck Foreman, etc.)
- Guarantee good performance of the lifting activities and establish periodically a maintenance check list.
- Fill-in crane logbook with list of events and maintenance performed, overload, survey, load test, and any deficiencies.
- Report to the Captain, Deck Foreman and Chief Engineer any deficiencies or malfunctions or outstanding maintenance.
- Prepare incident report to be sent to the ship manager.
- Train local personnel in the use of cranes and other lifting gear on board if required.
- Ensure a proper hand-over with his back-to-back.

4.1.16.15 Rigger/AB (MPSV)

- Carry out instructions issued by the vessel Master and Officers, the Shift Supervisor, the Bosun or Deck Foremen on board.
- Responsible for the preparation and execution of all lifting, slinging and rigging operations according to the deck foreman requirements.
- Responsible for completing their own on board development of skills and competencies (stage II - Continuous Personnal Development) with the support of the Deck Foreman.
- ADDITIONAL when certified as AB:
- Responsible for the preparation and execution of all deck operations (mooring, shifting, anchoring, loading, moving & stowing) and overall maintenance operations (painting, chipping, cleaning) according to the Bosun's requirements.
- Responsible for carrying out lookout and watch activities according to the Chief Mate's requirements.
- Prepare, handle and use all rigging equipmentand accessories.
- Slings loads.
- Perform pre and post use inspections of all rigging equipement and accessories.
- Perform maintenance of rigging equipment and accessories.
- Perform deck maintenance (i.e. painting, chipping, housekeeping, etc.).
- Assist Deck Foreman in managing rigging loft and rigging inventory.
- Handle cargo during loading / unloading operations.
- Attend toolbox talks at the start of each shift and sign the relevant form.
- Fill their own log book to record their on board activities before getting it verified and stamped.
- Perform hand-over at the end of each shift with opposite shifts' rigger
- ADDITIONAL - Prepare, handle and use all equipment and accessories related to deck operations (mooring, shifting, anchoring, loading, moving & stowing) and overall maintenance operations (painting, chipping, cleaning).
- ADDITIONAL – Act as watchman in port.
- ADDITIONAL – Maintain a lookout in darkness and / or restricted visibility.
- ADDITIONAL – Carry out minor welding and fabrication duties if holding relevant valid certifications.

4.1.16.16 Engine Room Rating

- Engine Room Ratings (Oilier, Wiper, Greaser etc.) are directly responsible and accountable to the **Chief Engineer**, but with due consideration for the other officers superior ranking and the **Master**'s overall command, all of whom the Engine Room Rating also has a duty to comply with any legal orders and instructions.
- In situations where the Engine Room Ratings is working on deck, the Boatswain has the authority and responsibility to supervise and instruct the Engine Room Rating as applicable.
- Shall carry out any legal orders and / or instructions issued by Officers when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall ensure that Company policy and procedure is rigorously maintained with all job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall perform as required in all engine room and associated area tasks and work relating to cosmetic maintenance, wiping, oiling, painting, cleaning, loading, moving, stowing and discharging stores, equipment and related tasks and operations in accordance with all safe working practices and with regard to the vessel officer's instructions and orders.
- Shall perform as required in all deck related tasks including any involving the loading, stowage, and discharge of liquid and dry bulk products as may be requested, including any tank cleaning duties as may be required in accordance with all safe working practices and with regard to the vessel officer's orders / instructions and the Boatswain's instructions.
- Shall stand watches as assigned instructed and directed by the **Chief Engineer** or another engineering officer delegated by the **Chief Engineer**.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with any applicable standing orders and fully complying therewith.

64

4.1.16.17 Steward

- Is directly responsible and accountable to the **Chief Officer**, but with due consideration for the **Master**'s overall command and other Officers, all of whom have a superior standing onboard and from whom Stewards have a duty to comply with any legal orders and instructions.
- Is under the day to day command of the **Cook** and have a duty to comply with any legal orders and instructions.
- Shall support the Vessel Officers and the **Cook** by carrying out any legal orders and / or instructions issued by them when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall ensure that Company policy and procedure is rigorously maintained with all job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall keep the galley, mess-rooms, common areas, all related storage areas, including cold storage areas in a high condition of sanitation and otherwise neat, tidy and clean.
- Shall keep the cabins, passenger rooms, common areas and other associated areas in a high condition of sanitation and otherwise neat, tidy and clean.
- Is responsible for completing the laundry requirements onboard, including the collection, washing, drying, pressing and reinstalling of clean laundry in each cabin, passenger room or other associated area as applicable.
- Shall liaise with the **Cook** as required to plan and to discuss menus and other catering requirements.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations, procedures, any applicable standing orders and fully complying therewith.

4.1.16.18 Cook

- Is directly responsible and accountable to the **Chief Officer**, but with due consideration for the **Master**'s overall command and other Officers, all of whom have a superior standing onboard and from whom **Cooks** have a duty to comply with any legal orders and instructions.
  Shall be dully trained and competent regarding practical cookery, food and personal hygiene, food storage, stock control, and environmental protection and catering health and safety.
- Shall support the vessel officers by carrying out any legal orders and / or instructions issued by them when such orders and / or instructions are sound and within the accepted practices of good seamanship.
- Shall apply, follow and encourage Company policy and procedures in the performance of all tasks.
- Shall ensure that Company policy and procedure is rigorously maintained with all job and task planning, with special emphasis on the correct use and application of PPE, safety equipment, Risk Assessment, JSA use, Check-lists, Pre-task "tool box talks" and all other safety precautions relating to job and task performance.
- Shall keep the galley, mess-rooms, common areas, all related storage areas, including cold storage areas in a high condition of sanitation and otherwise neat, tidy and clean.
- Shall liaise with the **Chief Officer** as required to plan and to discuss menus and other catering requirements, including the ordering and replenishment of galley stores and provisions.
- Shall maintain record keeping with regard to consumed provisions, galley stores used and other items as required.
- Shall supervise the Steward(s) in performing their required duties.
- After consultation with the **Chief Officer** and / or **Master**, may be required to reorder as applicable with regard to provisions, used galley stores and other items.
- Shall supervise or directly prepare and present meals for the entire compliment onboard,including when necessary, for any passengers, visitors and other super-numeries.
- Shall familiarise him / herself with the applicable details of the vessel's emergency signals, stations and procedures.
- Shall familiarise him / herself with any applicable standing orders and fully complying therewith.

65

4.2 Company Organisation Chart

The organisation chart below is just for awareness of the expected document. The up-to-date organisation chart is on BOS intranet, section "Presentation", sub-section "Our Team", or directly at the following link: A copy is sent by email from BOS QMS Dispatch and available on the *Vessel Filing System*.

http://intranet.bourbon-online.com/AllCompanies/BOS/Presentation/Pages/OurTeam.aspx

5 Records

- Annual HSE plans.
- Corrective and improvement action plans.

6 Related documents

- B-GDL-03.0007 – OSM Guidelines;
- B-GDL-11.0001 – Document Control Guidelines;
- B-SPC-11.0003 – Document Type Definitions;
- B-POL-01.0004 – Health and Safety Policy;
- B-POL-01.0005 – Environment Policy;
- B-FRM-0302.0003 – Incident Report;
- B-FRM-1201.0012 – Situation Report;
- B-CHR-01.0001 – BOURBON Organisation Chart;
- BOS-CHR-01.0001 – BOS Organisation Chart;
- ISM Code.

7 Terms and definitions

Affiliate Organisation
Ship Management companies, contracting companies, manning companies, vessel support companies, etc that are a part of BOURBON, that report to the Corporate Organisation. Affiliate Organisations are also identified as “Level 2” when referring to documentation. Ship Management Affiliate Organisations, known as “Ship Managers”, correspond to the term “the Company” used in ISM and ISPS Codes.

66

BOURBON
Corporate Organisation + Affiliate Organisations.

Contract
Binding agreement.

Corporate Organisation
Head Office/central functions of BOURBON. Also identified as “Level 1”

DPA
Designated Person Ashore.

DSE
Display Screen Equipment.

ESD
Emergency Shut Down.

HSE
Health, Safety and Environment.

ISM
International Safety Management.

IT
Information Technology.

Level 1
Corporate Level. It applies to all documentation of the Corporate Organisation.

Level 2
Affiliate level. It applies to all documentation of the Affiliate Organisations.

MOC
Management of Change.

OSM Guidelines
Operational Safety Management Guidelines developed by the Corporate Organisation as BOURBON's standard for operational HSE management

Programme
An organised order of plans or events to take place and to be followed.

PTW
Permit to Work.

Recommendation
Statement that may originate from an observation. A recommendation from an observation is not binding although it represents an opportunity for improvement.

QMS
Quality Management System.

Shall
Non-conformities are raised whenever a "*shall*" is not fulfilled. Specifies an unconditional requirement. Not complying originates a non-conformity. "*Shall*" is equivalent to "must".

Should
To be understood as "highly recommended". The term "should" specifies that conformity is expected unless circumstances justify deviation. Not complying may generate an observation.

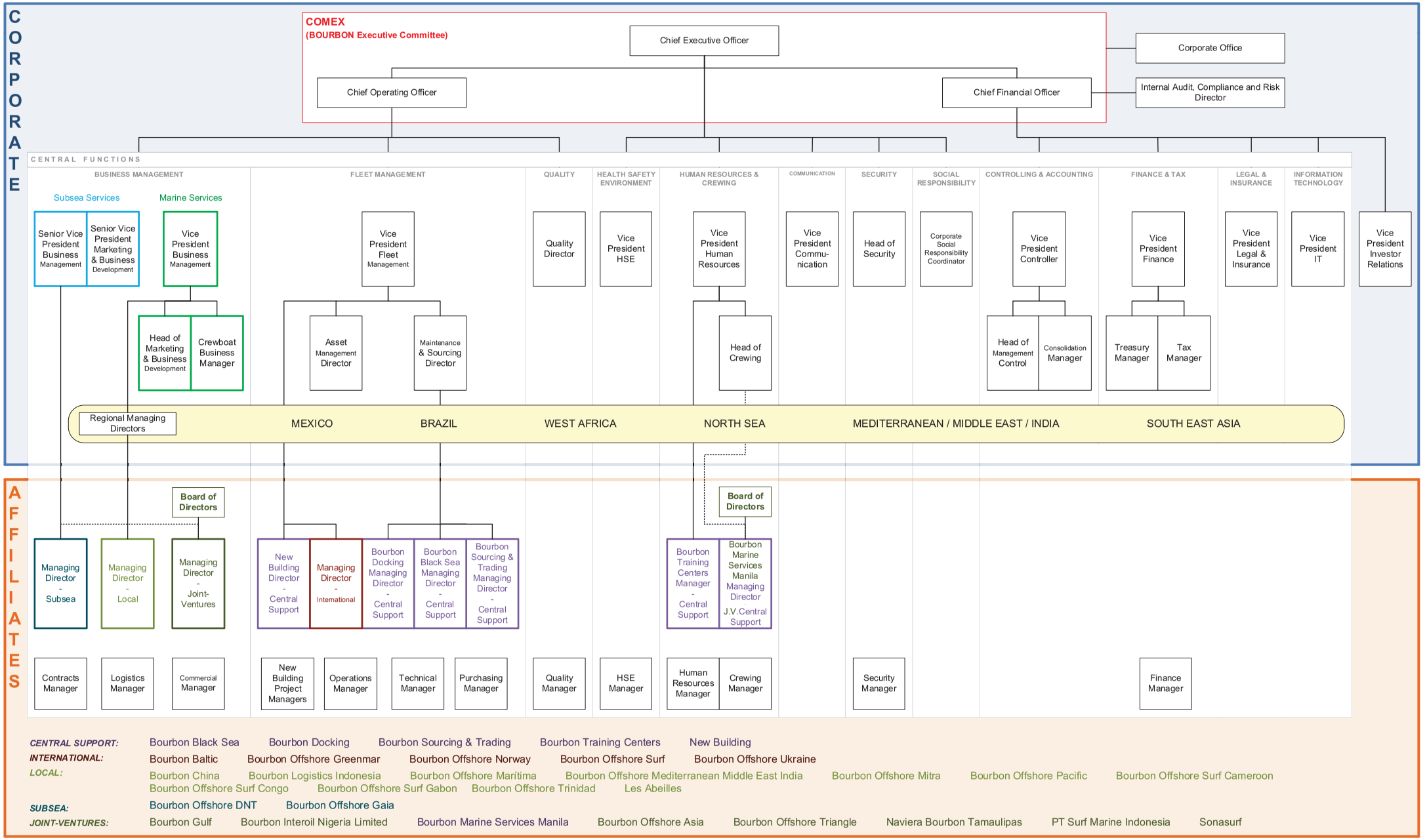
SMS
Safety Management System.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS General Manager	BOS Quality Representative	Rev 01- 2013/03/11	Adding §4.3.6 "Deputy Crewing Manager"; §4.3.7 "Crewing Coordinator"; § 4.3.8 "HR Coordinator"; §4.3.9 "Crewing Officer"; §4.3.10 "HR Assistant; §4.3.11.3 Adding DPO to the title. S 4.3.11.13 Adding job description of the Cook and § 4.4
BOS Managing Director	BOS Managing Director		Ver.03 – 03/12/2013	Adding responsibilities to §4.3.11.13 Cook
BOS Departments (Crewing, Operations and QHSE).	BOS Managing Director.		Ver.04 – 31/12/2014	Adding all Job Specifications on the § 4.3 Organisation: § 4.3.2 Managing Director / § 4.3.3 Designated Person Ashore / § 4.3.7 Fleet Technical Manager./ § 4.3.8 HR& Crewing Manager/ §4.3.13.14 QHSE Manager with Quality and HSE parts/ §4.3.15 Regulatory Compliance Coordinator/ §4.14.3.16.5 Vessel Safety Officer/SSO/Trainee DPO / §4.14.3.16.6 Admin mate/ Trainee DPO / §4.14.3.16.13 Deck Foreman / §4.14.3.16.14 Crane Operator and §4.14.3.16.15 Rigger&AB. § 4.3.11.2 and § 4.3.11.5 reviewed Completing §4.3.4 Operations Manager job ticket, § 4.3.5 Contract Manager. Deletion of Purchasing Manager job title and Company Organisation Chart. §4.14.3.16.1 Modification of Hazard Hunts periodicity. Deleting Job Specifications from the SMS (B-SPC-02.0101 / B-SPC-02.0102 / B-SPC-02.0103 / B-SPC-02.0104 / B-SPC-01.0105 / B-SPC-02.0106 / B-SPC-02.0107 / B-SPC-02.0108 / B-SPC-02.0109 and BOS-SPC-02.0110. Deleting § 4.1 to § 4.2.7 from the version to be inserted in the procedure Vessel Documentation.

BOURBON Organization Chart

B-CHR-01.0001



CENTRAL SUPPORT: Bourbon Black Sea, Bourbon Docking, Bourbon Sourcing & Trading, Bourbon Training Centers, New Building

INTERNATIONAL: Bourbon Baltic, Bourbon Offshore Greenmar, Bourbon Offshore Norway, Bourbon Offshore Surf, Bourbon Offshore Ukraine

LOCAL: Bourbon China, Bourbon Logistics Indonesia, Bourbon Offshore Marítima, Bourbon Offshore Mediterranean Middle East India, Bourbon Offshore Mitra, Bourbon Offshore Pacific, Bourbon Offshore Surf Cameroon, Bourbon Offshore Surf Congo, Bourbon Offshore Surf Gabon, Bourbon Offshore Trinidad, Les Abeilles

SUBSEA: Bourbon Offshore DNT, Bourbon Offshore Gaia

JOINT-VENTURES: Bourbon Gulf, Bourbon Interoil Nigeria Limited, Bourbon Marine Services Manila, Bourbon Offshore Asia, Bourbon Offshore Triangle, Naviera Bourbon Tamaulipas, PT Surf Marine Indonesia, Sonasurf

Version 07. Original date: 02 February 2010. Version date: 23 October 2013. Valid version only on QMS site.
Chart prepared by: Quality Director of BOURBON. Approved by: COMEX. Validated by: Quality Director of BOURBON.

CUSTOMER

Needs and expectations

REQUIREMENTS

BOURBON

Heads of the Regions
deliver the added value that the Client expects

PLAN DO CHECK ACT

Local Vessel Support Function	Ship Management Function	Contracting Function
LOGISTICS MANAGER	OPERATIONS MANAGER	CONTRACTS MANAGER
	Designated Person Ashore	Affiliate QHSE Manager
Provides local services to vessels	Manages the vessels	Manages the contracts

CLIENT SINGLE POINT OF CONTACT



FULL SERVICES RANGE

SERVICES PROVIDED

CUSTOMER

CLIENT REPRESENTATIVE

Satisfaction

Vessel Documentation

BOS-PRD-11.900101-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Statutory certification 5
4.1.1 Generalities 5
4.1.2 SMC, ISSC and DOC 5
4.1.3 Flag Statutory Publications and documents 5
4.1.4 Other statutory documents 5
4.2 Additional publications and manuals 6
4.2.1 Regulatory 6
4.2.2 Non-regulatory 6
4.3 SMS documentation structure and overview 6
4.4 Document management overview 7
4.4.1 Document review and approval 7
4.4.2 Control of documents 8
4.4.3 Distribution of controlled documents 8
4.4.4 Obsolete documents 8
4.4.5 Guidelines 9
4.4.6 Procedures 9
4.4.7 Appendices and other related documents 9
4.5 Vessel filing system and records 9

5 Records 10

6 Related documents 10

7 Terms and definitions 11

8 Review, approval, revision and identification of changes 12

72

1 Purpose

To provide a documented structure for the management by providing written policies, guidelines and procedures to maintain conformance with the requirements of:

- International Safety Management (ISM) Code;
- ISPS Code;
- OSM Guidelines and other issued documentation;
- Statutory/certification;
- Industry publications;
- Industry best practices;
- Industry guidelines;
- Company Documentary Vessel Filing System.

2 Scope

This procedure applies to all vessels and Head Office.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under their command;

b) Ensuring compliance with, and application of the Company SMS onboard the vessel under his/her command as applicable.

Process Owners have the responsibility, authority and accountability for:

a) Determining criteria and necessary documents for vessel;

b) Ensuring that the requirements and expectations for Vessel Documentation are communicated and implemented on board all vessels under his/her jurisdiction.

Q & HSE Manager/Quality Representative has the responsibility, authority and accountability for:

a) Ensuring that the vessel documentation exists and is made available on board all vessels;

b) Ensuring that a copy of any locally issued or otherwise directly issued statutory documentation received from the **Master** is forwarded to the responsible Company Head Office as applicable.

74

4 Description

4.1 Statutory certification

4.1.1 Generalities

All original and valid vessel statutory documents *shall* be available at all times onboard.

4.1.2 SMC, ISSC and DOC

Each applicable vessel *shall* maintain the original Safety Management Certificate (SMC), the original International Ship Security Certificate (ISSC) and a copy of the Affiliate Ship Management Organisation's Document of Compliance (DOC) onboard at all times. Copies of these certificates *shall* be maintained with each Affiliate Ship Management Organisation's as applicable.

The responsibility for the safe keeping of such documentation onboard is with the **Master**. Safe keeping of copies ashore is the responsibility of the vessel responsible Designated Person Ashore (DPA) for the DOC and SMC and the Company Security Officer (CSO) for the ISSC. Copies of these documents *shall* be provided to the **Q & HSE Manager**/**Quality Representative**.

4.1.3 Flag Statutory Publications and documents

Each vessel shall maintain onboard the compulsory documentation required by the Flag(s). The list of the compulsory documents are available on the dedicated Flags websites:

- Cyprus: www.mcw.gov.cy
- French International Flag : www.rif.mer.developpement-durable.gouv.fr
- Luxembourg : www.maritime.lu
- Panama : www.smaeuropa.org
- Saint Vincent les Grenadines : www.svg-marad.com
- Vanuatu : www.vanuatumaritimeships.com

4.1.4 Other statutory documents

The **Master** is responsible for ensuring that all certification and documentation is valid and current.

The **Master** is responsible for the safe custody of the vessel's certificates and documentation.

This responsibility can only be lifted when certification or documentation is in the possession of an authorised Company Representative or agent. In such a case, the responsibility for safe custody of the certificates or documentation *shall* shift to the possessor.

In each case, the **Master** *shall* ensure that any authorised Company Representative or agent signs for custody (and therefore responsibility of the certificates or documents) in the Vessel's Bridge Logbook.

A copy of each certificate *shall* be maintained on file within the Company office.

The **Master** is responsible to ensure that a copy of any locally issued or otherwise directly issued statutory documentation to the vessel is forwarded to the base operating office for onward delivery to the Company Head Office.

The local **Q & HSE Manager** is responsible to ensure that a copy of any locally issued or otherwise directly issued statutory documentation received from the **Master** is forwarded to the responsible Company Head Office when applicable.

4.2 Additional publications and manuals

The regulatory documents specified on the form *BOS-FRM-11.0009 Ship Publication Inventory shall* be used onboard as reference publication and manual in association with *OSM Guidelines*:

4.2.1 Regulatory

As examples, but not limited to, if not stated differently on the above form:

- IMO: SOLAS Consolidated Edition and amendments;
- International Ship and Port Facility Security code;
- International Safety Management Code (ISM~~: 2010~~);
- International Standards for the Training, Certification and Watch keeping of Seafarers;
- MARPOL 73/78 Consolidated edition;
- Collision Regulations, Consolidated edition;
- Ship's Routeing;
- IAMSAR Manual (volume III);
- International Medical Guide for Ships (or equivalent);
- IMDG Code;
- Maritime Labour Convention 2006 and amendments;
- Declaration of maritime Labour Compliance Part I;
- Declaration of maritime Labour Compliance Part II;
- Maritime Labour Certificate;
- Other related documents available on the Bourbon Intranet (“Maritime Labour Convention”) Workspace.

4.2.2 Non-regulatory

76

The Company *shall* maintain an onboard library of the latest editions of the non-regulatory documents mentioned below. Similar libraries *should* be maintained at head offices and operating bases:

- Bridge Procedures Guide (ICS);
- Guide to Helicopter/Ship Operations (ICS);
- Oil and Gas Emergency Response and Rescue Vessel Management Guidelines (Oil & Gas UK);
- Oil and Gas Emergency Response and Rescue Vessel Survey Guidelines (Oil & Gas UK);
- Guidelines for the Safe Management of Offshore Supply and Anchor Handling Operations (NWEA);
- Guidelines for the Safe Packing and Handling of Cargo to and from Offshore Locations (Oil & Gas UK);
- Code of Safe Working Practices for Merchant Seamen (UK MCA);
- Guidelines for the Management of Helideck Operations (Oil & Gas UK);
- CAP 437 Offshore Helideck Landing Area Guidance on Standards (CAA);
- IMCA Guidance Documents.

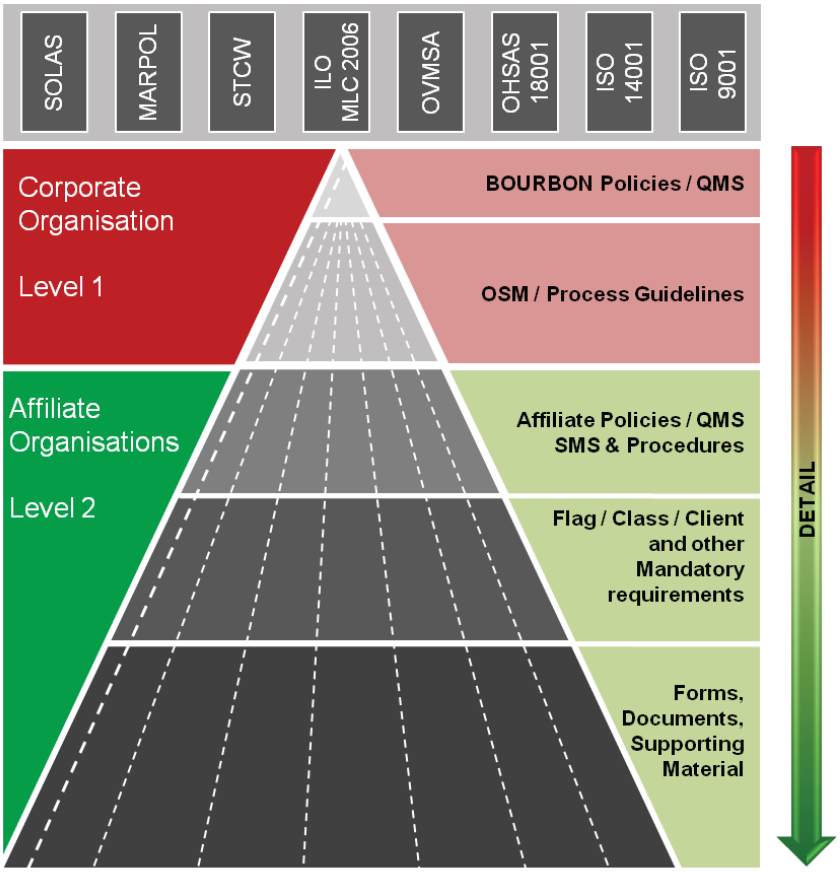
4.3 SMS documentation structure and overview

In compliance with ISM Code 1.4, the SMS includes the following requirements:

- A safety and environmental policy; which is provided by the BOURBON Health and Safety Policy and Environment Policy;
- Procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and Flag State legislation;
- Defined levels of authority and lines of communication between, and amongst, Head Office and vessel personnel;
- Procedures for reporting accidents and non-conformities within the provisions of the Code and the SMS;
- Procedures to prepare for and respond to emergency situations;
- Procedures for internal audits and management reviews.

The documented management system has been developed in support of fleet management policies and objectives in so far as:

- The SMS *shall* form the basis for HSE controls for all operations carried out on board;
- Activities requiring procedures *shall* be systematically identified and be developed in consultation with those who will be affected by them or who have to apply them;
- Transparency and availability of information *shall* be provided to those who charter Company vessels;
- Supplementary bridging documents from charterer or field operator as may be required *shall* not take final responsibility or control away from the vessel crew and the requirements of this SMS.



4.4 Document management overview

The Safety Management System (SMS) *shall* be written in English as a minimum. It can also be translated to mitigate operational safety risks depending of the Company needs. The document of reference for the controlled documentation is *Document Control Guidelines*.

Translations of Level 1 and 2 documentation into other languages initiated by any Affiliate Organisation *shall* be ensured, as per statutory or regulatory requirements. Such translations *shall* be validated by their applicable Company Quality Representatives.

BOURBON Guidelines for document management as contained in BOURBON QMS *shall* be used as the reference standard for the implementation of the Company document management.

4.4.1 Document review and approval

Prior to issue, documents *shall* be reviewed by authorised individuals to ensure clarity, accuracy, adequacy and proper structure.

Review and approval are indicated in the *Document Control Guidelines.*

Each copy *shall* have evidence of this release authorisation. Evidence of approval of documents *shall* be retained by each Company.

4.4.2 Control of documents

Each Company *shall* maintain a register of all its SMS controlled documents, regarding its development, revision, approval and validation. Traceability, history, issue, and status of each document *shall* be recorded**.**

4.4.3 Distribution of controlled documents

Documents *shall* be distributed by the QHSE Department and forwarded by authorised personnel thus ensuring that pertinent issues are available to all personnel who will need the information included in the documents. The Process Owner decides the distribution list.

All SMS information is stored in electronic and/or hard copy media.

BOURBON Corporate IT Department *shall* maintain the adequate processes throughout BOURBON to ensure that electronic information is constantly and efficiently distributed with adequate technology and properly secured against losses or damages.

4.4.4 Obsolete documents

Whenever any controlled document revision is issued, the previous version *shall* be removed and destroyed.

78

Management *shall* ensure prompt and efficient removal of any obsolete documents that are maintained within their area of influence.

Within BOS Organization, documentation is only valid on the **Quality Management System** (QMS) Intranet site. The following documentation at least become immediately uncontrolled version when printed:

- Directories.
- Process.
- Procedures.
- Manuals.
- Plans.
- Instructions, memos, Alerts.

During the year, after the diffusion of the Annual *Safety Management System* (SMS) book sent onboard each vessel, any modification made to the documentation (including those to the *SMS book)*, will be notified through instructions notes or proper document modified. The Quality Representative or designed Person will inform each recipient of the indications to be followed-up. These instructions and relative documents will be filed in appropriate binders specify in the *Vessel Filing System Directory*.
Annually the SMS book will be reviewed and modifications will be inserted.

If for any reason, an employee desires to preserve the original document (for training, reference etc.) the word “OBSOLETE” *shall* be clearly and legibly displayed on each page of the document and further, the document *shall* be removed from any position where it may be confused as being part of the functioning Safety Management System.

For history purposes, one obsolete copy *shall* be kept on electronic or hard copy archive, only with access to, by the:

- **Corporate Document Controller**, for Corporate controlled documents (in the QMS Site);
- **Company QHSE Manager/Quality Representative**, for Company controlled documents (in Company’s own filing system).

All obsolete documents *shall* be kept in an archive for at least three years before being removed and destroyed. Such archive *shall* only be accessible to the Quality Representative(s.) Certain obsolete documents may also be filed for other periods, for legal, statutory or other reasons.

4.4.5 Guidelines

Guidelines are controlled documents – **issued only by the Corporate Organisation** – that describe a specified way to carry out an activity (what, who, how, when, where).

Only BOURBON **Corporate Process Owners** produce guidelines.

Guidelines are to be understood as a BOURBON standard. They include unconditional requirements, identified by the word ***shall***, and recommendations, identified by the word ***should***.

4.4.6 Procedures

Are controlled documents – **issued only by an Affiliate Organisation** – that describe a specified way to carry out an activity (what, who, how, when, where).

Affiliate Organisation procedures *shall* be written based on Corporate Organisation guidelines as applicable and must comply with the respective requirements, identified by the world ***shall***.

4.4.7 Appendices and other related documents

All appendices and other related documents as listed in chapter 6 of each procedure are merely used to indicate which documents are used in order to develop the procedure.

4.5 Vessel filing system and records

On board documentation and records *should* be identified and organised as per the *Vessel Filing System Directory*.

The *Vessel Filing System directory* specifies all the documentation to be used onboard (from compulsory documents to internal use) and are classified in several designation as per follow:

- **C** for **Critical document** : compulsory document that *shall* be present and update onboard;
- **X** for **Internal**: for internal use by the ship.
- **U** for **Uncontrolled Document**. Mainly it refers to documentation that has been created by the ship and it is used by a specific ship.
- **Ext** for **External document** provided by Suppliers, Flag, Societies class…

Duration of archive onboard is specified on the *Vessel Filing System Directory*.

If there is an update in the SMS documentation during the year, and after the diffusion of the Annual SMS version (paper version sent beginning of each year), instructions and/or memos are made to inform any employee of any modification done to the system.

These *instructions* or *memos* are sent via DIST BOS QMS Dispatch email to the appropriate recipients. The emails contain all necessary indications as for e.g the subject, the duration of archive, etc.

At the end of each month, the **Quality Representative** will send to recipients a table that summarizes all the documents sent to them with a demand to acknowledge the reception. The recipients *shall* control and acknowledge proper reception of the documents onboard and/or at the Head Office.

As part of the VFS, the *Ship Publication Inventory file* (BOS-FRM-11.0009) mentions all the Regulatory documentation provided by the differents organisations as for e.g IMO, IUT publications as well as all the *Vessels Records Logbook* that *shall* be use by the ship depending of the type of ship.

NOTE: A record is a special document stating results achieved or providing evidence of activities performed. Records are not under revision control as records are not subject to change.

5 Records

- As defined in the Company vessel ~~record~~ filing system;
- Safety Management Certificate;
- International Ship Security Certificate;
- Document of Compliance;
- Vessel's Logbooks.
- Flag(s) Statutory Logbooks.

6 Related documents

- BOURBON Quality Management System (QMS);
- BOS Safety Management System (SMS);
- B-GDL-03.0007 – OSM Guidelines;
- B-GDL-11.0001 – Document Control Guidelines;
- B-PRS-11 – Documentation Management;
- BOS-DRT-11.0003 – Vessel Filing System;
- BOS-FRM-11.0009 – Ship Publication Inventory.
- BOS-FRM-11.0004 – BOS Company Filing System.
- BOS-FRM-11.0007 – Vessels Documentation Diffusion.
- BOS-FRM-11.0010 – Head Office Documentation Diffusion.

80

External documentation:

- IMO: SOLAS Consolidated Edition and amendments;
- International Ship and Port Facility Security code;
- International Safety Management Code;
- International Standards for the Training, Certification and Watch keeping of Seafarers;
- MARPOL 73/78 consolidated edition;
- MODU Code;
- Collision Regulations, Consolidated edition;
- Ship's Routeing;
- IAMSAR Manual (volume III);
- International Medical Guide for Ships (or equivalent);
- IMDG Code;
- Bridge Procedures Guide (ICS);
- Guide to Helicopter/Ship Operations (ICS);
- Oil and Gas Emergency Response and Rescue Vessel Management Guidelines (Oil & Gas UK);
- Oil and Gas Emergency Response and Rescue Vessel Survey Guidelines (Oil & Gas UK);
- Guidelines for the Safe Management of Offshore Supply and Anchor Handling Operations (NWEA);
- Guidelines for the Safe Packing and Handling of Cargo to and from Offshore Locations (Oil & Gas UK);
- Code of Safe Working Practices for Merchant Seamen (UK MCA);
- Guidelines for the Management of Helideck Operations (Oil & Gas UK);
- CAP 437 Offshore Helideck Landing Area Guidance on Standards (CAA);
- IMCA Guidance Documents.
- Flag(s) Statutory Logbooks.

7 Terms and definitions

BOURBON
Corporate Organisation + Affiliate Organisations.

Company
Ship Management companies, contracting companies, manning companies, vessel support companies, etc that are a part of BOURBON, that report to the Corporate Organisation. Affiliate Organisations are also identified as “Level 2” when referring to documentation. Ship Management Affiliate Organisations, known as “Ship Managers”, correspond to the term “the Company” used in ISM and ISPS Codes.

Contract
Binding agreement.

Controlled documentation
Documents that are written by a competent person, designated by a Process Activity or by a Process Owner; approved by the authorised person and validated, registered and distributed by Quality.

Corporate Organisation
Head Office/Central Functions of BOURBON. Also identified as “**Level 1**”.

CSO
Company Security Officer.

DOC
Document of Compliance.

DPA
Designated Person Ashore.

HSE
Health, Safety and Environment.

ISSC
International Ship Security Certificate.

Level 1
Corporate level. It applies to all documentation of the Corporate Organisation.

Level 2
Affiliate level. It applies to all documentation of the Affiliate Organisations.

QMS
Quality Management System.

Shall
Non-conformities are raised whenever a “shall” is not fulfilled. Specifies an unconditional requirement. Not complying originates a non-conformity. “shall” is equivalent to “must”.

Should
To be understood as “highly recommended”. The term “should” specifies that conformity is expected, unless circumstances justify deviation. Not complying may originate an observation.

SMC
Safety Management Certificate.

SMS
Safety Management System.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	Reviewed § 4.2
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	Reviewed § 4.2.1 adding regulatory publications and § 6. Related documents.
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.04-31/12/2014	§1=> Adding Company Documentary Vessel Filing System. §3. Replacing Operations Managers by Process Owners. Deleting Contracts Managers roles and responsibilities. §4.1.3 Adding Flag Statutory Publications and documents. §4.4 Changing title Vessel filing system and records instead of Vessel record and filing system. §4.3 Document type definitions is deleted. §5 Replacing Vessel's bridge logbook by Vessel's Logbooks. §6. Adding BOS SMS as related documents. Added §4.1 to §4.2.7 from the procedure Management Responsibility version 03. Completed the procedure with documentation diffusion information.

82

SMS
Section 2

Personnel Management

BOS-MNL-02.900200-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3
1.1 Main Objective 3
1.2 Shore-based Staff Recruitment and Training 3
2 Review, approval, revision and identification of changes 4
3 Related contents 4

84

1 Introduction

1.1 Main Objective

To ensure that the fleet is supported by competent shore-based staff that are committed to providing a high standard of fleet management.

Shore-based staff have key roles to play in the effective management of the fleet and in supporting safe vessel operations.

1.2 Shore-based Staff Recruitment and Training

The Company *shall* establish and maintain procedures for the selection, recruitment and training of shore based personnel. These procedures *shall:*

- Promote staff continuity, with an emphasis on retaining and developing people in key roles;
- Ensure that sufficient people are employed to provide full supervision of all vessels in the fleet;
- Verify that the people employed are qualified and competent to carry out their duties;
- Determine staff competency in relation to appropriate technical education, training, skills and experience;
- Verify that medical requirements are established and met by staff at the time of their appointment and on an ongoing basis thereafter;
- Include an appraisal system that sets criteria for promotions and requirements for succession planning;
- Ensure that records of all staff qualifications, experience and training are consistently maintained;
- Identify follow-up training requirements and retain records of staff attendance at courses, seminars and conferences.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.03 – 03/12/2013	-
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.04 – 31/12/2014	-

3 Related contents

1. B-POL-01.0008 – Anti-Harassment Policy
2. B-POL-01.0009 – Equal Opportunities Policy
3. BOS-PRD-0203.900201 – Management of Shore Based Personnel (SMS Section 2)

Management of Shore-based Personnel

BOS-PRD-0203.900201-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Human Resources policies 5

4.2 Shore-based management 5

4.2.1 Identification, selection and recruitment process 5

4.2.2 Competence assessment and career development 6

4.2.3 Retention rates 6

5 Records 7

6 Related documents 7

7 Terms and definitions 8

8 Review, approval, revision and identification of changes 8

88

1 Purpose

The following procedure is intended to help the Company answer recruitment requirements, providing on time high skilled personnel in compliance with the Corporate *Human Resources Process*, *Recruitment, Staffing and Sourcing Process*, *Competence and Development Process* and strategic objectives.

2 Scope

The following procedure applies to all new open position within the Company:

- On-shore positions;
- Permanent positions;
- Temporary positions.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained.
b) Implementing the Corporate HR policies and the associated budget at Company level.

Human Resources Manager (or equivalent) has the responsibility, authority and accountability for:

a) Ensuring this procedure is implemented and maintained within the Company;
b) Ensuring compliance of this document to the related Corporate *Human Resources Process, Recruitment, Staffing and Sourcing Process, Competence and Development Process* requirements.

Line Managers have the responsibility, authority and accountability for:

a) Ensuring the departmental requirements are communicated to determine organisational planning and competence requirements and participate in the selection process.

90

4 Description

4.1 Human Resources policies

All *BOURBON Policies* are applicable to management of shore-based personnel.

4.2 Shore-based management

It is a Company requirement that shore-based employees are qualified through experience and training as applicable and have adequate understanding of relevant rules, regulations, codes and guidelines to provide the necessary support to the Company vessels and personnel.

Additional information regarding Human Resources Management is maintained in specific Company 'Instructions' manuals retained for office departmental use.

Office resources level and staffing are reviewed during an annual management review meeting.

4.2.1 Identification, selection and recruitment process

4.2.1.1 Certification background checks and validation

Validation of personnel certification, diplomas, and credentials *shall* be made during the selection process. 91

This will include taking references either in writing from past employers and educational institutions and by word of mouth from previous associates or persons known to have experience and exposure to particular individuals.

4.2.1.2 Relevant rules and regulations

The personnel involved in the Company SMS have an adequate understanding of the relevant rules, regulations, codes and guidelines and are kept updated as required by the issue and communication of relevant information, new publications and guidelines as applicable.

4.2.1.3 Job description

During day one, the Company *shall* review with the new employee his/her *Job Description* and set individual objectives to be validated at the end of probatory period.

4.2.1.4 Familiarisation

Each new employee *shall* be provided with a thorough induction. Familiarisation with the Company policies, the requirements of the SMS and performance *shall* be conducted as described in Bourbon Offshore Surf *BOS-PRD-0204.0001 – Induction Procedure*.

4.2.1.5 Record of qualifications

BOS HR Department *shall* maintain up-to-date records of qualifications, experience and training courses attended for all key shore-based staff.

4.2.2 Competence assessment and career development

4.2.2.1 Competence assessment

Competence assessment *shall* be conducted in association with the specific procedure in the SMS dealing with competency and training, as outlined by *Competence Management Guidelines*.

The competence assessment process is not a performance appraisal and is designed to help shore-based personnel develop their professional skills.

Shore-based personnel skills and competence s*hall* be developed and subject to assessment and integration with personal training objectives related to *BOURBON Training Policy*.

As a minimum, **Shore-based Line Managers** at operational level *shall* receive specific training as follows:

- Risk assessment;
- Company SMS;
- Incident investigation and Root Cause Analysis;
- QMS Auditors Training with QMS Internal Auditor Module + ISM Module (as per *Annual Quality Training Programmes*).

4.2.2.2 Evaluation and appraisal

The evaluation process is a key part of human capital management. By gathering information directly from each employee, it provides a global, individualised picture of:

- Skills;
- Contribution to BOURBON performance;
- Career expectations;
- Mobility.

92

The evaluation process is the cornerstone in team management. It not only allows identification of coaching and developmental needs but also is essential in keeping teams motivated.

In addition, by implementing the evaluation process, Management demonstrates its involvement in employee development. This is an important factor in boosting commitment:

- Employees *shall* receive a yearly evaluation and appraisal of their performance from their direct supervisor on the applicable Company form;
- The employee is also entitled to request appraisal from his or her direct supervisor at any time to assist with development of individual performance and Company objectives;
- All employee evaluation forms *shall* be reviewed and signed by the employee involved. If an employee refuses to sign, this refusal *should* be mentioned in the report;
- The employee *shall* also receive a copy of the evaluation form;
- Only Senior Management, their deputies, and **Human Resources Manager** and their deputies are authorised to access employee evaluation and similar documents containing personal information.

4.2.2.3 Career review

Career review *shall* be conducted periodically by **Line Manager** and **HR Manager**, in order to analyze career opportunities while taking into account performance, competence, potential and mobility wishes. The review will define future steps of career development of each employee in line, as far as possible, with organisation needs and opportunities and career expectations.

4.2.3 Retention rates

The Company *shall* measure and monitor retention rates of **Shore-based Managers** and employees.

The target for permanent position retention is as high as possible however the minimum target is 70% retention over a 2-year period of **Line Managers** at Operational level.

In case of strong alert about retention, a specific action plan shall be defined and implemented by the **Managing Director.**

5 Records

- Employee files;
- Employment Contracts;
- Letters of Engagement;
- Recruitment Interview Forms;
- Recruitment Profiles.

6 Related documents

- B-GDL-0203.0002 – Induction Guidelines;
- B-GDL-0203.0004 – Recruitment Guidelines;
- B-GDL-03.0007 – OSM Guidelines;
- B-PGM-1201.1201 – BOURBON Quality Training – QMS Auditors;
- B-POL-01.0008 – Anti-Harassment Policy;
- B-POL-01.0009 – Equal Opportunities Policy;
- BOS-PRS-02 – Human Resources Process;
- BOS-PRS-0202 – Crewing Process;
- BOS-PRS-0203 – Recruitment and Sourcing Process;
- BOS-PRS-0204 – Competence and Development Process.
- BOS-PRD-0203.0001 – Job Description Procedure;
- BOS-PRD-0203.0002 – Recruitment Procedure;
- BOS-PRD-0204.0001 – Induction Procedure;
- BOS-PRD-0204.0002 – Promotion Procedure;
- B-CHR-0203.0001 – Recruitment Flow-Chart;
- BOS-FRM-0203-0003 – Ashore personnel recruitment form;
- BOS-FRM-0204-0003 – Onshore Appraisal;
- BOS-FRM-0202.0002 – Job Description;
- B-FRM-0204.0003 – Arrival information;

7 Terms and definitions

Recruitment
Recruitment refers to the process of attracting, screening, and selecting qualified people for a job at an organisation or firm. For some components of the recruitment process, mid and large-size organisations often retain professional recruiters or outsource some of the process to recruitment agencies.

Sourcing
In business, the term 'sourcing' refers to a number of procurement practices, aimed at finding, evaluating and engaging suppliers of goods and services. Regarding the Human Resources field, sourcing means to identify job candidates through proactive recruiting techniques.

Key Position
The main criteria for defining key positions at central, regional or Company level are the impact on outcomes and importance for strategic decision-making in the relevant domain. The following are identified as key positions:

a) **Vice Presidents**
b) **Managers**
c) **Any other position as might be considered by the Organisation at regional or Company level.**

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS Crewing and HR Manager	BOS Crewing and HR Manager	BOS Quality Representative	Rev.00 ➔ 11/03/12013	Adding in related documents BOS-PRD-0203.0001 Job Description BOS-PRD-0203.0002 Recruitment Procedure
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.03 ➔ 03/12/2013	Reviewing § 4.1, § 4.2.1.4 and § 6
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.04 ➔ 31/12/2014	-

94

SMS
Section 3

Management of Vessel Personnel

BOS-MNL-02.900300-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3

1.1 Main Objective 3

1.2 Crew Recruitment and Training 3

1.3 Manning Agents 3

2 Review, approval, revision and identification of changes 4

3 Related contents 4

96

1 Introduction

1.1 Main Objective

To ensure that all vessels in the fleet have competent crews who fully understand their roles and responsibilities and who are capable of working as effective teams.

Vessel crews are at the heart of efforts to improve safety and the protection of the environment. Therefore, it is vital that all crewmembers are motivated, trained, qualified and competent to carry out their roles. HSE Driver 3 presents measures to ensure that crews have the required skills and training.

A common language will be defined onboard between French and English depending on vessel operational area and crew. In case of any doubt onboard about this, the decision shall be taken by the DPA keeping in mind the ISM goals: Ensuring that the ship's personnel are able to communicate effectively in the execution of their duties related to the safety management system.(ISM 6.7).

1.2 Crew Recruitment and Training

The Company *shall* establish and maintain procedures for the recruitment and administration of crews.

These procedures *shall*:

- Verify that certificates of competency are valid and that pre-employment records, including security checks, are up-to-date;
- Assess the authenticity and adequacy of certificates of competency against the appropriate guidelines set in the STCW Code or, where applicable, other appropriate legislation. Where appropriate, take additional steps to determine the competency of vessel personnel and the accuracy of their pre-employment records;
- Appropriate security checks are undertaken for all employees
- Extended recruitment and interview process for senior officers
- Ensure appropriate staff placements with documented appointments records for selection, recruitment and promotion.
- Verify that medical requirements are established and met by staff at the time of their appointment and on an ongoing basis thereafter;
- Include an appraisal system that sets criteria for promotions and requirements for succession planning;
- Ensure that follow-up training requirements are identified and recorded, and that records are kept of attendance at courses, seminars and conferences;
- Confirm that the working hours of personnel are accurately recorded and that management monitors the records in order to ensure appropriate rest periods, by means of internal audits;
- Promote staff continuity, with an emphasis on retaining senior officers in their substantive roles;
- Provide adequate resources to administer the crews' conditions of employment, including personal needs and requirements;
- Determine and clearly state the common language to be used onboard vessels so that all crewmembers can adequately communicate with each other and with contractors and subcontractors.

1.3 Manning Agents

The Company *shall* ensure that the procedures for selection and recruitment used by their manning agents/crew suppliers are of a standard comparable with those established in this section. In addition, Company *shall* ensure compliance through audits of Manning agencies with MLC 2006. Field of compliance *shall* be set in regards of minimum age, medical certification, qualification of seafarers, seafarers employment, use of cetified or licenced service, payment of wages. Such audits *shall* be realized based on *Manning Agency Check-List.*

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Crewing and HR Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	Adding BOS-PRD-0203.0002 Recruitment procedure on §3. Related Documents.
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.03 – 03/12/2013	Adding on § 6. Related documents: BOS-PRS-02 – Human Resources Process BOS-PRS-0202 – Crewing Process BOS-PRS-0203 – Recruitment and Sourcing Process BOS-PRS-0204 – Competence and Development Process
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.04 – 31/12/2014	-

98

3 Related contents

1. B-POL-01.0006 – Drug and Alcohol Policy
2. B-POL-01.0007 – Smoking Policy
3. BOS-PRD-0202-900301 – Crew Management (SMS Section 3)
4. BOS-PRD-0204.900302 – Competence and Training (SMS Section 3)
5. B-FRM-0202.0002 – Vessel Crew Competence Matrix
6. BOS-PRD-0203.0002 – Recruitment procedure
7. B-FRM-1202.0029 – Manning Agency Audit Check-List
8. BOS-PRD-0204-0002 – Promotion Procedure
9. B-PLN-0202.2013 – Bourbon Crewing Plan 2013
10. BOS-PRS-02 – Human Resources Process
11. BOS-PRS-0202 – Crewing Process
12. BOS-PRS-0203 – Recruitment and Sourcing Process
13. BOS-PRS-0204 – Competence and Development Process

Crew Management

BOS-PRD-2603.900301-ver.CR(BOS-PRD-0202.900301)

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **4**

2 Scope **4**

3 Responsibility, authority and accountability **5**

4 Description **6**

4.1 Crewing requirements 6
4.1.1 Personal Documentation and Conditions of Employement 6
4.1.1.1 Personal conditions of employment 6
4.1.1.2 Personal certification 6
4.1.2 Crew Competence Matrix registration and Crew List 6
4.1.3 Crew work and rest hours 7
4.1.4 Crew Responsibility 7
4.2 Familiarization 8
4.2.1 Induction and integration for joining the vessel 8
4.2.2 Communications 8
4.2.3 Job description and designation of dedicated tasks 9
4.2.4 Handover 9
4.2.5 Monitoring and watch supervision 9
4.3 Seafarers Performance Appraisals 9
4.3.1 Appraisal of Masters 9
4.3.2 Appraisal of Crew 10
4.4 Seafarers skills assessment and development 11
4.5 Overlapp - New assignments and Short Service Workers (SSW) 12
4.5.1 Overlap 12
4.5.1.1 Principe 12
4.5.1.2 Grouped crew change 13
4.5.2 Short Service Workers (SSW) 13
4.5.2.1 SSW levels per vessel may not exceed the following at any one time 13
4.5.2.2 Critical task training for SSW 14
4.5.2.3 Evaluation of SSW 14
4.5.2.4 Validation of probationary period 14
4.6 Disciplinary measures 15
4.7 Management of Drug and Alcohol policy 15
4.7.1 Drug and Alcohol information and training 16
4.7.2 Testing 16
4.7.2.1 Nature of testing 17
4.7.2.2 Principles and practical guidelines for second testing 18
4.7.3 Reporting and record-keeping 18
4.7.4 Procedures for breach of rules 18
4.8 Onboard Complaint Procedure 18
4.8.1 Submission and Hierarchy 19
4.8.2 Prejudice and dissatisfaction 19
4.8.3 Complaint model 19
4.9 Down-manning 20

5 Records **21**

100

6 Related documents.....21

7 Terms and definitions 22

8 Review, approval, revision and identification of changes 23

101

1 Purpose

Defines the Crew Management requirements onboard to ensure compliance with *OSM Guidelines*.

2 Scope

Applies to Crewing process management which includes:

- Crewing requirements (qualification, certification and experience);
- Familiarisation;
- Appraisal and assessment;
- New assignments
- Change of personnel and handover/overlap;
- Disciplinary measures;
- Application of BOURBON *Drug and Alcohol Policy* and substance abuse;
- Crew and Rest Hours.

102

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed;
b) Ensuring implementation of Crewing Process within the Affiliate Organisation in line with Corporate *Crewing Process*.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Crew Management are communicated and implemented onboard all vessels under his/her jurisdiction;
b) Ensuring the definition of the Crew Competence Matrix for each vessel managed.

Crewing and HR Manager has the responsibility, authority and accountability for:

a) Defining objectives and coordinating the Crewing/ Human resources/ payroll department activities;
b) Organising competence management and training of its employees in order to drive development of BOS personnel;
c) Defining, drive and review Crewing processes (e.g. 2603, 0203, 0204) and ensuring compliance with this document related to the Corporate *Crewing Process* requirements.
d) Ensuring vessel crew management in line with international maritime conventions and regulation.

Deputy Crewing Manager has the responsibility, authority and accountability for:

a) Collect the crewing requirements (qualitative and quantitative) from operation Managers for OSV Fleet
b) Manning vessels with adequate and skilled Crew;
c) Subsequently recruiting and promoting such personnel and requesting resources from internal or external suppliers;
d) Ensuring consistent level of service from internal and external suppliers, performing audit of external crewing suppliers;

103

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under their command;
b) Keeping the Crew Competence Matrix updated in real time in collaboration with the **Crewing Manager**, holds the document ready for communication to **Contracts Manager** upon request and notifies any discrepancy to the **Operations Manager**;
c) Assessing Crew skills and performance and sending adequate forms to **Crewing Manager**.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master**, **Operations Manager** and **Crewing Manager** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Crewing requirements

4.1.1 Personal Documentation and Conditions of Employement

It is a BOURBON requirement that each vessel is manned with qualified crew in accordance with Standards of Training, Certification and Watchkeeping (STCW) regulation, Maritime Labour Convention 2006, national and flag state requirements.

When recruiting new crewmembers, the **Crewing Manager** *shall* ensure that they possess the required valid health certificate, training courses and maritime Certificates of Competency and Proficiency.

4.1.1.1 Personal conditions of employment

The **Master** *shall* verify that seafarer is holding MLC compliant employment agreement, STCW medical certificate and that seafarer is not under-age for his duty. French Flag : Employment is prohibited under 16 and no night work allowed under 18. Luxemburg flag : Employment is prohibited under 18.
Exemples of Compliant employment agreement and medical certificate are available on Workspaces.
http://intranet.bourbon-online.com/workspaces/maritime_labour_convention/Pages/default.aspx

4.1.1.2 Personal certification

104 The original certificates of **Officers** and ratings who have satisfied the administration with regards to meeting the requirements for service, training, qualifications and examinations in accordance with the provisions of the "STCW Code" as applicable, *shall* be maintained onboard at all times while the certificate holder is assigned to the vessel.

For each embarkation, the **Master** *shall* check all the original certificates. The **Master** *shall* verify that the following training courses, certificates and documents are valid and up to date prior to sailing according to *Vessel Crew Competence Matrix*.

- Certificate of Competency;
- Certificates of Proficency;
- Flag state Endorsement and Seaman's Book;
- Dispensation;
- Compulsory Vaccination.

The **Master** holds the documents ready for inspections upon request, and notifies any discrepancy to the **Crewing Manager.**

Each Crewmember is responsible to ensure that all his/her own certificates are valid before each sailing period.

The **Crewing Manager** *shall* ensure that in no case a seaman whose any of these documents is not valid until end of assignment is planned for embarkation. The **Crewing Manager** *shall* inform the seaman that he has to update his expired document.

4.1.2 Crew Competence Matrix registration and Crew List

The **Operations Manager** is responsible for defining/configuring/updating the *Vessel Crew Competence Matrix*, and it *shall* be completed with crewing requirements prior to approval of the *Vessel Crew Competence Matrix* for use in the Organization.

The *Crew Competence Matrix* *shall* identify, but not be limited to:

- Flag state safe manning and STCW requirements;
- Clients' requirements;
- BOURBON standard regarding the vessel type (experience and training).

In case of non compliance with BOURBON requirements, a specific risk assessment *shall* be completed by the **Crewing Manager** or **Deputy Crewing Manager** and ratified by **Operations Manager** or **relevant Senior Management.** For each Seafarer onboard, **Masters** *shall* register/update/validate the seafarer's data regarding the personal data (nationality, passport number, date of birth, etc.), the certificates & qualifications requirements (COC/COP, endorsements, health certificate, etc.), specific contractual requirements, training and experience.

Vessel's Crew Competence Matrix and attached International Maritime Organisation (IMO) Crew List *shall* be checked, updated and uploaded on the Intranet for the vessels having access or sent by email to Operation Manager prior to leaving port or as soon as there is any change in Personnel On Board (POB).

4.1.3 Crew work and rest hours

The **Master** *shall* ensure that records of daily hours of work and daily rest hours are maintained in compliance with the STCW and MLC 2006 convention (chap 2.3 Hours of work and rest hours). The shipboard working arrangements shall be posted in an easily accessible place and *shall* contain for every position at least the schedule of service at sea and service in port and the maximum hours of work or the minimum hours of rest required by national laws or regulations. Working hours *shall* be registered on a daily basis in follow-up software. Working hours record sheets *shall* be signed by the **Master** and the individual **Seafarer**. This record *shall* be maintained in a standardised format and be kept on file onboard the vessel. A copy of the form *shall* be given to the seafarer signed by the **Master** and the crew member. As per "STCW MLC 2006", number of rest hours *shall* not be less than 77 hours on any 7 day period. Number of rest hourst *shall* not be less than 10 hours per day divided into no more than 2 periods.

Musters, fire-fighting and lifeboat drills, and drills prescribed by national laws and regulations and by international instruments, *shall* be conducted in a manner that minimizes the disturbance of rest periods and does not induce fatigue.

Master is responsible of Organization of work onboard and *shall* anticipate any work overload due to operation by adapting work schedule onboard in order to minimize impact on rest hours.

4.1.4 Crew Responsibility

Everybody working on board *shall* as far as possible and according to his position and job description support the implementation of the vessel Safety Management System; including, but not limited to:

1. Vessel safe operation and maintenance;
2. Vessel loading and ballasting;
3. Safe navigation of the vessel and maintaining vessel log books;
4. All watch keeping duties;
5. His/her own qualifications and a valid Health Certificate – passport and relevant travel documents;
6. Support Safety Measures for all on board;
7. Contributing to a good working environment for all;
8. HSE duties are carried out according to flag state requirements;
9. STOP dangerous work and report the situation to the Safety Deputy or his superior;
10. Ship security, piracy prevention, control of persons having access to the vessel.

Each employee *shall* represent his vessel and the Company in a decent and honourable way when on board the vessel, during internal/external training and when traveling on Company expense (training courses, meetings and seminars included).

4.2 Familiarization

This requirement *shall* be managed in association with BOS *Induction Procedure*.

Ensure arrangements are in place for familiarization of employees unfamiliar with the vessel's safety, security and anti-pollution arrangements and procedures, their job description, the Company Organisation's requirements and an overview of activities, strategy and *Quality Management System*.

On joining the Company, each new employee *shall* be provided with a thorough induction and familiarization into the Company *policies* and the requirements of the SMS.

4.2.1 Induction and integration for joining the vessel

According to the SMS, the **Master**, guided by BOS *Induction Procedure* is responsible to ensure arrangement and completion of the HSE Induction on the vessel and the explanation of all applicable safety duties on board.

HSE induction and integration *shall* include elements of:

- Emergency evacuation;
- Fire prevention/protection/fighting;
- Safety and medical organisation ;
- Anti-pollution procedures;
- Vessel facilities;
- *Smoking Policy;*
- *Drug and Alcohol Policy*.
- Hazard awareness specific to work environnement

106 The **Master** *shall* ensure the new **Seafarer** undertakes vessel, facilities and layout familiarization according to the BOS *Induction Procedure* and any specific Company Induction and Familiarization check list.

Master or designated substitute and new **Seafarer** *shall* walk through the vessel together. The new **Seafarer** *shall* be familiarized with all necessary emergency and life saving facilities and equipment including his Personal Protection Equipment (PPE).

Each employee *shall* also be familiarized with the equipment and applicable user manuals for his department.

On completion of the induction process required by this procedure, the relevant details *shall* be entered on a BOS-FRM-03.0014-*Crew Familiarization* which *shall* be filed according to Company file key.

4.2.2 Communications

As part of the Induction and Familiarization the Company *shall* ensure that all shipboard personnel receive relevant information about the *Safety Management System* in either English (or other relevant working language), and that individuals are able to communicate effectively in the execution of their duties.

The formal verbal working language on board Bourbon Offshore Surf vessels is defined by the DPA keeping in mind the ISM goals: ensure that the ship's personnel are able to communicate effectively in the execution of their duties related to the *Safety Management System* (ISM 6.7).
The decision will take into consideration vessel operating area and crew composition. Only one language *shall* be used verbally, either French or English.
However the formal written working language in forms on board Bourbon Offshore Surf vessels is English.

All ISPS documentation and reporting to be at a minimum in English and if needed in French according to the ISPS code.

All maintenance logs and reports recorded in Task Assistant *shall* be either in English and if needed in French.

4.2.3 Job description and designation of dedicated tasks

As soon as possible, **Master** or **Direct Hierarchical Manager** *shall* ensure the new **Seafarer** reviews his/her *Job Description* and make any individual assignments necessary to meet vessel-specific work requirements.

4.2.4 Handover

Starting immediately and for a required period the departing **Seafarer** handovers as needed to his/her reliever.

The following crewmembers leaving the ship *shall* have a formal and documented handover with the on - signing reliever:

- **Master**;
- **Chief Officer**;
- **Chief engineer**;
- **Electrician**;
- **Vessel officers** (all other officers);
- **Cook/Chief Steward** (onboard MPSV).

The departing **Seafarer** and/or **Master/**designate *shall* transfer the knowledge and all current files, documents and any other related information as is required to enable the joining crew member to perform his/her duties.

Handover *shall* be conducted utilising any Company specific documentation or requirements.

Handover reports *shall* be filed onboard according to Company file key.

Each department onboard *should* establish a Handover File where copies of all information from Company, Charterer, government, flag state etc are filed. The **On - Signing Reliever**(s) *shall* review the Handover File information, and take actions as required.

4.2.5 Monitoring and watch supervision

The **Master** or delegated **Officer** *shall* monitor the new **Seafarer's** watch/work performance to determine if dual watch is necessary for new **Seafarer** induction based on the level of risk associated. **Master** or delegated **Officer** *shall* communicate requirements for watch-keeping to the **Seafarer**. New **Seafarers** *shall* apply any standing orders as issued by the Master or authorised **Officers**.

The **Master** or delegated **Officer** arranges feed-back to the new **Seafarer** regarding his/her work as applicable. The **Master** shall record experiences/ operations performed on board in the "*Seafarer Training and Experience LOG BOOK".*

4.3 Seafarers Performance Appraisals

The **Master** is responsible and accountable for his Crew, the Ship Management Organisation is responsible and accountable for the **Master**.

All data contained in Appraisal forms are strictly confidential and may not be disclosed to any Third Party. Only Senior Management, **Crew Manager** and those approved by said positions are authorized to access personnel evaluation and similar documents containing personal information.

4.3.1 Appraisal of Masters

The appraisal of the **Master** s*hall* be completed by the **Operations Manager** annually, or at the end of the contract period as applicable.

Master's appraisal to be conducted on the *Master Professional Review* form.

Form s*hall* be completed at the responsibility of the **Operations Manager** in regular intervals (minimum once per 2 calendar years), or at the end of the contract period.

Master Professional Review form *shall* be securely filed by **HR Department**.

4.3.2 Appraisal of Crew

Crew members *shall* be evaluated using the *Crew Performance Appraisal* form covering at a minimum, professional competency, interpersonal skills, and safety performance.

Crew Performance Appraisal form for **Chief Officers** *shall* be completed by **Masters.**

Crew Performance Appraisal form for other **Deck Officers**, deck and galley ratings *shall* be completed by **Master** or **Chief Officers** (and/or department leader as applicable)**.**

Crew Performance Appraisal form for **Engine Room Officers** and engine ratings *shall* be completed by **Chief Engineers**.

Crew Performance Appraisal form for **Chief Engineers** *shall* be completed by the **Master.**

All ***Crew Performance Appraisal*** form *shall* be completed at the end of each embarkation period.

Preparation of the appraisal

108 Before the appraisal, the **Assessor** imperatively *shall* take sufficient time to prepare the appraisal with the job description, observations and facts. The assessed **Seafarers** *shall* prepare their self-assessment in advance with a template of the form.

The crew members are assessed on 9 fields:

- Professional Knowledge
- Initiative
- Quantity of Work Provided
- Organizational skills
- Safety Attitude
- Sociability
- Team management (if applicable)
- Client perspective (if applicable)
- English Language

For each field, the crew member is assessed according to his/her performance regarding his/her "job description". The **Assessor** *shall* consider facts which occur during the sailing time.
Each field has 5 levels of performance. The **Assessor** *shall* check the level considered as the best assessment of the employee's current performance and *shall* comment his/her choice with improvement targets for the seaman.
Comments are critical to help the lectors (Crewing Manager, Operation Manager…) understanding the appraisal.

Running of the appraisal
The **Assessor** *shall* take time to run the interview (30-45 minutes) and complete the form with the crew member.
The **Seafarer** *shall* start with his/her personal self-assessment. Then the **Assessor** gives his/her points of view, highlighting positive points and underlining needs for improvement.
Assessors *shall*:

- Listen to employee's explanations; define concrete and clear improvements and define a delay.
- Define the means that will allow these improvements: training, more regular management interviews, etc.;
- Close the interview by a synthesis and signatures;

Training feedbacks: **Seafarer** and **Assessor** review the efficiency of the trainings done since the last crew performance appraisal. **Seafarer** lists the training, and together **Seafarer** and **Assessor** evaluate the efficiency regarding seafarer performance during the sailing time.

Training needs: **Assessor** identifies recommended training to develop the seafarer and to improve performance.
Seafarer identifies the training their recommends for themselves

Professional evolution: **Assessor** evaluates the capacity of the seafarer to be promoted and specifies when the promotion should be effective.

Seafarer's desiderata: Seafarers indicate their desiderata.

Any disciplinary incident in the period of appraisal *shall* be noted on the appraisal form for reference.

Distribution & Record of the Crew Performance Appraisal form
The Crew Performance Appraisals of all crew members *shall* be sent by e-mail* (1 scanned copy per seafarer and per email) within two weeks following the signing-off to:

- the **BOS Crewing Officer** in charge of the vessel.
- and the **Crewing Manager** of the manning agencies if applicable.

*If the vessel is not equipped with a scanner, a copy of the appraisal *shall* be sent by paper-email to:

- the **Crewing Department** of Bourbon Offshore Surf.
- and the **Crewing Manager** of the manning agencies if applicable.

Master *shall* give the original copy to the assessed **Seafarer**.

4.4 Seafarers skills assessment and development

Competence assessment *shall* be conducted in association with the specific procedure in the SMS section dealing with Competency and Training.

During the first two tours of assignment, and if relevant to the position, the **Master** or delegated **Officer** *shall* start the assessment process of the new employee's skills.

The **Referent Officer** *shall* use the *Seafarer Skills Development Form* for assessing the **Master**s and **Chief Engineers'** skills.

The **Masters and Chief Engineers** *shall* use the *Seafarer Skills Development Form* for assessing the officers and ratings on board.

Completion of assessment using *Seafarer Skill Development Form* is now considered as a milestones in promotion process and as so integrated in BOS *Promotion Procedure*.

4.5 Overlapp - New assignments and Short Service Workers (SSW)

Personnel on new assignment require greater care and attention due to the potential increased risk exposure.

Personnel in the following categories *shall* be considered on new assignment:

- Crew member new to the Company;
- Crew member new to the vessel/vessel type;
- Crewmember newly promoted to the position.

Personnel on new assignment may additionally be considered as a **Short Service Worker**.

In order to mitigate the associated risk with personnel on new assignment and SSW's, this procedure *shall* be consulted together with the procedure for *Management of Change* (in Section 7).

4.5.1 Overlap

4.5.1.1 Principe

Schedule of crew changes *shall* not relieve simultaneously (ie in less than 48 hours difference) the following positions:

a) **Captain and Chief Mate**
b) **Captain and Chief Engineer**
c) **Chief Engineer and Second Engineer**

The **Crewing Department** *shall* comply with this rule in any case and notify **vessel's Master** accordingly.
110 When a seafarer is given a new assignment there *shall* be a period of overlap for the new assignee.

The defined period of overlap assume that the crew member is new to the Company, or first time sailing in that Rank, and are for guidance only. Period can be varied according to particular circumstances, e.g.

- If the crew member is a BOURBON employee changing ship;
- Length of time previously served in that Rank;
- Length of time in lower rank of the same Department served on same vessel/type.

In addition particular working or operational conditions of the vessel (dry dock, scope of work, contractual specifities) *shall* be taken into consideration by Crewing Department when assessing overlap time required).
When receiving the crew change schedule, the **Captain** *shall* verify the rule's compliance.
If any breach is identified, Captain *shall* notify the Crewing Department accordingly for immediate correction by proposing new dates.

If the overlap period is being significantly reduced, the decision *shall* be consulted together with the procedure for *Management of Change* (MoC) of Personnel with a specific Risk Assessment to be completed for each crew member significantly varying from the overlap matrix.

MoC/Risk Assessment *shall* be ratified by **Operations Manager** or **relevant Senior Management** prior to crewmember joining vessel. When vessel is offshore, the Master *shall* authorize the offsigner to leave the site only after ensuring that onsigner is on site or confirmation that onsigner is actually transiting to site.

Here is BOS matrix for a minimum overlap time, reflecting relevant legislation, geographic specificities, operational factors, fleet composition, etc.

Rank	Days	Rank	Days
Captain	7	Chief Engineer	7
Chief Officer	4	2nd Engineer	4
2nd Mate / DPO	1	3rd Engineer	1
Bosun/ Deck Foreman	1	Electrician	1

The **Master** *shall* make all necessary arrangement with **Contract Manager** and Charterer to give as much time as possible to On and Offsigners for handover.

4.5.1.2 Grouped crew change

If, for any inescapable logistic reasons, there is no other choice to relieve the complete batch of key-positions, the **Crewing Manager** *shall* ensure that each Relevant Officer complies with one of this two conditions:

- Experience on similar position on same vessel for the previous 6 months,

Or

- Handover period complying with the Company matrix.

4.5.2 Short Service Workers (SSW)

Personnel on new assignment *shall* additionally be considered as a **Short Service Worker** when:

- Crew member does not hold any experience from a BOURBON Company;
- Crew member does not hold relevant experience from vessel type;
- Experience does not match the *Minimum Crew Experience Requirement Matrix*.

If the procedure for *Management of Change* (in SMS Section 7) is applied and it identifies a new assignee as a potential SSW, the crewmember *shall* be considered an SSW.

The **Master** *shall* always be informed if a new crewmember is considered as an SSW.

The recommended period of time that a crewmember is classed as an SSW is 4 weeks. The overall length of the period *shall* be dependent on the employee's progress, prior knowledge and experience of the job, and may be altered as required if considered necessary by Master and/or Company in mutual agreement.

It is recommended for the SSW to be issued a hard hat of an individual colour (preferably green) different from those in use by the other crew, therefore providing immediate identification to his/her fellow workers onboard and others as applicable.

SSW induction is performed by a qualified and experienced vessel personnel – (e.g. an **Officer**). At completion of the induction, the detail *shall* be recorded in a *Training Record Log Book* and/or electronic data base according to Company file key/standard.

4.5.2.1 SSW levels per vessel may not exceed the following at any one time

- One **Officer** per Department (Deck or Engine Room);
- One SSW maximum per watch and per department
- One Engine Room rating.

Should a situation occur where these levels are jeopardized, the procedure for *Management of Change* of Personnel *shall* be initated with a specific Risk Assessment to be completed for each SSW in excess of specified levels.

MpC/Risk Assessment(s) *shall* be ratified by **Operations Manager** or **relevant Senior Management** before the **Crewing Department** can proceed with such a crewing solution.

4.5.2.2 Critical task training for SSW

When applicable, arrangements *shall* be made to ensure that the SSW receives necessary critical task training according to Company/vessel specific procedures.

Critical task training *shall* be overseen by an **Officer** with departmental responsibility for each individual SSW and it is recommended that such training is conducted with assistance as required by other experienced employees.

Critical task training may be delegated accordingly, providing that the responsible **Officer** provides the necessary input and maintains a clear overview of subject matter, progress and areas of improvement.

All critical task training satisfactorily completed *shall* be entered in a *Training Record Log Book* and/or electronic data base, and filed according to Company file key/standard.

Completed Critical Task Training, abbreviated as CTT for simplicity, is recommended to be clearly marked in the respective records for identification purposes.

Critical Tasks *shall* be defined but not limited to as all tasks, situations or operations identified as High Risk in BOS *Master Safety Document*.

4.5.2.3 Evaluation of SSW

Upon completion of SSW-period, the SSW *shall* be assessed and evaluated. The evalution of the SSW *shall* decide whether the SSW is sufficiently competent and end the SSW period.

112

If the evaluation decides to extend the SSW-period, it's recommended that a personal evaluation of the SSW is to be completed and forwarded to the relevant **Crewing Manager** and **Operations Manager** for reference.

If the SSW is transferred to another vessel prior to completion of the SSW period, the record of critical task training up to the point of transfer *shall* be forwarded to the next vessel.

4.5.2.4 Validation of probationary period

Depending on the employment contract and applicable legislation:

- **Master** *shall* decide whether or not to validate the probationary period (the overlap period with the employee back to back or supervisor).
- For seafarer in contractual probationary period, the Master *shall* inform **Crewing manager** whether seafarer can be confirmed in the position or if no continuation in the Company has to be viewed using the *Crew Performance Appraisal*. The contractual probationary period *shall* only be validated by the **Crewing Manager**.
- **Master** informs **Crewing Manager** and **Seafarer**;
- **Seafarer** may have additional validation/confirmation from **Crewing Manager.**

4.6 Disciplinary measures

Disciplinary procedures *shall* be managed as per Company instructions included in the Disciplinary in-house Rules and defining:

- Negligence of duty or responsibility;
- Breaches of Company policies;
- Blatant or repeated disregard for Company policies, rules and regulations;
- Antisocial behaviour;
- Criminal activity.

The nature of the offense *shall* be described fully in a separate report to be signed by the employee involved. If an employee refuses to sign, this refusal *shall* be mentioned in the report.

The disciplinary actions may be:

- ***Verbal warning*** - **Crewing Manager** to be notified in writing for documentation purposes;
- ***Written warning*** - issued by **Crewing Manager** (or **Master** in cooperation with **Crewing Manager**);
- ***Termination of employment****,*
    1. Repeated offences - termination of employment to be considered based on total evaluation of situation and historic events ;
    2. Gross and serious misconduct according to applicable procedures and legislation;
    3. *Shall* only be applied by decision of the **Operations Manager** and **Crewing Manager**.

- ***Additional measures*** - Depending on severity of the circumstances surrounding the individual case, additional measures may be considered, such as:
    - Reprimand;
    - Censure;
    - Suspension of promotion;
    - Suspension from job and pay;
    - Demotion;
    - Revocation or dismissal for simple, serious or gross negligence;

Disciplinary measures in excess of verbal warning *shall* only be taken after consultation with the **Operations Manager** and **Crewing Manager.**

Any such disciplinary measures applied *shall* always be based on investigation and *shall* always conform to the seafarer's individual social rights, terms and conditions of the employment agreement and relevant legislation.

4.7 Management of Drug and Alcohol policy

BOURBON policy dictates that no drugs or alcohol are permitted on board other than drugs that are supplied for the purposes of first aid or other medical purposes.

It follows that the Company *shall* not tolerate alcohol or drug abuse. Reports on consumption of alcohol/drugs or incidents where individual's performance is impaired through consumption or use of drugs or alcohol *shall* be relentlessly followed-up and may result in the instant dismissal of any employee involved.

Any **Officer** or **Rating** using prescribed drugs *shall* declare details of such drugs to the **Master** immediately when joining the ship. If the **Master** is in any doubt as to the effect of such drugs he *shall* consult the **Company Human Resources Manager** and/or **Operations Manager.**

4.7.1 Drug and Alcohol information and training

All applicants *shall* be informed of the *Drug and Alcohol Policy*.

Newly hired expatriate personnel employed through Company head offices *shall* acknowledge compliance by signing their employment contracts. In other regions, respective Affiliate **Crewing Managers** and/or **Q & HSE Managers** *shall* explain the BOURBON *Drug and Alcohol Policy* to newly hired personnel.

Training to explain BOURBON's *Drug and Alcohol Policy* and encourage a responsible attitude towards drug and alcohol use *shall* be provided on a regular basis to all personnel. In this regard, **Masters** *shall* organise regular safety instruction about the *Drug and Alcohol Policy* of BOURBON. They can respectively delegate this duty to the **Vessel Safety Officer**.

Safety instruction on drugs and alcohol *shall* be recorded as normal safety instruction. A record *shall* be kept of *Drug and Alcohol Policy* training meetings.

4.7.2 Testing

The effectiveness of drug and alcohol control *shall* be monitored by drug and alcohol testing as applicable. However, National legislations *shall* be observed as a primary consideration related to conducting any drug and alcohol test sample collection.

Operations Managers are responsible for compliance with drug and alcohol testing requirements on their respective vessel.

114 Alcohol and drug tests *shall* be performed by approved testing method according to applicable flagstate and national legislation for Company and Vessel (incl that of Geographic operational area). Tests are preferably to be carried out by professional 3rd party entity/company.

Proper precaution *shall* be taken to ensure protection of individual privacy, integrity of test process (genuine samples), and correct attribution of test results.

In case of positive results, the **Company** *shall* be notified immediately, and the confidential investigation report *shall* be sent at the earliest opportunity by the person responsible for conducting the test to the **Human Resources Manager** by confidential email.

In case of need to test personnel where Third party is not available, a test can be carried out by using approved drug test kits and/or evidential breath testing devices.

- **Operations Managers** are responsible for ordering sufficient Drug Test kits for their fleets;
- **Q & HSE Managers** are responsible for guardianship of Drug Test kits onshore, **Masters** onboard vessels. Test kits *shall* be stored in a secured area with limited access;
- Analysis *shall* be performed by trained Company personnel or using the facilities and trained staff at an approved Medical Centre.

Refusal to submit to a drug or alcohol test requested or required by the Company or client *shall* be viewed the same as a positive result.

If a person admits to being under the influence of drugs or alcohol, it *shall* be viewed the same as a positive result but no test *shall* be required.

4.7.2.1 Nature of testing

It is reminded that a screening test is a preliminary test and can not lead in itself to disciplinary action.

The employee who tests positive will be able to have a second test in an appropriate installation, such as a medical laboratory to confirm or negate the previous test.
However, according to the precautionary principle, the employees in a security and/or safety activities who have positive results *should* be disembarked as soon as possible.

Refer to *Disciplinary In-House Rules* for detailed procedure.

A- Reasonable-cause testing

Purpose: check for substance abuse following accidents or incidents involving unsafe behavior.

Authority for testing: alcohol testing and/or rapid drug screening tests can be carried out under the authority of the **Shipmaster**, **Base Chief** or **Safety Environment Manager**. Company-authorized medical personnel authorized can also perform reasonable-cause testing.

Test location: on board vessel or at Company onshore facilities.

Timing: within 48 hours after the event.

Disclosure of results: test results will be kept confidential between the **Captain/Base Chief** and tested employee and then transmitted to Company Management.

Right to second test: in case of positive results, a second test *shall* be proposed to the individual.

Second tests must be performed by medical personnel within 24 hours. Results will be released to the employee and/or to the **Chief Physician** of the Seafarers Health Service.

Immediate action: in case of positive first test results, the employee will be relieved from his/her position immediately. Subsequent sanctions can include suspension, demotion, and dismissal.

B- Medical aptitude testing

Purpose: obtain a “Seafarer’s Physician certificate” stating that a seaman assigned to a safety-sensitive position is drug-free.

Competent authority: **Seafarer’s Physician** for the seaman’s district.

Location: Seafarer’s Health Service.

Timing: Employment.

Right to second testing: depending on the **Seafarer’s Physician’s** opinion.

Immediate action: possible assignment to non-safety sensitive position and requirement for counseling.

Disclosure of results: subject to medical secrecy but the occupational physician may issue a certificate of temporary or permanent inaptitude for the position.

C- Random testing

Purpose: ensure that personnel assigned to safety-sensitive positions are not under the influence of drugs or alcohol.

Competent authority: alcohol test or rapid drug screening will be carried out under the authority of **Shipmasters, Base Chief** or **Safety Environment Manager**. Company-designated medical personnel can also carry out testing.

Test location: on board vessel or at onshore Company facilities.

Timing: Testing can be carried out at any time during duty (or shortly before).

Disclosure of results: test results will be kept confidential between the **Captain/Base Chief** and testee and then transmitted to Company Management.

Right to second test: in case of positive results, a second test *shall* be requested. Second tests must be performed by medical personne. Results will be released to the testee and/or to the **Chief Physician** of the seafarers' health service.

Immediate action: if the first test is positive, the employee will be relieved from his/her position immediately. Subsequent sanctions can include suspension, demotion, and dismissal.

4.7.2.2 Principles and practical guidelines for second testing

For all screening tests, the employee can request a second test to rule out the possibility of drug interaction.

Management will provide the **Shipmaster** or **Base Chief** with the resources necessary for testing by medical personnel in a hospital facility within 24 hours using a different analysis technique from the one used in the first test (possible blood test).

The **Physician** in charge of testing will give the result to the seaman who will thus demonstrate his good faith by disclosing the results to management. If the second test confirms the first or if the employee refuses to disclose the results to management, the occupational **physician** will be notified via the Maritime Affairs Administration for medical follow-up.

4.7.3 Reporting and record-keeping

Every test result sheet (random, post accident, reasonable cause) *shall* be sent by the person responsible for conducting the test to the applicable **Human Resources Manager** via confidential mail.
Drug and alcohol test sheets may be used by Affiliate **Human Resources Manager** or any competent person designated by **HR Crewing Manager** in accordance with applicable legislation for the creation of drug and alcohol statistics.
Any drug and alcohol test performed onboard a vessel or in a shore base *shall* be brought to the attention of the applicable **Human Resources Manager** by the **Master** or the person responsible for conducting the test as soon as possible via email/telephone.

In case of any positive test, an investigation report *shall* be completed by a responsible **Manager** assigned by the Company and sent confidentially to the Company **Human Resources Manager.**

4.7.4 Procedures for breach of rules

Where it appears that any **Seafarer** or other employee is under the influence of drugs and/or alcohol, the **Seafarer** or other employee *shall* be temporarily suspended from duty and the matter fully investigated. If the suspicions are confirmed, the **Seafarer** or other employee *shall* be permanently suspended from all duties and the Company advised.

If any **Officer** or **Rating**, regardless of seniority, consider that another **Seafarer** appears to be under the influence of drugs or alcohol then he/she *shall* bring the matter to the attention of the **Master**.

If the **Master** is considered to be under the influence of drugs or alcohol, the **Chief Officer** *shall*, after consultation with the **Chief Engineer**, immediately report the matter to the **Contracts Manager** who in turn through reporting procedures, *shall* inform the **Operations Manager**.
If any employee, regardless of seniority, consider that another employee, regardless of seniority, appears to be under the influence of drugs or alcohol then he/she *shall* bring the matter to the attention of his/her hierarchial Manager.

Refer to *Disciplinary In-House Rules* for detailed procedure.

4.8 Onboard Complaint Procedure

Bourbon Offshore Surf prohibits and penalizes any kind of victimization of a seafarer for filing a complaint.
The term victimization covers any adverse action taken by any person with respect to a Seafarer for lodging a complaint that is not manifestly vexatious or maliciously made.

This procedure seeks to resolve complaints at the lowest level possible and to assist the Seafarer understanding his/her rights and filing a complaint.
However, in all cases, Seafarers have the right to complain directly to the **Master** and, where they consider it necessary, to appropriate external authorities.
In addition to the copy of the *Seafarers' Employment Agreement*, the **Master** *shall* give access to this procedure and to the Situation Report to all Seafarers.
Consequently, the **Master** *shall* print-out and display in the vessel a copy of the *Onboard Complaint Procedure*.

4.8.1 Submission and Hierarchy

The complainant Seafarer *should* submit his/her complaint in the *Crew complaint record book* available onboard within seven (07) days of the occurrence, and according to the circumstances and inform his/her Immediate **Supervisor**.

The complainant Seafarer has the right to be accompanied or represented by another crew member of his/her choice.
If no crew member accepts to represent him, the **Master** will designate the crew member or the **Chief Mate**.

A solution to the complaint *shall* be given within seven (07) days. If the complaint cannot be resolved by the Immediate **Supervisor** to the satisfaction of the Seafarer, then the Seafarer may refer the matter to the **Master** within two (02) days. The **Master** has further seven (07) days to bring a solution to the complaint.
However, the Seafarer has the right to contact directly the **Master**, the **Company DPA**, the **BOS Crewing Manager** or the Flag state authorities and other appropriate external authorities, when considered necessary.
If the complainant Seafarer refers the complaint to the **Master**, the **Master** *shall* handle the complaint personally and may seek the assistance of the **DPA** or of the **BOS Crewing Manager**.

4.8.2 Prejudice and dissatisfaction

If the **Master** is unable to resolve the complaint or if no resolution of the complaint can be obtained on board, the Seafarer has ten (10) days to bring it to BOS **DPA** or BOS **Crewing Manager.**

Or if the complaint may be to the prejudice of the **Master**, then the Seafarer has ten (10) days to bring it directly to **DPA**, or BOS **Crewing Manager**.

The **BOS Representative** and the Seafarer concerned *shall* have a period of twenty (20) days from the date of complaint initiation to solve the matter.

If after the said period the complaint has not been solved, then either party *shall* have further twenty (20) days to bring the matter to BOURBON Management or to the Flag State Authorities and other appropriate external authorities.

All complaints and decisions on them *shall* be recorded in the *Crew complaint record book* and a copy provided to the Complainant Seafarer.

4.8.3 Complaint model

The on board Complaint *shall* contain, at the minimum, the following information:
Name of ship
IMO number
Date / Location
Contact information (Contact information of the person or persons ashore designated by the **Ship Manager** for handling onboard complaints)

Name of complainant seafarer / Function on board
Name of Seafarer Representative / Function on board

Name of the immediate supervisor / Function on board

Complaint Details / Signatures
Solution / Name of the person who solves the complaint (immediate Supervisor, Head of Department, **Master**, **DPA**, **Crewing Manager**, external authorities etc.)/ Date.

4.9 Down-manning

When circumstances arise, for example, the vessel is lying idle; down-manning can be considered. Removing non-essential personnel may only be undertaken whilst ensuring the vessel is able to respond in the event of an emergency situation. Down-manning *shall* never jeopardise the safe manning requirements as per the “Safe Manning certificate” unless pre-approved by the classification society.

5 Records

- Vessel Crew Competence Matrix
- Seafarer(s) Skills Development Form
- Seafarers Experience and Training Log book
- Crew Familiarization Form
- Job Description
- Performance Appraisal Form
- Master Evaluation and Development Review
- Worked Hours Table

6 Related documents

- B-FRM-0202.0002 – Vessel Crew Competence Matrix
- B-FRM-02.02 – Job Description
- B-FRM-1202.0012 – Situation Report
- B-GDL-0201.0002 – Seafarer Skills Development form Guidelines
- B-GDL-0201.0003 – Training Guidelines
- B-GDL-0203.0002 – Induction Guidelines
- B-GDL-03-0007 – OSM Guidelines
- B-INS-0202.0001 – Intranet Vessel Crew Matrix User Guide
- B-POL-01.0006 – Drug and Alcohol Policy
- BOS-PRS-02 – Human Resources Process
- BOS-PRS-0202 – Crewing Process
- BOS-PRS-0203 – Recruitment and Sourcing Process
- BOS-PRS-0204 – Competence and Development Process
- B-SPC-0201.0001 – Minimum Experience Matrix
- BOS-MNL-03.900700 – Management of Change (SMS Section 7)
- BOS-FRM-03.0014 – *Crew Familiarization*
- BOS-FRM-0204.0005 – Crew Performance Appraisal
- IMCA SEL 2003 – Guidance for the Initial and Refresher Integration of Vessel Crews
- BOS-FRM-0204.0004 – Master Professional Review
- – Seafarer Skills Development Form
- BOS-PRD-07.900501 – Standing Orders (SMS Section 5)
- BOS-FRM-06.0002 – Management Of Change (MOC) – Risk Assessment (RA)
- BOS-PRD-0203.0001 – Job Description Procedure
- BOS-PRD-0203.0002 – Recruitment Procedure
- BOS-FRM-1201.0003 – Master's SMS Review
- BOS-PRD-0204.0002 – Promotion Procedure
- BOS-PRD-0202.0001 – Crewing Procedure
- BOS-FRM-11.0012 – Master’s Hand Over
- BOS-FRM-0202.0007 – Worked Hours table.

7 Terms and definitions

COC
Certificate Of Competency.

COP
Certificate Of Proficiency.

CTT
Critical Task Training.

Departments
Departments are the entity Organisations form to organise people, reporting relationships, and work in a way that best supports the accomplishment of the Organisation's goals. Departments are usually organised by functions such as Human Resources, Commercial, Quality, HSE, etc.

Employee
An employee is an individual who was hired by an employer to do a specific job. Each employee has a specific job to accomplish that is often defined by a job description.

Expatriate
Onshore position occupied by non-local personnel.

IMO
International Maritime Organisation.

120

Induction and integration
Process for ensuring information and instructions are communicated and understood.

Internal mobility
Persons coming from or going to another Affiliate Organisation.

JSA
Job Safety Analysis.

POB
Personnel on Board

PPE
Personal Protection Equipment.

Seafarer
Seafarers are people who work on ships or people who travel regularly on the sea.

Shore-based
Employee who works on shore.

SSW
Short Service Workers.

Staff
Personnel who assist their superior in carrying out an assigned task.

STCW
Standards of Training, Certification and Watchkeeping.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Crewing and HR Manager	BOS Crewing and HR Manager	BOS Quality Representative	Rev.01 – 11/03/2013	Adding mention MLC 2006 on § 4.1.3 Reviewing and integrated forms BOS-FRM-0204.0004 Master Professional Review and BOS-FRM-0204.0005 Crew Performance Appraisal.
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.03 – 03/12/2013	§ 4.1.1: Adding mention MLC 2006; Adding § 4.1.1.1, § 4.1.1.2; Reviewing § 4.1.2, § 4.1.3, § 4.2.1, § 4.3.2 and § 4.5.1.1; § 4.1.4: Adding "Ship security, piracy prevention, control of persons having access to the vessel"; § 4.2.6 replace by §4.5.2.4 Validation of probationary period. Adding § 4.8 Onboard complaint procedure, § 4.8.1 Submissiond and hierarchy, § 4.8.2 Prejudice and dissatisfaction, § 4.8.3 Complaint model; Reviewing § 4.8 in §4.9 Down Manning.
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver.CR – 31/12/2014	§4.2.2 Deletion of Portuguese language as working language.

Competence and Training

BOS-PRD-0204.900302-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 6

4.1 Competence Management System overview 6
4.1.1 Competence requirements 6
4.1.2 Competence assessment 6
4.1.3 Competence assessors 7
4.2 Skills development and training 8
4.2.1 Training process 8
4.2.2 Training objective 8
4.3 Training methodology 9
4.3.1 On board 9
4.3.2 BOURBON Training Centers (simulators and/or “classroom”) 9
4.3.3 External 9
4.4 Training course modules 9
4.4.1 Induction 9
4.4.2 STCW 9
4.4.3 Stability 9
4.4.4 Simulator training 10
4.4.5 Knowledge refresher 10
4.4.6 PSV/AHTS simulator 10
4.4.7 Technical 10
4.4.8 Computing applications and IT Tools 11
4.4.9 Seminars/Meetings 11
4.4.10 Other specific training 11
4.4.11 Client 11
4.4.12 Measurement - KPI monitoring 11
4.4.13 Training Plan (Chart 1): New hired 13
4.4.14 Training Plan (Chart 2): Promoted 14
4.4.15 Training Plan (Chart 3): Experienced 15

5 Records 16

6 Related documents 16

7 Terms and definitions 16

8 Review, approval, revision and identification of changes 17

123

1 Purpose

In efforts to strengthen Company's objectives and develop professionalism in operations and attitude towards clients, the Company has developed a common standard of competence.

2 Scope

A Competence Management System (CMS) has been developed to achieve the following objectives:

- Improving skills and development of potential;
- Providing a high safety level reducing incidents and control risks;
- Providing to a high operational standard improving service quality;
- Having the best-qualified crew to answer to BOURBON's strategic vision.

124

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Crewing and HR Manager has the responsibility, authority and accountability for:

a) Communicating the Competence Management System towards the **Officers**;
b) Ensuring that Induction is implemented, followed and maintained within the Company;
c) Organising the assessment - establishing and updating the list of **Officers** to assess; prioritise the **Officers** to be assessed (new **Officers**, promoted);
d) Ensuring the **Referent Officer** selection;
e) Analysing the skill development data received (current gap analysis, training plan, career path…);
f) Initiating and animating the individual's training plan;
g) Reporting the competences KPI quarterly to the **Managing Director** and to Corporate **VP Crewing**;
h) Set annualy the BOS *Training Plan.*

[Referent Master] has the responsibility, authority and accountability for:

a) Evaluation and verification of Crew Competency;
a) Performing assessment of **Masters**, **Officers** or **Pilots**;
b) Providing the necessary training or coaching on board;
c) Entering of skill development data into the Company database.

[Referent Chief Engineer] has the responsibility, authority and accountability for:

a) Evaluating competence status of **Engineers** onboard by monitoring the marine operations and if required, propose additional training onboard and/or give proposal for further training (onshore/onboard) to [**Crewing Manager]**;
b) Giving guidance to the engineer according to professional guidelines (*Best Practices*) and BOURBON and Company policies;
c) Providing assessment report for the **Chief Engineer** position to **Crewing Manager** as per Company standards, with copy or draft to be given to the **Chief Engineer**;
d) Training the **Chief Engineer** to use the skills development form for their junior staff;
e) Participating in developing and implementing the Company training programme.

125

[Technical Auditor and Advisor] has the responsibility, authority and accountability for:

a) Conducting Vessel Technical Inspections as per planning;
b) Providing relevant report to the [**Technical Director]** with copy or draft to be given to the **Chief Engineer**;
c) Providing relevant guidance to the **Chief Engineer and/or Master** as per findings of the Technical Inspection;
d) Representing the Company technical expertise to Charterer representatives;
e) Leading Risk Assessment on relevant situation and providing the status to the [**Technical Director]**.

BTC Simulator Senior Instructor has the responsibility, authority and accountability for:

a) Performing complete training sessions in the Training Centre;
b) Developing training support in relation with simulator provider and Company relevant staff;
c) Performing secondary missions as [**Marine Advisor]** as per request;
d) Providing advice, training and guidance to **Master** and crew for contract deployment or any other critical step;
e) Representing marine expertise to Charterer representatives;
f) Leading Risk Assessment on relevant operations.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Competence and Training are communicated and implemented onboard all vessels under his/her jurisdiction.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under their command;

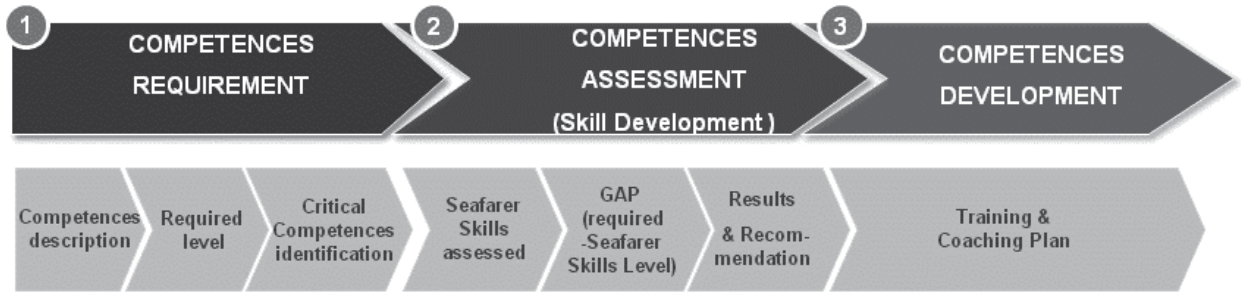
Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master, Operations Manager** and **Crewing Manager** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

126

4 Description

4.1 Competence Management System overview



The Competence Management System is based on three main steps:

1. Competence Requirements
   Based on the reference standards for competence, describing the competences requirements for each position for offshore support vessels and crew boats.

2. Competence Assessment
   To appraise the seafarer on competency requirements for the position.

3. Competences Development
   To roll out coaching and training regarding the recommendations made in the Assessment.

127

4.1.1 Competence requirements

Each competence has a standard required level defined according to the position and type of vessel.

Some competences have been determined as critical.

The standards apply to all vessels and positions as follows:

All Offshore Support Vessels

- Deck : **Master**, **Chief Mate**, **2nd Mate**;
- Engine: **Chief Engineer**, **2nd Engineer**, **3rd Engineer**;
- DP: **Master**, **Chief Mate**, **2nd Mate/DPO**;
- Electrical: **Electrician, Electrical Engineer.**

In addition, onboard all AHTS

- **Bosun**, **Winch Operator**;

Surfers

- **Pilot;**
- **Engineer;**
- **AB.**

4.1.2 Competence assessment

The competence assessment process is not a performance appraisal and is designed to help seafarers develop their professional skills.

Defined Levels of Competence

1: No competence.
2: Acquisition: Basic knowledge but no practical application, Elementary knowledge/practice.
3: Practical implementation: Able to implement, complete the task, under supervision.
4: Mastery: Self directed knows how to do autonomously the task, able to make decision.
5: Expert: High expertise and pedagogy, able to train others.
N/A: Not Applicable.

All concerned positions must be assessed according to the previous scale (1 to 5) and within the below timeframe:

- New hired: Assessment started within 3 months of actual sailing time;
- Ready to promote : Assessment must be realized and taken into consideration prior promotion of any officer
- Promoted: Assessment started within 3 months of actual sailing time after promotion;
- Experienced (>24 months in Company): Assessment started within 12 months of actual sailing time.

Competence development

If critical competence is assessed below the standard required level (3) then this will generate a systematical action plan to:

- Help to discover where to make improvements;
- Recommend the most appropriate coaching on board;
- Help determine what kind of training or other intervention may be needed to support seafarers as follows:
  - Coaching on the job (content, context & assessor comments);
  - Training on simulator (content, context & assessor comments);
  - Knowledge refresh (content, context & assessor comments).

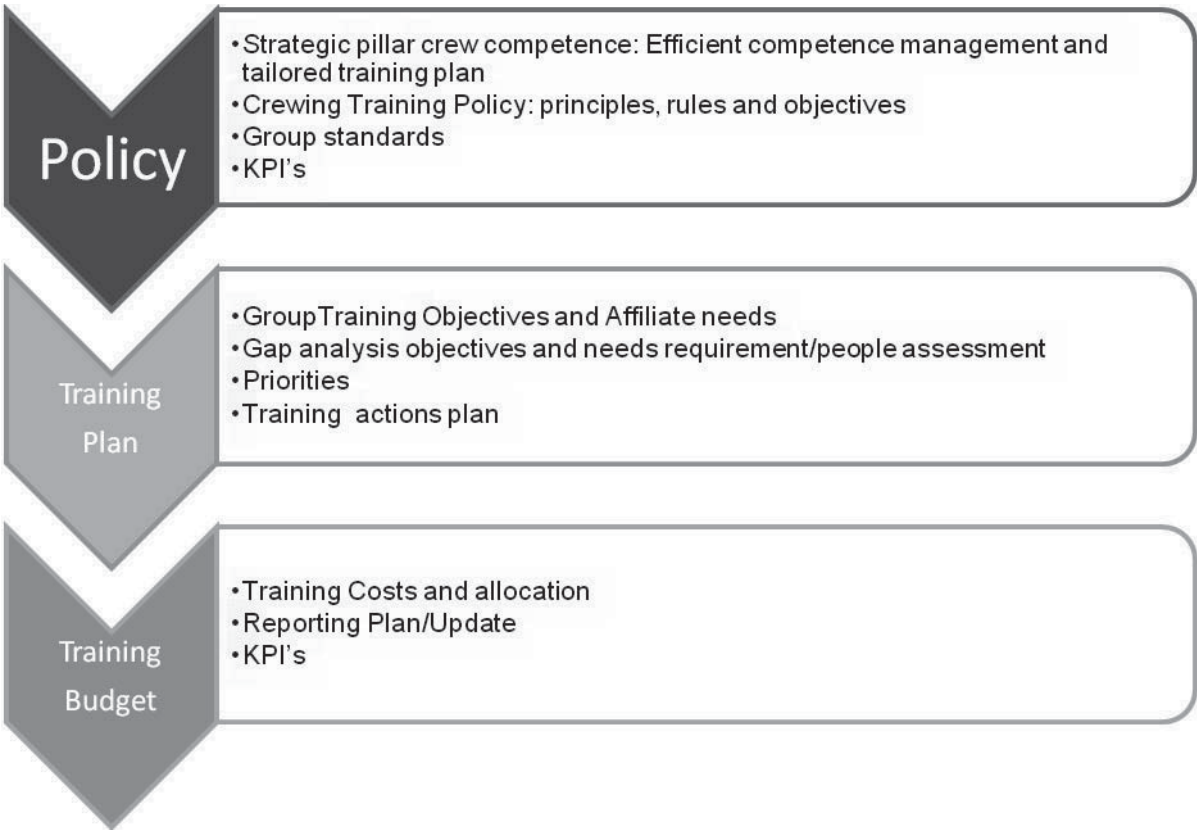
128

4.1.3 Competence assessors

- **Masters** are assessed by **Referent Masters;**
- **Chief Engineers** are assessed by **Referent Chief Engineers and/or Technical Superintendants**;
- **Masters** and **Chief Engineers** are responsible to assess Deck and Engine **Officers**/**Ratings** respectively (**Master** and **Chief Engineer** can designate a substitute if applicable and substitute is deemed qualified and competent to assess).

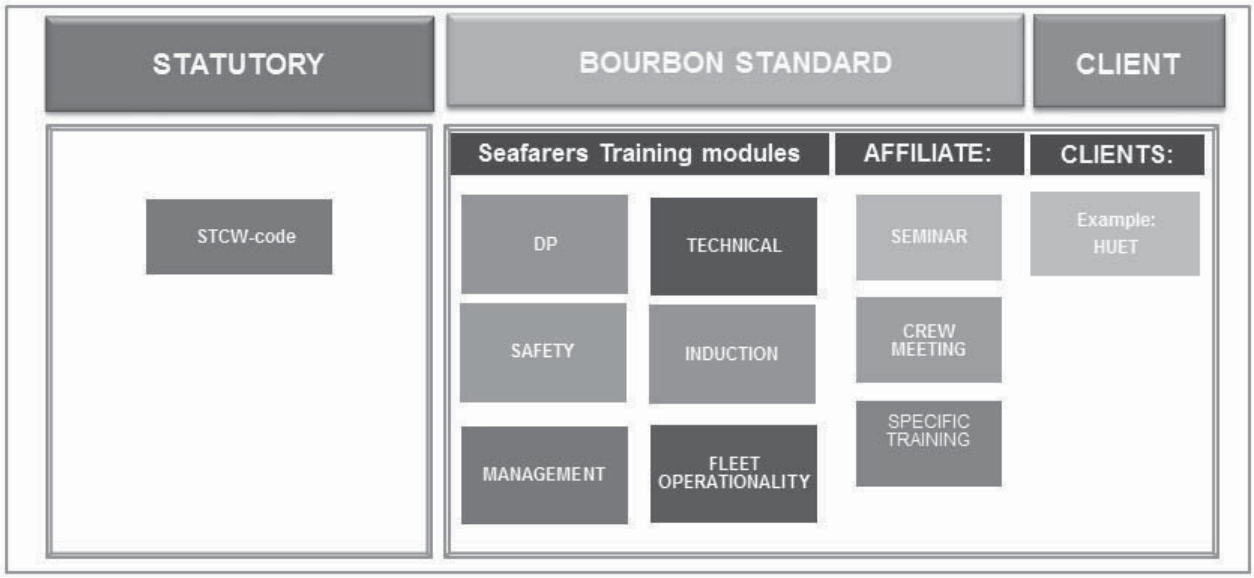
4.2 Skills development and training

4.2.1 Training process



129

4.2.2 Training objective



To achieve objectives regarding training skills development : Manage and support skills development;

- Skills and training coordination with intranet project rating on board;
- Promote the training and develop contents and new modules according to feed-backs and Company training plan.
- Common training programs:
  - PSV/AHTS simulator training;
  - DP training;
  - Stability training;
  - Technical training;
  - Management Training.

4.3 Training methodology

4.3.1 On board

- Knowledge refresh;
- Coaching, mentoring.
- Company Audiovisual and/or computer based training shall be used. E-learning methods and suppport will be installed onboard with Bourbon training Standard courses (ex : Risk Assesment, Management, etc…) from 1st january 2015.

4.3.2 BOURBON Training Centers (simulators and/or "classroom")

- Courses involving simulators;

130

4.3.3 External

- Attendance to inter-company training session or Maritime Academy;
- Training at external suppliers (technical, safety, etc...).

4.4 Training course modules

4.4.1 Induction

Objective: All new employees *shall* have an induction in line with *Induction Guidelines*. Helping employees master their professional environment so they can become operational as quickly as possible, furthering their commitment and the sharing of values.

4.4.2 STCW

Objective: All new employees *must have* their qualifications update. Once hired, they ensure to maintein their qualifications regarding on the STCW 2010. The company facilitate the organisation of these trainings (per example : Advanced Fire Fighting, Medical Care on board, Personnal Survival Techniques, Fast Rescue Cannot, Ship Security Officer, etc…) with authorized providers.

4.4.3 Stability

Objective: Provide training on good use of stability softwares and develop skills on stability specific to support the vessel and refresh of basic knowledge, new tools on board, cargo planning issues.

Target:

- **Masters** and **Chief Mates** on board PSV/MPSV/AHTS;
- Location: onshore;
- Responsible: **Crewing Manager**;
- Instructor: senior deck **Officer**/external Instructor.

4.4.4 Simulator training

Objective: Skill may also be developed on simulator course held at BOURBON Training Centres. Action plans are to be implemented in conjunction with assessment and coaching on board.

Target:

- As required through application of Competence Assessment.

4.4.5 Knowledge refresher

Objective: Some of the skills require fundamental knowledge that is necessary to manage the skills. Basic knowledge might be required and will be determined by the Competence Assessment and evaluation.

Target:

- As required through application of Competence Assessment.

4.4.6 PSV/AHTS simulator

Objective: Develop ship handling techniques used in offshore operations, and train seafarers in best practices during simulated operations under controlled conditions :

- Exercises increase in complexity as the course progresses and as trainees gain experience with ship handling and anchor handling operations;
- Trainees make use of theoretical knowledge acquired during classroom lectures;
- Trainees hold different roles of the anchor handling team, allowing them to practice the various duties asked to the team;
- Exercises are preceded by a briefing and planning session, and followed by a debriefing.

Target:

- **Chief Mates**, **Mates** just before being promoted Chief Mate and **Masters** in the promoted year on board PSV/MPSV/AHTS;
- Location: training center with offshore simulator;
- Responsible: **Crewing Manager;**
- Instructor: **Senior Instructor.**

4.4.7 Technical

Objective: Engineers know onboard installation operation and maintenance regarding some equipment and suppliers when available.

- EPD/Techsol;
- Cummins;
- Others as applicable;
- DP technical.
- MTU

Target:

- **Chief Engineer** and **2nd Engineer, Electricians**;
- Responsible: **Company Crewing Manager**, **Managing Director New Building/Vice President Maintenance**.

4.4.8 Computing applications and IT Tools

Objective: Necessary training for IT tools used on board including standard business applications and vessel PMS/document management, purchasing and crewing management data base applications.

- DP system
- TA

Target:

- **Officers** (Deck, Engine);
- **Electricians.**

4.4.9 Seminars/Meetings

Objective: Verify all participant's information and sharing experience between **Officers** and Head Office Management. Develop a common vision over the service and deeper knowledge of Company objectives, HSE performance, policies and functionnement.

Target:

- **Officers** and priority to **Masters, Chief Engineers** (annual review of performance through Master and Chief Engineer annual review);
- All OSVs and crew boats;
- Frequency: every 2 years;
- Responsible: **Crewing Manager**, coordinated by Crewing/Human Resources Department and prepared by all services.

132

4.4.10 Other specific training

Objective: Provide specific training regarding on the standard of the industry (like OPITO courses HUET and HLO).

Target: according to the operations and the positions on board. **Deck Foreman, Chief Mate and Bosco** for full HLO training.

4.4.11 Client

Objective: As specify on the contract.

Target: As specify on the contract.

4.4.12 Measurement - KPI monitoring

Training plan follow up: Rate of implementation by number of people trained and number of courses organised.

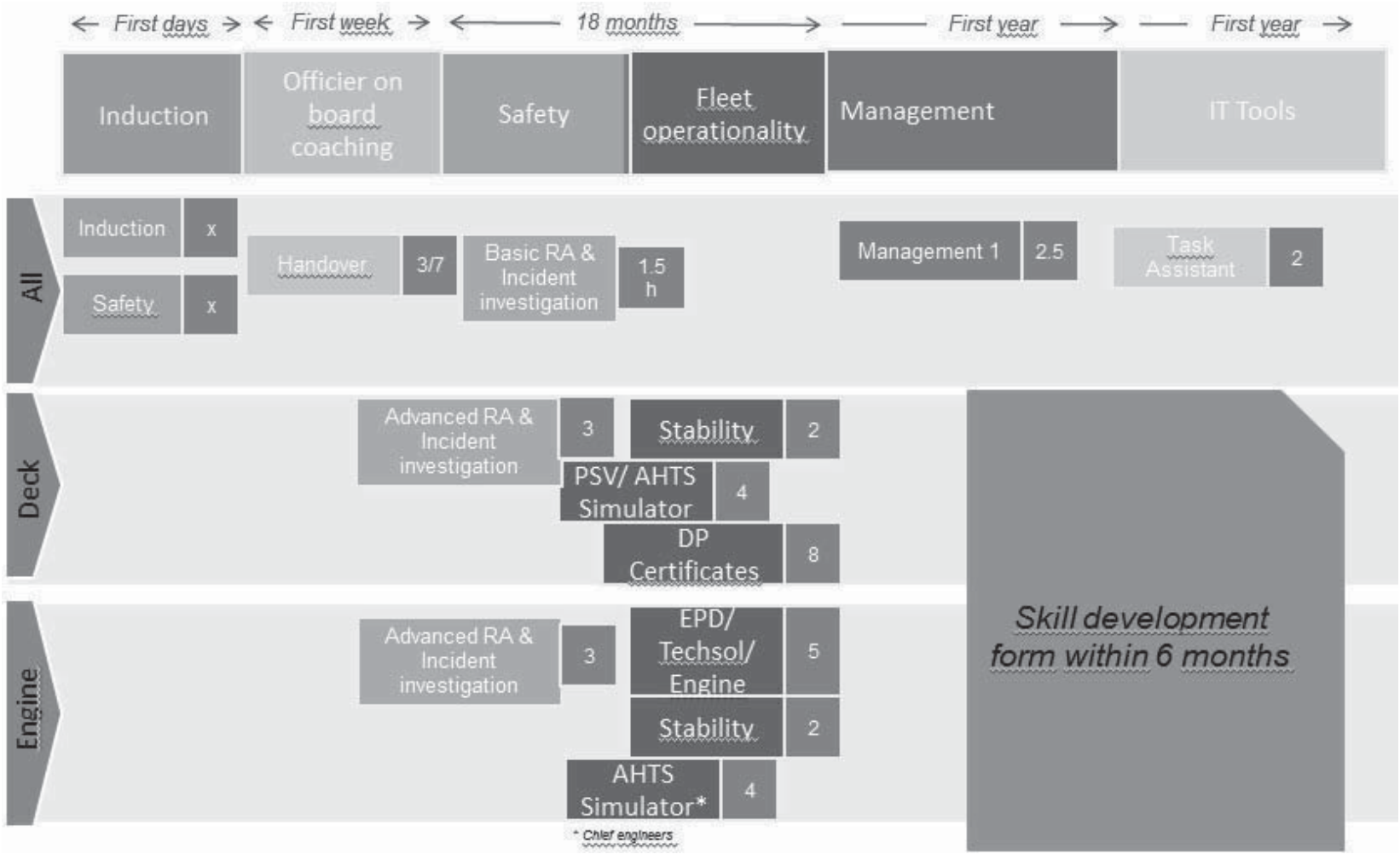
Training policy objectives: Rate of people trained/target.

Assessment process: Rate of competences assessments/target.

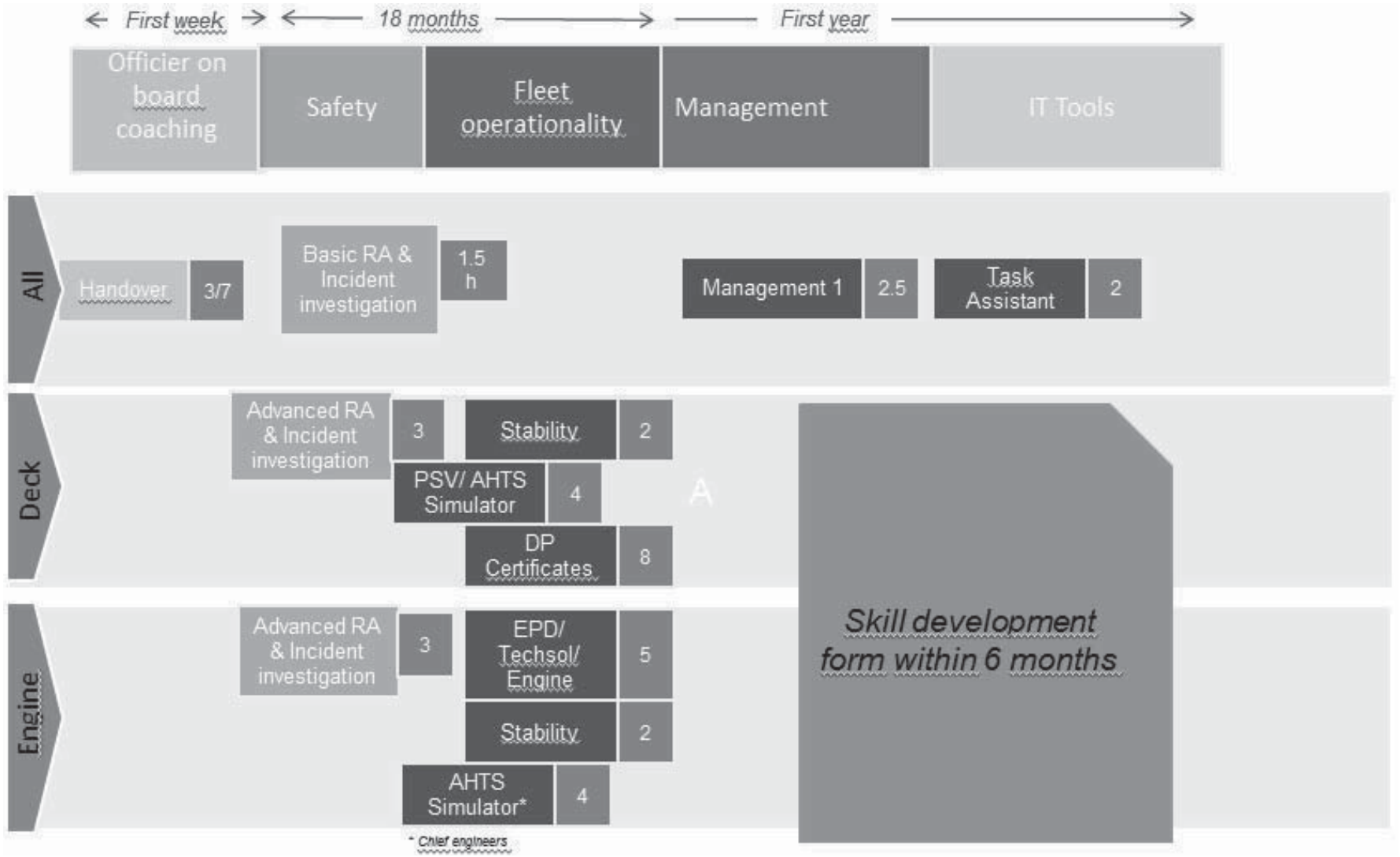
Monitoring responsibilities:

- Company level: **Human Resources/Crewing Manager** and cost control;
- Group level: Corporate Human Resources, Crewing and Management Control;
- Financial segmentation compiling: Management Control.

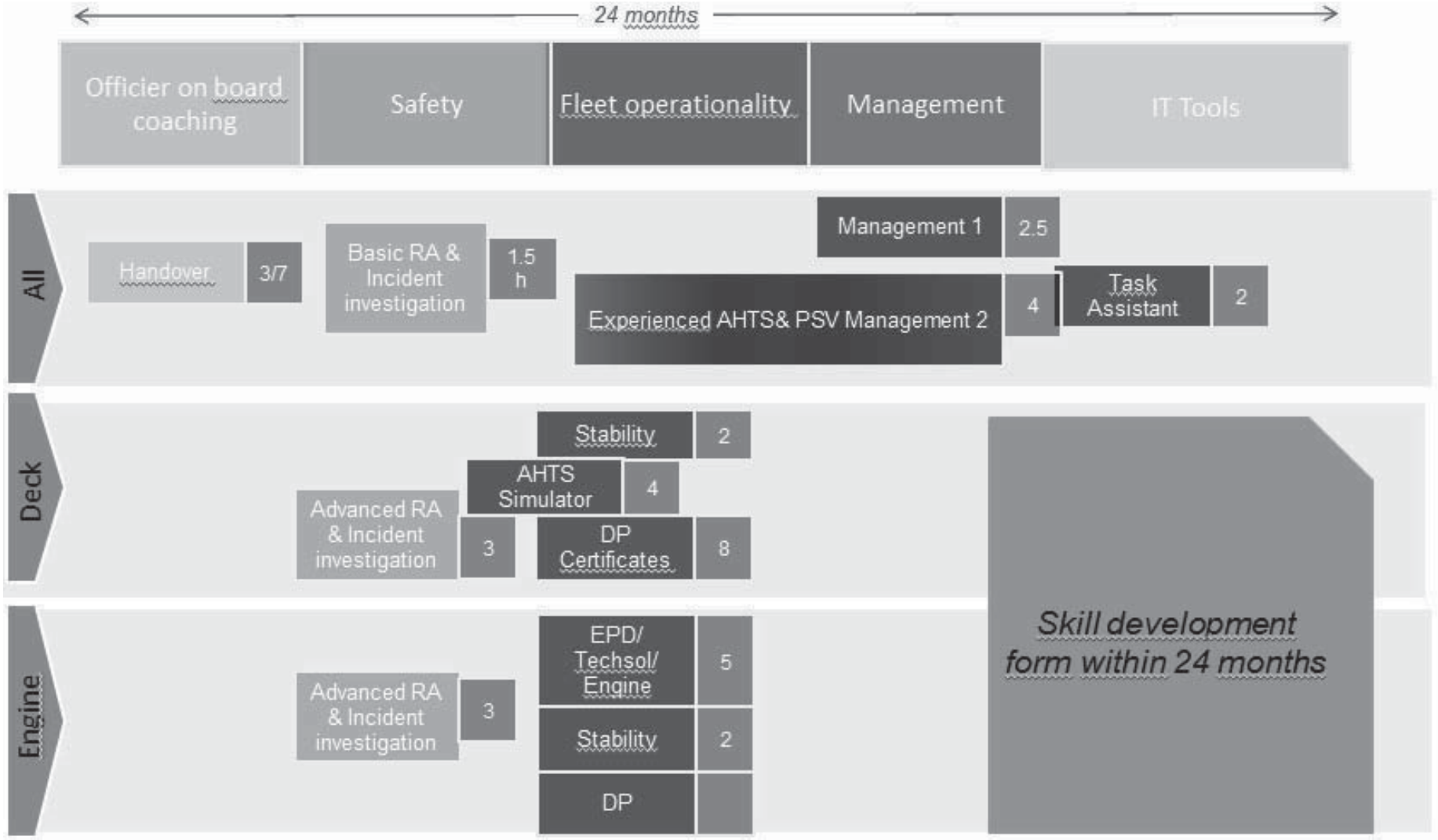
4.4.13 Training Plan (Chart 1): New hired



4.4.14 Training Plan (Chart 2): Promoted



4.4.15 Training Plan (Chart 3): Experienced



5 Records

Personnel
- Seafarer Training and experience Log Book.

Training Plan Records
- Excel file to start: Common model and data to be shared;

Accountant Records
- As applicable.

6 Related documents

- B-FRM-0201.0001 – Seafarer Training and Experience log book
- B-GDL-0203.0002 – Induction Guidelines
- B-GDL-03.0007 – OSM Guidelines
- B-PRS-0202 – Crewing Process
- B-FRM-0202.0002 – Vessel Crew Competence Matrix
- Skills development form: B-GDL-0201.0002 – Seafarer Skills Development
- BOS-PLN-0204.201401 – BOS Training Plan
- BOS-PRS-02 – Human Resources Process
- BOS-PRS-0204 – Competence and Development Process

137

7 Terms and definitions

AB
Able Bodied Seaman

AHTS
Anchor Handling Tug Supply vessel

BTC
BOURBON Training Center

CMS
Competence Management System

DPO
Dynamic Positioning Officer

FSIV
Fast Supply Intervention Vessel

KPI
Key Performance Indicator

MPSV
Multi-Purpose Supply Vessel

PMS
Planned Maintenance System

PSV
Platform Supply Vessel

Referent – Master or Chief Engineer
A senior and experienced Officer with long service in the Organisation who can perform appraisal, coaching and mentoring of other crews within the context of the Competence Management System.

STCW
Standards in Training, Certification and Watch-keeping

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Crewing and HR Manager	BOS Crewing and HR Manager	BOS Quality Representative	Rev. 01 – 11/03/2013	-
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver 03 – 03/12/2013	§ 3 : Adding " set annualy the Bos training plan" to the role of the Crewing and HR Manager; § 4.1.2: Adding "Ready to promote: Assessment must be realized and taken into consideration prior promotion of any Officer; § 4.4.14: Reviewing all the chapter; §4.6: Adding document BOS-PNL-0204.201401 – BOS Training Plan.
BOS Crewing and HR Manager	BOS Crewing and HR Manager		Ver 04 – 31/12/2014	Deleted Crew Competence Training in related documents.

138

SMS
Section 4

Reliability and Maintenance Standards

BOS-MNL-2601.900400-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Introduction 3

1.1 Main Objective 3

1.2 Critical Equipment 3

1.3 Maintenance Procedures 3

2 Review, approval, revision and identification of changes 4

3 Related contents 4

140

1 Introduction

1.1 Main Objective

To establish reliability and maintenance guidelines so that all vessels in the fleet are capable of operating safely without an incident or detention.

Equipment reliability depends on factors such as design, construction, initial commissioning, operating practices and maintenance. For installed equipment, properly planned maintenance procedures are essential if vessels are to operate reliably and avoid unnecessary downtime or costly incidents.

1.2 Critical Equipment

The Company *shall* establish and maintain procedures to identify mechanical, electrical and other items of equipment, including specialist equipment used in the vessel's operations that, in the event of a failure, may result in a hazardous situation. (See 'Critical Equipment' in SMS Section 7 - Terms & Definitions).
See Section 4 Reliability and Maintenance chap. 4.6 Critical equipment and systems.

1.3 Maintenance Procedures

The Company *shall* establish and maintain procedures to identify mechanical, electrical and other items of equipment, including specialist equipment used in the vessel's operations that, in the event of a failure, may result in a hazardous situation. (See *Reliability and Maintenance Procedure*).

141

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Technical Manager	BOS Technical Manager	BOS Quality Representative	Rev. 01 – 2013/03/11	-
BOS Technical Manager	BOS Technical Manager		Ver.03 – 03/12/2013	-
BOS Technical Manager	BOS Technical Manager		Ver.04 – 31/12/2014	Adding procedure Purchase and Supply Chain Procedure into the related documents.

3 Related contents

1. BOS-PRD-2601.900401 – Reliability and Maintenance (SMS Section 4).
2. BOS-PRD-2601.900402 – Planned Maintenance Period Management Procedure.
3. BOS-PRD-2602.900401 – Purchase and Supply Chain Procedure.

142

Reliability and Maintenance Procedure

BOS-PRD-2601.900401-ver. CR(BOS-PRD-10.900401)

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **3**

4 Description **5**

4.1 Vessel maintenance 5
4.2 Vessel specific procedures 6
4.3 Computerised Maintenance Management Systems (CMMS) 6
4.4 Defect reporting 7
4.5 Spare part inventory management 7
4.6 Critical equipment and systems 8
4.7 Critical equipment risk assessment methodology 8
4.8 Vessel integrity/breakdown 10
4.9 Maintenance of critical equipment 10
4.10 Maintenance of vessel certification 11
4.11 Maintenance in accordance with classification 11
4.12 Classification survey – (CoC) flow chart 12
4.13 Maintenance during operations 13
4.14 Maintenance KPI's and targets 13
4.15 Technical inspections 13
4.16 Inspection of cargo tanks, ballast tanks and void spaces 14
4.17 UnPlanned Maintenance Period management 15
4.18 Planned Maintenance Period management 16
4.19 Appendices and other related documents 17
4.19.1 Critical equipment maintenance permission levels scheme 17
4.19.2 Classification Surveys intervals overview 18

5 Records **19**

6 Related documents **19**

7 Terms and definitions **20**

8 Review, approval, revision and identification of changes **21**

144

1 Purpose

Equipment reliability depends on factors such as design, construction, initial commissioning, operating practices and maintenance; and for installed equipment, properly planned maintenance procedures are essential if vessels are to operate reliably and avoid unnecessary downtime or costly incidents.

The aim of the Planned Maintenance Systems is to:

a) Minimise the risk to personnel and prevent pollution or other environmental impact and any property damage caused by machinery or equipment malfunction or failure;
b) Ensure the reliability of each vessel, its technical systems, machinery and equipment;
c) Ensure that any defects relating to technical systems, machinery or equipment are identified, reported, analysed and that appropriate corrective action is assigned and completed;
d) Ensure that each vessel is maintained in conformity and in accordance with the relevant rules and regulations of Classification Societies, Flag State and any other relevant authorities.

2 Scope

The requirements and expectations to provide a robust fleet maintenance system.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.
b) Signing, following up and reviewing with Life Cycle (belonging to Bourbon Black Sea) a Maintenance Engineering and Consultancy Services Frame Agreement.

145

Technical Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Reliability and Maintenance are communicated and implemented within Technical Department and onboard all vessels under Bourbon Offshore Surf juridiction.
b) Ensuring application of Maintenance Engineering And Consultancy Services Frame Agreement with Life Cycle within BOS Organization.

Technical Deputy Manager, as leader of Maintenance in operation**,** has the responsibility, authority and accountability for **:**

a) Coordinating UnPlanned Maintenance Period (UPMP);
b) Coordinating Planned Maintenance Period (PMP), i.e reviewing and updating Planned Maintenance Period schedule and monitoring preparation, follow-up and reporting with Technical Superintendents;
c) Scheduling Vessels Technical Survey and ensuring yearly achievement;
d) Ensuring proper use of Planned Maintenance System (PMS).

Technical Superintendent, for each vessel under his/her jurisdiction**,** has the responsibility, authority and accountability for:

a) Managing routine maintenance ensuring compliance to regulatory requirements, customers standard, budget and availability rate targets;
b) Managing Unplanned Maintenance Period (UPMP) aiming to reduce technical downtime and cost to the maximum;
c) To schedule, prepare and follow-up Planned Maintenance Period (PMP) ensuring compliance to regulatory requirements, customers standard, cost and duration budget;
d) Reporting as per Company requirements the urgent technical response progress to:
    i. The Head of Technical Department;
    ii. The **Operations Manager**;
    iii. The **Contracts Manager**;
    iv. The **Regional Managing Director**;
    v. The **Company Managing Director**;
    vi. The **Vice President Maintenance**.

e) Reporting as per Company requirements the adapted technical response progress to:
   i. The **Operation Manager**;
   ii. The **Contract Manager**;
   iii. The **Vice President Maintenance**.
f) Validating orders and defining shipment urgency for spare parts, stores, consumables and service necessary for vessel safe operation and maintenance.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under his command;
b) Ensuring that the scheduled maintenance is performed as per Computerised Maintenance Management System implemented on board.
c) Defining clearly the maintenance organization on board, i.e. the job dispatch between Deck and Engine Department.
d) Reporting to the **Operation Manager** and **Contract Manager** any equipment breakdown which could impact on the safety of personnel, the environment or affect the vessel's performance.
e) Issuing and validating requisitions for spare parts, stores, consumables and service necessary for vessel safe operation and maintenance.
f) Ensuring inventories are regularly checked and records updated.

Chief Engineer has the responsibility, authority and accountability for:

a) Conducting scheduled maintenance using the Computerised Maintenance Management System implemented on the vessel;
b) Conducting maintenance in accordance with Company Technical Department documented expectations;
c) Ensuring maintenance is diligently performed in a timely fashion as required by the Company to conform to the requests of the Classification Society;
d) Achieve all actions taken to promote the reliability of critical equipment or systems (regardless of the nature of such actions, i.e. general or specific) and implementing any necessary changes;
e) Submitting his/her analysis of critical equipment and systems to the **Master** and to the **Technical Superintendent** for inclusion as applicable in the Master's Review;
f) Submitting any Technical Defect reports in accordance with Company procedures;
g) Informing his/her reliever of maintenance history during his/her tour, any defects and areas of concern, also any changes to the Planned Maintenance System operating onboard as affecting the Engine Room Department.
h) Organizing parts, stores and consumables storage on board ensuring that associated inventories are permanently kept up to date.
i) Issuing requisitions for spare parts, stores, consumables and service necessary for vessel safe operation and maintenance.
j) Checking inventories on a regularly base and recording accordingly in CMMS.

146

Operation Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure especially regarding crew staff and skills.
b) Requesting vessel release by charterer for maintenance days as per contract allowance.
c) Ensuring the use of the vessel within design capacities.

Contract Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.
b) Ensuring vessel release by charterer for maintenance days as per contract allowance.

Supply Chain Manager has the responsibility, authority and accountability for:

a) Applying, optimizing and contributing to BOURBON Purchasing & Logistics policies with the VP Purchasing & Supply Chain;
b) Ensuring purchasing and shipment of parts and supplies for vessels at best cost, quality and delivery time;
c) Defining Purchasing & Logistics procedures for the Company;
d) Ensuring management of Service Level Agreement with Bourbon Sourcing within BOS organization.
e) Ensuring management of Logistics Service Agreement with BOURBON Local entities where applicable.
f) Managing Logistics Providers frame agreements;
g) Ensuring critical suppliers evaluation and action plan follow up;
h) Ensuring delivery non-conformance investigation and action plan achievement;
i) Managing Logistics Department.

Life Cycle Managing Director has the responsibility, authority and accountability for:

a) Providing full Planned Maintenance System for all the BOURBON fleet and risk cost with the primary driver being to maximize the availability of the asset at the minimum cost;
b) Managing the equipment operation and maintenance feedback process by delivering Maintenance Instructions or Bulletins aiming to:
    - Optimize preventive maintenance schedule and cost;
    - Define spares strategy;
    - Manage obsolescence (plan for upgrades to minimize the obsolescence impact);
c) Defining critical equipment risk assessment methodology;
d) Delivering Critical Equipment Analysis including Critical Equipment list and associated maintenance jobs and spare parts;
e) Managing with Bourbon Sourcing (BS) strategic Makers and Suppliers relationship;
f) Establishing with Makers and Suppliers a 'Global Support Plan' to minimize technical responses durations (spares and services availabilities);
g) Administrating the BOURBON Computerized Maintenance Management System (Task Assistant™ of ULYSSES).
h) Implementing Maintenance Instructions/Bulletin actions in Task Assistant™ where applicable;
i) Implementing critical equipment list and associated maintenance jobs and spare parts in Task Assistant™;
j) Deploying Task Assistant™ on New built vessels;
k) Providing feedback to BOURBON New Building Department on equipment already installed on board vessel.

147

4 Description

4.1 Vessel maintenance

The Company *shall* ensure that vessels, machinery and equipment are maintained in accordance with all relevant rules and regulations as required by International and National Authorities and of Classification Societies. In doing so, the Company *shall*:

- Ensure that the structural integrity of all vessels in the fleet is maintained through an appropriate monitoring program;
- Ensure that all relevant vessel certification remains valid;
- Define the steps required to achieve safe operation of all onboard equipment;
- Provide timely support and ensure the availability of approved and/or fit-for-purpose spares, materials and other resources necessary to carry out maintenance procedures, including reconciliation procedures;
- Ensure that maintenance records and reports are consistently available, both on board and in the Head Office;
- Establish procedures for monitoring class-condition reports, which provide an overview of the state of specific onboard equipment;

- Establish a requirement for shore staff to conduct routine vessel inspections and confirm that planned maintenance has actually taken place;
- Provide a defect-reporting and close-out system that can be monitored both onboard and ashore. The system *should* specify a formal process for notifying shore management when critical equipment is taken out of service and *should* include methods for recording management's approval of any mitigating steps introduced while the equipment is out of service.

All vessels *shall* undergo planned maintenance defined in accordance with recommendations from equipment suppliers, Classification Societies, Flag State and any other relevant authorities.

4.2 Vessel specific procedures

The following emergency procedures *shall* have a procedure/instruction plate placed next to the equipment or if not practical, to be posted in appropriate locations:

a) Recovery after black out;
b) Back-up procedure for variable pitch control;
c) Emergency operation of fire pump;
d) Operation and connection of back-up generators (black-out);
e) Routine operation of bilge pump system;
f) Emergency operation of bilge pump system;
g) Emergency steering systems;
h) Emergency starting of auxiliary generator.

The following vessel specific procedures for operation of machinery and equipment *shall* be developed and documented onboard each vessel as applicable:

a) Start-up and operation of main, generator and thruster engines;
b) Operation of oily water separator;
148 c) Operation of Fi-Fi equipment;
d) Operation of electric power system (start-up/connection);
e) Operation of waste water treatment plant;
f) Operation of cargo pumping equipment;
g) Operation of oil and diesel oil separators;
h) Start-up and operation of hydraulic equipment.

4.3 Computerised Maintenance Management Systems (CMMS)

In order to improve vessel integrity, a Computerised Maintenance Management Systems *is* used on board each vessel as well and duplicated in Head Office.
Task Assistant™ is in use on most of vessels.
For other vessels where Task Assistant™ is not implemented, a set of tools approved by **Technical Manager** (Excel file for maintenance jobs and spares inventory management, Docsea™ for spares purchasing creation and follow up) is used as CMMS.

Built on the vessel equipment list, the CMMS main modules are:

- Planned and corrective maintenance activities management. This includes
  - ✓ Unscheduled jobs (including Defect) creation, follow up and final report.
  - ✓ Scheduled maintenance activities follow up and final report (including survey jobs, alarms test, tanks ballasts and void space inspections).
  - ✓ Critical equipement and maintenance activities identification.
  - ✓ Drydock jobs preparation and report.
- Spares inventory (including critical spare parts) management.
- Spares purchasing request creation and follow up.

Vessel Officers, **Technical Superintendents**, **Technical Manager** have the responsibility for the correct use of Computerised Maintenance Management Systems.

For vessels where Task Assistant™ is implemented, any improvement or modifications (maintenance job, spare parts, stores) is to be formalized following guidelines and using standard forms mentioned in Section 6 Related Documents.

4.4 Defect reporting

All breakdowns, component failures and other technical defects under warranty or not *shall* be reported according to Company documented requirements.

All defect reports *shall* be reported in Task Assistant™ or using the defect report standard form *BOS-FRM-10.0008 Defect report form* if Task Assistant™ is not available or does not allow defect reporting.
In addition to the defect report and as per instruction *BOS-INS-01.1205 Use of Action plan BO Surf*, the Operation Action plan *shall* be updated by **Vessel Master**.

If the defect is related to a Critical Equipment, this *shall* be highlighted in the report.
Critical equipment related orders *shall* be highlighted and processed with high priority.

In the situations listed hereafter, **Technical Superintendent** *shall*, after damage review, integrity assessment and corrective action plan development, notify Classification Society at the earliest :

- Collision, grounding, fire, flooding, pollution;
- Unavailability of vessel propulsion system, shaft or gearbox;
- Unavailability of vessel Main Engine or Genset.

If a Condition of Class is raised, this *shall* be processed as described in § 4.12.

Operations Manager *shall* ensure defect notification to the vessel Flag Authority.

For new built vessels covered by warranty (warranty period lasts 1 year after vessel delivery date), any defect reported in Task Assistant is also to be recorded in the vessel Warrantly Claim List. The updated list *shall* be sent on a weekly base to the **Technical Superintendent** in charge of the vessel, as well as to the **New Building Warranty Officer**. 149

For vessel where Planned Maintenance Period warranty applies (i.e. until 6 months after shipyard departure date), instructions provided in *BOS-PRD-10.900402 – Planned Maintenance Period Management Procedure* *shall* be applied.

4.5 Spare part inventory management

Spare parts and equipment inventories (including Paint and lashing equipment inventories) *shall* be managed and monitored through the vessel CMMS (Task Assistant™ or Excel file). Once updated, the inventory must be attached to the CMMS.

Physically, all spare parts *shall* be well protected, stored in dedicated and appropriate areas (clean, tidy, dry, air conditioning for electronical items etc.) and labelled to allow easy finding and access.

For parts related to critical or show stoppers equipment, **Master** *shall* ensure that inventory is permanently up to date and that quantities are available on board as per minimum requirements indicated in CMMS.

For parts not related to critical or show stoppers equipment, **Chief Engineer** and **Chief Officer** (as agreed by **Master**) *shall* randomly control the inventory during their period on board.

Once a year, a complete inventory verification *shall* be carried out as to ensure there is no discrepancy between the computer and physical information. Notification of complete inventory *shall* be entered in the **Master** and **Chief Engineer respective** handover reports.

Additionally, Bourbon Corporate Organisation has established a Central Warehousing Data System with accounts for shore-based storage of spare parts and components which can be accessed by Technical Management through the *Purchasing and Supply Chain process*.

4.6 Critical equipment and systems

Critical equipment and systems *should* include as a minimum, but not be limited to fire-detection and fire-fighting systems, vessel evacuation systems; crankcase oil-mist detectors, steering gear, emergency generator, main-engine shutdown alarms, propulsion and positioning systems, and ventilation and air conditioning systems.

Where redundancy is provided for operational reasons, equipment *should not* be considered as non-critical.

Procedures are in place to identify mechanical, electrical and other items of equipment, including specialist equipment used in the vessel's operations that, in the event of a failure, may result in a hazardous situation.

The aim of the Critical Equipment Assessment is to define test intervals, critical spare parts and critical maintenance for each vessel.

Identification of Critical Equipment *shall* be made by FMEA (Failure Mode Effect Analysis) and Risk Analysis of vessel specific systems and components.

Criticality may also be linked to contractual agreements with clients and charter for the intended voyage or service and need to be identified at the Pre-Contract phase.

Critical Equipment Analysis *shall* be delivered by Life Cycle Department.

The **Technical Superintendent** responsible for the vessel *shall* ensure that a controlled electronic copy of the Critical Equipment Analysis is sent to the vessel.

Vessel Master *shall* ensure Critical Equipment Analysis is communicated to each Officer on board and properly archived to be made available if required during an audit.

150

Critical equipments, maintenance activities and spare parts are identified in the vessel CMMS.

Critical spares and spare parts are those that each vessel *shall* have on board at any time in a predefined quantity.

Critical maintenance is maintenance that cannot be postponed or delayed.

In addition to the specific measures to address regular operational maintenance and tests within the CMMS, technical inspections *shall* include thorough operational testing of all such systems and equipment, particularly of those stand-by arrangements and equipment or technical systems that are not in continuous use.

The **Technical Superintendent** responsible for the vessel *shall* ensure that adequate follow-up is completed for any defect or other areas of concern reported through the normal channels or during the course of a technical inspection.

All technical defects *shall* be reported in as per details provided in section § 4.4 and investigated to determine the root causes such that proper action is taken to correct them and make any suitable recommendations to the **Technical Manager** to prevent any re-occurrence or similar defects.

4.7 Critical equipment risk assessment methodology

Examination of vessel drawings and manuals within the framework of this criticality analysis.

Analysis from the vessel computerised maintenance management system:

- List of components (links or not to maintenance activities);
- List of components and maintenance activities, intervals and description.

Criticality analysis applied to equipment and component as listed and structured based on:

- Hazard type and Hazard severity;
- Severity for failure based on function/use/redundancy/hazards.

Defined hazard types:

- Hazardous situations: hazards regarding ship's safety, crew safety and environment protection.
- Hazards regarding the ship's specific mission (anchor handling, towing, dynamic positioning, cargo, and fuel transfer, bulk and liquid product handling, etc.).

Level of Hazard severity (Criticality):

Use of the following scale for quoting the severity of a hazard:

1. Critical;
2. Severe;
3. Marginal;
4. Negligible.

Equipment definition:

Type of component/equipment/functions/systems:

1: Component, belonging to a piece of equipment;
2: Equipment;
3: Structural element.

Severity of equipment failure:

Criticality analysis on equipment taking into account:

1. Hazards types;
2. Severity levels defined for the function/system to which the equipment belongs;
3. Use of the equipment.

151

Equipment use:

The emergency use of equipment as required by SOLAS and vessel consumer distribution from EMERGENCY SWITCHBOARD.

1: Continuous;
2: Intermittent;
3: Rare;
4: Emergency.

Detection of failure, redundancy and availability:

1: No detection;
2: Detected by an alarm;
3: Detected on use.

Further considerations:

a) Time taken to repair after failure detection and isolation of the failed equipment;
b) Stand-by equipment put in service after failure detection and isolation of the failed equipment;
c) Number and availability of stand-by equipment according to the considered mode of ship operation or considered function;
d) Description of the stand-by equipment (redundancy).

Concluding Analysis:

The severity level of equipment failure (criticality) downgraded in the following conditions:

a) Reduced by one level if the time to repair was considered as acceptable or if the stand-by equipment could ensure the function;
b) Reduced by two levels if two stand-by equipment could ensure the function;
c) Where one equipment (redundancy) is intended to be used in case of emergency, the severity level of hazards is automatically set to "1", (Critical) - even if a stand-by equipment is available or in use.

Result of Criticality Risk Assessment
For each equipment, the level of criticality is defined:

a) Maintenance activities and spares of "critical" equipment are flagged "critical" in applicable maintenance software and other systems as necessary;
b) Components of "critical" equipment are flagged "critical" in applicable maintenance software and other systems as if they have not been assessed separately.

The criticality analysis report is valid for a specific ship and type of use - in case of changes in equipment or installation design or in ship operations, the analysis *shall* be further reviewed and managed.

4.8 Vessel integrity/breakdown

In order to provide the best service to its customers, a series of measures aiming to mitigate the effects of events affecting the vessels' integrity are in practice.

Defined "Show Stoppers" are defined as the vessels' components that in the event of a sudden operational failure may potentially result in a partial or complete loss of hire (cash flow consequences). "Show Stoppers" include but may not be limited to:

- Hull (any loss of integrity of the hull);
- Propulsion, maneuvering and auxiliary main components;
- Non redundant cargo handling components;
- Main crane and 4/6/8 point mooring system for MPSV;
- All components allowing a specific class notation to be granted (DP, FIFI, Winch, etc…).

Vessel breakdown can constitute an EMERGENCY situation requiring activation of contingency planning
152 response.

"Show Stopper" and all machinery/equipment breakdowns, *shall* be reported and managed as per Company *Incident Management, Reporting and Investigation Procedure*. (SMS Section 8).

In circumstances where the nature of the breakdown may be beyond the capacity of personnel on board to repair, Management ashore will arrange for shore-based or Contractor assistance as applicable.

A Makers' Representative *shall* be engaged and supervised as required for any major engine or equipment repairs.

Details of any breakdown are to be recorded in the vessel's Deck and Engine Logbooks.

A log extract and the incident report is to be prepared, and sent to the **Contract Manager, Operations Manager, Technical Superintendent** and **Technical Manager**.

Insurance Company and Classification Society are to be informed as deemed necessary by the **Technical Manager.**

4.9 Maintenance of critical equipment

Critical equipment and associated critical spare parts are indicated within the Computerised Maintenance Management System.

Maintenance of critical equipment *should* only be made when operations permit and *should* not compromise the nature of criticality or integrity of the vessel, operations or essential services.

Critical equipment maintenance permission levels scheme is detailed in *§ 4.19.1*.

Prior to undertaking maintenance on critical equipment or taking critical equipment out of service for the purpose of maintenance the vessel *shall* ensure:

a) Notification of the **Technical Superintendent** such that appropriate levels of authority and permissions can be obtained;
b) Notification to the **Contract Manager** such that vessel Charterer or Client can be informed and appropriate level of authority obtained;
c) Performing a detailed JSA/risk assessment of the task to determine appropriate control, mitigation and recovery measures required to ensure 'worst case' situations are prevented.

Where maintenance of critical equipment exceeds the agreed 'shut down' period any extension or alternative actions *shall* first be reviewed and agreed with the **Contracts Manager** and Client.

4.10 Maintenance of vessel certification

All vessel certification *shall* be maintained in accordance with applicable Class and Statutory Rules and Regulations.

Classification Surveys intervals overview is detailed in *§ 4.19.2.*

All certificates related to the vessel's flag regulation are managed by the Operations Department.

All certificates related to the vessel's class society regulation are managed by the **Technical Superintendent**.

Monitoring of certification periods of validity and date of renewal, *is* to be monitored via classification society web site according to vessel's classification (BV, ABS, DNV). Those web sites ensure a tracking system providing 'up to date' information including giving notifications to assist with scheduling of survey and or requirements for renewal.

4.11 Maintenance in accordance with classification

It is the responsibility of the **Technical Superintendent** to make suitable arrangements with the applicable Classification authorities for any due surveys and/or inspections to be conducted within the window permitted.

The **Technical Superintendent** responsible for the vessel *shall* inform the **Operations Manage**r, the **Contract Manager** in due time whenever any surveys and/or inspections are scheduled.

Breakdown or major maintenance on Classified equipment *shall* be reported to the Class Society in due time by the **Technical Superintendent** and to the Flag Authority by **Operations Manager**, as detailed in section § 4.4.

Approval *shall* be sought from the Classification Society prior to engaging in any maintenance or servicing operations on the hull, machinery, systems or other equipment that may affect the vessel classification.

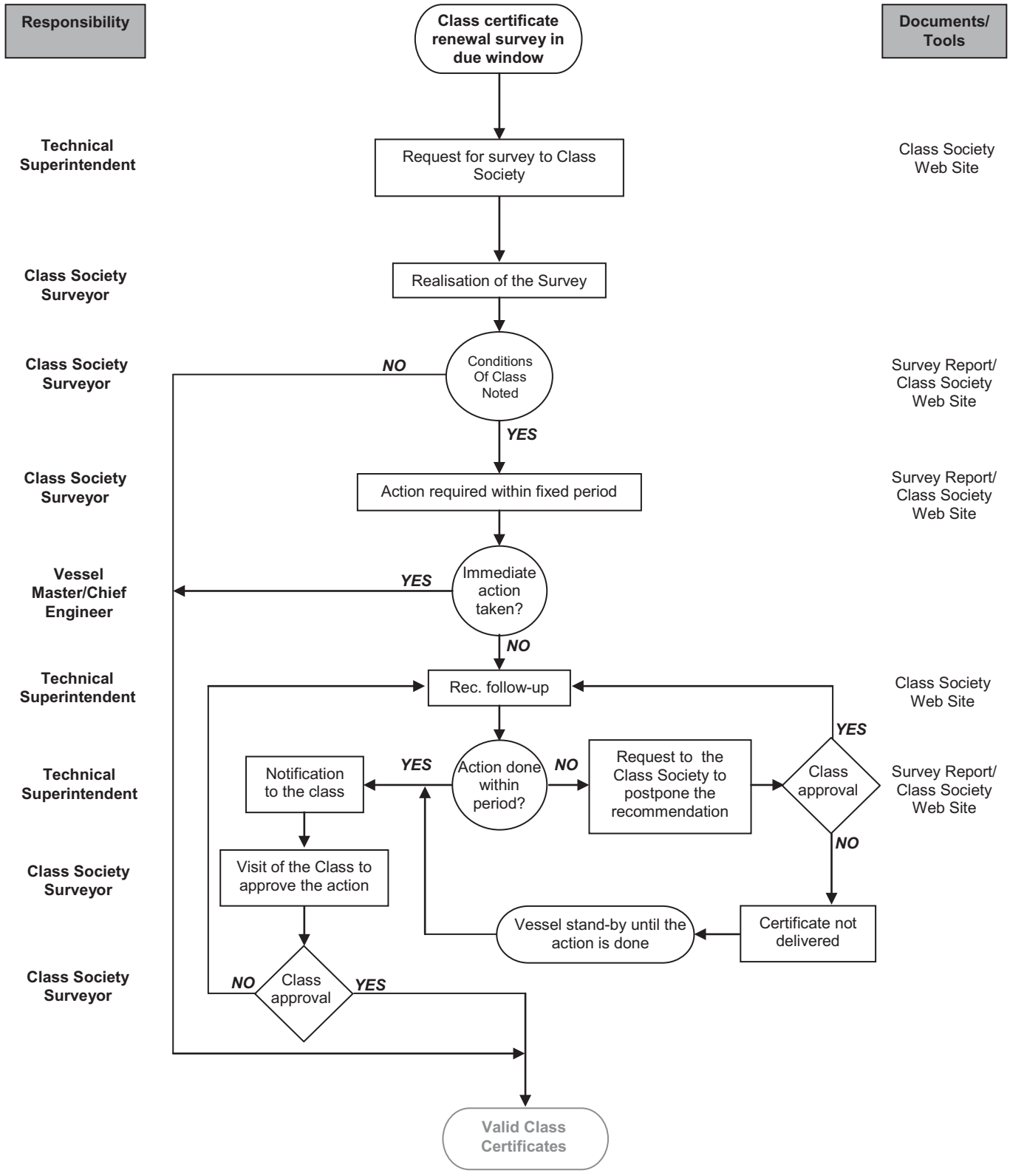
Any such approved maintenance or servicing operations *shall* be carried out in compliance with any manufacturer's directions and within the standards and rules of the marine industry.

Upon repairs completion, **Technical Superintendent** and **Operations Manager** *shall* respectively inform Class Society and Flag Authority and ensure that official records are updated accordingly.

All such maintenance or servicing operations *shall* be recorded in the respective Bridge/Engine Room Logbooks and full reports are to be kept and updated in the CMMS.

Such approved maintenance or servicing operations *shall* be brought to the attention of the Classification Society Surveyor during any subsequent follow-up inspection or survey or the next scheduled inspection or survey.

4.12 Classification survey – (CoC) flow chart



4.13 Maintenance during operations

Maintenance work on components critical for the safe operation of the vessel *shall not* be planned or started whenever the vessel is operating at any offshore installation or in any other situation or position when there is risk of drifting onto these installations, or into other hazardous situations if propulsion or manoeuvrability be compromised.

Such operations include, but are not limited to:

a) Working inside the 500 meter safety zone of any offshore installation or other location;
b) In close proximity to an offshore installation or other location with the potential hazard of drifting onto these offshore installations or locations;
c) If the vessel is navigating in a traffic separation scheme or other areas with dense traffic;
d) If the vessel is navigating in coastal areas, within ports, harbours, in rivers, estuaries or similar confined areas.

Irrespective of the vessel location, prior to beginning any work to components critical for the safe operation of the vessel, the **Engine Watch Officer** *shall* inform the **Bridge Watch Officer** of the intended work and expected duration and obtain a Permit to Work (PTW) if applicable.

Such work may not begin without the authorisation of the **Bridge Watch Officer**. In any areas of conflict regarding this directive, the **Master** *shall* be consulted.

4.14 Maintenance KPI's and targets

Management tracks the number of outstanding maintenance tasks of non-critical equipment to ensure that these are resolved quickly and efficiently.

155

The number of outstanding planned maintenance tasks of non-critical equipment for individual vessels and the fleet as a whole is expressed as a percentage of the total number of monthly planned maintenance tasks.

Data *should* be recorded monthly with a running year-to date figure also recorded.

The **Technical Manager** *shall* establish method for analysis of data and determination of targets.

OSM Targets
Level 1 Year to date – outstanding tasks are less than 10%;
Level 2 Year to date – outstanding tasks are less than 6%;
Level 3 Year to date – outstanding tasks are less than 3%;
Level 4 Year to date – outstanding tasks are less than 1%.

OSM Target level for BOS Fleet is provided in *Yearly BOS Plan*.

4.15 Technical inspections

The **Technical Superintendent** *shall* ensure that the requirements of the Planned Maintenance System are implemented and adhered to.

This responsibility includes ensuring that each vessel is inspected at least annually by a duly qualified person and that a report related to such inspection is written and subsequently analysed by the Technical Department.

This inspection is a standing part of each vessel's operational maintenance routine.

The inspection and report *shall* also provide a history of each vessel's technical record and performance.

Records of each technical inspection *shall* be maintained on permanent file within the Technical Department and onboard each vessel as applicable.
The inspection *shall* include critical equipment.

Inspection scheduling and monitoring *should* be measured and managed under the **Technical Manager's** KPI's which *shall* be incorporated into the technical reporting required for the Quarterly Management Review meeting.

The standard form *BOS-FRM-10.0001 – Vessel Technical Survey Report* is used for this purpose. This form include instructions for the management of the recommendations noted in the report.

Upon reception of the validated report, **Master** and **Chief Engineer** *shall* record recommendation in Task Assistant™ or Operation Action Plan (for vessels not fitted withTask Assistant™software), take all necessary actions and update records upon actions completion.

4.16 Inspection of cargo tanks, ballast tanks and void spaces

The vessel inspection program *shall* include routine inspection of vessels hull integrity including inspection of integral tanks and void spaces.

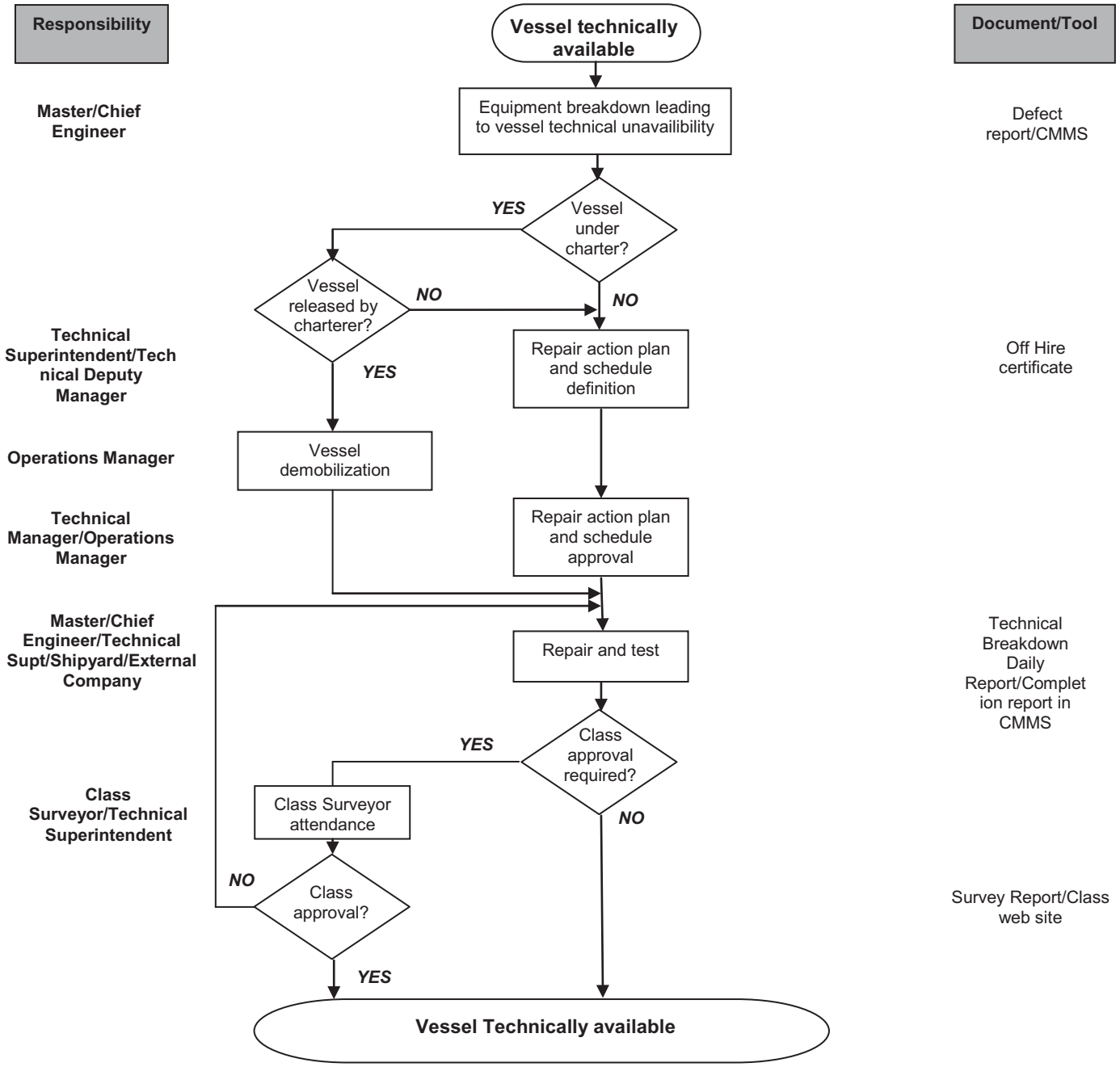
Where possible this inspection routine *should* be incorporated into the vessel CMMS and managed as part of the Preventive Maintenance program.

Records of SPECIFIC tank inspections *shall* be maintained in a standard format (in CMMS) , and *shall* include use of photographs' as evidence to the specific tank's condition.

156

4.17 UnPlanned Maintenance Period management

Unplanned Maintenance Period is to be understood as a period during which the vessel is immobilized in order to maintain or repair (in case of breakdown), a major equipment (critical equipment or show stopper as per definition given in section 4.7 and 4.8), whatever if the vessel is under charter or not. Thus, this period ends once maintenance or repair is completed, and after test and sea trials as applicable.



4.18 Planned Maintenance Period management

Planned Maintenance Period (PMP) is to be understood as a period during which the vessel is immobilized to perform scheduled and corrective maintenance in accordance with Class Society requirements and maintenance schedule included in CMMS.
This period is scheduled upon Class Society bottom survey due period (annual for High Speed Crafts registered vessels and at intermediate or renewal survey for other vessels), requiring the vessel to be docked within this time frame. Classification Surveys intervals overview is detailed in Section § 4.19.2.

Planned Maintenance Period management is detailed in the procedure *BOS-PRD-10.0001 Planned Maintenance Period Management Procedure.*

158

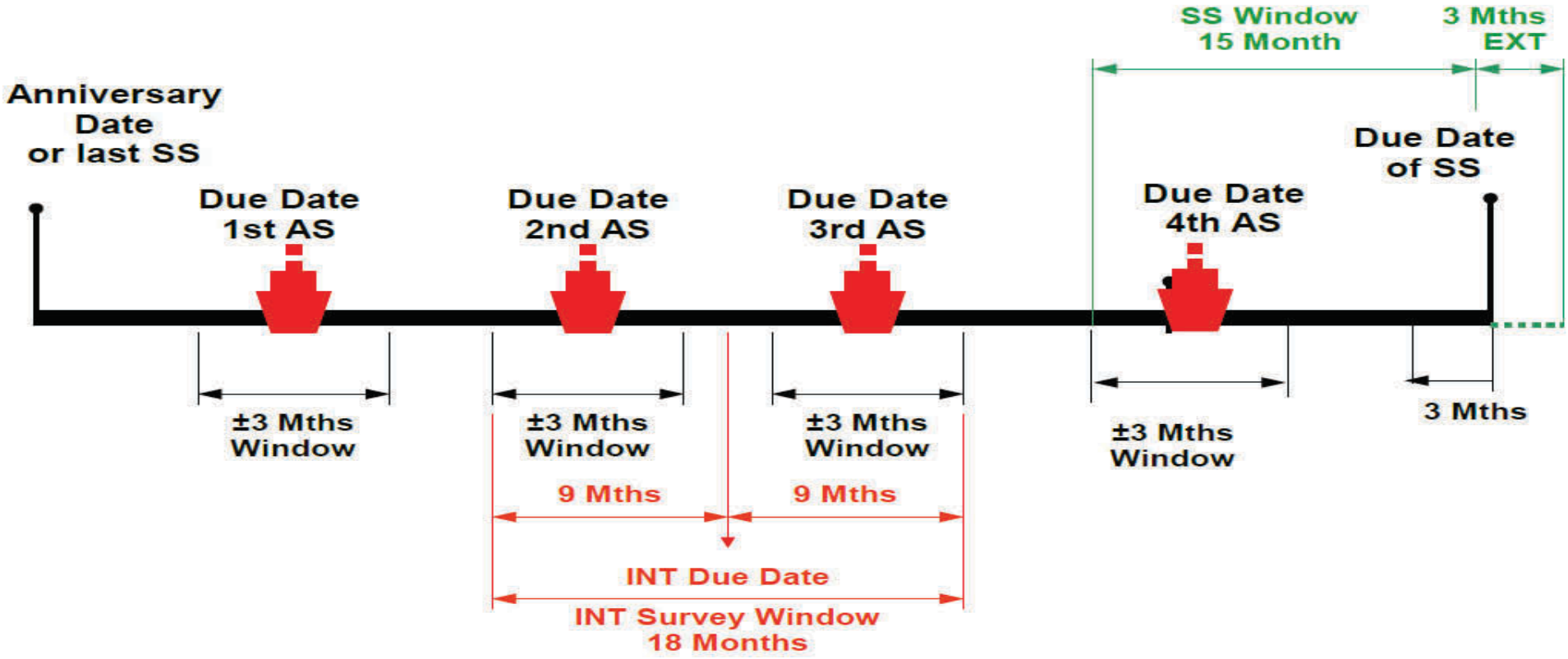
4.19 Appendices and other related documents

4.19.1 Critical equipment maintenance permission levels scheme

Maintenance job type	Job description	Authorized person	Preliminary approval from Technical Superintendent (Y/N)	Comments
Scheduled	Routine/Check/Test	Cpt, C/E, AO	N	These jobs may include basic maintenance (oil or filter change) and settings. Except regulatory maintenance to be performed in specialized workshops (e.g. liferafts).
	Overhaul	S/E, C/E	Y	Jobs to be scheduled during Planned Maintenance Period (PMP) as applicable.
Unscheduled	Basic troubleshooting and repairs	Cpt, C/E, AO	N	Partial overhaul, parts standard exchange.
	Complex troubleshooting and significant repairs	Cpt, C/E	Y	Troubleshooting may be done with maker or specialist remote support. Service Engineer intervention as necessary.
	Improvement	Cpt, C/E, S/E	Y	Any improvement shall be formalized through a Management of Change (MOC).
	Complete refit	S/E	Y	Jobs to be scheduled during Planned Maintenance Period (PMP) as applicable.

Cpt – Captain
C/E – Chief Engineer
AO – Appointed Officer
S/E – Service Engineer

4.19.2 Classification Surveys intervals overview



SS – Special Survey
AS – Annual Survey

Nota : Intermediate survey is not mandatory for vessels registered as High Speed Crafts, as bottom survey is due on an annual base.

5 Records

- Technical Downtime Daily Reports;
- Technical Downtime Final Report;
- Bridge Logbook;
- Engine Room Logbook;
- Maintenance International Weekly Report mail;
- Task Assistant™ software;
- Task Assistant Fleet KPI Monthly Follow Up;
- Defect Report (for non TA vessels);
- BOS OPS Action Plans (for non TA vessels);
- CMMS in excel file (for non TA vessels);
- Task assistant performance reviews (IN DRAFT);
- Task Assistant training records;
- Task Assistant Monthly Report KPIs;
- Task Assistant Training feedback forms;
- Equipment Change Report;
- Technical Planning Survey;
- Vessel Technical Survey Report;
- Investigation report and incident analysis.
- New built vessels standard Warranty Claim List (IN DRAFT);
- Sub-Contractor Equipment Inspection Report.

6 Related documents

161

- B-GDL-03.0007 – OSM Guidelines.
- B-PRS-10 – Maintenance and Reliability Process.
- B-POL-01.0018 – Maintenance Policy.
- B-CHR-10.0001 – BOURBON Maintenance Organization.
- B-GDL-10.0003 – Maintenance and Reliability Process Management Guidelines.
- B-GDL-2601.0002 – Technical Downtime Guidelines.
- B-GDL-10.0005 - Budget Overrun Request Guidelines.
- B-GDL-10.0006 – Maintenance Release Guidelines.
- B-GDL-10.0007 – Maintenance Feedback Process Guidelines.
- B-GDL-2601.0001 - Maintenance Reporting Guidelines.
- B-GDL-2601.0002 - Technical Downtime Guidelines.
- Service Level Agreement Bourbon Black Sea.
- Maintenance Alerts, Bulletins & Instructions.
- B-MI-2013-002 – Bourbon Maintenance Process Abbreviations.
- GAIA-INS-10.0100 - Subsea Wire Rope Maintenance Instruction.
- B-FRM-10.0008 – Technical Downtime Daily Report.
- B-FRM-2601.0001 - Technical Downtime Final Report.
- BOURBON Standard Warranty Claim List (in DRAFT – only applicabe to new built vessels during warranty period).
- BOS-PLN-01.2015 – BOS Plan 2015 (in Draft).
- Classification Societies websites (BV, DNV, ABS).
- BOS-PRD-10.900402 – Planned Maintenance Period Management Procedure.
- BOS-PRD- 2601.XXXX – Hull and Machinery Insurance Claim Management (in Draft).
- BOS-INS-10.0003 - Vessels allocation by superintendent.
- BOS-FRM-10.0008 - Defect Report.
- BOS-FRM-10 0010 - Technical Planning Survey.
- BOS-FRM-10.0001 – Vessel Technical Survey Report.

- BOS-FRM-10 0024 - Task Assistant Fleet KPI Monthly Follow Up.
- BOS-FRM-10.0022 – Sub-Contractor Equipment Inspection Report.
- BOS-PRD-2602.0001 – Purchasing and Supply Chain Procedure.
- Task Assistant user Manual.
- B-PRD-10.0002 – Task Assistant maintenance Procedure.
- B-GDL-10.0008 - Processing Tickets in Master Data Management Ticketing System Guidelines.
- B-GDL-10.0009 - Vessel Equipment Change Guidelines.
- B-FRM-10.0009 – Equipment Change Report.
- B-GDL-2601.0004 - Task Assistant™ Use Key Performance Indicators Guidelines.
- B-GDL-2601.0005 - 4A and 4B Key Performance Indicators Guidelines.

7 Terms and definitions

CoC
Conditions Of Class.

Criticality (of equipment)
“The sudden operational failure of which may result in hazardous situations” and is therefore specific to vessel type and design.

CMMS
Computerised Maintenance Management System.

DP
Dynamic Positioning.

Fi-Fi
Fire Fighting.

FMEA
Failure Mode Effect Analysis.

JSA
Job Safety Analysis.

KPI
Key Performance Indicator.

MPSV
Multi-Purpose Supply Vessel.

OOW
Officer of the Watch.

PMS
Planned Maintenance System.

PMP
Planned Maintenance Period.

PTW
Permit To Work.

Show Stopper

The vessels' components that in the event of a sudden operational failure may potentially result in a partial or complete loss of hire (cash flow consequences).

UPMP
UnPlanned Maintenance Period.

BBS
Bourbon Black Sea.

Life Cycle
BOURBON Maintenance Engineering Department (integrated into Bourbon Black Sea).

MDM
Master Data Management – Department in charge of updating Task Assistant™ vessels databases with information issued by Life Cycle Department.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS Technical Manager	BOS Technical Manager	BOS Quality Representative	rev. 01 – 11/03/2013	Reviewed § 3; § 4,3; § 4.4; § 4.5; § 4.6; § 4.9; § 4.10; § 4.11; § 4.15 and § 4.16.
BOS Technical Manager	BOS Technical Manager		ver 03- 03/12/2013	Reviewed of § 4.2, § 4.5, § 4.11, § 4.15, § 4.17 and § 4.18.
BOS Technical Manager	BOS Technical Manager		Ver.04 – 31/12/2014	Change done in all the procedure.

Planned Maintenance Period Management Procedure

164

BOS-PRD-2601.900402-ver.CR(BOS-PRD-10.900402)



Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **9**

4.1 Planned Maintenance Period workflow 9
4.1.1 Planned Maintenance Period not delegated to Bourbon Docking 9
4.1.2 Planned Maintenance Period delegated to Bourbon Docking 11
4.2 Safety Management during PMP at worksite 12
4.3 PMP Project Management tools 12
4.4 PMP Project deliverables 12
4.5 Instructions for worklist preparation 13
4.6 Appendices and other related documents 14
4.6.1 Classification Surveys intervals overview 14
4.7 PMP Meetings and Deliverables overview 15
4.7.1 Preparation Review meeting 15
4.7.2 Kick off Meeting 15
4.7.3 Weekly Progress Review Meeting 15

5 Records **16**

6 Related documents **17**

7 Terms and definitions **18**

8 Review, approval, revision and identification of changes **18**

165

1 Purpose

The purpose of this procedure is to describe the Planned Maintenance Period (PMP) management process.

Planned Maintenance Period is to be understood as a period during which the vessel is immobilized to perform scheduled and corrective maintenance, in accordance with Class Society requirements and maintenance plan included in Computerised Maintenance Management System (CMMS). This period is scheduled on Class Society bottom survey due period (annual for High Speed Crafts registered vessels and at intermediate or renewal survey for other vessels), usually requiring the vessel to be docked within this time frame. Classification Surveys intervals overview is detailed in § 4.6.1.

2 Scope

This procedure addresses the following stages of the Planned Maintenance Period:

- Preparation;
- Worksite follow up and achievement;
- Reporting upon completion;

This procedure applies to:

- Vessels technically managed by Bourbon Offshore Surf (BOS), i.e. vessels for which BOS technical department is responsible for routine maintenance in operation as well as Planned Maintenance Period;
- Planned Maintenance Period assumed by BOS Technical Department or delegated to Bourbon Docking entity (BDO);

166

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented, applied and followed.
b) Signing, following up and reviewing with Bourbon Docking the Service Level Agreement (SLA).
c) Signing, following up and reviewing with Life Cycle (belonging to Bourbon Black Sea) a Maintenance Engineering And Consultancy Services Frame Agreement.

Technical Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations of this procedure, are communicated and implemented within Technical Department and onboard all vessels under Bourbon Offshore Surf jurisdiction;
b) Defining and booking the Planned Maintenance Period, with Bourbon Docking where applicable, and in compliance with Class requirements;
c) Preparing the Planned Maintenance Period budget (cost and duration), in collaboration with Life-Cycle and Bourbon Docking where applicable;
d) Ensuring budget compliance (cost and duration) and submitting Budget Overrun Request for approval as applicable.
e) Ensuring that the requirements of the Service Level Agreement signed with Bourbon Docking are implemented, applied and followed within its organisation;
f) Ensuring that Life Cycle (belonging to Bourbon Black Sea) a Maintenance Engineering And Consultancy Services Frame Agreement requirements are implemented, applied and followed within its organisation.

167

Technical Deputy Manager, has the responsibility, authority and accountability for **:**

a) Updating and communicating Planned Maintenance Period Schedule;
b) Ensuring Planned Maintenance Period preparation, follow up and reporting achievement (visit to vessel, Bourbon Docking deliverables, kick off meeting on worksite, weekly progress meeting);

Technical Superintendent, has the responsibility, authority and accountability for **:**

a) Proposing Planned Maintenance Period budget (cost and duration) for vessels under its responsibility.
b) Managing budget compliance (cost and duration) and submitting Budget Overrun Request for approval by **Technical Manager** as applicable**;**
c) Obtaining the worklist and details from **Master** and **Chief Engineer** in timely manner, i.e., at least 8 months before Planned Maintenance Period scheduled starting date;
d) Analyzing, reviewing and updating the worklist and details as necessary. Final approval of the worklist and details shall be given after a visit to the vessel to collect additional information and assess the relevancy and feasibility of each job proposed by **Master** and **Chief Engineer**;
e) Defining the Planned Maintenance Period specification, in collaboration with **Life-Cycle** and **Bourbon Docking** where applicable, to comply with budget (cost and duration);
f) Validating purchase orders related to parts, services and supplies;
g) Issuing, for Planned Maintenance Period not delegated to Bourbon Docking, a tentative specification for shipyard bidding;
h) Managing, for Planned Maintenance Period not delegated to Bourbon Docking, the shipyard bidding process, selecting the winning bid, issuing the purchase order to the selected shipyard and signing a Repair Contract;
i) Issuing the Planned Maintenance Period final specification and associated planning as well as the budget forecast to all involved parties within Bourbon Offshore Surf organization and all involved BOURBON entities;

j) Ensuring PMP cost allocation in compliance with budget assumptions (PMP, Upgrade), contract (Client re-invoicing), insurance or warranty claim;
k) Managing, for Planned Maintenance Period not delegated to Bourbon Docking, the vessel repairs at the shipyard;
l) Organizing, for Planned Maintenance Period delegated to Bourbon Docking, a kick off meeting on the worksite with **Bourbon Docking Project Manager, Bourbon Docking Superintendent, Master** and **Chief Engineer**.
m) Submitting budget overrun request (cost and duration) to the Technical Manager as described in Budget Overrun Request Guidelines;
n) Providing, for Planned Maintenance Period not delegated to Bourbon Docking, Technical Downtime Daily Report, Weekly Cost Report and Weekly Progress Report to Bourbon Offshore Surf Organization and all involved BOURBON entities;
o) Ensuring that any plant or equipment maintained or repaired during the Planned Maintenance Period is tested until found up to nominal parameters and that tests are properly recorded.
p) Ensuring, at the end of the Planned Maintenance Period at worksite, that the vessel (Topsides, Main Deck, Accomodation, Engine room and tank farm) painting, tyding up and cleanliness are up to standards, i.e. that the vessel is fit for chartering. Some painting and housekeeping jobs could be done after vessel departure from shipyard only if those are completed prior to arrival at chartering location;
q) Issuing, for Planned Maintenance Period not delegated to Bourbon Docking, a Redelivery Protocol, a Final Planned Maintenance Period technical report and a Cost Report to all involved parties within Bourbon Offshore Surf Organization and Corporate Organization;
r) Approving, for Planned Maintenance Period delegated to Bourbon Docking, the “Final Planned Maintenance Period Technical report” and “Cost Report” and issuing it to all involved parties within Bourbon Offshore Surf Organization and Corporate Organization;
s) Approving and forwarding warranty claims to **Bourbon Docking Warranty Officer** after Planned Maintenance Period**,** and ensuring logistics support as necessary.

168

Operation Manager has the responsibility, authority and accountability for:
a) Monitoring compliance with this procedure.
b) Requesting vessel release by charterer for Planned Maintenance Period as per schedule proposed by **Technical Superintendent**;
c) Requesting modification to the vessel based upon operation feedback or charterer request;
d) Informing **Technical Superintendent** about any PMP jobs to be back charged to Client (e.g. tank cleaning);
e) Appointing **Local Shipping Agent** arranging for crew change, custom clearance, port expenses and local purchasing.

Contract Manager has the responsibility, authority and accountability for:
a) Ensuring vessel release by charterer according to schedule agreed with **Operation Manager**;
b) Forwarding to **Operation Manager**, modification jobs requested by charterer, specifying contract compliance and financial conditions;

Life Cycle Manager has the responsibility, authority and accountability for:
a) Defining, for each design of vessel and lifetime Planned Maintenance Period milestone (2,5 years old, 5 years, 7,5 years, 10 years…), a generic specification detailing preventive maintenance requirements;
b) Collecting and analyzing Planned Maintenance Period feedback from Bourbon Docking and BOS, subsequently challenging makers and suppliers in order to improve equipment reliability and cost effectiveness;
c) Updating PMP generic Specifications and Task Assistant™ as necessary.

Bourbon Docking Manager has the responsibility, authority and accountability for:

a) Booking shipyard slots according to Planned Maintenance Period schedule;
b) Ensuring that all PMP deliverables are issued as per schedule;
c) Managing the Planned Maintenance Period of BOURBON fleet for and on behalf of Bourbon Offshore Affiliates (supplying goods and supervising work on-site) within the budget;
d) Ensuring that the requirements of the Service Level Agreement are implemented, applied and followed within its organization;

Bourbon Docking Project Superintendent has the responsibility, authority and accountability for:

a) Drafting and issuing for approval by **Technical Superintendent**, Planned Maintenance Period specification, i.e. detailed job list, based upon generic specification issued by Life Cycle Department and upon specific unscheduled jobs created in Task Assistant™ by **Master**, **Chief Engineer** and **Technical Superintendent**;
b) Ensuring that all necessary parts, services and consumables are ordered and delivered to the shipyard in due time and quantity to achieve Planned Maintenance Period specification within budgeted amount and duration;
c) Ensuring that all project deliverables are issued in due time to all involved parties;
d) Drafting and issuing for approval by **Technical Superintendent** Budget Overrun Request (cost and/or duration as applicable;

Bourbon Docking Purchaser has the responsibility, authority and accountability for:

a) Purchasing, for Planned Maintenance Period delegated to Bourbon Docking, parts, services and supplies as per purchase orders approved by **Technical Superintendent**; while ensuring, "B-MI-2012-018 - Purchasing Process" for PMP Docking Pack by BDO for and on behalf Bourbon are applied;

169

Bourbon Docking Logistics Manager has the responsibility, authority and accountability for:

a) Delivering to the shipyard or vessel, for Planned Maintenance Period to Bourbon Docking, purchased parts and supplies in due time;

Bourbon Docking Superintendent on worksite has the responsibility, authority and accountability for:

a) Managing, for Planned Maintenance Period delegated to Bourbon Docking, the vessel repairs at the shipyard;
b) Signing a Repair Contract with the shipyard;
c) Managing, during Planned Maintenance Period at the worksite and in collaboration with vessel **Master**, safety on board as per Company and Shipyard standards and procedures;
d) Organizing a kick-off meeting and daily meetings with Shipyard Representative, **Master** and **Chief Engineer**;
e) Providing "Technical Downtime Daily Report", "Weekly Cost Report" and "Weekly Progress Report" to Bourbon Offshore Surf Organization and all BOURBON entities concerned;
f) Ensuring that any plant or equipment maintained or repaired during the Planned Maintenance Period is tested until found up to nominal parameters and that tests are properly recorded;
g) Ensuring, at the end of the Planned Maintenance Period at worksite, that the vessel (Topsides, Main Deck, Accomodation, Engine room and tank farm) painting, tyding up and cleanliness are up to standards, i.e. that the vessel is fit for chartering. Some painting and housekeeping jobs could be done after vessel departure from shipyard only if those are completed prior to arrival at chartering location;
h) Submitting overrun budget requests (cost and duration) to Bourbon Offshore Surf Organization as described in "Budget Overrun Request Guidelines";
i) Issuing the "Final Planned Maintenance Period Technical report" and "Cost Report" to the **Technical Superintendent** in charge of the vessel and to Bourbon Docking Organization;

Bourbon Docking Warranty Officer has the responsibility, authority and accountability for:

a) Managing warranty claims after Planned Maintenance Period in collaboration with **Technical Superintendent**.

Master of the vessel has the responsibility, authority and accountability for:

a) Ensuring, during preparation stage, a review of all vessel equipments condition and operation, and issuing a worklist accordingly, including preventive jobs, repairs, and improvements;

b) Ensuring, during preparation stage, that purchasing requisitions for parts, services and supplies necessary to achieve the work list are issued in due time;

c) Ensuring, during Planned Maintenance Period at the worksite, that the job specification and details are known by all the crew and that each crew member has understood its rule and responsibility during the Planned Maintenance Period;

d) Managing, during Planned Maintenance Period at the worksite and in collaboration with **Bourbon Docking Superintendent**, safety on board as per Company and Shipyard standards and procedures;

e) Assisting, during Planned Maintenance Period at the worksite, **Bourbon Docking Superintendent**, especially ensuring that vessel and equipment are configured to allow for job achievement as per specification;

f) Reporting, during Planned Maintenance Period at the worksite, to the **Technical Superintendent** the job progress as well as any Safety or Quality issue;

g) Ensuring that any plant or equipment maintained or repaired during the Planned Maintenance Period is tested until found up to nominal parameters and that tests are properly recorded;

h) Ensuring, at the end of the Planned Maintenance Period at worksite, that the vessel (Topsides, Main Deck, Accomodation, Engine room and tank farm) painting, tyding up and cleanliness are up to standards, i.e. that the vessel is fit for chartering. Some painting and housekeeping jobs could be done after vessel departure from shipyard only if those are completed prior to arrival at chartering location;

170

i) Endorsing, at the end of the Planned Maintenance Period at worksite and for Planned Maintenance Period delegated to Bourbon Docking, the Redelivery protocol on behalf of **Technical Superintendent**;

j) Ensuring, upon completion of the Planned Maintenance Period, that information gathered in the final report are properly recorded in the Computerised Maintenance Management System in use on board the vessel (Task Assistant™ if applicable or excel file);

k) Updating, upon completion of the Planned Maintenance Period, Vessel Filing System, other related documentation and inventories;

l) Raising warranty claim to the **Technical Superintendent** when applicable.

Chief Engineer of the vessel has the responsibility, authority and accountability for:

a) Reviewing, during preparation stage and according to **Master**'s instructions, vessel equipments condition and operation, and issuing a worklist accordingly, including preventive jobs, repairs, and improvements.

b) Issuing, during preparation stage and according to **Master**'s instructions, purchasing requisitions for parts, services and supplies necessary to achieve the work list;

c) Ensuring, during Planned Maintenance Period at the worksite, that the job specification and details are known by engine team and that each team member has understood its rule and responsibility during the Planned Maintenance Period;

d) Assisting, during Planned Maintenance Period at the worksite, **Master** and **Technical Superintendent** in the management of the safety on board as per Company and Shipyard standards and procedures;

e) Assisting, during Planned Maintenance Period at the worksite, the **Bourbon Docking Superintendent**, especially ensuring that vessel and equipment are configured to allow for job achievement as per specification.

f) Reporting, during Planned Maintenance Period at the worksite, to the **Technical Superintendent** the job progress as well as any Safety or Quality issue;

m) Ensuring that any plant or equipment maintained or repaired during the Planned Maintenance Period is tested until found up to nominal parameters and that tests are properly recorded;

n) Ensuring, at the end of the Planned Maintenance Period at worksite, that the Engine room and tank farm painting, tyding up and cleanliness are up to standards, i.e. that the vessel is fit for chartering. Some painting and housekeeping jobs could be done after vessel departure from shipyard only if those are completed prior to arrival at chartering location;

g) Ensuring, upon completion of the Planned Maintenance Period, that information gathered in the final report are properly recorded in the Computerised Maintenance Management System in use on board the vessel (Task Assistant™ if applicable or excel file);

h) Updating, upon completion of the Planned Maintenance Period, Vessel Filing System and any other related documentation;

i) Raising warranty claim to the **Technical Superintendent** when applicable.

Supply Chain Manager (BOS) has the responsibility, authority and accountability for:

a) Purchasing, for Planned Maintenance Period not delegated to Bourbon Docking, parts, services and supplies as per purchase orders approved by **Technical Superintendent**;

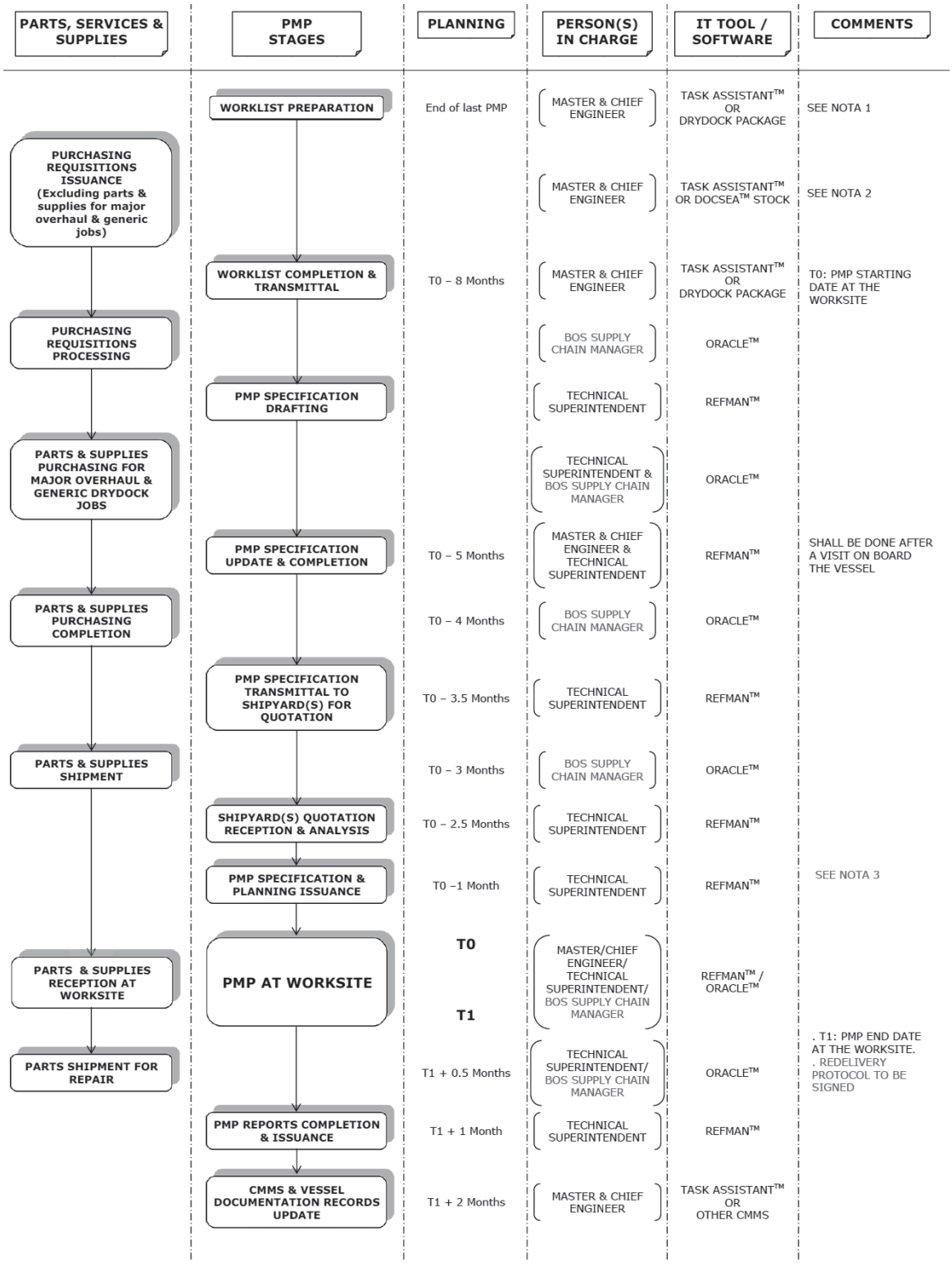
b) Delivering to the shipyard or vessel, for Planned Maintenance Period not delegated to Bourbon Docking, purchased parts and supplies in due time.

171

4 Description

4.1 Planned Maintenance Period workflow

4.1.1 Planned Maintenance Period not delegated to Bourbon Docking



172

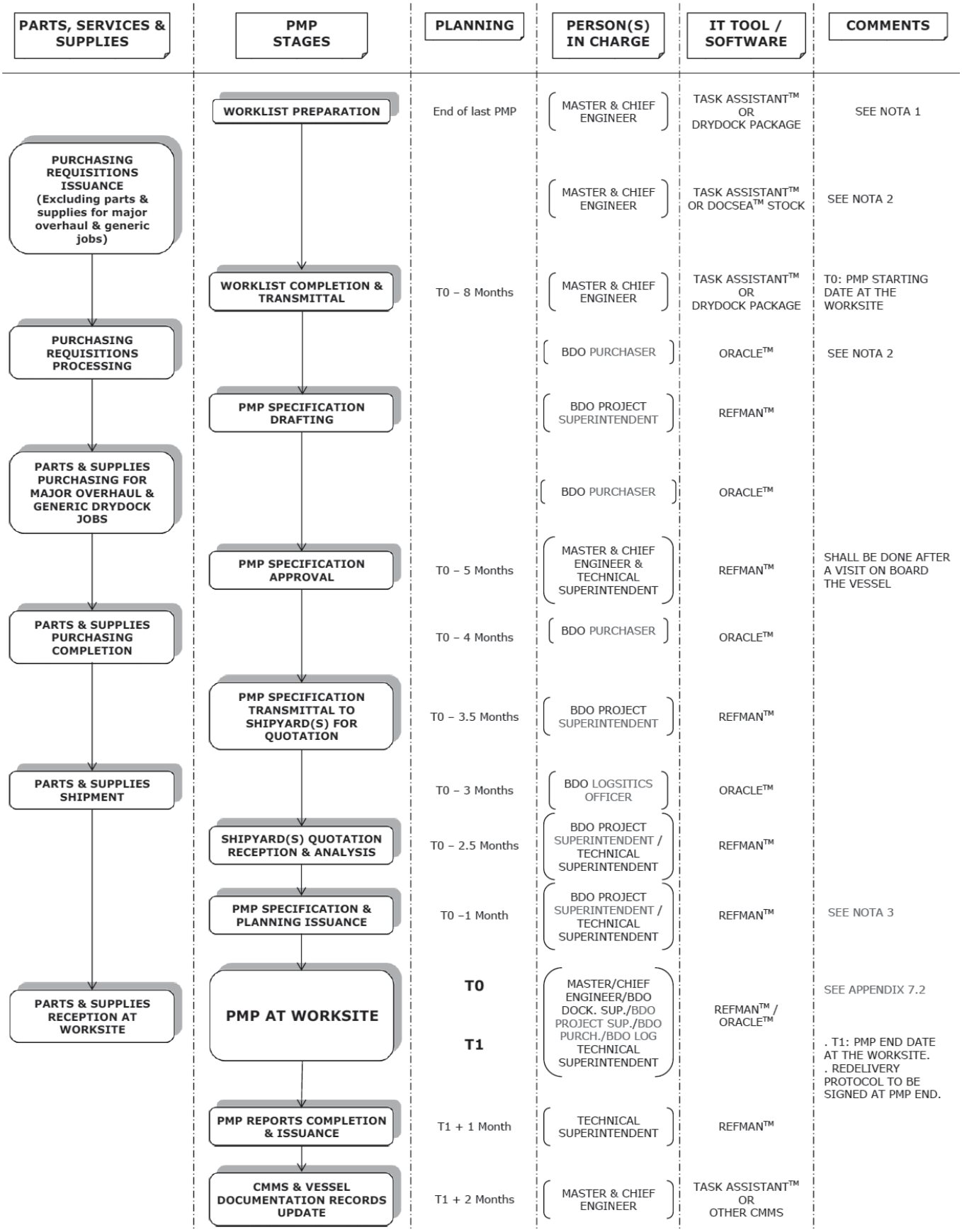
Nota 1 : See section 4.5 for worklist preparation instructions.

Nota 2 : Parts and supplies requisitions for major overhauls (Main Engines, diesel generators, propulsion motors and thrusters, gearboxes…) and generic jobs (Hull coating, anodes…) are managed by **Technical Superintendent** and **Vessel Purchaser** unless specific instructions given by **Technical Superintendent**.
For vessel using Task Assistant™, parts and supplies requisitions shall be done according to instruction “B-MI -2013-004 - PR creation for PMP” in Task Assistant.

Nota 3 : Approved Specification must be ‘*frozen’* in Refman in order to:

- Trace supplementary jobs (flagged as such with a ‘S’ on job number’);
- Trace additional delays and costs;
- Issue reporting on supplementary jobs.

4.1.2 Planned Maintenance Period delegated to Bourbon Docking



174

Nota 1 : See section 4.5 for worklist preparation instructions.

Nota 2 : Parts and supplies requisitions shall be done according to instruction “B-MI -2013-004 - PR creation for PMP” *i*n Task Assistant.

Nota 3 : Approved Specification must be ‘*frozen’* in Refman in order to:
- Trace supplementary jobs (flagged as such with a ‘S’ on job number’);
- Trace additional delays and costs;
- Issue reporting on supplementary jobs.

4.2 Safety Management during PMP at worksite

Procedures contained in *Section 9 of SMS Manual shall* be applied during dry dock unless a bridging document is issued and signed between Bourbon Offshore Surf and a Third Party Company (Bourbon Docking or Shipyard for PMP not delegated to Bourbon Docking).

4.3 PMP Project Management tools

As shown on workflows in section 4.1, the following tools *shall* be used for Planned Maintenance Period project management:

- Task Assistant™ - Computerised Maintenance Management System software used during Planned Maintenance Period preparation stage to identify and document preventive and corrective jobs, prepare and issue purchasing requisitions for parts, services and supplies. Upon Planned Maintenance Period completion, final report information *shall* be recorded into Task Assistant™ by vessel crew;
- “PMP Specific SOW Preparation form” (only for vessels where Task Assistant™ is not implemented) – As per instruction “*B-MI-2013-28 - PMP Specific SOW Preparation”*, this form is an excel file which sheets refer to REFMAN™ PMP specification table of content. Additional sheets in the document *shall* be created (copying and paste + numbering accordingly the initial one) while more than one job is related to the same section of the specification.
- Oracle™ – Enterprise Ressources Planning (ERP) used for Planned Maintenance Period purchasing requisitions processing and shipment follow up;
- Refman™ – Software used for Planned Maintenance Period specification drafting and issuance, shipyard bidding and selection, costs record and follow up as well as final technical and cost reports drafting and issuance;
- Docsea™ Stock – Software used on vessel where Task Assistant™ is not implemented, to issue purchasing requisitions for parts, services and supplies;

175

4.4 PMP Project deliverables

Depending on the Planned Maintenance Period stage, the following deliverables shall be issued:

- Preparation
  - PMP specification including BOURBON terms and conditions, ship particulars, job details and requirements;
  - PMP budget forecast including shipyard quote and validated purchased orders amount;
  - “Budget Overrun Request” as applicable.
- Worksite follow up and achievement:
  - “Repair Contract”;
  - “Technical Downtime Daily Report”;
  - “Weekly Cost Report”;
  - “Jobs Time summary” (Refman format);
- Reporting upon completion:
  - “Final Technical Report”;
  - “Final Cost Report”;
  - “Equipment Change Report” as applicable;
  - “Standard Warranty Claim List” as applicable;

4.5 Instructions for worklist preparation

In order to document properly the Planned Maintenance Period specification, **Master** and **Chief Engineer** *shall* ensure that relevant information are detailed for each job of the worklist. The following lists, splitted by type of job, *shall* be used as guidelines to document job details:

- Mechanical jobs:
  - Pictures showing the complete equipment and parts/subassemblies included in the job;
  - References of related equipment documentation (maintenance manual, user's manual,…). If available in electronic format, documentation *should* be copied to a dedicated folder and sent to the shipyard;
  - References of all useful plans (general arrangements, detailed drawings with dimensions…);
  - Log sheet with manufacturer's tolerances.

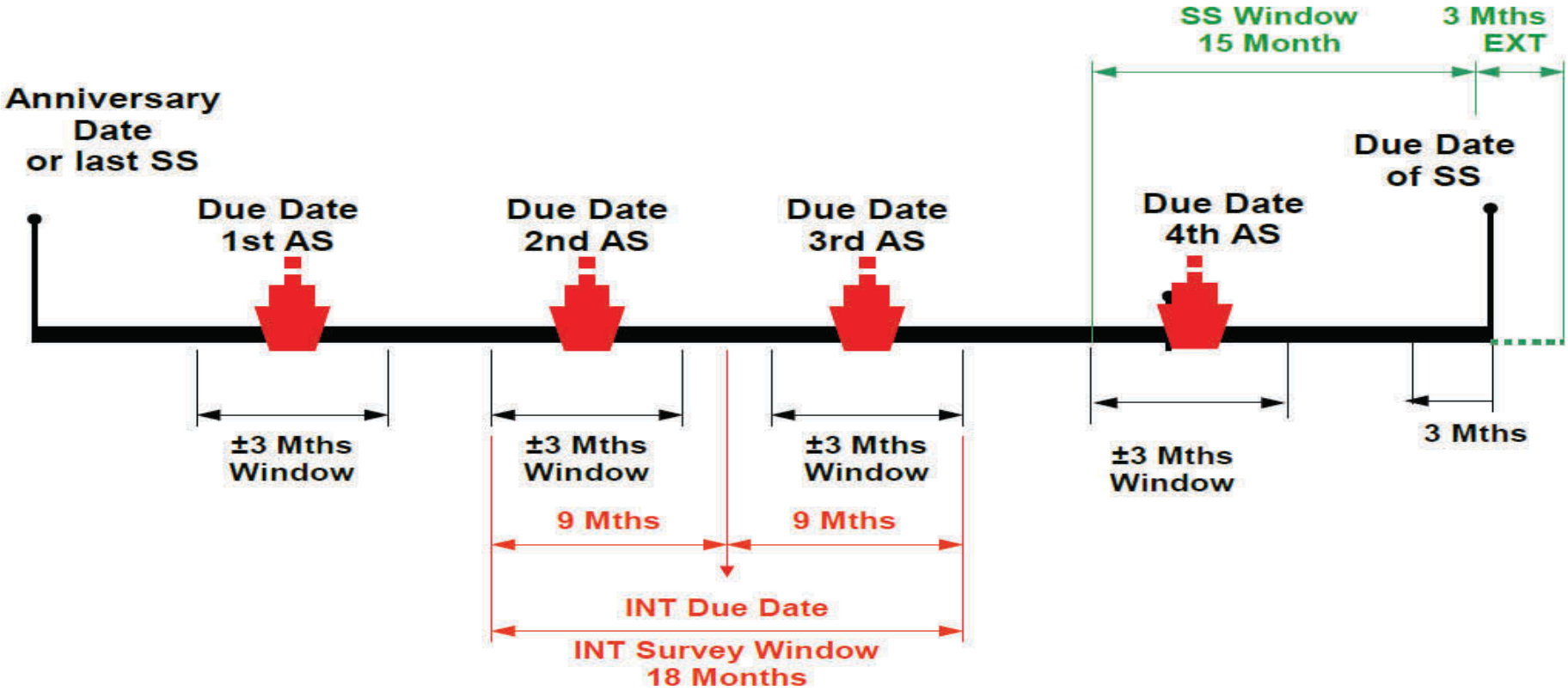
- Metal & Boiler maker jobs:
  - Pictures showing the complete equipment and parts/subassemblies included in the job;
  - References of all relevant plans and drawings (general arrangements, capacity plans, detailed drawings with dimensions…);
  - Details on dimensions (length, width, diameter) and material (grade, scantling,…);
  - Sketches and/or schematic diagrams of the plate to be replaced and its location on ship structure. A freehand drawing on a scanned sheet of paper is sufficient.

- Piping jobs:
  - Pictures showing the complete equipment and parts/subassemblies included in the job;
  - References of all relevant plans and drawings (general arrangements, capacity plans, piping layout, detailed drawings with dimensions…);
  - Outside pipe diameter, length, number and types of bends (90° / 135° / ...);
  - Number and type of flanges (outer diameter/number of holes and hole spacing);
  - Type of fluid and nominal pressure;
  - Piping material and grade;
  - Indicate if bolt replacement is required and, if so, who will provide them (ship or shipyard).

176

4.6 Appendices and other related documents

4.6.1 Classification Surveys intervals overview



SS – Special Survey
AS – Annual Survey

Nota : Intermediate survey is not mandatory for vessels registered as High Speed Crafts, as bottom survey is due on an annual base.

4.7 PMP Meetings and Deliverables overview

In order to ensure proper project management and budget compliance, meetings detailed hereafter *shall* be held within scheduled time frame and Deliverables be issued accordingly.

4.7.1 Preparation Review meeting

- Time Frame : 2 to 1 month prior PMP start.
- Person in charge : **Technical Superintendent**.
- Type: Conference Call.
- Purpose: To review PMP specification, planning and organization (including crew change consideration).
- Attendees: **Technical Superintendent**, **BDO Project Superintendent, Master** and **Chief Engineer** as applicable.
- Inputs : Draft specification, planning, Purchase Orders Report, Crew change planning.
- Deliverables : minutes of meeting.

4.7.2 Kick off Meeting

- Time Frame : At vessel arrival on site and prior Kick off meeting with Shipyard and Sub-contractors.
- Person in charge : **Technical Superintendent**.
- Type : On work site or Conference Call.
- Purpose :
  - To review PMP specification, planning and Preparation Review minutes of Meeting.
  - To clarify Safety Management.
  - To clarify Crew missions (shipyard/Sub-contractor supervision and jobs to be done by crew) and organizational concerns.
  - To schedule progress review meetings.
- Attendees: **Technical Superintendent**, **Operation Manager**, **BDO Project Superintendent**, **BDO Docking Superintendent**, **Master**, **Chief Engineer, Chief Officer** and **Second Engineer.**
- Inputs : Final specification, Planning, Purchase Orders Report, Preparation Review minutes of Meeting.
- Deliverables:
  - Minutes of meeting ;
  - Updated spec with persons in charge;
  - Schedule of progress review meeting ;
  - Updated planning.

178

4.7.3 Weekly Progress Review Meeting

- Person in charge : **Technical Superintendent.**
- Type: On site or conf call with work site.
- Purpose:
  - To review Kick off minutes of Meeting or previous Weekly minutes of Meeting;
  - To review and agree on specification jobs progress;
  - To raise any concern regarding safety, quality or planning and decide for actions accordingly;
  - To clarify, for last progress review meeting, commissioning and sea trials scope, organization and schedule;
  - To schedule, for last progress review meeting, delivery protocol signature.
- Attendees: **Technical Superintendent**, **BDO Project Superintendent**, **BDO Docking Superintendent**, **Master**, **Chief Engineer, Chief Officer** and **Second Engineer** (**Operation Manager** for last progress review meeting).

- Inputs :
  - Specification up to date (including supplementary jobs);
  - Jobs Time summary (Refman format);
  - Kick off minutes of Meeting or previous Weekly minutes of Meeting;
  - Updated planning.

- Deliverables :
  - Updated specification (including supplementary jobs).
  - Updated Jobs Time summary (Refman format).
  - Minutes of meeting.

- Job completion progress definition :
  - 100% System or equipment test completed and approved.
  - 90% System or equipment installed ready for test or partially tested.
  - 75% System or equipment overhauled.
  - 50% Inspection performed, overhaul started.
  - 25% Equipment dismantled (transported to workshop if applicable).
  - 10% Work started.
  - 0% Work not started.

5 Records

- Planned Maintenance Period Schedule.
- PMP specification.
- PMP budget forecast.
- PMP Planning (IN DRAFT).
- PMP Redelivery protocol.
- Repair Contract.
- Budget Overrun Request.
- Technical Downtime Daily Report.
- Weekly Cost Report.
- Jobs Time summary (Refman format).
- Final Technical Report.
- Final Cost Report.
- Equipment Change Report.
- Standard Warranty Claim List.

179

6 Related documents

- B-PRS-10 – Maintenance and Reliability Process;
- B-POL-01.0018 – Maintenance Policy;
- B-CHR-10.0001 – BOURBON Maintenance Organization;
- Classification Societies websites (BV, DNV, ABS);
- BOS-PRD-2601.900401 – Maintenance and Reliability;
- B-TPL-10.0005 – Service Level Agreement (B.Docking);
- BOURBON DOCKING Standard Warranty Claim List (IN DRAFT);
- Maintenance Engineering And Consultancy Services Frame Agreement (BBS);
- BOS-PLN-01.2015 - BOS Plan 2015 (IN DRAFT);
- B-TPL-10.0001 – Repair Contract;
- B-MI-2013.28 – PMP Specific SOW Preparation;
- B-GDL-10.0006 – Maintenance Release Guidelines;
- B-GDL-10.0007 – Maintenance Feedback Process Guidelines;
- B-GDL-2601.0001 – Maintenance Reporting Guidelines;
- Maintenance Alerts, Bulletins & Instructions;
- B-MI-2013-002 – Bourbon Maintenance Process Abbreviations;
- GAIA-INS-10.0100 – Subsea Wire Rope Maintenance Instruction;
- B-GDL-2601.0002 – Technical Downtime Guidelines;
- B-FRM-10.0008 – Technical Downtime Daily Report;
- B-GDL-10.0005 – Budget Overrun Request Guidelines;
- B-FRM-10.0007 – Budget Overrun Request;
- B-MI -2013.004 – PR creation for PMP in Task Assistant;
- B-MI-2012.018 – Purchasing Process for PMP Docking Pack by BDO for and on behalf of BOURBON;
- BOS-PRD- 2601.XXXX – Hull and Machinery Insurance Claim Management (IN DRAFT);
- BOS-FRM-10.0001 – Vessel Technical Survey Report;
- Task Assistant user Manual;
- B-PRD-10.0002 – Task Assistant maintenance Procedure;
- B-GDL-10.0008 – Processing Tickets in Master Data Management Ticketing System Guidelines;
- B-GDL-10.0009 – Vessel Equipment Change Guidelines;
- B-FRM-10.0009 – Equipment Change Report.

7 Terms and definitions

PMP
Planned Maintenance Period.

CMMS
Computerised Maintenance Management System.

BOS
Bourbon Offshore Surf.

BDO
Bourbon Docking.

BBS
Bourbon Black Sea.

Life Cycle
BOURBON Maintenance Engineering Department (integrated into Bourbon Black Sea).

MDM
Master Data Management – Department in charge of updating Task Assistant™ vessels databases with information issued by Life Cycle Department.

8 Review, approval, revision and identification of changes

181

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Technical Manager	BOS Technical Manager	BOS Quality Representative	Rev.00 – 28/05/2012	Adding the procedure to the SMS
BOS Technical Manager	BOS Technical Manager		Ver.03 – 03/12/2013	Correction of the title of the procedure and adjustment of version number to be in adequacy with all SMS documentation. Reviewed § 1, § 3, § 4.3, § 4.4, § 6 and § 7.
BOS Technical Manager	BOS Technical Manager		Ver.04 – 31/12/2014	Reviewing §1. Purpose, § 3 roles and responsibilities, adding Life Cycle Manager, Bourbon Docking Warranty Officer.Reviewing §1. Purpose, § 3 roles and responsibilities, adding Life Cycle Manager, Bourbon Docking Warranty Officer. Deleting Purchase Manager Job title. Reviewing Supply Chain Manager. Reviewing § 4.3. Adding from § 4.6 and §4.7.

Purchasing and Supply Chain

BOS-PRD-2602.900401-ver.01

BOURBON

Building together a sea of trust

Table of Contents

1. Purpose 3
2. Scope 3
3. Responsibility, Authority and Accountability 3
4. Description 6
4.1 Purchasing and Logistic Process 6
4.2 Activities Management IT Tools 8
4.3 Supplier Management 8
4.4 Appendices and Other Related Documents 8
4.4.1 Rules to create and approve a requisition order in Task Assistant 8
4.4.2 Example of a spare requisition to be filled in Task Assistant 10
5. Records 13
6. Related Documents 13
7. Terms and Definitions 14
8. Review, approval, revision and identification of changes 15

183

1. Purpose

The purpose of this procedure is to describe purchasing and supply chain process within Bourbon Offshore Surf (BOS) Organization.

2. Scope

This procedure applies to:

- Vessels technically managed by BOS i.e. vessels for which BOS is responsible for routine maintenance in operation.
- Purchasing of all equipments, spare parts, consumables and services for BOS vessels in operation, Unplanned Maintenance Periods (UPMP), mobilizations and conversions. This procedure does not address purchasing and supply chain for Planned Maintenance Period (PMP).
- Vessels that are connected to Task Assistant and Doc Sea.

3. Responsibility, Authority and Accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed within Bourbon Offshore Surf (BOS) Organization.
b) Signing, following up and reviewing Service Level Agreement with Bourbon Sourcing.
c) Signing, following up and reviewing Logistics Service Agreements with BOURBON Local entities where applicable.

184

VP Purchasing & Supply Chain has the responsibility, authority and accountability for:

a) Deploying BOURBON strategic drivers and purchasing and supply chain best practices.
b) Establishing and maintaining a purchasing and supply chain policy and its organisation.
c) Acting as **Bourbon Sourcing Managing Director**.
d) Signing, following up and reviewing Service Level Agreements.
e) Ensuring the procedure is communicated and understood and applied within Bourbon Sourcing.

Technical Manager has the responsibility, authority and accountability for:

a) Implementing BOURBON strategic drivers and purchasing & supply chain best practices within BOS Organization and Fleet.
b) Ensuring the requirements of this procedure are implemented, applied and followed within BOS organization.
c) Ensuring application of Service Level Agreements with Bourbon Sourcing within BOS Organization.
d) Ensuring application of Logistics Service Agreement with BOURBON Local entities where applicable.

Supply Chain Manager has the responsibility, authority and accountability for:

a) Applying, optimizing and contributing to BOURBON Purchasing & Logistics policies with the **VP Purchasing & Supply Chain**;
b) Ensuring purchasing and shipment of parts and supplies for vessels at best cost, quality and delivery time;
c) Defining Purchasing & Logistics procedures for the Company;
d) Ensuring management of Service Level Agreement with Bourbon Sourcing within BOS Organization.
e) Ensuring management of Logistics Service Agreement with BOURBON Local entities where applicable.

f) Managing Logistics Providers frame agreements;
g) Ensuring critical suppliers evaluation and action plan follow up;
h) Ensuring delivery non-conformance investigation and action plan achievement;
i) Managing Logistics Department.

Technical Superintendent, for each vessel under his/her jurisdiction, has the responsibility, authority and accountability for:

a) Managing routine maintenance ensuring compliance to regulatory requirements, customers standard, budget and availability rate targets;
b) Managing Unplanned Maintenance Period (UPMP) aiming to reduce technical downtime and cost to the maximum;
c) Validating requisitons and orders for spare parts, stores, consumables and services necessary for vessel safe operation and maintenance;
d) Validating transportation mode and shipment destination.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under his command;
b) Issuing and validating requisitions for spare parts, stores, consumables and services necessary for vessel safe operation and maintenance;
c) Ensuring purchase order delivery record and inventory update;
d) Ensuring parts, stores and consumables storage on board;
e) Ensuring inventories are regularly checked and records updated.

Chief Engineer has the responsibility, authority and accountability for:

185

a) Issuing requisitions for spare parts, stores, consumables and service necessary for Engine room equipments and any other equipment as agreed by **Master**;
b) Recording purchase order delivery and inventory update;
c) Managing parts, stores and consumables storage on board as per Organization agreed by **Master**;
d) Ensuring inventories are regularly checked and record updated.

Chief Officer has the responsibility, authority and accountability for:

a) Issuing requisitions for spare parts, stores, consumables and service necessary for Engine room equipments and any other equipment as agreed by **Master**;
b) Recording purchase order delivery and inventory update;
c) Managing parts, stores and consumables storage on board as per Organization agreed by **Master**;
d) Ensuring inventories are regurlarly checked and records updated.

Operation Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure;
b) Validating requisitions and orders for food, agent and communication subscriptions;
c) Updating vessel contractual status.

Logistics Assistant and Logistics Officer have the responsibility, authority and accountability for:

a) Monitoring reception, storage and expedition of the Purchase Order;
b) Validating export invoice ;
c) Organizing shipment from the supplier or freighforwarder to the vessel;
d) Monitoring custom clearance;
e) Monitoring dispatch to the vessel;
f) Validating freighforwarder invoices.

Life Cycle Managing Director has the responsibility, authority and accountability for:

a) Managing with Bourbon Sourcing (BS) strategic Makers and Suppliers relationship;
b) Establishing with Makers and Suppliers a 'Global Support Plan' to minimize technical responses durations (spares and services availabilities);
c) Administrating the BOURBON Computerized Maintenance Management System (Task Assistant™ of ULYSSES).

Bourbon Sourcing and Supply Chain Manager has the responsibility, authority and accountability for :

a) Ensuring the procedure is implemented and applied within Bourbon Sourcing;
b) Approving the purchase order (PO) issued by the **BS Purchasing Officer** in respect to the vessel request;
c) Identifying critical suppliers and managing evaluation.

Bourbon Sourcing Lead Buyer has the responsibility, authority and accountability for :

a) Negociating, implementing and managing frame agreements with suppliers;
b) Ensuring that prices, payment term and other responsibilities negotiated are applied by the suppliers;
c) Updating the price list in Oracle.

Bourbon Sourcing Purchasing Officer has the responsibility, authority and accountability for :

a) Managing the vessels purchasing requisitions from request for quotation to the delivery of the items in accordance with **Logistics Officer**;
b) Following the PO until delivery to freight forwarder facility and to the vessel for direct shipment.

Logistics Manager, where a Logistics Service Agreement has been signed with BOURBON Local entity, has the responsibility, authority and accountability for:

186

a) Ensuring custom clearance;
b) Ensuring spare parts, stores, consumables are delivered on board or at shipyard;
c) Local purchasing and delivery of spare parts, stores, consumables and service as per vessel's request and after **Technical Superintendent** approval.

Shipping Agent, in countries without BOURBON Local representation, has the responsibility, authority and accountability for:

a) Ensuring custom clearance;
b) Ensuring spare parts, stores, consumables are delivered on board or at shipyard;
c) Local purchasing and delivery of spare parts, stores, consumables and service as per vessel's request and after **Technical Superintendent** approval.

Freight Forwarder has the responsibility, authority and accountability for:

a) Ensuring spare parts, stores, consumables physical reception at warehouse and recording it in Oracle™;
b) Ensuring spare parts, stores, consumables storage as necessary;
c) Preparing and organizing shipment to location agreed with **Logistics Officer**.

4. Description

4.1 Purchasing and Logistic Process

N°	Activity Description	MST	C/E C/O	T/S O/M	BS PRCH	LM SA	LO LA	AO	SCM	FF	IT Tools & Software	Comments
1	Create the Purchase Request (PR) in TA	X	X	X			X				Task Assistant or DOC SEA	See § 4.4.1
2	Check and approve PR If not approved, the vessel *shall* be notified with explanations	X									Task Assistant	See § 4.4.1
3	Check and validate PR			X							Task Assistant	
4	File the PR				X	X					Oracle	
5	Create and send the Request For Quotations (RFQ) to a selection of approved suppliers.				X	X					Oracle	
6	Follow-up the RFQ.				X	X					Oracle	
7	Analyze quotations upon receipt.				X	X					Oracle	
8	File the quotations per PR in BOS server				X	X					Oracle	
9	Select the best quotations offer Contact the Vessel to validate, if necessary the discrepancies between the requested and the proposed items If the PR is cancelled, the vessel *shall* be notified with explanations				X	X					Oracle	
10	Formalize the Purchase Order (PO) and send for approval.				X	X					Oracle	
11	Approve PO and validate transportation mode and shipment destination			X							Oracle	
12	Send PO to the supplier				X	X						
13	Send confirmation of PO with due date				X	X					Oracle or EMAIL	

N°	Activity Description	MST	C/E C/O	T/S O/M	BS PRCH	LM SA	LO LA	AO	SCM	FF	IT Tools & Software	Comments
14	Track PO physical availability date at supplier's warehouse and delivery at freight forwarder's facilities with the supplier				X	X					Oracle	
15	Receive goods from the supplier and store as applicable						X		X	X	Oracle	Weekly update of warehouse stock and shipment destination
16	Prepare shipment						X		X	X		
17	Organize shipment						X		x	X		
18	Manage custom clearance					X	X		x	X		
19	Dispatch to the vessel					X				X		
20	Record purchase order delivery		X								Task Assistant	
21	Update inventory		X								Task Assistant	
22	Raise delivery non-conformance report as applicable	X										
23	Manage delivery 's non-conformance								X			
24	Check invoice conformance with PO							X			Oracle	
25	Manage discrepancies between invoices and PO				X						Oracle	
26	Approve invoice when no PO has been issued			X			X		X		Oracle	
27	Manage core return from the vessel to the supplier						X		X		Excel file	
28	Manage repairs from the vessels to the supplier						X				Excel file	

MST – Master
T/S – Technical Superintendent
LM/SA - Logistics Manager/Shipping Agent
SCM - Supply Chain Manager
C/E - Chief Engineer
O/M - Operation Manager
LA/LO - Logistics Assistant /Logistics Officer AO - Accountant Officer
FF - Freightforwarder
C/O - Chief Officer
BS PRCH - Bourbon Sourcing Purchasing Officer

4.2 Activities Management IT Tools

There are currently three softwares in use. Their main purpose is to speed up and centralize the purchasing activities and tasks, maintain record of operations performed and control access.

- TASK ASSISTANT™
  - Manage spares and stores.
  - To manage requisitions.
  - To manage purchase orders.
- DOCsea™
  - Manage spares and stores.
  - Manage requisitions.
  - Manage purchase orders.
- ORACLE™
  - Oracle is a DBMS (Database Management System Data).

4.3 Supplier Management

Supplier management is detailed in guideline “B-GDL.13.0008 – Suppliers and product selection guidelines”.

4.4 Appendices and Other Related Documents

4.4.1 Rules to create and approve a requisition order in Task Assistant

189

Detailed explanations on software functionalities related to requisition creation and approval are given in the User’s Manual available in Task Assistant™.

The following rules detail information type and quality, which any Task Assistant™ User *shall* provide when creating and approving a requisition.

In case of non-compliance to the rules, requisition will be rejected or cancelled.

Requisitions for Planned Maintenance Period (PMP i.e. class docking period) *shall* be managed complying with instructions “B-MI-2012-018 - Purchasing Process” for PMP Docking Pack by BDO for and on behalf BB and “B-MI -2013-004 - PR creation for PMP” in Task Assistant.

Spares, stores and consumables, service and generic stores *shall* not be mixed in the same requisition.

- General rules for spares requisition:
  - Definition: All items used for planned maintenance, replacement on the equipment in case of breakdown and required to ensure safe running of the vessel and her equipments.
  - One requisition *shall* be issued for one component or one group of components from the same maker.
  - For some equipments (i.e. components such as bearing, pressure switch, seal,…) if the original reference is available on the part itself, a comment *shall* be added in the general comments field (see explanation hereafter).
  - Any spare not available in TA, *shall* be created as per instruction “B-INS-10.0001-rev.00 - Task Assistant Create New Spare Parts”.

- General rules for stores and consumables requisition:
  - Definition: items for maintenance and vessel housekeeping, as (but not limited to) detailed in IMPA and ISSA guides.
  - Stores and consumables *shall* be requested on a quarterly base. **Purchasing Officer** and **Technical Superintendent** agree on a quarterly order schedule and communicate it to **Master** and **Chief Engineer**.
  - Stores/Consumables and Generic *shall* not be mixed in a requisition. Before creating a generic, ensure that there is no equivalent in the store list.
  - Consumables are to be classified as follow and ordered on separate requisitions:
    - General consumables (items that will be imported due to unavailability on local markets or poor quality).
    - Local consumables (consumables that cannot be imported due to local custom regulations).
  - Items of the following categories *shall* be grouped, i.e. 1 requisition for 1 category, in order to ease processing by **Purchasing Officer**:
    - Gas & chemical;
    - Stationery;
    - IT consumables;
    - Tools & Industrial supply;
    - Personal Protective Equipment (PPE);
    - Filters;
    - Medicine;
    - Paint;
    - Lube Oil.
  - Items of other categories *shall* be grouped using common sense, each category being separated clearly on the requisition.

190

- General rules for Job/Third Party Service requisition:
  - Definition: Request for any external specialist attendance. Refer to instruction “B-INS-10.0002 - Task assistant Request a Service Man”.
  - Corresponding failure/defect must be properly created with all relevant information.
  - For each attendance a time sheet and/or report *shall* be signed as service proof of delivery. A copy of this document *shall* be sent to the **Technical Superintendent** and **Purchasing Officer** as soon as possible.
  - Vessels operated in areas where BOURBON owns a local affiliate (e.g. Angola, Nigeria) *shall* refer and comply to affiliate service request procedure.

- Marine Gas Oil (MGO) Supply:

MGO supply is detailed in memo “B-FRM -13.0003 - Bunkering Purchasing Process”.

- Lubricants:

Only Oils and Greases instructed in vessel Lub Oil Chart *shall* be included in the Purchase Request. No filters must be included. Delivery will be done locally where applicable.

- Chemicals and Gases:

All Chemicals, including degreasers and surface cleaners needed for painting, all gases or substances requires to be delivered in pressurized bottles.

- Catering/Food/Potable water:

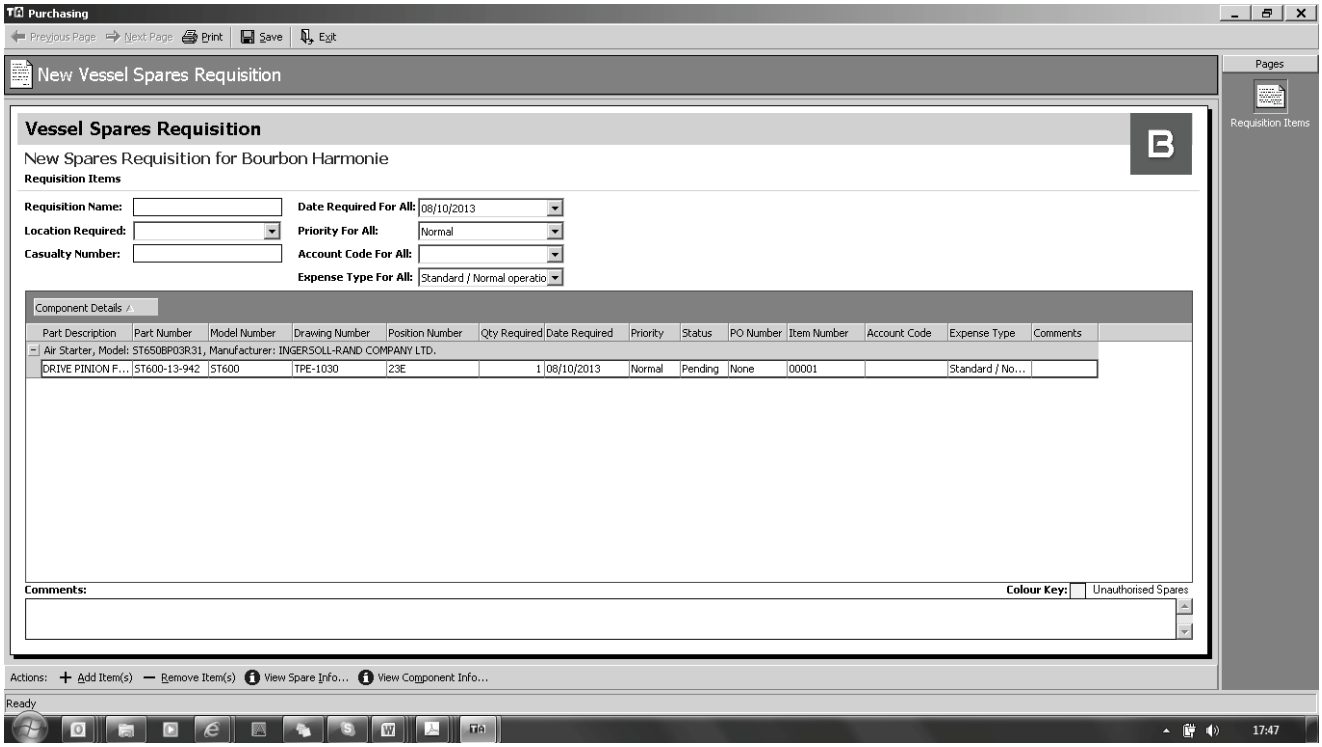
All consumable items which refer to Catering on board will be managed by the Operation Department, no Purchase Request needed.

- Exportations particulars:

The rules may change according to the location of vessel, the logistic and customs:

- Nigeria : local consumables are the items which are forbidden to import and which will be supplied locally.
- Angola : all consumables requested will be imported excepted medicine.
- Brazil : all consumables will be supplied locally.
- Other areas : specific procedures *shall* be issued after study of the option in the country concerned (Ref : Weekly fleet delivery position + Exportations specification by countries).

4.4.2 Example of a spare requisition to be filled in Task Assistant



Example of a requisition to be filled.

- **Requisition Name:** [ ] (limited to 50 characters).

In order to identify the purpose of the requisition, the following rule *shall* apply to ALL REQUISITION issued by vessel.

The requisition name is used during the whole process and *shall* be divided in three sections [*Requesting Department*]/[*Requisition generic need*]/[*Equipment and purpose short designation*]:

- Requesting Department, *shall* be DECK, ENGINE or HEAD OFFICE.
- Requisition generic need, *shall* be:
  - DEFECT or PREVENTIVE or IMPROVEMENT or MINIMUM STOCK for spares.
  - STORES, MEDICINES or IMPROVEMENT for stores.
  - DEFECT or PREVENTIVE or IMPROVEMENT for service.
- Equipment and purpose short description, *shall* be a short and clear designation of the requisition concerned equipment and purpose.

As few examples:

- *ENGINE/PREVENTIVE/DG#2 – 15 000 hrs overhaul.*
  Spares requisition created by Engine Department, for preventive overhaul necessary spares for DG#2 at 15,000 running hours.
- *DECK/STORES/Consumables 01-2013.*
  Stores requisition, created by Deck Department, for January 2013 consumables quarterly needs.
- *ENGINE/DEFECT/DG#2 – Service Engineer for turbo replacement*
  Service Engineer requisition, created by Engine Department, following a defect on DG#2 requiring turbo charger replacement.

- **Location Required:** 

Expected vessel location at the time of delivery required date.

- **Casualty Number:** 

Not in use within Bourbon Offshore Surf Organization.

- **Date Required For All:** 

Delivery required date for all requisition items. This date *shall* take into account the vessel country of operation shipment particulars and be consistent with the priority filled in the 'Priority for all' field.

192

- **Priority For All:** 

Three sets of priority are defined:

- TOP URGENT (correspond to 'Highest' in the scrolling list).

The vessel will be or is already stopped or detained if these parts are not on board; or they can seriously affect safety matters, lives or operational status of vessel; their lack may lead to damage to Company's image or penalties. The parts and/or service are to be purchased immediately and be shipped by the fastest means available, including hand carrying. This *should* not apply to stores/consumables.
Technical Superintendent, **Operation Manager** and **Purchasing Officer** must be advised also by the appropriate communication means.

- URGENT: (correspond to 'High' in the scrolling list).

The parts and/or service require to be purchased immediately and be shipped by airfreight taking in consideration the best price and flight availability, delay to be counted in days. This priority indicates that the parts *shall* reach the vessel in less than 30 days. The parts do not affect the seaworthiness of the vessel and its fundamental operational status – there is some redundancy.

- ROUTINE (correspond to 'normal, low or lowest' in the scrolling list).

This priority indicates that parts, stores, consumables or service *shall* be delivered within the next 3 months to 6 months.
All stores and consumables priority *shall* be set as "routine".

- **Account Code For All:** 

Select the suitable code in the scrolling list.

- **Expense Type For All:** Standard / Normal operatio

In Task Assistant, following expense types can be selected by requester, ORACLE correspondence being indicated for information:

Expense type (Task Assistant)	(ORACLE)		Family Code (Oracle)
	PR OFFICE	PR OFFICE	
Standard / Normal Operation	SA	BA	11
Standard / Tech stop -DD	SA	BA	31

Following expense types can be selected by requester only upon **Technical Superintendent** or **Operations Manager** instructions.

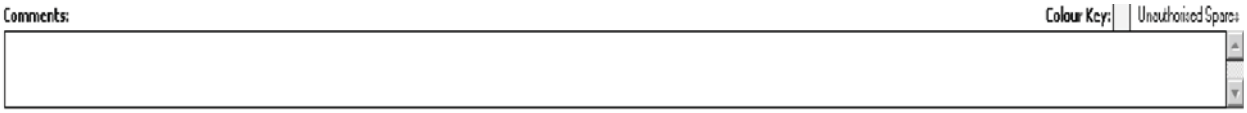
Expense type (Task Assistant)	(ORACLE)		Family Code (Oracle)
	PR OFFICE	PR OFFICE	
Claim / Damage	SG	BG	21
Claim / Normal Operation	SG	BG	11
Claim / Shipyard Warranty	SG	BG	23
Claim / Tech stop -DD	SG	BG	31
Repair / Damage	SR	BR	21
Repair / Major repairs	SR	BR	22
Repair / Normal Operation	SR	BR	11
Repair / Tech stop -DD	SR	BR	31
Standard / Client to be invoiced	SA	BA	45
Standard / Damage	SA	BA	21
Standard / Major repairs	SA	BA	22

193

- 

Part Description	Part Number	Model Number	Drawing Number	Position Number	Qty Required	Date Required	Priority	Status	PO Number	Item Number	Account Code	Expense Type	Comments
Air Starter, Model: ST65CBP03R31, Manufacturer: INGERSOLL-RAND COMPANY LTD.													
DRIVE PINION F...	ST600-13-942	ST600	TPE-1030	23E	1	06/10/2013	Normal	Pending	None	00001		Standard / No...	

  - ‘Qty required’ field – specify quantity as necessary.
  - ‘Date required’, ‘Priority’, ‘Status’, ‘Account code’, Expense type’ fields – modify only if different form fields ‘For all’ as explained above.
  - ‘Comments’ field – justify the reason to order the items. Free text is allowed (limited to 1000 characters) or, as example, the following reason can be used:
    - Parts for preventive maintenance (*specify scheduled job*);
    - Stock renewal following preventive maintenance (*specify maintenance report*);
    - Parts for corrective maintenance (*specify defect*);
    - Stock renewal following corrective maintenance (*specify maintenance report*);
    - Minimum stock level increase (*no or insufficient quantity on board*);
    - Parts for improvement job (*specify improvement job*);
    - Stores or consumables estimated consumption for XX months;
    - Stores or consumables recorded consumption during last XX months;
    - Service Man (*refer to instruction “*B-INS-10.0002-rev.00 - Task assistant Request a Service Man”)

- 

This field must be used to provide additional technical (reference from nameplate, dimension, material, problem with original part or store,…) or purchasing information (original maker from nameplate, guide or catalog reference, feedback from previous requisition,…) related to the requested items. Specify the item line for any comment. As examples:
  - *Item line n° 1 – Shaft sleeve inner diam 125mm/length 250mm/thickness 2mm.*
  - *Item line n° 2 – Azcue pump but ball bearing SKF 6230.*

5. Records

- Equipment Reconditioning Guideline.
- Delivery Non-Conformance Report.
- Suppliers Evaluation Results and Action.
- Audit Reports.
- Synertrade™ Evaluator Guide.
- Weekly fleet delivery position + Exportation specification by countries.
- Service Level Agreement.
- Logistics Service Agreement.
- Weekly stock report.
- Contract between BOS and Freight forwarder.
- Bourbon Sourcing Monthly performance review.
- Oracle Monthly Report KPIs.
- Freightforwarder Monthly Report KPIs.
- Quaterly review with Freight forwarder.
- DOCsea – Creating and Sending a PR.

6. Related Documents

- B-CHR-10.0001 – BOURBON Maintenance Organization.
- B-POL-01.0018 – Maintenance Policy.
- Task Assistant™.
- Docsea™.
- Oracle™.
- Synertrade™.
- BOS-PRD- 2601.XXXX – Hull and Machinery Insurance Claim Management (IN DRAFT).
- BOS-PRD-2601.900401 - Reliability and Maintenance Procedure.
- B-INS-11.0003 – Purchaser Opex BS team.
- BOS-INS-13.0005 - Vessels' allocation by Logistics Officer.
- B-GDL-13.0008 - Suppliers and product selection guidelines.
- B-SPC-13.0001 General terms and conditions of purchase.
- B –FRM-1202.0009- Description of non-conformance and observation.
- BS-FRM-13.0001- Delivery non-conformance report.
- B.GDL-2601.0006 - Reconditioning guidelines.
- B-FRM-13.0005 - Vendor Creation Form.
- B-FRM-1202.0004 Audit Report.
- B-FRM -13.0003 - Bunkering Purchasing Process.

7. Terms and Definitions

BA
Meaning Bon d'achat. It is a purchase voucher done by the Head Office.

BG
Meaning bon de garantie.

BR
Meaning Bon de retour.

BS
Bourbon Sourcing.

Critical Supplier
Supplier which is critical for the delivery and the continuity of BOURBON services.

KPI
Key Performance Indicator.

Life Cyle
Bourbon Maintenance Engineering Department.

Logistic
All operations that are carried out to deliver the items once a PO is ready to be sent from Supplier location.

195

MDM
Mastar Data Management – Department in charge of updating Task Assistant vessels databases with information issued by Life Cycle Department.

Oracle™
Oracle is a DBMS (Database Management System Data).

PMP
Planned Maintenance Period.

PO
Purchase Order.

POD
Proof of Delivery.

PR
Purchase Requisition.

RFQ
Request For Quotation.

SA
Meaning Siège Achat: it is a purchase order done by the Head Office.

SG
Meaning Siège garanties. It is relative to the guarantees established.

SR
Meaning Siège retour.

Suppliers
Third party providers of services or spares or equipments to BOURBON.

Synertrade TM
Supplier Relationship Management software.

UPMP
Unplanned Maintenance Period.

TS
Technical Superintendent.

8. Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
Supply Chain Manager	BOS Technical Manager	BOS Quality Representative	Ver.01 – 31/12/2014	Original version.

196

SMS
Section 5

Navigational Safety

BOS-MNL-07.900500-CR(BOS-MNL-03.900500)

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3

1.1 Main Objective 3

1.2 Systems and Procedures 3

1.3 Vessel Master 3

1.4 Shore Based Staff 3

2 Review, approval, revision and identification of changes 4

3 Related contents 4

198

1 Introduction

1.1 Main Objective

Establish and consistently apply navigational practices and bridge procedures in line with regulatory and Corporate and Company policies.

Guidelines of navigation are fundamental for the safety of vessels, personnel, assets, vessel operations and the protection of the environment. While the **Master** is ultimately responsible for the safety of navigation, shore-based management - delegating this duty to the **Operations Manager** - *shall* set company guidelines and ensure that they are maintained by regular and documented review.

The Company *shall* establish and maintain navigational and watch keeping procedures that ensure the safety of the vessel, personnel, assets, vessel operations and the protection of the environment.

1.2 Systems and Procedures

The Company *shall* establish procedures to ensure that:

- Reliance is not placed on single position fixing systems or techniques;
- Guidelines are set for effective passage planning for all stages of the voyage, including information exchange with pilots and offshore installations, as applicable;
- Guidelines are set for navigation in the proximity of offshore installations that include entry procedures for established safety zones;
- All deck officers receive appropriate training in ship handling and vessel-specific familiarisation, addressing maneuvering characteristics and operational control modes;
- Up-to-date copies of nautical publications, including revisions, amendments and chart corrections, are consistently available;
- The performance of bridge equipment is monitored consistently, and that defect and reliability reporting measures are in place;
- The performance and effectiveness of bridge management teams are monitored so that any additional training needs (particularly those of junior officers) are identified, and that arrangements are made to provide the required training.

1.3 Vessel Master

Conduct regular reviews of on-board compliance with navigational plans and procedures.

1.4 Shore Based Staff

Monitor and audit Masters' reviews of navigational procedures including passage plans and checklists.
The **Operations Manager** is responsible for maintaining & monitoring navigational guidelines on board vessels. The **Head of Operations** *shall* gather the reviews and feedbacks to make an update on the Company procedures.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Managers Director	BOS Operations Managers Director	BOS Quality Representative	Rev. 01- 11/03/2013	Adding sentence "The Operation manager is responsible for maintaining & monitoring navigational guidelines on board vessels" in § 1.4. "
BOS Operations Managers Director	BOS Operations Managers Director		CR(BOS-MNL-03.900500) – 03/12/2013	Insertion in § 1.4 sentence "The senior operation manager *shall* gather the reviews and feedbacks to make an update on the Company guidelines."
BOS Head of Operations	BOS Head of Operations		Ver 02 – 31/12/2014	No changes

3 Related contents

200

1. BOS-PRD-07.900501 – Standing Orders
2. BOS-PRD-07.900502 – Navigation and Watch Keeping
3. BOS-PRD-07.900503 – Passage Planning and Manoeuvring
4. BOS-PRD-07.900504 – Navigation at Offshore Locations
5. BOS-PRD-07.900505 – Navigation Standards and Equipments
6. BOS-FRM-11.0009 – Ship Publication inventory

Standing Orders

BOS-PRD-07.900501-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Standing Navigational Orders 5

4.2 Standing Orders for Dynamic Positioning (DP) 6

4.3 Masters Standing Orders/Night Orders 6

4.4 Notification of the Master 7

4.5 Chief Engineer's Standing Orders 8

5 Records 9

6 Related documents 9

7 Terms and definitions 9

8 Review, approval, revision and identification of changes 9

202

1 Purpose

Standing Orders *shall* be established for maintaining safe navigational watches in compliance with international regulations for preventing collisions at sea (COLREGS) and maritime best practice.

2 Scope

They *shall* include standard navigational orders and night orders with respect to courses and speeds, any special precautions concerning the speed and navigation of the ship, and all other orders for the **Watch Officer**.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring compliance and practice of all safe navigational practices onboard the vessel under their command;
b) Establishing Standing Orders and ensuring that all Bridge **Watch Officers** understand and follow the Orders;
c) Ensuring the implementation of this procedure.

Chief Engineer has the responsibility, authority and accountability for:

a) Establishing Standing Orders and ensuring that all Engine **Watch Officers** understand and follow the Orders.

Bridge Watch Officers have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure all safe navigational practices.

Dynamic Positioning Operators (DPOs) have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure safe dynamic positioning practices.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Standing Orders are communicated and implemented onboard all vessels under his/her jurisdiction.

204

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

Master's Standing Orders *shall* be written to reflect the **Master**'s specific requirements and circumstances particular to the ship, specific operations and the experience of the bridge team.

The **Chief Engineer** *shall* be responsible to the **Master** for establishing the **Chief Engineer**'s Standing Orders and ensuring that they are followed. They *shall* include specific duties and responsibilities of personnel in the Engine Department including Engine Room procedures as applicable.

4.1 Standing Navigational Orders

The following navigational Standing Orders are applicable at all times during a navigational watch:

- The speed and course of the vessel *shall* be adapted to the environment taking fully into account any possible hazards such as other traffic and the proximity of fixed objects, water depth, available sea-room, visibility and prevailing weather conditions;
- The **Watch Officer** *shall* remain present on the bridge during any assigned navigational watch period and may not leave the post until duly relieved;
- If the **Master** is present on the bridge during an assigned duty period, the **Watch Officer** remains responsible for the safe navigation and all other watch keeping duties until he or she is specifically informed by the **Master** that he or she is relieving them and assuming the duty. In such cases, the normal hand over routine *shall* be properly performed prior to the **Watch Officer** departing the wheelhouse;
- If the **Master** takes command, this *shall* be noted in the vessel logbook.

The **Watch Officer** *shall*:

205

- Maintain a continuous state of vigilance by sight and hearing using all available means and resources adapted to prevailing circumstances and conditions and not undertake any other task that might distract him or her from ensuring navigational safety;
- Ensure the lookouts remain efficient and that in doing so, maximum attention is given to constant observation of the surrounding areas by both sight and hearing;
- Fully evaluate all navigational situations and any risk of collision, grounding and other navigational hazards. By fixing the vessel's position on the navigational chart at regular intervals;
- Position fixes, wherever possible, *shall* be made by using two or more methods;
- Position fixes *shall* include taking regular bearings of fixed navigation marks, land marks or similar, performing radar plotting, radar parallel indexing, observing depth soundings, and by correctly using other electronic navigational aids as may be available;
- Position fixes *should* be checked for accuracy against GPS information;
- Be fully aware of the maneuvering capabilities and performance of the vessel especially with regard to steerage, turning and stopping distances. All maneuvers *shall* be made in a timely and positive fashion;
- Ensure that the vessel displays the correct day shapes and signals (as applicable in daylight) and navigation lights in darkness or during periods of reduced visibility and that any required sound signals are generated as per *COLREGS* 19;
- Check the continuing correct function of all navigational lights and bridge equipment including but not limited to: radio and electronic equipment, radars and sounding equipment, the function of controls, gauges and warning systems for machinery not regularly checked by watch keeping personnel;
- Adhere strictly to the passage plan and check the helmsman or automatic pilot is maintaining the correct and desired course. Any deviations in direction or speed whether made in accordance with the passage plan or dictated by potential hazards or for other reasons *shall* be recorded in the bridge logbook;
- Ensure permanent radio watch keeping in compliance with all relevant regulations;
- Check the repeaters are transmitting correct information in relation to the **Master** gyrocompass; particular attention *should* be paid to any compass error;
- When using any electronic chart equipment regularly check, when possible, the GPS position by using radar or other available navigation systems.

When on passage, and at periods defined by the **Master**, but no longer than the completion of each watch period, the **Watch Officer** *shall* record the following information in the vessel's logbook:

- Position, true course and speed;
- Weather conditions (wind speed and direction, visibility, sea conditions and barometric pressure);
- Chart fixes *shall* be made at intervals as determined by the **Master**, but in all cases, this interval *should* not exceed two hours apart;
- The **Watch Officer** may request additional seamen to reinforce the lookout if deemed necessary due to restricted visibility, dense traffic or for any other reason deemed necessary or applicable;
- The **Master** may also order additional deck officers to reinforce watch keeping if deemed necessary and applicable;
- The **Watch Officer** *shall* always call and notify the **Master** in case of any doubt as to safe navigation or the safety of the vessel, crew, passengers, cargo or in any other conditions that pose any immediate or threatened danger;
- Entries for different days *should* not be made on the same page;
- During dark hours, after each watch, the relieved look out *shall* make a fire round through the accommodation and report back to the **Watch Officer**. The outcome *shall* be recorded in the vessel's logbook.

4.2 Standing Orders for Dynamic Positioning (DP)

Prior to operating the DP system, the Bridge and Engine Room **Watch Officers** are responsible for completing the applicable DP initialisation checklists.

The **Dynamic Positioning Operator (DPO)** *shall* not leave his or her position without being relieved by another qualified **DPO**.

The **DPO** *shall* be thoroughly familiar with the change over procedure to the manual control mode and special attention *should* be paid to redundancy of reference signals.

206

If a single signal is lost, the system *shall* be considered as impaired. In this case, the **Senior DPO** and **Master** *should* be notified immediately.

Good communications between the Bridge, Control Room *shall* be given high priority.

Care *shall* be given to specifying any change in operating conditions such as current or other weather conditions, reference signal quality, etc.

Maintain constant visual watch during station keeping at less than one ship's length from an offshore structure. Visual marks *shall* also be taken.

Ensure that azimuth thrusters have been properly adjusted before proceeding to another location.

For more information, also refer to the chapter "4.6 – DP Watch Organisation and responsibility" from *BOS-PRD-07.900606 – DP Operations*.

4.3 Masters Standing Orders/Night Orders

The **Master**'s Standing Orders *shall* be documented in a book known as the Master's Standing (MS) Orders Book and kept on the bridge at all times.

The **Master** Standing Orders book *shall* also be used as Master Night orders book.

The company specific Standing Orders for Master form *shall* be used as model and its contents *shall* be considered as minimum standard to be applied. The **Master** *should* add his own comments depending on the vessel operating zone, vessel specifications, vessel scope of work…)

The **Master** *shall* sign and date the Master Standing Orders Book after making entries.

The MS Orders Book *shall* be read at the beginning of each watch and its understanding documented by the signature of all applicable bridge **Watch Officers** on the applicable page.

The Standing Orders *shall* include specific instructions from the **Master** taking into account the specifications and capabilities of the vessel, the operating environment, specific job requirements and the experience of **Watch Officers**.

Any special instructions related to present or expected activities (mooring, arrival, departure, etc.) *shall* be entered by the **Master** in the MS Orders Book.

The Standing Orders *shall* detail when the duty **Watch Officer** *shall* notify the **Master** in response to special operational or navigational watch keeping situations.

The MS Orders Book is a legally binding document and may be collected and referenced for the purposes of evidence gathering and any other legal requirements by representatives of governments, authorities and/or other bodies as may be required.

4.4 Notification of the Master

In addition to the requirements documented below, the **Watch Officer** is responsible for calling and notifying the **Master** as detailed in the Master's Standing Orders and/or Night Order Book.

Notification of the **Master** does not relieve the **Watch Officer** from the responsibility of taking all immediate action as may be required and expected under the practices of good seamanship.

The **Master** *shall* be called if any of the following situations arise:

- Man overboard;
- Any accident or injury requiring more than basic first aid treatment, or any other reason involving the safety of people, assets or the environment;
- Any accident involving damage to the vessel, other vessels, installations or locations;
- The onset of restricted visibility;
- Traffic density or movement of other vessels creating a risk;
- Problems maintaining course and/or speed;
- Any doubt as to position (as a minimum; failure to observe expected landmarks or seamarks, abnormal soundings, or unexpected variance of data);
- Failure of propulsion or other critical equipment (such as the steering system or other critical navigational systems);
- The onset of heavy weather conditions with potentially adverse effects on navigational safety or vessel performance;
- Loss of cargo, shifting of cargo;
- Presence of navigational hazards (wrecks, icebergs, water-spouts, whirlpools, other unusual and unexpected natural phenomena, etc);
- Reception of a distress call in the immediate or viably reachable vicinity;
- Any situation involving any doubt as to safe navigation or safety of the ship, crew, passengers, cargo or fixed objects.

207

IN CASE OF ANY DOUBT – CALL THE MASTER!

4.5 Chief Engineer's Standing Orders

The **Chief Engineer** *shall* establish Standing Orders for maintaining a safe Engine Room watch.

The Chief Engineer's Standing Orders *shall* be documented in a book known as the Chief Engineer's Standing Orders Book (CE S.O. Book) and kept in the control or engine room at all times.

The Chief Engineer's Standing Orders book will also be used as Chief Engineer's Night orders book.

The generic Chief Engineer Standing Orders form *shall* be used as model and it contains *shall* be considered as minimum standard to be applied. The **Chief Engineer** *should* add his own comments with his personnal / other requirement (depending on the vessel operating zone, vessel specifications, vessel scope of workspecificities …).
The **Chief Engineer** *shall* sign and date the Engine Room Orders Book on making entries.

The Chief Engineer's Standing Orders Book *shall* be read at the commencement of each Engine Room watch and understanding documented by the signature of all applicable engineering **Watch Officers** on the applicable page.

Under the **Chief Engineer**'s general direction, engineering **Watch Officers** are responsible for continuous safe operating practices and monitoring of machinery, equipment and systems.

Engine **Watch Officers** are responsible for the safety of the engine room ratings and others who may be employed in tasks or operations within the engine room, machinery spaces or related areas.

5 Records

- Log Entries
- Masters and Chief Engineer's Standing Orders
- Master's Standing Orders Book Entries

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- BOS-FRM-07.0003 – Masters Standing Orders
- ICS - Bridge procedures guide
- COLREGS
- BOS-FRM-07.0004 – Master's Standing Orders Book (LJB ref. 115FE)

7 Terms and definitions

COLREGS
Collision Regulations

DP
Dynamic Positioning

DPO
Dynamic Positioning Officer

GPS
Global Positioning System

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (N° and date)	Changes (chapter/reference)
BOS Operations Manager Director	BOS Operations Manager Director	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operations Managers Director	BOS Operations Managers Director		Ver.03 – 03/12/2013	-
BOS Head of Operations	BOS Head of Operations		Ver.04 – 31/12/2014	-

Navigation
and
Watch Keeping

210

BOS-PRD-07.900502-ver.04



Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Organisation of the bridge watch 5

4.2 Bridge watch manning 5

4.3 Navigational watch keeping 5

4.3.1 Open seaways 6

4.3.2 Coastal Navigation 6

4.3.3 Restricted visibility 7

4.3.4 Shallow water 7

4.3.5 The squat effect 8

4.3.6 Heavy weather 9

4.3.7 Dynamic Positioning (DP2) Watch Keeping 9

4.3.8 Bridge resource management training 10

4.3.9 Lookout duties 10

4.3.10 Watch hand over 10

4.3.11 Ice or severe sub-zero temperatures. 11

4.4 Watch keeping in port 11

4.5 Watch Keeping at Anchor 12

4.6 Radio watch keeping 12

4.6.1 Mandatory radio watch keeping 13

4.6.2 VHF radio watch 13

4.6.3 MF radio watch 13

4.6.4 HF radio watch 13

4.6.5 Marine weather and safety information 13

4.6.6 Radio communications logbook 13

4.6.7 Radio tests and checks 14

4.6.8 Daily checks or tests 14

4.6.9 Weekly checks or tests 14

4.6.10 Monthly checks or tests 14

5 Records 15

6 Related documents 15

7 Terms and definitions 15

8 Review, approval, revision and identification of changes 17

211

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with the *ISM Code*, requirements of *OSM Guidelines* and industry best practices referenced in this document, this procedure has been developed and *shall* be used in association with procedures in relation to management of risk.

2 Scope

This applies to Ship Management Organisations related to the requirements for safe navigation and bridge watch keeping including requirements for radio watch keeping.

212

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring compliance and practice of all safe navigational practices onboard the vessel under their command.
b) Ensuring that the bridge is sufficiently manned at all times, taking into consideration the prevailing conditions and the principles of safe manning;
c) Ensuring the implementation of this procedure.

Bridge Watch Officers have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure all safe navigational and watch keeping practices are maintained.

Chief Engineer has the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure all safe engine watch keeping practices are maintained.

Dynamic Positioning Operators (DPOs) have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure safe watch keeping related to dynamic positioning practices.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for all safe navigational and watch keeping practices are communicated and implemented onboard all vessels under his/her jurisdiction. 213

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Organisation of the bridge watch

When assigning the navigational watch, the following factors *shall* be taken into consideration:

- The knowledge and skills of shipboard officers and crew; ratings forming part of the navigational watch *should* be certified accordingly;
- Experience of the **Bridge Watch Officers** and their familiarity with shipboard procedures and the manoeuvring performance of the vessel;
- Ongoing and any other vessel activity including activities involving radio communications;
- Any present or expected unusual demands on the navigational watch that may arise because of special operational circumstances;
- The organisation of the navigational watch is to be made up so that fatigue/tiredness do not affect the duties of the **Bridge Watch Officer** or assigned lookouts;
- Present and expected visibility (including hours of darkness) sea state and other weather conditions are to be assessed and monitored at all times during the navigational watch. The watch *should* be reinforced as required;
- Present and expected traffic density is to be assessed and monitored at all times during the navigational watch. The watch *should* be reinforced as required;
- Attention *should* be given to any situations arising that may make it necessary for the **Bridge Watch Officer** to carry out additional navigational duties when navigating within or near traffic separation schemes, offshore oil fields and the proximity of other navigational hazards. Should any such occasion arise, additional **Bridge Watch Officer(s)** *should* be posted in good time beforehand;
- The operational condition of navigational aids such as autopilot, radars, GPS and any other equipment affecting navigational safety *should* be monitored regularly to determine operational functionality.

214

4.2 Bridge watch manning

Bridge organisation and manning of the bridge remains the full responsibility of the **Master**, who, in any given situation can change the manning/organisation to his/her satisfaction. Routine navigation with minimum traffic density and no special circumstances (e.g. during an ocean/deep sea passage) may be conducted with a single **Bridge Watch Officer** and a lookout. During daylight watch, a single **Bridge Watch Officer** may be authorized providing that the BNAWS is activated**.** Under these circumstances, the use of auto pilot is permitted with the **Masters** approval.

In all other navigational situations and circumstances, in addition to the personnal described above, the bridge *shall* be manned according to the master standing orders.

Ratings forming part of the navigational watch *should* be certified accordingly.

4.3 Navigational watch keeping

The ship *shall* be navigated safely in compliance with the *COLREGS* at all time.

Bridge Watch Officers are accountable to the **Master** for compliance of all navigational watch keeping expectations, requirements and duties. This procedure *shall* apply in all circumstances, e.g: to open seaways, coastal navigation, restricted visibility, shallow water, heavy water and watch keeping in port.

4.3.1 Open seaways

The **Bridge Watch Officer** *shall*:

- Carefully appraise the situation based on sight and hearing as well as the appropriate charts and nautical publications;
- Constantly affirm the current position of the vessel according to the approved passage plan; check such positions using electronic equipment such as GPS;
- Use any other bridge navigational instruments and equipment.

The **Engine Watch Officer** responsibilities *shall* include (if watch is required):

- Ensuring engineering watch is aware of the nature of the vessels current tasking;
- Ensuring instant response to command of the vessel;
- Maintaining maximum machinery efficiency at all times;
- Promoting a safe working environment;
- Providing immediate response to emergencies (fire, flood, machinery breakdown, steering gear breakdown);
- Maintaining fire main pressure with sufficient readiness of pumps;

4.3.2 Coastal Navigation

The **Bridge Watch Officer** *shall*:

- Ensure that the largest scale current and corrected navigational chart for the applicable area is being used;
- Check and record the vessel position on the chart using available navigational instruments (sight bearings, radar bearings, parallel indexing, depth soundings, etc. with position fixes being checked using GPS);
- Tune and constantly monitor the radar equipment to detect weak echoes (small craft, navigational marks and other small floating objects, etc.) and perform regular radar plots;
- Identify and confirm navigation marks and any other position indicating marks;
- Carry out manoeuvres in a timely manner to avoid creating potentially close quarters situations with full and complete regard for prevailing current and other weather conditions, distance from shore, shallow waters, fixed objects and traffic density.

215

The **Engine Watch Officer** responsibilities *shall* include the following (if watch is required):

- Ensuring engineering watch is aware of the nature of the vessels current tasking;
- Ensuring instant response to command of the vessel;
- Maintaining maximum machinery efficiency at all times;
- Promoting a safe working environment;
- Providing immediate response to emergencies (fire, flood, machinery breakdown, steering gear breakdown);
- Maintaining fire main pressure with sufficient readiness of pumps;
- Ensuring permanent air pressure is available for sound signals;
- Ensuring standby machinery is at immediate notice;
- Ensuring emergency steering is ready for immediate operation;
- If local controls are fitted, ensuring local control of machinery and steering gear is immediately available with suitably qualified and experienced personnel available to operate it. (Additional Watch Keepers may be required);
- Ensuring all remaining fire pumps are at immediate notice.

4.3.3 Restricted visibility

The **Watch Officer** in charge of the navigational watch, additional **Bridge Watch Officers** and lookouts *shall not* perform any other duties except navigational duties during times of restricted visibility.

If the visibility deteriorates, or the **Bridge Watch Officer** expects visibility to deteriorate, he/she *shall*:

- Call and inform the **Master**;
- Inform the **Engine Watch Officer** in order to maintain Engine Room preparedness;
- Ensure adequate reinforcement of lookouts (including consideration of posting outside lookouts) and radar monitoring including radar plotting and echo soundings, and *shall* switch to the manual steering mode;
- Check and adjust radar settings, turn on navigational lights, and check that the horn/whistle is working properly;
- Apply regulations for preventing collisions at sea in a strict and timely fashion (*COLREG* Rule 19);
- Maintain safe speed at all times in relation to the prevailing visibility;
- Adjust speed suitably and in good time;
- Pay special attention for sound signals.

During restricted visibility, Engine Watch Keeping responsibilities are as documented for coastal navigation.

4.3.4 Shallow water

"Shallow water" *should* be considered to be any water where a maximum clearance of 2 meters or less beneath the lowest point of the vessel's underwater structure (usually the keel) is present.

216

Masters *shall* inform the **Contracts Managers** whenever any requirement or request is made by charterers to operate in areas of shallow water; the **Master** *shall* also inform the applicable **Operations Manager**.

Contracts Managers *shall* discuss the requirement with the appropriate client representative and *should* obtain a full site survey, or equivalent, of the subject area, which in turn *shall* be passed to the **Master**.

Contracts Managers *shall* establish maximum operating drafts with the appropriate client representative in addition to establishing other considerations such as tidal windows to give optimum Under-Keel Clearances (UKC).

When considering the UKC allowances, the following variable factors and local conditions *shall* include, but are not be limited to:

- The squat effect;
- Environmental conditions; the prevailing weather, height of swell, tidal height and range, atmospheric pressure, and changes in the density of sea and inland waters, etc.;
- The nature and stability of the bottom (e.g. sand wave phenomena);
- The vessel's size and handling characteristics, and increase in draft due to heel;
- The reliability of ship's draft observations and calculations;
- The accuracy of hydrographic data and tidal predictions;
- Reduced depths over pipelines.

Whenever working in shallow water areas, the **Master** *shall* use all available means to gather data and information concerning the area from other vessels already or previously working the area. Such information is to be retained onboard and made available for **Bridge Watch Officers** at watch handover.

The **Master** *shall not* operate within shallow water areas unless satisfied by his/her own good judgement and the practices of good seamanship that it is safe to do so; additionally the **Master** *shall*:

- Make full consideration for the effects of squat and proceed at a minimum speed suitable to maintain such effects to an absolute minimum;
- Ensure that at least two means of position fixing are used to ascertain the vessel's position. Wherever possible, these *shall* include fixes from bearings taken of recognised navigation marks,

landmarks, or other distinctive sighting marks, soundings and the use of radar parallel indexing. GPS, as an electronic aid, may be used to verify fixes;
- Ensure that the echo sounder is operational, accurate and fully utilised. The date and time of switching on *should* be marked on the recorder chart. In addition, the date and time of passing significant land or seamarks *should* be marked on the recorder.

During all shallow water passages and/or operations, the engine room is to be manned by a certified Engine **Watch Officer** who, in addition to the duties given in chapter 4.3 is responsible for ensuring the following:
- The use of high sea-suctions when required and the continuous monitoring of the sea water flow;
- Checking that the main engine alarms and shutdowns are operational and function tested;
- Seawater isolation valves are free and operational;
- Seawater strainers are clean;
- A spare seawater strainer is available for replacement at short notice;
- Main and standby seawater pumps are operational and any automatic start-ups have been function tested;
- That the seawater low-pressure alarms are operational and correctly set;
- That all underwater section watertight doors are closed and that watertight integrity is maintained.

4.3.5 The squat effect

Squat effect is approximately proportional to the square of the speed of the ship. Thus, by reducing speed by half, the squat effect is reduced by a factor of four. The squat effect is usually felt more when the depth/draft ratio is less than four.

The simplified squat formula for vessels in unrestricted waters is as follows:

$$\text{Squat} = C_B \times V^2/100 \text{ (metres)}$$

Where C_B = Ships block coefficient* and V = Speed through water in knots

Example: C_B = 0.72, V = 12 kts, Squat = 1.04 metres

The simplified squat formula for vessels in restricted waters is as follows:

$$\text{Squat} = 2C_B \times V^2/100 \text{ (metres)}$$

Example: C_B = 0.72, V = 6 kts, Squat = 0.52 metres

*NOTE: Block Coefficient is the ratio of the volume of water displaced by a ship to the product of the ship's length, breadth, and draft. Naval Architects determine it for a number of configurations during commissioning. Block Coefficient may be found in the *Stability Booklet*.

How to recognise squat

If a vessel reaches shallow waters and “feels the ground” following changes *shall* be observed:
- Change of wave pattern at the stern and the bow of the vessel;
- The vessel becomes sluggish when carrying out manoeuvres;
- The revolution of main engine decreases;
- The ship’s speed decreases;
- Appreciable vibrations of the ship’s hull occur.

How to prevent squat

The main factors of squat are as follows:
- Existing water depth;
- Vessel’s speed through the water;
- The only effective measure to minimise squat is the immediate reduction of speed.

4.3.6 Heavy weather

The **Master** is responsible for documenting his requirements for heavy weather sailing in the *Master's Standing Orders* and with the **Bridge Watch Officers** ensuring they are followed.

A full risk assessment *shall* be carried out prior to onset of heavy weather to ensure the safety of the vessel and crew.

Ideally, a vessel *should* "ride" heavy weather on a course and at a speed to maintain heading while limiting the effects of breaking seas and to prevent damage.

During heavy weather, in addition to other documented safe navigational practices, the **Bridge Watch Officer** *shall*:

- If prior warning of heavy weather is received (or if a proposed course alternation *shall* cause severe motion) ensure that all personnel are made aware, cargo *should* be checked to ensure movable objects are suitably secured and all practical precautions are taken to avoid any damage that may otherwise occur;
- Consideration *shall* be given to finding shelter from the seas; a port of refuge *shall* be considered if the vessel is taking or is likely to take unacceptable punishment;
- Crew activity on deck or any exposed area *shall* be avoided unless necessary for the safety of personnel, the vessel or assets;
- If crewmembers have to go onto the deck or into other exposed areas, the use of lifelines or similar protection *shall* be considered in addition to floatation devices;
- The vessel *shall* be maneuvered into a position and at an optimised speed to afford maximum protection for crew on deck, who *shall* be constantly monitored until safely clear from the deck;
- If sizeable objects are lost or jettisoned overboard and remain afloat, a security message *shall* be transmitted and the nearest **Coastal State authorities** *shall* be informed. The **Contracts Manager**, **Operations Manager** and any applicable offshore installation *shall* also be informed;

218

- If the contents of the lost object are hazardous, a marine pollutant or a danger to navigation, the appropriate message *shall* be dispatched. The **Contracts Manager, Operations Manager** and any applicable offshore installation *shall* also be informed;
- In the event of any damage or other loss, or any other situation developing that is deemed unusually hazardous with consideration to the prevailing heavy weather conditions. The **Master** *shall* follow the procedures for incident reporting;
- The **Contracts Manager, Operations Manager** and any applicable offshore installation *shall* be informed.

During heavy weather, Enginee Watch Keeping responsibilities are as documented for coastal navigation.

4.3.7 Dynamic Positioning (DP2) Watch Keeping

The bridge *shall* be manned by two **DP Operators** whenever the vessel is operating in a DP mode. Both **DP Operators** per watch *shall* be qualified **Bridge Watch Officers**, trained and experienced in DP operations and with a sound working knowledge of offshore operations.

One of the **DP Operators** *shall* be certified and designated by the **Senior DP Operator (Sr-DPO)** and be in charge of the watch. The second Operator *shall* be the **DP Operator (DPO)** and *shall* be capable of taking a watch at the operating console.

The DP console is to be manned at all times when the vessel is operating in the DP mode and the **Senior DP Operator** *shall* at all time remain on the bridge.

The **DP Operator** at the console is the active surface co-ordinator of the operation whilst the vessel is in the DP mode, and as such *shall* remain dedicated to his responsibilities at the DP console.

The **DP Operator** under no circumstances *shall* take part in the ships routine activities.

To avoid loss of concentration, the two **DP Operators** on watch *should* exchange places at the console at least every two hours and preferably every one hour.

The relieving of two **DP Operators** simultaneously *should* be avoided, if possible.

All **DP Operators** *should* maintain a personal log of their DP experience to be approved by the **Master**.

All **DP Operators** *shall* have their DP training course certificates on board.

4.3.8 Bridge resource management training

Formalised Bridge Resource Management training *should* be provided based on evaluation and assessment in conjunction with the Competence Management System, individual training plans, integration and crew management processes.

4.3.9 Lookout duties

The assigned lookouts *shall* immediately report to the **Bridge Watch Officer** anything that may concern the safe navigation of the vessel and any observed shipboard safety concern.

The assigned lookouts *shall not* be given or take up any tasks which may affect their duties as lookouts.

Additional personnel *shall* be provided including other officers if required, to reinforce the bridge watch if the situation requires or the **Master** desires.

After each watch, the lookout *shall* perform a Safety (fire) and Security patrol in order to control if vessel is compliant with ISPS Level onboard and if there is no threat for the vessel (visual control of Engine room, visual control of accommodations, etc.). Any deficiency found during this round *shall* be immediately reported to the **Officer on watch**. If no deficiency is found, it *shall* also be reported to the bridge. The **Watch Officer** *shall* make an entry after the patrol as follows: " XX:XX safety/security patrol done "

219

4.3.10 Watch hand over

Watch Officers (Bridge or Engine) *shall not* hand over the watch to a relieving Officer if he or she has any reason to believe that the latter is not capable of carrying out his or her duties safely and effectively, in which case the **Master** (and additionally in case of Engine Watch, the Chief Engineer) *shall* be informed accordingly.

During the night, the relieving **Bridge Watch Officer** *shall* not assume his or her duties until he or she has completely adapted to the light conditions in the wheelhouse.

If any manoeuvre or other hazard avoidance action is ongoing, the watch hand over *shall* be delayed until the operation is successfully completed.

Before taking over the watch, the relieving officer *shall* be satisfied in the knowledge of the vessels estimated or true position and confirm its intended track, course and speed and *shall* note any dangers to navigation (present or expected) to be encountered during his or her watch.

The relieving **Bridge Watch Officer** *shall* satisfy himself/herself that the radar and other navigational instruments including radios are correctly set or adjusted.

The relieving **Bridge Watch Officer** *shall* fill the check list *BOS-FRM-03.0067 – CL #18 Watch Handover Check List* before taking his watch.

During the hours of darkness and after each watch the lookout *shall* make a fire and security round through the accommodation and report the outcome to the new **Bridge Watch Officer**.

The relieving **Bridge Watch Officer** *shall* have full knowledge of the following:

- The current passage plan and scheduled ETA;
- *Master's Standing Orders* and any special instructions within the *Master's Night Order Book* (the relieving **Bridge Watch Officer** *shall* sign the *Master's Night Order Book*);
- Any dangers to navigation expected to be encountered during the watch period;
- Present and expected visibility (including hours of darkness), sea state, current and other weather conditions;
- Presence and movements of any vessels within sight;
- Operational condition of navigational equipment;
- Any Permit to Work (PTW)/check-list in operation and the status and location of any crew assigned working duties.

4.3.11 Ice or severe sub-zero temperatures.

In case of existing or announced sub-zero temperatures or ice in the navigating area, a Risk Assessment *shall* be made in order to avoid all risk due to the low temperatures. It *shall* include the following risks: deck pipes freezing, danger of navigation, stability issue (see Section 6 vessel stability / Chap. 4.6) and *should* be completed with vessel specific risks (See Section 9 – Job Safety Analysis / Chap 4.2).
The company operation manager *shall* be informed and a Management Of Change *shall* be done as per SMS requirements (see Section 7 management of change).

Any Ships expected to be operated in cold weather conditions *shall* be assigned the "Cold Weather Conditions" notation by BV (Pt A, Ch 1, Sec 2, 6.14.12) or other equivalent by other class society.

Any Ships expected to be operated in the polar waters (below 66°33'44'' S or over 66°33'44'' N) *shall* have suitable Ice Class notation, in conformance with IMO MSC 1056 / MEPC 399.

220

4.4 Watch keeping in port

When the vessel is in port, the duties of the **Bridge Watch Officer** include but are not limited to the following:

- Reinforcement of moorings if heavy weather conditions are expected (e.g. swell) and, if necessary, alert the engine room of the possible need for propulsion;
- Checking mooring lines and rat guard positions regularly;
- Ensuring that the gangway is securely and correctly installed sufficiently illuminated and equipped with a safety net;
- Maintaining continuous VHF radio watch keeping;
- If the **Bridge Watch Officer** is required to leave the bridge for whatever reason, a suitably tested and functioning hand held radio capable of maintaining required communications *shall* be utilized.

Maintain permanent security measures as follows:

- Assignment of an efficient watch consisting of adequate numbers of personnel to maintain and monitor the gangway continuously and to provide sufficient security cover taking into account routine shipboard requirements;
- Checking the proper operation of the radio issued to the assigned gangway watch;
- Strictly maintaining all provisions for the vessel's security as per the Ship Security Plan (SSP) and with regard to any local instructions taking into account all local security information;
- Notifying the **Ship Security Officer (SSO)** and/or **Master** of any violation of standing security measures, e.g. any visitor refusing to undergo identity checks or to complete the visitor's register or if found in any limited or prohibited access areas.

In Port, the Engine **Watch Officer** responsibilities include the following (if watch is required):

- Ensure engine room watch is aware of the notice for sea;
- Where shore supplies are in use, ensure standby generating capacity is available to maintain lighting and firefighting capability (surveillance equipment and fire main pressure);
- Maintain maximum machinery efficiency at all times;

- Promote a safe working environment;
- Maintain fire main pressure with sufficient readiness of pumps;
- Provide immediate response to emergencies (fire, flood, collision).

4.5 Watch Keeping at Anchor

When the vesselat anchor, the duties of the **Bridge Watch Officer** include but are not limited to the following:

- Determine and plot the ships position and any expected “swinging circle” on the chart as soon as practical;
- Document the amount of chain deployed;
- At regular intervals, check the position by taking bearings of fixed navigational marks and readily identifiable shore objects as available;
- Ensure that an efficient lookout is maintained;
- Ensure that the vessel exhibits the appropriate lights and shapes and that if required, the correct sound signal is used;
- Pre-set radar and GPS alarms to sound in case of any significant change in vessel position;
- Check proper function of VHF radio regularly, especially tuning and volume settings;
- Ensure that inspections of the vessel are completed at regular intervals;
- Observe weather, tidal and sea conditions;
- Ensure that the readiness of main engines or other machinery is in accordance with the **Master**’s instructions;
- Notify the **Master** and undertake all necessary measures if the vessel drags the anchor;
- Notify the **Master** if visibility deteriorates;
- Comply at all times with the applicable *COLREG* requirements;
- Ensure that all standing safety measures have been deployed.
- Record the following data in the bridge log at the completion of each watch period:
  - Position;
  - Weather conditions;
  - Barometric pressure;
  - Outside temperature;
  - Wind, speed and direction;
  - Visibility;
  - Sea state;
  - Current set and rate.

221

At anchor, the **Engine Watch Officer** responsibilities *shall* include the following (if watch is required):

- Ensure engine room watch is prepared for any notice to start machinery and make readiness to get underway;
- Maintain fire main pressure with sufficient readiness of pumps;
- Provide immediate response to emergencies (fire, flood, collision).

4.6 Radio watch keeping

An adequate permanent radio watch *shall* be maintained whilst at sea in compliance with statutory requirements.

Similarly, an adequate radio watch *shall* be maintained, depending on circumstances, whilst a vessel is in port or at another shore/harbour facility.

The **Master** is responsible for ensuring that a radio watch is properly maintained.

4.6.1 Mandatory radio watch keeping

The **Bridge Watch Officer** who *should* hold either a General Operator Certificate (GOC) or a Restricted Operator Certificate (ROC) depending on the navigation zone and radio equipment on board the vessel *shall* maintain radio watches.

The **Bridge Watch Officer** *shall* maintain radio watch.

He or she *shall* observe radio protocol, avoid interference with other radio operators and use radio frequencies properly.

Absolute priority *shall* be given to distress, emergency and medical assistance communications.

4.6.2 VHF radio watch

Vessels *should* keep a continuous listening watch using the main radio station on DSC VHF channel 70 (156.525 MHz) and VHF continuous listening watch on channel 16 (156.8 MHz).

4.6.3 MF radio watch

Vessels equipped for medium frequency reception *should* keep a continuous listening watch using the main radio station on the DSC distress and safety frequency 2187.5 kHz.

They *should* also keep a permanent listening watch on the international NAVTEX system (518 kHz) when in an area where that service is provided.

222

4.6.4 HF radio watch

Vessels equipped for medium frequency reception *should* keep a continuous listening watch using the main radio station on the ASN distress and safety frequency 8414.5 kHz and depending on the position of the vessel and time of day on at least one of the following DSC distress and safety frequencies: 4207.5 kHz; 6312 kHz; 12577 kHz or 16804.5 kHz.

Vessels equipped with a direct finding listening watch receptor can maintain this listening watch by scanning these frequencies.

4.6.5 Marine weather and safety information

The **Bridge Watch Officer** *shall* monitor the automated NAVTEX and Inmarsat-C SafetyNET systems for promulgating weather forecasts and warnings, marine navigational warnings and other safety related information.

4.6.6 Radio communications logbook

The Radio Communications Logbook *shall* be kept on board for presentation to competent authorities on request.

The **Master** *shall* initial the Radio Communications Logbook daily.

Pages of the Radio Communications Logbook *shall* be numbered and *shall not* be torn out or otherwise damaged.

The following entries *shall* be made in the Radio Communications Logbook:

- Name of **Shipboard Operators** designated for operating radio equipment during emergencies;
- Names of **Shipboard Operators** specifying the type of certificate that they hold.

Shipboard radio communications (transmission/reception) specifying:

- The station with which contact was made (or attempted);
- The frequency or frequencies used;
- The duration of the communication;
- Maintenance operations and periodic tests carried out on radio equipment;
- Any incidents or deficiencies.

All relevant radio-communication events involving the safety of life at sea (GMDSS):

- Transmission/reception of distress communications;
- Transmission/reception of distress alerts;
- Navigational safety bulletins.

Safety and distress notices received as hard copy on the NAVTEX system or other printers *shall* be noted in the Radio Communications Logbook and filed in date order in a dedicated binder.

Hard copy concerning weather or navigational warnings *shall* be kept onboard until warning is off and the relevant reference reported on the chart. At the end of the period, the date and time of their receipt *shall* be noted in the Radio Communications Logbook.

4.6.7 Radio tests and checks

- Daily, weekly and monthly checks or tests *should* be performed on shipboard radio equipment and the results *shall* be recorded in the Radio Communications Logbook.

4.6.8 Daily checks or tests

- Test operational status of the DSC without broadcasting using VHF, MF and HF equipment; 223
- Test, and if necessary, recharge batteries;
- Test printer and check paper supply (Inmarsat and Navtex).

4.6.9 Weekly checks or tests

- Check back-up energy source insofar as it is not a battery;
- Test calls with a coastal station (when possible) or other vessel equipped with DSC equipment if there has been no communication with such a station for more than a week;
- Testing is necessary for VHF, MF and HF equipment.

4.6.10 Monthly checks or tests

- Check and maintain as applicable antennas and insulators;
- Test VHF radios provided in survival equipment;
- Test batteries supplying the radio station.

5 Records

- General Operator Certificates;
- Restricted Operator Certificates;
- Radio Communications Logbooks;
- Vessel Deck Logbooks;
- Vessel Radio Logbooks;
- Masters Standing Orders;
- Chief Engineer's Standing Orders;
- Management of Change Records.

6 Related documents

- B-GDL-03.0007 – OSM Guidelines;
- ISM Code;
- Local Regulations;
- COLREGS;
- Stability Booklet;
- BOS-FRM-03.0058 – Heavy Weather check list;
- BOS-FRM-03.0059 – Restricted Visibility check list;
- BOS-FRM-03.0060 – Shallow Water check list;
- BOS-FRM-03.0067 – CL #18 - Watch handover check list;
- BOS-FRM-06.0002 – Management of Change.

224

7 Terms and definitions

ASN
Automated Surveillance Network

BNWAS
Bridge Navigation Alarm Watch System

Coastal Navigation
Navigating near the coast, allowing one to find one's position by use of landmarks and other references.

COLREG
Collision Regulations

DP
Dynamic Positioning

DSC
Digital Signal Controller

ETA
Estimated Time of Arrival

GMDSS
Global Maritime Distress and Safety Services

GOC
General Operator Certificate

GPS
Global Positioning System

Helmsman
The member of the ship's crew who is responsible for steering.

HF
High Frequency

Inmarsat-C SafetyNET
This is a "satellite telex" terminal with store-and-forward, polling etc. capabilities.
ISM Code
International Safety Management Code

JSA
Job Safety Analysis

MF
Medium Frequency

NAVTEX
NAVigational TEXt Messages. International, automated system for instantly distributing Maritime Safety Information (MSI)

Open Seaways
That part of the ocean not enclosed by headlands, not within narrow straits, and so on. That part of the ocean outside the territorial jurisdiction of any country.

OSM
Operational Safety Management

PTW
Permit To Work

ROC
Restricted Operator Certificate

Squat
The reduction of a vessel’s UKC, caused by the relative movement of the ship’s hull through the surrounding body of water. Compared with the sea-going condition, the hull sinks deeper into the water and increases trim. The algebraic sum of both, sinking and trimming is called Squat.

SSO
Ship Security Officer

SSP
Ship Security Plan

TBT
Tool Box Talk

UHF
Ultra High Frequency

UKC
Under-Keel Clearance

VHF
Very High Frequency

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (N° and date)	Changes (chapter/reference)
BOS Operations Manager Director	BOS Operations Manager Director	BOS Quality Representative	Rev.01 – 11/03/2013	Revision made on § 4.2; §4.3.7, § 4.3.10 and § 4.6.6
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	Insertion in § 4.3.11 of sentence "Ships foreseen to be operated in cold weather conditions *shall* be assigned the "Cold Weather Conditions" notation by BV (Pt A, Ch 1, Sec 2, 6.14.12) or other equivalent by other class society. Ships foreseen to be operated in the polar waters (below 66°33'44'' S or over 66°33'44'' N) *shall* have suitable Ice Class notation, in conformance with IMO MSC 1056 / MEPC 399." Creation of 3 check list: Heavy Weather, Restricted Visibility and Shallow Water.
BOS Operations Project Manager	BOS Head of Operations		Ver 04 – 31/12/2014	Review of §4.3.10 Watch handover. Creation of 1 check list: Adding Watch hand over check list in §6. Related dcocuments Add Management of Change document in 6.Related documents and 5.Records

226

Passage Planning and Manoeuvring

BOS-PRD-07.900503-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Passage planning 5
4.1.1 Establishing the Passage Plan 5
4.1.2 Preparing the Passage Plan 6
4.1.3 Executing the Passage Plan 7
4.1.4 Chart preparation 7
4.2 Port arrival and departure 7
4.2.1 Port information 8
4.2.2 Draft, trim and stability 8
4.2.3 Under keel clearance 8
4.2.4 Checks/checklists/documentation 9
4.2.4.1 Notifications 9
4.2.4.2 Arrival and Departure Documents and Information 9
4.3 Working with pilots 9
4.3.1 Master - Pilot information exchange 10
4.4 Manoeuvring systems 10
4.4.1 Routine testing of steering control systems 11
4.4.2 Transfer of manoeuvring controls 11
4.4.3 Training requirement - manoeuvring and ‘ship handling’ 11

5 Records **12**

6 Related documents **12**

7 Terms and definitions **12**

8 Review, approval, revision and identification of changes **13**

228

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with the *ISM Code*, requirements of *OSM Guidelines* and industry best practices referenced in this document, this procedure has been developed and *should* be used in association with company procedures in relation to management of risk.

2 Scope

A Passage Plan is a navigational aid for **Bridge Watch Officers** and ensures that the vessel can be navigated safely from one point to another. The Passage Plan *shall* determine the shortest, safest and most economical route whilst maintaining adequate passing distances from identified hazards and allowing safety margins as required.

229

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that Passage Plans are prepared, updated and utilised for all voyages;
b) Ensuring the implementation of this procedure.

Bridge Watch Officers have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations related to passage planning and manoeuvring are maintained.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for passage planning and manoeuvring are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

230

4 Description

4.1 Passage planning

Passage planning is a mandatory company requirement. A Passage Plan *shall* be formulated for each voyage and updated when necessary for each separate passage made by the vessel along the same route.

Passage planning is required from berth to berth and *shall* include any intermediate offshore locations such as drilling rigs and platforms.

The **Master** is responsible for establishing and approving the Passage Plan but can delegate preparation to another Officer.

Prior to proceeding to sea, the **Master** *shall*:

- Consult with the **Chief Engineer** to verify that the vessel has sufficient fuel, water and lubricants for the intended voyage;
- Ensure that the intended voyage has been planned using appropriate charts and publications for the area concerned. The charts and publications used in the preparation of the Passage Plan *shall* be documented in the Passage Plan;
- The courses laid down for the Passage Plan are safe;
- Consider at which specific points of the passage there may be a need to utilise additional deck or engine room personnel;
- Consider whether any particular circumstance, such as the forecast of restricted visibility in an area where position fixing by visual means at a critical point is an essential feature of the Passage Plan introduces an unacceptable hazard to the passage. He or she *shall* determine whether that section of the passage *shall* be attempted under the conditions prevailing or likely to prevail.
- Consider security conditions in the sailing area.

231

The plan *shall* be available at all times on the bridge to allow **Bridge Watch Officers** immediate access and reference to the details of the plan.

Each **Bridge Watch Officer** *shall* view and discuss the Passage Plan as applicable during each watch handover.

The progress of the vessel in accordance with the Passage Plan *shall* be closely and continuously monitored.

Any information related to the present or future passage *shall* be reported to the **Master** and the Passage Plan *shall* be updated, as the situation requires.

Whenever necessary to deviate substantially from the planned route, an amended route *shall* be planned and approved by the **Master**.

If the Passage Plan is modified during the voyage, for example changes in course or speed to those specified or required because of a potentially hazardous situation; a new destination or changing weather conditions, the **Master** or duty **Bridge Watch Officer** *shall* ensure that subsequent relieving **Bridge Watch Officers** are aware of the changes before assuming watch duty. Such changes to the Passage Plan *shall* be recorded in the Bridge Logbook.

4.1.1 Establishing the Passage Plan

The Passage Plan *shall* be established before departure of the vessel taking into account the following factors:

- The condition and state of the vessel, its stability, and its equipment; any operational limitations; its permissible draught at sea in fairways and in ports; its manoeuvring data, including any restrictions;

- Any special characteristics of the cargo (especially if hazardous), and its distribution, stowage and securing on board the vessel;
- The provision of a competent and well-rested crew to undertake the passage;
- Requirements for up-to-date certificates and documents concerning the vessel, its equipment, crew, passengers or cargo;
- Appropriate scale, accurate and up-to-date charts to be used for the intended passage, as well as any relevant permanent or temporary notices to mariners and existing radio navigational warnings;
- Accurate and up-to-date sailing directions, lists of lights and lists of radio aids to navigation;
- Mariners' routeing guides and passage planning charts, published by competent authorities;
- Current and tidal atlases and tide tables;
- Climatological, hydrographical, and oceanographic data as well as other appropriate meteorological information;
- Availability of services for weather routeing;
- Existing ships' routeing and reporting systems, vessel traffic services, and marine environmental protection measures;
- Volume of traffic likely to be encountered throughout the passage;
- If a **Pilot** is to be used, information relating to pilotage and embarkation and disembarkation including the exchange of information between **Master** and **Pilot**;
- Available port information, including information pertaining to the availability of shore-based emergency response arrangements and equipment;
- Any additional items pertinent to the type of the vessel or its cargo, the particular areas the vessel *shall* traverse, and the type of voyage or passage to be undertaken;
- Security information *should* be present in passage planning.

4.1.2 Preparing the Passage Plan

232

The detailed Passage Plan *shall* include the following factors:

- The plotting of the intended route or course of the passage on appropriate scale charts: the true direction of the planned route or course *shall* be indicated, as well as all areas of danger, existing ships' routeing and reporting systems, vessel traffic services, and any areas where marine environmental protection considerations apply;
- Exact Offshore Installation positions *SHALL NOT* be used for GPS waypoints: always use an offset position, preferably on the down-current side, of at least one nautical mile from the installation.

The main elements to ensure safety of life at sea, safety and efficiency of navigation, and protection of the marine environment during the intended passage; such elements *shall* include, but not be limited to the following:

- Safe speed, having regard to the proximity of navigational hazards along the intended route or track, the manoeuvring characteristics of the vessel and its draught in relation to the available water depth;
- Necessary speed alterations on passage; where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;
- Minimum clearance required under the keel in critical areas with restricted water depth;
- Positions where a change in machinery status is required;
- Course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents;
- The method and frequency of position fixing, including primary and secondary options and the indication of areas where accuracy of position fixing is critical and where maximum reliability *shall* be obtained;
- Use of ships' routeing and reporting systems and vessel traffic services;
- Considerations relating to the protection of the marine environment;
- Contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shore-based emergency response arrangements and equipment and the nature of the cargo and of the emergency itself;
- The details of the voyage or Passage Plan *should* be clearly marked and recorded, as appropriate, on charts and in a Passage Plan or computer disk;
- Security information *shall* be present in passage planning.

4.1.3 Executing the Passage Plan

The following factors *shall* be taken into account when executing the plan or deciding on any departure there from the plan:

- The reliability and condition of the vessel's navigational equipment;
- Estimated times of arrival at critical points for tide heights and flow;
- Meteorological conditions, (particularly in areas known to be affected by frequent periods of low visibility) as well as weather routeing information;
- Daytime versus night-time passing of danger points, and any effect this may have on position fixing accuracy; and
- Traffic conditions, especially at navigational focal points.

4.1.4 Chart preparation

The following information *shall* be entered in the Passage Plan and marked on the appropriate chart, where it enhances safe navigation:

- Parallel indexing (not from floating objects unless they have been first checked for position);
- Chart changes;
- Methods and frequency of position fixing;
- Prominent navigation and radar marks;
- No go areas;
- Zone indicated by navigation warnings;
- Landfall targets and lights;
- Clearing lines and bearings;
- Transits, heading marks and leading lines;
- Significant tides or current;
- Safe speed and necessary speed alterations;
- Changes in machinery status;
- Minimum UKC;
- Positions where the echo sounder *shall* be activated;
- Crossing and high density traffic areas;
- Safe distance off;
- Anchor clearance;
- Contingency plans;
- Abort positions;
- VTS and reporting points.

233

Charted passage planning information *should not* obscure printed details, nor *should* the information on charts be obliterated by the use of highlight or felt-tip pen, ink, etc.

Zone indicated in navigation warnings *shall* be temporary marked on maps present onboard, with clear reference to the warning reference, date it was received, and if available, date *should* be cancelled.

No go areas *should* be temporarily marked, showing areas where the attention of the navigator needs to be drawn to a danger such as shallow water or a wreck close to the course line.

Extensive use of no-go areas *should* be discouraged. No-go areas vary with change of draft and tide and *shall* therefore also vary with the time of passage. They *shall* not therefore be permanently marked.

4.2 Port arrival and departure

Before arrival or departure at port, the Passage Plan *shall* be carefully reviewed and the required information prepared.

The **Master** with the duty **Bridge Watch Officer** *shall* be responsible for managing the arrival or departure procedure.

4.2.1 Port information

The Port Authority *shall* be notified according to any Standing Port Regulations.

The following information requirements *shall* be established:

- Port information;
- Sailing directions;
- Communication requirements;
- Weather reports;
- Tidal information;
- Depth of water in approaches, channels and at the assigned berth;
- Any restrictions on draft, trim, speed or entry times;
- The documents required for inward clearance; these *shall* be completed in good time.

4.2.2 Draft, trim and stability

Using the loading calculator, the **Master** *shall* ensure that the loaded or ballast condition of the vessel is in compliance with the vessels *Stability Booklet* and that load line requirements have been complied with.

The **Master** *shall* ensure that the routine checks required by the Classification Society to verify the software of the loading calculator have been completed and recorded.

4.2.3 Under keel clearance

The Company has defined *Shall*ow water as 2 m Under Keel Clearance and this *should* be considered as the MINIMUM water depth for normal operations.

234

Depending on the operations in question, it may be sometimes required to traverse a channel or operational area where the water depth is LESS than the minimum stated 2 m requirement.

In such circumstances a FULL appraisal and Risk Assessment *shall* be performed and documented with permissions obtained from Shore base Operational management prior to performing any operations.

Considerations as to risk factors *shall* include as a minimum the requirements indicated above (see chapter 4.2.1. "*Port information"*).

4.2.4 NO-GO Area

Coastal and estuarial charts *should* be examined, and all areas where the ship CANNOT go must be carefully shown by highlighting or cross hatching, care being taken to not obliterate information such as a navigation mark or a conspicuous object. Areas so marked are to be considered as no-go areas. In waters where the tidal range may not be very large, no-go areas *shall* include all charted depths of less than the ship's draught plus a safety margin. Such areas *shall* vary according to the ship's draught and so will not be necessarily the same for both inward and outward passages. In general the line determining the "no-go" will be not less than draught + 10%, though this will need to be modified according to the prevailing circumstances. Draught + 10% may be sufficient in areas where the sea is smooth but will require a higher figure if the ship is liable to pitch, roll or squat.

In confined area waters, where the tidal height may have a large influence, such no-go areas *shall* vary according the last time of passage. Initially all areas and dangers showing charted depths of less than the draught plus the safety margin *should* be considered no-go, though such may be subsequently amended when the actual time of passage is known. Such areas will need to be carefully marked showing the times and state of tide at which they are safe.

4.2.5 Checks/checklists/documentation

Before leaving or entering port, the **Master** and **Chief Engineer** *shall* ensure that all necessary equipment as defined on the applicable Pre-Arrival and Pre-Departure Checklists has been tested.

The **Master** and **Chief Engineer** may delegate this task to the respective **Watch Officer** but *shall* ensure that the checklists have been properly completed and that an appropriate entry has been recorded in the Bridge and Engine Room Logbooks as applicable.

4.2.5.1 Notifications

The following notifications *shall* be implemented before arrival or departure:

- Inform the **Master** of expected time of arrival (ETA) or departure (ETD). The **Master** is normally the **Ship Security Officer (SSO)**;
- Inform the engine room of the expected time of arrival or departure, establish and test communications with the control room;
- Alert the engine room before initiating tests of critical equipment;
- Assign a crewmember in the bridge for emergency backup, ensure that sufficient crewmembers are ready, and prepared to handle ropes and assist as required with berthing/un-berthing;
- Establish and check communications with the crewmembers at the mooring stations;
- Communicate ETA/ETD to the port, agent, logistic service, office, customer representative or **Pilot** as required or necessary;
- Contact the **Port Facility Security Officer** (PFSO) to determine if a Declaration of Security (DOS) is needed;
- Inform the SSO of arrival or departure time. The SSO *shall* alert any passengers as necessary.

4.2.5.2 Arrival and Departure Documents and Information

The following arrival and departure documents and information *shall* be checked:

- Ensure that the cargo is consistent with the manifest/bill of lading;
- Establish the present state of the tide, current and other weather conditions;
- Check the vessel's drafts and enter the readings in the Bridge Logbook;
- Check that the Passage Plan is properly established. Make the necessary approval;
- Ensure that nautical charts and documents are readily available;
- Determine the level of security prevailing in the port, berth, or mooring zone;
- Take note of any information concerning the vessel or cargo from the port, agent, customer or similar logistics service.

4.3 Working with pilots

It is important that the responsibilities of the **Pilot** and the **Master** are clearly agreed and understood when working together.

When a **Pilot** is onboard, the **Master** retains the responsibility and over-riding authority on the vessel. The presence of the **Pilot** does not relieve the **Master** or the **Watch Officer** of their duties and obligations for the overall safety of the vessel.

Once a **Pilot** arrives on the bridge, he *shall* join the bridge team.

Depending on local pilotage laws, the **Master** may delegate the conduct of the vessel to the **Pilot** who directs the navigation of the vessel in close co-operation with the **Master** and/or the **Bridge Watch Officer**.

Master and **Bridge Watch Officer** *shall* be prepared to exercise their authority and responsibility *should* it be considered that the vessel would be placed in any hazard by the actions or directions of the **Pilot**.

4.3.1 Master - Pilot information exchange

The **Master** and the **Pilot** *shall* exchange information regarding navigational procedures, local conditions and rules and the ship's characteristics. This information exchange *should* be a continuous process that generally continues for the duration of the pilotage.

Each pilotage assignment *shall* begin with an information exchange between the **Pilot** and the **Master**. The amount and subject matter of the information to be exchanged *shall* be determined by the specific navigation demands of the pilotage operation. Additional information can be exchanged as the operation proceeds.

Each competent pilotage authority *shall* develop a standard exchange of information practice, taking into account regulatory requirements and best practices in the pilotage area. **Pilots** *shall* consider using an information card, form, checklist or other memory aid to ensure that essential exchange items are covered. If an information card or standard form is used by **Pilots** locally regarding the anticipated passage the layout of such a card or form *shall* be easy to understand. The card or form *shall* supplement and assist, not substitute for, the verbal information exchange.

This exchange of information *shall* include at least:

- The presentation of a completed standard Pilot Card. In addition, information *shall* be provided on rate of turn at different speeds, turning circles, stopping distances and, if available, other appropriate data;
- General agreement on plans and procedures, including contingency plans, for the anticipated passage;
- Discussion of any special conditions such as weather, depth of water, tidal currents and marine traffic that may be expected during the passage;
- Discussion of any unusual ship-handling characteristics, machinery difficulties, navigational equipment problems or crew limitations that could affect the operation, handling or safe manoeuvring of the ship;
- Information on berthing arrangements; use, characteristics and number of tugs; mooring boats and other external facilities;
- Information on mooring arrangements;
- Confirmation of the language to be used on the bridge and with external parties.

236

It *should* be clearly understood that any Passage Plan is a basic indication of preferred intention and both the **Pilot** and the **Master** *shall* be prepared to depart from it when circumstances so dictate.

Pilots and competent pilotage authorities *shall* be aware of the voyage planning responsibilities of **Masters** under applicable IMO instruments.

4.4 Manoeuvring systems

The Pre-Arrival Checklists for the bridge and engine room *shall* be carried out in good time before arrival at any location and prior to approaching an offshore installation.

All systems *shall* be checked in accordance with the provisions of the applicable checklist.

The **Master** is responsible for the strict adherence and application of this procedure.

All control and command systems *shall* be checked and tested under the supervision of the **Bridge/Engine Watch Officer**.

Pre-departure verification *shall* be recorded on the relevant checklist for bridge and engine room respectively.

Communications between the bridge and engine room and the back-up steering gear *shall* be tested.

The emergency procedures for using the local steering unit *shall* be posted near the primary steering gear in the steering gear room or as applicable.

4.4.1 Routine testing of steering control systems

In addition to pre-arrival and departure checks, the routine and periodic testing of vessel Critical Systems *shall* be outlined in the vessel Planned Maintenance System (PMS) however routine testing of steering gear and emergency 'back up 'steering systems *shall* be performed and recorded in the Bridge Logbook and official logbook (where required).

4.4.2 Transfer of manoeuvring controls

The transfer of bridge manoeuvring controls from one mode or operating location to another for example, forward to after control position, *shall* only be done in accordance with this procedure; strict compliance is essential to avoid a potential accident.

Masters and **Bridge Watch Keeping Officers** *shall* be responsible for ensuring that the following procedure is effectively implemented:

- Check all control levers are in the correct/neutral positions;
- Ensure vessel movement and environmental impacts are fully considered;
- Check that engine controls are set to zero pitch;
- Check that rudder controls are set to the "mid-ships" position;
- Check that all controls are properly transferred and can be operated correctly;
- When transferring control between bridge and engine room, check that controls are set to zero before transferring and/or before acknowledging the transfer;
- When transferring from "manual" to "joystick" and/or back to "manual" - ensure the vessel is at a safe distance from the installation and sufficient time and space is available to revert to manual controls as necessary.

4.4.3 Training requirement - manoeuvring and 'ship handling'

237

Every opportunity *should* be provided to both Senior and Junior **Deck Officers** in Ship handling and maneuvering of the vessel to enable them to become more proficient and competent in their role and to ensure the Company and vessel **Master** has a redundant alternative solution in times of emergency or contingency.

Training *shall* always be conducted under strict supervision of the **Master**, experienced **Bridge Officer**, **Referent Captain** or **Superintendent** and undertaken in areas free from external hazards or traffic congestion.

Competence in ship handling *shall* be monitored as part of the 'Competence Management System' with additional training provided as appropriate to individual competence and career path objectives of the Company. Simulators are available in BOURBON Training Centers for the purposes of providing training in addition to 'on board training'.

5 Records

- Bridge Logbook
- Declaration of Security
- Engine Room Logbook
- Passage Plans
- Pilot Cards
- Pre-Arrival Checklists
- Pre-Departure Checklist

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- ICS Bridge Procedures Guide
- ISM Code
- Stability Booklet
- The Bridge Team Management 2nd edition, The Nautical Institute
- BOS-FRM-03.0033 – Pilot card
- BOS-FRM-03.0024 – CL7 Engine Pre-Departure Checklist
- BOS-FRM-03.0032 – CL9 Engine Pre-Arrival Checklist
- BOS-FRM-0701.0008 – Passage Plan

7 Terms and definitions

238

DOS
Declaration of Security

ETA
Estimated Time of Arrival

ETD
Estimated Time of Departure

GPS
Global Positioning System

ISM Code
International Safety Management Code

JSA
Job Safety Analysis

NO-GO
No-Go area means an area around a track which vessels may not enter.

OSM
Operational Safety Management

PFSO
Port Facility Security Officer

PMS
Preventative Maintenance System

SSO

Ship Security Officer

TBT
Tool Box Talk

UKC
Under-Keel Clearance

VTS
Vessel Traffic Scheme

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Manager Director	BOS Operations Manager Director	BOS Quality Representative	Rev.01- 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	-
BOS Operations Project Manager	BOS Head of Operations		Ver 04 – 31/12/2014	Insertion of § 4.2.4 NO GO area

239

Navigation at Offshore Locations

240

BOS-PRD-07.900504-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Working at offshore locations 5
4.1.1 Approaching location 5
4.1.2 Entry into the 500m zone 5
4.1.3 Working on location 6
4.1.4 Prior to departure 6
4.1.5 Standby at offshore location 7
4.1.6 Up weather/up current operations 8
4.2 Manoeuvring 10
4.2.1 Transfer of manoeuvring controls 10

5 Records **11**

6 Related documents **11**

7 Terms and definitions **11**

8 Review, approval, revision and identification of changes **12**

241

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with the *ISM Code*, requirements of *OSM Guidelines* and industry best practices referenced in this document, this procedure has been developed and *should* be used in association with procedures in relation to management of risk.

When working at offshore locations, it is essential that industry best practices are followed to ensure the safety of vessels, installations, crews and the marine environment.

2 Scope

The following procedure is mandatory in compliance with petroleum industry legislation governing the 500m exclusion zones around offshore installations.

242

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation of this procedure.
b) Ensuring compliance and practice of all safe navigational practices onboard the vessel under their command.
c) Ensuring that the bridge is sufficiently manned at all times, taking into consideration the prevailing conditions and the principles of safe manning;

Bridge Watch Officers have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure all safe navigational and watch keeping practices are maintained.

Dynamic Positioning Operators (DPOs) have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure safe watch keeping related to dynamic positioning practices.

Engine Watch Officers have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations to ensure all safe engine watch keeping practices are maintained.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for navigation at offshore locations are communicated and implemented onboard all vessels under his/her jurisdiction.

243

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Working at offshore locations

4.1.1 Approaching location

When approaching an offshore location the **Master/Bridge Watch Officer** *shall* ensure the following:

- The installation is identified using Automatic Identification System (AIS) and/or other means;
- Working communications channels are established and tested, including the vessels internal communications system;
- Communication with the installation *shall* be maintained at all times during operations;
- The engine room is manned;
- Propulsion, thrusters/steering and all associated control systems are tested;
- The sea, current, swells and wind conditions have been fully assessed;
- The crew has been informed of the ship operations and relevant precautions and regulations;
- The crew is aware that every crewmember has the responsibility and authority to STOP WORK if there is any risk to the safety of personnel, assets or the environment. The situation *shall* be reviewed by the **Master/Bridge Watch Officer** and reasons for stopping work provided to the **Offshore Installation Manager** (OIM).

4.1.2 Entry into the 500m zone

Manning: The Bridge *shall* be manned with two seamen as a minimum: one **Bridge Watch Officer** + one **Watchman**. Additional **Officers** and/or **Ratings** and **Engine Watch Officers** in Engine Control Room will be added at Master's/Bridge Watch Officer's discretion.

244

- **Masters** and **Bridge Watch Officers** *shall* be responsible for ensuring that this procedure is effectively implemented. Failure to comply is a statutory criminal offence and **Masters** may be liable to prosecution;
- The following procedure applies to ALL situations where a vessel is required to visit, work, or perform any operation in close proximity to platforms, drilling rigs, Floating Production, Storage and Offloading unit (FPSO), single point moorings, sub-sea wellheads and special areas under field development;
- Bring the vessel to a complete stop in a safe area outside the 500m zone;
- Complete a *500m Pre-Entry Checklist* and make an entry into the Bridge Logbook regarding completion;
- Make a full assessment of present and expected current, sea, wind and swell conditions;
- Communicate with the installation and confirm the following:
  - Completion of the checklist;
  - Information relating to the planned or proposed operations;
  - Position and crane to be worked;
  - Specific information, such as, - diving - Remotely Operated Vehicles (ROV) - over-side working - flaring, discharges (such as dry bulk venting etc.) which might impact on safety of the vessel and crew;
  - Permission to enter the 500m zone;
- Enter the 500m zone at a safe speed using manual control of steering and propulsion;
- Whether working in manual control or Dynamic Positioning (DP) mode, the vessel *shall* be "set up" at least 50m from the installation in order to assess the station keeping abilities;
- Maintain station keeping for a period considered prudent with consideration to the environmental conditions to assess acceptable station keeping and ability of crew to perform work safety; such assessment *should* be at least 10 minutes in manual and 20 minutes in DP. Inform the installation related to this safety assurance assessment.
- When it is ascertained that the vessel can be operated safely - slowly maneuver into the working position;

- If the vessel is setting up on the weather side/up current side of an installation, the set up safety assessment position must be a minimum of 100m distant such that in the event of blackout, she *shall* drift clear and past the installation;
- Any discharges from the installation that may cause a threat to the health of personnel or a hazard to the vessel's safe operation are prohibited. This *should* be confirmed with the installation prior to commencing operations;
- If any discharges are planned that *shall* affect the vessel, the **Master/Bridge Watch Officer** *shall* agree a plan with the installation to ensure that communication of the event is given in a timely manner in order that the vessel may cease operations and stand off until the discharge operations have ceased;
- Always be aware that a loss of power or a technical failure may occur during the approach or manoeuvring exercise.

ALWAYS BE PREPARED FOR THE UNEXPECTED

4.1.3 Working on location

Soon after arrival, the scope and order of work *shall* be discussed and agreed, such as the following:

- Discharging and/or back loading of deck cargo;
- Bulk liquids and/or bulk solids;
- Handling anchors and associated equipment;
- Connecting/disconnecting a tow;
- Full pre-task safety planning *shall* be completed for each task, taking into account the situational hazards such as cranes, projections, flare booms, heli-decks, anchor wires, surface buoys, or installation propulsion thrusters;
- The vessel *shall* be properly 'set up' and stabilised. Giving due consideration to the vessel's position in relation to weather, current and sea state to minimise excessive motion and seas breaking onto the deck;
- If changing location from one working side to another, the move must be planned taking into account weather and current and any new hazards that may be present;
- Personal Protective Equipment (PPE) procedure requirements are to be followed at all times;
- Smoking is NOT permitted on deck at any time when within the 500m zone;
- Mobile phones *shall* not be used on deck within the 500m zone;
- If a Permit to Work (PTW) is required, authorisation *shall* be obtained from the OIM prior to commencing work.

4.1.4 Prior to departure

Prior to departure, the following requirements *shall* be performed:

- Preparation of a passage plan;
- All cargo and back load *shall* be secured and monitored during the subsequent passage;
- Take into account of the nature of any hazardous cargo and organise watches accordingly;
- Expected and prevailing weather conditions are to be established and reports monitored;
- When leaving the installation the **Platform/Field Coordinator** *shall* be given the time when leaving the installation/500m zone, the next destination and Estimated Time of Arrival (ETA);
- When working offshore the **Engine Watch Officer** responsibilities include the following:
  - Ensure engineering watch is aware of the nature of the vessels current tasking;
  - Ensure instant response to command the vessel;
  - Maintain maximum machinery efficiency at all times;
  - Promote a safe working environment;
  - Provide immediate response to emergencies (fire, flood, collision, machinery breakdown, steering gear breakdown);
  - Ensure permanent air pressure is available for sound signals;
  - Ensure standby machinery is at immediate notice;
  - Ensure emergency steering is ready for immediate operation;

- If local controls are fitted, ensure local control of machinery and steering gear is immediately available with suitably qualified and experienced personnel available to operate it. (Additional watch keepers may be required);
- Ensure all fire pumps are at immediate notice.

4.1.5 Standby at offshore location

Manning: The Bridge *shall* be manned with two seamen as a minimum: one **Bridge Watch Officer** + one **Watchman**. Additional **Officers** and/or **Ratings** and **Engine Watch Officers** in Engine Control Room at Master's/Bridge Watch Officer's discretion.

The **Master** is responsible for provision of standing instructions regarding vessel position and engine usage during periods of standby.

When standing by offshore and when in close proximity to an offshore installation, the following *shall* be taken into consideration:

- The safe stand-by area *shall* be well clear of any installation 500m zones;
- Safe locations *shall* always be to leeward (downwind, down current) of any installation with consideration to any prevailing drift;
- No entry into any installation 500m zone *shall* be made without the proper permission being granted;
- If circumstances permit and the safety of the vessel is not compromised, engine(s) and generator set(s) *should* be shut down in order to preserve fuel and limit emissions;
- When the vessel is standing by at customer's request for cargo or other offshore operations, approval from the customer or OIM *shall* be requested to shut down engines and generator sets.

246

4.1.6 Up weather/up current operations

This procedure applies when operating on the up weather/up current side of any offshore installation; strict compliance is essential to avoid a potential accident.

Masters are responsible for ensuring that this procedure is effectively implemented.

Whenever preparing to work on the weather side or up current side of an installation, the following *shall* be observed:

- Weather conditions, including current, *shall* be evaluated to determine if they are within the vessel's capabilities;
- Specific operational limits *shall* be established and adhered to North West European Area (NWEA) guidelines *shall* be applied where applicable;
- The 'set up' position *shall* be selected with consideration of plotted drift, in case of breakdown or propulsion failure so that the vessel may drift clear and past the installation without risk of collision;
- The vessel *shall* be 'set up' in a position at a minimum of 100m safe distance from the installation and clear of the structure;
- The vessel *shall* be 'set up' on a heading relative to the anticipated work;
- Station keeping *shall* be maintained in the 'set up' position for at least 15 minutes (30 minutes in DP) to assess station keeping ability;
- When the station keeping capabilities are assured, the vessel *shall* be slowly manoeuvred into the working position;
- Once in the working position, station keeping ability *shall* be re-assessed for another 15 minute (30 minutes in DP) period prior to any crane work commencing (including lowering hoses, etc.);
- The installation *shall* be notified in advance that these safety measures *shall* be undertaken.

The following matrix *shall* be used as Company weather limit matrix:

247

This matrix is a decision support. In any case it can not replace the environemental and weather information specified in the SMS procedures, JSA and check list .	Wheater conditions	Significant wave height / Swell < 2,5	Significant wave height / Swell < 4,5	Significant wave height / Swell > 4,5	Weather conditions including power requirement above 45% on main engines or thrusters.	Wind between 20 and 40 knots.	Wind above 40 knots.	Visibility < 500m	Vessel rolling heavily / moving violently affecting vessel station keeping or safety of crew.	Darkness	Forecast for limits to be exceeded.
ACTIVITIES											
Navigation		OK	OK	OK	RA	OK	RA	RA	RA	OK	RA
Navigation at Offshore Locations		OK	OK	RA	RA	OK	RA	RA	RA	OK	RA
Cargo Operations		OK	RA	RA	RA	RA	NO	RA	NO	RA	RA
Cargo and Hazardous Materials		OK	RA	RA	RA	RA	NO	RA	NO	RA	RA
Bunkering Operations		OK	RA	RA	RA	RA	NO	RA	NO	RA	RA
Lifting and Hoisting Operations		RA	NO	NO	NO	RA	NO	RA	NO	RA	RA
Personnel Transfer Operations		OK	RA	RA	RA	RA	NO	RA	NO	RA	RA
DP Operations		OK	OK	RA	RA	OK	NO	RA	NO	OK	RA
Anchor handling and Towing Operations		OK	RA	RA	RA	RA	NO	RA	NO	OK	RA
Methanol Operations		OK	RA	RA	RA	RA	NO	RA	NO	RA	RA
Mooring Operations		OK	RA	RA	RA	RA	NO	RA	NO	OK	RA

RA : Risk Assesment.

4.2 Manoeuvring

The *Pre-Arrival Checklist* for the bridge and engine room *shall* be carried out in good time before arrival at any location and prior to approaching an offshore installation. All systems *shall* be checked; propulsion; thrusters; steering; bridge and engine room communications and backup systems.

All control and command systems *shall* be checked and tested under the supervision of the **Bridge/Engine Watch Officers** as applicable.

Pre-departure verification *shall* be recorded on the *Pre-Departure Checklist* relevant for bridge and engine room respectively.

Communications between the bridge and engine room and the back-up steering gear *shall* be tested.

The emergency procedures using the local steering unit *shall* be posted near the primary steering gear in the steering gear room or as applicable.

4.2.1 Transfer of manoeuvring controls

The transfer of bridge manoeuvring controls from one mode or operating location to another (for example, forward to after control position) *shall* only be done in accordance with this procedure; strict compliance is essential to avoid a potential accident.

Masters *shall* be responsible for ensuring that the following procedure is effectively implemented:

- Check all control levers are in the correct/neutral positions;
- Ensure vessel movement and environmental impacts are fully considered;
- Check that engine controls are set to zero pitch;
- Check that rudder controls are set to the “mid-ships” position;
- Check that all controls are properly transferred and can be operated correctly;
- When transferring control between bridge and engine room, check that controls are set to zero before transferring and/or before acknowledging the transfer;
- When transferring from “manual” to “joystick” and/or back to “manual” - ensure the vessel is at a safe distance from the installation and sufficient time and space is available to revert to manual controls as necessary.

249

5 Records

- Bridge Logbook
- Pre-Arrival Checklist
- Pre-Departure Checklist
- 500m Pre-Entry Checklist

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- ISM Code

7 Terms and definitions

AIS
Automatic Identification System

BNWAS
Bridge Navigation Alarm Watch System

DP
Dynamic Positioning

250 **ETA**
Estimated Time of Arrival

FPSO
Floating Production, Storage and Offloading unit

ISM Code
International Safety Management Code

JSA
Job Safety Analysis

NWEA
North West European Area

OIM
Offshore Installation Manager

OSM
Operational Safety Management

PPE
Personal Protective Equipment

PTW
Permit To Work

ROV
Remote Operated Vehicles

TBT
Tool Box Talk

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Managers Director	BOS Operations Managers Director	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	-
Operations Department Project Manager	BOS Head of Operations		Ver.04 – 31/12/2014	§4.1.6 reviewed Company limit Weather Matrix

Navigation Standards and Equipment

252

BOS-PRD-07.900505-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Navigational standards and audits 5

4.2 Navigational equipment 5

4.2.1 Use steering systems/autopilot 6

4.2.2 Gyro and magnetic compass 6

4.2.3 Echo sounder 6

4.3 Radio communication equipment 6

4.4 Component or sub-component breakdowns 7

4.5 Charts and publications 7

4.5.1 Large corrections 7

4.5.2 Small corrections 8

5 Records 10

6 Related documents 10

7 Terms and definitions 10

8 Review, approval, revision and identification of changes 11

253

1 Purpose

The Company gives the highest priority to safe navigation practices and standards through the provision of regularly updated and robust instructions, procedures and guidance: ensuring that the latest legislation and best industry practices are implemented as early as is practicable.

Audits, inspections and monitoring are performed to confirm compliance and identify areas where improvement is needed; corrective action is swiftly taken and verified.

In compliance with the *ISM Code*, requirements of *OSM Guidelines* and industry best practices referenced in this document, this procedure has been developed and *shall* be used in association with in relation to management of risk.

2 Scope

This procedure has been established to ensure that:

- Reliance is not placed on single position fixing systems or techniques;
- Instructions for effective passage planning for all stages of the voyage, including information exchange with pilots and offshore installations, as applicable;
- Instructions for navigation in the proximity of offshore installations that include entry procedures for established safety zones;
- All **Deck Officers** receive appropriate training in ship handling and vessel-specific familiarisation, addressing maneuvering characteristics and operational control modes;
- Up-to-date copies of nautical publications, including revisions, amendments and chart corrections, are consistently available;

254

- The performance of bridge equipment is monitored consistently, and defect and reliability reporting measures are in place;
- The performance and effectiveness of bridge management teams are monitored so that any additional training needs (particularly those of **Junior Officers**) are identified, and arrangements are made to provide the required training.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that all **Officers** are fully conversant with the bridge navigational and communications equipment;
b) Conducting regular reviews off on-board compliance with navigational plans and procedures including passage plans and checklists;
c) Ensuring that all appropriate actions are taken to maintain the safety of the crew, the vessel and installations;
d) Ensuring the implementation of this procedure.

Bridge Watch Officers have the responsibility, authority and accountability for:

a) Applying this procedure.

Navigating Officer has the responsibility, authority and accountability for:

a) Correcting charts and publications.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for navigation standards and equipment are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

255

4 Description

4.1 Navigational standards and audits

The international navigational standards are set by IMO through instruments such SOLAS, COLREG and STCW. Other organisations such as the International Chamber of Shipping (ICS), the International Marine Contractors Association (IMCA), the Nautical Institute and the Oil Companies International Marine Forum (OCIMF) provide a valuable input to the safety of navigation and industry best practices.

The maintenance of navigational standards and conducting of audits *shall* be carried out by suitably qualified and experienced person(s) . Those persons involved *shall* have considerable experience in a senior position, **Master** or **Chief Officer**.

The **Master / Operations Manager** responsible for navigational standards (or his/her designated representative) *shall* regularly review navigation practices/procedures through audit reports, plus any information from independent inspections. He/she *shall* keep fully up to date with the latest legislation and with best industry practices. This information *shall* be disseminated through regular communications with the Company and **Masters**. He/she *shall* use all data gathered to ensure the maintenance of navigational standards.

An internal navigational audit *shall* be performed by the vessel master during each tour of duty, using the form *BOS-FRM-0701.0025 – BOS Navigation Audit*.

Formal, recorded navigational audit by the Company and **Master** *shall* be carried out at least annually, interspersed between shore based personnel and/or independent inspections: a standard questionnaire, which includes company specific requirements, *shall* be used. The audit *shall* be recorded and an audit report with the questionnaire, signed by the **Master**, *shall* be filed onboard and copies sent to the Company's **Operations Manager**.

256

Another one *shall* be carried out by a shore base personnel at least annually.

Moreover a suitably qualified independent surveyor will conduct a navigational audit at least annually to check the general navigational competence.

In real terms, the **Master** *shall* continually monitor the standard of navigation on a daily basis through (for example) checks on chart correction, and the adherence to passage plans.

Action points from all audits and inspections *shall* be followed up and monitored by the **Operations Manager**.

4.2 Navigational equipment

The navigation equipment requirement is in general terms dependent on ship type, service and gross tonnage.

Regardless of whether a vessel/unit is required by legislation to carry specific navigational equipment, if equipment is fitted, then it *shall* be operational. Such equipment may be a course recorder, off-course alarm, voyage data recorder, electronic chart display or engine order logger/printer, etc. Random checks *shall* be made to ensure that equipment is operational.

The navigation equipment *shall* be maintained in accordance with the manufacturers' instructions and records kept for verification.

4.2.1 Use steering systems/autopilot

Vessel steering systems *shall* be fully understood by **Bridge Watch Officers** and the Change Over Procedure from automatic to manual and/or back up steering mode *shall* be posted on the bridge in close proximity to the steering system and change over controls.

The use of the autopilot *shall* be authorised by the **Master** in his/her Standing Orders or as required under special circumstances.

The autopilot *shall* at all times be used responsibly with care and with due regard for the prevailing conditions.

Master *shall* pay particular attention for use of Autopilot in the following situations:

- Within harbour or port limits;
- Whilst navigating narrow waterways (such as narrow rivers, channels, etc);
- In areas of heavy traffic or other congestion (such as through anchorages, etc);
- Within offshore oil and gas fields or other areas of concentrated offshore structures and installations;
- Within the 500 m zone of an offshore installation;
- In any other situation as deemed prudent to safe navigation.

4.2.2 Gyro and magnetic compass

The **Master** is responsible for renewing the deviation card for the magnetic compass annually.

Magnetic Compass Error *shall* be confirmed as being in general agreement with the Deviation Card. Deviation curve(s) are to be displayed. Gyro and magnetic compass error logs *shall* be maintained and updated by the **Bridge Watch Officers**.

257

4.2.3 Echo sounder

The echo sounder recorder *shall* be switched on prior to each approach to shallow water and port entry and prior to departure and remain in operation while in shallow waters. The date and time of switching on *shall* be marked on the recorder chart. In addition, the date and time of passing significant land or seamarks *shall* be marked on the recorder. Many modern electronic echo sounders have an in-built 24 hour memory that can be recalled. If an electronic memory is not provided, the echo sounder *shall* be provided with a printed record.

4.3 Radio communication equipment

Every ship has to carry the basic equipment that is applicable to all waters, supplemented by additional equipment that extends the ships communications capabilities according to the specific waters in which she will sail.

In addition to the checks and tests detailed in Radio Watch Keeping, the following *shall* be checked regularly:

- Lists of radio signals are the latest edition and corrected to date;
- Operating instructions for emergency transmitter/auto key to be clearly displayed;
- EPIRB and SARTs to be regularly tested and their locations clearly marked;
- Survival craft portable VHF radios to be in good working order and charged ready for use;
- Emergency batteries to be in good working order, fully charged and their condition and testing logged;
- Handbook for GMDSS operations to be available;
- The radio and communications equipment *shall* be maintained in accordance with the manufacturers' instructions and records kept for verification.

4.4 Component or sub-component breakdowns

All component or sub-component breakdowns *shall* be reported as required to the **Master**. The **Master** *shall* determine the implications on the safe operation of the vessel and/or its role/tasks referring to the critical equipment analysis as required.

The **Master** *shall* ensure that all appropriate action is taken to maintain the safety of the crew, the vessel, other vessels or installations and the marine environment.

Any component or sub component breakdowns *shall* be reported via the Planned Maintenance System as an "unscheduled maintenance job".

A breakdown on a component under warranty is to be highlighted accordingly selecting "claim" as unscheduled job type.

4.5 Charts and publications

The maintenance of updated information, charts and publications, published by Flag administrations/IMO and maritime safety agencies is a statutory requirement.

The Company uses British Admiralty (BA) charts where available, however when no BA charts are available alternative charts *shall* be supplied.

All local charts, which are non BA, will be treated with caution and their use subject to a more detailed risk assessment to determine accuracy of information and validity.

The Company has the responsibility for the provision of chart corrections and new editions of publications to
258 vessels which will be achieved through establishing a contract with a Chart Agent for provision of appropriate corrections and supply of publications.

The **Navigating Officer** is responsible to the **Master** for correcting charts and publications.

Nautical charts and publications (light lists, nautical publications, instructions etc) *shall* be maintained up to date with the latest corrections.

A record *shall* be maintained of chart corrections noted on each chart as a "small correction notice" and separately in a specific Chart Correction Record Book.

Charts, Nautical Books, Notices to Mariners, and other documentation *shall* be studied before the passage plan is established.

Large scale charts *shall* be used when planning navigation along the coast or in restricted waters and smaller scale charts for navigation in the open sea.

Electronic Chart Display and Information Systems (ECDIS) *shall* be phased in as required by SOLAS.

To use ECDIS as a stand-alone system without paper charts, two fully independent, IMO type approved vector chart systems are required.

Updates and corrections to ECDIS *shall* be electronic, in some cases automatic through *Notice to Mariners*, and *shall* be arranged by the **Operations Manager**.

In the event that the vessel use only one stand-alone ECDIS system, the charts papers *shall* be used in addition as required by SOLAS.

4.5.1 Large corrections

Large corrections *shall* be carried out as follows:

- Check the charts carried on board against the Index of Affected Charts in the *Notices to Mariners* (NMs);
- Check which notices affect charts on board, and find the Notice in Section II;
- Check that the previous Notice has been applied to the chart (each chart has, at its bottom left, a list of corrections written on it by whoever corrected the chart. This information is also available in a separate Chart Correction Record Log that is maintained on board);
- If any charts have not been updated, they *shall* be corrected to the previous Notice before the current notice is applied;
- Tracings are used to correct charts, when available;
- Corrections are made in indelible ink, ensuring that standard symbols are used, that the correction is made neatly, accurately and does not obscure other information on the chart;
- After correction, an entry is made on the bottom left of the chart and the *Chart Correction Record Book*.

NOTE: At the bottom of each Notice is a list of all charts affected by it as well as the previous Notice, which affected that chart. The previous Notice may be sometimes years old, but this information assists in confirming that the last correction(s) have been made on the chart in question.

4.5.2 Small corrections

Small corrections *shall* be carried out as follows:

- Sections III and IV are detached from the NMs and filed: these give a list of Temporary and Preliminary Notices and Navigation Warnings still in force;
- Charts on board and in use in the present voyage are corrected for these Notices. The correction is made in pencil because these Notices are not permanent and may change quickly;
- While on passage, other Temporary and Preliminary Notices and Navigation Warnings may be received on Navtex or VHF. Charts in use *shall* be corrected as the information is received.

259

4.5.3 ECDIS – SENC (System Electronic Navigational Chart) information

SENC information available for display during route planning and route monitoring *should* be subdivided into the following three categories: Display base, Standart Display and All Other Information.

- Display to be permanently shown on the ECDIS display, consisting of:
  - Coastline (high water)
  - Own ship's safety contour.
    It *should* be possible for the mariner to select a safety contour from the depth contours provided by the SENC. ECDIS *should* emphasize the safety contour over other contours on the display.
  - Isolated underwater dangers of depths less than the safety contour which lie within the safe waters defined by the safety contour
  - Isolated dangers which lie within the safe water defined by the safety contour, such as fixed structures, overhead wires, etc.
  - Scale, range and north arrow
  - Units of gepth and height
  - Display mode

- Standart display consisting of:

  - Display base
  - Drying line
  - Buoys, beacons,other aids to navigation and fixed structures
  - Boundaries of fairways, channels, etc.
  - Visual and radar conspicuous features
  - Prohibited and restricted areas
  - Archipelagic sea lanes

- All other information, to be displayed individually on demand, for example:
    - Spot soundings
    - Submarine cables and pipelines
    - Details of all isolated dangers
    - Details of aids to navigation
    - Contents of cautionary notes
    - SENC edition date
    - Most recent chart update number
    - Magnetic variation
    - Graticule
    - Place names

260

5 Records

- Chart Correction Record Book
- Compass Error Logs
- Charts
- Nautical Publications
- Notices to Mariners
- Magnetic Compass Deviation Card

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- COLREGs
- ISM Code
- Manufacturers Maintenance Instructions
- Notice to Mariners
- BOS-FRM-0701.0025 – BOS Navigation Audit
- Resolution MSC.232(82)

7 Terms and definitions

BA
British Admiralty

COLREGs
Collision Regulations

ECDIS
Electronic Chart Display and Information Systems

EPIRB
Electronic Position Indicating Radio Beacon

GMDSS
Global Maritime Distress and Safety System

ICS
International Chamber of Shipping

IMCA
International Marine Contractors Association

IMO
International Maritime Organisation

ISM Code
International Safety Management Code

NTMs
Notices to Marines

OCIMF
Oil Companies International Marine Forum

OSM
Operational Safety Management

261

SART
Search And Rescue Transponder

SENC
System Electronic Navigational Chart

SOLAS
International Convention for the Safety of Life At Sea

STCW
Standards in Training, Certification and Watch-keeping

Sub-Component
Sub-component part of equipment

TBT
Tool Box Talk

VHF
Very High Frequency

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Manager Director	BOS Operations Manager Director	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	-
BOS Operations Department Project Manager	BOS Head of Operations		Ver.04 – 31/12/2014	Reviewed § 4.1 on navigational audit Add § 4.5.3 ECDIS – SENC (System Electronic Navigational Chart) information

262

SMS
Section 6

Operations and Contractor Management

BOS-MNL-07.900600-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3

1.1 Main Objective 3

1.2 Systems and Procedures 3

2 Review, approval, revision and identification of changes 4

3 Related contents 4

264

1 Introduction

1.1 Main Objective

Establish and consistently apply planning and operational practices and procedures that support regulatory standards and BOURBON policies.

Detailed procedures for operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, assets, and for the protection of the environment. Whilst the **Master** is ultimately responsible for shipboard safe operations, Head Office management is responsible and accountable for setting procedures and ensuring that they are maintained.

1.2 Systems and Procedures

The Company *shall* establish procedures to ensure that:

- Anchor handling, towing, and mooring operations are properly planned and executed and that mooring integrity is monitored;
- All cargo and ballast operations, including contingency measures, are thoroughly and sequentially planned;
- Vessel stability calculations are performed and properly reviewed. Stability computers, where fitted, are approved and run against test conditions where required, and that any defects are recorded and reported to Head Office management;
- The status and performance of critical equipment, plant and hardware used for operations that include, but are not limited to anchor handling, towing, mooring, lifting, cargo/ballast handling and safe access, are consistently monitored and maintained; and that defects are recorded and reported to Head Office management;
- Heli-deck operations are effectively controlled in accordance with accepted industry practices.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03- 03/12/2013	-
BOS Head of Operations	BOS Head Of Operations		Ver.04 – 31/12/2014	Modified term “guidelines” for procedures”

3 Related contents

1. BOS-PRD-07.900601 – Vessel Stability (SMS Section 6)
2. BOS-PRD-07.900602 – Cargo Operations (SMS Section 6)
3. BOS-PRD-03.900601 – Cargo and Hazardous Materials (SMS Section 6)
4. BOS-PRD-07.900603 – Bunkering Operations (SMS Section 6)
5. BOS-PRD-07.900604 – Lifting and Hoisting Operations (SMS Section 6)
6. BOS-PRD-07.900605 – Personnel Transfer Operations (SMS Section 6)
7. BOS-PRD-07.900606 – DP Operations (SMS Section 6)
8. BOS-MNL-07.900601 – Anchor Handling and Towing Manual
9. BOS-PRD-07.900609 – Methanol Operations (SMS Section 6)
10. BOS-PRD-07.900607 – Mooring Operations (SMS Section 6)
11. BOS-PRD-03.900603 – Tank Cleaning Operations (SMS Section 6)
12. BOS-PRD-07.900608 – Managing Contractors and Third Parties (SMS Section 6)
13. BOS-PRD-07.900610 – Helicopter Operations Procedure.
14. BOS-PRD-07.900611 – Helicopter Winching and Hoisting Procedure.

266

Managing Contractors and Third Parties

BOS-PRD-07.900608-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **6**

4.1 Procedural overview 6

4.2 Criteria for Contractor selection 6

4.3 Contractor selection and evaluation 7

4.3.1 Contracting HSE process for a Non-approved Contractor 7

4.3.2 Mode 1 8

4.3.3 Mode 2 8

4.3.4 Pre-contract award 8

4.3.5 Audit and evaluation 8

4.3.6 Post-contract award 9

4.3.7 Bridging documentation and HSE Plan 9

4.3.8 Kick off meeting 9

4.3.9 Sub-contractor HSE management supervision 10

4.3.10 Final evaluation and close out 10

5 Records **11**

6 Related documents **11**

7 Terms and definitions **11**

8 Review, approval, revision and identification of changes **12**

268

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

Policies, procedures and guidelines have been established to provide the information necessary to plan and control the safety of all **Contractor** and **Sub-contractor personnel** performing work on behalf of the Company or onboard Company vessels.

2 Scope

This procedure is applicable to the installation of extra equipment, supply of services and personnel by **Third Party Contractors** using ship's systems as necessary.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Providing all reasonable means of ensuring safety and safe working practices for all and any **Contractors**, **Sub-contractors**, client personnel or any other persons that work on or visit the vessel;
b) Ensuring that such persons perform in a manner which is consistent and compatible with Company policies, procedures and business objectives;
c) Forbidding the commencement or order the cessation of any work or operations, which in his/her good faith opinion, are likely to affect the safety of personnel, the environment, equipment or other assets;
d) Contacting the **Operations Manager/DPA** and **Contracts Manager** if any doubt.

Operations Manager has the responsibility, authority and accountability for:

a) Setting standards and ensuring that they are maintained;
b) Ensuring that the scope of work is clearly defined to **Contractors** and **Sub-contractors**;
c) Ensuring Contracting companies are evaluated and selected using defined criteria;
d) Assessing contractor HSE performance including self measurement, continuous improvement and reporting of defined KPIs;
e) Ensuring contractors' standard operating procedures are fully aligned with Company policies and SMS. This requirement *should* cover both vessels that are contracted in and personnel contracted to manage or undertake mission support and specialist roles on board.

Q & HSE Manager has the responsibility, authority and accountability for:

270

a) Providing advice, support or services on a routine or periodic basis;
b) Checking compliance and evaluating Q & HSE issues;
c) Reviewing audit services;
d) Providing support with additional advice, where needed, to small Contractors.

NOTE: The responsibility for overall HSE matters *shall* remain with the **Operations Manager.** Onboard the vessel, the responsibility for overall HSE matters *shall* remain with the **Master**.

Contracts Manager has the responsibility, authority and accountability for:

a) Liaising with clients and **Operations Managers** to ensure compliance with Company and Client requirements;
b) Ensuring Contractor evaluation is performed using applicable documentation;
c) Ensuring bridging documentation is prepared between Company and **Contractor.**

Technical/Purchase Manager (as applicable) has the responsibility, authority and accountability for:

a) Sourcing and initial selection of Contractors to support operational requirements;
b) Assisting with evaluation for Q & HSE requirements to meet Company standards and OSM requirements.
c) Ensuring compliance of this document to the related Company purchasing procedures.

Vessel Appointed Safety Supervisor has the responsibility, authority and accountability for:

a) Ensuring that the **Sub-contractor** understands the Company and vessel safety policies, procedures and expectations;
b) Ensuring that the **Sub-contractor** provides a 'point of contact'/'competent person' for the purpose of supervision and resolution of any safety and related issues;
c) Ensuring that an onboard safety induction is provided to all persons arriving onboard a vessel relating to Personal Protective Equipment (PPE) requirements, alarm signals, escape routes, muster-points and general shipboard safety and environmental requirements;
d) Ensuring that contracted workers do not create any unsafe working conditions by making periodic walk-through inspections of work areas and activities;
e) Ensuring that any changes to work schedules or job tasks are properly communicated and any key operational safety processes and practices are fully and correctly observed in accordance with Company SMS requirements.

Such key operational safety processes and practices include, but are not limited to the following:

- Requirements for wearing Personal Protective Equipment (PPE);
- Reporting of all incidents no matter how minor;
- Pre-Job Planning and Job Safety Analysis (JSA);
- Permit to Work processes as required;
- Identification, communication and elimination of all hazards;
- Personal behaviour and responsibility for safety and protection of the environment;
- Perform assurance checks on contractor's review and inspections and follow-up;
- Verify that hazards and effects management controls and recovery measures, as specified in the contractor's HSE plan, are implemented;
- Identify deficiencies in contractor's HSE plan and agree to remedial action with **Contractor** or instigate sanctions.

Under delegation from the **Master,** the following *shall* be stated to, or read by, **Sub-contractors** prior to any work commencing:

"BOURBON is proactive regarding all personnel working safely onboard any of its Company vessels. As the service Company performing work on the [vessel name] you are required to work according to the Company Safety Management System.

To this end and as a minimum, you *shall* work to the following Company instructions and any additional instructions given by the **Master** or appointed Deputy:

- Before boarding the ship, apply the appropriate PPE as required (ref. *BOS-PRD-03.900905 – Personal Protective Equipment*);
- On boarding the ship and following boarding induction, immediately report to the **Master** or appointed Deputy;
- Pre-plan and discuss the work in hand including as appropriate, the implementation of any applicable *Permit to Work (PTW);*
- As applicable, ensure that all tanks or enclosed spaces where any work may take place are gas free;
- As applicable, ensure that all open man-holes/work areas are safely guarded;
- On completing the work advise the **Master** or appointed Deputy and close out any PTW.

If there is any doubt as to the safe integrity of any operations, **Operations Manager/DPA** and **Contract Manager** *shall* be consulted.

Vessel Officers and ratings have the responsibility, authority and accountability for:

a) Informing any personnel employed by the client of any observed non-compliance with the Company safety, security, quality and environmental standards;
b) Informing the **Master/Bridge Watch Officer** of any such breach of standard when Company standards are not met or when a breach of security has occurred.

Contractor Site Representative responsibility, authority and accountability:
Where a **Contractor** may be working in a number of locations the **Contractor** *shall* nominate a **Site Representative** to supervise the work being executed under the contracts at specific locations as follows:

a) Ensuring that the scope of work is clearly defined by the Company;
b) To fulfill the pre-mobilisation and mobilisation of HSE requirements;
c) To implement the contract HSE plan;
d) To ensure that the HSE resources on site are maintained in compliance with the HSE plan;
e) To seek formal approval from the **Contractor** contract holder for any proposed deviations from or amendments to the HSE plan;
f) To implement additional requirements as agreed upon with the **Contractor** contract holder.

Sub-contractors/vendors/employees of the client have responsibility, authority and accountability:

a) To comply with Company safety and environmental policies, procedures and practices while engaged in work on or near Company property;
b) To inform the **Master/Bridge Watch Officer** of any such breach of standard when Company standards are not met or when any breach of security has occurred.

4 Description

4.1 Procedural overview

The scope of work to be performed is defined in *BOS-FRM-0701.0027 – Contractor request* by BOS Representative. This document *shall* be validated by both parts (**Contractor** + **BOS Representative**) before starting the work.

Company *Management of Change* (MoC) and *Job Safety Analysis* (JSA) procedures are a fundamental and integral requirement for managing Sub-contractors and their activities on board.

A single Safety Management System (SMS) *shall* be in place which *shall* be the vessel's SMS.

The Company *shall* ensure clear procedures are available for all involved responsible persons.

These procedures *shall* as a minimum:

- Include plans and schedules of activities;
- Include requirements for adequate risk assessment, *JSA* and hazard identification of all activities;
- Identify **Project Manager** or **Supervisor** to liaise with **Master** on mobilisation matters;
- Provide for continuity of personnel and effective information handover;
- Include for provision of Third party liaison.

All involved *shall* receive clear instructions including:

- Reporting of accidents, near misses and unsafe practices;
- Explanation of safety initiatives;
- Identification of **Vessel Safety Officer**;
- Identification of **Vessel Officer(s)** responsible for issuing *Permits to Work* (PTW);
- Action to take in the event of emergency alarms sounding;
- Escape routes and muster points;
- Company Policies;
- Raising safety concerns regarding the work.

272

In addition, ALL non-vessel personal *shall* receive a full induction logged in a *passenger/Contractor/Third Parties Familiarisation form*.

Meetings of key personnel *should* be held, preferably daily, to discuss progress, management of plan changes, problems and rescheduling.

A responsible **Vessel Officer** *shall* confirm adequacy, isolation and safety before newly installed equipment is connected.

4.2 Criteria for Contractor selection

The contractors *should* be selected on following criteria :

a) Environmental performance:
- Policy, procedures.

b) Work Equipment and tools:
- Suitability of equipment and PPE, maintenance standards.

c) **Personnel training and skills :**
- HR management system ensuring adequation and competence of personnel;
- Systems to provide appropriately screened, trained, qualified and experienced personnel.

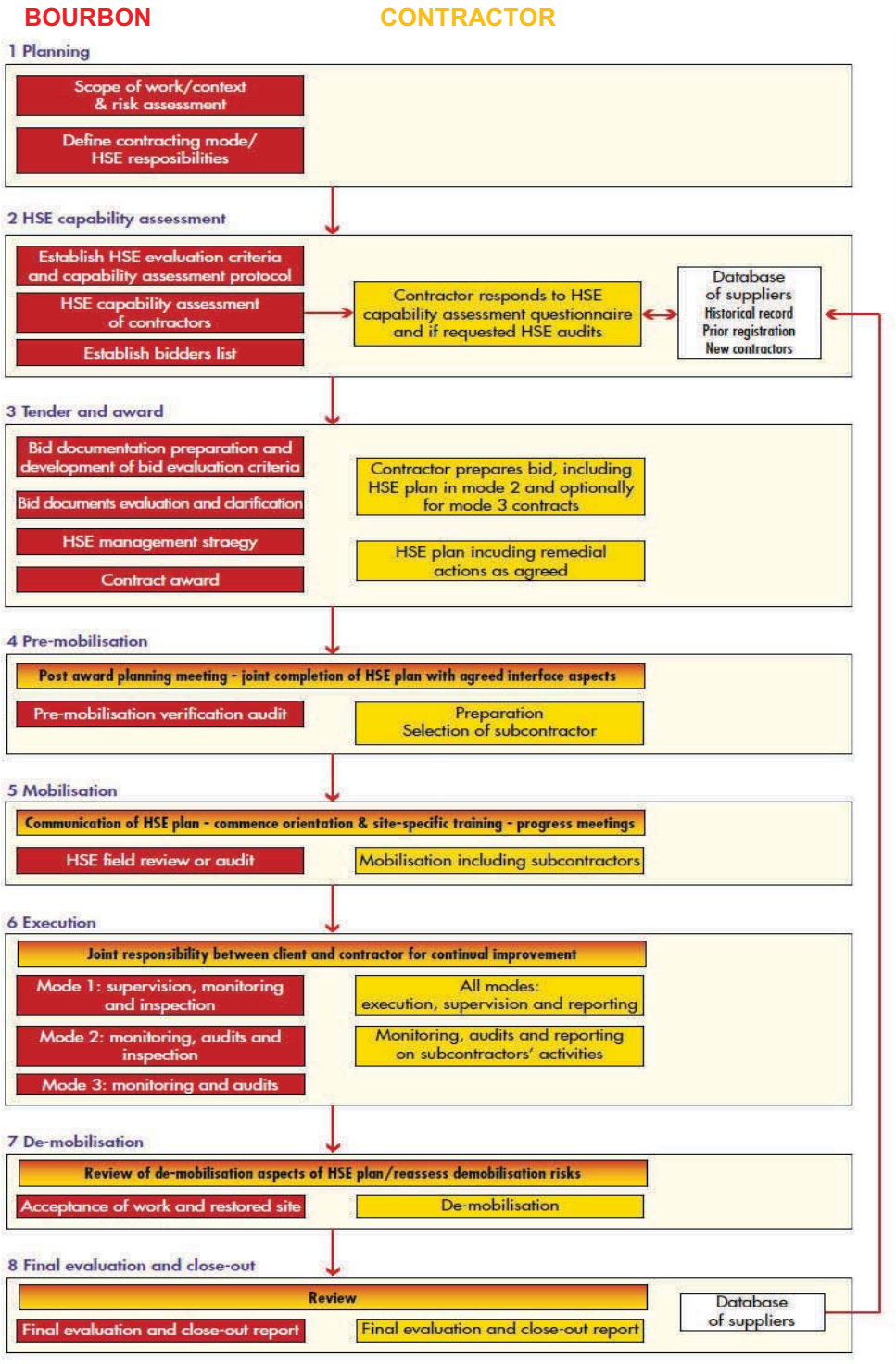
d) Management Systems and certification :
- Operating procedures, Company management systems.

e) Health and safety performance:
- KPI, incident investigation process, continuous improvement.

f) Rules and regulation appliance:
- Permits / authorizations, compliance to legal requirements.

4.3 Contractor selection and evaluation

4.3.1 Contracting HSE process for a Non-approved Contractor



One of the most important contract management decisions is to identify the mode which specifies the responsibilities for managing HSE between **Client** and **Contractor**, or alliance of **Contractors**.

Two distinctly different modes are described below.

Selection of only one of these modes is preferred and *should* be in alignment with local and national legislative requirements; however, in certain situations it may be necessary to adopt a mixture of modes 1 and 2.

The interfacing of activities between Company, **Contractors** and **Sub-contractors** *should* be agreed by making a gap analysis and assessment of their *Safety Management System*.

The SMS elements that take precedence *should* be specified by means of system bridging and HSE planning before work commences.

4.3.2 Mode 1

The **Contractor** provides people, processes and tools for the execution of the contract under the supervision, instructions and *Company Safety Management System* (SMS).

The **Contractor** has a management system to provide assurance that the personnel for whom it is responsible are qualified and fit for the work and that the processes, tools, materials and equipment they provide are properly maintained and suitable for the contract.

4.3.3 Mode 2

The **Contractor** executes all aspects of the contract under its own SMS, providing the necessary instructions and supervision and verifying the proper functioning of its SMS.

274

Company is responsible for verifying the overall effectiveness of the HSE management controls put in place by the **Contractor**, including its interface with **Sub-contractors**, and assuring that both Company and **Contractor**'s SMS are compatible.

4.3.4 Pre-contract award

Appoint a competent single point of contact contract holder who *shall* have responsibility for the following (E.g. **Operations Manager**):

- Conduct a structured HSE assessment of the anticipated contract;
- Assess contractor capability for establishing the bidder's list (if required) using standard HSE criteria;
- Prepare contract HSE specifications for inclusion in the tender documentation;
- Prepare an audit and assessment program to evaluate potential **Contractors**;
- Evaluate **Contractor**'s HSE plans and assure the adequacy of the **Contractor**'s HSE plan;
- Develop Company HSE action plan in line with *Management of Change* (MoC).

4.3.5 Audit and evaluation

The **Contractor SMS** *shall* be evaluated by use of Company *BOS-FRM-0701.0026 – Sub-Contractor Assessment* prior to commencement of work and on a yearly basis. Shipmanager may delegate the audit process to the Contracting company, and will recover the audit report for filing.

NOTE: When sub-contracting involves the use of 'Charter Party' agreements for vessels with Third party companies performing services for Company clients, an internal audit *shall* be conducted using Company audit protocol to identify any areas of non-compliance with contract requirements.

4.3.6 Post-contract award

The competent contract holder to be accountable for:

- Conducting a pre-execution HSE assessment and audit;
- Authorising the **Contractor** to commence work if the pre-execution HSE requirements are met;
- Monitoring performance of the **Contractor** against its HSE action plan;
- Authorising deviations from the **Contractor**'s HSE plan;
- Authorising additional HSE requirements as deemed necessary;
- Applying sanctions in the event of unauthorised deviations from the **Contractor**'s HSE plan;
- Preparing HSE close-out report using the *BOS-FRM-0701.0029 Sub-Contractor Appraisal Result*
- and distribute to appropriate **Client** and **Contractor** personnel for feedback.

4.3.7 Bridging documentation and HSE Plan

If identified during the assessment or audit, **Sub-contractor** bridging documents and any HSE Plans *shall* be prepared in order to ensure understanding of required emergency and safety procedures for **Sub-contractor** personnel working and being onboard Company vessels.

The **Sub-contractor** bridging documents and any HSE Plans *should* provide for the following:

- Contingency planning for medical emergency;
- Action plan, roles and responsibilities relative to *MoC* and *JSA*;
- Documented instructions with regard to HSE;
- Vessel specific safety requirements (to be written and provided on a vessel specific basis by the **Master** or his/her delegate);
- Identification of safety Representatives onboard (vessel and **Sub-contractor**).

275

The vessel **Safety Supervisor** and Sub-contractor representative is responsible for ensuring that all such information and associated requirements are clearly transmitted to the **Sub-contractor** workforce.

4.3.8 Kick off meeting

A post award meeting *should* be used as an opportunity for the **Contractor(s)/Sub-contractor(s)** to become familiar with the location, facility, personnel, and other relevant information.

The meeting is generally recognised as an important interfacing step in working together to prevent incidents. The topics covered by the meetings *should* include:

- Review of interface documentation;
- Review of associated major risk controls;
- Confirmation that the activities/deliverables described in HSE planning for completion pre-mobilisation *shall* be satisfactorily implemented including confirmation that roles and responsibilities have been clearly defined and understood;
- Confirmation of personnel competence. This includes both client and contract personnel who are exposed to workplace hazards as defined in the scope of work and risk assessment phases;
- Confirmation of benchmarking and any HSE Key Performance Indicators (KPIs);
- Explanation of the basic HSE rules and work procedures as defined in the HSE plan;
- Confirmation of the scope and schedule of HSE activities, E.g: HSE meetings, audits and reviews;
- Interaction of **Client's** and **Contractors** emergency plans (security, pandemic disease, evacuation etc);
- Contact with Third parties to assure their role in emergency plans is known;
- Confirmation that HSE induction and training plans are in place and ready for start-up;
- Briefing of Sub-contractor's management on HSE requirements;
- Incident reporting and investigation procedures;
- Process for agreeing upon, reporting, tracking and closing out non-compliance.

4.3.9 Sub-contractor HSE management supervision

QHSE Performance	Definitions	Mitigation
Excellent	Incident rates and KPI's at or lower than expectations for the past 2 years	– Continue with current practices
Good	Incident rates and KPI's meet expectations	– Address weakness identified in evaluation – Increase levels of supervision
Below Expectations	Incident rate and KPI's do not meet expectation	– Supervision on site for 50% of working time – Increased focus on safety meetings
Unacceptable	Incident rate and KPI's unacceptably below expectations	– Management meeting – Third party full time safety representative – Company safety supervision for 100% of working time

4.3.10 Final evaluation and close out

"Final evaluation and close out report" form *shall* be used. Records of such evaluation *shall* be kept at ship manager's office.

276

5 Records

- Contractor HSE Assessment;
- Contractor requests;
- Bridging Documentation/Specific Emergency Response Plans;
- Risk Assessment;
- Job Safety Analysis;
- HSE Plan;
- Approved Vendors list.

6 Related documents

- B-GDL-03.0007 – OSM Guidelines;
- Interface/Bridging Documents;
- Yearly Corporate HSE Plan;
- Contractor's HSE plan;
- Management of Change (SMS Section 7);
- Job Safety Analysis (SMS Section 9);
- BOS-FRM-03.0035 – Passenger Familiarisation;
- BOS-FRM-03.0053 – Visitor & Third Parties Famillliarisation ;
- BOS-FRM-0701.0027 – Contractor request;
- BOS-FRM-0701.0026 – Sub-Contractor Assessment;
- BOS-FRM-0701.0029 – Sub-Contractor Appraisal Result.

7 Terms and definitions

277

Contractor and/or Sub-contractor:
A person physically boarding Company vessels or attending bases, who provides goods or services to the Company under terms specified in a contract. Unlike a Company employee, a contractor does not work regularly for the company and is considered unaware of the *Company Safety Management System* requirements.

DPA
Designated Person Ashore.

HSE
Health, Safety and Environment.

JSA
Job Safety Analysis.

MoC
Management of Change.

OSM
Operational Safety Management.

PPE
Personal Protective Equipment.

PTW
Permit to Work.

SMS
Safety Management System.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS Operations Managers Director	BOS Quality Representative	01- 2013/03/11	Reviewing forms in §6. Related Documents.
BOS Operations Managers Director	BOS Operations Managers Director		ver.02 – 2013/05/15	Insertion of § 4.2.10 Modification of § 4.2.5
BOS Operations Managers Director	BOS Operations Managers Director		Ver.03 – 03/12/2013	-
BOS Ops Dept Project Coordinator	BOS Head of Operations			Reviewing § 3 and §4.3.5. Audit and evaluation and § 4.3.6 Adding § 4.2 Adding forms “Contractor request”, “Sub-contractor assessment” and “Sub-Contractor Appraisal result”.

278

Vessel Stability

BOS-PRD-07.900601-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Instructions to Master 5
4.1.1 Precautions 5
4.1.2 Stability assessment 5
4.1.3 Simplified calculations 6
4.1.4 Full direct calculations 6
4.1.5 Loading software for stability calculations 6
4.1.6 Stability software installation and use 6
4.1.7 Stability software loading condition test 7
4.1.8 Free surface effect 7
4.1.9 Free surface interactions on stability 7
4.1.10 Guarding against and preventing free surface effect 7
4.2 Cargo loading and discharge 8
4.2.1 Liquid cargo 8
4.2.2 Ballast tanks 8
4.2.3 Consumable tanks 9
4.2.4 Cargo tanks 9
4.2.5 Anti-roll tanks/flume tanks 9
4.2.6 Anti-heel tanks 9
4.2.7 Bilges, voids and overflow tanks 9
4.2.8 Deck cargo – effect of entrapped water 9
4.2.9 Watertight integrity 10
4.3 Damage stability 10
4.3.1 Specific company instructions for assessing consequences of damage 10
4.3.2 Specific company instructions in case of damage 11
4.4 Entering dry dock 11
4.5 Roll stabilisation systems 11
4.6 Icing 11
4.7 Anchor handling and towing operations 12

Records **12**

5 Related documents **12**

6 Terms and definitions **12**

7 Review, approval, revision and identification of changes **13**

280

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with the *ISM Code*, requirements of *OSM Guidelines* and industry best practices referenced in this document, this procedure *should* be used in association to management of risk.

2 Scope

Vessel stability is a paramount part of daily vessel management and *should* be considered and reviewed at ALL stages of the voyage and during operations.

This procedure applies to the following:

- Vessel stability – instructions to **Master**;
- Loading software for stability calculations;
- Stability during cargo operations and ballasting;
- Towing, anchor handling and lifting operations.

281

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation and application of this procedure onboard the vessel under his/her command.

Chief Officer has the responsibility, authority and accountability for:

a) Being the Designated erson for cargo and ballast operations (as required by *OSM Guidelines*).
b) Providing instruction and training to **Junior Bridge Officers** in this procedure to enable them to assume the responsibilities as **Bridge Watch Officer** during cargo and ballasting operations.

Bridge Watch Officer has the responsibility, authority and accountability for:

a) Assessing vessel stability at all times, for this he/she *shall* know the instructions from the **Master** and have expertise in conducting stability calculations;
b) Being informed of any of ballasting operations, transfers, and loading/unloading operations.

Engine Watch Officer has the responsibility, authority and accountability for:

a) Informing and referring to the **Bridge Watch Officer** before any ballasting operations, transfers, and loading/unloading operations; and obtain his/her agreement before starting.
b) Providing instruction and training to **Junior Engine Officers** in this procedure to enable them to assume the responsibilities as **Engine Watch Officer** during cargo and ballasting operations.

All **Crew** have the responsibility, authority and accountability for:

282 a) Applying and enforcing the *Stop Work Policy* in case of any action or event that may affect the vessel stability.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations of vessel stability are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Instructions to Master

The **Master** *shall* review the vessel's approved *Stability Booklet* and related stability assessments.

The **Master** *shall* ensure that the *Stability Booklet* and on board loading software are used properly in accordance with vessel stability instructions to the **Master** and related rules. The stability program/Loading software *should* be approved when being used as the main source of calculations.

Instructions to **Master**, as indicated in the *Stability Booklet*, *shall* be strictly adhered to at all times.

In any situation, the **Master** has the authority to refuse or stop operations if he determines the situation to be dangerous or at any time close up to vessel capabilities or operational limits.

Bridge Watch Officer *shall* be fully capable of carrying out stability calculations.

These instructions *shall* be highlighted during **Master/Bridge Watch Officer** handovers.

Stability calculations shall be kept onboard and filed for a period of 3 months (either in electronic or hardcopy form)

4.1.1 Precautions

Compliance with the stability criteria does not ensure immunity against capsizing, regardless of the circumstances. Nor does it absolve the **Master** from his/her responsibilities. The **Master** *shall* exercise prudence and good seamanship, having regard to the season of year, weather forecasts and the navigational zone, and *shall* take the appropriate action as to the vessels course, speed and operation warranted by the prevailing circumstances. 283

In case of loss of stability, it is reminded that in order to increase stability:
- capacities *should* be emptied to dry or filled full.
- All transfer that can lead to a reduced freeboard *should* be avoided.

4.1.2 Stability assessment

The stability in sailing condition *shall* be checked for all voyages. Additionally, the **Master** is to ensure periodically that the calculated displacement is in line with the actual displacement of the vessel by comparing draft mark readings.

The worst case (departure or arrival) *shall* be taken into account and in case of doubt; both cases have to be checked. For the purposes of this procedure, a voyage is considered to be a round trip from port and return to port.

The same applies for stability during towing, anchor handling and during lifting with cranes.

The loading conditions in the *Stability Booklet* provide representative loading conditions, that *should* be used as reference. The **Master** *shall* either compare his actual condition with a similar condition in the booklet and where necessary perform a full calculation or use a simplified stability calculation to estimate the stability of an actual condition of the vessel.

4.1.3 Simplified calculations

When using simplified calculations, the **Master** *shall* ensure that the vessel vertical height of the centre of gravity (VCG or KG) falls on or below the maximum allowed max Vertical Centre of Gravity (VCG) curves or tables and that the draft at the load line mark is not exceeded.

VCG curves are a set of curves for various combinations of displacements and trims and can be calculated showing VCG for which all required criteria are satisfied. They do not take into account any free surface effect so the actual loading case VCG value *shall* be corrected for the free surface moment before being compared with the curve.

4.1.4 Full direct calculations

If the **Master** has any doubts about the simplified assessment or finds actual VCG close to the VCG maximum, a full direct calculation *shall* be carried out by manual calculations using tank tables and hydrostatic data. When loading software is provided on board, it *should* be used in place of manual calculations.

Before carrying heavy loads, performing crane or anchor handling operations and any other operation with potential to have a severe effect on the vessel, special stability calculations *shall* be carried out to ensure that the condition fulfils the stability criterion.

Any loading condition calculated by the **Master** *shall* comply with the limiting criteria.

4.1.5 Loading software for stability calculations

284 All vessels (other than crew boats) *shall* be equipped with loading software for stability calculations. The software *shall* match with current applicable statutory and class requirements. In particular, software, calculations and installation on board *shall* be subject to Class review and approval.

4.1.6 Stability software installation and use

The loading software *shall* be installed on board with a redundancy.

Hardware is not subject to Class approval providing that the redundancy can be demonstrated.

Performance of the loading software is included in class survey scope. Class approval is subject to class tolerances regarding differences between software results and full direct calculations results.

The system *shall* be tested against Class approved Loading Conditions on a regular basis to ensure operational compliance, accuracy and performance standards. After installation, the approved loading conditions are to be calculated onboard by the vessel's personnel with a class society surveyor.

Load testing is the process of putting demand on a system or device and measuring its response. Load testing is performed to determine a system's behaviour under both normal and anticipated peak load conditions.

Records of the tests *shall* be maintained. The time and relevant details of all stability calculations *shall* be clearly recorded in the vessel's logbook.

Software manufacturers may differ between vessel types and therefore the software manufacturer reference manual and integrated 'HELP' menu *shall* be used for guidance on completing stability calculations and assessments.

The system *shall* be used whenever a stability calculation is required and the results compared with the results from the *Stability Booklet*.

4.1.7 Stability software loading condition test.

The purpose is to ensure the operational accuracy of the stability software and test records are maintained.

During the loading test, one of the ship's **Senior Officers** is to operate the loading instrument and calculate the test conditions using the *BOS-INS-0701.1403 - Test Procedure for Loading Computer Systems*.The results obtained from the loading software are to be identical to those stated in the stability booklet.

This test *shall* be perfomed at least annually.

4.1.8 Free surface effect

If a tank is completely filled with liquid, no movement is possible and stability is precisely the same as if the tank contained solid material. When a quantity of liquid is withdrawn from the tank the situation changes and the stability of the ship is adversely affected by what is known as the free surface effect.

The adverse effect on the stability is referred to as a loss in metacentric height (GM) or a virtual rise in Vertical Centre of Gravity (VCG).

The free surface effects of all slack tanks *shall* be taken into account in any calculations.

When it is intended to introduce or discharge ballast water during a voyage the **Master** *shall* prior to departure ensure that the required stability criteria is maintained at all times due to loss of stability by partially filled tanks.

The free surface *shall* be kept to a minimum; if possible only one tank of each kind of liquid *shall* have a free surface. The minimum GM *shall* be maintained as specified in the *Stability Booklet*.

285

When a tank is to be ballasted at sea, to counteract the loss of consumables it *shall* be noted that the tanks have a complete free surface as soon as ballasting commences and the free surface *shall* adversely affect the stability of the vessel before any benefit can be assumed from the weight of ballast water taken on board

Free surface values for different levels can be found in the tanks capacity tables.

4.1.9 Free surface interactions on stability

The maximum free surface moment of each tank *shall* be used when they are not full (pressed-up), or are not empty (stripped dry), throughout a given voyage. The influence of trim is usually **not** taken into account when hand calculating the free surface moments. Manual calculations are conservative because maximum free surface correction is used, whereas software calculates real free surface effect.

4.1.10 Guarding against and preventing free surface effect

To guard against and prevent free surface effect the number of partially filled tanks *shall* be kept to a minimum. Tanks that are either completely full or completely empty do not have a free surface effect and therefore do not reduce the vessel’s metacentric height (GM).

Anti-rolling tanks have a free surface effect, which decreases the vessel’s metacentric height (GM). They *should*, therefore, always be emptied when the metacentric height is small.

Free surface effects are not only caused by partially-filled tanks. They can, for example, also be caused by accumulated water on deck. To enable the water to run off quickly, a vessel *shall* have adequate freeing ports. Water *shall* flow easily to the freeing ports which *shall* always be clear.

When loading deck cargoes, care *shall* be taken to avoid any obstruction of the freeing ports or areas necessary for the drainage of pipe stowage positions.

Good drainage of decks *shall* be maintained at all times because water on deck reduces the stability of the vessel.

Unless otherwise specified, if the vessel is listing so that there is a danger of getting water on deck the **Master** *shall* make every effort to determine the cause of the list and take immediate action to reduce heel.

When pipe deck cargoes (or other cargoes liable to provide a temporary trap for water) are carried, adequate areas *shall* be provided between adjacent stowage racks and between the vessels structure and stowage racks to ensure free drainage of the pipe stowage positions: such areas *shall* be in excess of the freeing port area provided.

4.2 Cargo loading and discharge

When loading cargo, the **Master** *shall* ensure that the draft at load line mark does not exceed the Plimsol mark.

Should the value of the Plimsol draft fall above the maximum allowed, corrective action *shall* be taken to unburden the vessel as necessary.

Should the value of the vertical height of the centre of gravity (VCG) fall above the maximum allowed, corrective action *shall* be taken as follows:

- Check condition of the liquid tanks; they *should* either be full and pressed up or completely dry;
- Head into sea;
- Seek shelter and alert crew as good judgment dictates.

When loading cargo attention *shall* be paid to the need for maintaining freeboard at the stern with regard to the safety of the crew working on deck and to the adverse effect trim by the stern has on the stability of the vessel.

286

In addition, it *shall* be ensured that the stern trim limitation is maintained according the value given by the instructions in the *Stability Book*.

Care *shall* be taken to ensure that the cargo allocated to the ship is capable of being stowed, so that compliance with the criteria can be achieved.

Before a voyage commences, care *shall* be taken to ensure that the cargo and sizeable pieces of equipment have been properly stowed or lashed; to minimise the possibility of both longitudinal and lateral shifting while at sea under the effect of acceleration caused by rolling and pitching.

Cargo *should* be arranged, as far as possible, to be unloaded from the top, i.e. deck cargo *should* be discharged (heaviest items first) before any under deck cargo.

4.2.1 Liquid cargo

Always prefer loading tanks located at the bottom, but considering departure and arrival conditions.

Try to keep tanks distribution consistent between departure and arrival conditions at sea; E.g: minimise fluid transfer except for consumables and fuel oil.

Always consider tanks structural limitations and restrictions on loading/unloading systems.

4.2.2 Ballast tanks

Ballast tanks in any condition which are to be full *shall* be pressed full.

Tanks which are dry *should* be completely dry: left over levels/quantities *shall* be carefully estimated and entered in the stability calculations.

Tanks containing slack liquids *should* be kept to a minimum.

Minimise free surface moments by keeping tanks full or dry, whenever possible.

When a tank is to be ballasted at sea, to counteract the loss of consumables it should be noted that:

- The tanks *shall* have a complete free surface as soon as ballasting commences;
- The free surface *shall* adversely affect the stability of the vessel before any benefit can be assumed from the weight of ballast water taken on board.

4.2.3 Consumable tanks

FO/LO tanks: 90% filling when an overflow system is installed.

If there are no overflow system/tanks and for operation reasons, the filling is limited to 80/85%, FSM correction *should* be duly taken into account.

Fresh water tanks: 98/100% filling.

4.2.4 Cargo tanks

When liquid cargo is to be loaded or discharged, as soon as pumping has commenced a full free surface *shall* exist in those tanks being pumped and the effect this has on the stability of the vessel taken into account.

4.2.5 Anti-roll tanks/flume tanks

287

Anti-roll tanks *shall* be filled for standard sea-state operation and taken in to account for all stability calculations.

50% filling *shall* be assumed in absence of information on the system.

Anti-roll tanks *shall* be dry or filled at 100% for lifting, and/or towing/anchor-handling operations.

4.2.6 Anti-heel tanks

Unless specified in the approved stability documentation, it is not allowed to ballast the ship during crane movements.

During the lifting procedure the maximum angle of heel is determined in the approved stability documentation.

When the maximum crane operating angle is nearly reached the crane operation has to stop and the vessel needs to ballast in a way that the lifting procedure can proceed, without exceeding the maximum specified angle of heel to either side.

4.2.7 Bilges, voids and overflow tanks

The vessel bilge, overflow tanks and voids spaces *shall* be kept pumped to a minimum content at all times consistent with pollution prevention requirements.

4.2.8 Deck cargo – effect of entrapped water

When pipes are carried on deck (or other cargoes liable to provide a temporary trap for water), a volume of entrapped water *shall* be assumed.

The effect of the weight of trapped water on the vertical centre of gravity and trim of vessel *shall* be taken into account.

The weight of water is included in the cargo dead-weight permitted.

The minimum GM limitations of max VCG limitations *shall* not be exceeded and *shall* include the effect of entrapped water in deck cargoes in the total VCG for the relevant conditions.

The quantity of water assumed to be trapped in and around the pipes is equal to a certain percentage of the net volume of the pipe deck cargo. The net volume *shall* be taken as the internal volume of the pipes plus the volume between the pipes.

The percentage of the net volume used to obtain the quantity of trapped water is based on the freeboard amidships, as follows:

- 30% if the summer freeboard amidships to the main deck is equal to or less than 0.015*L;
- 10% if the summer freeboard amidships to the main deck is equal to or greater than 0.03*L;
- For intermediate values of the freeboard amidships, the percentage may be obtained by linear interpolation.



L is Length (see International Load Line Convention).

4.2.9 Watertight integrity

Watertight integrity *shall* be maintained at all time; this includes, but is not limited to the following:

- Closing external doors;
- Maintaining internal watertight doors closed at sea at all time;
- Keeping any openings on the deck always closed; hatch covers, manholes except when necessary for operations in port;
- Checking that any devices to prevent progressive flooding are kept closed.

288

Any other openings that could allow water to enter into the hull or deckhouse, such as air pipes *shall* be kept closed when rough weather or sea conditions exist or are anticipated.

Any cross connections between port and starboard tank pairs *shall* be kept closed at all times when underway, the number of partially filled tanks *shall* be kept to a minimum at all times.

All ventilators on cargo deck *shall* be closed unless the operational condition requires some of them to be open.

Maintenance of all these watertight closing means *shall* be observed.

4.3 Damage stability

4.3.1 Specific company instructions for assessing consequences of damage

The *Stability Booklet* includes general precautions for prevention of unintentional flooding:

- Watertight integrity *shall* be maintained at all times, any instruction/recommendation regarding keeping watertight openings closed *should* be adhered to at all times;
- Loading condition VCG shall be below damage maximum VCG curve;
- Damage control plan *should* be available, giving the full list and position of all openings.

Proper assessment has to take place to assess which compartments could be flooded and the points of ingress that may lead to flooding of nearby compartments.

4.3.2 Specific company instructions in case of damage

In case of flooding, proper investigation *should* take place before any action:

- Any progressive flooding of undamaged spaces *shall* be prevented;
- Extend of damage *shall* be established as soon as possible (it may not correspond to any damage case analysed into *Stability Booklet*);
- Vessel stability *should* be assessed based on the actual extent of damage and spaces flooded;
- In case of any corrective action (ballasting) to improve the vessel stability condition it *should* be verified that the minimum required stability *shall* be maintained at any stage of the correction. Special care to cross section valve opening *should* be considered.

The residual calculated heel in damage condition *shall* be limited, and water on deck best prevented.

For the preparation of specific operations such as lifting operations, towing or anchor handling operations, the standard damage conditions requirements can be disregarded. It is supposed that such a specific operation would be immediately stopped in case of damage to the vessel.

4.4 Entering dry dock

Before docking the vessel, the **Master** *shall* check:

- The weight of the vessel: it is recommended that the vessel be kept as light as possible;
- The trim of the vessel: for correct keel docking, set the trim even keel or slightly down by the head;
- The hull fatigue: by keeping bending moments and shearing forces to acceptable levels to prevent damage to bottom of the vessel.

Specific attention *should* be given to the tanks that are filled in relation to preparation of the number of keel blocks supporting the below structure.

The **Master** *shall* check that the vessel is in an acceptable stability condition prior to entering the dry dock. The lightest condition *shall* be observed.

Before entering a port with threshold (minimum available water) the **Master** *shall* check that vessel draft is not exceeding threshold draft. Trim and speed (squat effect may be observed) *shall* be considered with particular care.

4.5 Roll stabilisation systems

The **Master** *shall* refer to the vessel specific instructions and limitations as described in the *Stability Booklet*.

In all loading conditions where the stabilising systems are included, the system *shall* be tuned to their working level, according to designer specifications based on vessel rolling period.

For stabilisation tanks, the full free surface loss *shall* be taken into account when assessing the vessels stability.

Roll stabilisation systems reduce the stability of the vessel and they *shall* be inactive for all stability critical operations.

Stabilisation tanks *shall* be kept empty or full in such situations.

4.6 Icing

If the vessel is engaged in waters where the possibility of top-side icing may occur the **Master** *shall* take action as deemed necessary, either to remove the ice or at least to keep it to a minimum; bearing in mind that the topside icing *shall* adversely affect the stability of the vessel.

If an Ice Class notation is assigned to the vessel, the loading conditions as presented in the *Stability Booklet* *shall* take into account the applicable Class and/or regulatory requirements.

4.7 Anchor handling and towing operations

If vessel is engaged in towing or anchor handling operations, the **Master** *shall* refer to *Anchor Handling and Towing Operations*.

Records

- Log Entries
- Verification Calculations
- Stability Booklet records

5 Related documents

- B-GDL-03.0007 – OSM Guidelines
- B-POL-01.0003 – Stop Work Policy
- BOS-MNL-07.900601 – Anchor Handling and Towing Operations Manual (SMS Section 6)
- International Load Line Convention
- Stability Booklet
- Vessel Stability Calculator - (software) instructions
- Germanischer Lloyd Edition 2013
- BOS-INS-0701.1403 – Test Procedure for Loading Computer Systems

290

6 Terms and definitions

FO
Fuel Oil

FSM
Free Surface Moment

GM
Metercentric Height

ISM Code
International Safety Management Code

JSA
Job Safety Analysis

LO
Lube (Lubricating) Oil

OSM
Operational Safety Management

TBT
Tool Box Talk

VCG
Vertical Centre of Gravity

7 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS Operations Managers Director	BOS Quality Representative	Rev.01- 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 -03/12/2013	-
BOS Ops Dpt Project Coordinator	BOS Operations Department Director		Ver 04- 31/12/2014	Added § 4.1.7 Stability software loading condition test. In related documents, added Germanischer Llyod edition 2013 and instruction note BOS-INS-0701.1403

Cargo Operations

BOS-PRD-07.900602-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Cargo planning 5

4.2 Cargo Operation Monitoring 5

4.3 Cargo planning prior to loading in port 5

4.4 Cargo Manifests/loading lists 6

4.5 Cargo securing 6

4.6 Use of tag lines 7

4.7 Clear Deck Policy 7

4.8 Departure and arrival checks 7

4.9 Dry bulk cargos 8

4.9.1 Prior to commencement 8

4.9.2 During bulk cargo operations 9

4.10 Manual Sounding Methods 9

4.11 Bulk liquids and hydrocarbons 10

4.12 Transfer of liquid/wet bulk drilling products 11

4.13 Working at offshore locations 11

4.14 Loading/back-loading 12

4.15 Working with hoses 13

4.16 SIMOPS 15

4.16.1 No risk of environmental spills 15

4.16.2 Risk of environmental spills 15

4.17 Ship to Ship transfer: 16

5 Records 16

6 Related documents 17

7 Terms and definitions 17

8 Review, approval, revision and identification of changes 17

293

1 Purpose

These procedures apply to cargo and ballast operations and compliment the requirements and guidance given by IMO and industry.

2 Scope

Applies to operations involving:

- Deck cargo;
- Dry bulk;
- Wet bulk products;
- Drilling products containing hydrocarbons;
- Discharging and backloading;
- Working with hoses.

294

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring implementation and compliance of all safe practices related to cargo operations onboard the vessel under their command;
b) Applying this procedure.
c) Monitoring the loading/offloading cargo and all documents available to identify compliance of the company procedure.

Chief Officer has the responsibility, authority and accountability for:

a) Consulting with the Charterer's Representative;
b) Preparing a Cargo Plan (including deck cargo and below deck bulk cargo as applicable).

Bridge Watch Officers have the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations of this procedure.
b) Ensuring that the Cargo Plan is discussed with the supervisor of the stevedores.

Chief Engineer has the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations of this procedure related to engine room practices.

Operations Manager has the responsibility, authority and accountability for:

a) Setting standards and ensuring that they are maintained;
b) Ensuring that the requirements and expectations of cargo operations are communicated and implemented onboard all vessels under his/her jurisdiction.

295

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Cargo planning

Cargo Plans *shall* be prepared prior to loading of vessels, with particular attention to the following:

- Deck loading;
- Vessel stability;
- The intended voyage (discharge sequence);
- Personnel safety.

4.2 Cargo Operation Monitoring

Monitoring *should* include confirmation that the vessel complies with requirements of the procedure, such as port restrictions and shipboard limits including stress and stability and maximum loading capacities.

4.3 Cargo planning prior to loading in port

In making the Cargo Plan, the following considerations (as a minimum) *shall* apply:

- The type and amount of cargo, giving specifics such as pipes, heavy lifts, containers, baskets and dry bulk;
- Stability and trim considerations, ensuring that the vessel's stability stays within the permitted limit (stability and trim must be monitored during loading/discharging and sailing);
- The identification and order of installations to visit, including any priorities;
- Any possible restrictions at installations (crane reach, installation orientation);
- The expected weather conditions that may be encountered;
- The cargo positioning, loading and offloading sequence *shall* be agreed to be in compliance with the installation routing order.

296

When practical, the best practice is to load and stow large and heavy items against the vessel crash rails/cargo rails and smaller, lighter items inboard of them and towards the centre of the deck, which *shall* ensure that the large and heavy lifts can be adequately secured against the crash/cargo rails whilst giving protection to the smaller lighter items.

Provision *shall* be made to ensure that electrical connections on refrigerated containers to be protected from positions of anticipated sea spray and sea wash; whenever possible.

Any dangerous goods/hazardous materials/marine pollutants *shall* be declared, clearly identified, properly packaged and labelled (in compliance with the *IMDG code*) and arrangements made for their safe segregation as per the company SMS and vessel's requirements.

Applicable *Material Safety Data Sheets* (MSDS)/*Product Data Sheets* and any other required documentation for hazardous material *shall* be provided.

The allowance of any required space for back-load and/or passenger transfer is arranged (as applicable).

Safe accesses to the cargo, to shelter and to safe areas on deck are preserved for crew when at sea.

Any bulk tanks are clean and approved for the intended product. The charterer's representative *shall* confirm that the tanks are clean, give approval to load and verify this by signing a Bridge Logbook Entry.

If any tanks were previously used for a different bulk cargo, the charterer's representative *shall* approve "loading on top" and verify this by signing a Bridge Logbook Entry.

Loading of hydrocarbon products *shall* carried out as per the standard bunkering operational procedures (See *Bunkering Operations*, SMS Section 6).

Special consideration *shall* be given to any heavy or otherwise difficult or unusual lifts and required sea-fastenings.

4.4 Cargo Manifests/loading lists

Cargo Manifests *shall* be provided prior to loading to assist with cargo planning. If is not practical due to the 'last minute' requirements of offshore activities a provisional manifest or loading list *shall* be provided to the vessel.

The **Master** *shall* ensure that full details of all dangerous goods and marine pollutants are received prior to departure from the port or the offshore installation, to avoid potential legal liabilities.

Offshore, the installation is responsible for giving prior notice to the vessel whenever there is any intent to backload any hazardous material or dangerous goods.

The **Master** *shall* consult with the **Contracts Manager** when any doubt regarding shipping of dangerous goods and marine pollutants exists in order that suitable measures for segregation can be planned.

The inbound manifest *shall* be given to the customer representative before unloading begins.

Should any conflict of requirements occur the **Master** is to communicate the facts at the first opportunity to the **Contracts Manager** who *shall* seek to resolve the conflict with the customer and keep the **Master** informed.

A copy of the final Cargo Manifest *shall* be received before departure from port or location and the loaded cargo checked off against it. The manifest *shall* describe the following:

- Destination of the cargo items;
- Number of items onboard;
- Description of the cargo items (container, box, basket, bundle);
- Weight of each item;
- Applicable - Dangerous goods declaration note;
- Applicable - MSDS/Chemical and toxic data sheets.

297

4.5 Cargo securing

Before securing cargo the approved *Cargo Securing Manual* *shall* be referred to.

It is required that all cargo items *shall* be visually checked on loading by the crew to ensure compliance and to identify/remove any overlooked hazards *should* these be present.

Cargo and back load *shall* be loaded in such a manner to ensure that it can be adequately secured against shifting.

Irrespective of the weather and sea conditions and however short the run the cargo *shall* be secured using adequate restraints.

Restraints are to be in place prior to the vessel departing sheltered waters outbound (ideally prior to leaving the berth) and as soon as possible when back loaded offshore.

The securing restraints/lashings are to remain in place until the cargo is off loaded.

Restraints *shall* be rigged so as to deny any initial movement of any cargo item. Use of pipe stanchions *shall* be considered whenever tubular cargos are carried.

When determining the type and extent of restraining arrangements required the **Master** *shall* consider the following factors:

- The motion characteristics of the vessel;
- The anticipated weather conditions;
- The freeboard;
- The nature of the cargo;
- The number of installations to be worked.

4.6 Use of tag lines

Tag lines are particularly useful with alignment of cargo on fixed platforms and with flat bed motor vehicles (trucks) however they can introduce additional hazards and risks on the deck of a moving supply vessel where work areas and escape routes are often severely limited or restricted.

Some clients have a requirement for compulsory tag line use on all crane lifts and efforts *shall* be made to comply with clients requirements, including appropriate risk assessment to adequately manage the requirement. However, this requirement does not necessitate approaching suspended loads or making attempts to hold or secure tag lines in efforts to assist crane operators positioning cargo.

Risk is manageable by elimination of hazards and remaining clear of a swinging load until it has been landed; compliance with the Clear Deck Policy is a safe approach that *shall* ensure risk is maintained to an absolute minimum.

Special provision is made for giving assistance with personnel transfers (Billy Pugh/Frog) whereby crew are permitted to assist in the safe operation of the transfer by handling the attached tag line.

298 More specific details can be found in the *Guidelines for the Safe Packing and Handling of Cargo to and from Offshore Locations*, Appendix 11 – UKOOA.

4.7 Clear Deck Policy

BOURBON has adopted a Clear Deck Policy for all crews working with suspended loads on all Affiliate Company owned and operated vessels as below;

All personnel *shall* remain within designated safe areas until suspended loads have been finally positioned and landed by crane operators and pendant or stinger lines are slack and free from tension or crane operated movement; this requirement applies to port and similar location operations.

4.8 Departure and arrival checks

The following arrival and departure checks *shall* be made:

- All lifting material is certified as per lifting equipment procedures;
- Cargo lifting arrangements (slings, shackles etc) are identified by the colour code in operation and their good condition visually confirmed;
- Cargo carrying units (containers, baskets, skids, boxes etc) are confirmed as being in good condition and are suitable for purpose;
- All slings on any bundled cargo items (drill pipe etc) are tight and sufficient;
- Each cargo item has been be visually checked to ensure that no loose items such as tools, shackles, debris could fall and cause injury;
- Any container or basket doors and other openings are properly fastened and secure;
- Any items loaded on skids, inside open top cargo carrying units or any other carrying unit with access is properly and adequately secured;
- The electrical connections on any refrigerated containers are compatible with the vessel's deck connections and that the unit's compressors operate properly after being connected. Report any malfunction to the **Contracts Manager** or the installation responsible person if back loaded offshore;
- Ensure that all cargo units are ready to be hooked up for lifting;

- The lifting ring is within easy reach of deck crews.

4.9 Dry bulk cargos

For dry bulk cargo loading the applicable checklists *shall* be properly completed.

All hose connections *shall* be appropriately colour coded. Caution *shall* be exercised with regard to colour coding as it has been known to vary in different geographic locations and between installations.
Self sealing quick release couplings *shall* be used for all liquid products except water.

In port, a **Watchman** provided with means of communication to both the bridge and the quay, *shall* monitor the hoses from the quayside connection to the deck connection. The **Watchman** *shall* pay special attention to:

- Any leakage on hoses;
- That hoses have enough slack and that no sharp edges can damage the hoses;
- That hoses are adequately secured; this is particularly important for the vent hose that *shall* usually be weighted;
- That all moorings are maintained so that no strain is imposed on the hoses by vessel movement,
- When the hose is connected and lines are set, the provider shall be directed to start pumping at a slow rate;
- For dry bulk transfers purge air shall be utilised prior to bulk transfer to clear lines and to prove connections;
- If the cargo is confirmed as entering the correct tanks, no leaks are observed, and a good vent has been obtained (dry bulk), the provider shall be advised to increase pumping up to the full delivery rate.

299

4.9.1 Prior to commencement

Prior to commencement dry bulk tanks *shall* be inspected to ensure they are ready for loading, the applicable checklist is completed and the following points *shall* be confirmed:

- No residue remains from a previous cargo unless loading on top has been agreed in advance;
- Tanks are not pressurized;
- Internal tank surfaces are dry;
- Tank baffles or similar equipment required for discharging cargo are in good condition;
- Seals on tank accesses are in good condition;
- A proper vent line has been connected;
- The correct tank(s) is/are selected for the product;
- The type and quantity of product to be discharged and order of discharge;
- The Specific Gravity (SG) of the product must be provided and updated in the system;
- Estimated pumping rate for each product;
- Length of warning/estimation of time required to stop;
- Whether stop *shall* be initiated from the vessel, quay side or installation;
- Emergency Stop procedure established.
- To avoid any injury or damage, before a dry bulk transfer between rig and vessel, ask the rig to ensure that hose sent to vessel is OPEN and with NO CAP.This is the only way to ensure that no air flow is present in the hose sent on board.
- All piping systems shall be carefully checked by Engineer in engine room and on deck before starting transfer

4.9.2 During bulk cargo operations

The **Master** or person appointed for the task *shall* ensure that he/she can see the bulk hose(s) at all times and he/she *shall* not allow other operations to distract his/her attention away from the hose(s).

The bridge and installation responsible or shore provider (as applicable) *shall* confirm quantities discharged and received.

The deck crew, installation crane driver or shore provider (as applicable) *shall* be readily available and close at hand throughout any transfer operation.

Sufficient warning *shall* be given by each party prior to changing over tanks.

Installation, provider or vessel valves *shall* never be closed against an operating cargo pump.

If at any stage in the operation, the **Master**, provider or installation responsible are in any doubt as to the integrity of the operation, then the operation *shall* be terminated.

The loading rate *shall* be reduced to a manageable level to allow the receiver to top off tanks safely.

When pumping has finished, purge air *shall* be used to clear the lines (dry bulk).

Pressurised air *shall* be released before disconnecting the hose (dry bulk).
When the hose is disconnected the end *shall* be fitted with a suitable cap or blank.

During periods of darkness, adequate illumination *shall* be available throughout the operation.

All bulk hoses used offshore are to be of sufficient length for safe operation and have internally swaged or
300 other approved clamp fittings.

Unapproved repairs to hoses *shall not* be made. In the transfer of bulk products, consideration *shall* be given to the fitting of self-sealing weak link couplings in the hose string.

4.10 Manual Sounding Methods

Manual Sounding Method:

Sounding is a method used to measure the height of the fluid from the surface of the fluid to the bottom of the tank.

The vessels are equipped with sounding tubes and reinforcing plates under the tubes. Sounding tubes are steel pipes which lead upwards from the ships' tanks to a place on deck.
In this method, a sounding device is used with a heavy weight bob attached to one end of the sounding device using a strap hook. To perform the measurement the sounding device is passed through the sounding tubes. The weight of the lead of the sounding device strikes the reinforcing plates when it reaches the bottom of the tank. The height of the fluid can be measured from the markings made by the fluid on the graduations of the sounding device.
The volumetric quantity of the tank *shall* be determined by the sounding table in the sounding book.

Ullage measurement Method:

Ullage is the void space in the tank, measured from the top of the tank to the upper surface of the fluid.
The ullage device may be portable and hand carried and/or motorized. The measurement can be performed by the opening of the ullage hatch (ex: man-hole’s cap located on the upper part of the tank).
The volumetric quantity of the tank *shall* be determined by the ullage table in the sounding book.

Nota: If the primary gauging system of the vessel is the manual sounding then the secondary gauging system *shall* be the manual Ullage measurement.

4.11 Bulk liquids and hydrocarbons

The transfer of bulk cargo in port and particularly offshore is a potentially hazardous operation and *shall* be conducted in a safe and controlled manner. Offshore bulk cargo operations require a vessel to maintain position alongside an installation, sometimes for extended periods.

Prior to the start of any bulk transfer operation, an applicable checklist *shall* be completed, a cargo transfer plan formulated and agreed with the other person responsible for the pumping or reception of the product.

The plan *shall* include, as a minimum, the following:

- Product to be loaded;
- Tanks to be used;
- Load/discharge rates required/possible;
- Procedures for topping off tanks;
- Procedure for emergency stops.

All external hot work *shall* be stopped and hot work permits revoked if a hydrocarbon based product is to be loaded. (Impose no smoking conditions).

Check loading/discharge line and tank valves are correctly set.

If more than one product is to be loaded/discharged simultaneously, ensure that correct hose is fitted to appropriate coupling.

301

Check condition of loading/discharge hoses.

Ensure moorings are maintained such that no strain is imposed on the hose(s) by vessel movement.

Ensure there is sufficient scope of hose deployed to cope with any ranging of the vessel.

Establish communications routine with other party.

Confirm correct operation of vessel’s tank level remote monitoring system.

Manual verification checks of the level monitoring system *should* take place during loading of liquids, especially when loading to near maximum capacity of individual tanks.

Ensure a **Watchman** with suitable communication equipment is on duty at the deck manifold.

Complete and sign off any dangerous goods safety checklist.

Ensure that Todo or equivalent connections are fitted for hydrocarbon loading and transfer.

Fuel *shall* not be loaded using screw couplings of the Weco type.

Ensure that all pollution prevention equipment is in place as per the vessel’s SOPEP/SMPEP.

Provide at vessel hose/manifold/reception site drip trays, fire hoses and fire extinguishers.

Port/base operators’ emergency pollution procedures on display.

All piping systems shall be carefully checked by Engineer in engine room and on deck before starting transfer

4.12 Transfer of liquid/wet bulk drilling products

Only hoses that have been inspected and tested in accordance with the manufacturer's recommendations *shall* be used. Records of inspection and test *shall* be retained by the **Master**.

For the transfer of liquid/wet bulk drilling products the tank use *shall* be defined with the charterer and *shall* not be changed without carefully cleaning the tanks before loading a different product.

Before the transfer of liquid/wet bulk drilling products tanks *shall* be carefully inspected, if possible in the presence of the **Contracts Manager** and charterer's representative.

A record of tank inspection *shall* be documented in the Bridge Logbook.

All piping systems shall be carefully checked by Engineer in engine room and on deck before starting transfer

The **Master**/ Bridge **Watch Officer** *shall* know the temperature of brine-like products before loading so as to avoid raising the temperature in adjacent tanks (especially tanks containing diesel fuel) and to prevent deterioration of sealing materials in loading valves.

Careful attention *shall* be given to the density factor and the effects of temperature variation.

The risk of blow out during transfer of materials *shall* be taken seriously. Hoses *shall* be handled and tested properly.

When pumping has finished, both the receiver and provider *shall* set their lines to allow the hose to be drained back into the vessel's tank.

302 If the installation has a vacuum breaker fitted to the line, this *shall* be used to aid draining. In suitable conditions, the crane *shall* also be used to lift the hose to aid draining.

4.13 Working at offshore locations

When working at an offshore location, before undertaking any cargo operation pre-job safety planning *shall* be performed.

Verify the operational status of the vessels control systems, obtain an accurate assessment of weather conditions, and ensure that all means of communications are functional and efficient.

Whenever possible, the vessel *shall* be positioned to work in an acceptable position in relation to the installation and the swell to minimise vessel motion.

For quick snatch operations, the **Master**/**Bridge Watch Officer** *shall* ensure that the vessel has stabilised and can safely hold position before commencing loading or unloading.

In the best practices of safety and good seamanship, the **Master**/**Bridge Watch Officer** *shall* always try to find the best compromise between the direction of the swell and current.

For operations involving tying up alongside an offshore installation or location, loading and unloading *shall not* commence until the vessel has fully stabilised and the mooring arrangements have been verified as sufficient.

At least two crew members are to be standing by in a dedicated safe area at all times during cargo operations.

Crew members are to wear the correct Personal Protective Equipment (PPE) and maintain strict compliance regarding the Clear Deck Policy.

The **Master**/**Bridge Watch Officer** *shall* have a full view of the operations and the involved personnel. He/she *shall* closely monitor the safety of the crew at all times.

The **Master**/**Bridge Watch Officer** is to ensure that the Clear Deck Policy and full consideration and risk mitigation related to any request for the use of Tag-Lines is maintained; and that all personnel remain well clear of any lifts to and from the vessel until they are safely landed on deck or fully clear of the vessel.

Personnel *shall* never be positioned under suspended loads, between cargo items, between cargo items and the vessel's crash/cargo rails or in any other hazardous position during cargo operations.

The deck crew *shall* at all times be aware of the nearest emergency safe haven, which *shall* remain clear of any obstruction from back-loaded cargo.

Deck crew *shall* remain constantly vigilant. This applies with particular reference to all crane activity and with consideration to cargo items that are unsecured in preparation for lifting or just back-loaded.

Vigilance *shall* be maintained in case unexpected shifting occurs due to crane action, vessel motion or heavy seas.

Personnel *shall* never climb on top of any cargo item.

Personnel *shall* never attempt to assist positioning cargo with their hands.

The **Master**/**Bridge Watch Officer** *shall* be able to monitor the crane, crane wire and cargo hook at all times.

Before the cargo operations start, effective communication *shall* be established between the bridge, deck crew and installation by use of portable UHF or VHF radios operated on an agreed channel.

Crewmembers without experience in working with deck cargo *shall* be given extra induction training over a period of time together with experienced deck crew (refer to Short Service Worker programme) until sufficient experience has been gained.

If the installation request lifts by "cherry picking" that may cause danger to the crew, such a proposal *shall* be rejected and the installation requested to change the cargo priority list or the operation *shall* be ceased until loading/discharging can be done in a safe manner.

The **Master**/**Bridge Watch Officer** *shall* advise the installation as to the required stowage location required for back loaded cargo.

Any expected significant break in operations by the installation *shall* be notified to the vessel by the installation responsible person. Upon such notification, the vessel *shall* manoeuvre clear from the installation.

Cargo securing material *shall* be available in sufficient quantity; it *should* be strong, easy-to-use, in good condition and properly maintained.



If any person is in any doubt about the safety of any task, exercise the STOP WORK POLICY and report the situation immediately to the Master/Bridge Watch Officer.

The **Master**/**Bridge Watch Officer** *shall* inform the installation responsible person (if necessary, the **Offshore Installation Manager**) and the operation *shall* be stopped and a new Job Safety Analysis (JSA) completed to mitigate the present hazard and agree a safer way of finishing the operation.

4.14 Loading/back-loading

The installation is responsible for ensuring the safe condition of cargo items prior to them being back loaded onto the vessel. However, experience has shown that items are sometimes back loaded without due care being exercised in this respect.

During back load operations, the **Master/Bridge Watch Officer** *shall* report any deficiencies with any cargo item, cargo carrying unit, slings or other lifting arrangements as soon as possible to the installation responsible person; including the **Offshore Installation Manager** (OIM) if necessary.

Any such items *shall* be returned to the installation if it is safe to do so.

If returning the item is not practical or presents a safety hazard, the **Master**/**Bridge Watch Officer** *shall* request equipment from the installation in order to rectify the situation onboard if this is possible.

In all such cases a log book entry is to be made detailing the incident and a brief report forwarded to the installation **Offshore Installation Manager** and the **Contracts Manager** accordingly.

Whenever possible, positioning metal cargo units directly onto metal deck areas *shall* be avoided. If this is unavoidable ensure that the cargo item is very well secured against shifting and that great care is exercised when crew are approaching the item to secure it.

Position the vessel accordingly to minimise motion when securing the cargo item.

It is preferable and safer to use tugger winches to move cargo items on deck than reposition using an installation crane. In either case, plan the task safely and properly and exercise due caution.

4.15 Working with hoses

Hoses Selection:
The hose *should* be selected according to the nature of the bulk cargo transfered. If necessary purchase with *Planned Maintenance System* (PMS).

304 **Hoses Inspection:**
Weekly inspections

- Hoses *shall* be thoroughly checked for any physical damage for chafing, cuts, blisters, splitting, perishing, lacerations or other forms of deterioration, if there is any doubt it *shall* be replaced;
- The condition marking and the marking of the hose coupling *shall* be checked.
- Check hoses are protected from structure and stowed properly in hang-off points.
- Check the lighting of the hoses storage.
- Hose *shall* be stenciled, indicating next pressure test to be carried out: i.e NEXT PRESSURE TEST: “DATE”.

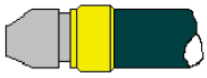
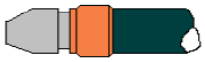
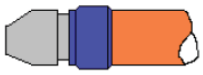
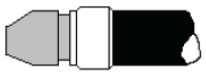
Visual inspection pre and post use
A visual inspection *shall* be carried out prior to and after vessel operations. The following checks should be carried out as a minimum:

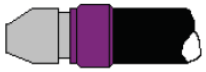
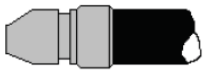
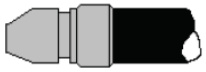
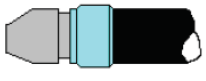
- Hoses must not show any signs of physical damage by chafing, splitting, perishing, blistering, deep lacerations or any other forms of deterioration.
- Check installation manifold couplings are tight and ready for operation.

Testing:
All hoses *shall* be hydrostatically tested at ambient temperature to a pressure not less than 1.5 times its specified maximum working pressure, but not 0.4 times of the bursting pressure. This test shall be performed annually.

Retirement:
Hoses, manifolds and valves are visually inspected, maintained and replaced as required and / or in accordance with the *planned maintenance system*.

Marking criteria:
Hoses and hose terminations *should* be product-identified via high visibility bands, tape or other means.
Below is the colour coding to be used for the Hose End Coupling (colour refers to coupling and not hose) which is passed to the supply vessel.

Hose Application	Coupling Colour	Standard Connection	Vessel Coupling	Pressure Rating (Hoses & Couplings)	Outline
Dry Cement	Yellow	5" hammer lug union (figure 50)	Male	Min 12 bar	
Dry Barytes & Bentonite	Orange	5" hammer lug union (figure 50)	Female	Min 12 bar	
Potable Water	Blue (Orange hose)	4" hammer lug (figure 100)	Female	Min 12 bar	
Diesel / Marine Gas Oil	Brown	4" quick release self-sealing coupling	Female	Min 12 bar	
Base Oil	White	4" quick release self-sealing coupling.	Female	Min 12 bar	
Drill Water	Green	4" hammer lug (figure 100)	Female	Min 12 bar	
Oil Based Mud	Black	4" quick release self-sealing coupling	Male	Min 24 bar	

Hose Application	Coupling Colour	Standard Connection	Vessel Coupling	Pressure Rating (Hoses & Couplings)	Outline
Brine	Red	4" quick release self-sealing coupling	Male	Min 24 bar	
Glycol (If separated)	Purple	4" quick release self-sealing coupling	Male	Min 12 bar	
Scale Inhibitor (If separated)	No colour	4" quick release self-sealing coupling	Male	Min 12 bar	
Drill cuttings (If separated)	No colour	5" hammer lug union (figure 50)	Male	Min 24 bar	
Methanol	Black and Yellow (Tiger-stripes)	4" quick release self-sealing coupling	Male	Min 12 bar	
Water Based Mud (If separated)	Cyan	4" quick release self-sealing coupling	Male	Min 24 bar	
Rig Slop (If separated)	Dark Grey	4" quick release self-sealing coupling	Male	Min 24 bar	

305

Flotation collars:

- Ensure hoses have sufficient floatation collars along its whole length, or sufficient reflective tape or equivalent (if applicable);

- Check the correct quantity of lace up or similar types of floatation collars are on the hoses in accordance with Table 1 show below.
- Floatation collars can be used or alternatively, sections of redundant hose can be fitted to the structures at impact abrasion points.

Diameter - Floatation Collars - Colour Codes and Connections for 15.2 mtr, 16.3 mtr and 18.3mtr Hoses

Hose Application	Hose Diameter	Floats per Section
Potable Water	**3”** **4”**	**4** **4**
Oil Based Mud	**3”** **4”**	**9** **10**
Dry Cement	**4”** **5”**	**7** **8**
Diesel Fuel	**3”** **4”**	**4** **4**
Dry Barite	**4”** **5”**	**10** **13**
Methanol	**2”** **3”**	**4** **4**
Drill Water	**4”**	**4**

306

4.16 SIMOPS

4.16.1 No risk of environmental spills

In case of simultaneous cargo operations done involving products / goods that are not considered as having a risk for environment as per there MSDS (such as drill water / fresh Water / some dry bulks, some cargo lifts), the transfer products shall be limited to 3 including the cargo lifts. (For exemple: a transfer of Fresh Water + Cement + little cargo baskets should be possible if the vessel is properly manned)
The TBT of each operation should include the risks related to the SIMOPs.

This amount shall be reduced if, for any reasons, during the JSA/TBT process a risk related to the SIMOP is found and could lead to an hazardous situation.

4.16.2 Risk of environmental spills

In case of simultaneous cargo operations done involving products / goods that are considered as having a risk for environment as per there MSDS (typically hydrocarbon products), the transfer products shall be limited to 2 including the cargo lifts. (For exemple: Diesel oil + fresh water OR Base oil + little baskets clear of base oil hose should be possible if the vessel is properly manned).
The TBT of each operation should include the risks related to the SIMOPs.
This amount shall be reduced if, for any reasons, during the JSA/TBT process a risk related to the SIMOP is found and could lead to an hazardous situation.

4.17 Ship to Ship transfer:

The **master** is responsible to follow below requirements prior and during a ship to ship transfer (STS)

1. Prior to the operation the JSA and TBT shall include: Pre- approach / mooring / unmooring agreement with the other vessel: location for the STS, type of approach – parallel / tandem, fenders, heading, speed, M/E readiness, weather, abort plan, product transfer, rate, emergency shutdown etc.

2. Additional Fenders to be in place (own tyre fenders are not sufficient for STS Operations)

3. One vessel (usually the delivering vessel) should maintain her heading during approach.

4. Both vessels engine should be ready for any emergency when alongside each other.

5. Vessel shall NOT be on DP mode when tied up with another vessel or any floating or fixed installation. DP is meant to keep own vessel in position against weather criteria (wind, current, swell).

6. **Master** and **Officers** not to rely solely on DP when in operation. The maneuvering console had to be manned at all times and system must be monitored closely during operation. **Officers** must be able to change over to manual immediately when there is a failure in the system.

7. **Master** to exercise “STOP WORK RESPONSIBILITY” whenever it is not safe to continue with any operation. You have the responsibility and right to “STOP WORK”. Management will back you up for doing it.

8. All communication, actions, checklist, JSA, Tool Box Talk to be done properly and recorded in the Deck Log Book.

9. **Masters** are reminded to CALL (TELEPHONE) DPA / OPERATIONS MANAGER immediately after an incident occurred onboard. Follow up to be done with company approved forms and supporting document. 307

10. **Masters** not to SIGN any Letter Of Protest issued by any 3rd party without consulting BOS Office.

11. **Masters** to issue Letter Of Protest to the 3rd party if there is any damage to own or others in order to protect the vessel, owner and client from any claims. Please consult BOS office for review before issuing the letter.

5 Records

- Bridge Logbook
- Cargo Manifests
- BOS-FRM-0701.0009 Cargo Plans
- Job Safety Analysis (JSA) (9.SMS)
- Logbook Entries
- Tool Box Talks (TBT) (9.SMS)
- Letter of protest

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- Bunkering Operations (SMS Section 6)
- Cargo Securing Manual
- Product Data Sheets
- Material Safety Data Sheets
- International Maritime Dangerous Goods Code
- Deck Plans IN PROJECT (per type of vessels)
- BOS-FRM-03.0043 G-JSA#7 Loading Offloading Deck Cargo
- BOS-FRM-01.0005 – Management Vessel Visit Checklist
- B-POL-01.0035 – Clear Deck Policy.

7 Terms and definitions

IMDG Code
International Maritime Dangerous Goods Code.

IMO
International Maritime Organisation.

MSDS
308 Material Safety Data Sheet.

SMPEP
Shipboard Marine Pollution Emergency Plan.

SMS
Safety Management System.

SOLAS
International Convention for the Safety of Life At Sea.

SOPEP
Shipboard Oil Pollution Emergency response Plan.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS Operations Managers Director	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	Modification of § 4.9
BOS Ops Dpt Project Manager	BOS Operations Director		Ver.04 – 31/12/2014	Update §3 Vessel Master roles and responsabilities. Adding §4.2 Cargo Operation Monitoring, § 4.10 Manual Sounding Methods . Reviewing §4.15 Working with hoses

Cargo
and
Hazardous Materials

BOS-PRD-03.900601-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Pre-load planning 5

4.2 Hazardous materials carried as cargo 5

4.2.1 Material Safety Data Sheets (MSDS) 5

4.3 International Maritime Dangerous Goods Code 6

4.3.1 Risk management flow chart 6

4.4 Hazardous bulk products 6

4.4.1 Methanol transfers 6

4.4.2 Zinc Bromide 6

4.4.3 Brine (NaCl, KCl, CaCl, CaBr) 7

4.4.4 Base Oil 7

4.4.5 Oil Based Mud (OBM) 7

4.4.6 Silicate Liquors 8

4.5 Hazardous materials common to operations 8

4.5.1 Explosives 8

4.5.2 Compressed and liquefied gas 8

4.5.3 Gasoline/petrol 9

4.5.4 Radioactive materials 9

4.5.5 Lead acid storage batteries 9

4.5.6 Paints, thinners and cleaning agents 10

4.5.7 Engine cooling water treatments 11

4.5.8 Corrosion/scale inhibitors 12

4.6 Loss of hazardous material overboard - reporting requirements 12

4.7 Segregation and Compatibility 12

4.7.1 Hazardous Materials Segregation Table 13

4.7.2 Safe Mixed Stowage of Explosives Table 15

4.7.3 Management of Risk Process for Chemicals Delivered on Board Flow-Chart 16

5 Records **17**

6 Related documents **17**

7 Terms and definitions **17**

8 Review, approval, revision and identification of changes **18**

310

1 Purpose

The *International Maritime Dangerous Goods (IMDG) Code* sets out in detail the requirements for the sea transportation of dangerous goods. It is applicable to each individual substance, material or article. The Code is mandatory and part of SOLAS convention.

This procedure specify the methods and instructions to be used to minimise the hazards and risks involved in the loading, transportation, stowage, handling and use of hazardous materials.

2 Scope

Masters, **Officers** and applicable crewmembers *shall* be fully aware of all precautions that need to be taken at all points of the transit process with regard to hazardous materials. The manifest provided with the cargo (Dangerous Goods or Hazardous Waste) *shall* provide the hazard classification of the materials to be loaded and transported.

The categories of hazardous materials involved are those carried as cargo, those for shipboard use such as cleaning and painting supplies and those likely to be encountered in normal operating circumstances.

This procedure encompasses a selection of substances that are classed as hazardous; they include but are not limited to the following:

- Bulk products - chemicals;
- Explosives;
- Compressed and liquefied gases;
- Gasoline/petrol;
- Radioactive materials;
- Acid;
- Paints, thinners and cleaning agents;
- Cooling agents;
- Corrosive/scale inhibitors.

311

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Managing of hazardous materials;
b) Applying this procedure;
c) Ensuring the implementation of this procedure.

Chief Officer has the responsibility, authority and accountability for:

a) Being the designated person for the handling of hazardous material.

Junior officer has the responsibility, authority and accountability for:

a) Receiving instruction and training in this procedure to enable him/her to assume the responsibilities as **Watch Keepers**.

All personnel handling chemicals/substances that are potentially hazardous to health are responsible for:

a) Their own safety and the safety of other through adherence of this procedure. They *shall* receive instruction and training in this procedure.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for cargo and hazardous materials at offshore locations are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

312 a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Pre-load planning

To prepare for loading, transporting or having contact with hazardous materials, it is important that pre-planning is undertaken. The planning *shall* provide a safe foundation for loading, transporting and handling hazardous materials. The planning *shall* include the following:

- Reviewing of the applicable shipping papers in good time before any loading takes place;
- Checking thoroughly to ascertain if any hazardous materials are planned to be loaded as cargo;
- Obtaining a copy of the *MSDS* for each individual hazardous material that is scheduled to be loaded. *MSDS shall* be retained on file onboard for future reference;
- Ensuring that the responsible shipper's emergency telephone and any other required and applicable contact information is available;
- Determining what safety precautions need to be put into place and consider any special requirements such as safety of personal, preparation of any fire fighting equipment that may be required and any special loading, handling or discharging equipment that could be needed;
- Planning the loading arrangement, positioning and loading order, remembering to factor in any segregation requirements and eventual discharge requirements;
- Inspecting the hazardous material cargo to ensure it is complete and accurate as per manifest and that it is properly labelled;
- Inspecting the hazardous material cargo to ensure it is properly packaged and in good condition, that it is properly and securely stowed and that all securing devices are adequate for the expected passage conditions;
- Finalising the deck loading plan clearly showing the location of the hazardous material and ensuring that the **Master** and all applicable crew are fully aware of the location of the hazardous material.

313

4.2 Hazardous materials carried as cargo

There are four basic tools used to assess the hazards and risks involved with a hazardous material onboard the vessel as cargo:

- Cargo Manifests that supply the specific name of the hazardous material;
- Packaging Labels that indicate in general the hazard posed by the particular material or substance;
- *Material Safety Data Sheet (MSDS)* or *Chemical Data Information Sheet*;
- *International Maritime Dangerous Goods (IMDG) Code*.
- *IBG CODE*

4.2.1 Material Safety Data Sheets (MSDS)

The *MSDS* provides detailed information regarding the material which is an important part for planning and preparation purposes; for example in the subsequent event of a spill, release or accident involving the material.

The provision of *MSDS* conforms to regulations that require emergency response information to accompany hazardous materials in shipment.

No hazardous material can be accepted onboard as cargo for trans-shipment without the *MSDS* being made available by the shipper or supplier.

MSDS shall be made available with deliveries of any ship stores classed as hazardous.

All hazardous materials *shall* be handled in the manner indicated by the *MSDS*. In any cases where the emergency response requirements are not clear, then the *IMDG Code* is to be closely consulted and any applicable preparations are to be made accordingly.

MSDS are to be retained on file onboard for future reference. But for information only, operator shall provide MSDS each time the product is loaded onboard.

4.3 International Maritime Dangerous Goods Code

The *IMDG Code* is used to provide shippers, transporters, end users and their respective employees with information concerning hazardous materials such as the identity of each product, details of its respective harmfulness, the measures required to mitigate any incidents concerning such materials and other general safety and applicable information regarding the product.

The *IMDG Code*, as well as any other available information, *shall* always be consulted prior to loading hazardous materials or before using those that are already onboard.

4.3.1 Risk management flow chart

The Risk Management Flow Chart detailing control and management of substances and *MSDS* *shall* be consulted during decision making.

Risk management instructions are derived from the information contained in the *MSDS* and the *IMDG Code*.

A Management of *Risk Process for Chemicals Delivered Onboard Flow Chart* is included in this procedure.

4.4 Hazardous bulk products

The transfer of bulk products is hazardous for the health of personnel and for the environment. The same requirements are applicable when transferring these products as when transferring diesel fuel, including the completion of the applicable checklist and other pre-job planning requirements; this applies to drilling chemical mud, base oil, brine and other products referenced in this section.

314

4.4.1 Methanol transfers

Refer to *Methanol Operations Procedure* (SMS Section 6).

4.4.2 Zinc Bromide

Zinc Bromide is particularly corrosive, heavy drilling brine which is subject to the *Control of Pollution by Noxious Liquid Substances in Bulk Regulations*.

All vessels involved in the carriage of this cargo *shall* hold valid certification.

Due to the brine's very corrosive nature, protection of personnel against injury from spillage is most important. Certified vessels *shall* have a procedure and operations manual on board which details the safety requirements for handling of this product.

In any event the following points *shall* be observed:

- MSDS for the product to be loaded *shall* be made available to the **Master** prior to commencement of operations;
- The loading/discharge hose *shall* be checked for damage prior to use and *shall* be fitted with a self sealing coupling, such as an Avery Hardoll or similar, to minimise spillage during connection and disconnection;
- Chemical suits *shall* be provided and worn by all personnel handling the hose and making the connection/disconnection;
- Zinc bromide brine may only be considered for carriage in those tanks specifically detailed for the purpose in the vessel's INLS certificate;
- Tanks which have carried Zinc Bromide cannot carry any other product until they have been properly cleaned and all washings disposed of as per regulations, otherwise any cargo accidentally loaded on top is treated as special waste;

- Tanks which have contained Zinc Bromide *shall* be drained as much as possible prior to washing;
- If a vessel's cargo pump cannot remove all but the smallest amount of brine, then consideration *shall* be given to the use of portable pumps to ensure as little residue as possible remains;
- Tank cleaning and the discharge of tank washings can only be carried out under the surveillance of an approved MARPOL Surveyor, as the tank washings are classed as special waste.

4.4.3 Brine (NaCl, KCl, CaCl, CaBr)

Brine, generally, has a hazard category of Xi – irritant. Contact with the skin or eyes *shall* be avoided and vapours, fumes, spray or gas *shall* not be inhaled.

Calcium Bromide (CaBr) and fluids containing Bromides are extremely harmful when they make contact with the skin or eyes.

NaCl, KCl, CaCl based Brines are considered to be of low/medium risk.

Brine is non-flammable with a non-determined flash point.

The *Control of Substances Hazardous to Health (COSHH) Regulations* assessment and *MSDS* *shall* always be consulted.

Proper and correct PPE *shall* be worn at all times when working with Bromide based fluids.

4.4.4 Base Oil

Base Oil flash points range from >65 degrees C with an auto ignition range of >230 degrees C and *shall* be shielded/protected from all ignition sources.

315

The *COSHH* advice and *MSDS* *shall* always be consulted.

Base Oil has a hazard category of "Harmful", with lung damage possible if swallowed.

Contact with skin and eyes *shall* be avoided and inhalation of vapour fumes or spray and gas is harmful and will cause lung and respiratory damage.

Hand, eye and skin protection *shall* be in place and an approved respirator *shall* be used when entering any confined space that has contained Base Oil.

4.4.5 Oil Based Mud (OBM)

Oil Based Mud does not have a hazard category as such but each individual component has a hazard category.

The flash point of Oil Based Mud is dependent on the base oil used but will be >65 degrees C° and *shall* be shielded/protected from all ignition sources.

The *COSHH* assessment and *MSDS* *shall* always be consulted.

Nausea and headaches can occur if excessive exposure occurs.

Contact with skin and eyes *shall* be avoided as well as inhalation of vapour, fumes, spray or gas.

Hand, eye and skin protection *shall* be in place and an approved respirator utilised.

4.4.6 Silicate Liquors

Silicate Liquors are considered to be of limited harm.

There is no danger from ignition sources as the product is not flammable.

However, proper PPE *shall* be worn when in contact with the product.

Contact with skin and eyes *shall* be avoided as well as inhalation of vapours, fumes or spray.

The *COSHH* assessment and *MSDS* *shall* always be consulted.

4.5 Hazardous materials common to operations

4.5.1 Explosives

When assessing cargo stowage segregation and compatibility with regards to explosive materials, consideration *shall* always be given to loading and stowing explosive materials in a position that keeps them as far away from any heat sources, flammable materials (such as paints, thinners, oils etc.) and also all accommodations as is practical and possible.

Explosives *shall* never be allowed to get wet; this *shall* be considered whenever loading and stowing explosives onboard.

316

4.5.2 Compressed and liquefied gas

Compressed and/or liquefied gas is often carried onboard vessels both as a standard cargo item for the offshore locations and for uses in maintenance onboard.

Extreme care *shall* be used whenever handling cylinders. They *shall* not be allowed to drop or strike against each other or objects.

Naked flame and other sources of heat *shall* not be allowed to come into contact with any part of gas cylinders.

Shading gas cylinders from direct sun light can be achieved by the use of an awning or other shading (if practical) or by shielding the bottles with canvas or similar material.

Never strike an arc against a gas cylinder.

Gas cylinders *shall* be stowed in the correct designated racks. They *shall* be stored in an upright vertical position. Gas cylinders *shall* not be accepted as cargo unless they are secured in designated racks, are upright and all have valve protector caps in place.

Valve protection caps *shall* be kept on the cylinders when the cylinders are not in use.

Regulator valve safety devices *shall* never be altered or tampered with.

Cylinders *shall* not be stored next to electrical circuits.

Oxygen and Acetylene cylinders *shall* always be stored in well ventilated areas.

Oil, grease, paints and other contaminants *shall* be kept well away from gas cylinders.

Oxygen cylinders *shall* not be stowed within 6 meters of highly combustible materials or cylinders containing flammable gases. If space limitations require storage closer than 6 meters (which is often the case on offshore support vessels) then the cylinders *shall* be separated by a fire resistive partition or a fire wall which *shall* be at least 1.5 meters high and have a fire resistance rating of at least 30 minutes (62mm steel plate).

4.5.3 Gasoline/petrol

Gasoline and petrol are often carried onboard vessels mainly for use with outboard engines.

Gasoline and petrol *shall* be stored in a fully ventilated area and away from any sources of heat or naked flames including any designated smoking areas.

Consideration *shall* be give to shading gasoline tanks from direct sunlight.

Only sufficient gasoline *shall* be carried for the expected use.

Excessive amounts *shall* never be stored onboard.

4.5.4 Radioactive materials

Handling radioactive materials can pose high risk; carrying and moving *shall* be undertaken with great care, caution and at all times in compliance with all available guidelines.

All available safety and planning tools *shall* be utilised whenever loading, transporting or discharging any radioactive materials. These include the *Hazardous Material Risk Checklist* and the *Hazardous Materials Segregation Table*.

Only personnel that are familiar and experienced with radioactive materials *shall* handle them. All other personnel not engaged in handling them *shall* stay well clear. 317

Radioactive materials *shall* not be stowed or stored near to accommodation areas.

As reminder, regarding the transportation of radioactive materials:

The Rule II-2/19 of IMDG does not apply to vessels carrying class 7 radioactive materials. Therefore a document of compliance with this rule is not required.

2. Any vessel can carry class 7 radioactive materials other than INF cargo as defined in SOLAS VII/14 provided that all provisions of the IMDG code transport are applied.

3. If the transported goods meet the defined criteria for INF cargo, the vessel must have an INF certificate adapted to the type of transport. If the vessel does not have this certificate, it cannot carry INF cargo but other class 7 materials are authorized in accordance with the conditions set out below in point 2.
The passage from the statutory order dated May 7, 2004 as published in issue 124 of the official journal on May 29, 2004 states: “INF cargo means packaged goods that are irradiated nuclear fuel, plutonium or high-level radioactive wastes carried as cargo in compliance with sheets 10, 11, 12, 13 or 14 of class 7 goods in the IMDG code.

Thus transport of radioactive material is possible within the framework of application of the IMDG code.

4.5.5 Lead acid storage batteries

The correct Personal Protective Equipment (PPE) *shall* always be used whenever handling or working with lead-acid batteries. As a minimum, this means full splash proof goggles, rubber gloves and a rubber apron.

Body jewellery such as bracelets, necklace and pendants *shall* be removed; these cause potential arcing and combustion of batteries.

Battery solution (electrolyte) *shall* not come into contact with the skin or eyes. If by accident any of the solution is spilled onto the skin, a solution of baking soda and fresh water *should* be used to completely flush the area; this *should* neutralise the electrolyte and clear it from the skin. If electrolyte is accidentally splashed into the eye or eyes, abundant use of fresh water *shall* be used to flush the solution from them. Medical advice and/or attention *shall* be sought as soon as possible.

To mix electrolyte, always pour the acid into the water and never the water into the acid.

Never allow smoking, naked flames or any other source of ignition near lead-acid batteries. When checking the level of the electrolyte, an intrinsically safe (explosion proof) torch *shall* be used. Battery storage areas *shall* be marked with no-smoking notices/signs.

If lead-acid batteries are not provided with carrying handles, lift and carry them by placing both hands underneath. Elbow length rubber gloves, rubber aprons and splash proof goggles are essential whenever lifting, carrying or otherwise moving lead-acid batteries. Lead-acid batteries are heavy; get assistance and do not attempt to move them alone.

Keep batteries protected in well-ventilated and corrosion resistant storage facilities.

Metal objects and tools *shall* not be placed on top of batteries or in such a position that they could fall onto them.

Lead-acid batteries are a source of electricity independent of other sources of generation. Keep lead-acid batteries charged to maintain their full capacity.

Battery connections *shall* be maintained cleaned and kept tight.

Vent caps *shall* be kept on tight whenever charging the batteries.

318

4.5.6 Paints, thinners and cleaning agents

Paints, thinners and cleaning agents are amongst the most common of hazardous materials found onboard vessels.

Most paints, thinners and cleaning agents have certain chemical properties that can cause harm to personnel and pollution to the environment if care is not taken.

Always read the labelling and note any precautions and warnings.

Always consult the applicable *MSDS* and never mix cleaning agents together as this can result in the production of very harmful vapours.

Take note that some cleaning and painting products present inhalation hazards and personal protection through the use of respirators is required.

Always use splash proof goggles, face masks and the correct gloves with full protection of any exposed skin when mixing or using caustic cleaning materials.

If any caustic material makes contact with any exposed skin or is splashed into the eyes or onto the face, wash it off immediately with plenty of fresh water. Flush thoroughly for 15 minutes, holding the eyes open if any chemical has entered the eyes. Medical advice and/or attention *shall* be sought as soon as possible.

If any caustic material contaminates clothes, they *shall* be changed as soon as possible.

Never smoke, never use naked flames or bare light bulbs in or around the paint locker or when mixing, spraying or otherwise using paints and thinners.

Never use electrical power tools or any other potential sources of electrical ignition in or around the paint locker or when mixing, spraying or otherwise using paints and thinners.

Use a paddle or other device for stirring and mixing paints to avoid close proximity with hands.

Anytime a chemical is removed from its original container, it *should* either be completely used during the required task or the unused portion returned to the original container. Failing this, the unused portion can be placed in a new container providing that the new container is fit for purpose and labelled accordingly.

Always ensure that containers are properly closed after use.

Ensure that ventilation is adequate and properly functioning.

Keep all paint and chemical storage areas clean and tidy. Always discard used rags in the approved manner.

Avoid spraying chemicals in confined areas without respirators being utilized; even household sprays such as insect killer can become a serious health threat in confined areas.

Do not put any chemical into a spray unit unless it is specifically designed to be so used. Sprayed chemicals can easily be inhaled and cause damage to the airways and respiratory system.

Oily rags or cotton waste soaked with paint thinners can generate heat due to organic reactions and become a source of combustion. They *shall* be removed from other sources of combustion and disposed of.

On completion of using any paints, thinners or cleaning agents, ensure that the hands are thoroughly washed with soap and water.

4.5.7 Engine cooling water treatments

Cooling agents (for example Nalco products) are commonly used onboard vessels for various applications. It is important to consult the accompanying *MSDS* data prior to use and to ensure that all personnel required to use the product are fully aware of any associated hazards.

319

The correct PPE *shall* be used when handling cooling agents. Cooling agents are harmful to health and can cause burns to the skin and eyes. Always use splash proof goggles, face masks and the correct gloves with full protection of any exposed skin when using cooling agents.

If a cooling agent makes contact with any exposed skin or is splashed into the eyes or onto the face, wash it off immediately with plenty of fresh water. Flush thoroughly for 15 minutes, holding the eyes open if any cooling agent has entered the eyes. Medical advice and/or attention *shall* be sought as soon as possible.

Clean up any spilled cooling agents using absorbent material and shovel the reclaimed waste into recovery receptacles. Do not touch any materials used to clean up cooling agents with unprotected hands and do not allow any unprotected part of the body come into contact with cooling agents.

If a cooling agent be spilled onto non-protective clothing, the clothing *shall* be immediately removed and thoroughly laundered before any re-use. Be aware that cooling agent has the capacity to burn through clothing and the incorrect type of gloves.

Ensure that ventilation is adequate and properly functioning when using cooling agents.

Anytime a cooling agent is removed from its original container it *shall* either be completely used during the required task or the unused portion returned to the original container. Failing this, the unused portion can be placed in a new container providing that the new container is fit for purpose and labelled accordingly. Always ensure that containers are properly closed after use.

On completion of using a cooling agent ensure that the hands are thoroughly washed with soap and water.

4.5.8 Corrosion/scale inhibitors

Corrosion and scale inhibitors (for example Nalco products) are commonly found and used in shipboard applications.

It is vital to consult the accompanying *MSDS* prior to use onboard.

The precautions to take with corrosion and scale inhibitors are very similar to those for cooling agents and are detailed in the applicable *MSDS* data for each type of agent.

4.6 Loss of hazardous material overboard - reporting requirements

The *IMDG Code* establishes what are considered as dangerous goods and is the basis of the following policy regarding the loss of any dangerous goods (hazardous materials) overboard from any vessel within a nation's territorial waters:

- The **Master** *shall* immediately report to the nearest coastal radio station any loss of a dangerous cargo or part of such a cargo from a vessel within that nation's territorial waters;
- The report is to be made with urgency status, giving the date, time, the position of the vessel when the loss occurred, the name of the chemical(s) involved, the number of drums/packages lost, their destinations and identifying markings;
- The **Master** *shall* also report in the same manner as described an actual discharge of oil or noxious liquid substance that occurred during vessel operations;
- The amount of discharge *shall* be in excess of the quantity or instantaneous rate permitted under the appropriate regulations.

320

4.7 Segregation and Compatibility

The *MSDS* indicates any segregation requirements of a particular hazardous material.

Hazardous materials are by nature dangerous and this danger can be magnified by incorrect stowage and loading positions on a vessel's deck if consideration is not given to the proximity of other hazardous materials.

4.7.1 Hazardous Materials Segregation Table

Class	1.1 1.2 1.5	1.3	1.4 1.6	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
Explosives 1.1, 1.2, 1.5	#	#	#	4	2	2	4	4	4	4	4	4	2	4	2	4	X
Explosives 1.3	#	#	#	4	2	2	4	3	3	4	4	4	2	4	2	2	X
Explosives 1.4, 1.6	#	#	#	2	1	1	2	2	2	2	2	2	X	4	2	2	X
Flammable gases 2.1	4	4	2	X	X	X	2	1	2	X	2	2	X	4	2	1	X
Non-toxic, non-flammable gases 2.2	2	2	1	X	X	X	1	X	1	X	X	1	X	2	1	X	X
Poisonous gases 2.3	2	2	1	X	X	X	2	X	2	X	X	2	X	2	1	X	X
Flammable liquids 3	4	4	2	2	1	2	X	X	2	1	2	2	X	3	2	X	X
Flammable solids 4.1	4	3	2	1	X	X	X	X	1	X	1	2	X	3	2	1	X
Spontaneously combustible substances 4.2	4	3	2	2	1	2	2	1	X	1	2	2	1	3	2	1	X
Substances which are dangerous when wet 4.3	4	4	2	X	X	X	1	X	1	X	2	2	X	2	2	1	X
Oxidising substances 5.1	4	4	2	2	X	X	2	1	2	2	X	2	1	3	1	2	X
Organic peroxides 5.2	4	4	2	2	1	2	2	2	2	2	2	X	1	3	2	2	X
Poisons 6.1	2	2	X	X	X	X	X	X	1	X	1	1	X	1	X	X	X
Infectious substances 6.2	4	4	4	4	2	2	3	3	3	2	3	3	1	X	3	3	X
Radioactive materials 7	2	2	2	2	1	1	2	2	2	2	1	2	X	3	X	2	X
Corrosives 8	4	2	2	1	X	X	X	1	1	1	2	2	X	3	2	X	X
Miscellaneous dangerous substances 9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

The table is provided as a ready reference, to be used during the load planning stages whenever hazardous materials are expected to be loaded.

The table cross references the hazard classifications and shows what restrictions are applicable (if any apply) to each of the materials that may be transported on a vessel.

Key to the symbols used is as follows:

1 = an all round separation of a minimum of 3 meters *shall* be maintained from any other incompatible materials.

2 = an all round separation of a minimum of 6 meters *shall* be maintained from any other incompatible materials.

3 = an all round separation of a minimum of 12 meters *shall* be maintained from any other incompatible materials.

4 = an all round separation of a minimum of 24 meters longitudinally *shall* be maintained from any other incompatible materials.

X = No specific segregation may be required, although an item may have more than one hazard label (as is often found with hazardous waste materials) and when this is the case, the stricter segregation standards *shall* apply.

= indicates that certain segregation requirements within the Explosive Material Hazard Classification are required.

4.7.2 Safe Mixed Stowage of Explosives Table

A	-	X	X	X	X	X	X	X	X	X	X	X	X
B	X	-	X	X	X	X	X	X	X	X	X	X	X
C	X	X	-	X	X	X	1	X	X	X	X	X	X
D	X	X	X	-	X	X	1	X	X	X	X	X	X
E	X	X	X	X	-	X	1	X	X	X	X	X	X
F	X	X	X	X	X	-	X	X	X	X	X	X	X
G	X	X	1	1	1	X	-	X	X	X	X	X	X
H	X	X	X	X	X	X	X	-	X	X	X	X	X
J	X	X	X	X	X	X	X	X	-	X	X	X	X
K	X	X	X	X	X	X	X	X	X	-	X	X	X
L	X	X	X	X	X	X	X	X	X	X	2	X	X
N	X	X	X	X	X	X	X	X	X	X	X	-	X
S	X	X	X	X	X	X	X	X	X	X	X	X	-

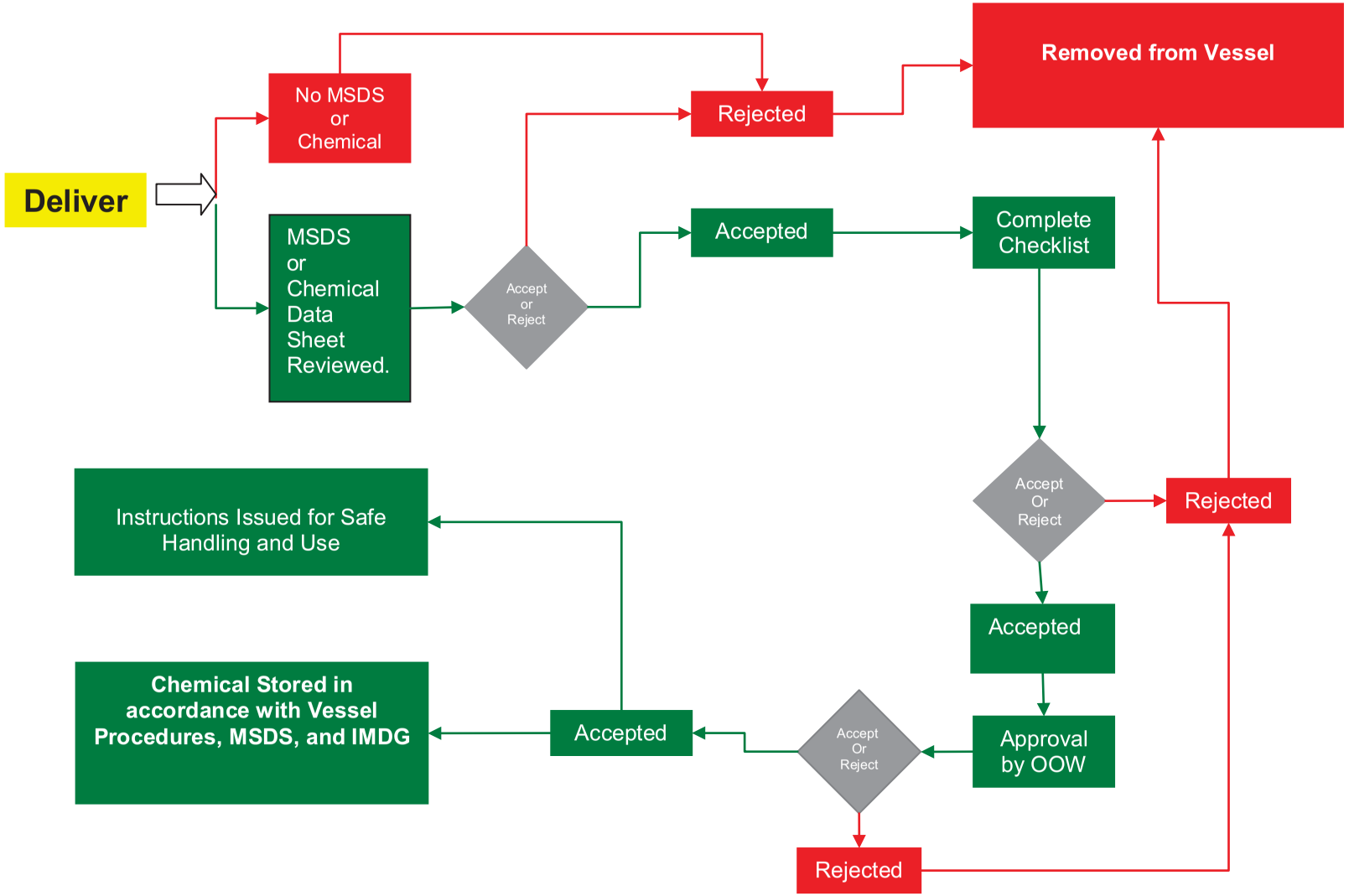
The key to the symbols used in the Safe Mixed Stowage of Explosives Table follows:

X = Indicates that the explosives in the two different compatibility groups reflected by the location of the “X” ***shall* not** be stowed in the same compartment, portable magazine or transport unit.

1 = Explosive materials in compatibility group G, other than fireworks and those requiring special stowage, may be stowed with materials in compatibility groups C, D and E provided that no other explosive substances are carried in the same compartment, portable magazine or transport unit.

2 = Explosives in compatibility group L may only be stowed in the same compartment, magazine or transport unit with identical explosives within compatibility group L.

4.7.3 Management of Risk Process for Chemicals Delivered on Board Flow-Chart



5 Records

- Cargo Manifests
- Cargo Plan
- Loading Lists
- Vessel Log Book

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- International Maritime Dangerous Goods (IMDG)
- INLS Certificate
- Material Safety Data Sheet (MSDS)
- Chemical Data Information Sheet
- Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk
- International Pollution Prevention Certificate

7 Terms and definitions

COSHH
Control of Substances Hazardous to Health

IMDG Code
International Maritime Dangerous Goods Code

INLS
International Noxious Liquid Substances

MARPOL
Merchant Shipping (Prevention of Oil Pollution) Regulations

MSDS
Material Safety Data Sheet

OBM
Oil Based Mud

OOW
Officer on Watch

PPE
Personal Protective Equipment

SOLAS
International Convention for the Safety of Life At Sea

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	Adding definition of OOW in §7.
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	-

326

Bunkering Operations

BOS-PRD-07.900603-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 3

4 Description 4

4.1 Bunkering and fuel oil 4

4.2 Bunkering at sea 4

4.3 Sampling and testing 5

4.3.1 Dipstick tests for bacteria and fungus 5

4.4 After bunkering 5

4.5 Record keeping 6

4.6 Available fuel onboard, Remaining On Board 7

5 Records 7

6 Related documents 7

7 Terms and definitions 8

8 Review, approval, revision and identification of changes 8

328

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with the *ISM Code*, requirements of *OSM Guidelines* and industry best practices referenced in this document, this procedure *should* be used in association with procedures in relation to management of risk.

2 Scope

Applies to bunkering in port and offshore.

3 Responsibility, authority and accountability

Vessel Master has the responsibility, authority and accountability for:

a) Applying this procedure onboard the vessel under his/her command.

Bridge Watch Officer has the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations of this procedure;
b) Maintaining radio and other communications (between the bridge, deck, quayside/bunkering location and Engine Room;
c) Ensuring pollution control and fire-fighting equipment is ready for use;
d) Ensuring Flag B has been raised (or all-round red light is displayed during hours of darkness or restricted visibility);
e) Ensuring the *Smoking Policy* is being adhered to and a suitable sign has been posted;
f) Ensuring required crew-members are on station and prepared;
g) Ensuring that SOPEP/SMPEP equipment and scuppers are in place;
h) Ensuring that prior to bunkering the applicable checklist *shall* be completed as required by procedures;
i) Ensuring that before commencing any bunkering at an offshore location, an observation period is necessary to assess the vessel movement and station keeping properties in order to provide maximum safety.

329

Chief Engineer has the responsibility, authority and accountability for:

a) Ensuring compliance with the requirements and expectations of this procedure related to engine room practices.

Engine Watch Officer in charge of bunkering has the responsibility, authority and accountability for:

a) Sounding the fuel tanks and recording the findings in the applicable Logbook;
b) Checking that the hoses to be used for the transfer are in good condition and specifically designed for the transfer of diesel fuel;
c) Checking that all connections and adapters are available and in good condition with no obvious defects;
d) Checking that the filling line filter is clean and properly installed;
e) Reading and recording the fuel gauge figures;
f) Stopping up all openings draining into the sea around the bunkering zone.
g) All piping systems shall be carefully checked by Engineer in engine room AND on deck before starting transfer.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations of this procedure are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

4.1 Bunkering and fuel oil

Before a bunkering operation commences, a bunkering plan *shall* be prepared and discussed by the **Master**(s). The Bunkering Checklist *shall* be completed and signed by the **Masters** of both the bunker ship and the receiving ship. The checklist *should* be kept on board the bunker ship and the receiving ship.

During bunkering the **Watch Officer** in charge of bunkering *shall* check the quality and properties of the diesel fuel.

If the diesel fuel has a suspicious appearance or if there are any other causes for concern, the **Watch Officer** in charge of bunkering can refuse to take delivery and inform the **Master** who in turn, *shall* inform the **Contracts Manager** as soon as possible. A meeting *shall* be scheduled between the **Master, Contracts Manager** and the charterer's representative to examine a sample accordingly.

The tank *shall not* be filled to more than 90% of total capacity under normal operating conditions (less allowing for any expected or likely adverse weather conditions).

A crewmember with a communication device *shall* remain observing the loading hose at all times in case of pollution during the bunkering activity.

330 The connections *shall* be checked regularly to ensure that no leaks occur.

Personnel not involved in the bunkering operation *shall* remain clear of the bunkering zone.

Samples *shall* be taken at each bunkering.

4.2 Bunkering at sea

Bunkering operations between vessels at sea is normally allowed only during hours of daylight. In exceptional circumstances and only with full approval of respective vessel **Masters** and following full risk assessment, bunkering may take place during hours of darkness.

A mooring plan *should* be agreed beforehand and the mooring *should* be carried out in accordance with this plan. The mooring equipment *should* be of a recognized standard and the mooring lines of good quality intended for use in the actual operation.

Bunkering at sea may take the form of side-by-side transfer (such as from a bunker delivery tanker) or stern-to-stern between OSVs.

For side-to-side transfers, the delivery ship (tanker) *should* be safe at anchor on a steady heading before the bunkering operation commences. The receiving ship *should* carefully approach the delivery ship. Primary fenders of a recognized standard and strength *should* be positioned along the hull of the delivery ship and secondary fenders *should* be ready for use during the berthing operation.

The **Master/Bridge Watch Officer** *shall*:

- Keep the two vessels at a safe distance depending on sea and weather conditions;
- Keep the bunkering hoses and mooring ropes (if vessels are moored together) clear of propellers;
- Obtain confirmation from the delivery vessel that the pump has been stopped and that the valve has been shut before disconnecting the bunkering hose;
- After disconnection, bunkering hoses *shall* be reeled in quickly to assist in keeping them clear of the propellers.

4.3 Sampling and testing

Sample taking is to be witnessed by the supplier whenever possible and one sealed oil sample to be kept by the supplier and two sealed oil samples to be kept onboard by the receiver.
Samples *shall* be marked with date and supplier and stored onboard for 1 year.

Fuel oil sample label shall contain

- Date of commencement of delivery
- location at which and the method by which the sample was drawn
- Name of bunker tanker
- IMO number and name of receiving ship
- Signature/names of the suppliers representative and ships representative
- Details of seal identification
- Bunker grade e.t.c.

NOTE. If sample are offered by the supplier but the sampling process was not witnessed by the receiving vessel, chief Engineers are advised to use a stamp to indicate “for receipt purpose only source unknown’ on the sample label.

Fuel delivery notes *shall* be maintained in an “active” file onboard for 1 year. After this period, they may be archived accordingly as per Company filing system requirements (and archived 3 years).
For representative sampling, the sample *shall* be taken continuously during the supply or delivery (if possible).

4.3.1 Dipstick tests for bacteria and fungus

Dipstick tests for bacterial and fungus *shall* be carried out on the following occasions:

331

- At bunkering from shore installation;
- At delivery to offshore installation (rig), and with one sample for each tank (only if possible);
- Every month from each tank;
- From the vessel’s day tanks and settling tanks every week;
- The dip-stick test *shall* be left for 2-3 days before reading the result on bacterial growth, and 5-7 days for the growth of fungus;
- The results *shall* be logged. Digital photos *should* be used to document the test result. Indications of bacteria are to be reported as soon as they become evident; the logs *shall* be kept onboard for 3 years.
- If the indication is on samples from the cargo, it *shall* be reported to the charterer as soon as possible to avoid further spreading;
- If the fuel oil is contaminated notify the charter control shore base as soon as possible so that action can be taken to prevent contamination of other vessels and installations.

4.4 After bunkering

After bunkering the **Engine Watch Officer** in charge of bunkering *shall* document the gauge readings in the applicable Logbook.

If all is in order, the **Chief Engineer** or if delegated; the **Watch Officer** in charge of bunkering *shall* sign the delivery slip.

After ensuring that the pump has been turned off and that the valves have been shut, bunkering hoses *shall* be disconnected and rewound with care so as to avoid any pollution. The valve on board *shall* be left open to receive any loose diesel oil that may be left in the hoses.

Any spillage *shall* be immediately cleaned up using an appropriate anti-pollution absorbent.

4.5 Record keeping

A documented record *shall* be made of all diesel fuel deliveries and the quality of the received fuel.
If for any reasons after the transfer, a delivery note cannot be obtain from the fuel supplier, a delivery note shall be filled by the vessel CE and should be signed by the representant of the company delivering the fuel.

The record *shall* be maintained in the vessel filing system and an entry *shall* be made in the applicable Logbook as well as in the Oil Record Book (ORB). Tanks identified in the ORB *shall* be identical to those in the vessel's International Oil Pollution Prevention (IOPP) certificate.

Captain and **Chief Engineer** are responsible for the right implementation and shall notify immediately their **Contract and Operations Manager** in case of irregularity.

Direction in how to fill the two Oil record books:

OIL RECORD BOOK PART I:

"Oil Record Book Part I: Réf. : MARPOL 2006 annex 1 – regul. 17, Annex 1 - appendix III

a) C

C11: Record once a week the ROB of the tank in "Section 3.1 of the IOPP Cert Supplement (Form A)"; It is therefore advisable to have a copy of the IOPP supplement archived in the ORB for easy reference. Well identify the kind of capacities as sludge, oily water tank and the volume of each.(Quantity in each tank, Total quantity retained on board)
C 12 Residues disposal
C12.1 disposal to reception facilities: well identify the reception place(Port, FPSO, Others, Request a receipt)

332

b) D

The use of 15 ppm equipment is to be recorded in « D » because this equipment is a nonautomatic discharge device. It should be manually operated.
You must record:
- D 13 Quantity disposed: record the quantities in the tank at start and at end.
- D 14 Time of start and stop
- D 15.1 Position of the vessel at start and end of transfer (consistency of this position noted in Oil Record Book and the position recorded in the bridge log book).
- D 15.3 Bilge transfer to slop tank: sludge, oily water tank or other holding tanks – Record the quantities at start and at end of transfer.

c) H

H 26 Bunkering of fuel or lubricating oil: keep on board the samples and analysis results (especially sulphur level) which should be supplied with samples.
This document (analysis) could be required during a port state control.
Record the tanks and quantity in every tank.

OIL RECORD BOOK PART II

Ref. : MARPOL 2006 annex 1 – regul. 2 and 36.
Regul. 2.2: Ships other than oil tankers carrying oil in bulk of an aggregate capacity which is equal or more than 200 cubic meters **must fill** the Oil record Book part II.

If your vessel have more than 200 cubic meter fuel capacity, the part II is also required and must be filled.

DO NOT FORGET THE SIGNATURE OF PERSON IN CHARGE ON EVERY PAGE!"

Documents issued by the supplier *shall* be filed on board for a period of at least one (1) year.

4.6 Available fuel onboard, Remaining On Board

The **Chief Engineer** *shall* liaise closely with the **Master** to ensure that sufficient minimum stock of bunkers and lubricating oils are available on board to meet operational requirements in accordance with general instructions and is sufficient to enable the vessel to arrive at the next bunkering port or location with an adequate safe margin of usable fuel and lubricating oils.

A daily Engine Room Logbook entry is to be made showing the bunkers and lubricating oils consumed and remaining on board. All bunker receipts are to be signed by the **Chief Engineer** or if delegated; the **Watch Officer** in charge of bunkering.

Whenever required, the **Master** is to make suitable arrangements with the **Contracts Manager** to arrange bunkers accordingly.

Although the **Master** *shall* consider the relative bunker costs and other commercial factors involved, he/she *shall* primarily consider all aspects of the vessel's safety including (but not limited to) minimum stability requirements, the weather prospects and ensuring that an adequate safe margin of usable fuel and lubricating oils remain available.



Under normal operating conditions and in consideration of above requirements a value of 10% of total fuel available *shall* be considered as minimum stock for fuel oil Remaining On Board (ROB). This value may be reduced following commercial perspective. Vessel being delivered and redelivered with Minimum stock onboard. **Operations Manager** *shall* approve bunker quantities when vessel is off hire.

5 Records

333

- Bunkering Checklist
- Fuel Delivery Note
- Bridge Logbook
- Engine Room Logbook
- Fuel Sample Analysis Reports
- Oil Record Book

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- B-POL-01.0007 – Smoking Policy
- International Oil Pollution Prevention certificate
- BOS-FRM-03.0044 – G-JSA #8 Loading –Offloading Oil Based Product
- BOS-FRM-03.0045 – G-JSA #9 Loading –Offloading Water Based Product
- BOS-FRM-03.0046 – G-JSA #10 Loading –Offloading Dry Bulk Product
- BOS-FRM-01.0005 – Management Vessel Visit Checklist

7 Terms and definitions

IOPP
International Oil Pollution Prevention

ISM
International Safety Management

ORB
Oil Record Book

ROB
Remaining On Board

SMPEP
Shipboard Marine Pollution Emergency Plan

SOPEP
Shipboard Oil Pollution Emergency Plan

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS Operations Managers Director	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	-
BOS Ops Dpt Project Manager	BOS Operations Director		Ver.04 – 31/12/2014	Update §3 roles and responsibilities Modified §4.5 .Added Management vessel visit checklist to the related documents.

334

Lifting
and
Hoisting Operations

BOS-PRD-07.900604-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Purpose **4**

2 Scope **4**

3 Responsibility, authority and accountability **5**

4 Description **6**

4.1 Safety precautions during lifting and hoisting operations 6

4.2 Use of vessel cranes 6

4.2.1 Crane operations – training role 6

4.3 Principals for conducting lifting and hoisting operations 7

4.3.1 Planning 7

4.3.2 Control 7

4.3.3 Competence, Training on board and trainee. 7

4.3.4 Equipment 7

4.3.5 Requirements for inspection, maintenance and certification 7

4.3.6 Load integrity and stability 8

4.3.7 Lifting of personnel 8

4.3.8 Lifting operations flow-chart 8

4.3.9 Hose's lifting 10

4.3.9.1 Lifting with hoses equipment 10

4.3.9.2 Hose breakage actions 10

4.3.10 Defining routine and non-routine lifts 11

4.3.11 Routine lifts 11

4.3.12 Non-routine lifts 11

4.3.13 Initial considerations for the assessment of the load and its handling 12

4.3.14 Considerations for the selection of lifting equipment 12

4.4 Equipment maintenance inspections and testing 13

4.4.1 Inspection standards 13

4.4.2 Lifting belts 13

4.4.3 Tests and lifespan of lifting accessories 14

4.4.4 Modification of lifting equipment 14

4.4.5 Certificates and attestations of lifting equipment 14

4.4.6 Marking of lifting equipment 14

4.4.7 Man riding basket 14

4.4.8 Engine room – overhead trolley beams 15

4.4.9 Lashing equipment 15

4.4.10 Wires and cables 15

4.4.11 Modification of wires 16

4.4.12 (Non) destructive testing of wires 16

4.4.13 Special/additional testing of wires 16

4.4.14 Spare wires 16

4.4.15 Lubrication 17

4.4.16 Shackles 17

4.4.17 Link type shackles (Baldt link) 17

4.5 Survey records, certificates and attestations 17

336

4.5.1 Rejected lifting material 18

5 Records 19

6 Related documents 19

7 Terms and definitions 19

8 Review, approval, revision and identification of changes 20

337

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with the *ISM Code*, requirements of the *OSM Guidelines* and industry best practices referenced in this document, this procedure *shall* be used in association with procedures in relation to management of risk.

The purpose of this procedure is to document and to define the responsibility and authority related to lifting and hoisting operations and equipment inspection, testing, certification and maintenance requirements.

2 Scope

This procedure *shall* apply to all Company Lifting and Hoisting activities.

This procedure is mandatory for all vessels, offices and shore locations.

It applies to operations using specialised shipboard cranes, which are those used for the purposes other than movement of gangways and ships stores.

This procedure *shall* apply to owned as well as third party supplied lifting equipment with a capacity of 1 ton Safe Working Load (SWL) or above. All lifting equipment “strong points” having a lifting capacity lower than 1 ton SWL *shall* be clearly marked.

338

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that this procedure is effectively implemented in the Company offices and on board their managed vessels within their areas of influence.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring application of this procedure onboard the vessel under his/her command;
b) Keeping the cargo gear certificates such the Cargo Gear Register up to date;
c) Arranging maintenance/inspection of wires, sheaves and hook and the technical part of cargo gear which is normally delegated to **Deck and Engine Officers**;
d) Ensuring the implementation of this procedure.

Chief Officer has the responsibility, authority and accountability for:

a) Managing lifting operations and maintenance of related equipment;
b) Maintenance, inspection and certificates of all lifting and lashing equipment on board including certificate control;
c) Organising inspection and inventory of all lifting (& lashing equipment) every 12 months.

Superintendent has the responsibility, authority and accountability for:

a) Monitoring the planned and un-planned maintenance and surveys of the cargo gear, lifting beams and spreader beams;
b) Making detailed inspections of the cargo gear when performing a Superintendent inspection on board the vessel. The inspection findings *shall* be recorded in his/her inspection report.

Site Manager (Master or Operation Superintendent for MPSV) has the responsibility, authority and accountability for:

339

a) Applying SMS Documentation;
b) Authorising and designated the **Person In Charge (PIC)** who has the competence to control the lift Safely;
c) Authorising or designating lifting equipment **Operators**.

Banks-Man has the responsibility, authority and accountability for:

a) Being the sole **Banks-Man** at any given time;
b) Direct line of sight of the load;
c) Ensuring he/she does not handle rigging duties simultaneously.

Lifting Appliance Operator has the responsibility, authority and accountability for:

a) Authorising the use of the equipment;
b) Conducting pre-inspection of lifting appliance;
c) Using equipment properly and with design specifications.

All personnel involved have the responsibility, authority and accountability for:

a) Understanding their role and having the competence to perform as required;
b) Informing the **PIC** if conditions change or if there is any safety concerns during the lift.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations of lifting and hoisting operations are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Managers has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the Master executing his/her duties in respect of this procedure.

4 Description

4.1 Safety precautions during lifting and hoisting operations

The lifting and hoisting operations on any ship are potentially dangerous. The lifting and hoisting operations *shall* be subject to full pre-job planning Job Safety Analysis (JSA) before commencing, giving full consideration to the effects of weather, using of equipment and vessel movement.

4.2 Use of vessel cranes

Applies to operations using specialised shipboard cranes, which are those used for the purposes other than movement of gangways and ships stores.

- Crane operations *shall* only be performed by authorisation of the **Master** or delegated person on the vessel; this requirement also applies to Ships stores and Gangway cranes.
- Only trained personnel *shall* be authorised to use specialised shipboard crane;
- Newly assigned **Crane Operators** *shall* undertake a familiarisation of the onboard crane equipment before operating the crane;
- Lifting operations *shall* be stopped whenever weather conditions make it potentially hazardous or unsafe to continue operation;
- The vessel crane shall be used for any offshore operations only if it is certified.
- Only certified slings, ropes, chains and similar lifting equipment *shall* be used;
- All lifting equipment *shall* be carefully and fully inspected prior to use;
- Damaged slings, straps or similar lifting equipment *shall* be taken out of service immediately and permanently destroyed;

340

- A designated **Banks-Man** *shall* be used to supervise onboard crane operations and to give signal directions to the **Crane Operator**;
- The **Banks-Man** *shall* be clearly identifiable, but use of high visibility jacket or similar and *shall* remain within a designated safe area in compliance with the Clear Deck Policy;
- All personnel, whether involved in the crane operations or not, *shall* stay well clear of the area of operations;
- Access ways that may come under operating crane paths are to be cordoned off and all personnel warned accordingly;
- If there is any doubt whether the weight of any item to be lifted by the crane is within the crane's safe working load or not, stop the operation immediately;

4.2.1 Crane operations – training role

- Only the **Master**, following a review of the required Operators' License, can authorise new personnel as **Crane Operators**;
- All new assigned **Crane Operator**s *shall* operate the crane for a period of familiarisation under none working conditions and *shall* be authorised for operations only when a full competence assessment has been performed and verified;
- Other crewmembers may operate the crane for training purposes only, but always under close supervision of a licensed and experienced **Crane Operator**;
- All training *shall* be approved by the **Master** or **Chief Officer** and *should* at a minimum include the following:
  - The Safe Working Load (SWL) of the crane;
  - The location and operation of the emergency stop;
  - The movement parameters of the crane;
  - Tensioning and general load operation.

4.3 Principals for conducting lifting and hoisting operations

4.3.1 Planning

- A Lifting Plan is required for every lift;
- If the lift deviates from the plan, make safe and STOP the lift;
- Hazard identification and risk assessment *shall* be an integral part of planning a lift;
- An assessment of the lift and determination of the lift method, equipment and number of people required are critical to planning of a lift.
- For heavy lifts, a weather forecast *shall* be used when assessing the risks during the load / offload planning. In addition, routing services might be used during transit

4.3.2 Control

- One person in the lift team *shall* be designated as the Person In charge of the Lifting (PIC) operation (referred to as **PIC**);
- The **PIC** *shall* review the Lifting Plan and ensure that the required controls are in place and the lift is carried out following the plan;
- The **PIC** *shall* ensure that the lift team has tested and understood visual or radio communications prior to the lift;
- All personnel involved in the operation *shall* have their individual responsibilities clearly allocated;
- All people *shall* be kept clear of overhead loads and areas of potential impact;
- Manual load handling *shall* not be used to stop a swinging load and *shall* only be performed below shoulder height.

341

4.3.3 Competence, Training on board and trainee.

- All persons involved in planning/performing lifting and maintaining lifting equipment *shall* be trained and competent for their role;
- Refresher training on board and periodic assessment is necessary to assure competence.
- **Training on board** is a period of familiarization under non-working conditions based on interactive pedagogical support and equipment practice. The **Training on board** is completed when a full competence assessment has been performed and verified. **Master or Senior Officer** can validate the **training on board** and *shall* endorse in the *Seafarer Training and Experience Log Book*.

4.3.4 Equipment

- Equipment *shall* be fit for its intended purpose and operating conditions and *shall* be designed to a recognised standard;
- Equipment *shall* be fitted with appropriate safety devices;
- Any safety device fitted on equipment *shall* be operational and not over-ridden.

4.3.5 Requirements for inspection, maintenance and certification

- Equipment integrity *shall* be maintained and supported by an equipment register;
- Lifting equipment and devices *shall* undergo detailed and thorough examination by a competent person at least every 12 months and at least every 6 months for ‘man riding’ equipment, such as baskets, fall arresters and man riding winches;
- All lifting devices and equipment *shall* be inspected visually prior to use.

4.3.6 Load integrity and stability

- Loads *shall* not exceed dynamic and/or static capacities of the lifting equipment;
- The integrity and stability of loads *shall* be verified before lifting.

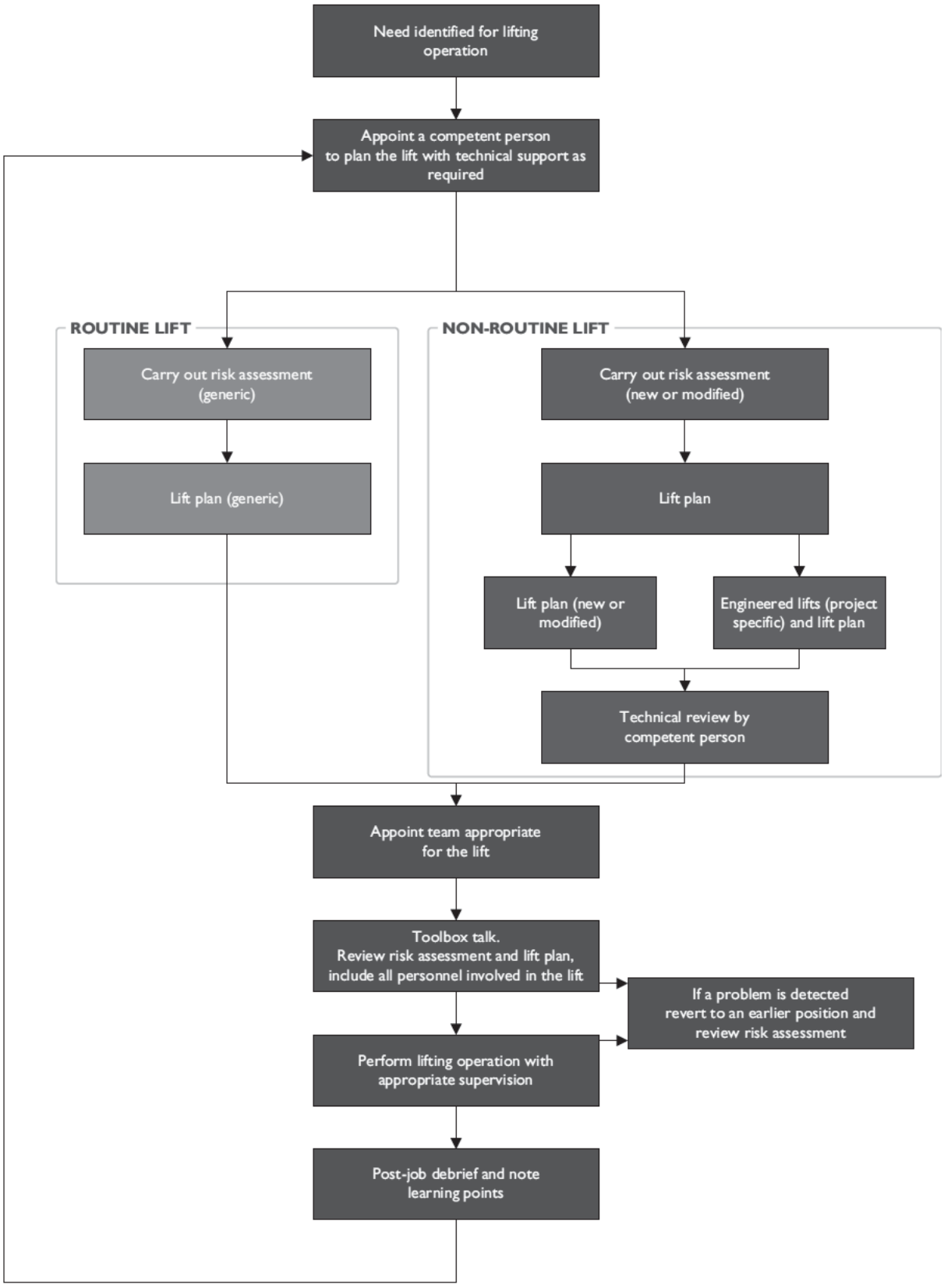
4.3.7 Lifting of personnel

- Lifting of personnel *shall* be avoided unless the risk has been demonstrated as being low as is reasonably practicable;
- Lifting of personnel *shall* be in accordance to the specific personnel lifting plan for that lift;
- Lifted personnel *shall* be properly secured with lanyards unless written procedures and risk assessment require otherwise.

4.3.8 Lifting operations flow-chart

The following flow-chart and brief description define every step within the Lifting process. The steps remain the same for each location and work activity. However, the competent person *shall* decide which lifts lie within the appropriate planning route.

342


Need identified for lifting operation
Appoint a competent person to plan the lift with technical support as required
ROUTINE LIFT
Carry out risk assessment (generic)
Lift plan (generic)
NON-ROUTINE LIFT
Carry out risk assessment (new or modified)
Lift plan
Lift plan (new or modified)
Engineered lifts (project specific) and lift plan
Technical review by competent person
Appoint team appropriate for the lift
Toolbox talk. Review risk assessment and lift plan, include all personnel involved in the lift
If a problem is detected revert to an earlier position and review risk assessment
Perform lifting operation with appropriate supervision
Post-job debrief and note learning points

343

4.3.9 Hose's lifting.

4.3.9.1 Lifting with hoses equipment

When engaged in deployment or stowage of bulk hoses, the **Banksman** and handlers must never stand in a position where there is potential for entanglement in a hose or being struck by a falling hose. Other personnel must be kept well clear of the area. The **Banksman** *shall* stand in a position where a clear view of the hose handling operation can be attained.

- Hoses *shall* be thoroughly checked visually for quality; if there be any doubt as to the hose being fit for purpose it *shall* be replaced;
- Never accept hoses before the vessel is stabilised in position under the crane;
- Never accept hoses that have insufficient flotation collars along its whole length, or insufficient reflective tape or equivalent (if applicable);
- Try to send hoses back up to the installation as soon as loading/discharging is completed;
- The deck crew *shall* never disconnect a hose from the crane-hook before they have secured the hose on deck;
- If working more than one hose at the same time, always ensure that all hoses are of approximately the same length, in order to prevent accidental submersion of a hose below the water line;
- If the **Master**/**Bridge Watch Officer**s for any reason find it necessary to reduce the number of hoses, give the installation clear reasons for the decision;
- When discharging dry bulk, endeavor to keep the vessel away from the installation's ventilation intakes;
- Prior to discharging fresh water, lines *shall* be flushed through in order to avoid discharging contaminated freshwater;
- Particular reference *shall* be given to the relevant sections of the UKOOA/Chamber of Shipping *Guidelines for the Safe Management and Operation of Offshore Support Vessels*.

344

4.3.9.2 Hose breakage actions

The following actions *shall* be taken in event of hose breakage/emergency break-away:

- Shutdown all transfers - shutdown the pumps on vessel side and request that the pumps are stopped on the installation side;
- Inform the installation - call the installation and inform them as soon as possible of the problem;
- The earlier the alert is sent, the better the possible consequences can be limited;
- Stop all crane operations;
- Try to keep applicable valves open to allow the circuit to be drained by gravity;
- When possible release the connection on the vessel side while slack is in the hose (tools *shall* be ready in position);
- Lay the hose on the deck, clear of any cargo and other obstructions;
- When possible, send the hose back to installation, if not; the hose *shall* be positioned in order to allow it to be released over side if the vessel continues to drift;
- Move away clear of the installation;
- When the hose is disconnected and clear, move out of the 500 meter zone to prevent any further incident with the installation.

4.3.10 Defining routine and non-routine lifts

For the purposes of this procedure two categories of lifting are identified, routine and non-routine.

4.3.11 Routine lifts

Routine lifts *shall* be identified and described as those which:

- Are covered by a job risk assessment (*Job Safety Analysis* (JSA)/*Tool Box Talk* (TBT);
- May not require a new Lifting Plan;
- Are lifts for which the Lifting Plan can be generic but *shall* still be discussed/reviewed at the pre-lift meeting. Such pre-lift meeting can, for example, be in the form of a *Tool Box Talk* at the start of a shift or as required during the shift;
- Are known, repetitive lifts, familiar to all of the lift team;
- Are repetitive lifts which are covered by a previously prepared JSA and Lifting Plan, however this *shall* be reviewed by the competent person;
- Are where the identified lifting team is trained in the use of the specific lifting equipment and familiar with its limitations; and competent to complete the entire operation;
- Are where the lifting team has performed their identified roles previously;
- Are where all personnel involved are familiar with the written risk assessment and the Lifting Plan for the operation being conducted;
- Are where the Lifting Plan is verified as the current issue before the operation.

For routine lifting operations, the Lifting Plan *shall* be properly planned by a competent person together with the people normally using the lifting equipment.

345

The lift *shall* be appropriately supervised and carried out in a safe manner.

All lifts require a Lifting Plan.

When operations are considered to be ‘routine’ the Company *shall* have a process in place to ensure that sufficient planning has been conducted.

Due to the repetitive nature of such operations, an individual plan *should* not be required on each occasion that the operation is conducted, unless any of the significant matters to which the plan relate have changed and need to be taken account of.

If in doubt, a lift *should* be considered ‘non-routine’.

4.3.12 Non-routine lifts

Non-routine lifts are those which do not meet all the criteria for routine lifts.

An engineered lift is a typical non-routine lift.

A non-routine lift is where:

- A job risk assessment is required to identify and mitigate the risks and a completed Lifting Plan is required, signed off by the persons identified in the relevant boxes of the Lifting Plan;
- A new specific Lifting Plan is required based on a risk assessment, (for example a HAZID);
- Identification and risk assessment or site specific JSA;
- A pre-lift meeting or *Tool Box Talk shall* be conducted involving all relevant parties. Those at this meeting would use the Lifting Plan, relevant drawings and JSA as a basis to summarise the proposed lifting operation.

The degree of planning can vary considerably and *shall* depend on the type of equipment to be used and the complexity of the operation.

A non-routine Lifting Plan *shall* be prepared by a competent person. This then needs to be reviewed and approved by another competent person and/or a technical authority. It *shall* then be reviewed and finalised by the on-site competent person and the **Lift Supervisor** carrying out the lift.

A non-routine Lifting Plan *shall* be produced on-site by a competent person if the need arises. The same review and approval, by a second competent person and/or technical authority and the on-site lifting team and **Lift Supervisor** carrying out the lift, *shall* be required.

In all cases, if defined upon the risk assessment and/or contract, a warranty surveyor *should* be appointed.

4.3.13 Initial considerations for the assessment of the load and its handling

For any type of lift an assessment of the load is vital:

- What is the weight of the load?
- Is the deck strong enough?
- Is the weight verified?
- Is the load designed for offshore lifting, for example container type?
- Are the lift points certificated/adequate?
- Can slinging points be accessed safely?
- Is the load slung in a stable fashion with no loose items in or on it?
- Is the Centre Of Gravity (CoG) known?
- Does the load have integrity and internal stability?
- Is the shape or size difficult to sling?
- Is it a very long load, liable to rotate etc?
- Will it flex under suspension?
- Does it require securing to its pallet?
- Does the load contain liquids?
- Is it fragile?
- Is it high value?
- Are there chemicals in the load?
- If subsea, consider shock loads and changes to weight in air due to the effects of flooding and draining, seabed suction, plus marine growth or debris/grout if removing existing subsea structures, added mass, the splash zone, which will be affected by sea state, changes to buoyancy and the centre of buoyancy;
- Are there any sharp edges?
- Are hold down bolts/sea fastenings removed?
- Are necessary permits obtained for its lift?

346

4.3.14 Considerations for the selection of lifting equipment

Initial assessment *shall* include the following:

- Is correct Personal Protective Equipment (PPE) identified and used?
- Sling angles and lifting attachment angles;
- Are attachment points adequate?
- How are slings to be attached?
- Is the hook type appropriate?
- Manual handling of heavy rigging?
- Will divers or Remote Operated Vehicles (ROV) be involved and are slings/attachments compatible with underwater work?
- Is there a lifting point available directly overhead?
- Is the sling arrangement suitable for the CoG?
- Sling lay direction – left hand lay and right hand lay *shall* not be connected;
- Will the layout and lay-down of the slings affect control of the lift?

- Any problems with geometry of slings and crane hook?
- Is buoyancy attached to sacrificial slings for ROV cut?
- Are there remote or local release shackles (spring loaded/acoustic)?
- Are tag lines required and does the lifting team understand the safe use of tag lines?
- Is a tandem lift necessary?
- Is cross hauling required?
- Will heave compensation systems be in use?
- Are sheaves and attachment points adequate for the possible winch/crane loading?
- Is there a method of observing spooling on drums and rope path through sheaves?
- Is suitable lifting equipment available?
- Does lifting equipment need to be moved to another location(s) during the lift?
- Is the load to be manipulated on the seabed?
- Will ROVs be of use in the operation?
- Is wire rope sufficient in length/construction for deep water (consider cabling)?
- Will sling dynamics have an effect?
- Is there protection for any control umbilical's?

4.4 Equipment maintenance inspections and testing

Frequency of inspections *shall* be carried out in compliance with the Planned Maintenance System subject to the range date as specified in same scheme.

Inspections *shall* be carried out by a competent crewmember. The crewmembers competence level is at **Master's** discretion.

Different inspections intervals are required for type of equipment as outlined in this procedure, however in principle the rule is as follows:

347

- Visual inspection is required prior to use;
- **Annual** inspection is required on lifting appliances' – i.e. crane wires, powered hoists, jacks, etc;
- **Bi-annual (6 monthly)** inspection is required for lifting accessories – i.e. slings, rigging, shackles etc.

All equipment found not satisfactory during any inspection (as per ISO 4309) shall be marked with red color, disposed and segregated in properly marked quarantine box.

4.4.1 Inspection standards

Cargo gear wires (hoisting wires) *shall* be inspected and examined as specified in publication *ISO 4309*. Criteria as specified in *ISO* 4309 are to be taken as a guide for inspections and examination of all cargo gear wires, incl. spare wires.

Cargo gear wires *shall* be inspected/examined on state or condition of wire lubrication coating. Criteria *shall* be whether coating of inspected wire under normal and expected conditions will stay intact/suffice until next inspection date.

Visual inspection of all parts of cargo gear *shall* be performed. Special attention *shall* be given to (but not limited to): swivels, hooks, sheaves, lubrication points/lines, limit switches, measuring/alarm devices, controls of gear, couplings, connecting parts and pins, etc.

Record of inspection *shall* be kept in the Plan Maintenance System.

4.4.2 Lifting belts

- Lifting belts with SWL/WLL over 15 tons (including) *shall* be returned after use by first convenient shipment, for inspection and storage at shore based stock;
- Lifting belts under 15 tons *shall* to be included in the 12 monthly inventory and inspection job as applicable for all lifting equipment.

4.4.3 Tests and lifespan of lifting accessories

Slings <10m:	To be renewed after 12 ½ years of age
Shackles >SWL/WLL 12 tonnes:	To be tested and inspected after 12 ½ years of age
Lifting chains, hooks, plates:	To be tested after 12 ½ years of age

- Attestation *shall* be issued by the specialist;
- Attestation *shall* be attached to the original certificate. If existing marks are not legible anymore, new certificate number *shall* to be issued and new mark to be stamped in to the shackle.

4.4.4 Modification of lifting equipment

- Modification of lashing and lifting equipment such as shortage/rejected/for replacement etc. *shall* be administrated on board and reported to the Company;
- Original certificates of rejected equipment *shall* be marked as such and have to be attached to the modification form.

4.4.5 Certificates and attestations of lifting equipment

- All original Certificates of lifting and lashing equipment *shall* to be onboard. A copy of these certificates *shall* be kept in the Managers office;
- Attestations of re-tested lifting equipment *shall* be attached to the original certificates. A copy of the attestation *shall* be in the office;
- Non-ship-related beams ("roving equipment") *shall* be delivered to the vessel with the original certificate. In case the beam is left behind (onshore), the **Master** *shall* send the original certificate directly to the office.

348

4.4.6 Marking of lifting equipment

- All "Loose lifting equipment under the hook" and auxiliary constructions (load spreaders; special seafast. etc.) *shall* be clearly marked with an unique identification number;
- For all lifting grommets, slings and shackles this identification number is the certificate number;
- For all other lifting equipment (spreaders; lifting beams; polyester belts; triangle-plates; etc.) this unique identification number, exists of the equipment number;
- For all auxiliary constructions, as far as applicable (load spreaders; etc.) this unique identification number, exists of the equipment number;
- 6 monthly inspection of lifting equipment *shall* be made visible by colour coding.
- Color coding *shall* follow the following rules:
  - If the charterer is providing a color-coding, the vessel shall follow the charterer color code.
  - If there is no color code defined by vessel charter, the following color code shall be applied.

    Every 1st semester of pair Year (2016-S1, 2018-S1…): ORANGE
    Every 2nd semester of pair Year (2016-S2, 2018-S2…) GREEN
    Every 1st semester of impair year (2015-S1, 2017-S1…): WHITE
    Every 2nd semester of impair year (2015-S2, 2017-S2...): BLUE

4.4.7 Man riding basket

- Man riding basket includes basket and 4 leg sling. It *shall* be inspected by the **Chief Officer** every 3 months;
- The inspection includes: markings good visible, construction lifting equipment and documentation. Detailed inspection instruction is connected to the job in Star;
- An annual survey *shall* be conducted by Class society.

4.4.8 Engine room – overhead trolley beams

- When marked as having a capacity of more than 1 ton SWL than such equipment is regarded as lifting equipment and *shall* be surveyed every 5 year during dry-dock;
- When being less than 1 tonne SWL than it is strongly advised to have a *Design Approval Document* (DAD) in place.

4.4.9 Lashing equipment

The following equipment *shall* be subject to maintenance and inspection:

- Steel cables and wires of all types;
- Shackles, links;
- Straps;
- Slings of all types;
- Turnbuckles, load binders;
- Hooks;
- Pulleys, snatch blocks;
- Chains.

All cargo and lashing equipment is to be inspected by an approved inspection organisation at a defined period according to the manufacturer's instructions or as indicated below.

Colour coding *shall* be used as applicable (use the same color code as per chap. 4.3.6).

Special attention *shall* be given to the identification of the following possible defects:

- Bending, twisting or cracking of hooks or shackles;
- Distortion and excessive wear of chains;
- Deterioration of slings;
- Broken or defective safety catches;
- Any other obvious signs of damage.

The following types of damages are examples for when lifting equipment *shall* be destroyed:

- Any damages to the material;
- Any cutting or crushing damage;
- Welding spurt;
- Any damage to the lifting eyes;
- General wear and tear.

4.4.10 Wires and cables

Inspection and maintenance of cables used for towing or anchor handling are described in the *Anchor Handling and Towing Operations*

Cables *shall* undergo periodic visual checks and *shall* be inspected annually It is important to recognise signs of internal and external damage including wire or stand breakage and to determine the metal section surface lost due to corrosion in comparison with the original.

This information may be used to evaluate the remaining service life of the cable.

Cable replacement is required in the following cases:

- Excessive distortion - crushing and kinking. Excessive deformation can seriously alter cable strength or distribution of dynamic forces;
- Socket damage - split, cracked, or deformed sockets *shall* be removed and replaced;
- Exposure of the cable core (bird-caging) - If the distance between the socket and the damaged section of cable is less than the length of cable that stays on the drum, a possible solution consists in inversing the cable;

- Strand and wire breakage - any cable presenting a broken wire or a number of visible broken strands resulting in a loss of 20% or more of the total of strands *shall* be removed from service and discarded.

Cargo gear wires *shall* be replaced after 5 years of use or as revealed upon routine inspections.

In the event rust is observed on any cargo gear wire, the wire *shall* be discarded/rejected for use. Other discarding criteria, like broken wire strands, wear and tear, etc. are given in the *ISO 4309*.

If inspections necessitate replacement of the wire:
- The **Master** *shall* notify and consult with the assigned **Superintendent**;
- The **Superintendent** *shall* authorise replacement order of cargo gear wires;
- The **Superintendent** in consultation with the **Operations Manager** *shall* decide on date of replacement;
- Spare wires onboard *shall* be used as replacement for rejected wires;
- Spare wires *shall* be thoroughly visually inspected prior/during reefing. Replacement for spare wire *shall* be ordered through the purchasing department.

4.4.11 Modification of wires

All cargo gear wire replacements and Certificate Modifications *shall* be recorded. See Chapter 4.4.

4.4.12 (Non) destructive testing of wires

- During dry-docking (or in water survey) of the vessel, average every 2.5 years, with max 3 years interval, cargo gear wires *shall* be examined by a external specialist. This includes inspection of the detachable end (wedge socket);
- During the same period about 4 meters of wire *shall* cut off in order to be destructive tested. If destructive test results are indicating that the actual break load is less than the minimum breaking load, the **Fleet Technical Manager** *shall* to be advised in order to take appropriate action.

350

4.4.13 Special/additional testing of wires

Special cargo gear wires inspection testing *shall* be carried out as follows:
- Post accident;
- Upon re-assembling (re-reeving);
- If the crane has been out of operation for three months.

This inspection is similar to the 3 monthly inspection as mentioned under this procedure.

4.4.14 Spare wires

- One spare wire with maximum length for each diameter in use *shall* be standard stock onboard;
- All spare wires *shall* be destructive tested by means of cutting 4 meters in length;
- Spare wires *shall* be stored below deck in a dry place;
- Wires *shall* never to be in contact with steel decks, connecting socket. Wire-ends to be on top of placed reel or free from deck/bulkhead;
- Reels of new delivered spare wires *shall* be clearly marked with certificate number, date and place of delivery;
- The total lifetime of a wire is 11 years, which means maximum 6-year storage and 5-year lifetime.

4.4.15 Lubrication

- Wires *shall* be greased with lubricant-product, as per maker's instructions if cargo gear-wire lubrication/coating has been detected on inspection;
- In respect of possible corrosion and wear, special attention *shall* be given to wire parts like (but not limited to):
  - Connecting ends;
  - Sockets;
  - Dead-ends;
  - Wire cable clamps.

4.4.16 Shackles

- Shackles *shall* be painted according to the colour code indicating their Safe Working Load (SWL);
- Each shackle *shall* be properly identified and have a load test certificate. Shackles *should* be greased regularly;
- Shackles *should* not be stamped for identification because of the risk of cracking;
- After intensive operational use, shackles *shall* be visually inspected for signs of damage;
- Threading is to be examined and the distances between the inner pin and between the two sides will be measured to detect possible distortion;
- Defective shackles *shall* be removed from service.

4.4.17 Link type shackles (Baldt link)

351

- Link type shackles (Baldt links) in use on board *shall* be individually identified and have a load test certificate;
- After each intensive use, link type shackles (Baldt Link) *shall* be disassembled and cleaned with careful visual inspection for cracks or any other defects;
- Any shackle that presents excessive play or cannot be reassembled easily *shall* be removed from service;
- Stamping for identification is prohibited.

4.5 Survey records, certificates and attestations

The **Master** in consultation with the **Superintendent** *shall* arrange class surveys of lifting and cargo gear as per planned maintenance.

All maintenance to the cargo gear *shall* be recorded and specified in Cargo Gear Maintenance Record (CGMR).

All gear replacements/inspections/lubrications/maintenance/repairs or any other related wire and gear activity *shall* be recorded in the CGMR.

Certificates from third parties involved in mentioned activities *shall* be included in the same file of the CGMR.

Brief entry *shall* be made in deck log, making reference to activities as specified and recorded in CGMR.

Annual, 5-yearly and occasional surveys of cargo gear (including stabiliser) *shall* be conducted by the classification Society.

After completion of survey, the Cargo Gear Maintenance Record *shall* be endorsed for cranes/derricks and a Lifting Appliance Certificate *should* be issued.

After completion of survey:
- The Cargo Gear Record Book *shall* be endorsed by Class;
- Original certificates of the cargo gear *shall* to be kept on board in the certificate file;
- Attestations of the lifting beams *shall* to be attached to the original certificate;

- Copies of certificates of the cargo gear and copies of the Cargo Gear Maintenance Record *shall* be sent to the Management office;
- Copies of lifting equipment *shall* be sent to the **Lifting Engineer Manager**.

4.5.1 Rejected lifting material

When material has been rejected it *shall* be well marked and guarded to ensure it is not put in use.

Rejected material *shall* be discarded as soon as practically possible.

352

5 Records

- Cargo Maintenance Gear Record book
- Lifting equipment certificates folder
- Superintendent inspection reports
- JSA/TBT
- Operator's Licence
- Planned Maintenance System
- Lifting and Lashing Equipment Book
- Class Society Attestation
- Design Approval Document
- Lifting Appliance Certificate
- BOS-FRM-0701.0011 – Lift Plan

6 Related documents

- Anchor Handling and Towing Operations (SMS Section 6)
- B-FRM-03.0004 - JSA/TBT Form
- B-GDL-03.0007 – OSM Guidelines
- ISO 4309
- Job Safety Analysis (SMS Section 9)
- Management of Change Procedure (SMS Section 7)
- GAIA-INS-10.0100- Subsea wire ropes maintenance instruction
  GAIA-INS-10.0103-ver.01- Subsea Crane Additional Control and Maintenance Instruction

353

7 Terms and definitions

AHTS
Anchor Handling Tug Supply vessel

CGMR
Cargo Gear Maintenance Record

CoG
Centre of Gravity

DAD
Design Approval Document

ISM
International Safety Management

JSA
Job Safety Analysis

Lifting accessory
Any device that is used or designed to be used directly or indirectly to connect a load to a lifting appliance. (slings, hooks, swivels, turn blocks, wedge sockets etc)

Lifting appliance
Equipment that performs the lifting (Cranes, jacks, pad eyes, forklifts, powered hoists, manual hoists, lever hoists, beam trolleys beam clamps etc etc.)

Lifting equipment
Both lifting appliance and/or lifting accessory.

MPSV
Multi-Purpose Supply Vessel

NDT
Non-Destructive Test

PIC
Person In Charge

PPE
Personal Protective Equipment

ROV
Remote Operated Vehicles

SWL
Safe Working Load

TBT
Tool Box Talk

WLL
The Working Load Limit (WLL) of a lifting appliance. It is also referred to as the Safe Working Load (**SWL**).

8 Review, approval, revision and identification of changes

354

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Managers Director	BOS Operations Managers Director	BOS Quality Representative	Rev.01 – 11/03/2013	Adding on §4.1 sentence "The vessel crane shall be used for any offshore operations only if it is certified"
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	Reviewed § 4.2.1; 4.2.11; 4.2.12
OPS DPT Project Manager	BOS Head of Operations		Ver.04 – 31/12/2014	Added § 4.1 Safety precautions during lifting and hoisting operations. Added training informations in § 4.2.3 Added § 4.3.9.1 and § 4.3.9.2

Personnel Transfer Operations

355

BOS-PRD-07.900605-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **4**

4.1 Weather and Environmental Restrictions 4

4.2 Use of gangways 5

4.3 Basket transfer/FROG 5

4.4 Transfer using Surfer 6

4.4.1 Suspension of operations and alternatives. 7

4.5 Use of small craft (Inflatable's) and FRCs 7

4.5.1 Launching and recovery of FRC 8

4.6 Work boats and small craft operations 9

4.6.1 Suspension of operations 9

4.7 Use of helicopters 9

4.7.1 Training requirements 9

4.7.1.1 Helicopter Survival Training 10

4.7.1.2 HLO Training 10

4.7.1.3 Heli-Guard Training 10

4.7.2 Illness or injury evacuation 10

4.7.3 Preparation for arrival of helicopter. 10

4.7.4 Alternative 10

4.8 Operating Company Vehicles & Road Safety 11

5 Records **13**

6 Related documents **13**

7 Terms and definitions **13**

8 Review, approval, revision and identification of changes **14**

356

1 Purpose

The highest standards of operational planning, monitoring and execution are fundamental to the safety of vessels and their crews, and for the protection of the environment.

In compliance with *ISM Code*, the requirements of *OSM Guidelines* and industry best practices referenced in this document this procedure *shall* be used in association with procedures in relation to management of risk.

2 Scope

This procedure applies to the transfer of personnel from ship to shore and at offshore locations.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation of this procedure onboard the vessel under his/her command.
b) Regular trainings shall be done on the topic on board (rigging, deployment, maintenance) according to Sec 3 and logged on the Information Acknowledgement form. Training frequency is upon Master's decision.
c) Master Safety Document or Specific JSA *shall* be used and logged on Tool Box Talk book as a proof of regular training of the ratings
d) The maintenance of the means of access *shall* be done in conformance with Sec 4, and guidance of the PMS.
e) Ensuring means of access and means of transfer of personnel certificates are carried on board. This shall include at least: gangway, pilot ladder, personnel basket, offshore articulated gangway, boat landing

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for personnel transfer operations are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

358

4 Description

4.1 Weather and Environmental Restrictions

The limiting criteria of the transfer of personnel *shall* be assessing by the Weather and Environmental Risk Assessment below.

This matrix is based on the BOS Risk Assessment Matrix (ref. *BOS-PRD-03.900901 – Job Safety Analysis*).

This matrix is a limited weather and environmental criteria based on BOS Risk Assesment. / Weather / environmental conditions / ACTIVITIES	Significant wave height / Swell < 2,5	Weather conditions including power requirement above 45% on main engines or thrusters.	Wind between 20 and 40 knots.	Wind above 40 knots.	Visibility < 500m	Vessel rolling heavily / moving violently affecting vessel station keeping or safety of crew.	Adequate Illumination	Darkness	Forecast for limits to be exceeded.
Use of gangways	N/A	N/A	1B	1C	N/A	N/A	1B	1C	1C
Basket transfer/FROG	2B	2C	4C	5C	2B	5C	2B	2C	4C
Transfer using surfer with boatlanding	2B	3B	3C	5C	2B	5C	3B	4C	4C
Transfer using surfer with without boatlanding	2C	3C	4C	5C	2B	5C	3C	5C	4C
Use of small craft (inflatable's) and FRCs	2C	3C	4C	5C	5C	5C	4C	5C	4C
Work boats and small craft operations	2C	3C	4C	5C	5C	5C	4C	5C	4C
Arrival of helicopter	2B	2C	4C	5C	4C	5C	3B	5C	4C

Weather / Environmental Risk Assessment

4.2 Use of gangways

Personnel transfer using gangway *shall* be made in association with the requirements for 'Means of Safe Access' as described in the *Mooring Operations* in section 6 of the SMS.

A T-cards board or a crew movement book *shall* be used during the call at berth. If a crew member stands in direct vicinity of the vessel (to check the drafts for example), it is not necessary to log his movement as long as the gangway watchman is able to sight him. In such case, it is the liability of the crew going on the berth to make sure the watchman is able to sight him at all times.

During any passenger embarkation or disembarkation, **Crewmembers** *shall* be stationed at the gangway location to provide assistance to the embarking or disembarking passengers as necessary.

During any **Passenger** embarkation or disembarkation, crewmembers *shall* control personnel movement and numbers crossing the gangway at any time in order to ensure maximum control and safety.

Temporary gangways *should* not be used, however if it is necessary to rig temporary arrangements, then these *shall* be rigged safely - securely lashed to fixed points - safety netting provided and lashing hand-rails to prevent persons from falling.

If temporary gangways are used as above, a crewmember *shall* be assigned watch duty at all times and *shall* remain at the gangway.

If the gangway is out of order, the personnel transfer can be performed by small boat or FRC according to the *SMS procedure*.

4.3 Basket transfer/FROG

359

Applies only to use of equipment and cranes certified for ALM and man riding - e.g. offshore installation cranes but not ship's cranes. ALM notation stands for "Appliance for lifting in offshore conditions" (BV rules NR 526 – Sec 1 Ch. 3.2). Man-Riding approval is defined in rule Sec 9 – Ch. 3.2 Additional requirement applicable to personnel hoisting. The Lifting Operations and Lifting Equipments Regulations 1998 (LOLER) sets standards for the certification of crane drivers.

For all cases of any Personnel Basket/FROG transfer from a vessel, full pre-task planning *shall* be completed and specific safety instructions *shall* be verbally issued to the transferring personnel.

Safety procedures have been defined by both the Charterer and by BOURBON and these *shall* be known, enforced and applied.

Before any **Personnel** basket transfers are conducted, a Personnel Transfer Check List (as applicable for the type of transfer) *shall* be completed and all items checked as being in compliance.

Should anyone not be satisfied with the condition in which any personnel transfer is to be made, they have the full authority to delay the operation until such time as conditions are improved, and personnel can safely be transferred.

The **Master** or **Watch Officer** *shall* check that all safety measures have been taken, including but not limited to the following:

- Establish effective radio contact with the location for the transfer;
- Inform the **Offshore Installation Manager** (OIM)/**Installation Responsible** person/other **Vessel Master** of the number and origin of the transferring personnel;
- Ensure that the transfer area on deck is sufficiently clear for safe reception of the basket. Note that in the case of a FROG transfer, the required clear deck area is 6-meters x 6-meters;
- For small vessels (Crew-Boats, Surfers if applicable) check with the transferring station that the diameter of the basket is compatible with the available deck area;
- Assign a crew-member on deck to act as **Person in Charge (PIC)** of the transfer:
  - Ensuring the prevailing weather conditions are safe for personnel transfer operations;

- Ensuring personnel have a certified flotation aid, full clothing (preferably cover-alls, but at a minimum long trousers) hard hats and closed shoes and any other PPE as deemed necessary for the transfer.

The **PIC's** duties *should* include:

- Visually inspecting the basket and its associated equipment;
- Instructing, advising and controlling the transferring personnel;
- Act as **Banksman** to provide signals and other communication to the crane operator;
- Ensuring that all transferring personnel are properly and safely positioned and properly secured inside a FROG basket as per the instructions whenever this type of equipment is used;
- Assigning a second crew-member to guide the basket as necessary by using the guide rope attached to the underneath;
- Ensure that all transferring personnel have donned their lifejackets properly and are equipped with other PPE as required.

Failure to follow these procedures can jeopardise the safety of the personnel being transferred to or from offshore installations and/or vessels engaged in the transfer.

4.4 Transfer using Surfer

Vessels equipped with a recognised boat-landing can carry out transfers of personnel via Surfers subject to approval by the **Vessel Master** and the Surfer Pilot.

Vessels not equipped with a recognised boat-landing, are restricted solely to transfers that can be carried out to a clear access area (side door or clear safety zone) during hours of daylight only and using a Surfer equipped with a bow fendering.

360 Under no circumstances may any personnel transfers be made when the transferring passenger has to take unacceptable risk, such as climbing over bulwarks or other vessel structures, or when the weather is poor or during hours of darkness and restricted visibility.

Masters on vessels not equipped with boat-landings *should* always give preference to crane/personnel basket transfer utilising an offshore installation after due communication with the OIM/responsible person.

In all cases involving **Personnel** transfers between a company vessel and a Surfer, the transfer *shall* be documented by using a generic Risk Assessment and a specific *JSA*.

The *JSA* and any further instructions *shall* be read and signed by the passenger before transfer.

The **Master** *should* always position the vessel so that the Surfer is offered a lee-side and is protected from swell and sea conditions.

The **Vessel Master** *should* liaise with the Surfer to establish the Surfer's preferred approach heading with regard to current, wind etc. and then position the vessel accordingly.

The Surfer *shall* hold off until given the all clear from the vessel **Master** to approach.

Lifejackets *shall* be worn during all **Passenger** transfer operations.

Proper clothing with long trouser legs, closed shoes and helmets are mandatory during transfer operations.

All embarking passengers, regardless of mission or duration of stay, *should* be familiarised with the Surfer safety procedures.

Familiarisation *shall* be given and boarding *shall* be recorded in a dedicated passenger/boarding register.

All Passengers *shall* remain seated in the cabin while the Surfer is under way. Seat-belts, where provided, *shall* be used.

Each passenger *shall* wait for the signal of the Pilot or **Surfer Deckhand** before boarding or disembarking; Both hands *shall* be free to grip the handrails on the boat landing.

No attempt *shall* be made to climb the boat-landing ladder when the Surfer is at the bottom of the swell. The passageway to the passenger compartment *shall* be free from obstruction.

Doors are to remain closed at all times while on passage and while underway unless personnel transfers are being conducted or access is required.

The **Surfer Deckhand** is responsible for safely opening and closing doors when necessary.

A **Surfer Deckhand** *shall* be stationed beside the handrail during all personnel transfer operations. The Surfer Deckhand plays an essential role in ensuring safety.

Two **Crewmembers** *shall* always be assigned to the deck of any other vessel during any personnel transfer between vessels to assist transferring personnel.

The **Surfer Deckhands** duties are defined in detail in the *Surfer Manual*. They include:

- Timing each transfer to coincide with the rise and fall motion of the Surfer;
- Lending a hand to all boarding and disembarking passengers;
- Handling personal luggage, bags and other equipment.

4.4.1 Suspension of operations and alternatives.

In the event of any hazardous or dangerous occurrence, when any doubt arises as to the continued safety of the transfer, or on instruction from the **Surfer Pilot** or **Bridge Watch Officer**, the transfer operation *shall* be immediately suspended.

361

If the surfer operation is suspended, the personnel transfer may be performed by small boat, FRC, Basket/FROG or helicopter according to the *SMS procedure*.

4.5 Use of small craft (Inflatable's) and FRCs

All small craft and FRC operations *shall* comply fully with these requirements and makers instructions for use.

The FRC is part of the vessels Safety Equipment and *shall* be used only for safety of life at sea.

It *shall* be remembered that the principal intended purpose of a FRC is recovery of a Man Over Board (MOB) and for use in other emergency situations as may be required.

Rescue boats *shall* remain available for MOB recovery and emergency situations at all times.

The use of the FRC for non-rescue operations is permitted when the vessel is at anchor or in port mooring areas providing suitable planning has been conducted and necessary permissions have been granted.

The use of FRC for purposes other than MOB recovery or emergency response is strictly prohibited at night or during periods of restricted visibility.

The pilot ladder *shall* be checked before use and properly rigged.

The **Master** is responsible for ensuring that the FRC is maintained in an operational condition.

Only those personnel with specific training in launching and manoeuvring the FRC *shall* be assigned to the relevant task.

Shipboard MOB drills and training in manoeuvring FRCs *should* be carried out when required but only on completion of pre-job planning requirements including consideration of the weather conditions.

The rescue boat *shall* undergo weekly checks and tests (also refer to SOLAS regulations).

Inspection *shall* be assigned to a responsible **Crewmember**.

The following weekly checks and tests *shall* be confirmed on completion to the **Bridge Watch Officer** who *shall* document compliance accordingly:

- Hull and fendering;
- Visual inspection of the engine and fluid levels. Check for any leakages;
- Bilge pump (if applicable);
- Testing of the rudder (if applicable);
- Batteries;
- Performance (rescue boat *should* be launched if operational conditions allow);
- Davit (condition of cable and release system).

If the small boat or FRC transfer operation is cancelled, the personnel transfer can be performed by surfer, Basket/FROG or helicopter according to the *SMS procedure*.

4.5.1 Launching and recovery of FRC

Great care *shall* always be exercised when launching and recovering.

Full pre-job planning requirements and completion of the FRC Pre-Launch Check List *shall* be confirmed
362 prior to any launch.

The launching/recovery team *shall* include one person to operate the davit and at least one crewmember to release the rescue boat (on launching) in addition to sufficient persons to handle painters and for any other applicable launch/recovery duties.

The rescue boat crew *shall* include an experienced **Helmsman** and at least one other experienced C**rewmember**.

Crew *shall* wear approved flotation devices, safety footwear and safety helmets in addition to coveralls and any other PPE as deemed necessary for the particular situation.

The FRC boat *shall* be inspected before launching, including: accelerator levers, radar reflector (when fitted) in the up position, engine condition, oil and other fluid levels, battery condition, and suitability of equipment for mission (e.g. the number of lifejackets etc).

The **Helmsman** *shall* ensure that the VHF/UHF radio is in working condition (battery status, pre-selected operating channel) and that communication is confirmed accordingly.

The FRC boat *shall* never be released from the davit until it is in full contact with the water.

Before departure the **Helmsman** *shall* warm the engine up for the required time, check that temperature readings rise gradually, and test the steering system.

Before undertaking rescue operations, the **Helmsman** *should* test the steering unit and reverse gear.

When approaching the mother vessel, the **Helmsman** *shall* ensure that all persons on board are ready before bringing the rescue boat alongside to the recovery position.

The **Officer of the Watch (OOW)** *shall* position the vessel so that it offers a lee-side for the rescue boat and protects it from wave and swell motion.

If the **Helmsman** has any doubt as to the safety of recovering the FRC, he *should* tie up prior to connecting the davit hook to the lifting arrangement.

Permanent VHF/UHF radio contact *shall* be regularly checked and maintained with the mother vessel.

4.6 Work boats and small craft operations

Use of the small boats (other than FRC) such as work boats for transfer of personnel, towing hoses or working on anchor buoys is permitted only when defined in specific shipboard procedures and after adequate risk evaluation.

The use of small boats in high sea and swell conditions *shall* be carefully assessed by the **Master**/**Officer Of the Watch (OOW)** and adequate pre-job planning *shall* be conducted prior to use, including completion of the applicable checklist pre-launch.

During transfer operations, the **Bridge Watch Officer** *shall* maintain VHF radio contact with the small craft **Helmsman** or designated **Crewmember** on an agreed and clear channel.

The **Bridge Watch Officer** on the receiving vessel *shall* determine the most suitable landing area depending on prevailing weather conditions and any other factors.

Two **Crewmembers** *shall* always be assigned to the deck of any vessel during any personnel transfer to assist transferring personnel including:

- Ensuring pilot ladder is properly rigged before the transfer starts
- Lending a hand to all boarding and disembarking passengers;
- Handling personal luggage, bags and other equipment.

363

4.6.1 Suspension of operations

In the event of any hazardous or dangerous occurrence, when any doubt arises as to the continued safety of the transfer, or on instruction from the **Bridge Watch Officer** or small craft **Helmsman**, the transfer operations *shall* halt immediately.

If the workboat or small craft transfer operation is cancelled, the personnel transfer can be performed by surfer, Basket/FROG or helicopter according to the *SMS procedure*.

4.7 Use of helicopters

Personnel transfer using helicopters using dedicated vessel Heli Deck- or for winching, *shall* be performed in accordance with the regulations contained in the following procedure and publications:

- BOS-PRD-07.900610- Helicopter Operations procedure
- BOS-PRD-07.900611- Helicopter Winching and Hoisting procedure
- Guide to Helicopter/Ship Operations (ICS);

4.7.1 Training requirements

It is essential that individuals are fully familiar with the routines and survival techniques associated with helicopter transportation. In the event of an accident, the survival of all involved depends on their co-ordination and quick responses. A single ill-informed, poorly trained person can put all fellow passengers at high risk.

The standards and procedures of the **Helicopter Operator** *shall* be followed after approval by the charterer's marine manager (or equivalent) and the **Master** of the vessel.

4.7.1.1 Helicopter Survival Training

All personnel *shall* follow the requirements with regard to Helicopter Survival Training. Such training is conducted at special facilities and consists of basic sea survival and helicopter under-water escape techniques. The validity of certification for successful completion of this training varies from country to country, but is typically between 2 and 5 years.

4.7.1.2 HLO Training

All HLOs *shall* have attended a recognised and certified course specifically for HLO duties. Such training *shall* be reinforced periodically with suitable refresher courses according to local legislative requirements.

4.7.1.3 Heli-Guard Training

The specially trained **Heli-Guard** *shall* have attended a recognised and certified course specifically for **Heli-Guard** duties. Such training *shall* be reinforced periodically with suitable refresher courses according to local legislative requirements.

4.7.2 Illness or injury evacuation

Not all the operation areas may lie within the operating range of the available helicopters. The approximate limit of any operating range *should* be established. On request of helicopter assistance, a rendezvous position *shall* be agreed between the vessel's **Master** and the **Helicopter Operators.**

As much information as possible *should* be communicated giving all available data concerning the victims condition of the casualty (particular his/her mobility).

364

Any change in the casualty's condition *should* be promptly advised.

For each contract/operating area, a Medevac Plan *should* be prepared as part of the overall project planning.

When appropriate this *should* include the possible use of helicopters to assist the rapid transport of casualty(s) to the nearest suitable medical facilities.

4.7.3 Preparation for arrival of helicopter.

Ensure that the route between the helicopter and hospital/cabin where the casualty is being treated is maintained clear and has adequate access for moving the casualty.

Ensure that the casualty's documentation is prepared including seaman's papers, passport, medical records, details of medical treatment and medication administered as applicable.

If the casualty is to be evacuated immediately by helicopter, check that the onboard stretcher type is suitable for the helicopter type being used.

Strap the victim face up in the stretcher with a life jacket if the condition permits.

Drills and exercises *shall* be periodically scheduled to provide familiarisation and training in the requirements of this plan.

4.7.4 Alternative

If the helicopter transfer is cancelled, the personnel transfer can be performed by surfer according to the *SMS procedure*.

4.8 Operating Company Vehicles & Road Safety

Road Vehicle Safety

These procedures covers the necessary processes required for vehicles and their drivers engaged on company business and provides for control measures to ensure that standards are set for all matters relating to the management of vehicles and their drivers.
These procedures are applicable to all road vehicle use on company business for all employees within Bourbon Offshore.

Responsibilities

- Each employee is responsible for the personal application of these procedures.
- The Senior Manager within any operating area, base, office location or other company facility will have the overall responsibility for ensuring that the requirements of these procedures are implemented.
- The day to day requirements to conform to these procedures is the responsibility of the dedicated drivers and specific managers or other responsible personnel who have the use of company vehicles or who assign use accordingly.

Driver's Documentation

All Drivers will be in possession of a valid driving license that satisfies the road traffic

- regulations of the country in which they are driving and which is appropriate to the vehicle being driven.
- Each vehicle shall be fully insured and certified as applicable. Copies of vehicle documentation shall be maintained on file in each respective location responsible for the vehicle.
- All Drivers are required to hold a valid medical certificate, copies of which shall be maintained on file at the applicable location.
- When considered necessary, Drivers will receive training to ensure a proper understanding of the correct operating procedures for the vehicle they will be operating and are responsible for.

365

Vehicle Specifications

- All vehicles, whether Company or Driver owned shall comply with the following:
- Be of adequate capacity and of a design suitable for the work to which they are allocated.
- Carry fully comprehensive insurance (including Drivers and all passengers)
- Passengers or cargo weights are not to exceed the manufacturers recommendations

Vehicle Maintenance

- All vehicles used on Company business will be serviced and maintained in accordance with the manufacturer's recommendations whenever possible.
- Records of maintenance schedules shall be held in the respective Company offices for all vehicles.
- Any defects occurring between maintenance schedules will be recorded by the Driver and appropriate action taken to rectify the defect.
- Vehicles developing defects which affect their road worthiness and / or safety will be removed from service immediately. Any such defects must be reported accordingly and without delay.

Seat Belts

- All vehicles will be fitted with front and rear seat belts available to the Driver and all other vehicle occupants.
- The Driver and all vehicle occupants at all times during any journey of any length shall wear seat belts.
- The Driver is responsible to check the condition and operational function of each seat belt daily prior to using the vehicle.
- The Driver is responsible for ensuring that all occupants of the vehicle are properly and correctly using the seat belts prior to commencing any journey.

Road Etiquette

- Drivers must at all times remain within the given speed limits and drive carefully with due consideration to the prevailing weather, visibility and road conditions.
- Drivers must at all times drive carefully and maintain adequate distances from other road users so as to be able to safely stop should an emergency braking or similar occurrence take place on the road ahead.
- As a rule of thumb, a distance of at least 2 seconds must be maintained between the vehicle and the vehicle in front.
- Observing the vehicle in front passing a fixed roadside object can assess this when counting the seconds until own vehicle passes the same object. In wet road conditions, the distance must equate to at least 4 seconds.
- Drivers must obey all permanent and temporary road and traffic signs and signals including any given by traffic control authorities, police or similar.
- Drivers must drive with courtesy and consideration for other road users and pay particular attention to the activities and proximity of pedestrians and two wheel vehicles (bicycles, motor cycles etc.).

366

Daily Vehicle Checks

- It will be the responsibility of the vehicle Driver to carry out a walk around visual check of the vehicle, with the following specific checks on a daily basis prior to the vehicle being used.
- Tyres – condition and treads (including spare tyre) and tyre pressures shall be checked at periods of not more than one week or whenever any cause for doubt exists.

Additional Checks

- All oil and fluid levels
- Wind-screen wipers and window washing systems
- Steering system
- Braking system
- Lights and indicators
- Internal lights and instrument panel lights
- Daily vehicle checks shall be recorded in a vehicle log provided to the Driver.

Use of Mobile Telephones

- It is strictly forbidden for Drivers to use mobile telephones at any time when the vehicle is
- moving.
- If Drivers have any need to use a mobile telephone, the vehicle must be safely parked
- and stationary.

Vehicle Breakdown or Accident

- In the event of a breakdown, the vehicle should if possible be moved to a safe position by
- the side of the road, and the respective Manager contacted in order that assistance can
- be arranged.
- In the event of an accident where there is injury or damage. The vehicle should not be
- moved until told to do so by the police.
- The reflective triangle should be placed in a position behind the vehicle at a distance as
- directed within the country where the vehicle is operating.

- Switch off the engine and do not allow anyone to smoke near the scene.
- Contact the senior responsible Manager to report the incident and for further advice.
- If necessary, the Manager will arrange any required assistance.

5 Records

- FRC Pre-Launch Check List.
- JSA/TBT.
- Log entries.

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- B-MNL-0702.0001 - Surfer Operations Manual
- Guide to Helicopter/Ship Operations (ICS)
- ISM Code
- Mooring Operations (SMS Section 6)
- GOMO Guidelines for offshore Marine Operations
- BOS-FRM-03.0027 Personnel Basket Transfer Check List.
- BOS-FRM-03.0047 - G-JSA #11 Passenger Transfer via FROG or Basket.
- BOS-FRM-03.0051 - G-JSA #14 Passenger Transfer via Boat-Landing.
- BOS-PRD-07.900610 - Helicopter Operations procedure.
- BOS-PRD-07.900611- Helicopter Winching and Hoisting procedure.

367

7 Terms and definitions

FRC
Fast Rescue Craft.

HLO
Helicopter Landing Officer.

ISM
International Safety Management.

JSA
Job Safety Analysis.

MOB
Man Over Board.

PIC
Person In Charge.

PPE
Personal Protective Equipment.

OIM
Offshore Installation Manager.

TBT
Tool Box Talk.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Managers Director	BOS Operations Manager Director	BOS Quality Representative	Rev.01 – 11/03/2013	Adding § 4.8 "Operating Company vehicles & Road Safety"
BOS Operations Manager Director	BOS Operations Manager Director		Ver.03 – 03/12/2013	Reviewed in §3, §4.1, §4.2 and §4.4.
BOS Ops Dept project Manager	BOS Operations Manager Director		Ver.04- 31/12/2014	Added § 4.1 Informations about Environmental restrictions and alternatives and the weather matrix. Added sentences about means of transfer when operation is cancelled or equipment listed is unavailable in § 4.2 / § 4.5.1 / § 4.5 / § 4.6.1 / § 4.7.4 Changed term "nose" to "bow" in §4.4 Added in § 4.7 Helicopter winching operations and Helicopter Operations Procedure. Added GOMO Guidelines in the related documents. Correction done to the G JSA number for passenger transfer via boat landing.

368

DP Operations Procedure

BOS-PRD-0701.900606-ver.03

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 DP Operations Manual on board 5

4.1.1 Structure 5

4.1.2 Set up the DP Manual on board: 6

4.2 DP Standing Orders 6

4.3 DP System certification and verification 7

4.3.1 DP FMEA 7

4.3.2 Annual DP trials 7

4.3.3 DP Capability plots 7

4.3.4 DP footprint plots 8

4.4 DP incident reporting procedure 8

4.5 DP Watch Organization & responsibility 9

4.6 DP checks procedure. 10

4.7 DP Online Consequence Analysis 10

5 Records 11

6 Related documents 11

7 Terms and definitions 11

8 Review, approval, revision and identification of changes 11

370

1 Purpose

The purpose of the DP Operations Procedure gives relevant information regarding vessel DP system to **Captains, Dynamic Positioning Operator (DPO), Engineers** and any interested Third party personnel.

This procedure is designed to be easy to read and to use.

This DP procedure is based on DP Operations Best Practices as generic section to all BOS vessels. This part is developed, maintained and controlled by Company's Management Systems expectations.

The DP Operations procedure contains also DP vessel specific data gathered in a file *"Guidance on vessel specific part*" developed and controlled by vessel's **Captains**, describing the DP operating system of the vessel and being inclusive of procedures for DP set-up, start and termination of DP operations.

2 Scope

This DP Procedure is applicable to the operation of all Dynamic Positioning Vessels within BOURBON OFFSHORE SURF Organization.

371

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the DP vessels comply with International Procedures for DP and Class requirements.
b) Implementing the Bourbon Offshore DP Guidelines and the DP Operations Best Practices across the vessels.
c) Establishing the adequate and necessary documents to ensure that the objectives of this procedure is met, based on the corresponding best practices determined by the Corporate Organization.
d) Ensuring that this procedure is implemented and maintained within his/her Affiliate Organizations, by means of adequate resources and support.

Operations Manager has the responsibility, authority and accountability for:

e) Implementing the *Bourbon Offshore DP Guidelines* and the *Bourbon Offshore DP Operations Best Practices* and ensuring compliance with the requirements through vessels.
f) Monitoring any deficiency to these *Bourbon Offshore DP Guidelines* and the *Bourbon Offshore DP Operations Best Practices*, reporting all DP failures and incidents occurred on vessels as per "International Marine Contractors Association (IMCA)" and as per BOURBON standards.
g) Participating to the development of the "Vessel Specific DP Operation Manual" part and ensuring its availability on board.
h) Ensuring proper vessel manning, regarding certification for DP operations as per International Maritime Organizations (IMO) Procedure, International Convention on Standards of Training Certification and Watch keeping (STCW) rules, IMCA requirements.
i) Ensuring correct DP certification for the vessel as per Classification Society requirements (1, 2 or 3).

372

Vessel Captain has the responsibility, authority and accountability for:

j) Implementing this procedure and the *DP Operations Best Practices* and ensuring compliance with the requirements.
k) Ensuring that the vessel specific part is developed and maintained on board.
l) Verifying proper vessel manning, regarding certification for DP operations as per International Maritime Organizations (IMO) Procedure, International Convention on Standards of Training Certification and Watch keeping (STCW) rules, IMCA requirement.
m) Verifying correct DP certification for the vessel as per Classification Society requirements (1, 2 or 3).
n) Ensuring that the vessel specific DP operation procedure pertains to the DP system presently on board.
o) Reporting all DP failures, incidents and "run-off's" as applicable, as per International Marine Contractors Association (IMCA) and as per BOURBON standards.
p) Ensuring all **Dynamic Positioning Operator (DPO's), Engine Officers** and **Electricians** are familiarized with the *DP Guidelines*, *DP Operations Best Practices* and the *Guidance on vessel specific part* contents.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and with the *DP Operations Best Practices* and liaise with the Captain to ensure all practical means are addressed to support the Captain executing his/her duties in respect of this procedure.

b) Notifying well in advance the **Operations Manager** when customer's expectations exceed Bourbon *Offshore DP Guidelines* and *DP Operations Best Practices*.

4 Description

General

- All personnel involved in DP operations *shall* take knowledge of this DP procedure.
- DP personnel *shall* refer to *Bourbon DP Operations Best Practices* for generic part and, to "*Guidance on vessel specific part*" for vessel specifications. This latter *shall* be available at the Bridge and Engine Control Room.
- DP personnel *shall* fill up relevant acknowledgement forms at Bridge for DPOs and Engine Control Room for engineers after having conducted a DP familiarization.

4.1 DP Operations Manual on board

4.1.1 Structure

373

- All BOS DP vessels *shall* implement this DP procedure on board.
- As per BOS SMS vessel filling system, binder 113 contains DP Procedure. Nevertheless, to be easy to read and to use, BOS Head Office Management decided to divide binder 113 in 3 parts at the Bridge and, set up an additional binder at the Engine Control Room (binder 306).
- Structure of Binder 113 DP Manual, as following:
  - 113A - DP Manual;
  - 113B - DP Manual records;
  - 113C - DP trials records.
- Refer to ***BOS-DRT-11.0003-Vessel Filing System*** for detailed structure of binder 113A-113B-113C and 306.

4.1.2 Set up the DP Procedure on board:

4.1.2.1 Bridge

- Print following documents and insert in their respective tabs within binder 113A:
    - Bourbon Offshore DP Guidelines;
    - Bourbon Offshore DP Operations Best Practices;
    - Guidance on vessel specific part;
    - DP manual Crew signature (for DPO);
    - Captain DP standing orders;
    - Capability Plots;
    - "IMCA DP guidelines".

- Print, laminate and insert the following documents within binder 113B – DP Manual records:
    - DP familiarization;
    - Familiarization with bridge equipment;
    - DP checklists;
    - DP footprint records;
    - IMCA Incident report(s).

- Insert last annual DP trials report and last FMEA report in the binder 113C – DP trials records.

374

4.1.2.2 Engine Control Room

- Print following documents and insert in their respective tabs within binder 306:
    - Bourbon Offshore DP Guidelines;
    - Bourbon Offshore DP Operations Best Practices;
    - Bourbon Offshore Surf DP Operations procedure;
    - Guidance on vessel specific part;
    - Chief Engineer DP Standing orders;
    - DP manual Crew signature (for Engineers);
    - Engine DP familiarization records;
    - Engine DP checklists.

4.2 DP Standing Orders

- Vessel's Captain *shall* implement his own DP standing orders. Captain generics DP Standing orders are described in Bourbon Offshore DP best practices §1.6.3.1.

- Vessel's Chief Engineer shall implement his own DP standing orders. Chief Engineer generics DP Standing orders are described in *Bourbon Offshore DP Operations Best Practices* §1.6.3.2.

- The Captain/Chief Engineer's night's orders book defines requirements for being notified by the DPO/Engineer when certain operational parameters are met.

- Captain *shall* develop emergency procedure that will be part of Vessel's Captain DP standing orders. These actions will be followed by DPO in emergency situation.

4.3 DP System certification and verification

4.3.1 DP FMEA

- *DP FMEA (Failure Modes and Effects Analysis)* proving trials are reviewed at the delivery date of the vessel. This latter *shall* be done after :

    1 Modifications on DP system or set up new Position Reference System for example;
    2 Upgrades, DP class 1 to DP class 2 for example;
    3 Charterer request;
    4 After 5 years.

- This DP trial is compulsory for vessel DP class 2 or 3 and may be requested by charterer for DP OSV Capability 1.

- DP FMEA is performed by a Third party.

- Last FMEA report *shall* be archived in appropriate binder as per *BOS SMS vessel filing system* and is a part of DP vessel familiarization.

- FMEA proving trial(s) are described in *IMCA guidelines M 166 "Guidance on Failure Modes & Effects Analyses (FMEAs)*.

4.3.2 Annual DP trials

- This DP test is performed on a yearly basis after the FMEA date of anniversary +/- 3 months for all DP class vessels.

375

- A Third party may be contracted to do annual DP trials for BOS vessels. A Company's **Master**, **Chief Engineer** or a **DP expert**, external of the vessel, may perform annual DP trials, using DP annual test report as per *IMCA Guidelines M 190 "Guidance for Developing and Conducting Annual DP Trials Programmes for DP Vessels"* .

- Last Annual DP trials report *shall* be printed and archived in binder 113C, as per BOS SMS Vessel Filing System.

- Annual DP trial informations are described in *IMCA guidelines M 190 "Guidance for Developing and Conducting Annual DP Trials Programmes for DP Vessels"*.

4.3.3 DP Capability plots

- Vessel's Master *shall* ensure that DP Capability plots are available on board.

- Capability plots *shall* be printed and archived in appropriate binder as per BOS SMS Vessel Filing System.

4.3.4 DP footprint plots

- DPO *shall* use BOS DP footprint plots form to perform these trials every 4 weeks maximum.

- DPO *shall* test the following situation:
  - Steady position with all thrusters selected and all sensors selected.
  - 360 round with all thrusters selected and all sensors selected.
  - Steady position in **worst case failure** situation.
  - Drift test.

- BOS foot print plots blank forms are available in *BOS Vessel Filing System* and appropriate binder referring to 113A - DP Manual. In addition, BOS foot print plots *shall* be available in Task Assistant.

- DP footprint plots *shall* be kept as paper form in appropriate binder as per *BOS SMS vessel filing system* with other DP records.

4.4 DP incident reporting procedure

IMCA has defined five categories of incident:

376

1. DP Incident;
2. DP undesired Event;
3. DP Downtime;
4. DP Near miss;
5. DP Hazard Observation.

For more details of these different incidents, refer to *Bourbon Offshore DP Operations Best Practices*.

This DP incident *shall* be reported to the Head Office Management with the *IMCA DP Incident Reporting Form* and BOS reporting system (refer to BOS SMS 2014 section 8 - I*ncident Investigation and Analysis procedure*).

4.5 DP Watch Organization & responsibility

DP watch organization is described as follow:

- First Bridge manning structure when vessel is on DP operation:



- Second Bridge manning structure after DP watch changeover:



377

- In case of DP watch changeover, a handover between DPOs oncoming and DPOs outcoming *shall* be carried out following the BOS form Bridge DP checklist “watch keeping and handover”.

- If Captain involves in DP watch he will be considered as Senior Dynamic Positioning Operator (SDPO) as per DP watch organization.

- For DP vessel class 1 and DP vessel class 2 chartered lower, Bridge manning requirements will differ. For more details refer to *Bourbon Offshore DP Operations Best Practices* §1.5.

- Captain *shall* designate one **Senior DPO** among the both DPOs on duty and among his qualification and experience.

- **Engineer** and/or **ETO** *shall* conduct engine watch, as per STCW requirements, at Engine Control Room when vessel is under DP location in close proximity of offshore unit and when the vessel is engaged in Subsea operation.

4.6 DP checks procedure.

- **DPO** operating on vessels as PSV – AHTS or FSIV *shall* use BOS DP checklist blank form.
- **DPO** *shall* perform checks using DP "Arrival checklist" before entering within 500 meters of the installation.
- If customer's procedure allows and if weather permitted, vessel can be manually steered up to 100 meters from offshore unit.
- Engineer on duty *shall* fill up *Engine DP checklist* implemented by vessel's Chief Engineer and approved by the Captain.
- As soon as the vessel is in DP auto mode, **DPO** *shall* use BOS form *Bridge DP checklist watch keeping and handover*.
- **DPO** operating on IMR vessel *shall* use all checklists already setup on board and not BOS blank forms as per Vessel Filing System.

4.7 DP Online Consequence Analysis

- The DP Online Consequence Analysis function performs analysis to determine the vessel's ability to maintain its position and heading after predefined worst-case failure single equipment failure.

378

- This function satisfies the requirements of IMO Equipment Class 2 and Equipment Class 3.
- The analysis checks whether the thrusters remaining in operation after worst case single failure are able to generate the same resultant thruster force and moment as required before the failure, and whether the remaining generators are able to produce a sufficient amount of power. A warning message is issued if a failure would result in lack of thrust or power, and subsequently drift-off.
- These failures will be the loss of one complete switchboard, one Engine Room (for DP3), or a group of thrusters that can be affected by a single equipment failure.
- Consequence analysis are performed cyclically, every minute, whenever the following criteria are satisfied:
    - The vessel is in AUTO Position Mode.
    - The position set point status is Present Position.
    - The heading set point status is Present Heading.
    - DP class 2 or DP class 3 is selected.
- By default, the DP Online Consequence Analysis function is switched off.

5 Records

- Guidance on vessel specific part.
- Bridge DP familiarization.
- Engine DP familiarization.
- DP foot print plots.
- Bridge Arrival DP checklist (Except IMR).
- Bridge Watchkeeping / Handover DP checklist (Except IMR).
- IMCA reporting template form.
- Captains DP Standing Orders.
- Chief Engineers DP Standing Orders.

6 Related documents

- B-GDL-07.0007 - Bourbon Offshore DP Guidelines.
- B-BPC-07.0001 - Bourbon Offshore DP Operations Best Practices.
- BOS-FRM-0701.0012 - DP footprint form.
- BOS-FRM-0701.0013 - Bridge DP checklist Forms.
- BOS-FRM-0701.0014 – DP Manual Crew Signature.
- BOS-FRM-0701.0015 - Bridge DP Familiarization form.
- BOS-FRM-0701.0016 - Engine DP familiarization form.

379

7 Terms and definitions

DPO: Dynamic Positioning Operator.

ETO: Electrician Technical Officer.

SDPO: Senior Dynamic Position Operator.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS Project Coordinator	BOS Head of Operations	BOS Quality Representative	Ver.02 – 03/12/2013	Replacing existant guidelines done by Bourbon Corporate.
BOS Project Coordinator	BOS Head of Operations		Ver.03 - 31/12/2014	Replacing existant procedure from the SMS to have one DP procedure in the Company Management System. Replacing in all procedure terms “guidelines” for “ procedure” / Captain by Master. Changing terms listed in §4.1.2.1 to be in adequation in terms employed in the Vessel Filing System binder 113A / 113B and 306.

Methanol Operations

380

BOS-PRD-07.900609-ver.04



Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Knowledge of the materials used 5
4.1.1 What is Methanol? 5
4.1.2 Nitrogen 6
4.1.3 Fire safety 6
4.1.4 Environmental protection 7
4.2 Methanol transfer 7
4.2.1 Job preparation 7
4.2.2 Tank preparation 8
4.2.3 Blanketing of methanol tank 9
4.2.4 Loading Methanol 10
4.2.5 Offloading to receiver 11
4.2.6 Completion of operation - Cleaning 12
4.3 Maintenance 13
4.3.1 System tests during unused periods 13

5 Records 14

6 Related documents 14

7 Terms and definitions 14

8 Review, approval, revision and identification of changes 15

381

1 Purpose

The purpose of this procedure is to promote the safe handling of methanol in order to protect your health, your workplace and the environment. It presents current information on Methanol's properties, potential environmental, health and safety hazards, safe handling practices, emergency response procedures and communication risk. It also highlights the danger of producing nitrogen in confined spaces. However, this procedure is not intended to be a substitute for applicable laws and regulations.

2 Scope

This procedure is applicable to:

- All BOURBON line management, operating and/or managing vessels, which are capable of carrying Methanol;
- All BOURBON vessel's with approved Methanol tanks/systems and Nitrogen producing plant.

382

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that within the organisation, the requirements of this procedure are implemented and maintained

Vessel Master has the responsibility, authority and accountability for:

a) Implementing this *Methanol Operations Procedure* and ensuring compliance with the requirements;
b) Verifying proper vessel manning, familiarized and experienced, to carry safely methanol operations;
c) Ensuring that the methanol and nitrogen installation plants are always operational;
d) Developing methanol operations manual specific and pertaining to the vessel installations;
e) Ensuring vessel correct certification for operation;
f) Ensuring the implementation of this procedure.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Methanol Operations are communicated and implemented onboard all vessels under his/her jurisdiction.
b) Ensuring his/her fleet is in compliance with the applicable laws and regulations;
c) Ensuring his/her fleet is always fully operational (Methanol and Nitrogen plants);
d) Ensuring Methanol operations manuals and/or procedures are developed and implemented on board his/her fleet;
e) Ensuring the concerned vessels are supplied with specifics, necessary and suitable equipments to carry out safe methanol operations;
f) Ensuring his/her vessels are properly manned to carry safe methanol operations.
g) Senior operation manager ensures and gather all reviews and feedbacks and make necessary updates of this procedure

383

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

4 Description

The following elements of this section *shall* be taken in consideration when developing the operation and the specific methanol manuals.

4.1 Knowledge of the materials used

4.1.1 What is Methanol?

Derived from natural gas, methanol is a hydrocarbon, comprised of carbon, hydrogen and oxygen. Its chemical formula is CH_3OH. Methanol is an alcohol and is colourless, neutral, polar and flammable liquid. It is miscible with water, alcohols, and most other organic solvents. It is only slightly soluble in fats and oils.

Other common names for methanol include methyl alcohol, methyl hydrate, wood spirit, wood alcohol and methyl hydroxide.

UN number is 1230 (See *MSDS Methanex*).

At all stages of transport methanol *shall* be stored securely and handled responsibly. This minimizes risk to people and the environment, and preserves product quality.

4.1.1.1 Overriding considerations

- Methanol is an easily ignited hydrocarbon that burns in air;
- The molecular weight of methanol vapor is marginally greater (denser) than air (32 versus 28 grams per mole). As a result, and depending on the circumstances of a release, methanol vapor may collect in confined spaces and low-lying areas;
- In certain specific circumstances, methanol vapor explodes on ignition;
- Methanol is a toxin; ingestion of a small amount (between one and two ounces, approximately 30 to 60 milliliters) can cause death; lesser amounts are known to cause irreversible blindness. Do not eat it, drink it, breathe it, or stand over it;
- Methanol is totally miscible in water. A 75% water and 25% methanol solution is considered to be flammable liquid. This has important implications for fire fighting.

384

4.1.1.2 Special provisions and protective measures

- So far as possible, methanol *shall* be stored and used in a dedicated area that is specifically marked off and appropriately labeled. This area *shall* have safety measures readily available to employees working in the area;
- Use positive materials identification for gaskets, filters, hose material, etc;
- Ensure procedures are in place to ground, and periodically verify grounding;
- Ensure procedures are in place to protect from water up-take and accumulation;
- Ensure procedures and provisions are in place for preventing methanol entry into the water table or aquifers;
- Ensure procedures and equipment are in place for personnel protection;
- Ensure procedures and equipment are in place for leak detection and alarm;
- Ensure procedures and equipment are in place for onsite emergency response;
- Ensure procedures and possibly specialized equipment are in place for offsite emergency responders;
- Electrical equipment *shall* be explosion-proof;
- Positive pressure may be required to ensure that methanol-free areas are protected;
- Grounding is especially important in protecting methanol from accidental ignition resulting from static discharge;

- Hoses *shall* be grounded in methanol loading and unloading situations. Methanol is not a static accumulator. Electrical conductivity of methanol is relatively high when compared to that of most fuel materials.

4.1.2 Nitrogen

Nitrogen is a chemical element that has the symbol **N**, atomic number of 7 and atomic mass 14.00674 u. Elemental nitrogen is a colorless, odorless, tasteless and mostly inert gas at standard conditions, constituting 78.08% by volume of Earth atmosphere.

UN number is 1066 (See *MSDS PRAXAIR P- 4631-H*).

Rapid release of nitrogen gas into an enclosed space can displace oxygen, and therefore represents an asphyxiation hazard. This may happen with few warning symptoms, since the human carotid body relatively slow and a poor low-oxygen (hypoxia) sensing system. An example occurred shortly before the launch of the first Space Shuttle mission in 1981, when two technicians lost consciousness and died after they walked into a space located in the Shuttle's Mobile Launcher Platform that was pressurized with pure nitrogen as a precaution against fire. The technicians would have been able to exit the room if they had experienced early symptoms from nitrogen-breathing.

Large volumes of nitrogen gas are evolved from small volumes of liquid nitrogen (1 litre of liquid giving 0.7 m^3 of vapour) and this can easily replace normal air in poorly ventilated areas leading to the danger of asphyxiation. It *should* be noted that oxygen normally constitutes 21% of air. Atmospheres containing less than 10% oxygen can result in brain damage and death (the gasping reflex is triggered by excess carbon dioxide and not by shortage of oxygen), levels of 18% or less are dangerous and entry into regions with levels less than 20% is not recommended (Notices are posted in the stairwell altering lab workers to the dangers in case of Oxygen deficiency alarm sounding).

385

Oxygen Content (Volume %)	Effects and Symptoms
21%	Normal breathing
17%	A candle is extinguished. Vision may be impaired
12-16%	Labored breathing, increased heart rate. Lack of attention and coordination
11-14%	Unable to think. No longer perceives danger. Ability to self rescue is impaired. Fatigue, injury to heart, fainting
8-11%	Fainting without warning. Nausea, vomiting, unable to stand, walk or crawl. Person is dying but does not care. It's all quite painless.
6-8%	Faint almost immediately, heart may continue beating for a few minutes, resuscitation possible if immediate
0-6%	Fainting, almost immediate coma, convulsions, respiratory arrest, death, brain damage even if resuscitated

4.1.3 Fire safety

Flammability: Methanol is defined by OSHA as a class IB flammable liquid.

Flash point is defined as the minimum temperature at which the vapor pressure of a liquid is sufficient to form an ignition mixture with air near the surface of liquid. Pure methanol has a flash point of 12°C (54°F).

When the ambient temperature is less than the methanol flash point, the fire hazard is reduced. However, local hot spots can exceed the flash point and methanol can be ignited. Warmer ambient conditions increase the overall fire hazard. Cancel the operation if there are lightnings with storm in the vicinity, and make sure there are no flame being spitted out by flarebooms (500m zone entry supposed to cover it)

Fire Safety precautions:

- Smoking *shall* be prohibited everywhere during the operation even inside (in case ventilation and accommodation A/C would fail, pressuring of accommodation would no longer be assumed and methanol gas may enter)
- Electrical equipment *shall* be explosive proof;
- Alcohol Resistant - Aqueous Film Forming Foam of the alcohol-resistant type (AR-AFFF) with 6% foam proportioning (with water) equipment is advised for use on methanol fires;
- Dry Chemical extinguishers *shall* be accessible for small fires. An adequate supply of hand held and wheeled types *shall* be available;
- Hydrants *shall* be strategically placed with adequate hoses – Foam guns are placed and orientated as per classification society approval to cover the dangerous area
- Small spills *shall* be remediated with sand, earth or other non-combustible absorbent materials, and the area then flushed with water. Larger spills *shall* be diluted with water.

4.1.4 Environmental protection

Methanol biodegrades easily in water. Methanol in high concentration in fresh water or salt water can have short term harmful effects on aquatic life within the immediate spill area.

SMPEP/SOPEP equipment *shall* be ready for use on deck. Scuppers *shall* be closed and plugged to prevent any methanol spillage to the sea.

4.2 Methanol transfer

386

4.2.1 Job preparation

The methanol transfer *shall* be prepared according to company's standards, using G-JSA 15 (S-JSA if developed by the vessel), Check-list and holding a tool box meeting as mentioned on section 9.

All electric power equipments in direct vicinity of the Methanol transfer station and pipings, *shall* be of an explosion proof type (including lighting and portative UHF).

Battery replacement *shall* be done in a safe area, inside accommodation.

Suitable PPE *shall* be worn. Respiratory masks, face shield, chemical suits, certified methanol resistant chemical proof boots and gloves, hard hat.

The Nitrogen *shall* be available on sufficient volume to provide a continuous loading /offloading of the whole quantity of methanol. Nitrogen is either produced on board by the nitrogen generator, supplied by the FPSO (receiver) or chemical tanker (supplier), or available in a tank loaded on main deck.

A SCBA shall be placed at the most strategic place in order to cope with emergency recovery of personnel inside the nitrogen room. Ventilation *shall* be on in the nitrogen plant room during the methanol operation. The SCBA *shall* be worn during transfer phases when entering the nitrogen plant room, as nitrogen exposure may occur, unless the ventilation is kept on. An O2 detector is checking atmosphere in this room during operations.

A stretcher and resuscitation kit *should* be placed close enough to the nitrogen plant room.

Methanol transfer pumps emergency stops shall be tested.

The list and trim of the vessel *should* be considered. A good setting allows a better flow of methanol when offloading and will keep the pump running longer with less methanol left over in the tanks at the end.

Bravo flag *shall* be shown and red light in the mast at night.

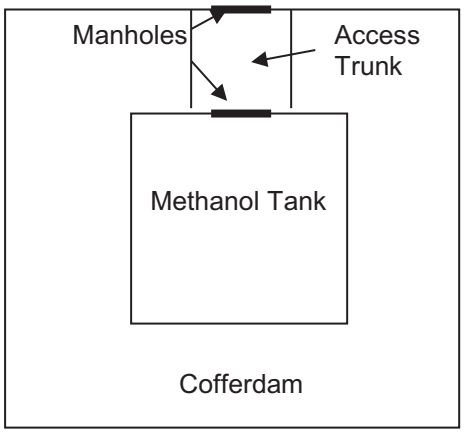
Sea water *should* never be used in cofferdams or methanol tanks to reduce corrosion development. Drill water, fresh water *should* be used instead.

All escape hatches and doors from Main deck into Propulsion Room, Stores and Accommodation *shall* be kept closed as soon as methanol is started to be loaded on board

4.2.2 Tank preparation

PV valves *shall* be inspected. PV valves shall be left in automatic to maintain a slight positive pressure inside the tanks at all times.

Methanol tanks manholes are accessible through the cofferdam's access trunk.



Methanol tank access

387

Complete the PTW enclosed space entry and open cofferdams and methanol tanks manholes.

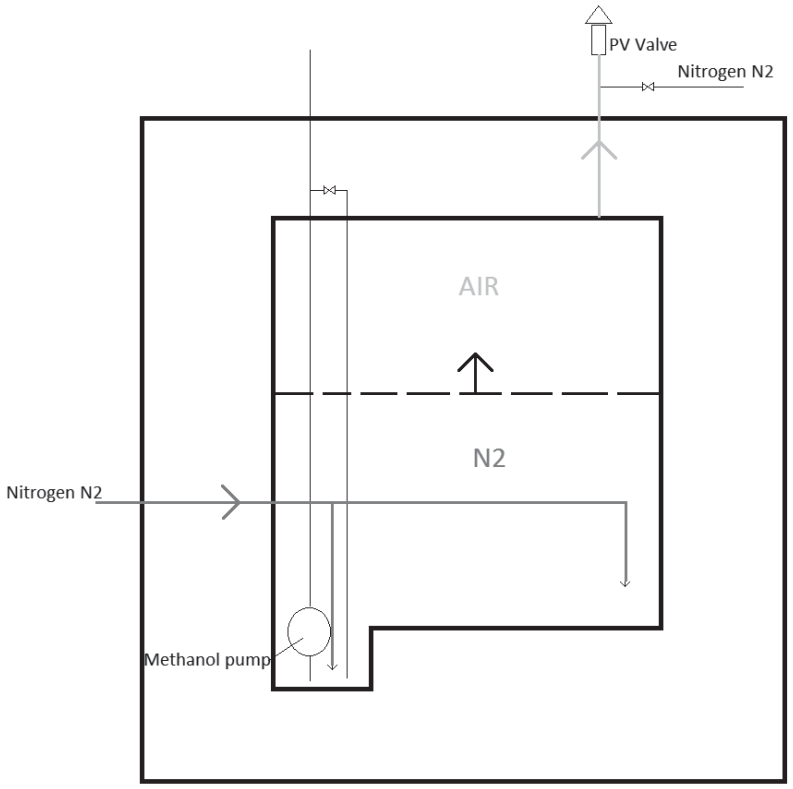
Test the methanol transfer pump with fresh water, discharge to the bilge well during the test.

Dry the tank with clean rags if necessary.

Check that the high level and very high level (95%) alarms are working suitably.

The client *should* make a survey of the methanol tanks and give his approval for carriage of methanol.

4.2.3 Blanketing of methanol tank



388

Blanketing of Methanol tank with N2

Fill in the nitrogen bottles with the nitrogen generator. The nitrogen plant room *shall* be kept closed to avoid nitrogen to fill other rooms. This room *shall* be equipped with an O2 sensor, and access is restricted only to intervention on nitrogen system or other critical equipment by authorized persons. The person entering the room for the purpose *shall* check the O2 level and carry an EEBD with him. A second person shall stand outside, ready in case of nitrogen sudden release. Ventilation is kept on in this room during the whole loading, this one *shall* be shut off immediately if a methanol release is expected on main deck.

Blanket the discharge pipe with nitrogen before tank blanketing is started.

Ensure that all discharge valves are closed.

Fill cofferdams with nitrogen. FW can be used as back-up.

Load methanol tanks with nitrogen, air is evacuated through the PV Valve. Remaining O2 shall not exceed 8% (IMO requirement IBC 19.8.3) to consider the tank as blanketed/inerted, and the pressure *shall* be positive just over 0 bar.

depending on the vessels, this step requires around 36 hours.

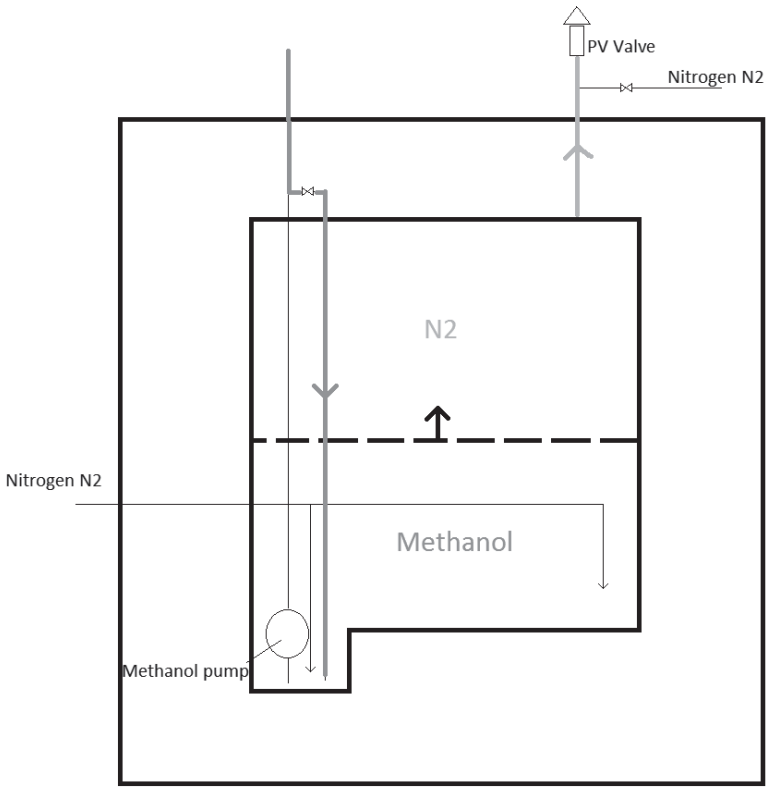
Nitrogen shall be injected as slow as possible to avoid any mixing with air.

Check O2 rate from the PV Valve with portative gas detector.

Once the tanks are inerted and prior to load methanol, nitrogen bottles *shall* be fully filled.

The tanks are ready to receive methanol.

4.2.4 Loading Methanol



389

Loading methanol

Moor alongside the supplier or hold relative position on DP if applicable.

Make sure the supplier is aware of the quantity to deliver to avoid overflow. Consequences could be disastrous. High level 95% alarm *shall* be checked before the operation.

Double check PV valves are operational.

Connect the methanol loading hose.

The methanol loading hose *should* be filled with nitrogen by the supplier (chemical tanker, shore installation …) who blows the line at the same time to make sure there's no obstruction on the system.

There *should* not be any pressure when the tank is empty and with minimum loading rate. In any case, if the pressure rises on the system, it means that there is an obstruction further on the line to the tank, or PV valve is stucked closed.

Usually, tanks are loaded 85% of methanol. Bridge monitors tank level gauge.

Start at minimum rate, around 10 m3/h, and increase progressively to maximum rate (120 m3/h is usually the rate bared by supply vessels). Minimum rate *should* be kept the time necessary to be confortable with the loading and all safety checks.

The pressure valve may remain slightly opened at times because of increase of pressure inside the methanol tank. Make sure the pressure valves are not stucked in opened position, this would result in waste of nitrogen. Indeed, if the PV valve remains opened, the pressure drops to 0 bar and it becomes necessary to fill with additional N2 to compensate the loss of pressure. This compensation, automatically done at the PV Valve line, is called padding.

A designated person *shall* remain on location but clear from dangerous area during the loading to check the tank pressure and nature of the gas outlet at the PV valve or if a failure arises. Do not stand near the PV valve during the loading, only approach to make regular checks.

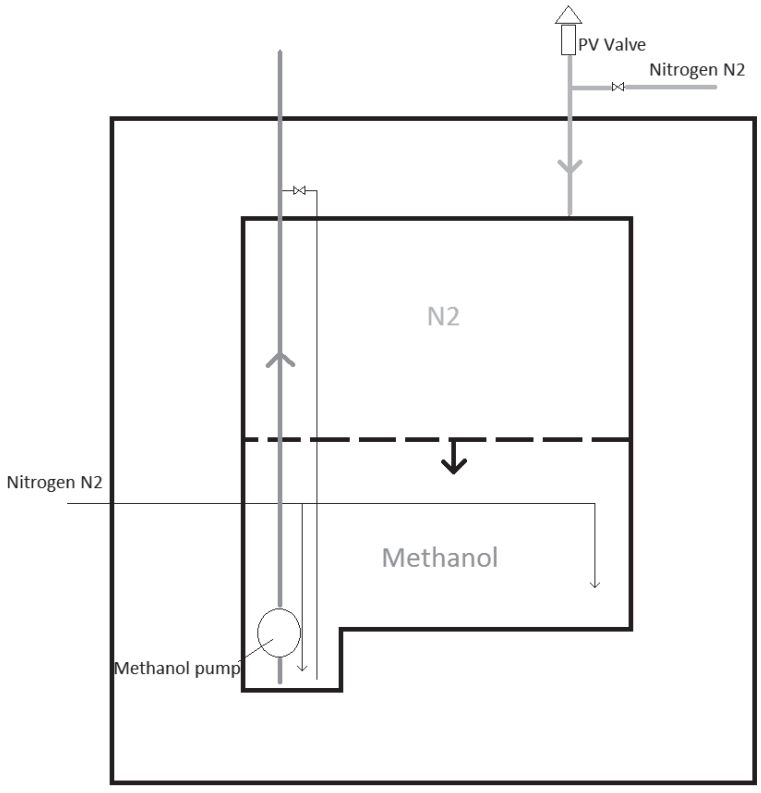
When the loading is completed, the supply valve of the onshore installation is closed. Then, the filling line is purged with nitrogen before hose disconnection (Close ship's side valve before disconnection). Gas and O2 measurement is carried out by means of a gas detecting instrument, this instrument is equipped with a hose. The vent line is equipped with a manometer line, this manometer line is provided with a blind plug and measuring of gas can be executed by removing the plug and put the hose into the line

Before the ship is leaving the harbour, the ships nitrogen reservoir has to be replenished.

Continue supplying nitrogen through vent. pipe during the voyage to prevent oxygen to enter the Methanol tank, for this purpose use the "Padding line".

4.2.5 Offloading to receiver

390



Offloading to receiver

Moor alongside the receiver or hold relative position to him on DP.

Cofferdams are still full of nitrogen.

Receiver sends the hose down. Connection of the hose. The hose *should* be blanked and blown with nitrogen first.

Depending on the situation, open either the ship's nitrogen bottles, receiver nitrogen hose valve, or nitrogen tank valve. Once this valve opened, it's possible to open the methanol's discharge valve. Start the methanol

pump. The Nitrogen aims to replace the methanol during the offloading. When discharging, watch the nitrogen inlet pressure constantly, on the pressure gauge on methanol tank vent pipe.

Pumping rate is usually around 120 m3/h with 4 bars of pressure in the hose. The by-pass valve on the discharge line may be used to set the offloading pressure. The delivery capacity to be regulated by adjusting the hydraulic flow.

The discharge rate is to be 80% of the N2 supply rate

Start slow rate with pressure at 2 bars. Then increase to 80 m3/h with a pressure of 3 bars at ship manifold

Cargo tank to be maintained at positive pressure throughout the offloading

In case of ship's nitrogen plant failure, even if receiver is able to supply N2, operation is cancelled until the ship has recovered her N2 station.

Make sure pressure valves are not stucked in open position, this would result in waste of nitrogen.

When a methanol discharge pump breaks down, use the other methanol discharge pump as an emergency pump.

Methanol tank's oxygen level must be regularly checked during the offloading, and must remain under 8%. If any doubt, increase the nitrogen pressure in the methanol tank by reducing the discharging rate, until the pressure valve releases and check oxygen level at PV valve.

In case of a pressure drop to less than 0 bar would occur in a methanol tank, it becomes an emergency situation as oxygen is subject to enter and mix with methanol. Stop immediately the transfer to recover positive pressure.

391

When the offloading is completed, disconnect the discharge hose, and close the purge valves, after purging discharge line with nitrogen.

The padding line valves are kept open, the regulator will hold a nitrogen over pressure in the tank. The pressure will be approx. 0,15 bar. Methanol gas measurements to be carried out regularly.

4.2.6 Completion of operation - Cleaning

When the last offloading operation has been completed, the ship *shall* be flushed as per following procedure and the last flushing, at least, *shall* be done with FW.

Fill the Methanol tanks with water to about 50%, using the loading /discharge line.

Discharge the water overboard by means of Methanol pump. Continue the water filling / discharging operation until the flammable vapour concentration in the Methanol tanks is below 30% of lower flammable limit (LEL), before gas freeing at deck level (through open manholes) is permitted (SOLAS Ch.II-2 Pt.D Reg.59.2). The methanol tanks have to be pressurless before the manhole to the tank is opened.

The cofferdams *shall* remain filled with nitrogen until the methanol tanks are gas-freed.

The access trunk vent / drain valve *shall* be closed before opening the manhole into methanol tank.

Ventilation of methanol tanks can be done by filling of water into the tank.

Before next filling of methanol into the tank, discharge the water out of the tank, clean and dry the tank properly.

The discharge of the polluted water overboard *shall* be done as per MARPOL Annex II Reg.5.4. The discharge of Chemical Product into the sea is prohibited unless the following condtions are satisfied:

- The ship is underway at a speed of at least 7 knots.
- Ballast water, tank washings or other residues containing Chemical Product are of a concentration not greater than one part of Chemical Product in ten parts of water.
- The discharge is made at a distance not less than 12 nautical miles from the nearest land.

Release the whole quantity of nitrogen from the bottles and the system.

4.3 Maintenance

Follow instructions of the PMS and manufacturer.

No maintenance, opening of any element of the methanol system *should* be done without Master and Ch. Engineer authorisation (manifolds, pressure valves, pumps, valves, tanks, manholes etc...)

4.3.1 System tests during unused periods

If the system is not used on a long term basis, simulations *shall* be carried out and Ch. Engineer *shall* make sure that all elements of the system are operating properly.

For that purpose, fill the cofferdams and methanol tanks about 80 % with FW to save time, then put the tanks under pressure completing with nitrogen. Nitrogen system is operating and PV valves are checked.

Then, FW is pumped out using the methanol pumps.

392

5 Records

- N/A

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- Methanex- Methanol MSDS February 2007.
- Methanol Institute - Methanol Safe Handling Manual Edition 1.0 - October 2008.
- Praxair - Nitrogen MSDS. reference P-4631-H, dated July 2007
- The Affiliate Organisation / Vessel specific - 'Methanol Manual'
- MSDS PRAXAIR P- 4631-H
- BOS-FRM-03.0052 - G-JSA#15 Loading/Offloading Methanol
- BOS CheckList #19 Loading/Offloading Methanol

7 Terms and definitions

AR-AFFF
Alcohol Resistant - Aqueous Film Forming Foam.

PMS
Planned Maintenance System.

PV Valve
Pressure Vacuum valve.

393

Padding
Compensation of pressure loss in methanol tanks by permanent supply of nitrogen kept under slight positive pressure by the PV valve. It forms a nitrogen pad over the methanol.

N2
Nitrogen.

O2
Oxygen.

MSDS
Material Safety Data Sheet.

OSHA
Occupational Safety and Health Administration.

SMPEP
Shipboard Marine Pollution Emergency Plan.

SOPEP
Shipboard Oil Pollution Emergency Plan.

UN number
Four digit numbers that identify hazardous substances and articles such as explosives, flammable liquids and toxic substances for the purpose of international transport.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operation Manager Director	BOS Operation Manager Director		Ver. 03 – 03/12/2013	Complete revision of the procedure
BOS Operation Manager Director	BOS Operation Manager Director		Ver. 04 – 31/12/2014	-

394

Mooring Operations

BOS-PRD-07.900607-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 4

2 Scope 4

3 Responsibility, authority and accountability 5

4 Description 6

4.1 Safety precautions during mooring operations 6

4.2 The mooring operations 7

4.2.1 Berthing 7

4.2.2 Planning and briefing of mooring operation 7

4.2.3 Preparation of Mooring 7

4.2.4 Mooring Position 8

4.2.5 Heaving Lines 8

4.2.6 Stoppers 8

4.2.7 Mooring Stations 8

4.2.8 Tending of mooring when alongside 9

4.2.9 The unberthing operation 9

4.3 Maintenance of mooring equipment 10

4.3.1 Planned maintenance 10

4.3.2 Maintenance of steel wire moorings 11

396 4.3.3 Testing of brakes 11

4.4 Means of safe access 11

4.4.1 Lighting and safe movement 12

4.4.2 Safety nets 12

4.4.3 Life-buoys 12

4.4.4 Security 12

4.5 Anchoring 13

4.5.1 The anchoring operation 13

4.5.2 At anchor 13

4.5.3 Dragging anchor 13

4.5.4 Heaving anchor 14

4.5.5 Securing the anchor for sea 14

4.5.6 Marking the anchor cable 14

4.5.7 Bitter end 14

4.5.8 Chain locker 14

4.6 Drydock 15

4.7 Spread mooring operations 15

4.7.1 Set the vessel on her anchor pattern 15

4.7.2 Calculation 17

4.7.3 Particular situation 17

4.7.4 Equipment maintenance, inspection and testing 18

5 Records 18

6 Related documents 18

7 Terms and definitions 18

8 Review, approval, revision and identification of changes 19

397

1 Purpose

The purpose of this procedure is to document and define the responsibility and authority related to mooring activities including anchoring and to provide safe access to the vessels.

2 Scope

This procedure *shall* apply to all BOURBON and Affiliate Organisation activities and is mandatory on board all vessels. The same *shall* be used by all persons engaged in mooring operations and maintenance of mooring equipment.

398

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Day to day adherence and implementation of this procedure;
b) Ensuring that sufficient personnel are assigned to each mooring station;
c) Deciding the manning required to tend the mooring;
d) Maintaining the ship in constant position during the deployment of the anchors at the agreed position with **Rig Move Master**.
e) Moreover, the master *shall* send to the operation manager the spread mooring plan for endorsement before the operation.
f) Ensuring that ship/shore access arrangements are in place and are safe at all times;
g) Ensuring that gangway openings onto the ships are closed;
h) Ensuring the implementation of this procedure.

Chief Officer has the responsibility, authority and accountability for:

a) Adhering to the planned maintenance instructions for deck equipment.
b) Takes care of the overall safety of the operation during the deployment of the lines as the Captain is focusing on the station keeping. Once the anchors are all deployed, he manages winches in coordination with the Ch. Engineer.

Chief Engineer has the responsibility, authority and accountability for:

a) Deploying the cables, usually from bridge control. He is in radio contact with Boatswain and Leading Seaman, who are on deck, following them with CCTV system (when available). 399

Boatswain or Leading Seaman has the responsibility, authority and accountability for:

a) Organisation of seamen;
b) Tasks including the maintenance of all deck equipment, mooring and unmooring duties and any other duties that may be assigned to ensure the safety of the vessel.

a) Checking the good development of the operation on deck. He is in radio contact with Ch. Mate/Ch. Engineer who supervises from the bridge.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Spread Mooring and Mooring Operations are communicated and implemented onboard all vessels under his/her jurisdiction.
b) Collecting and analyse the ship's feedbacks.
c) To endorse the spread mooring plan before operation.

Head of Operation has the responsibility, authority and accountability for:

b) Gathering reviews and feedbacks from vessels and makes necessary updates to the following procedure.

Contracts Manager has the responsibility, authority and accountability for:

a) To endorse the spread mooring plan before operation.
Monitoring compliance with this procedure and liaising with the Master executing his/her duties in respect of this procedure.

c) That plans be agreed jointly with the client and include procedures for mooring deployment and recovery, the management of vessels involved, the protection of all assets, including subsea assets, and the monitoring of mooring line tensions throughout all operations.

d) That procedures include requirement for operational meetings between all parties; particularly anchor handling vessels, to ensure that the content of mooring plans and necessary communications are fully understood.

Rig Move Master has the responsibility, authority and accountability for:

a) Monitoring the spread mooring operations.

4 Description

4.1 Safety precautions during mooring operations

The mooring operation on any ship is potentially dangerous. Crewmembers are at greater risk of injury during mooring and unmooring operations than at any other time.
The mooring operations *shall* be subject to full pre-job planning Job Safety Analysis (JSA) before commencing, giving full consideration to the effects of weather, sub-sea obstructions and vessel movement.

Affiliate Organisations have formal procedures that require shore management oversight of spread mooring plans and operations.

The following are some safety reminders, which need to be observed during mooring operations:

- DO NOT surge synthetic fibre ropes on drum ends. This may damage the rope and also leave deposits on the drum end or bits, causing the rope to jump with the risk of injury to persons nearby;
- DO NOT stand too close to a winch drum or bit when holding and tensioning a line. If it surges you could be drawn into the drum or bit before you can safely take another hold or let go;
- DO NOT apply too many turns on a drum end. No more than 4 turns *should* be taken with synthetic lines. If more turns are applied then it is difficult to release in a controlled manner;
- DO NOT bend/twist rope excessively;
- DO NOT stand in the bight of any rope. BEWARE OF THE BIGHT;
- DO NOT stand close to a rope under load. It may part without warning. KEEP OUT OF THE SNAPBACK ZONE;
- DO NOT leave loose objects in the line handling area. If a line breaks it may throw such objects around as it snaps back;
- DO NOT have more people than necessary in the vicinity of a line;
- DO NOT attempt to handle a wire or rope on a drum end, unless a second person is available to remove or feed the slack rope to you;
- DO NOT leave winches running unattended;
- DO NOT stand on winches/bollards to get a better view;
- DO NOT use wire direct from a stowage reel that has not been designed to withstand loads;
- DO NOT allow oil leaks from winches to make the deck hazardous. It could be you who slips and falls;
- DO WEAR the correct safety clothing and equipment;
- DO WEAR gloves when handling wires;
- DO LEARN ABOUT the mooring system on your ship;
- DO ANTICIPATE AND PREVENT potentially dangerous situations arising;
- DO TAKE CARE.

400

4.2 The mooring operations

4.2.1 Berthing

The berthing operation *shall* be fully planned if applicable in conjunction with the pilot or **Mooring Master**.

The factors for a safe berthing operation include:

- The speed of approach to the berth;
- Angle of approach to the berth;
- The wind force and direction;
- Tide / current conditions;
- Use of anchors.

4.2.2 Planning and briefing of mooring operation

When, eventually after consultation with the **Pilot** or **Mooring Master**, final details of the mooring operation are known, the **Master** *shall* instruct the officers or other responsible persons who are to supervise the mooring operation fore and aft, on details of the mooring arrangements.

The instructions *shall* include:

- The use of any tugs, their position and means of making fast;
- The mooring layout to be used;
- Sequence of running lines;
- Safety precautions to be observed during the operation;
- Position and method of rigging gangway or other access.

401

The mooring layout *shall* make best use of the mooring lines available. When the ship is fitted with wire and synthetic rope moorings then it is often best to use the wires for springs and polypropylene breast lines and the synthetic lines for headlines and stern lines. Whenever possible lines leading in the same direction *shall* be the same length and be made of the same material and construction. Mixed moorings, wire with synthetic or wire or synthetic rope alone but with differing construction *shall* NOT be used in the same service.

The lead of the line to the shore *shall* also be considered. Whenever a line is unable to act in exactly the same direction as the force it is trying to withstand, its holding power is reduced. The effectiveness of any line is proportional to the cosine of the angle the line makes with the keyside. A line at twenty degrees *shall* be 94% effective, while a line at an angle of fifty degrees *shall* only be 64% effective.

Use *shall* be made of any berth information available from previous calls at the same berth.

4.2.3 Preparation of Mooring

The **Master** is responsible for ensuring that sufficient personnel are assigned to each mooring station.

When mooring stations are called by the **Master**, the Officer or other person in charge of each station *shall* brief the mooring party as to the safety and mooring requirements. Each person *shall* be checked to ensure correct wearing of personal safety equipment such as suitable clothing, safety shoes, gloves, safety hat etc. The ford mooring party *shall* also be provided with goggles in the event the anchor has to be used during the mooring operation - planned or unplanned.

The mooring stations *shall* be prepared and ready for use prior to arrival of the ship at the berth. Communication links with the bridge *shall* be tested. Lines run out *shall* be clear of the main working areas

with care being taken to ensure that the leads are correct so as to avoid the possibility of chaffing between different lines. Wires or other ropes leading from power winches *shall* not have lengths of slack lying on the deck where they can present a hazard to personnel from bights being formed or uncontrolled run back.

4.2.4 Mooring Position

During mooring, the officer at the poop deck *shall* inform the **Master** when the ship is "in position". This means the ship is positioned alongside in order to lower the ramp without being obstructed.

At most regularly visited berths this position has already been indicated by a marker on the key-side. New ports/berths are suggested to be marked subject to Port Regulations.

4.2.5 Heaving Lines

At each mooring station at least two heaving lines of sufficient length, made up and ready for use *shall* be available. The end of the heaving line may be made up from a traditional monkey fist or other knot to provide sufficient weight to allow the line to be thrown effectively. The use of metal or other heavy inserts, paint impregnated knots etc. to provide weight can prove hazardous to shore personnel and are not permitted.

4.2.6 Stoppers

At each mooring station a sufficient number of stoppers *shall* be available for ropes or wires which may require to be transferred from a drum end to bits.

402 It is essential that the correct type of stopper is used on any occasion. Only synthetic stoppers *shall* be used on synthetic lines and chain or specially designed (carpenters) stoppers *shall* be used on wires.

When a mooring station is ready, a report *shall* be made to the bridge.

4.2.7 Mooring Stations

Winch controls *shall* only be operated by experienced and qualified seaman. At no time when the winches are in operation are the controls to be left unattended, locked or tied back in an operating position. The operation at each mooring station *shall* be co-ordinated by the officer or other person in charge. He *shall* be correctly positioned clear of any danger areas while maintaining visual contact with the winch controller and over side activities. On ships designed with ship side winch controls or wandering control boxes care *shall* be taken to ensure that wires or ropes are stowing correctly on the drums.

The winch brake is a static device intended for holding a mooring line and is not to be used as a means for controlling a line being slacked down. When a line has to be slacked down, then the winch *shall* be put in gear, the brake released and the line walked back under power. A line *shall* never be slacked down by releasing the brake without the winch being in gear as this can cause uneven wear on the brake band, resulting in a reduction in the brake holding capacity.

The running of numerous lines when appropriate man power is not available *shall* be avoided. Personnel *shall* be assigned only one task at any time. Care *shall* be taken when running lines that they do not foul the propeller or any thrusters. Care *shall* also be exercised when lowering any line into a mooring boat so as to prevent injury to its crew members. The line *shall* have sufficient slack to enable the mooring boat to make easy progress to the shore or mooring dolphin but not an excessive amount which *shall* result in it fouling the sea bed.

When a rope is being worked on a drum end, then in addition to the person tending the line, a second person *shall* be available to clear away and stow the line as it is hove in, as well as being available to apply a stopper prior turning up on the bits. Ropes *shall* not be left on a drum end (warping drum).

When a synthetic mooring rope is turned up on a set of bits, two round turns *shall* be made around the leading post of a large set of bits or around both posts for smaller circumference posts before starting to figure of eight the rope.

When a wire rope is turned up on a set of bits, three round turns *shall* be made around the bits before applying four figure of eight turns. The top layers *shall* be lashed to prevent them jumping off.

The method of turning up wire and ropes as described in 6.5 and 6.6 allows greater control of the rope when slacking down or transferring to a drum end as it reduces the possibility of a sudden surge as the turns on the bits are reduced.

When fastening a brake to make a line fast it is often difficult to manually tighten brakes to their maximum extent when a mooring line has little load on it. People of different physical strength *shall* apply different forces to the winch brake lever. For this reason the winch brakes *shall* be checked at frequent intervals as changes in load on the mooring line, due to changes in height of tide or free board, may cause a redistribution of stresses in the brake band allowing the brake to be applied further.

On ships fitted with hydraulic brakes, the torque setting indicator *shall* be marked with the setting required for optimum brake application. This figure *shall* be obtainable from the manufacturer's operation manual.

In order to conform with local regulations, rat-guards *shall* always be placed on all mooring lines. **Deck Officers** *shall*, as part of their harbour duties ensure that the rat-guards remain in place.

4.2.8 Tending of mooring when alongside

During the period alongside the moorings *shall* be regularly inspected and tended if required. The manning required to tend the mooring *shall* be decided by the **Master**. The level of manning required *shall* of course depend upon the design of the mooring system such as all the lines are on winches, or if some are turned up on bits and the amount of tending expected throughout the time alongside. 403

While alongside, the bridge have to be manned at all time, in order to ensure that unpredicted changes in environmental conditions and traffic movements are monitored and recorded in the *Bridge Logbook* to prevent the vessels breaking out from her moorings.

4.2.9 The unberthing operation

The **Master** is responsible for ensuring that sufficient personnel are assigned to each mooring station.

Prior to the unberthing of the ship, the **Master** is to discuss with the **Pilot** the procedure for letting go. The **Master** *shall* instruct the Officers or other persons responsible for the fore and aft mooring stations. The instruction *shall* include:

- Safety precautions to be observed during the operation;
- The use of any tugs, their position and means of making fast;
- Sequence of letting lines go;
- The need to report when the propeller and thrusters are clear.

The un-berthing operation *shall* not commence until all essential bridge and engine room systems have been checked and reported as satisfactory.

The singling up operation *shall* be carried out in an orderly fashion. Any line brought in *shall* be clear of the working area before another line is worked.

The person supervising the operation *shall* observe that the lines do not snag any obstructions on the shore or jetty or present a danger to any small boats in the vicinity.

If for any reason shore mooring gangs are not available to let the ship go then the mooring lines *shall* initially be run as bights, with the line lead around the shore bollard and the eye then returned onboard, so they can then be brought in without the need for ships personnel to remain on the shore during the unberthing operation.

4.3 Maintenance of mooring equipment

4.3.1 Planned maintenance

The correct operation of the mooring equipment onboard is essential to the overall safe operation of the ship in port. All parts of the mooring system *shall* be incorporated into the ships planned maintenance system.

All rotating parts *shall* be moved and greased on a regular basis via grease nipples and the ways being kept clean and in good condition. Particular attention *shall* be paid to roller fairleads and rotating deck stands as these often suffer from neglect and little use. Rollers and fairleads *should* turn smoothly and a visual check made that corrosion has not weakened them.

Surfaces of fairleads, bollards, bits and drum ends *shall* be kept clean and maintained in good condition.

Regular inspections *shall* be made of the winch brake linings. Oil, moisture or heavy rust on brake linings or drums can seriously reduce the brake holding capacity, in extreme cases by as much as 75%.

Moisture can be removed by running the winch with the brake applied very lightly, although care *shall* be taken not to cause excessive wear. When oil has impregnated into the brake lining, this cannot be removed and any lining which has been affected *shall* be replaced at the earliest opportunity. The possible reduction
404 in any winch brake holding capacity *shall* be taken into account when deciding upon the mooring pattern to be used.

Whenever brakes are opened up for any reason, the brake drum *shall* be examined for build-up of rust or worn brake material and *shall* be de-scaled as necessary.

Brake linkages *shall* be free to move. If the linkages are not free then there *shall* be a loss in the brake holding capacity. The operator may be under the impression that the brake has been fully applied when in fact it has not or the brake mechanism is hardened up using lever bars which may in turn impose high stresses on some of the mechanical parts of the brake.

Prior to a mooring operation which follows an extended sea passage or a passage undertaken in heavy weather, the winches that have been exposed *shall* be checked to ensure that all control and operating levers and linkages are oiled or greased and are free and easy to use and that the brake drums and linings are clean and suitably dry.

The deck areas at mooring stations *shall* have anti-slip surfaces provided by fixed treads or by painting with anti-slip paint.

Records *shall* be maintained of all inspections and maintenance carried out on the mooring system.

All mooring equipment *shall* be certified. This means that for mooring ropes at least a batch certificate *shall* be available on board the vessel.

All mooring equipment like bollards, fairlead rollers etc *shall* be marked with their SWL.

All mooring lines *shall* be marked in order to be identified using color collars (and associated to their relevant certificates).
The mooring lines in use *shall* be visually controlled on monthly basis as per the PMS system requirements.

4.3.2 Maintenance of steel wire moorings

It is essential to grease or oil steel wire mooring ropes at frequent intervals as rusting *shall* reduce the strength of the wire in a very short time.

It is important that periodically the whole wire is physically removed from the drum for inspection and greasing. The bottom layers of a wire which has previously been turned end for end may corrode undetected without proper maintenance.

Regular visual inspections of a wire eye *shall* be carried out for any signs of wear or damage.

Wires with areas of dark patches *shall* be thoroughly inspected to determine the degree of corrosion.

Any wire *shall* be replaced if it is damaged to the extent that more than 10% of the visible strands in a length of wire equal to 8 diameters are broken.

4.3.3 Testing of brakes

The brakes of all-self storing mooring winches *shall* be tested at least every dry-docking.

4.4 Means of safe access

Upon securing at a berth in port, it is mandatory that ships *shall* have a safe means of access. The **Master** is ultimately responsible for ensuing that ship/shore access arrangements are in place and are safe at all times.

The initial rigging of the gangway or accommodation ladder on arrival at each berth *shall* be supervised by a deck officer. It is one of the responsibilities of the deck officer on duty to ensure that it remains correctly and safely rigged throughout the ships stay in port. According to Sec 3, training on diverse procedures for rigging and maintenance of means of access *shall* be done on a regular basis with ratings, and logged on the appropriate form “Information acknowledgement” on board. Another way of training consists in the use of “Master Safety Document” or specific JSA and logged on regular Tool Box Talks. 405

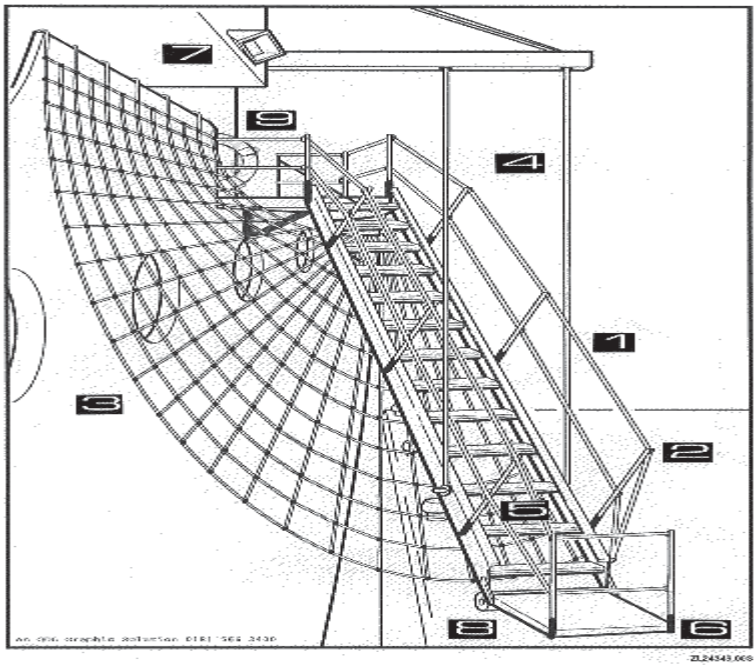
The maintenance of the means of access *shall* be done in conformance with Sec 4, and guidance of the PMS.

The access arrangements *shall* be in accordance with national or port regulations, but *shall* remain under the **Masters** discretion regarding the point of safety.

In the event that access to the ship is supplied by another source, for example a repair yard, a berth operator, it is still the **Masters** duty to ensure that such access also complies in every way with these requirements.

In the event that a safe access cannot be provided, by nature of berth and ship differences, the **Master** *shall* ensure that gangway openings onto the ship are closed, that entry prohibited notices are mounted and that a deck watchman is posted to prevent access during the period that safe access is not available. A note of any periods when there is no safe access to the ship at a berth, *shall* be entered in the deck log book.

The ships gangway or its accommodation ladder *shall* provide a safe access, with safety net rigged underneath i.e. not wrapped around the means of access. An example is given below.



When suitable access equipment is provided from the ship or from the shore or from another ship, any person boarding or leaving the ship *shall* use that equipment.

4.4.1 Lighting and safe movement

406

Adequate lighting over the whole length of the means of access and a life-buoy readily available at the ship board end *shall* be maintained.

The means of access and its immediate approaches *shall* be kept free from obstruction and, as far as reasonably practicable, kept clear of any substances likely to cause a person to slip or fall. Where this is not possible, appropriate warning notices *shall* be posted and if necessary the surfaces suitably treated.

No electric lights connected to wandering electrical leads *shall* be used for illuminating the means of access.

4.4.2 Safety nets

An adequate number of safety nets of a suitable size and strength area *shall* be carried on the ship or otherwise be readily available. The aim of safety nets is to minimise the risk of falling between the ship and quay or falling onto the quay or deck and as far as reasonably practicable the whole length of the means of access *shall* be covered. Special attention *shall* be given to the keyside end of the gangway. Safety nets *shall* be securely rigged, with use being made of attachment points on the quayside where appropriate.

4.4.3 Life-buoys

A life-buoy with a self-activating light and also a separate buoyant safety line attached to a quoit or some similar device *shall* be provided ready for use at the point of access aboard the ship.

4.4.4 Security

Security measures and controls are dealt with in the Ship Security Plan as provided.

4.5 Anchoring

When the **Master** has decided on the need to anchor ship and has prepared an anchoring plan with the navigating officer or officer on watch, he *shall* brief the officer or other responsible person who is to supervise the anchoring operation on the focsle. The **Master** *shall* discuss his intentions as to how the ship is to approach the anchorage and any anticipated manoeuvres prior to and during the anchoring operation. The officer *shall* be made aware of the depth of water the ship expects to anchor in, the anchor to be used, the amount of cable to be paid out, the method of paying out the cable, the strength and direction of the tide or current, the nature of the bottom, and the possible affect of any wind.

The means of communication between the focsle and the bridge *shall* be established together with the back up method if the primary system fails.

4.5.1 The anchoring operation

When the **Master** calls anchor stations the officer or other person supervising the operation *shall* discuss the anchor plan and safety procedures with the other members of the anchor party. Ideally the anchor party *should* consist of at least the supervisor and two others. When a complex anchor operation is to be carried out, additional personnel *shall* be required. Each member of the anchor party *shall* wear suitable clothing, safety shoes, gloves, a safety hat, and goggles. At night, each member of the party *shall* also carry a suitable torch.

The anchor party *shall* make the focsle ready. The means of communicating with the bridge *shall* be tested, both the primary and by secondary methods. All instructions or reports given by radio between the bridge and the focsle *shall* include as a prefix the ships name.

4.5.2 At anchor

407

During periods at anchor regular inspections of the focsle *shall* be made. A check on the application of the brake and position of the guillotine *shall* also be made.

At changes in direction of tidal stream a careful watch *shall* be maintained from the bridge, and if necessary the focsle, to detect any signs of dragging.

The anchor lights and shape *shall* be displayed in accordance with the requirements of the Collision Regulations.

If restricted visibility occurs during the period at anchor then the appropriate sound signals *shall* be made. If there are any problems with the audibility or timing of the automatic signals then the appropriate signals *shall* be made manually. If necessary, the Officer on Watch *should* also make use of the additional sound signal on the whistle to give warning of the ships position to an approaching vessel. Officers of the watch *shall* be reminded in the **Masters** written orders of the need to make the proper visual and sound signals while the ship is at anchor.

4.5.3 Dragging anchor

If the ship is found to be dragging then in addition to advising the **Master** and the **Engine Room, Officer of the Watch** *shall* also call the anchor party. The procedure to be followed by the **Officer of the Watch** *shall* be contained in the **Masters** standing/daily orders.

Should the **Master** decide to veer more anchor cable then this *shall* be done with considerable care. It may be preferable to veer the cable under windlass power rather than controlling it on the brake. The cable *shall* not be slacked back in large amounts as this may result in the excessive weight coming on the cable as the ship brings up, with the possibility of parting the cable.

If the **Master** decides that the second anchor *should* be dropped, then this operation *shall* be carefully co-ordinated between the bridge and focsle to ensure the anchor is dropped in the correct position in relation to the first.

Personnel *shall* be advised of the added danger when handling anchors during periods of heavy weather.

4.5.4 Heaving anchor

All personnel involved in heaving the anchor *shall* be fully briefed about the operation and reminded of the safety precautions to be observed. All personnel *shall* wear the appropriate safety clothing and equipment including safety shoes, gloves, safety hat and goggles. At night each member of the anchor party *shall* be equipped with a suitable torch.

Prior to commencing the operation, the communication links between the bridge and focsle *shall* be tested.

4.5.5 Securing the anchor for sea

Prior to proceeding to sea after leaving an anchorage or port, the anchors *shall* be fully secured. All anchor securing fittings *shall* be in good condition. The person(s) carrying out the securing operation *shall* be fully aware of the method to be used.

The position of the anchor *shall* be checked to ensure it is fully home in the hawse pipe and hard against the hull. Any movement of the anchor in heavy weather has the potential of damaging the hull.

When at sea the windlass *shall* be left out of gear. This enables the anchors to be dropped in an emergency without the need for windlass power. All power to the windlass *shall* be isolated.

408

All covers *shall* be fitted to the hawse and spurling pipes. The security of the chain locker watertight doors or hatches *shall* be checked.

When the anchors have been secured a report *shall* be made to the bridge by the person carrying out the operation. A responsible officer *shall* check the anchor securing arrangements and a comment on the anchor security noted in the Log Book.

4.5.6 Marking the anchor cable

The cable is to be well marked to indicate the number of each shackle length, counting from the anchor towards the chain locker, even during the hours of darkness.

4.5.7 Bitter end

The inboard or bitter end of the anchor cable *shall* be capable of being release in an emergency. It is recommended that the bitter end of the cable can be released by a person from outside the chain locker. The bitter end securing arrangement *should* be designed such that the cable cannot be inadvertently released but can be easy released if required. The bitter end arrangement *shall* be occasionally inspected to ensure it is free to move if required.

4.5.8 Chain locker

The chain locker *shall* be kept as free as possible of sediment by the use of the cable washers. When the cable has been heavily contaminated additional hoses *shall* be used to clean the cable.

If a build up of sediment is observed in the chain locker then attempts *shall* be made to clean the locker before the draining system becomes blocked.

Personnel *shall* not be required enter and clean a chain locker with the cable still in the locker. Chain lockers *shall* always be cleaned out during the period in dry-dock.

The arrangement for draining/pumping the chain locker *shall* be maintained in good working order. The system *shall* be frequently tested.

The chain locker doors or hatches *shall* be maintained in a good and watertight condition. The doors or hatches *shall* be fully secured when the ship is at sea.

The chain locker doors or hatches *shall* be marked as an enclosed space.

4.6 Drydock

During a drydock the anchor cables *shall* normally be ranged and inspected to meet Classification Society requirements.

4.7 Spread mooring operations

4.7.1 Set the vessel on her anchor pattern

The operation procedure is discussed with the client and anchor pattern is discussed and accepted by all parties during the meeting. The purpose is to find the most suitable way to accommodate job targets with the safest position of the ship, relative to other structures or obstructions.

409

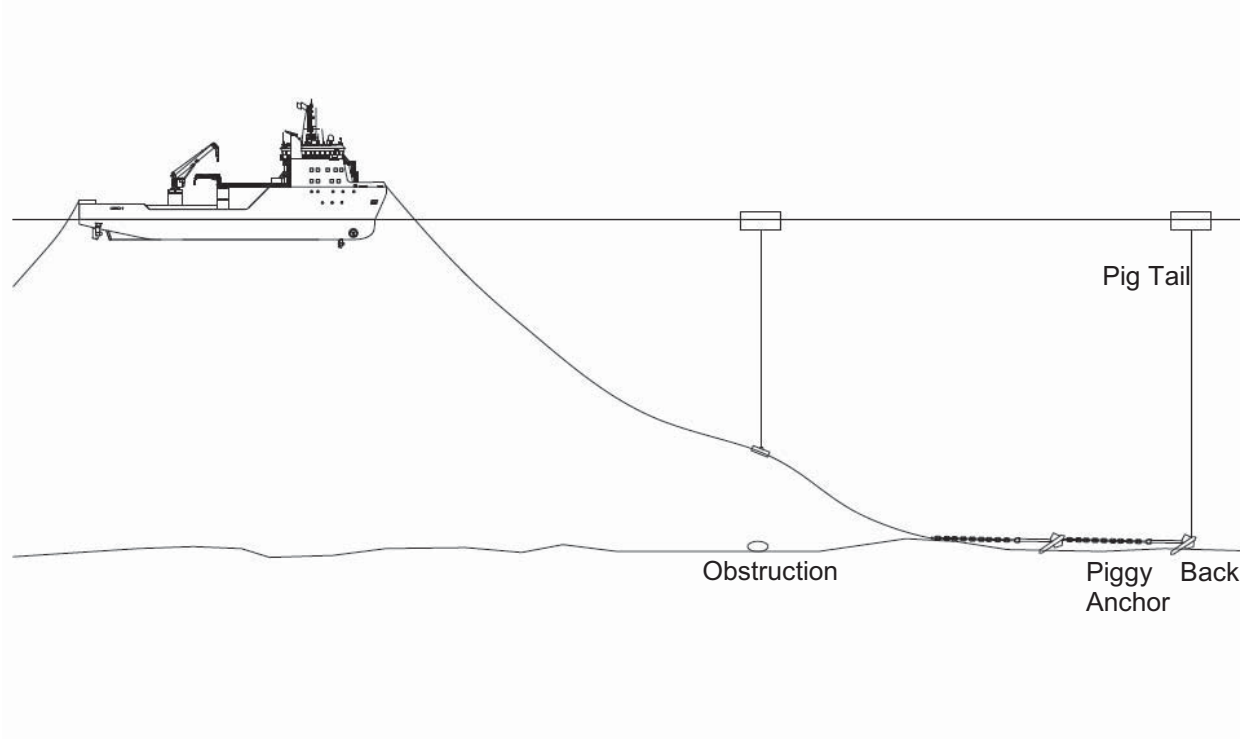
Once every parties involved have agreed on the procedure, the mobilisation may start. The spread mooring vessel (**SMV**) is assisted by an anchor handling (**AH**) vessel for the deployment of the anchors.

Anchors, buoys and pennants are loaded on the AH vessel. Depending on procedure, Spring buoy(s) are loaded on AH or SMV.



Anchors and buoys on AH vessel deck

One buoy per line is required unless lightening buoys (spring buoys) are used to avoid line contact with obstruction on the bottom. Piggyback anchors may be used depending on the bottom type or to increase the load admittance on anchors. Chain can also be provided, to be installed between anchors and wire cable to increase the holding on seabed.



410

On the SMV, no specific mobilisation required, unless the subsequent operation itself requires extra equipment.

Arrived on the field, if **Site Manager** authorises the operation and if weather conditions are within the agreed limits, the anchor deployment may start.

The AH vessel usually has the positioning system on board to know where to drop the anchors and where are the obstructions.

The SMV will hold a constant position as far as practicable at the safety position while the AH vessel deploys the anchor lines.

Once all anchors have been deployed and all pig tail's marking buoys are plotted on the radar, a tension test of 30 minutes minimum will be done to confirm the proper setting of anchors, according to international rules *chapter 10.4.6.3 of ISO 19901-7-2005*. Alternatively, upon charterer procedure, it's usually agreed that three times the anchor weight *should* be applied on each line. During tension test the AH Vessel will make a round trip to check that there is no change of position on pig tail's marking buoys.

If the test is passed, then the SMV may stop her engines and move to working position heaving and slacking on her lines. The lines will be used to change position for the rest of the operation, unless weather imposes to start engine as back-up. Propulsion *shall* also be kept running if the ship is to approach very close to the structure provided that no divers are in the water.

Some marks *should* be tapped on each line to easily check if one of the winches is paying out unexpectedly.

For the retrieval of anchors at the end of the operation, the SMV first moves to the safety position. Then, the AH vessel retrieves anchors and keep them on her deck with related buoys and pennants.

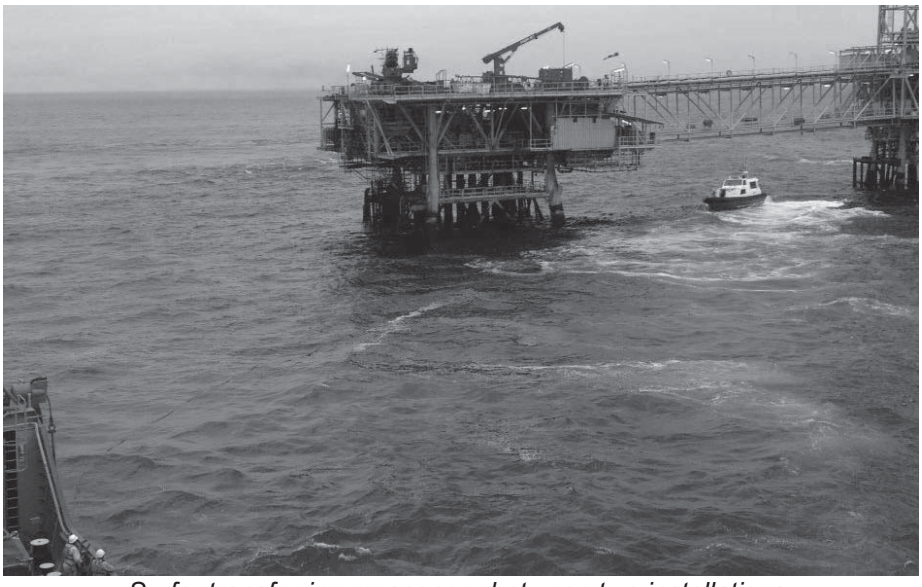
4.7.2 Calculation

Calculation *shall* be made to know the theoretical holding power of the line.
Calculation *shall* be also made to have a catenary model for all lines.
Calculation for Storm Keeping Capability *shall* be made.
Calculation models (with spreadsheet and tables) *should* be given with catenary curves to vessels and installation.
The Bourbon Excel Model (filling system) *shall* be used to operate the calculations.

4.7.3 Particular situation

Mooring line passing between two installations

In this situation the use of a work boat or surfer *shall* be necessary to send the mooring line to the AHTS. To perform this operation, a long messenger *shall* be used in order to avoid the weight of the mooring line stop the work boat's progress.
The use of work boats or surfer in all sea and swell conditions *shall* be carefully assessed by the **Master**/**Officer of the Watch (OOW)** and adequate pre-job planning *shall* be conducted prior to use, including completion of the applicable checklist pre-launch if applicable. 411



Surfer transferring messenger between two installations.

4.7.4 Equipment maintenance, inspection and testing

Refer to *ship's PMS* for maintenance of these equipment.

Cables are not exposed to excessive chafing as long as the fairlead is working properly. However, it's good use to change the cable contact point every week when possible.

When the ship is holding on its cables, make regular checks of proper functioning of the fairleads (Ex: Rust development could jam the roller against the body or rotation of the fairlead around her horizontal axis).

Concerning the cables condition, same instructions about maintenance *shall* be applied as for the anchor handling cables, unless an agreement with the client sets it in another way about replacement period.

Regular greasing through nipples *shall* be done while moving the rotating parts.

Fail-Safe break *shall* be adjusted according to PMS instructions (or manufacturer's ones) as a consequence of the normal wear of the winch. This *shall* also be done when the lining is replaced.

Electric connections, general greasing, brake's lining, coupling gear, high tension alarm, hydraulic oil *shall* be checked and maintained as per PMS or manufacturer's instructions.

Tension meter *shall* be checked and recalibrated according to *PMS*.

Propulsion *shall* be tested every week if ship is not moving or using propulsion for a long period in order to avoid big amount of shell and seaweed on propeller.

412

5 Records

- Log Entries
- Maintenance Records
- JSA/TBT

6 Related documents

- B-GDL-03.0007 – OSM Procedure
- COSWP for Merchant Seamen
- Ship Security Plan

7 Terms and definitions

AH Vessel
Anchor Handling Vessel

Anchors pattern
This is the deployment agreed for the anchors on the bottom. A sketch is provided by the client to fix it.

Obstruction
There could be obstructions on the bottom. On a field, pipelines, electric power cables and sometimes debris are encountered.

Piggy back anchor
This is an additional anchor dropped about 5 m in front of the main one to increase the anchor line holding strength. It's also used on slippery bottoms.

Pig tail
Piece of chain under the buoy, linking to the pennant.

PMS
Planned Maintenance System.

Positioning system
Software which allows to display the operation on a screen with the targets where to drop the anchors.

Rig Moore Master
Directs the movement of offshore Drilling Rigs and work barges from one well site.

SMV
Spread Mooring Vessel

Spread Mooring
This stands for 4 or 8 points anchoring

Spring buoy
Buoy relieving the cable to avoid contact with an obstruction on the bottom.

SWL
Safe Working Load

413

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS Operations Managers Director	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Operation Manager Director	BOS Operation Manager Director		Ver.03 – 03/12/2013	Reviewed § 4.4 and § 7. Insertion of § 4.7, § 4.7.1, § 4.7.2, § 4.7.3
OPS DPT Project Manager	BOS Operation Manager Director		Ver.04 – 31/12/2014	Added sentence about pre-task planning information in § 4.1 Adding records to be done in bridge logbook in § 4.2.8 Reviewed § 4.7 Spread mooring operations

Tank Cleaning Operations

414

BOS-PRD-03.900603-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Pre Task Planning 5
4.1.1 The tank cleaning plan 5
4.2 Working in confined spaces 5
4.2.1 Isolation 5
4.2.2 Opening 5
4.2.3 Entry 5
4.2.4 Ventilation 6
4.2.5 Atmosphere Test 6
4.2.6 Exiting 6
4.2.7 Tank cleaning – using the ship's crew 6
4.2.8 Tank cleaning – using shore contractors 6
4.2.9 Loading shore contractors equipment 7
4.2.10 Removing tank residues 7
4.2.11 Returning the area to its original state 8

5 Records 9

6 Related documents 9

7 Terms and definitions 9

8 Review, approval, revision and identification of changes 9

415

1 Purpose

This procedure has been developed to ensure that all potential hazards are fully identified and evaluated prior to and during any tank cleaning operation; specifically with reference to working in enclosed/confined spaces.

2 Scope

These procedures apply to the opening and cleaning of all spaces on board ships. This includes cargo tanks, engine room tanks, bunker tanks, void spaces, cofferdams and chain lockers.

These procedures also apply to any contractors who are employed in the tank cleaning operation.

416

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that these procedures are followed and that all applicable hazards are identified and measures put in place to mitigate the risk;
b) Ensure the tank cleaning is carried out efficiently and effectively;
c) Ensuring compliance with *Managing Contractors and Third Parties Procedure*.

Chief Officer has the responsibility, authority and accountability for:

a) Assigning a Task Supervisor or acting as Task Supervisor.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring contracted tank cleaning companies are qualified and competent perform the task safely;
b) Ensuring that the requirements and expectations for Tank Cleaning and Watch Keeping are communicated and implemented onboard all vessels under his/her jurisdiction.

Contract Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

417

4 Description

4.1 Pre Task Planning

The **Chief Officer/Task Supervisor** *shall* carry out pre-task planning as follows:

- Raise the Permit to Work (PTW);
- Review the relevant **"**Material Safety Data Sheet(s) (MSDS)";
- Develop or consider the Tank Cleaning Plan;
- Check the *Tank Cleaning Checklist*;
- Develop the *Emergency Response Plan*;
- Prepare the *Tool Box Talk* (TBT).

If Contractors are present on board or embark, they *shall* be fully involved in the pre-task planning.

4.1.1 The tank cleaning plan

Among the factors that *shall* be taken into account during the planning stages of tank washing are the following:

- The construction of the tank walls;
- The nature of the last cargo; reference MSDS;
- The washing medium, compatibility, reactivity and health and safety hazards;
- The cleaning processes to be applied;
- The appropriate techniques to be employed the time available for cleaning and the nature of the next cargo to be loaded; reference Company Tank Cleaning Manual and MSDS;
- The removal of the tank residues;
- Preparation of the work area.

418

4.2 Working in confined spaces

4.2.1 Isolation

The confined space *shall* be isolated; the lock out/tag out process *shall* be adhered to and if required a blank flange *shall* be installed.

4.2.2 Opening

During the opening of a confined space only the relevant lifting equipment *shall* be used. The crew *shall* stay out of the line of fire and be aware of the possible release of gas when opening manholes.

4.2.3 Entry

Before entry into a confined space the rescue equipment *shall* tested and made ready for use and all electrical equipment wiring *shall* be carefully inspected. Unserviceable equipment *shall* be replaced or repaired.

Entry *shall* be made wearing the appropriate PPE including a safety harness with life line. Personal gas detectors *shall* be carried and used by each person entering the space. Only explosive proof equipment and lighting *shall* be used and a safety attendant *shall* stand by at the entrance.

4.2.4 Ventilation

Confined spaces *shall* be ventilated using designated ventilation equipment; ensuring that ventilation reaches the bottom of the space.

4.2.5 Atmosphere Test

The atmosphere in the confined space *shall* be tested using in date calibrated test equipment. The test *shall* be carried out in various areas of the space.

4.2.6 Exiting

Prior to exiting the space a thorough inspection of the whole area *shall* be carried out. All tools, equipment and other materials *shall* be removed. The safety attendant *shall* recover the tools, equipment and materials from outside the space.

The space *shall* be re-secured, isolations re-instated and the PTW cancelled.

4.2.7 Tank cleaning – using the ship's crew

The **Chief Officer/Task Supervisor** *shall* give the Toolbox Talk. In addition to the standard Tool Box Talk content; specific to tank cleaning, the inherent dangers associated with engine room access, working in confined space and the routing of hoses *shall* be fully discussed. The previous content of the tank, the Emergency Response Plan and communications requirement *shall* all be highlighted,

Tanks to be cleaned *shall* be isolated from any tanks which still contain bulk liquids. Lock-out/Tag-out Permit To Work (Section 9) *shall* be used as appropriate.

419

Mechanical apparatus in any tanks to be cleaned are to be mechanically/electrically isolated using Lock-out/Tag-out Permit To Work (Section 9).

Where access to tanks is via the engine room, all non-vital machinery is to be switched off and isolated using Lock-out/Tag-out Permit To Work (Section 9). Sources of ignition are present in the engine room which *shall* be taken into consideration.

MSDS sheets pertaining to previous cargo carried since the last cleaning operations *shall* be made available to the tank cleaners.

"MARPOL 73/78 ANNEX II" regulates the discharge of Noxious Liquid Substances and the use of chemicals that are used for tank cleaning purposes. All cleaning additives evaluated and found to meet the requirements of "*paragraph 13.5.2 of Annex II of MARPOL 73/78"* are consolidated into "*annex 10 of the MEPC.2/Circular 15".*

Some substances mentioned on a vessel's Noxious Liquid Substances certificate require approved surveyors in attendance during tank cleaning, for example zinc bromide. When applicable, further risk assessment *shall* be carried out, especially for silica based cements.

The tank *shall* be cleaned using the appropriate methods.

4.2.8 Tank cleaning – using shore contractors

It is the responsibility of the **Master** to provide the contractors with a safe place of work.

The **Master** is ultimately responsible for the safe completion of the work.

When contractors are used instead of own crew, 4.2.7 as mentioned above *shall* remain applicable.

When shore side contractors are involved in the tank cleaning operation, it is the responsibility of the ship **Task Supervisor** to ensure that **Tank Cleaning Contractor Supervisor** is included and involved in Pre Task Planning and Tool Box Talk.

In addition to the standard Tool Box Talk content, the following, as a minimum, specific to tank cleaning *shall* be included in the content prior to tank cleaning commencing:

- Additional hazards associated with employing contractors;
- Inherent dangers associated with engine room access and routing of hoses *shall* be fully discussed during Tool Box Talks;
- The previous contents of the tank *shall* be identified;
- Division of responsibilities between the ship and the contractor during the operation;
- Responsibilities for issuing PTW and the connection between the two if PTW are issued by the ship and the contractor;
- The measures put in place which specifically impact on the contractor;
- The involvement of the contractor in the Emergency Response Plan;
- Communications between the ship and contractor personnel;
- The fitness for purpose of any equipment brought onboard by the contractor.

The **Task Supervisor** *shall* ensure that the **Contractor Supervisor** briefs his/her team with regard to the outcome of the Tool Box Talk and the measures to be taken.

4.2.9 Loading shore contractors equipment

When shore contractors supply their own equipment to be used onboard the **Task Supervisor** *shall* ensure:

- PPE supplied is appropriate and fit-for-purpose. It *shall* be same standard or better than that required by BOURBON;
- Manual handling equipment, for example shovels, for use down the tanks *shall* be in good condition and non-spark generating;
- Electrical equipment *shall* be intrinsically safe, flame proof with transformers and cabling in good condition;
- Ventilation fans, air or water powered *shall* be safe for use, with the trunking of adequate length to reach the bottom of the tank;
- If the above cannot be achieved, or there is any doubt, the **Task Supervisor** *shall* not allow the tank cleaning operation to commence.

420

4.2.10 Removing tank residues

Residues from tank cleaning are classed as special waste or dangerous waste: this is waste which may harm the environment or be a danger to humans or animal life.

All staff *should* be aware that stirring up the residues may cause hydrogen sulphide (H_2S) to rise.

Such wastes *shall* not be discharged with “garbage”, and is generally covered by separate national legislation.

Residues *shall* be removed from the tank in the appropriate receptacles.

The **Task Supervisor** *shall* ensure spill kits are available. Spillage *shall* be kept to a minimum and cleaned up quickly when they occur.

When shore contractors carry out tank cleaning they *shall* dispose of the residues in accordance with local and national legislation. The **Master** *shall* ensure that appropriate records of the operation are kept, reference the Ship’s Tank Cleaning Record Book, and the receipt for the residues obtained from the contractor.

When the tank cleaning operation is carried out by ship staff, the residues *shall* be disposed of properly ashore and a receipt obtained from the waste contractor.

No tank cleaning waste *shall* be disposed of overboard.

4.2.11 Returning the area to its original state

The area *shall* be cleaned and returned to its original state. All tools and equipment *shall* be cleaned, returned, any defects reported and made for their next use. Materials *shall* be returned or appropriately disposed off as required.

421

5 Records

- Material Safety Data Sheet
- Permit To Work
- Receipts for Residues
- Tool Box Talk

6 Related documents

- B-FRM-03.0006 – Enclosed Space Entry Permit.
- B-GDL-03.0007 – OSM Guidelines.
- BOS-PRD-07.900601 – Managing Contractors and Third Parties (SMS Section 6)
- Material Safety Data Sheet(s) (MSDS)
- BOS-PRD-03.900902 – Permit To Work (SMS Section 9)
- BOS-FRM-03.0040 - G-JSA#4 Enclosed Space Entry

7 Terms and definitions

MARPOL
Merchant Shipping (Prevention of Oil Pollution) Regulations

MSDS
Material Safety Data Sheet

422

PPE
Personal Protective Equipment

PTW
Permit To Work

TBT
Tool Box Talk

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	§4.1 Modified terms “Contractors are used” by “Contractors are present onboard or embark”. Deleted obsolete documentation in reference in related documents.

Helicopter Operations Procedure



423

BOS-PRD.07.900610-ver.01

BOURBON
Building together a sea of trust

Table of Contents

1. Purpose **3**

2. Scope **3**

3. Responsibility, authority and accountability **3**

4. Description **5**

4.1 General principles 5
4.1.1 Onshore 5
4.1.2 Offshore 5
4.2 Landing 6
4.2.1 Pre-arrival 6
4.2.2 Pre-landing arrangements and radio contact 7
4.2.3 Approaching helicopter in descent phase 7
4.2.4 Helicopter on deck 7
4.3 Equipment and maintenance 9
4.4 Safety on helideck 9
4.4.1 Risk linked with radiations 9
4.4.2 Risk of fall from helideck 9
4.5 Passenger and freight management 10
4.5.1 Pre-flight 10
4.5.2 General freight handling 10
4.5.3 Carriage of Dangerous Goods 11
4.5.4 Passengers carry-on baggage 11
4.6 Helideck Emergency Procedures 11
4.6.1 General Guidance in case of helideck crash 11
4.6.2 Crash on deck 11
4.6.3 Emergency landing on helideck 11
4.6.4 Crash on deck involving major fuel spill but no fire 12
4.6.5 Significant fuel spillage occurring with rotors in operation 12
4.6.6 Helicopter incident on landing 12
4.7 Restricted Helideck Operations 12
4.7.1 Abnormal Process Conditions 12
4.7.2 Adverse weather conditions 13
4.7.3 Loss of main power to helideck 13
4.7.4 Helicopter breakdown on helideck 13
4.8 Routine procedures 13
4.8.1 Reporting requirements for weather and related information 13
4.8.2 Helicopter transit in cold weather condition 14
4.8.3 List of prohibited carry-on items 14
4.8.4 Equipment checks 15
4.8.5 Training 16
4.8.6 Emergency procedures 17
4.8.7 Emergency responses and training scenarios 18

5. Records **20**

6. Related documents **20**

7. Terms and definitions **21**

8. Review, approval, revision and identification of changes **22**

424

1. Purpose

The purpose of this procedure is to ensure the safe and effective helicopter operations onboard Bourbon Vessels equipped with helidecks.

2. Scope

This document covers all Helicopter operations onboard Bourbon vessels and applies to all personnel having responsibilities related to helicopter operations.
Whenever vessel location changes from one National Authority to another, the Vessel Master will ensure that all relevant local aviation laws and regulations are adhered.

3. Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Managing helicopter operations in full compliance with the requirements of this procedure;
b) Ensuring that this procedure is implemented, applied and followed;
c) Observing all legislation applicable to the safe operation of helicopters on the vessel;
d) Ensuring that the appointed **HLO** is competent and carries out his duties as described by the Safety Management System within the **HLO** reference terms and job description;
e) Ensuring that all persons engaged in any helicopter operation or near any helicopter landing area are under the immediate and effective control of the **HLO**;
f) Ensuring compliance with weather limitations for operational activities, including those relating to Standby Vessel operations, specified in the “Adverse Weather Standard”;
g) Endorsing the **Helicopter Master** 's decision to fly in case of abnormal conditions;
h) Ensuring that a valid “CAP437 audit certificate” is maintained by a **Qualified Auditor** at least every 2 years;
i) Keeping satisfactory records of all surveys, inspections and crew training related to the readiness and availability of the Helideck.

425

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for helicopter operations are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Vessel Master** to best ensure that he/she has all resources necessary to fulfill his/her duties in respect of this procedure.

Helicopter Landing Officer (HLO) has the responsibility, authority and accountability for:

a) Taking overall responsibility for the helideck landing facilities;
b) Ensuring that helideck landing facilities are ready upon reception of radio message announcing an incoming helicopter;
c) Ensuring access to the Helideck is restricted 30 minutes before and 15 minutes after landing or take off of a helicopter;
d) Monitoring air band frequency to issue landing clearance, when appropriate, and warn **Helicopter Master** of any hazard;
e) Ensuring proper passenger movement, baggage supervision and freight handling and the safe loading of the aircraft;
f) Ensuring application of reliable manifest procedures;
g) Ensuring that helicopter crew is advised of any dangerous substances that might be loaded on the helicopter;

h) Initiating firefighting and rescue procedures on the helideck, if necessary, and ensuring that members of the Helideck Crew carry out their duties as described in the *Safety Management System* within their job competency and description;
i) Liaising, if necessary, with **Vessel Emergency Response Team** and **Master** to ensure that back up firefighting and rescue procedures are available to assist after the initial stage of an emergency. This will be activated by sounding the Vessel General Alarm;
j) Ensuring firefighting and rescue equipment is serviceable and reporting any defects or deficiencies;
k) Ensuring that *helideck pre-arrival checklist* is completed and briefing deck crew about number of arriving or departing passengers as well as about luggage, cargo and any special requirements;
l) Ensuring that on-board personnel are duly informed of aircraft operations and that cranes and that any sensitive equipment, in particular cranes, is stopped during aircraft operations;
m) Carrying out drills for **HLO** and **HDA trainees** in accordance with Bourbon Offshore strategy for training and development;
n) Ensuring that an adequate supply of spares is maintained on-board so that all safety and regulatory equipment are kept at 100% availability (stock level may be adjusted according to actual replacement requirements determined over time);
o) Advising **Helicopter Master** on first radio contact of any relevant system failures not previously noted in the "weather report" sent prior to flight departure. Relevant failures include but are not limited to the following: VHF communication, water pump, motion monitor, NDB, lighting, and any other notable conditions.
p) Keeping a record of all unsafe conditions and outstanding defects and carrying out any required follow-up actions. This record *shall* be part of the weekly report to the Vessel **Maste**r and handover documents to relief **HLO**'s;
q) Meeting with the Vessel **Master**, regularly i.e once a week , to discuss and review any necessary actions or observations regarding the Helideck and its equipment. Meeting details *shall* be recorded by the **HLO** and included in the Handover of Responsibilities, when the **HLO** changes over.

Helideck Attendants (HDA) has the responsibility, authority and accountability for:

426

a) Assisting the **HLO** in operation of the helideck;
b) Directing passengers to and from the aircraft;
c) Loading and unloading freight and luggage from the aircraft.
d) Operating fire-fighting and rescue equipment under the direction of the **HLO**;
e) Assisting the **HLO** in checking fire-fighting and rescue equipment.

Helicopter Master has the responsibility, authority and accountability for:
Ensuring flight safety including maintaining radio contact with the **HLO** and **Radio Operator** before and during landing and take-off, and while the helicopter is stationary on the Vessel.

Heli-Admin Clerk if applicable has the responsibility, authority and accountability for:
a) Preparing the flight *Passenger and Freight Manifest*. The Heli-Admin Clerk *should* provide all off going passengers with a pre-flight safety briefing and to sign the briefing checklist. The Heli-Admin Clerk may be the Vessel Medic or some other designated person;
b) Ensuring that all luggage and freight are accurately weighed, labelled, and noted on the manifest. After manifesting, bags *should* carry a tamper-evident tag and passengers *should* be told to stow their bags in the lockable storage area below the Helideck. **Luggage and freight that have not been weighed and labelled *shall* not be loaded into the helicopter**.

Radio Operator (RO) / HLO / DPO have the responsibility, authority and accountability for:
Preparing weather reports to be transferred to the relevant bodies.
Advising the Vessel **Master** of prevailing weather conditions in a timely manner so that a fly/no-fly decision can be taken;
Advising **Helicopter Master** of current weather conditions at least 1 hour 15 minutes before the scheduled departure time of any flight;
Contacting **Masters** of the stand-by vessel and any other vessels in the vicinity to inform them of incoming / outgoing flights and request close stand-by so as to confirm availability of rescue and recovery if needed during scheduled helicopter operations.
Maintaining radio contact with the **Helicopter Master** and the **HLO** during helicopter operations.
Maintaining radio contact (VHF 16) with the other Vessel(s) during infield shuttling operations.
Recording the 10-minute helicopter position reports, and initiating emergency procedures after any report failure in accordance with the *Emergency Procedures Manual*.

Advising the **HLO** of helicopter ETA, incoming load, and special requirements approximately 30 minutes before ETA.
Switching on and/or off the non-directional beacon (NDB) at the request from the **Helicopter Master** He will also ensure the NDB is switched off after landing. The RO *should* maintain a flight log.

Crane Operator has the responsibility, authority and accountability for:

a) Advising the **HLO** of crane operations that will unavoidably affect helicopter operations and obeying the instructions of the **HLO**.

4. Description

4.1 General principles

4.1.1 Onshore

All personnel travelling offshore are required to be in possession of a valid passport.
HUET *should* be completed using an underwater escape simulator for all aircrew and frequent flying offshore passengers at intervals not to exceed 4 years if engaged in offshore helicopter operations.

4.1.2 Offshore

Loose articles *shall* not be left on or near the landing area. Provisions, empties and other gear *shall* be kept at a safe distance from the landing area. Special care *shall* be taken with light articles. Safety equipment, fire extinguishers, etc. must be kept in their correct location, in close proximity to the landing area.

4.1.2.1 Suspicious packages

427

Any suspicious packages should immediately be drawn to the attention of the **HLO** and then to the Vessel **Master**. The package *should* be disposed in a safe area with minimum handling.

If an explosive device is suspected, do not handle it. Clear all persons from the area and immediately cordon off the helicopter area . Operations *shall* be directed by **Ship Security Officer**.

4.1.2.2 Safety on board

The 'NO SMOKING' policy must be observed throughout any helicopter flight.

Passengers *shall* remain seated with seat belts fastened at all times until the **HLO** has indicated that he is ready for passenger disembarkation and the **Helicopter Master** switched off 'Fasten Seatbelts' sign.

Transit suits shall be fully zipped up during the flight and a thermal insulation garment (TIG) *should* be worn if deemed necessary.

The instructions displayed within the helicopter and briefing lounge *should* be read and understood by all passengers.

4.1.2.3 Helideck according the country legislations

The helideck layout and equipment *shall* be fitted according to the country legislations.

The **Vessel Master** must ensure that the facilities and equipment of the helideck comply with the legislation of the country of the area covered by the vessel's operations and if a proper certificate *should* be issued by the country.

The **Contract Manager** and the **Operation Manager** *shall* ensure that the **Vessel Master** has the means and information necessary to apply the appropriate equipment and facilities changes in accordance with the procedure helideck.

4.2 Landing

4.2.1 Pre-arrival

When a flight to the **Vessel** has been scheduled, the **Radio Operator** *should* send a “weather / status report” to the **Helicopter Contractor** at least one hour before scheduled departure time.

The Master *shall* be alerted by the **Radio Operator** before any flight departing for the **Vessel** in case of one or more of the following meteorological factors:
Wind speed greater than 40 knots;

c) Gusts greater than 50 knots;
d) Horizontal visibility less than 2 nautical miles;
e) Vertical visibility less than 500 feet;
f) Significant swell greater than 4 meters.

Conditions	Limits for Landing		Limits for Planning	
	Day	Night	Day	Night
Pitch & roll	+3º	+2º	+3º	+2º
Average heave rate	1.0m/s	0.5m/s	1.3m/s	0.5m/s

In situations involving any of these factors, the **Vessel Master** in coordination with the **Chief Officer** will contact (if applicable) the **Master** of the Standby Vessel and seek confirmation that a Standby Vessel can provide adequate coverage in the event of an emergency. In particular, the **Vessel Master** will ensure that the Fast Rescue Craft can be safely launched.

428

If meteorological factors are significantly worse than those defined above, the **Vessel Master**, after analysing the weather forecast, can decide to postpone the flight until the conditions return within the operating limits.

The **onshore Heli-Rep** *should* inform the **Radio Operator** of actual time of departure and estimated time of arrival at the **Vessel** so that **Vessel personnel** make all necessary arrangements for the flight.

Before the commencement of day's flight schedule, the **HLO** *shall* check that all helideck equipment associated is serviceable and in position. The **HLO** *shall* also carry out the checks required by the *pre-arrival checklist*.

If applicable the **Radio Operator** *shall* inform the Master of the Standby Vessel of the flight schedule once in the morning and then again after departure of the helicopter. The vessel *shall* then set and maintain a heading to one side of the helicopter's flight approach path. The vessel’s position *shall* be confirmed to the **HLO**. Helicopter Operations *shall* be continuously monitored by the **Stand-by Vessel** on Air Band Radio.

Crane operations *shall* be halted before a helicopter approaches to land. Jibs *should* be lowered and stowed in a safe position or, after agreement with the **Helicopter Master**, may be kept in a raised but stationary position during helicopter operations.
The list of the vessel *shall* be corrected to zero.

The **Radio Operator** *should* listen out on the appropriate radio frequency during helicopter departure and be ready to supply current weather conditions at the **Vessel** location as well as details about routing and load requirements.

4.2.2 Pre-landing arrangements and radio contact

Based on provisional Passenger lists received from shore, the **Radio Operator** will notify the **HLO**, **Master** and **Officer on watch** of the ETA of the incoming flights for that day.

After contact with the incoming helicopter has been established, the ETA *should* be noted and the helideck crew notified and placed on standby for landing.

The **HLO** will:
Ensure that all requirements are met, e.g. with regard to equipment status and special;
Ensure that helideck-related equipment is in serviceable condition and, if not, report all defects and deficiencies to the **Vessel Master**;
Brief the Helideck Crew and advise **Crane Operators**.

Initial contact with the **Radio Operator** or **HLO** will normally be made at least 5 minutes before ETA of inbound flights. Between the first and last calls, the **Air Crew** and **Helideck Crew** will carry out the following duties and procedures as necessary:

a) **Helicopter Master** will advise **HLO** of his ETA and request the latest information about weather, return load and routing;
b) **HLO** will advise helideck crew of any change in ETA;
c) **Helicopter Master** may request that NDB be switched on to assist location of the **Vessel.**
d) **HLO**, assisted by **HDA**, will check to confirm that facilities are ready to landing the aircraft, that crane operations have been halted, that crane booms are parked out with the obstruction free zone for helicopter approach, and that the stand-by vessel is in the proper position.

After initial contact is made, the **Radio Operator** will maintain listening watch. The **Helicopter Master** may formally hand over Flight Watch responsibility to the **Vessel** giving details of persons on board, endurance and revised ETA. During helicopter operations, the **Helicopter Master** will make routine calls every ten minutes. In case of failure to a routine call, the **Vessel** shall initiate inquiries. 429

4.2.3 Approaching helicopter in descent phase

After the aircraft has completed the initial approach checklist, the **HLO** will grant helideck clearance on the helideck low power radio and advise the **Helicopter Crew** that the deck is clear for landing on the assigned frequency.

If the helicopter has not landed within five minutes after ETA and if two-way radio contact is lost, emergency procedures *shall* be initiated.

4.2.4 Helicopter on deck

The **Helicopter Master** of any helicopter on deck will be informed of any alert or hazard. In the event of an alert with a General Alarm, circumstances may require ordering the aircraft to either take off or shut down.

Upon arrival of the aircraft, the **Radio Operator** will immediately issue an arrival message to aircraft operator in an accepted format including the flight number, **Vessel** name, and arrival time.

If arrival and departure times are less than 15 minutes apart, the arrival message may be combined with the departure message.

N.B: The **HLO** *shall* check that the anti-collision light is working when the aircraft is landing. If not, he *shall* confirm by radio with the **Helicopter Master** that it is safe to go out on the helideck and walk beneath the rotor disc.

The **HLO** will play a supervisory role. He *should* control and monitor helideck activities from a prominent position on the helideck, rather than have hands-on involvement.

Radio contact will be maintained between the **HLO** and **Helicopter Master** whilst on the helideck.

Standard hand signals will be used at all times. Signals may be supplemented by radio contact by the **HLO**.

The **HDA** will put chocks in place to secure aircraft unless directed otherwise by the **Helicopter Master**.

HDA go back to safe position and wait **Helicopter Master** green light to proceed back to the helicopter.

The **Helicopter Master** will switch off the anti-collision light and, if in visual contact with the **HLO**, gives the thumbs up signal to indicate that it is safe to go out on the helideck and walk under the rotor blades.

The **HLO** will provide **Helicopter Master** with a manifest.

The **HDA** will offload baggage onto the helideck for collection by passengers.

Freight is offloaded by the **HDA** and cleared from the helideck to an unobstructed sector.

The **HLO** will instruct passengers to disembark after baggage has been removed from the helicopter. The passengers will collect their baggage and go below helideck level as directed by the **HDA**.

The Out bound passage should personally carry their luggage to the helideck entrance.
Outgoing freight and baggage will be loaded by the **HDA**.

430 The **HLO** will wave in outbound passengers and check that they are seated in accordance with any load plan issued by the **Helicopter Master** with seat belts fastened. Before securing the cabin door, the **HLO** will make a headcount to ensure that the number of passengers corresponds to manifest.

Passengers will be briefed by the **Helicopter Crew**.

Aircraft sends departure message to **Vessel Radio Operator** whilst still on deck or just after take-off. The message will contain some or all of the following information:

a. Call sign or flight number;
b. Route and final destination;
c. ETA to next destination;
d. Altitude / flight level for initial cruise;
e. Persons on board (PAX);
f. Fuel endurance;
g. Weight of bags / freight;
h. Weight of fuel;
i. Centre of gravity.

The **HDA** will remove chocks.

When all personnel have cleared off the helideck, the **HLO** will grant the **Helicopter Master** take-off permission over the radio and with a thumbs up signal. Before granting permission, the **HLO** will checked that as far as he can see all is clear above and behind the helicopter. The **Helicopter Master** will acknowledge take-off permission.

Prior to takeoff from the **Vessel**, the **Helicopter Master** will send a departure message to the **Radio Operator** on the appropriate frequency. The message will be copied and read back for confirmation. Recorded details *shall* be retained in the *Log Book* for a minimum of 28 days.

On takeoff, a "Lifting Call" message on the appropriate radio frequency *shall* be acknowledged by the **Radio Operator** who will thereafter provide Alert Service, in accordance with the Helicopter Contractor's

procedures, until such time as he is advised that the Flight Watch has been turned over to another agency. The Lifting Call message will contain some or all of the following information:

a. call-sign or flight number;
b. departure point;
c. time of take off;
d. initial en route radial and intercept or track;
e. initial en route cruising altitude.

Immediately after take-off, a departure message in the format agreed on with the **Helicopter Operator** *shall* be sent to the **Helicopter Contractor**. The departure message will include flight number, **Vessel** name, departure time, destination, ETA, number of PAX, autonomy, and flying altitude.

4.3 Equipment and maintenance

Weekly maintenance of the helideck and related equipment *shall* be performed in compliance with the *Weekly Helideck Checklist*. In addition, the equipment *shall* be inspected as described in the *planned maintenance system (PMS)*.

4.4 Safety on helideck

The practice of exercising on helidecks has been common for as long as there have been helidecks on-board platforms and vessels.

As the helideck provides a free and clear space enabling walking on-board, it is not intended to prohibit the use of this facility.

431

However, some risks can exist and need to be mitigated.
These risks include:
- Risk of skin burns due to radar radiations.
- Fall from the helideck due to loss of balance, due to excessive vessel movement, or lack of protection.

4.4.1 Risk linked with radiations

Marine radar systems operate in the high radio frequency and microwave range. Unlike X-rays and nuclear radiation, the emissions from marine radar are non-ionizing radiation and do not penetrate the human body but can cause heating of the surface, particularly of the skin and eyes.

Canadian Coast Guards have performed calculations on both rotating scanner antennas which are commonly used on-board commercial vessels.
Their conclusion is that when a scanning antenna is rotating, the safe working distance is 20 cm away from the antenna.
Other measures performed by the British government have shown that at 10 meters from 2 common commercial marine radars the exposure rate was 10 times below the acceptable public exposure rate.

These two studies are showing that the risk is low on-board our vessel.

As there are other sources of radiation than the radars, and in order to be protective, **it is recommended to keep at least a 5m distance from any rotating radar antenna and to limit the time spent on the helideck** at least than 1 hour per day. These restrictions do not apply when radar is off or in standby.

4.4.2 Risk of fall from helideck

Some cases of suspicious fall from helideck have been reported in the industry. However given the circumstances of these events, there is no evidence that it was directly linked to a trip hazard. Safety nets *should* always be fixed in place around helidecks and are designed to provide protection against falling.

Taking into account that a vessel is a moving unit, and that unexpected movements can occur suddenly even when a vessel is at a quayside, **it is prohibited to run on helidecks**, or to conduct any other activity that might create a risk of fall.

Access to helidecks in case of bad weather, any excessive movement of the vessel, or whenever helicopter activity is scheduled is forbidden (to be assessed on site by Master). In addition to this Vessel Master can restrict the use of helideck at his/her discretion.

When the helideck access is granted by the **Master** below considerations shall be taken into account:
- Weather conditions are safe;
- Vessel movement is limited;
- **Bridge Officer** is informed of presence of personnel;
- Helideck is clear from any item that could create a trip hazard and is in good condition;
- No helicopter activity is scheduled;
- and that this is not forbidden by the working area (oil field restrictions for instance).

Walking on helidecks, may be permitted at **Master** discretion.

Running is NOT AUTHORISED on helidecks under any circumstances.

4.5 Passenger and freight management

4.5.1 Pre-flight

4.5.1.1 Pre-flight briefing

432 All passengers *shall* be familiar with the location and utilization of:

a. Seat belts:
b. Lifejackets, that must only be removed if instructed to do so by **HLO**;
c. Liferafts;
d. Survival equipment.

The **Heli-Admin Clerk** will ensure that all passengers have received a pre-flight briefing covering the points listed above and that they are aware of the emergency procedures for the type of helicopter used for the flight. An audio/visual briefing will be shown to all passengers who have not flown on-board an outbound helicopter of the same type within the previous 24 hours.

4.5.1.2 PAX lists

Two days before the flight, the Heli-Admin Clerk *should* compile a boarding list including the names of all expected passengers. This provisional PAX list *should* be sent to the relevant **Onshore Logistics Department**, and confirmed after chopper has left. If applicable, confirmation *should* be entered into the personnel and materials tracking system. In the event of tacking system failure, a confirmation fax or telex *should* be sent to the relevant onshore-logistics Department. If the tracking system on/offshore link is unavailable, Heli-Admin will generate manifests on the **vessel** including copies for the **Helicopter Master** and relevant onshore personnel.

4.5.2 General freight handling

The **Heli-deck Clerk** *should* complete a freight manifest and, if required, input it into the tracking system. A **Helicopter Master** 's copy should be produced and given to the **Helicopter Master**.

4.5.3 Carriage of Dangerous Goods

The **Vessel** *should* have an up-to-date version of IATA Recommendations that provide full details of dangerous goods and precautions for transport. Before preparing possibly dangerous goods for air transport, personnel *shall* inform the **HLO** to ensure compliance with Technical requirements and instructions.

No potentially dangerous goods *shall* be loaded without obtaining the approval of **BOURBON** and the **Helicopter Contractor** 24 hours in advance. Before loading, dangerous goods *shall* packed and manifested and adequately labelled by a suitably qualified person.

Under normal circumstances, the **Heli-Admin Clerk** *shall* notify the Helicopter Contractor 24 hours in advance of any flight involving transport of Dangerous Good. Notification must include the following information:

- Identification of goods;
- Description of potential hazards;
- Weight and quantity of shipment.

This information *should* also be provided to the **Helicopter Master** when the helicopter arrives on the **Vessel**. Under exceptional circumstances the 24 hours advance notification rule for transport of Dangerous Goods may waived with the consent of the **Helicopter Master**.

4.5.4 Passengers carry-on baggage

The **Heli-Admin Clerk** will check carry-on baggage prior to passengers boarding the helicopter.

433

Carriage of freight by passengers in the cabin is permitted by the CAA in accordance with rules defined in Operations Manuals. However, local rules may apply and *should* be checked. Such freight *shall* be stowed according to the instruction of the flight crew in such a way that it will not obstruct exit routes. The only item of personal baggage permitted in the cabin is reading material.

4.6 Helideck Emergency Procedures

4.6.1 General Guidance in case of helideck crash

4.6.2 Crash on deck

In case of crash on helideck, the **HLO** will:
Radio request for initiation of hazard status to the radio room or central control room (CCR), unless hazard status is initiated automatically by activation of firewater/foam DIFFS systems.
Implement an initial response, e.g. fire-fighting on helideck and rescue operations.
Follow instructions after arrival of **Emergency Response Supervisor**.

4.6.3 Emergency landing on helideck

The **HLO** will:
Radio request for issuing a hazard status to the radio room or central control room (CCR), unless hazard status is initiated automatically by activation of firewater/foam DIFFS systems.
Instruct any aircraft on deck to lift off.
Instruct cranes to lay down loads and move jibs to a safe position.
Confirm that approach and overshoot areas are clear.
Prepare helideck fire-fighting equipment for use if necessary.
Ensure fire-fighting and rescue teams are standing by and suited up for fire fighting/rescue response.

Inform the aircraft and Radio Room that the deck is clear and ready to receive the aircraft.

4.6.4 Crash on deck involving major fuel spill but no fire

The **HLO** will:
HLO will activate the Foam fire pump to release the foam on the helideck.
Radio request for issuing a hazard status to the radio room or Engine Control Room **(ECR)**, unless hazard status is initiated automatically by activation of firewater/foam DIFFS systems.
Instruct helideck fire team to surround the aircraft with foam blanket using, if necessary, foam hand branches.
Implement initial response including evacuation of the aircraft.

4.6.5 Significant fuel spillage occurring with rotors in operation

The **HLO** will:
Inform the **Helicopter Master** of the situation and shutdown the rotors.
After shutdown, direct clean-up operations. The helideck *should* be blanked with water to neutralize the fuel prior to any further operations. Care *should* be taken to void spraying it with salt water or foam.

4.6.6 Helicopter incident on landing

The **HLO** will:
Hold the helicopter on deck and advise the **Helicopter Master of** his observations.
Inform the **Radio Operator** and **Master** of the nature of the incident.

4.7 Restricted Helideck Operations

4.7.1 Abnormal Process Conditions

4.7.1.1 Cold Flaring

<u>The following applies only if Vessel is operating next to another vessel that is producing hydrocarbons.</u>

Helicopter operations are permitted during cold gas flaring under the following conditions:
Full communication established between Radio Operator, Operations Supervisor, **Helicopter Master** and **HLO**.
Operation approved by **Helicopter Operator** and considered safe by **Helicopter Master**.
Weather conditions and Vessel status evaluated by **Helicopter Master** taking into consideration their flight plan etc.
No attempt to ignite the flare made during helicopter operations.
Decision to fly to/from Vessel under sole responsibility of **Helicopter Master.**
Master in agreement with the **Helicopter Master's** decision that it is safe to proceed.

4.7.1.2 Other Abnormal Operations

The following procedure *should* be implemented to ensure awareness of process conditions by all relevant parties:
Operations Supervisor will inform **Radio Operator** of any Vessel operation that may affect helicopter operations. **Radio Operator** will relay the information on to the **HLO** and **Helicopter Master**.
Helicopter Master will then make an informed decision regarding necessary action.

If communication from Radio Room breaks down, **HLO** will, as possible, co-ordinates communications with any aircraft using his portable radio until normal communications are restored.

4.7.2 Adverse weather conditions

The decision to operate helicopters in adverse weather can be taken by either the **Helicopter Master** or **Master**.
The **Master**, after consulting with the **Barge Supervisor**, will contact the **SBV Master** to seek confirmation that there is a good prospect of rescue and recovery in the event of a possible helicopter accident resulting in persons entering the water. In particular, the **Master** will verify that the FRC can be safely launched.
If the current and forecasted weather and sea conditions are such that the **SBV Master** judges the prospect of rescue and recovery to be poor, the **Master** can decide to postpone the flight until the conditions return within operating limits.

The **Vessel Master** has overriding responsibility for ensuring the safety of the **Vessel** and all personnel on-board, and *shall* ensure that the decision to allow helicopter operations under adverse weather.

4.7.3 Loss of main power to helideck

Should helicopter perimeter landing lights become unserviceable due to sudden unexpected power failure while a helicopter is approaching the **Vessel**, the **HLO** *should* advise the **Helicopter Master** to abort landing.

It *should* be noted that the **Helicopter Master** is solely responsibe for final decisions on helicopter movements.

4.7.4 Helicopter breakdown on helideck

435

In case of mechanical failure involving a helicopter parked within the main helideck circle, the aircraft *should* be tied up using its own tie-down strops and blade socks. If necessary, alternative securing methods may be used according to the **Helicopter Master**'s instructions.

No action *shall* be taken without consulting the "Air Operators Certificate" of the Helicopter Company. The **Master** *shall* be responsible for liaising with all other relevant parties before making any decision to remove the Helicopter from the helideck.

4.8 Routine procedures

4.8.1 Reporting requirements for weather and related information

A weather status report must be faxed or emailed to the **Helicopter Operator** at least one hour 15 minutes prior to any scheduled flight departure time. The report *shall* contain weather and other information relevant to helicopter operations. Any abnormal operations with potential impact on helicopter operation *should* be noted in the COMMENTS section. Wherever possible, the **Helicopter Operator** *should* be notified well in advance of any abnormal operations by a separate fax or telex. The weather status report *should* include but is not limited to the following:

(a) Date/Time of observation (U.T.C.);

(b) Wind direction (degrees);

(c) Wind speed (knots);

(d) Number of PAX;

(e) Visibility (nautical miles);

(f) Cloud cover (octas);

(g) Cloud base (feet) (specify if estimated or recorded);

(h) Lightning (observation yes/no);

(i) Temperature (°C);

(j) QFE (millibars);

(k) QNE (feet);

(l) Useable helifuel and helifuel system status;

(m) COMMENTS section for additional information such as special Vessel operations with potential to affect helicopter operations and any other relevant details;

(n) This weather status report may be sent manually or automatically from HMS system. If automatic system is used, information *shall* be checked by a trained competent person.

4.8.2 Helicopter transit in cold weather condition.

The following section *should* apply to cold weather locations.

Bourbon Offshore's policy for the protection of personnel flying to and from **Bourbon Vessels** requires the following actions:

1. If necessary, all personnel will be provided with Thermal Insulating Garments (TIG) in addition to transit suits. If a TIG has been issued, its use is compulsory at all times.

2. Transit suits (Multifab 'Style 459' or similar) will be supplied to all personnel. These are coverall style survival suits with latex bellows neck seal, separate neoprene balaclava hood, and cross-body zip. Throughout the flight, passengers *should* keep their fully zipped-up but need not don hoods before take-off and landing.

436

An important parameter with a significant effect on the thermal efficiency of a helicopter suit is the rate of water intake. Entry of water into the suit causes a significant loss of body heat as the organism tries to warming cold water up to normal blood temperature. The main criteria for selecting the chosen suit model is that it features a permanent neck seal that prevent water.

The thermal efficiency of a helicopter suit also depends on the type of clothing worn under it. The TIG lining considerably improves thermal efficiency and increases the chance and time of survival of passengers in the water in a ditching or crash landing but only if warm clothing is worn under the TIG.

In this respect the importance of layering *should* be underlined. Several layers of warm clothing provide greater protection against the cold than one or two thick layers. To illustrate this principle, the individuals who took part in the immersion endurance tests carried out at RGIT wore cotton vests, cotton shirts and jumpers, cotton trousers, socks and training shoes. Bourbon Offshore strongly recommends layering.

4.8.3 List of prohibited carry-on items

Passengers are prohibited from carrying the following items in their possession or in baggage:

- Adhesives.
- Aerosols.
- Alcohol of any kind.
- Canned drinks of any kind.
- Cigarette lighters.
- Explosives/Fireworks.
- Firearms/Ammunition.
- Flammable gas or liquids, tear gas, CS gas.
- Magnetic materials.
- Matches of any kind.
- Oils and greases.
- Paints and solvents.
- Poisons, weed killers, pesticides and insecticides.
- Radioactive materials.
- Weapons including knives with blades longer than 3".
- Wet-cell batteries.

Notes:

1. Knives used for professional purposes (e.g., by cooks and divers) may be carried, but must be declared at Check-in.

2. Mobile phones must be switched off prior to boarding the aircraft and must remain switched off until arriving onshore in the terminal building.

3. The "ICAO Doc.8973 / 7th Edition / Volume IV / Appendix 2" gives a list of goods prohibited for carriage in passenger's baggage or personal possession.

4.8.4 Equipment checks

4.8.4.1 Helideck equipment and pre-operation checks

The HLO *should* check that the following items are in place and work properly:

- Net tensioned.
- Forward navigation mast lowered securely in cradle.
- Chocks and tie-down ropes.
- Power supply for starting helicopters.
- Equipment for clearing ice / snow from helideck.
- Breathing Apparatus (2 sets).
- Protective outfit, including gloves, boots, a face mask or hood and a helmet (2 sets).
- Portable battery-operated hand lamp (x 2).
- Fireman's axe (x 2).
- Safety Harness and Lifeline (x 2).
- Aircraft axe.
- Large axe.
- Heavy duty hacksaw and spare blades.
- Grab hook.
- Quick release knife.
- Crowbar.
- 24-inch bolt croppers.
- Fire extinguishers.
- Foam equipment.
- Scales for weighing baggage.

437

4.8.4.2 Personal protective equipment (PPE)

a) Standard protective equipment

The standard protective clothing worn by deck crews *should* comprise the following articles:
- coveralls;
- Safety shoes;
- offshore jacket (and under-trousers);
- riggers gloves;
- ear plugs.

Safety helmets *should* not be worn. Glasses *should* be secured.

b) Protective equipment for routine helicopter Operations

Standard protective clothing is the minimum requirement, but additional protection is required for the following personnel:

HLO – Fire-fighting jacket or equivalent during actual landing and take-off. Gloves and a balaclava (flash hood) worn or in pocket. Ear plugs.

HDA - Firefighting jacket or equivalent during actual landing and take-off. Gloves and a balaclava (flash hood) worn or in pocket. Ear defenders.

Fire/Crash attendant - Full fire-fighter outfit, comprising jacket and trousers, fire helmet with visor. Gloves (worn or in pocket). Ear defenders.

c) Protective equipment for fire-fighting

For protection while performing fire-fighting duties, deck crews *should* wear the following:
- fire-fighting jacket, mid-thigh, inherently flame retardant;
- fire-fighting over-trousers made of fabric similar to jacket;
- fire helmet with a face visor.

Dedicated fire-fighting PPE *should* be stored in a safe, unobstructed, unexposed location as near as is practical to the helideck.

d) Declared Emergency

If **Helicopter Master'**s of an approaching helicopter gives advanced warning of an emergency situation, all helideck crew *should* wear full fire-fighting PPE.

e) Passengers

Passengers are required to wear transit suits throughout their journey.

4.8.5 **Training**

4.8.5.1 Onshore Training

Onshore training for personnel involved in helicopter operations will comply with standards and frequency detailed in the latest edition of *UKOOA Guidelines for the Management of Competence and Training in Emergency Response*. Requirements are as follows:

438

HLO
- Helicopter Landing Officer Course.
- Helicopter Refuelling Course if refuelling system fitted.
- Helideck Fire Fighting Course (basic level).
- Home Office Restricted Radio Certificate (VHF only).
- Dangerous Goods Awareness Course within 2-year validity.

HDA
- Helideck Team Member Course (basic level).
- Refresher Training for Helideck Team Members at intervals not longer than 2 years.
- Dangerous Goods Awareness Course within 2 year validity.

In addition to the above courses, all personnel will undergo:
- Basic Offshore Safety Induction and Emergency Training.
- Any further training as per latest "UKOOA Guidelines".

4.8.5.2 Offshore Training

Offshore training for personnel involved in helicopter operations will comply with the "UKOOA Guidelines" referenced above and in the *Bourbon Vessel Emergency Response Plan*. Requirements include:

- Regular training in use of helideck fire-fighting equipment or participation in a helideck firefighting exercise.

Offshore training may be given with the framework of a large or combined platform exercise including Emergency Response Team (ERT) and First Aid Team for casualty handling.

4.8.6 Emergency procedures

4.8.6.1 Loss of contact with helicopter during flight watch

Alerting Service

An ALERTING SERVICE initiates emergency action when an Agency loses and cannot re-establish contact with, or ascertain the whereabouts of, a helicopter to which Flight Watch service is being provided.

Requirements for emergency action

Emergency action *should* be taken under the following circumstances:

439

1. Failure of an incoming helicopter to reach destination at the latest advised ETA, **PLUS FIVE MINUTES, and impossibility to re-establish communications.**

2. Failure to receive routine call from a helicopter en-route for more than **FIFTEEN MINUTES and impossibility to re-establish communications.**

3. Interception of a **DISTRESS** call.

The Chief Officer / Radio Operators is responsible for identifying and providing the necessary local contacts to advise if the vessel enters the jurisdiction of another National Authority.

Emergency call information

Emergency calls *should* include the following information:

1. Aircraft identification and name of operator.
2. Type of aircraft.
3. Point of departure.
4. Time of departure.
5. Speed, level and route.
6. Destination and ETA.
7. Time of last contact and means (radio frequency).
8. Last reported position and method of determination.
9. Action taken by reporting unit.
10. Other pertinent information (e.g. recommended SAR action if appropriate).

N.B.: Making an emergency call *should* not be delayed simply because some of the information indicated below is not immediately available.

4.8.7 Emergency responses and training scenarios

The Emergency Response Plan has been developed based on "UKOOA guidelines" for the Management of offshore Helideck Operations.

Except from the UKOOA Guidelines:

4.8.7.1 Helideck emergency procedures

PFEER (Regulation 8) requires an Emergency Response Plan (ERP) to be in place for an offshore Vessel. The helideck emergency procedure *should* form an integral part of the ***Vessel** ERP*.

The following sections provide a basic structure for developing procedures for a variety of helideck firefighting and rescue scenarios that *should* be in the ERP. The procedures *should* be written to encourage the full use of available firefighting / rescue equipment and resources to best advantage. The ERP *should* include all elements for on and offshore co-ordination and support.

4.8.7.2 Crash on deck

The **HLO** *should*:

- Raise alarm by operating the break glass call point or via radio room / Engine Control Room **(ECR)**.
- Direct first response helideck firefighting and rescue activities.
- Contact the **Master** at the earliest opportunity.
- Establish and maintain contact with the radio room, ECR throughout any subsequent firefighting and rescue operations.

440

4.8.7.3 Emergency Landing

The **HLO** *should*:

- Contact the **Master** at the earliest opportunity.
- Instruct any aircraft on deck to fly off and hold on any incoming aircraft. Instruct cranes to lay down loads, and move jibs to a safe position.
- Confirm that the approach and overshoot areas are clear.
- Ensure that Rescue and Firefighting (RFF) equipment is ready for instant use.
- Ensure firefighting and rescue teams are standing by and are correctly dressed for firefighting / rescue response.
- Ensure complementary firefighting media are also to hand.
- Inform the radio room that the deck is clear and ready to receive the aircraft, maintain contact with the radio room.

4.8.7.4 Crash on deck, major spillage with no fire

The **HLO** *should*:

- Raise alarm by operating the break glass call point or via radio to the radio room.
- Direct helideck fire team to lay a foam blanket around and under the aircraft.
- Direct evacuation of the aircraft.
- Establish and maintain contact with the radio room/ECR /incident room if required.
- Contact the Master at the earliest opportunity.

4.8.7.5 Significant fuel spillage, rotors running

The **HLO** *should*:

- Immediately ensure that no further fuel is delivered to the aircraft.
- Inform the **Helicopter Master** of the circumstances. The **Helicopter Master** will decide whether to shut down or take off.
- Once the aircraft has taken off or shut down, direct the hosing down of the helideck with water to wash away the fuel prior to any further operations. If the aircraft remains on deck care must be taken not to spray it with salt water.

4.8.7.6 Evacuation by helicopter

The **HLO** *should*:

- Prepare the helideck to receive incoming aircraft.
- Establish payloads as each aircraft approaches and inform administration of the number of passengers required on deck.
- When each aircraft departs report to Administration the number of evacuees lifted off.

4.8.7.7 Man overboard

The **HLO** *should*:

- If there is a helicopter available on deck equipped for winching or required for search activities, be prepared for it to fly off when requested by the **Master**.
- Prepare the helideck (if not in use) for operations and stand by to receive an incoming SAR aircraft (if diverted to the **Vessel**).
- Inform the vessel standing by of anticipated helicopter movements.
- Maintain communication with the radio room / ECR.

441

4.8.7.8 Helicopter incident on landing

The **HLO** *should*:

- Hold the helicopter on deck and advise the **Helicopter Master** of his observations. Inform the **Helicopter Operator** of the nature of the incident.
- Contact and inform **the Master** at the earliest opportunity.

4.8.7.9 Bird strike or observation of large flocks of birds.

HLO *should* contact **Helicopter Master** and wait for further instructions

5. Records

Records generated by the application of this procedure *shall* be recorded in *Bourbon Quality Management System*.

6. Related documents

- International Civil Aviation Organisation (ICAO) Annex 14 Volume 2 – Heliports.
- ICAO Technical Instructions for the Safe Carriage of Dangerous Goods by Air.
- International Air Transport Association (IATA) Dangerous Goods Regulations.
- The Offshore Installations and Pipeline Works (Management and Administration) Regulations SI 1995 No. 738.
- The Offshore Installations (Prevention of Fire and Explosion and Emergency Response) Regulations SI 1995 No. 743.
- Civil Aviation Acts 1949 to 1982.
- Aviation Security Act 1982.
- The Air Navigation (Dangerous Goods) Regulations 1985, SI 1985/1939 as amended under the Air Navigation Order 1970.
- Documents and publications similar to the above issued by the National Authority of the territory in which the Vessel is operating.
- CAA CAP 437.
- OPITO - HLO Manual.
- OPITO - Approved Standard Offshore Helideck Assistant.
- OLF Helideck Manual.
- OPITO - Helicopter Refuelling Handbook.
- UKOOA – Guidelines for the Management of Offshore Helideck Operations.
- HSE Offshore Design Guidelines.
- Bourbon SOLAS Training Manual.
- HCA Requirements for Offshore Helidecks.
- IAOGP 2005. Aviation Weather Guidelines.
- BOS-FRM-03.0068 - G-JSA 16 - Helicopter operation with helideck.

7. Terms and definitions

ETA
Estimated time of arrival.

ETD
Estimated time of departure.

FLIGHT WATCH
Flight Watch is the name for an enroute flight advisory service dedicated to providing weather to and collecting reports from **Helicopter Master** s while in flight.

HLO
Helicopter landing officer: suitably trained and experienced person, who *shall* be present whenever helicopters are landing or taking off.

HDA
Helideck attendant: Suitably trained and competent person, dressed in protective fire-fighting clothing as required by applicable standards and regulations. The presence of at least 3 HDAs is mandatory during helicopter landing or take-off.

HUET
Helicopter Underwater Escape Training.

NDB
A Non-Directional Beacon is a radio transmitter at a known location, used as a marine navigational aid.

443

QFE
Q code field elevation: barometric altimeter setting at which altimeter reads zero at the reference datum of a particular airfield.

QNE
Indicated height on landing with altimeter sub-scale set at 1013.2 hPa.

8. Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
Bos Ops Dpt Project Coordinator	BOS Head of Operations	BOS Quality Representatives	Ver.01 – 08/08/2014	Original version

444

Helicopter Winching/Hoisting Operations Procedure

445

BOS-PRD-07.900611-ver.01



Table of Contents

1. Purpose **3**

2. Scope **3**

3. Responsibility, authority and accountability **3**

4. Description **3**

4.1 Winching / Hoisting Helicopter operation 3

4.1.1 Hoisting zone selection 3

4.1.2 Vessel preparation before arrival of the helicopter 4

4.1.3 Preparation of shipboard personnel before helicopter arrives: 5

4.1.4 Hoisting 5

4.1.5 Stretcher hoisting 7

4.1.6 Procedure for hoisting payloads 8

5. Records **9**

6. Related documents **9**

7. Terms and definitions **9**

446 **8. Review, approval, revision and identification of changes** **9**

1. Purpose

The purpose of this procedure is to provide guidelines for safety management of helicopter winching operations carried out for medical evacuation.

2. Scope

This document covers all Helicopter winching and hoisting operations on Bourbon vessels not equipped with a helideck and applies to all personnel with relevant responsibilities for helicopter operations.

3. Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.
b) Managing helicopter winching and hoisting operations;
c) Ensuring compliance with this procedure;
d) Observing all legislation applicable to the safe operation of helicopters on the vessel;

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for helicopter operations are communicated and implemented onboard all vessels under his/her jurisdiction.

447

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Vessel Master** to best ensure that all resources are available to support him/her in executing his/her duties in respect of this procedure.

4. Description

4.1 Winching / Hoisting Helicopter operation

4.1.1 Hoisting zone selection

4.1.1.1 Hoisting zone selection

Helicopter hoisting *should* be carried out on the aft deck relative with available space.

If applicable, the operation *should* be carried out in the designated hoisting zone (regulatory marking).

4.1.1.2 Final decision for transfer

The final decision on whether or not to carry out the hoisting operation will be made by the helicopter pilot who is solely responsible for the safety of his aircraft.

If the pilot deems that the conditions are unsuitable, he can:

- request the vessel to perform any manoeuver to improve safety.
- elect to send down a rescue swimmer from the helicopter.

4.1.1.3 Helicopter hoisting team

The helicopter hoisting team *should* be composed as follows:
- **Master**
- **Chief Officer** in charge of the operation on the Hoist Zone.
- **Bosun** and **AB**s in charge to assist the **Chief Officer.**

a. Chief Officer

The **Chief Officer** *should* wear a reflecting jacket (clearly identifiable by the pilot) along with the following PPE: gloves, safety glasses, and radio-equipped hearing protection (or alternatively hearing protection and a radio equipped with a microphone).

The **Chief Officer's** duties are to:
- direct the activities of the **Bosun** and **AB**s.
- give regulatory aircraft hand signals (UKOOA).

The **Chief Officer** must be able to receive and provide information to the **Watch Officer** either directly or via a signaller.

b. **Bosun and ABs**

The **Bosun** and **ABs** will tend to hooking and unhooking the stretcher or other loads.

Bosun and **ABs** *should* wear the following equipment:
448
- coveralls;
- hard hat with chin strap;
- safety glasses;
- gloves;
- safety shoes.

They *should* also be equipped with a static discharge rod.

4.1.2 Vessel preparation before arrival of the helicopter

4.1.2.1 Hoist zone

Regardless of the chosen location, the hoisting zone must be clear. Any antennas that could snag the hoist cable *should* be lowered and any loose material that might be blown about by the rotor downwash *should* be removed.
The Vessel **Master** can override this requirement if he/she deems that railings and safety nets must be maintained in a raised position to ensure the safety of operational personnel (e.g. in case of significant vessel movement, slippery deck, or windy conditions).
The helicopter pilot is responsible for the safety of his/her aircraft. He/she must be informed of any potential hazards in the hoisting zone and retains the right to make the final decision on whether or not to carry out the hoisting operation.

4.1.2.2 Fire-fighting team

A fire-fighting team must stand by in a safe location near the hoisting zone. They *should* be equipped with two fire-hoses (or mobile foam extinguishers) for simultaneous use on the starboard and portside.

4.1.2.3 Rescue boat crew

The rescue boat (work boat or FRC) must be ready for immediate launching.

If the rescue boat launching site is exposed to possible damage during the hoisting operation, it may be preferable to launch the craft prior to the operation.

4.1.3 Preparation of shipboard personnel before helicopter arrives:

A job preparation with a *toolbox talk (*TBT) with shipboard personnel must be held before the hoisting operation.
Points to be covered include a reminder about all the points mentioned in the specific JSA to helicopter hoisting operations with particular emphasis on high noise levels that make voice communication almost impossible, hazards associated with rotor downwash, need for vigilance when the helicopter is hovering over the deck, and high risk of falling on the deck made slippery by ocean spray.

Bosun and **ABs** must not walk close to the helicopter rotors without express instructions from the **Chief Officer**. Special focus *should* be given to the procedure for approaching the helicopter and using the static grounding rod (keeping hands below the red line).

For reference purposes, the following table indicates the speeds of rotor downwash beneath four different helicopter models at various hovering heights.

Hovering Height / Helicopter Model	3 meters	7 meters	10 meters	15 meters	20 meters
Alouette III	30 knots	27 knots	25 knots	20 knots	15 knots
Lynx	45 knots	40 knots	35 knots	30 knots	25 knots
Super-Frelon	55 knots	50 knots	45 knots	45 knots	35 knots
Panther / Dauphin	30 knots	28 knots	25 knots	20 knots	15 knots

4.1.4 Hoisting

449

4.1.4.1 Generalities

Helicopter hoisting operations involving shipboard personnel may be performed using two methods:
- single-person lift with emergency rescue sling attached directly to the lifting hook.
- tandem lift with emergency rescue sling attached to a harness worn by a helicopter crewman (e.g. rescue swimmer).

The tandem lift method is generally used if evacuee (casualty) requires assistance (stress, shock, trauma, child, etc.).

4.1.4.2 Instructions regarding the evacuee (patient)

1) The evacuee must not carry any luggage (bag, case, or container).
2) The evacuee must wear a lifejacket, safety helmet, and (depending on water temperature) immersion suit.
3) If possible, the evacuee should attend the *TBT* conducted by the **Chief Officer** and receive safety instructions concerning the lifejacket and hoisting procedure.
4) Important checks before hoisting:
- Proper fitting of rescue sling under armpits of evacuee before attachment to lifting hook.
- Manual lifejacket inflator accessible for immediate use.
- Proper positioning of handle used to pull evacuee into the helicopter (located on back of lifting sling).
- Ring sling pulled tight with no kinks.
- Hands of evacuee in proper position.

4.1.4.3 Steps for lifting to helicopter

1) When instructed to do so, the two **ABs** take position beneath the helicopter.
2) Person tasked with tending the hoist cable uses static discharge rod to discharge static electricity (keeping hands below the red line).
3) Person tasked with tending the evacuee leads him/her to hoisting zone and positions him/her directly under the winch.

4) Person tasked with tending the hoist cable holds the cable down on the deck using his foot and picks the hook up ensuring that there is adequate slack. While the cable is under his foot, the ABs *should* pay close attention to possible shifting of the helicopter.
5) Person tasked with tending the evacuee places the emergency rescue sling on the evacuee. Fitting should be done outside the hoist zone.
6) Person tasked with tending the evacuee places the rescue sling under the armpits of the evacuee who should hold the sling ends.
7) Person tasked with tending the evacuee properly attaches and adjusts safety strap on the evacuee.
8) The deck team in charge of tending the evacuee checks that the handle located on the back of the sling is readily accessible.
9) Person tasked with tending the evacuee attaches the rescue sling to hoisting hook.
10) The person to be hoisted locks his forearms on his abdomen by holding one wrist with the other hand.

For tandem lifting using a swimmer harness and emergency rescue sling, the mandatory procedure is as follows:
Secure ring on evacuee's rescue sling to rescue swimmer's harness.
Secure both rings to lifting hook.
Before signalling the **Chief Officer** to begin hoisting, person tasked with tending the evacuee must check the following:

- Ready accessibility of handle on the back of rescue sling.
- Hand position of person to be hoisted.
- Proper strap adjustment.
- Absence of kinks in straps.
- Ready accessibility of manual lifejacket inflators.

Person tasked with tending the evacuee places the evacuee directly under the winch (if necessary) then gives regulatory hand signal to begin hoisting.
The deck team should guide the person to be lifted at the beginning of the lift and then withdraw immediately when instructed to do so the **Chief Officer**.

450

4.1.4.4 Steps for lowering from the helicopter:

After helicopter winch operator has attached the rescue sling and tightly adjusted the safety strap, the evacuee can be lowered onto the vessel.

1) After the hoist cable has been grounded (using static discharge rod), the deck team tasked with tending the cable can handle the hook. When instructed to do so, the deck team can take beneath the helicopter in the hoisting zone.
2) Deck team will guide and stabilize touchdown of the stretcher on the deck.
3) Person tasked with the evacuee will disconnect the two rings from the rescue sling.
4) Deck team and evacuee will withdraw from hoisting zone when instructed to do so by the **Chief Officer**.

After being disconnected, the evacuee will quickly, withdraw from the hoisting zone with the attending deck team.
The lifejacket, safety helmet, hoisting sling, and immersion suit (if used) will be returned to the helicopter.

4.1.4.5 Safety instructions

The hazards associated with rotor downwash and vessel movement (fall risk), static electricity discharge (electrical shock), and swinging or sudden disconnection of load (falling objects) can be minimized by strict application of this procedure.
The following safety precautions are compulsory for all helicopter hoisting operations:

1) Deck team *should* never stand beneath the helicopter rotors without express instruction from the **Chief Officer**.
2) Deck team *shall* wear electric protective gloves.
3) Deck team *shall* **never touch the hoist cable before the pilot hit the water** or the boat (static discharge)
4) Deck team *shall* **never attach the hoist cable to the vessel** otherwise the helicopter will cut the hoist cable.
5) Deck team must ground the hoist cable using the static discharge grounding rod.

6) Remember that the evacuee is probably anxious about being raised or lowered by the helicopter.
7) Personnel must remain constantly aware of the dangers associated with vessel movement.

4.1.5 Stretcher hoisting

4.1.5.1 Personnel

For stretcher hoisting, the composition of the helicopter hoisting team is generally the same as described above with the addition of a physician and/or medical team.

4.1.5.2 Equipment

One stretcher suitable for helicopter hoisting with compatible bridle and a tag-line at least 30 meters long attached to the stretcher by a weak link set to break at 150 kg of pressure. The free end of the tag-line *should* be weighted with a 3 kg weight.

4.1.5.3 Steps for lowering stretcher

1) The **Chief Officer** guides the helicopter into position directly over the hoisting zone.
2) The helicopter crew manually pays out the weighted end of the tag-line to the helideck or designated hoisting zone.
3) When instructed to do so by the **Chief Officer**, the deck team tasked with tending the stretcher takes position beneath the helicopter, seizes the tag-line and arranges it at a safe distance from the work area. The tag-line is a potential hazard *should* the helicopter be forced to make an emergency exit.
4) After the tag-line has been fully paid out to the deck, the **Helicopter Winch Operator** can lower the stretcher. As the stretcher is lowered, the deck team tasked with tending the stretcher *should* keep constant tension on the tag-line to prevent the stretcher from spinning/swinging and maintain it in the horizontal position.
5) When stretcher reaches the deck, the deck team in charge of the static discharge rod *should* ground the hoist cable then leave the hoisting zone. The deck tasked with tending the stretcher can then seize the stretcher and guide it down to the deck.
6) When stretcher is on the deck, the helicopter usually returns to a position directly over the hoisting area, thus creating slack in the hoist cable and bridle to facilitate disconnection of the stretcher from the hoist cable.
7) After detaching the stretcher, the deck team tasked with tending the stretcher gives the helicopter crew the regulatory hand signal to wind in the hoist cable.
8) The **Chief Officer** signals the helicopter to withdraw and stretcher evacuation is completed.

451

4.1.5.4 Steps for raising stretcher

1) Stretcher is moved to the hoisting zone with the evacuee securely strapped in with safety helmet and lifejacket (if his/her condition permits).
2) **Chief Officer** guides the helicopter to position directly over the hoisting zone.
3) Helicopter crew pays out hoist cable.
4) When instructed to do so by the **Chief Officer**, two ABs take position beneath the helicopter.
5) Bosun grounds the hook by touching the cable with the static discharge rod and leaves the hoisting zone.
6) Person tasked with tending the stretcher seizes the hook, attaches it to the bridle, and gives helicopter crew regulatory hand signal to begin winding in the hoist cable. Until the stretcher lifts off the deck, the Bosun *should* hold the bridle up and keep the cables taunt to prevent a sudden jerk that might injure the evacuee.
7) Person tasked with tending the stretcher guides the stretcher during lift off from the deck then seizes the tag-line that has been arranged away from the hoisting zone. The tag-line can be a potential hazard *should* the helicopter be forced to make an emergency exit.
8) Helicopter changes position and the **Winch Operator** winds in the hoist cable.
9) As the stretcher rises, person tasked with tending the stretcher **AB** must maintain firm tension on the tag-line to prevent spinning or swinging. Tension on the tag-line *should* be increased as the stretcher approaches the helicopter to prevent bumping against the fuselage and then decreased while the helicopter crew pulls the stretcher into the helicopter.

10) Helicopter returns to a position vertically over the hoist area and retrieves the tag-line manually. During retrieval, Person tasked with tending the stretcher will guides the tag-line off the deck and then leave the hoisting zone.
11) **Chief Officer** signals the helicopter to withdraw and stretcher evacuation is completed.

4.1.6 Procedure for hoisting payloads

4.1.6.1 Preparation

Insofar as possible, the vessel *should* inform the helicopter crew of the total weight to be transferred (stretcher and casualty).

When transferring to the vessel, it is important to remember that sling carries a 10 kg weight and a hooking device allowing attachment and detachment of the payload.
Payloads may be transferred using palettes, nets (e.g. for bulk materials), or slinging devices with several cables for large oversize loads.
When packing nets, special care *should* be taken to avoid shifting when the load is landed.

4.1.6.2 Attaching the payload

Before arrival of the helicopter, the stretcher *should* be prepared and moved to the hoisting zone.
The **AB** *should* stand by near the hoisting zone, ready for the **Chief Officer's** instructions.
After stabilizing the sling above the payload and with the Authorization by **Chief Officer**, the load can be attached as follows:

1) Deck team takes position beneath the helicopter.
2) Bosun grounds the hook by touching with the static discharge rod that has been clamped to the vessel.
3) Bosun tasked with grounding puts the static discharge rod down and holds it on the deck with one foot then picks the sling up so that the cables are straight. When standing on the cable, the bosun must stay alert of the helicopter's movement.
4) Bosun in charge of attaching the payload places the hook in the ring holding the stretcher.

452

When the hook has been firmly attached and can be clearly seen by the **Chief Officer**, the **bosun** gives the regulatory "OK" hand signal to the helicopter crew and the **Chief Officer**. At the same time the deck team withdraws without further instructions.

Hoisting *should* not begin until personnel have withdrawn from the hoisting zone and the helicopter is positioned vertically over the payload.

4.1.6.3 Detaching the payload

When the vessel is ready, the helicopter approaches under guidance by the **Chief Officer**.

1) After the payload has been landed, the helicopter has stabilized, and the pilot has given "OK" hand signal, the **Chief Officer** will instruct the deck team to take position under the helicopter.
2) **Bosun** grounds hook by touching with the static discharge rod.
3) **Bosun** tasked with grounding puts the static discharge rod down and holds it on the deck with one foot then picks the sling up so that the cables are straight. When standing on the cable, the **bosun** must stay alert of the helicopter's movement.
4) **Bosun** tasked with tending the hook detaches the payload.
5) The **Chief Officer** gives the regulatory "OK" hand signal to the helicopter crew as well as the deck team. At the same time the deck team withdraws without further instructions.
   If the helicopter pilot decides to release the sling, he will first inform the **Chief Officer** who will prevent the deck team from taking position in the hoisting zone.

4.1.6.4 Safety instructions

The hazards associated with rotor downwash and vessel movement (falling), static electricity discharge (electrical shock), and swinging or sudden disconnection of the payload (falling objects) can be minimized by strict application of procedures.

The following safety precautions are compulsory during all transfer operations:

1) Deck team *should* never stand beneath the helicopter rotors without express instruction from the **Chief Officer**.
2) Deck team *should* ground the hoist cable using the static discharge grounding rod.
3) Personnel *should* be constantly mindful of the dangers caused by the suspended sling and payload especially when vessel movement is significant.
4) AB *should* approach the payload only when instructed to do so by the **Chief Officer** and *should* stay in proximity no longer than necessary.
5) Deck team *should* withdraw from the hoisting zone as soon as the payload has been attached and the OK hand signal has been given to the helicopter crew.

5. Records

- JSA/TBT.
- Log entries.

6. Related documents

- ICAO Technical Instructions for the Safe Carriage of Dangerous Goods by Air.
- The Offshore Installations and Pipeline Works (Management and Administration) Regulations SI 1995 No. 738.
- Civil Aviation Acts 1949 to 1982.
- Aviation Security Act 1982.
- The Air Navigation (Dangerous Goods) Regulations 1985, SI 1985/1939 as amended under the Air Navigation Order 1970.
- Documents and publications similar to the above issued by the National Authority of the territory in which the Vessel is operating.
- CAA CAP 437.
- HSE Offshore Design Guidelines.
- BOS-PNL-0301.0002 – SOLAS Training Manual.
- BOS-FRM-0301.0001 – SOLAS Training Manual – Vessel Specificities.
- BOS-FRM-03.0069 – G-JSA 17 -Helicopter Winching.

453

7. Terms and definitions

Static Discharge Rod
The Static Discharge Rod is designed to safely remove the static charge after de-energizing.

8. Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS Operations Dpt Project Coordinator	BOS Head of Operations	BOS Quality Representative	Ver.01 – 08/08/2014	Original version.

SMS
Section 7

Management Of Change

BOS-MNL-06.900700-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3
1.1 Main Objective 3
1.2 Management Of Change 3
1.3 Vessel Acquisitions 3
2 Review, approval, revision and identification of changes 4
3 Related documents 4

456

1 Introduction

1.1 Main Objective

To establish procedures for evaluating and managing changes including operations, procedures, vessel equipment or personnel to ensure risks are managed.

1.2 Management Of Change

The Management Of Change (MOC) System used by the Company *shall*:

- Ensure that the documentation supporting a change includes the reason for the change;
- Define the level of authority (minimum competency) required for the approval of a change;
- Provide a clear understanding of the implications of a change;
- Ensure that all changes comply with regulations, industry guidelines and original equipment design specifications;
- Ensure that there is an appropriate procedure in place for key staff handover and familiarisation, both ashore and onboard vessels;
- Ensure that the potential negative consequences of a change are identified, together with any necessary mitigation measures, persons in charge of implementation, related timescales, and that the results are communicated to those affected by the change;
- Ensure that changes not carried out within the proposed timescale are reviewed and revalidated before they are completed;
- Identify any training needs arising from changes to equipment or procedures;
- Ensure that appropriate drawings, procedures and other technical documents are updated following any change or modification;
- Ensure feedback and review of changes made.

457

1.3 Vessel Acquisitions

The management system *shall* include provisions for the entry of new vessels and new types of vessel into fleet management.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS SMS Technical Adviser	BOS QHSES Manager	BOS Quality Representative	Rev.01- 11/03/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.04 – 30/12/2014	Modifications done on § 1.1 and 1.2.

3 Related documents

1. BOS-PRD-06.900701 – Management Of Change (SMS Section 7).

458

Management of Change

BOS-PRD-06.900701-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **4**

2 Scope **4**

3 Responsability, authority, and accountability **5**

4 Description **7**

4.1 MoC process 7

4.2 MoC documentation process and review 8

4.3 Creeping change 8

4.4 Temporary and emergency changes 9

4.5 Like-for-like replacement 9

4.6 Change of personnel and/or organisation 9

4.6.1 Identification of the need for a new employee/crew member or organisational change 10

4.6.2 Risk assessment 10

4.6.3 Mitigation and controls 10

4.6.4 Action and Communication Plan 10

4.6.5 Approval 11

4.6.6 Implementation, monitoring and assessment 11

4.6.7 Documentation 11

4.7 Addition, change or modification of an equipment on a vessel 11

4.7.1 Identification of the need to add, change or modify an equipment 12

4.7.2 Risk Assessment 12

4.7.3 Mitigation and controls 12

4.7.4 Action and communication plan 13

4.7.5 Approval 13

4.7.6 Implementation, monitoring and assessment 13

4.7.7 Documentation 13

4.8 Change of Vessel 14

4.8.1 Identification of the need to introduce a new ship into service 14

4.8.2 Risk assessment 14

4.8.3 Mitigation and controls 15

4.8.4 Action and communication plan 15

4.8.5 Approval 15

4.8.6 Implementation, monitoring and assessment 15

4.8.7 Documentation 16

4.9 Change of vessel operating conditions 16

4.9.1 Identification of the need to change 16

4.9.2 Risk assessment 16

4.9.3 Mitigation and controls 17

4.9.4 Actions and Communication Plan 17

4.9.5 Approval 17

4.9.6 Implementation, monitoring and assessment 17

4.9.7 Documentation 17

4.10 Change of vessel operating area / region 18

4.10.1 Identification of the need to change 18

460

4.10.2 Risk assessment....18
4.10.3 Mitigation and controls....18
4.10.4 Action and communication plan....19
4.10.5 Approval....19
4.10.6 Implementation, monitoring and assessment....19
4.10.7 Documentation....19

5 Records....19

6 Related documents....20

7 Terms and definitions....20

8 Review, approval, revision and identification of changes....21

461

1 Purpose

This procedure establishes minimum requirements through a systematic approach to evaluate, implement and control changes induced by BOS activities.

Change is an event or issue where there is a transition from one situation or state to a different one. It can be any planned or enforced change, temporary or permanent. For BOS activities, it includes operations, procedures, vessel equipment, personnel and organization. Changes can induce associated risks that needs to be anticipated, evaluated and mitigated.

The management of Change:

- Ensures that the documentation supporting a change includes the reason for the change;
- Defines the level of authority (minimum competency) required for the approval of a change;
- Provides a clear understanding of the safety and environmental implications of a change;
- Ensures that all changes comply with regulations, industry standards and original equipment design specifications;
- Ensures that there is an appropriate procedure in place for staff handover and familiarization, both ashore and on board vessels;
- Includes provision for issuing work permits before any work is carried out, or any changes are made to equipment;
- Ensures that the potential consequences of a change are identified, together with any necessary mitigation measures, and that the results are communicated to those affected by the change;
- Ensures that changes not carried out within the proposed timescale are reviewed and revalidated before they are completed;
- Identifies any training needs arising from changes to equipment or procedures;
- Ensures that appropriate drawings, procedures and other technical documents are updated following any change or modification;
- Ensures feedback and review of changes made.

462

2 Scope

This procedure applies to all BOS staff and to the following categories of change:

Change of people or organisation, e.g :

- Roles, scope and lines of responsibilities (including handovers);
- Structure or Organisation;
- Interfaces;
- Training;
- Change in Key Sub-contractor (Manning Company, Catering, etc);
- Flag or Class Change.

This does not apply to crew changes respecting Safety Management System (SMS) procedure.

Change of equipment e.g.:

- Vessel facilities, modification of critical equipment onboard, vessel temporary working with a downgraded critical equipment, etc…
- Shore facilities, or temporary working with a faulty equipment or downgraded.

Introduction of a New Vessel

- Acceptance into service;
- Contract management.

Change in operating conditions:

- Maintenance;
- Inspection;
- Operating area;
- Client and contracted scope of services;
- Contracts (including cost schedules);
- Regulations;
- Operating parameters (including but not limited to: pressures, temperatures, equipment settings, weather limitations, manpower limitations etc.).

Change in operating area include following aspects to consider :

- Visas;
- Logisitics;
- Vaccinations and Health;
- Security;
- Safety requirements and specific training (example of BOSIET that needs to be OLF approved for Norway, specific SOPEP plan for Brazil or US);
- Difficulties in providing spares or specific equipment (medicine, pyrotechnics,etc…).

Change in proceeding:

- Change in conditions comparing to planning (monitored onsite prior doing a task) : different weather condition, personnel, equipment, arrangement, distance;
- Significant addition of work that was not stipulated in the procedure;
- Change in the task orders to perform a job.

Change in external factor:

- New regulation entering into force in country of operation and having a potential impact on operation;
- Significant modification in the country or area of operation that could impact operation (war, security threat, natural disaster, social pressure).

463

3 Responsability, authority, and accountability

General definitions:

Change Initiator: Person identifying a change and instigating a change according this MoC procedure.

- He's in charge to submit the change to their line management, to identify the associated risks and to develop the mitigation plan with all stakeholders.
- He submits approval of relevant Authority to launch the MoC process and for signing off on completion of the change.

Line Manager: The person accountable for initial approval or rejection of a proposed Change by the Change Initiator.

Change Coordinator: Person responsible and accountable to lead and manage the change process. He may also be the **Change Initiator**.

- He is in charge to build a competent team composed of relevant stakeholders if required by the complexity of change.
- He has the responsibility to supervise the right application of the MoC process and to ensure the completion of the MoC within the timeframe, typically 3 months.
- He reports progress to the **Change Initiator**, stakeholders and Approval Authority.
- He reviews the process on completion of the change and transfer lessons learned to the rest of the organisation if required.

Approval Authority: The person accountable for approving each change process steps and for signing-off on completion of the Change. It must be a different person to the **MoC Coordinator**, at a more senior level, and the most appropriate to the nature of the change.

Specific attributions:

Managing Director has the responsibility, authority and accountability for:

a) Ensuring compliance to this procedure within BOS;
b) Owning, maintaining and improving this procedure;
c) Ensuring that people accountable and responsible within this MoC procedure have appropriate competence;
d) Monitoring the MoC Process through KPIs review.

Heads of Departments have the responsibility, authority and accountability for :

a) Ensuring that the requirements and expectations for Management of Change are communicated and implemented within their Department;
b) Actively participating in effective MoC (up to Approval Authority position).

Vessel Master has the responsibility, authority and accountability for :

a) Ensuring the implementation of this procedure on the vessel under his/her command.

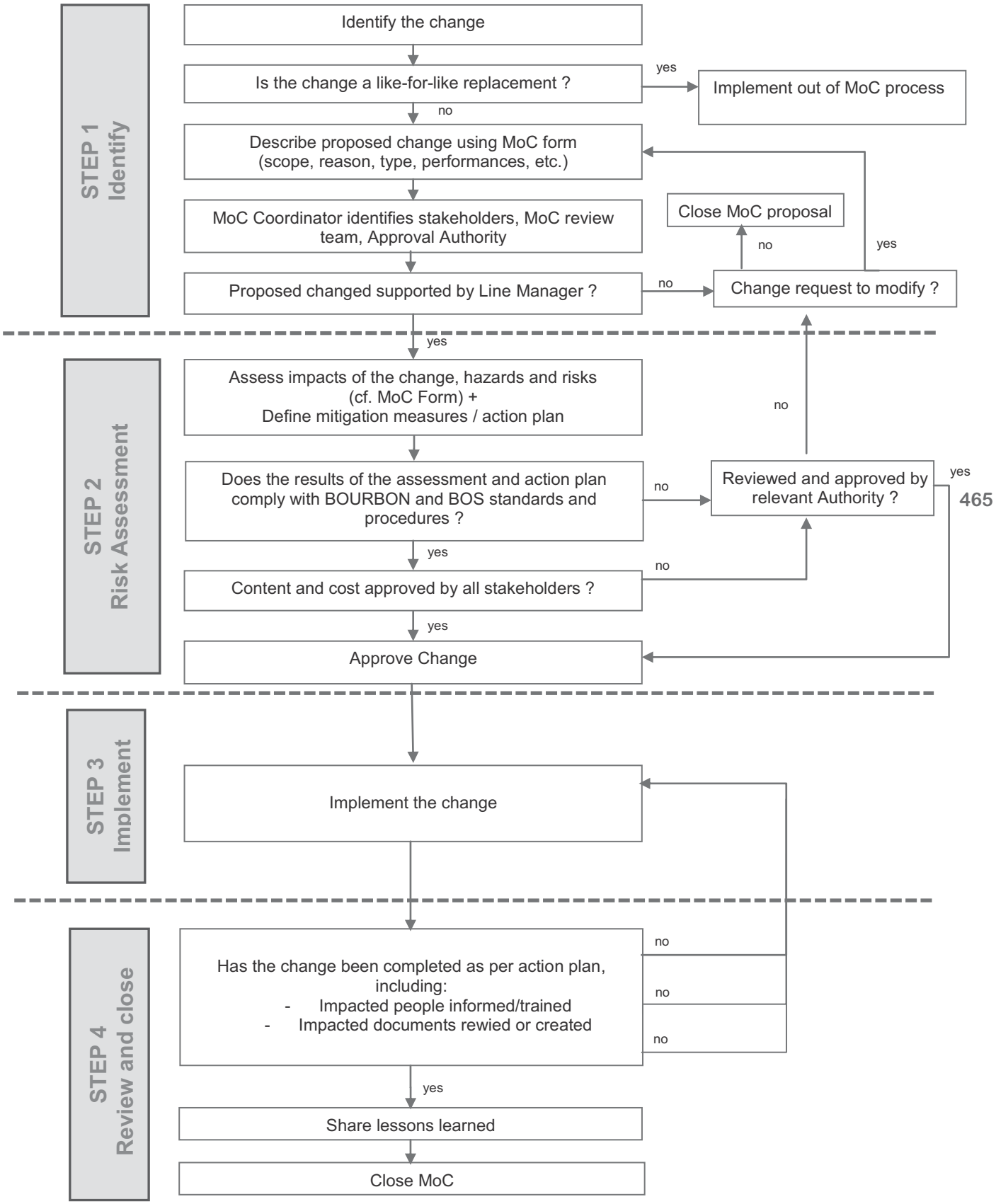
Quality Representative has the responsibility, authority and accountability for :

a) Perfoming annual MoC process review.

464

4 Description

4.1 MoC process



4.2 MoC documentation process and review

All changes meeting the criteria of the present procedure *shall* be documented using the *BOS-FRM-06.0002 – Management Of Change*.

A MoC register recorded on BOS Intranet consolidates the details of all MoC raised by the Company. The completed MoC forms and supporting documentation *shall* be archived for a period of 3 years from the date of MoC closure.

MoC Coordinator *shall* ensure that the MoC form, once filled out by **MoC Initiator**, is given a MoC number as follows :

MoC [vessel or Dpt abreviation] [YYYY]-[incremental number]

E.g: MoC AILET 2014-01

Vessels and Departments abbreviations are listed in *BOS-SPC-11.0002 – BOS Vessels and Department Abbreviation*.

When change is supported by **MoC Initiatior** and **Line Manager** (Step 1 passed), MoC forms and related documents *shall* be :

- filed on BOS Intranet by the **MoC Coordinator**,
- updated through the approval process,
- archived with all signatures when closed. Scanned, electronic files are accepted as records for MoC purposes.

466 When **MoC Initiator**'s work position is located onboard vessel, the MoC *shall* also be filed on the vessel.

MoC forms that are indeed onboard a vessel *shall* be easily accessible on the Bridge and other applicable locations.

Efficiency and proper application of MoC procedure will be checked during annual process review carried out by **Quality Representative**. Records of MoC and related documents *shall* be controlled at that time to ensure that the changes have been implemented according to plans. Any improvement identified will be recorded in the process review report.

4.3 Creeping change

Incremental changes in a defined scope/system could over time pose a significant risk, and in the MoC process is identified as a **creeping change**. Creeping change is often hard to detect, due to changes evolving over both time and by more than one initiator.

Examples could be:
- modifying several components within a system over time, such that if all changes were to be done simultaneously a MoC would be required due to overall impact, whereas incremental steps does not require a MoC.
- A significant number of **Senior Officers** reaching the retirement age limit within a short range of time, causing a recruitment challenge and a potential major loss of competence.

All **Process Owners** have the responsibility to keep abreast of any changes in external legislation/guidelines/practices over time, that could have a potential MoC impact, and incorporate such changes in their process activities through MoC.

The principles of MoC *shall* be observed by all onshore and offshore personnel performing any changes to a set scope/scenario/system in order to evaluate if the current change could be part of an incremental/creeping change.

4.4 Temporary and emergency changes

Temporary changes: These changes are intended to exist for a short, predetermined and finite period. The time frame of validity of the change *shall* be identified in the risk-assessment and documented in the MoC Plan.

The *MoC Form* *shall* also specify the date and frequency when risk assessment requires to be reviewed. As a minimum, it will be at the end of determined duration of the temporary change, this to avoid that temporary change becomes permanent without any control. But depending of the level of risk, it can be carried out before the time limit.

If temporary changes needs to become permanent, then new MoC *should* be released according to this decision and the present procedure.

Emergency changes:

In case change must be implemented in emergency situations :

- The change *should* only be permitted on the authority of the **Operations Manager**, **the Line Manager** or above.
- As a minimum, a Risk Assessment covering the approved change *shall* be conducted and communicated to all affected personnel prior to recommencing operations.
- The emergency change *should* be subjected to the normal Management of Change procedures at the earliest opportunity.

4.5 Like-for-like replacement

Like-for-like replacement does not require a MoC. 467

Like-for-like replacement means :

- Same specification including material(s), old construction, dimension, height.
- Same service : process conditions including pressure, temperature, process materials. Inspection and maintenance *should* be the same.
- Procedural replacement meaning routine operation (replacement not due to failure).
- Genuine replacement, not an improvement : if the purpose of the replacement is to upgrade the old part then it is not in-kind.

4.6 Change of personnel and/or organisation

This chapter highlights what needs to be achieved in order to ensure that changes in a safety critical person's role or organisation are properly managed and inducted into the Company.

Failing in this process may not present immediate hazards, however unmanaged risks *shall* manifest themselves as incidents after a period of time and failure to carry out a thorough risk assessment at this stage may lead to increased likelihood of incidents.

The list of risks featured here is not exhaustive but is supplied as a prompt to help the **Change Coordinator** and **Responsible Managers** focus on the processes as each action plan will be unique to the individual and the operational circumstances at the time.

The feedback loops exist to encourage the **Change Coordinator** to revisit the consultation process in the event that it is not possible to compile and execute a suitable action plan.

4.6.1 Identification of the need for a new employee/crew member or organisational change

The reason for the change can be:

- Sudden relief due to illness;
- Relief due to incompetence or disciplinary reasons;
- New vessel into service;
- Resignation;
- Promotion;
- Modification of lines of responsabilities;
- Major increase/decrease of activity inducing reorganization;
- Offices/facilities relocation;
- etc.

4.6.2 Risk assessment

Risks *shall* be assessed regarding the person itself and the interfaces with people and environment :

- Identify the Responsible Manager (E.g: **Managing Director**/**Operations Manager**/**Master**/**Crewing and HR Manager**);
- Consult them to identify the risks associated with the personnel change;
- Identify the training requirements (duration, possibility of failure etc);
- Consider the operational commitments of the vessel;
- Consider client or charter requirements or restrictions;
- Consider competence and compliance with Crewing Policy (see chapter 6);
- Cultural issues and geographical restrictions;
- Administrative preparations;
- Work environment.

468

4.6.3 Mitigation and controls

Identify risk control measures i.e:

- Induction/familiarisation;
- Training;
- Handover (contents, scheduling, timing of handover);
- Contingency (back up planning) in case of failures;
- Attendance for **Referent Captain** / **Referent Chief Engineer** to first time non-routine operations.

4.6.4 Action and Communication Plan

Once the risks and mitigations measures are understood, the Action Plan *shall* be provided to Approval Authority.

Personnel assigned to a new position ashore, onboard the same vessel or transferred to another vessel, will complete a planned induction routine that will include the following activities :

- Assessment of new joiner's qualifications to establish whether additional training is required for the role;
- Training courses and simulator time (if required);
- Familiarisation with *Job Description*;
- Familiarisation training required by legislation (E.g. ISM, STCW);
- Familiarisation with the Companies SMS (conducted prior to taking on the role) by either an applicable **Shore Base Representative**, the **Master**, or by a **Vessel Officer** designated by the Master;

- Client meeting (as applicable / where possible);
- Travel and transfer arrangements (as applicable);
- Completion and forwarding of **Master**'s and **Chief Engineer**'s Handover Reports (as applicable) to the Responsible Manager;
- Information relating to Handover *shall* be drawn from all available sources - E.g: vessel logs etc. in order to stay abreast of any changes to the *Safety Management System* (SMS), *Vessel Planned Maintenance System* (PMS) and all other information as may be applicable on joining or re-joining a vessel following any period of leave or on joining a vessel for the first time;
- It is the responsibility of the **Operations Manager** to review the **Master**'s Handover Report and provide adequate feedback or take corrective action;
- It is the responsibility of the **Technical Superintendent** to review the **Chief Engineer**'s Handover Report and provide adequate feedback or take corrective action.

4.6.5 Approval

Approval *shall* be obtained as required by the **Approval Authority** (**HR/Crewing Manager**). Client approvals may be required in accordance with Charter, Logistics or HSE planning.

4.6.6 Implementation, monitoring and assessment

The **Change Coordinator** *shall* monitor the action plan, evaluate the effectiveness, and identify improvements as necessary.

4.6.7 Documentation

Documentation is to be completed and provided as follows:

- Handover Reports;
- Training records;
- Company induction;
- Vessel induction and familiarisation;
- Competency assessment;
- Appraisal;
- Any additional reports that may have been requested.

4.7 Addition, change or modification of an equipment on a vessel

This chapter highlights what needs to be achieved in order to ensure that the change of equipment is entirely integrated in the system (people, process, documentation, etc.) and is carried out safely.

Where the same equipment is being changed for more than one vessel (e.g. upgrade of all hydraulic power packs) the **Approval Authority** *shall* be the **Technical Manager** ashore to ensure consistency.

The **Change Coordinator** *shall* revisit the consultation process in the event that it is not possible to compile and execute a suitable actions plan.

Equipment retro-fitted or temporarily installed for projects *shall* be assessed for integration with the vessels systems. Vessels systems could include hydraulic, electrical, air, water, drainage and safety systems, such as fire detection.

Approval *shall* include **Contractor Responsible** for equipment. Approval may be required from Class or Flag.
Equipment to be installed temporarily needs to be monitored as it *should* be installed permanently.

4.7.1 Identification of the need to add, change or modify an equipment

Identify the reason for the change (e.g. recurrent failure, performance improvement, client requirements, lessons learned, technological improvement, etc.).

4.7.2 Risk Assessment

Identify all stakeholders, e.g.:

- Equipment supplier;
- Repair yard support teams;
- Other Departments – such as deck if replacing a capstan;
- **Master**;
- **Chief Engineer**;
- Commissioning teams;
- Classification society;
- Bourbon Subsea Crane Department if crane is involved;
- Other Affiliates.

Consult all relevant stakeholders as contributors of the Risk Assessment.

Identify the various potential impacts of the equipment change with the guidance annexed to the *MoC Form*.

Identify all the tasks required to complete the equipment change.

Assess risks for each task.

If this equipment change is not routine, a Job Safety Analysis (JSA) *shall* not be available, therefore this *shall* require a full risk assessment in accordance with SMS procedures.

470 Typical risks include but are not limited to:

- Risks to personnel Safety and the Environment;
- Risks from catastrophic failure such as lifting gear failure;
- Effect on ship stability or watertight integrity;
- Working at height risks;
- Weather risks (high winds limit craneage and *shall* delay work);
- Hot work risks;
- Confined space risks;
- Consequences of isolation of electrical or other high energy supplies and ship's services such as water, sanitary or galley services;
- Effect on access throughout the ship;
- Short notice changes to ships programme (discharge/embarkation of fluids or stores/cargo can change at short notice compromising other work);
- Personnel availability;
- Effect on notice for sea;
- Vessels schedule;
- Clients requirements and effect on operational planning;
- Risk of errors in operating the equipment due to lack of training or induction (shore based managers and crew concerned).

4.7.3 Mitigation and controls

Identify risk controls in accordance with SMS procedures. Examples of mitigation and controls include but are not limited to:

- Familiarisation (or training) to new equipment;
- Proper preparation to perform the change of equipment safely (JSA, TBT, PTW, etc.);
- Checking equipment is in date for test/calibration;
- Confined space entry routines, ventilation and gas monitoring;
- Understanding effect of isolating vessel's services;
- Planning the task such that it does not conflict with other activities on board;

- Ensuring suitably qualified and experienced personnel for carrying out and supervising the equipement change.

4.7.4 Action and communication plan

Consult and follow pre-task safety requirements. Identify the stages of work in the risk assessment to form the basis of a plan which can be passed to the responsible person for approval. The plan *shall* include, and allow time for, the following items:

- Identification of stakeholders;
- Completion of job risk assessment (based on analysis of the steps in the task);
- Compilation of risk control measures;
- De-conflicted schedule of work (including preparations such as docking or tank cleaning) with one person allocated as responsible for ensuring completion of each task;
- Issue of Permits to Work (PTWs);
- Commissioning;
- Familiarisation or training to new/modified equipment;
- Trial (as applicable);
- Communication plan (showing who needs to know what in order to proceed the job safely);
- Tool Box Talk (TBT) preparation;
- Submission of change documentation to Quality and HSE for quality/safety check;
- Authorisation to proceed;
- Completion of documentation and maintenance records (especially the change to Ship Fit Definition and logistic support requirements).

4.7.5 Approval

- Submit plan to **Chief Engineer or Superintendent** for scrutiny;
- Obtain approval from **Technical Manager**.

471

The approval process for changing an equipement *shall* also fully comply with BOS expenditure approval procedure BOS-PRD-17.0001-fr – Procédure d'approbation des dépenses.

The action and communication plan *shall* be submitted allowing sufficient time for scrutiny and amendment before the work is due to commence.

4.7.6 Implementation, monitoring and assessment

The **Technical Manager** or (assigned role) is responsible for :

1. Carrying out a pre-start review for changes that require one before commissioning;
2. Checking if MoC is being performed as per MoC Plan. If not, MoC Plan has to be reviewed and reapproved;
3. Ensure that a post change review is conducted when all actions are completed.
4. Ensure lessons learned are documented and shared with stakeholders;
5. Ensure MoC is closed (sign off approval authority);
6. Record and file documentation in MoC register.

4.7.7 Documentation

Documentation is to be completed, updated and provided as follows :

- Technical documentation (e.g. drawings, technical change report, etc...) ;
- Operating documentation (procedures, instructions, etc...);
- Trial reports (as applicable);
- Maintenance database (Task Assistant software : frequency of tasks, nature, reports, etc…);

- Logistic support requirements;
- Change to Ship Fit definition documents.

4.8 Change of Vessel

This procedure highlights what needs to be achieved in order to ensure that the introduction of a new vessel does not compromise safety or increase risk to the environment.

Accepting a new ship into service requires:

- A detailed understanding of the vessels capabilities;
- The operational requirements;
- Contract requirements and expectations;
- Technical difficulties or warranty defects;
- Logistics and support requirements;
- Constraints or limitations associated with Company Departments. E.g.: Purchasing/Crewing.

Risk assessment and planning *shall* focus on the above considerations.

4.8.1 Identification of the need to introduce a new ship into service

The **Change Coordinator** and the reason for the change are to be included on the change request form as this *shall* focus the risk assessment process. Examples of reasons include:

- Decomissioning / Lay up of an existing vessel;
- Replacing damaged/lost vessel;
- Enhancing capability (additional vessel into service);
- Back to back contract for vessel within Company;
- Chartered vessel/front runner (external to BOURBON).

472

4.8.2 Risk assessment

Identify all involved persons (stakeholders) e.g.:

- Vessel builder;
- Classification Society;
- Flag State;
- Operational/Technical staff ashore;
- Human Resources Department (Crewing);
- Information Technology (IT);
- Communications;
- QHSES Department;
- Client;
- Contracts Manager (if contract awarded);
- Other Company/Corporate Office;
- External Commercial Companies;
- Base Port Authorities.

Consult all stakeholders and perform a risk assessment including :

- Documentation (completion on time?);
- Systems checks;
- Risk of errors in operating the vessel due to lack of training or induction (Head office Managers and crew concerned);
- Pre-sailing inspection;
- Logistics and spare parts inventories;
- Crewing;
- Proposed operational tasking (are existing JSAs applicable for new vessel?);
- Client satisfaction chain;

- Client requirements (if contract awarded), e.g:
  - Inspections;
  - Training;
  - Bridging documentation;
  - Equipment to meet contract;
  - Kick off meetings/contract review;
  - Other.

4.8.3 Mitigation and controls

Identify controle measures associated to risks identified :

- Regular checks on documentation production progress;
- Maintain close relationship with the New Build Department to ensure commissioning is on schedule;
- Ensure suitably qualified and experienced **Technical Superintendent** available for delivery/acceptance inspection;
- Availability and competence of crew;
- Use of *Vessel Crewing Guidelines* to select, train and induct suitably qualified and experienced crews;
- Ensure all applicable existant JSAs are compatible with new built vessel.

NOTE: Some controls may be so significant (e.g. operator/maintainer training) that they require separate change requests to be raised and planned.

4.8.4 Action and communication plan

The plan *shall* consist of the following items as a minimum :

473

- Crew training schedule;
- Production of operating documentation;
- Production of maintenance documentation;
- Update of quality/commercial documentation ;
- Review and update of all applicable JSAs – SMS;
- Delivery arrangements (passage planning, delivery crew, etc…);
- Date of arrival in base port;
- Additional work required post acceptance;
- Date on which new vessel *shall* be accepted into service;
- Interface with client/other BOURBON Companies;
- Produce detailed communication plan showing who needs to know what and when.

4.8.5 Approval

Approval to start the new delivery process *shall* come from the **Managing Director** on advice from the **Contracts Manager**/**Operations Manager** and **Technical Manager**.

The Actions and Communication Plan in the *shall* be submitted allowing sufficient time for scrutiny and amendment before the changes come into force.

Client Approvals may be required in accordance with charter, Logistics or HSE planning.

4.8.6 Implementation, monitoring and assessment

Change Coordinator *shall* monitor the effectiveness of the new delivery process and the change itself. Where unforeseen problems occur, the plan and risk assessment *shall* be reviewed.

If alterations are necessary, the plan *shall* be re-authorised in consultation with the vessel **Operation Manager / Superintendent** before the trial continues.

4.8.7 Documentation

Documentation to be released as per list provided in *Completed New Built Vessel Handover Protocol*.

4.9 Change of vessel operating conditions

This procedure highlights what needs to be achieved in order to ensure the change in operating condition (or maintenance/inspection routines) does not compromise safety or increase risk to the environment or asset.

The bulk of the work associated with these changes is risk assessment and understanding the full extent of the reasoning behind the current limits. These changes can only be implemented when the control measures are fully developed and implemented.

The **Approval Authority** for vessels change of operating conditions *should* be the **Operations Manager** (can be delegated to the **Technical Manager** as applicable). Prior to authorisation there *shall* be a record of consultation with the **Master/Chief Engineer** of all the vessel(s) affected.

The **Change Coordinator** *shall* revisit the consultation process in the event that it is not possible to implement the control measures prior to changing the procedure.

The change in operating conditions (or maintenance/inspection routine) *shall* undergo a trial period before the *MoC form* can be filled out and the task formally closed.

4.9.1 Identification of the need to change

The reason for the change are to be included in the *MoC Form* as this *shall* focus on the risk assessment process. Examples of reasons include:

474

- Main engine lubrication oil analysis indicates oil changes are too frequent;
- Hydraulic power pack manufacturer has reduced recommended maintenance routine.

4.9.2 Risk assessment

Identify all stakeholders e.g.:

- Equipment supplier;
- Operational/Technical staff ashore;
- **Master**;
- **Chief Engineer**;
- Other Departments affected;
- Safety and Quality Management teams;
- Client;
- **Bourbon Subsea Contract Manager** and **Bourbon Subsea HSE Manager** in case of MPSV.

Consult all stakeholders.

Assess the risks associated, including :

- Risks to personnel safety and the environment;
- Risk of catastrophic failure;
- Risk of fire;
- Effect on ship stability or watertight integrity;
- Risk associated with change of demand on ship's services such as electrical load;
- Effect of changed procedure on ships programme – reducing frequency of stores delivery;
- Effect of change on ships programme – reducing frequency of a mandatory maintenance routine may increase vessel availability but then present problems regarding crew fatigue or scheduling other maintenance.
- Deficiency of training / familiarization to new operating conditions.

4.9.3 Mitigation and controls

Identify associated control measures including:

- Appropriate changes to HSE precautions (may require a further change request);
- Checking equipment is able to sustain this change in limitations, inspection or maintenance routine without failure;
- Modelling effects of new process on stability, watertight integrity or fire safety;
- Familiarisation and training requirements;
- Understanding effect of changed procedure on other equipment;
- Attendance for **Referent Captain** / **Chief Engineer** to first time non-routine operations.



Some controls may be so significant (e.g. Operator/Maintainer training) that they require separate change requests to be raised and planned.

4.9.4 Actions and Communication Plan

Items identified in the risk assessment *shall* form the basis of a plan which can be transmitted to the responsible person for approval.

The plan *shall* consist of the following items as a minimum:

- Implementation of mitigation measures;
- Implementation of special reporting regime (for change evaluation);
- Change notices, gauge glass zones, re-program surveillance panels (if applicable);
- Update maintenance/operating documentation (hard and soft copy);
- Date on which changed operating conditions, maintenance/inspection routines are implemented;
- Produce trial plan showing check points and criteria for successful trial;
- Produce detailed communication plan showing who needs to know what and when they *shall* be told; 475
- Submission of changed documentation to the Quality and Safety Department;
- Training (or familiarization) planning.

4.9.5 Approval

Obtain approval from the Change Owner (**Operations Manager** or **Technical Manager**). This approval cannot be given without consultation with the **Master**/**Chief Engineer** of the vessels concerned.

The Actions and Communication Plan *shall* be submitted allowing sufficient time for scrutiny and amendment before the changes come into force.

Client approvals may be required in accordance with charter, Logistics or HSE planning.

4.9.6 Implementation, monitoring and assessment

Change Coordinator *shall* monitor the effectiveness of the change process and the change itself.

Where unforeseen problems occur, the plan and risk assessment *shall* be reviewed.

If alterations are necessary, the plan *shall* be re-authorised in consultation with the vessel **Master**/**Chief Engineer** before the trial continues.

4.9.7 Documentation

The following documents may be relevant for these kind of changes :

- Updated Maintenance Records (electronic and paper) if applicable;
- Updated Technical/Operating References;
- Updated Logistic Support Records (e.g. modification to consumable stores ordering schedule);

4.10 Change of vessel operating area / region

This procedure highlights what needs to be achieved in order to ensure the change in operational area does not compromise safety, increase risk to the environment and that costs and schedules are managed through control of the changes in operational conditions.
Changes *should* only be initiated when the control measures are fully developed and implemented Actions Plan agreed by stakeholders.

Normally a change in operational area *shall* at least require but not be limited to the following factors to be evaluated :

- Crew change in new area;
- Visa requirements;
- Logistics cost;
- Vaccinations;
- General security assessment;
- SSA update;
- Logistic support and local customs regulations;
- Access to service personnel;
- Availability of docking and repair facilities;
- Adequation of spare parts and consumables;
- Access to dangerous goods supplies as chemicals, pyrotechnics, etc;
- Information flow to stakeholders;
- Back to back agreement with local affiliate;
- Contract deployment process.

The **Approval Authority** for vessels change of operating area *should* be the **Head of Operations Manager.**

476

4.10.1 Identification of the need to change

The reasons for the change are to be included on the *MoC* form found in forms and checklists.

4.10.2 Risk assessment

Identify all the steps required to complete the change of area and assess the hazards for each step.

Typical Hazards can include or affect but may not be limited to :

- Personnel, visas, vaccinations, HUET/BOSIET;
- Environmental requirements;
- Equipment status;
- Delays, loss of hire, mobilisation costs;
- Effect on ships operational costs;
- Security hazards;
- Change in client demands / Plans;
- Change in applicable legislation;
- Change in emergency contacts and response plan;
- Training requirements.

4.10.3 Mitigation and controls

Identify mitigating control actions which may be:

- Appropriate changes to procedures and checks;
- Checking equipment is able to sustain change in environment, and adjust inspection or maintenance routine;
- Adjust stock onboard;
- Consider service or replace equipment not due yet such as liferafts, fire extinguishers, pyrotechnic equipment.
- Achieve training requirements;

- Carry out Ship Security Assessment and complete Ship Security Plan;
- Create or update Emergency Response Plan.

4.10.4 Action and communication plan

The plan *shall* consist of the following items as a minimum:

- Implementation of mitigation measures, identifying the implementation responsible;
- Implementation of relevant reporting regime;
- Produce detailed communication plan showing who needs to know what and when they *shall* be told and who is responsible for communicating and which records *shall* be obtained.

4.10.5 Approval

Obtain approval from the **Head of Operations Manager.**

The Action and Communication Plan *shall* be submitted to those identified as approving parties on the MoC form, allowing sufficient time for scrutiny and amendment before the changes come into force.

4.10.6 Implementation, monitoring and assessment

Change Coordinator *shall* monitor the effectiveness of the change process and the change itself.
Where unforeseen problems occur, the plan *shall* be reviewed. If significant alterations are necessary the plan *shall* be re-authorised.

4.10.7 Documentation

477

In this kind of change, documentation to be released cannot be precise as situations can be various and related documents too.

5 Records

- Management of Change Records.
- Newbuilt Vessel Handover Protol Records.
- Process Review Reports.
- Head Office Key Position Handovers.

6 Related documents

- BOS-PRD-03.900901 – Job Safety Analysis Procedure (SMS Section 9).
- BOS-PRD-17.0001- Procedure d'approbation des dépenses.
- B-SPC-06.0001 – Risk assessment matrix.
- BOS-SPC-11.0002 – BOS vessels and departments abreviations.
- BOS-FRM-06.0002 – Management Of Change (MoC).
- B-FRM-1201.0008 - Process review report.
- BOS-FRM-03.0029 – Newbuilt Vessel Handover Protocol.
- BOS-FRM-06.0003 – Head Office Key Position Handover.
- BOS-FRM-06.0005 – MoC Register.

7 Terms and definitions

BOS
Bourbon Offshore Surf.

BOSIET
Basic Offshore Safety Induction and Emergency Training.

ISM
International Safety Management

478

ERP
Emergency Response Plan.

HUET
Helicopter Underwater Escape Training.

JSA
Job Safety Analysis

MPSV
Multi purpose Supply Vessel.

OLF
Norwegian OLF Survival Courses.

SOPEP
Shipboard Oil Prevention Emergency Plan.

SSA
Ship Security Assessment.

SSP
Ship Security Plan.

STCW
Standards of Training, Certification and Watchkeeping for Seafarers

TBT
ToolBox Talk

PTW
Permit to work

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS General Manager	BOS Quality Representative	Rev.01 – 11/03/2013	Revision of §4.2.6
BOS QHSES Manager	BOS General Manager		Ver.03 – 03/12/2013	-
BOS QHSES Manager	BOS General Manager		Ver.04 – 31/12/2014	All chapters revised

SMS
Section 8

Incident Investigation and Analysis

BOS-MNL-03.900800-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3
1.1 Main Objective 3
1.2 Incident Analysis 3
1.3 Establishing Procedures 3
2 Review, approval, revision and identification of changes 4
3 Related contents 4

482

1 Introduction

1.1 Main Objective

Establish the use of effective reporting, investigation and management follow-up methods to learn from all incidents (High potential Near miss, Near Miss, Breach of conduct, Damage to the environments, Damage to assets, Collision, Illness and Personal Injury (Bourbon or Non Bourbon employees) , and thus prevent reoccurrence.

One of the fundamental principles of safety management is that all incidents and accidents are preventable.

Therefore, it is important to ensure that if there is an incident, the causes are thoroughly investigated and measures are taken to prevent a reoccurrence.

1.2 Incident Analysis

The Company *shall* establish and maintain procedures for consistently reporting, investigating, analysing and documenting operational, safety and environmental incidents, significant near misses and breaches of regulations.

1.3 Establishing Procedures

483

The procedures *shall*:

- Provide for the timely investigation of an incident;
- Identify the people responsible for reporting an incident, authorising and conducting the investigation, and initiating subsequent corrective actions;
- Include guidance on the classification of all incidents in line with recognised industry guidelines, such as those issued by IMCA, OCIMF and OSHA;
- Provide incident investigation training to staff with this assigned responsibility;
- Ensure that the direct, contributing and root causes contributing to an incident are identified, and that steps are taken to reduce the risk of a reoccurrence;
- Include provision for determining the actions needed to reduce the risk of related incidents;
- Ensure that incident investigation findings are retained and periodically analysed to determine where improvements to management systems, guidelines, procedures or practices are required;
- Specify methods for determining whether liaison is needed with industry groups (such as classification societies or equipment manufacturers) to avoid similar incidents on other vessels;
- Ensure that lessons learnt from an incident and investigation are shared among the fleet and used to facilitate improvements in operational safety management performance.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	Revision of §1.1
BOS QHSES Manager	BOS QHSES Manager		Ver. 03 – 03/12/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver 04 – 31/12/2014	-

3 Related contents

1. BOS-PRD-0302.900801 – Incident Reporting, Investigation and Management (SMS Section 8).
2. B-FRM-0302.0003 – Bourbon Incident Report Form.
3. BOS-FRM-0302.0002 – Investigation Report and Incident Analysis.
4. BOS-FRM-0302.0001 – On-Site Investigation Report.

484

Incident Reporting, Investigation and Management

BOS-PRD-0302.900801-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1. Purpose **3**

2. Scope **3**

3. Responsibility, authority and accountability **4**

4. Description **5**

4.1 Incident management 5

4.2 Incident reporting 6

4.2.1 HIGH REAL Impact Incidents (as per the Severity matrix): 6

4.2.2 MODERATE REAL Impact Incidents (as per the Severity matrix): 7

4.2.3 LOW REAL Impact Incidents (as per following Severity matrix): 7

4.2.4 HIGH NEAR MISS Impact Incidents (as per following Severity matrix): 7

4.2.5 MODERATE NEAR MISS Impact Incidents (as per the Severity matrix): 7

4.2.6 LOW Near miss Impact Incidents (as per the Severity matrix): 8

4.2.7 Reporting Matrix 8

4.2.8 Technical failure reporting 9

4.3 Incident reporting requirements 9

4.3.1 Reporting maritime incidents 9

4.3.1.1 Ship To Shore (STS) 9

4.3.1.2 Shore To Management (STM) 10

4.3.1.3 Case of Subsea Multi-Purpose Supply Vessel 12

4.3.1.4 Shore base, Office, other non-marine location incident reporting 12

4.3.2 Incident reporting to Flag State and Coastal State 12

4.3.3 External Reporting 12

4.3.4 Immediate sharing of information 13

4.4 Post Incident D&A test requirements 13

4.5 Incident investigation 13

4.5.1 Incident investigation levels 15

4.5.2 Incident investigation Training 15

4.5.3 Conducting the Investigation 16

4.5.4 Near-miss investigation process 16

4.5.5 The investigation report 17

4.6 Corrective and Preventive actions 17

4.6.1 Management actions 17

4.6.2 Location actions 17

4.7 Post incident follow-up and sharing ‘lessons learned’ 18

4.7.1 Sharing incident lessons with industry bodies and clients 18

5. Records **19**

6. Related documents **19**

7. Terms and definitions **19**

8. Review, approval, revision and identification of changes **21**

486

1. Purpose

One of the fundamental principles of Safety Management is that all incidents and accidents are preventable.

This procedure is maintained to ensure consistent and effective reporting, investigating, analysing and documenting of safety and environmental incidents, significant near misses and breaches of regulations.

Additionally, the management of follow-up is in place to learn from all incidents (including Near Misses) to ensure measures are taken to prevent a recurrence.

2. Scope

This procedure *shall* apply to all Company maritime activities, onshore facilities, offices and other related locations.

This procedure documents and defines the following:

- Responsibility, authority and accountability related to incident reporting, investigation and management;
- Practical requirements for incident reporting, investigation and management;
- Levels of incident classification – the 'seriousness scale';
- Requirements for learning from incidents and sharing of 'Lessons Learned' to prevent reoccurrence.

487

3. Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that *Incident Reporting, Investigation and Management* procedures are defined, documented and approved;
b) Ensuring that HIGH impact incidents including third parties are reported by the most effective method at the first opportunity;
c) Ensuring that MODERATE, LOW impact incidents including third parties and Significant Near Misses are reported within 24 hours;
d) Ensuring all breaches of maritime regulations and laws are reported;
e) Ensuring effective investigation is performed and documented;
f) Ensuring all incident investigation reports, inclusive of improvement action planning, are reviewed and approved prior to release;
g) Ensuring all improvement actions identified through investigation or otherwise are verified as effectively implemented;
h) Ensuring resources are provided as applicable and levels of responsibility are assigned for leading incident investigations according to the severity of the incident (as defined in § 3.5.1);
i) Ensuring resources to enable training and refresher training for continued effective incident investigation, are identified and provided;
j) Ensuring incident investigation training is completed as per BOURBON expectations.

Operations Manager/ Deputy Designated Person Ashore (DPA) have the responsibility, authority and accountability for:

488

a) Ensuring that the requirements and expectations of *Incident Reporting, Investigation and Management* are communicated and implemented onboard all vessels under his/her jurisdiction.
b) Reporting high potential negative impact incidents by the most effective method at the first opportunity after being informed;
c) Reporting moderate potential negative impact incidents within 24 hours of being informed;
d) Reviewing and forwarding of the IMCA station keeping incident form for DP vessels to the **Corporate Dynamic Positioning Competent Superintendent**;
e) Including the IMCA station keeping incident form for DP vessels, after review by the **Corporate DP Competent Superintendent**, with the incident report form on the HSE Incident Database;
f) Monitoring all incident investigations and reporting progress to the **Managing Director**;
g) Overall management of incidents;
h) Ensuring accuracy and quality of incident data uploaded on to the HSE Incident database;
i) Ensuring effective implementation of preventive and corrective action.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.
b) Verifying effective application of *Incident Reporting, Investigation and Management* requirements onboard vessels operating on their specific Contracts.
c) Reporting high potential negative impact incidents by the most effective method at the first opportunity after being informed;
d) Notifying in a timely and factual manner all low, moderate and high potential incidents and all moderate and high potential near miss incidents occurring on board and on-chartered vessel.

Masters have the responsibility, authority and accountability for:

a) Verifying effective implementation of *Incident Reporting, Investigation and Management* requirements onboard their specific vessel.
b) Reporting high potential negative impact incidents by the most effective method at the first opportunity after being informed;
c) Reporting low and moderate potential negative impact incidents within 24 hours of being informed;
d) Reporting incidents to Port Authorities where applicable;
e) Ensuring the implementation of corrective/preventive action onboard the vessel.

Q & HSE Manager has the responsibility, authority and accountability for:

a) Ensuring compliance of this document;
b) Reporting all incidents occurring at shore bases, offices and other non-marine locations, as per Affiliate organization reporting requirements;
c) Reporting moderate potential negative impact incidents within 24 hours of being informed;
d) Assisting the **HSE incident database Coordinator** to ensure the data accuracy posted onto the portal;
e) Providing technical assistance when required and ensure appropriate information and lessons learned are communicated to the **Regional** and **Corporate HSE Managers** as applicable.

QHSES Coordinators have the responsibility, authority and accountability for:

a) Ensuring the following-up of incidents, including near misses and third parties, reports raised by the vessels as per *instruction BOS-INS-03.1201 "Vessels allocation by QHSE Coordinators"* and for the Head Office ones.
b) Elaborating the Monthly HSE Statistics reports;
c) Recording all incident reports, regardless of level, on the HSE incident database;
d) Contributing to the establishment of safety alerts, and sharing lessons learned through the vessels;
e) Contributing to the verification of the effectiveness of the corrective and preventive actions established after an incident.

Bourbon Docking Technical Representative has the responsibility, authority and accountability for:

a) Notifying in a timely and factual manner all low, moderate and high potential incidents and all moderate and high potential near miss incidents occurring on board vessels in shipyard.

4. Description

489

4.1 Incident management

Full application of this procedure enables effective response to emergency and other incidents.

Incidents *shall* be reported and investigated in a timely fashion according to this procedure.

Action Plans *shall* be implemented to define corrective and preventive measures to avoid reoccurrence.

Corrective and preventive actions identified through incident investigations *shall* be verified as effectively implemented.

Appropriate management resources *shall* be applied to ensure effective response to actual or possible emergency situations.

Appropriate management *shall* be applied to best ensure care of any injured persons. Such care *shall* include accompaniment of injured persons for any required medical diagnosis.

The Company procedures *shall* ensure:

- Personnel involved in an incident are aware of their individual responsibilities;
- Responsibilities are documented and tested to provide competent response;
- Timely and appropriate response;
- Protection of life, assets and the environment;
- Safety of persons involved in, and responding to an incident;
- Continued protection of personnel, assets and the environment during the response to an incident;
- Provision to effectively assess and act on any deficiencies identified within or connected to incident management performance.

4.2 Incident reporting

ALL incidents, regardless of level are **REPORTABLE** including those involving third parties and equipment.

Timely and accurate reporting of incidents ensures that management are informed and can respond appropriately to a situation.



Timely reporting of HIGH potential incidents *by the most effective method at the first opportunity* is considered to mean by telephone.

Other required methods (e-mail, electronic reporting communication) are to be considered as secondary, supporting back up.

Different kinds of incidents require differing reporting levels, dependent on the potential impact of the incident. The final severity may not be known at the time of reporting. For this reason, the wording “Potential” is used.
Incidents are classified as having ‘HIGH Impact’, ‘MODERATE Impact’ and ‘LOW Impact’.

Near miss incident is defined as any event or sequence of event that did not result in an accident but which, under slightly different conditions, could have done so.

This classification will be done by **BOS Deputy DPA** in collaboration with **BOS HSE Department**.
Then, it will be agreed, or not, by **Corporate HSE** through the HSE Incident Database.

Several forms for reporting HSE issues are available in the System: the *Incident Report*, the *Situation Report* and the *B-Safe cards*. All of them are level 1 documents, i.e. Bourbon issued them.

The *Incident report* is to be used to report the following: Collisions / Damages to Assets / Damages to environment / Personal Injuries (BOURBON or Non BOURBON) / Near Misses / Work related Illnesses / Breaches Of Conduct (BoC) with respect to BOURBON Policies not being respected.

The *Situation Report* will be used for all other reportable situations such as: Any suggestion relative to the design of an equipment, any improvement of the SMS, situation that slow down the activity and need to be solved.(for details please refer to SMS Section 12 BOS-PRD-1201.901201 Corrective Action Procedure § 4.2.2*)*.

Two types of *B-Safe cards* exist: Behavioural Observation and Hazardous Situation. They are to be used in case an hazard is detected onboard and can be managed by the crew itself without externalassistance.
For further detailed informations regarding *B-Safe cards*, please refer to procedureBOS-PRD-03.900904- B-Safe Hazard Observation and Hazard Hunt in the section 9 of this manual.

4.2.1 HIGH REAL Impact Incidents (as per the Severity matrix):

- Fatality or more than one fatality;
- Permanent disability;
- Lost Time Injury (LTI kown also by Lost Work Case LWC);
- Fire;
- Spill >100 liters (contained or at sea);
- Collision/Damages to assets >100 000€;
- Flooding,
- Grounding;
- Situations where the vessel touches bottom with any damages or suspected damages;
- Blackout or mechanical failure leading to a hazardous situation or client complaint;
- Any incident leading to a serious breach of statutory, national, international, Company or client regulations;

- Any incident leading to a client complaint from MODERATE negative reputation impact;
- Any incident leading to a scheduled delays from 12 hours;
- Any incident leading to an other, Moderate, Major or Massive negative impact.

4.2.2 MODERATE REAL Impact Incidents (as per the Severity matrix):

- Medical Treatment Case (MTC), Restricted Work Case (RWC) injuries;
- Occupational illness (WRI);
- Spill 10 - 100 liters; (contained or at sea);
- Collision/Damages to assets 10 000€ -100 000€;
- Any incident leading to a MINOR negative impact client complaint;
- Any incident leading to a scheduled delays from 1-12 hours;
  Any incident leading to an other minor negative impact.

4.2.3 LOW REAL Impact Incidents (as per following Severity matrix):

- First Aid Case injuries (FAC);
- Spill <10 liters; (contained or at sea);
- Collision/Damages to assets < 10 000€;
- Any incident leading to a SLIGHT negative impact client complaint;
- Any incident leading to a scheduled delay of < 1 hour;
  Any incident leading to an other slight negative impact.

4.2.4 HIGH NEAR MISS Impact Incidents (as per following Severity matrix):

491

- Fatality;
- Permanent disability;
- Fire;
- Spill of > 500 liters (contained or at sea);
- Collision/Damages to assets >500 000€;
- Flooding,
- Grounding;
- Blackout or mechanical failure leading to a hazardous situation;
- Any near miss incident leading to a serious breach of statutory, national, international, Company or client regulations;
- Any near miss incident leading to a client complaint from MAJOR negative reputation impact;
- Any near miss incident leading to a scheduled delays from 48 hours;
- Any incident leading to an other major or massive negative impact.

4.2.5 MODERATE NEAR MISS Impact Incidents (as per the Severity matrix):

- MTC, RWC, LWC and Partial disability injuries;
- Spill 10 - 500 liters (contained or at sea);
- Collision/Damages to assets 10 000€ - 500 000€;
- Any incident leading to a MINOR and MODERATE negative impact client complaint;
- Any incident leading to a scheduled delays from 1- 48 hours;
- Any incident leading to an other minor or moderate negative impact.

4.2.6 LOW Near miss Impact Incidents (as per the Severity matrix):

- First Aid Case injuries (FAC);
- Spill <10 liters; (contained or at sea);
- Collision/Damages to assets <10 000€;
- Any incident leading to a SLIGHT negative impact client complaint;
- Any incident leading to a scheduled delay of <1 hour;
- Any incident leading to an other slight negative impact. .

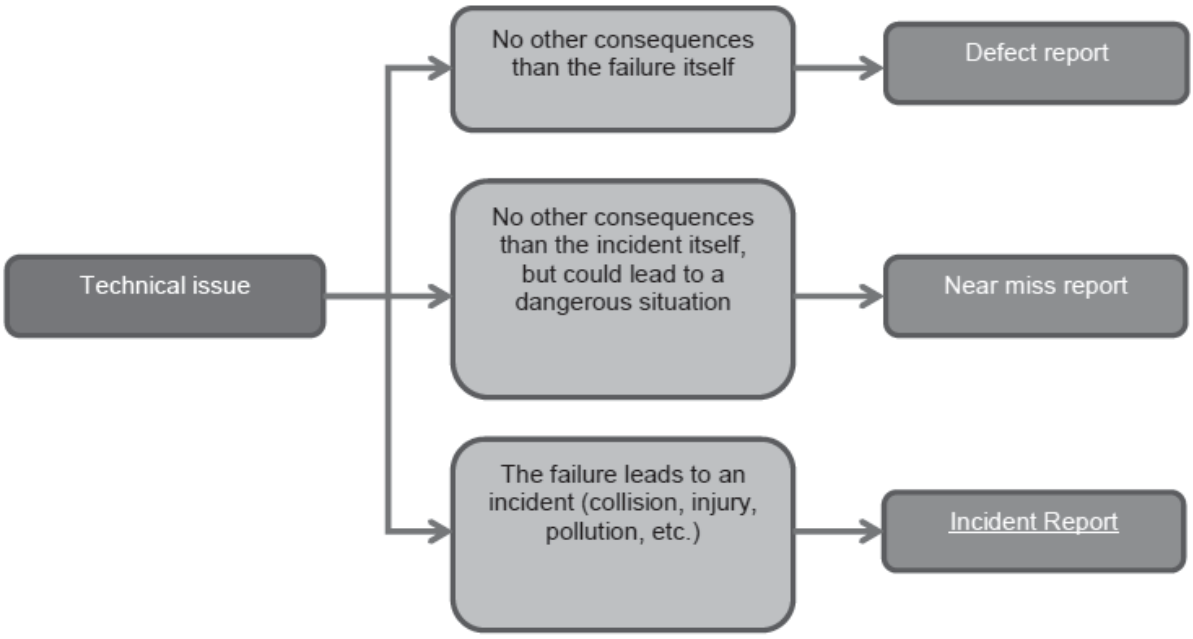
Note: Corporate Departments *shall* not be notified in the case of LoPo near miss.

4.2.7 Reporting Matrix

	INCIDENT REPORT	DEFECT REPORT	SITUATION REPORT	B-SAFE CARD
Any incident listed in the dropbox"type of incident" from B-FRM-0302.0003 - Incident Report.	X			
Any situation not listed in this procedure above and requiring action from the Company (see procedure *BOS-PRD-1201.901201 Corrective Action procedure §4.2.2.*			X	
Incident not covered by the 2 previous forms & that can be managed onboard without Company action.				X
Technical issue with no other consequences than the failure itself.		X		

492

4.2.8 Technical failure reporting



In the case of a technical failure, the **Maintenance and Sourcing Director** *shall* ensure that a report is sent to all **Affiliate Technical Managers** and, where appropriate, to the relevant equipment manufacturer or supplier, detailing the incident and technical lessons learnt from the investigation. 493

4.3 Incident reporting requirements

4.3.1 Reporting maritime incidents

4.3.1.1 Ship To Shore (STS)

The **Master** s*hall* report within 24 hours all incidents including Near misses and work related Illnesses as documented in this procedure to:

- **Contracts Manager;**
- **Operations Manager/Deputy DPA;**
- **QHSES Coordinator;**

The **Contracts Manager** and **Operations Manager/Deputy DPA** *shall* confirm with each other by telephone or by email that each has received the information.

The **Operations Manager/Deputy DPA** *should* be a single person. When the entity is two positions, they confirm with each other by telephone that each has received the information.

When within port limits, Master *shall* report all incidents involving pollution into the sea or onto the quayside to the local Port Authorities or documented Shipboard Oil Pollution Emergency Plan (SOPEP) Port Contact as soon as possible after an incident.

When within port limits, Master *shall* report all personal injury incidents with a real severity of 3 or more to the local Authority.

4.3.1.2 Shore To Management (STM)

The **Operations Manager**/**Deputy DPA** *shall* report all incidents documented in this procedure to:

In all cases:

- **BOS Managing Director;**
- **BOS DPA;**
- **BOS Q & HSES Manager;**
  BOS QHSE Coordinator

And additionally, when the vessel is **Off-Hire**:

- ~~➢~~ Contracts Manager;
- Dist_Bo_Reporting_HSE;
- Dist_Bo_Reporting_Corporate;
- Dist_Bo_Reporting_Area Concerned (cf. Table below quote from Corporate memorandum 'Event reporting').

REGION	REGIONAL COMMON ADRESS
BRAZIL	Dist_BO_Reporting_Brazil
MEXICO	Dist_BO_Reporting_Mexico
MMI	Dist_BO_Reporting_MMI
NORTH SEA	Dist_BO_Reporting_NS
SEA	Dist_BO_Reporting_Sea
WA	Dist_BO_Reporting_WA

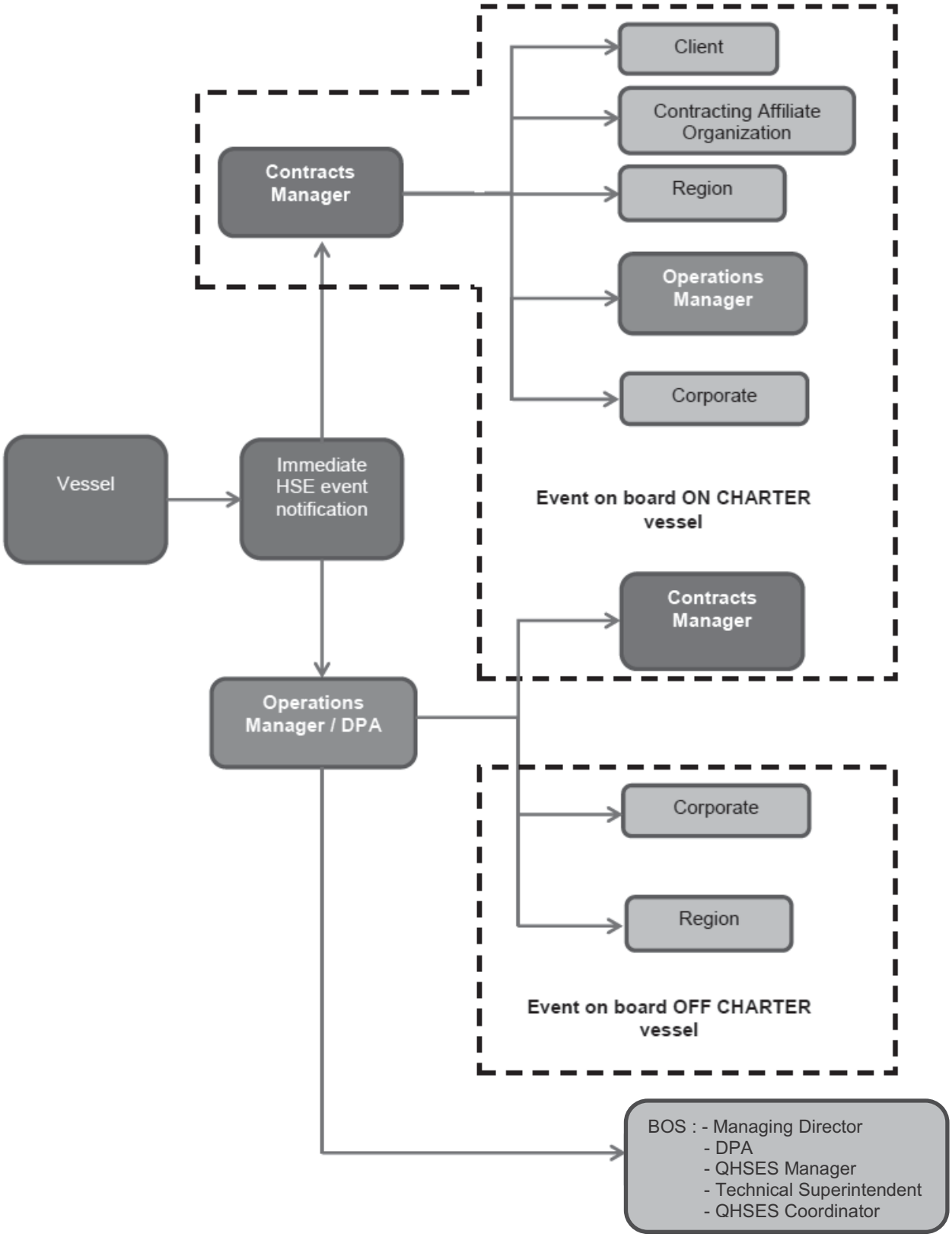
494

The **Contracts Manager** *shall* report all incidents (excepted Non-Work related Illnesses and Low Near miss Incidents) when the vessel is **On-hire** documented in this procedure to:

- Dist_Bo_Reporting_Corporate;
- Dist_BO_Reporting_HSE;
- Contracting Affiliate Organization Managing Director (if applicable);
- Dist_Bo_Reporting_Area Concerned (cf. Table ~~below~~ above quote from Corporate memorandum 'Event reporting');
- Client Contracts Representative(s) as applicable;
- BOS Operations Manager/Deputy DPA.

The following flowchart sums up all levels of reporting.

HSE event Notification



495

4.3.1.3 Case of Subsea Multi-Purpose Supply Vessel

The Operations Manager *shall* include in the notification and follow-up phases, in addition to e-mail communication distribution lists, **the Senior Vice President Business Management Subsea Services**, the **Subsea Project Manager** and the **Subsea HSE Manager** by the use of the following distribution list;
Dist_BO _Reporting_Subsea.

4.3.1.4 Shore base, Office, other non-marine location incident reporting

Incidents occurring at shore bases, offices and other non-marine locations *shall* be classified as high and moderate potential negative impact as defined in this procedure and *shall* be reported to the Local/Representative **Q & HSE Manager**.

The Local/Representative **Q & HSE Manager** *shall*:

- Report all incidents occurring at shore bases, offices and other non-marine locations to:
  - **BOS Managing Director**;
  - Contracting Affiliate Organization Managing Director (if applicable);
  - Dist_Bo_Reporting_Area Concerned (cf. Table below quote from Corporate memorandum 'Event reporting');
  - **Contracts Manager(s).**

The **Contracts Manager** *shall*:

- Report all incidents occurring at shore bases, offices and other non-marine locations, to Client Contracts Representative(s) as applicable.

The **Managing Director** *shall*:

496

- Assign responsibility for reporting high potential negative impact incidents occurring at shore bases, offices and other non-marine locations to the **Vice President HSE** and the **Corporate HSE Manager.**

4.3.2 Incident reporting to Flag State and Coastal State

For French, Luxembourg and Vanuatu Flags Vessels: The vessel **Operation Manager** will request the report as per Flag regulation and coastal regulation if required.

Note: The Company shall document the requirements for general incident reporting relating to individual Flag and Coastal States, as appropriate. The Company Management shall be responsible for ensuring the reporting procedures are effectively implemented.

4.3.3 External Reporting

Operations Manager / Deputy DPA *shall*:

- Report all HIPO incidents involving personal injury, environmental pollution or damage to vessel to the Flag state of the vessel. The HiPo incident *should* also be reported to the vessel's protection and indemnity (P&I) Club and Hul and Machinery Insurers, where applicable;
- Report all incidents involving damage to vessel, that falls under vessel Classification Rules, to the classification society;
- Share details of incidents and near miss incidents as applicable to local stakeholders.

4.3.4 Immediate sharing of information

Operations Manager/Deputy DPA (or Senior DPA or DPA back to back as applicable) *shall* ensure notification is dispatched to ALL Company vessels, shore bases and other locations informing them of facts and nature of the incident. BOURBON Corporate HSE Management *shall* be copied.

Fleet notification *shall* be as detailed as possible describing the incident and direct causes leading to the incident. It *shall* NOT be delayed by obtaining a more detailed investigation report outlining the contributing causes and root causes.

When deemed necessary, an *OSM Alert* will be issued for group wide sharing by BOURBON Corporate HSE Department.

4.4 Post Incident D&A test requirements

Post D&A testing *shall* be performed on the directly involved persons, including the injured person, at earliest opportunity and as applicable after a HIGH potential impact -incident has occurred.

4.5 Incident investigation

All HIGH Impact incidents, MODERATE impact incidents, HIGH Near Miss incidents and other Near Miss incidents (as applicable) *shall* be investigated to determine direct, contributing and root cause factors according to the requirements of this procedure.

Incidents *shall* be investigated at the soonest opportunity by competent personnel. The **Operations Manager/Deputy DPA** is the leader of the investigation. He is assisted by **QHSES Coordinator** and may be helped by local Representative (e.g.HSE). 497

Personnel leading the investigation *shall* not be connected with the incident.

Incident investigations *shall* generate plans that define corrective and preventive measures to avoid reoccurrence.

Such plans *shall* include documented corrective actions stating:

- Responsibility, authority and accountability;
- Timelines;
- Status and date of closure per item.

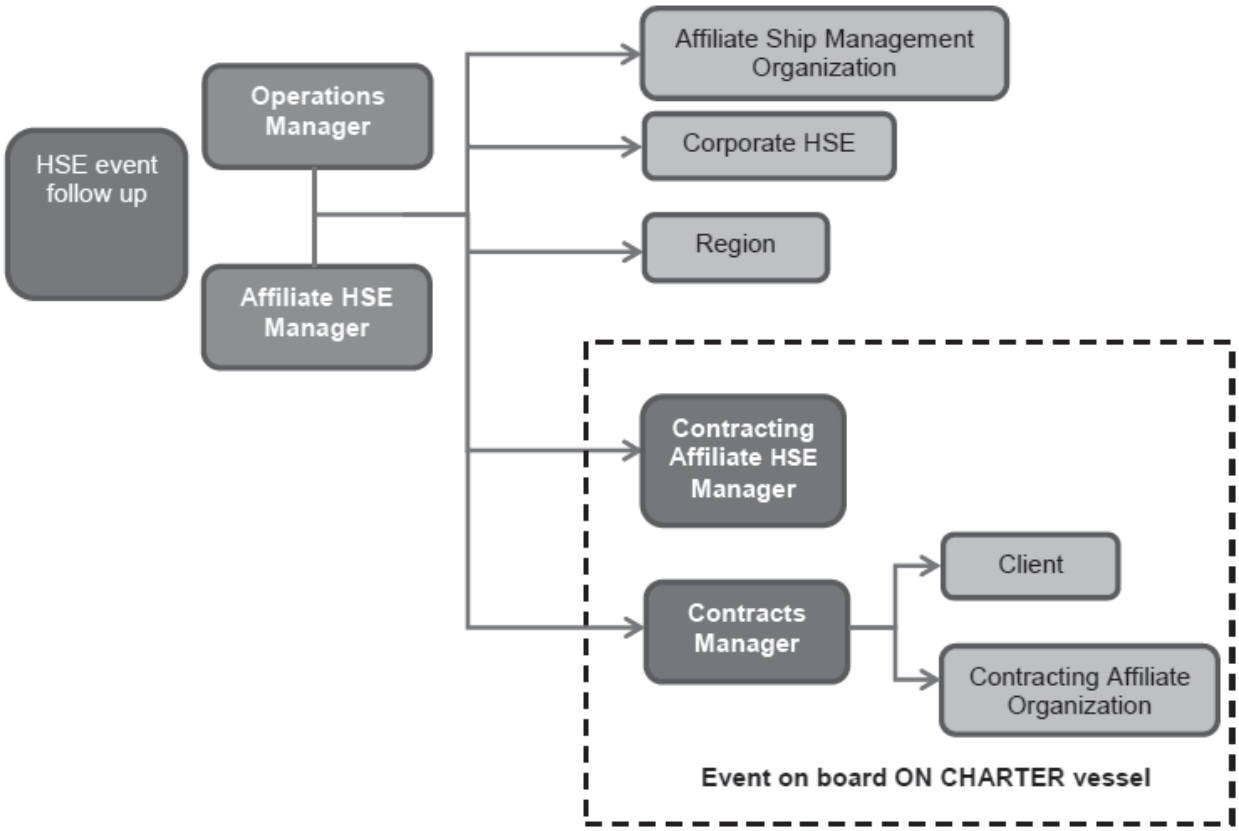
Responsibility, authority and accountability, in addition to timelines in such plans *shall* be jointly defined in any situation when a Company vessel is operating with any Contracting Company.

Corrective and preventive actions identified through incident investigations *shall* be verified as effectively implemented.
BOURBON accepts the “TapRoot®” incident investigation tool for incident investigation. This system *shall* be used accordingly.

In order to facilitate duty of investigators, ***MASTER*** *shall* send the following informations in addition of the incident report:

1. **Picture of the accident scene :** Equipment, work area, co-activities…
2. **If possible, picture of the wound if visible:** Will help Head Office to understand the severity of the injury.
3. **Picture of PPE worn at the time of the incident :** The way the PPEs are damaged may indicate how the incident occured.
4. **Task Assistant reference of PPE/Provider.**
5. **Drug and alcohol test.**

HSE event follow-up



498

4.5.1 Incident investigation levels

The following Matrix identifies incident levels and related investigation resource requirements:

Severity	Consequences									
	People		Environment		Assets		Reputation		Schedule	
	Real	Potential	Real	Potential	Real	Potential	Real	Potential	Real	Potential
1	First Aid Injury	First Aid Injury	Slight effect <10 litres	Slight effect <10 litres	Slight damage <10K€	Slight damage <10K€	Slight negative impact	Slight negative impact	1 hour delay	1 hour delay
2	Medical Treatment, Restricted Work Injury	Medical Treatment, Restricted Work Injury	Minor effect 10 - 100 litres	Minor effect 10 - 100 litres	Minor damage 10K€ - <100K€	Minor damage 10K€ - <100K€	Minor negative impact	Minor negative impact	1-12 hours delay	1-12 hours delay
3	Lost Work Injury or Partial Disability	Lost Work Injury or Partial Disability	Moderate effect 100 - 500 litres	Moderate effect 100 - 500 litres	Moderate damage 100K€ - 500K€	Moderate damage 100K€ - 500K€	Moderate negative impact	Moderate negative impact	12-48 hours delay	12-48 hours delay
4	Permanent Disability or Fatality	Permanent Disability or Fatality	Major effect 500 - 1000 litres	Major effect 500 - 1000 litres	Major damage 500K€ - 1000K€	Major damage 500K€ - 1000K€	Major negative impact	Major negative impact	48 hours - 7 days delay	48 hours - 7 days delay
5	More than 1 Fatality	More than 1 Fatality	Massive effect >1000 litres	Massive effect >1000 litres	Massive damage >1000K€	Massive damage >1000K€	Massive negative impact	Massive negative impact	More than 7 days delay	More than 7 days delay

499

INVESTIGATION REQUIRED = Incident with *Real Severity* equal to or greater than 2 require investigation.
Incident with a *Potential Severity*.

4.5.2 Incident investigation Training

Within BOURBON, 3 incident investigation learning levels are established:

Basic: Awareness of methods, knowledge of vocabulary (part of safety induction). This is in-house training and is part of all employees' familiarization training.

Advanced: Internal training facilitated by an approved external trainer and training programme. It will:

- Acquire a deeper knowledge and understanding of incident causes;
- Enable to make incident investigation/root cause finding;
- Enable to facilitate corrective/preventive action and use risk assessment;
- Enable to participate in the investigation process during major incidents.

Expert: External training programme enables:

- Leading an investigation team during major incidents.

Level	Competence
1	Basic in house familiarization training
2	Advanced incident investigation training. Selected provider – Taproot user.
3	Expert incident investigation training. Selected provider – Taproot user.

4.5.3 Conducting the Investigation

All investigations:

- Secure the site and evidence as applicable;
- Gather information by interviewing witnesses, obtaining statements, taking photos, observing key equipment;
- Identify and assemble an investigation team as required by the assigned level of incident;
- Identify the sequence of events leading up to and immediately following the incident; incident description;
- Identify the causal factors that contributed to the incident, for example the unsafe actions and conditions that lead to the event;
- Analyse causal factors for root/basic causes, for example continually break down the reasons for unsafe acts and conditions until further resolution becomes unproductive;
- Determine the root/basic cause(s) of each causal factor;
- Recommend corrective actions to address each cause;
- Corporate resources can be made available to help to obtain information and provide assistance in responding to incidents, assisting with investigation, analysis and preventive action.

500

Incidents involving Contractors *shall* be reported and investigated as Company incidents. The Contractors *shall* be encouraged to be involved in the Company investigation. *Should* the Contractors wish to carry out independent investigation, this *shall* be authorised by the **Managing Director**.

Where possible, staff in charge of incident investigations have practical experience in this area, having themselves already taken part or leaded investigations.

4.5.4 Near-miss investigation process

The Company investigates HIGH Near misses as appropriate as a regulatory requirement under the ISM Code. It is good business and economic sense because it generally improves vessel and onshore performance. Investigating near misses is an integral component of continuous improvement in safety management systems.

When the Incident report form (Near Miss type of incident) is received, the vessel **Officers** *shall* interview the employee and as a minimum confirm the information and gather any additional information concerning:

- Who and what was involved?
- What happened, where, when, and in what sequence?
- What were the potential losses and their potential severity?
- What was the likelihood of a loss being realised?
- What is the likelihood of a reoccurrence of the chain of events and/or conditions that led to the near-miss?

Using the Incident Level Matrix the vessel **Officers** *shall* assess the Near Miss potential – what level of seriousness could have happened? This determines the level of investigation required. The significance of

the Near Miss is also determined during this process. A '**HIGH Near Miss**', said HiPo for High Potential, requires Level 2 or higher investigation. The investigation, corrective and preventive action *shall* be carried out as required by this procedure for the appropriate level.

A Near Miss incident is defined as High Potential (or Significant) if its severity would have been level 4 or higher according to the severity matrix in the section 3.5.1.

In all cases of reporting a near miss, the employee *should* be thanked for his/her positive actions.

4.5.5 The investigation report

In the case of Level 1 incidents, the report form *shall* act as the investigation report with additional pages as required.

Level 2 (and above) incident preliminary draft investigation reports *shall* be issued within 3 days of the investigation being completed.

The final investigation report *shall* be issued within 10 days of the investigation being completed. If additional time is required, this *shall* be justified and agreed by the **Managing Director**.

The report *shall* contain the following:

- Names and titles of the Investigation team;
- A general summary of the incident;
- Detailed description of the activity leading up to the incident;
- Relevant information regarding the incident (personal information, experience, qualifications and training of involved personnel, weather conditions, locations);
- Compliance or failure of compliance analysis, detailing conformance and non-conformance with regulations, policy, procedures, accepted safe working and best practices, availability and suitability of equipment, technical systems;
- Cause analysis including root and direct causal factors;
- Recommended corrective action (immediate and long term as applicable);
  Appendix (witness statements, log extracts, photographs, sketches etc.).

501

4.6 Corrective and Preventive actions

4.6.1 Management actions

- Company Management *shall* take responsibility to ensure that all corrective and preventive actions are effectively identified and managed;
- *Shall* ensure that 'Action Plans' are prepared and approved with responsibilities and close out dates assigned;
- *Shall* ensure the effectiveness of actions are closed out and verified accordingly.

4.6.2 Location actions

- **Masters** and **Onshore Managers** *shall* take responsibility to ensure that all corrective and preventive actions are effectively identified and managed at their location;
- Implement and monitor corrective and preventive action for effectiveness with assistance of management as required or requested;
- Report the progress or closed out status of assigned actions at the location to management in a clear and timely manner;

Ensure corrective and preventive actions are fully discussed at location safety meetings.

4.7 Post incident follow-up and sharing 'lessons learned'

Corporate HSE Department will issue an *OSM Alert* if it is considered appropriate.

When Alerts or Directives are received, the content information *shall* be reviewed for relevance, with instructions followed and communicated:

- By discussion with the Management HSE Committee;
- By discussion at the next general safety meeting;
- By communication to relevant personnel, e.g. Management, Crew, Client's Representative;
- By displaying on the Safety Notice Board.

4.7.1 Sharing incident lessons with industry bodies and clients

There is no specific requirement to share incident lessons outside the Company organisation, unless a Contractual requirement, however it is a responsible, proactive action to take.

All such sharing *shall* only be done by, or with the knowledge of the **Vice President HSE**.

502

5. Records

- Monthly HSE Statistics;
- TBT Logbook;
- Incident report;
- Medical treatment reports;
- Incident Investigation Reports;
- Vessel Logbook Entries.

6. Related documents

- B-GDL-03.0007 – OSM Guidelines;
- B-FRM-03.0002 – OSM Alert;
- B-GDL-03.0001 – Incident Reporting Guidelines;
- B-GDL-0302.0003 – Incident Management Guidelines;
- B-GDL-0302.0005 – Incident Reporting & Statistical Process Control Guidelines;
- BOS-PRS-0302 – Incident Investigation;
- OCIMF Marine Injury Reporting Guidelines;
- B-FRM-11.0003 - Events Reporting;
- BOS-PRD-0302.0001 – Incident Report Monitoring;
- B-GDL-03.0001 – Incident Reporting Guidelines;
- B-FRM-0302.0002 – Affiliate Monthly HSE Statistics Form;
- B-FRM-03.0007 – Incident Report
- BOS-FRM-0302.0001 – On-Site Investigation Report;
- BOS-FRM-0302.0002 – Investigation Report and Incident Analysis.
- BOS-SPC-11.0001 – TBT Logbook;
- BOS-FRM-11.0009 – Ship Publication Inventory (to consult vessels logbooks);

503

7. Terms and definitions

COMEX
BOURBON Executive Committee: Chief Executive Officer, Chief Operating Officer and Chief Financial Officer.

Contributing Cause
Unsafe condition(s) or unsafe act(s) which immediately preceded the incident.

Corrective actions
Actions taken to correct issues identified following an incident.

Direct Cause
The immediate event or condition that caused the incident.

DPA
Designated Person Ashore.

FAC
First Aid Case. Any single treatment and subsequent observation of minor cuts, burns, splinters etc. which does not ordinarily require medical care. Such treatment and observations are considered first aid whether provided by the onboard crew, by a physician or other registered professional medical personnel. (ref. OCIMF).

FAT
Fatality

Incident
Breach of Conduct, Collision, Damage to Assets, Damage to the Environment, Personal Injury (BOURBON and Non BOURBON), Work related Illnesses, Near Miss.

LTI
Lost Time Injury: Any injury or occupational illness that fully prevents a person from performing their assigned duties on the day after the incident. (Ref. OCIMF)

LWC
Lost Work Case.

MTC
Medical Treatment Case: Any injury or occupational illness that involves treatment by a physician or other registered professional medical personnel, but does not include first aid treatment. (Ref. OCIMF)

Work Related Illness (WRI)
Tropical diseases, water contamination, food poisoning…

Near Miss
An event or sequence of events that did not result in an accident but which, under slightly different conditions, could have done so.

Preventive Actions
Actions taken to prevent incidents

504 **Recordable Incident**
LTI, MTC or RWC. (ref OCIMF).

Root Cause/Basic Cause
The most basic cause (or causes) that can reasonably be identified that management has control to fix and when fixed, *should* prevent or significantly reduce the likelihood or consequences of the problem's recurrence.

RWC
Restricted Work Case. Any case where the Medical Treatment diagnosis provides for Restricted Work. (Ref. OCIMF).

Significant Near Miss
An event or condition with the potential to result in a HIGH Impact Incident.

TAPROOT®
The root cause finding tool used by BOURBON

WRI
Work Related Illness.

1 Barrel
= 158.9 litres.

8. Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01- 11/03/2013	Revision of § 1; § 3; § 3.1; § 3.2.1; § 3.2.2; § 3.3.1.1; § 3.3.1.2; § 3.3.1.3 § 3.5; § 3.5.1; § 3.5.4
BOS QHSE Coordinators	BOS QHSES Manager		Ver 03 - 03/12/13	Revision of § 1; § 3; § 3.1; § 3.2.1; § 3.2.2; § 3.3.1.1; § 3.3.1.2; § 3.5; § 3.5.1; § 3.5.3 and § 3.5.4.
BOS QHSES Coordinators	BOS QHSES Manager		Ver 04 – 31/12/2014	Revision of § 3; § 3.2; § 3.2.1; § 3.2.6; § 3.2.7 ; § 3.3.1.1; § 3.3.1.2; § 3.5; § 4; § 5. Creation of § 3.3.1.3 a,d § 3.3.3 Adding some terms and definitions.

505

SMS
Section 9

Safety Management

BOS-MNL-03.900900-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3
1.1 Main Objective 3
1.2 Shore Based Monitoring 3
1.3 Onboard Monitoring 3
1.4 Onboard Archiving 3
2 Review, approval, revision and identification of changes 4
3 Related contents 4

508

1 Introduction

1.1 Main Objective

To develop a proactive approach to safety management, both onboard and ashore. This proactive approach includes the identification of hazards (including exposure to substances hazardous to health) and the implementation of preventive and mitigation measures.
Effective safety management requires the systematic identification of hazards, and measures to eliminate or reduce risks to the lowest practicable level.
It also describes the additional measures that *shall* be taken to promote an effective safety culture and motivate staff to ensure that they understand and embrace the requirements of the Safety Management System.

1.2 Shore Based Monitoring

The Company *shall* establish and maintain procedures for shore based management to:

- Engage in a formal risk assessment program that is designed to identify potential hazards and exposures and manage operational risks, including those relating to health and hygiene;
- Periodically review and update the validity of risk assessments and their application across the fleet;
- Make regular on-board inspections to monitor that safety guidelines are being maintained within the fleet, and make recommendations to Senior Management based on the findings;
- Establish proactive safety campaigns (for example, to encourage near miss reporting).

1.3 Onboard Monitoring

509

The Company *shall* establish and maintain procedures that make provision on the vessel for:

- Hazard and exposure identification and risk assessment;
- Appropriate training in the use of hazard and exposure identification techniques and risk-assessment tools;
- Conducting safety inspections at scheduled intervals and recording the results of these inspections;
- The immediate reporting to shore based management of significant safety deficiencies or defects that cannot be rectified by the vessel staff;
- Verifying compliance with specified safety procedures.

1.4 Onboard Archiving

The duration of any archive onboard is detailed on the *BOS-DRT-11.0003 – Vessel Filing System*.
In this document, reference to last version and the archive duration is specified for each type of document.

Achiving can be either electronic or hard copies as per information provided in it (consult archive column).

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	§ 1.4 Deleted information about document archives. Replace by the directory Vessel filing system where informations are provided.

3 Related contents

1. BOS-PRD-03.900901 – Job Safety Analysis (SMS Section 9)
2. BOS-PRD-03.900902 – Permit to Work (SMS Section 9)
3. BOS-PRD-03.900903 – HSE Meetings (SMS Section 9)
4. BOS-PRD-03.900904 – B Safe, Hazard Observation and Hazard Hunt (SMS Section 9)
5. BOS-PRD-03.900905 – Personal Protective Equipment (SMS Section 9)
6. BOS-PRD-03.900906 – Personal Safety (SMS Section 9)
7. BOS-PRD-03.900907 – Dangers of Hydrogen Sulphide (H2S) (SMS Section 9)
8. BOS-PRD-0304.900901 – Health (SMS Section 9)
9. BOS-PRD-0304.900902 – Hygiene (SMS Section 9)
10. BOS-PRD-0304.900903 – Hazardous Substances (SMS Section 9)
11. BOS-PLN-03.120201 - BOS Master Safety Document (=DUP)
12. BOS-PLN-03.120202 - BOS Document Unique de Prévention (=MSD)
13. BOS G-JSAs
14. BOS Checklists
15. BOS Alerts
16. BOS Safety Flash
17. BOS Instructions
18. BOS Memos
19. BOS Newsletters
20. B-FRM-03.0057 - Specific Job Safety Analysis (S-JSA) Form
21. B-VIS-01.01 - Bourbon Charter (SMS section 1)
22. B-POL-01.0003 - Stop Work Policy (SMS section 1)
23. B-POL-01.0004- Health and Safety Policy (SMS section 1)
24. B-POL-01.0006- Drug and Alcohol Policy (SMS section 1)
25. Collaborative Portal – E-Learning

510

Job Safety Analysis

BOS-PRD-03.900901-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **3**

4 Description **4**

4.1 Work preparation - Methodolgy 4

4.2 Master Safety Document (MSD) 5

4.3 Generic Job Safety Analysis (G-JSA form) 5

4.4 Specific Job Safety Analysis (S-JSA) 6

4.5 Finding HAZARDS 7

4.6 Risk Assessment Matrix 9

4.7 Mitigation and controls 10

4.8 Tool Box Talks (TBT) 10

4.9 Continuous Safety Awareness 11

4.10 JSA review process 11

4.11 Job Safety Analysis Flow-chart 12

5 Records **13**

6 Related document **13**

7 Terms and definitions **14**

8 Review, approval, revision and identification of changes **14**

512

1 Purpose

The purpose of this procedure is to define the methodology of job preparation, to determine the risks associated and mitigation measures before performing operational tasks and activities.

2 Scope

The procedures covers all tasks performed onboard BOS vessels. It applies to all people under responsabilities of the **Master**.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that within their Organisation, the requirements of this procedure are implemented and maintained.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of job safety analysis are effectively implemented, maintained and reviewed onboard the vessel under his/her command;

Supervisor or **Leader of work teams** has the responsibility, authority and accountability for:

a) Facilitating S-JSA and G-JSA processes;
b) Conducting Tool Box Talks (TBT).

513

Operations Manager / **Deputy DPA** has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for all Job Safety Analysis are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

Q & HSES Manager has the responsibility, authority and accountability for:

a) Facilitating the development of G- JSA's;
b) Reviewing a sample of all JSA's made during visits and internal audits.
c) Assisting in training and application of JSAs requirements.

4 Description

4.1 Work preparation - Methodolgy

When a job is planned onboard:

1) Check first if it is covered by the *Master Safety Document* (MSD) / *Document Unique de Prévention (DUP)*;

2) Check if a *Generic-JSA (G-JSA)* and/or a *CheckList (CL)* and/or a *Permit to Work* is available;

3) If it is not the case but required by the MSD, a *Specific-JSA (S-JSA)* must be issued by the vessel for this task. A Specific JSA *shall* always be done when a specific task, not included in the MSD has to be performed. The Master Safety Document will be updated accordingly annually with the feedback provided by ships.

Should the nature of the operation to be performed induce significant change(s) to be considered, then a *Management of Change shall* be carried out (see *section 7*) before starting the job preparation process.

Jobs regarded as being suitable to make a *Job Safety Analysis* (JSA) are determined by the degree of potential hazard of the job as per MSD/DUP recommendations. The persons involved *shall* determine the job steps to be analysed and their priority. There are 5 considerations to make in the selection of a job for analysis and in deciding priorities:

- *Past loss record:* Past experience may clearly indicate jobs with a history of severe or frequent safety losses. Accident analysis will provide the necessary data to prove the need for analysis of these jobs.

514

- *Job injury severity*: The actual and potential job injury severity *should* be analysed in order to set priorities in assessment.

- *Probability of re-occurrence:* Both actual and potential losses *should* be considered in terms of how they can be expected to happen.

- *The unknown and unfamiliar*: New jobs *should* always be assessed on potential or known risks.

- Requirements as indicated in Hazard Identification (HAZID) analysis.

As a part of Company pre-job planning procedures, a JSA *shall* be conducted before work is carried out.
Each job of work onboard a vessel or at a base or other facility where any potential risk is involved, *shall* be fully analysed in order to quantify the risk and to determine if any such risk can be removed or reduced.

The Job Safety Analysis (JSA) uses the 5 conventional risk assessment principles as follows:
- Identifying the hazard;
- Deciding who may be harmed;
- Evaluating the risks and determine residual risk;
- Recording the mitigating measures and implementing them;
- Reviewing the assessment.

Each step of the job *shall* be submitted to an analysis of the risks involved using these risk assessment principles. The quality of the analysis is driven by those who are engaged to do or supervise the job.



Regardless of whether a job has been assessed before, effort *shall* be applied to thinking about what new or changed risks are or may be present and how they can be controlled.

Please see the helping flowchart in **paragraph 4.11** as resume of BOS requirements regarding job preparation.

4.2 Master Safety Document (MSD)

In order to facilitate your Job Safety analysis and pre-task planning, BOS developed the *Master Safety Document* or *Document unique de prévention* (in French), listing as many tasks risk assessments as possible.

The MSD/DUP Company review *shall* be done on a yearly basis for continous improvement, as well as G-JSAs. When a S-JSA is created or updated, the S-JSA is to be submitted to the DPA, QHSES Manager and Operations Manager who will review it, check for consistency and request for a MSD/DUP update if needed and verify if there is a need for the creation of a G-JSA.

The MSD/DUP is archived in Binder 100, *tab1.Master Safety Document*.

As a minimum, it *shall* be available on a printed format on Bridge, Mess room and Engine Control Room.

In order to facilitate pre-task planning, a copy of Binder 100 will also be available in Engine Control Room.

Tools have been adapted to Engine Control Room in order to only keep the ones needed by engine crew.

The responsibility of good application of pre-task planning is delegated to Chief Engineer.

4.3 Generic Job Safety Analysis (G-JSA form)

G-JSAs are developed by competent personnel in the Company. These may include **Masters** (proposal of G-JSA), **Officers** (proposal of G-JSA), members of Management (proposal of G-JSA), HSE personnel or other experienced operational staff (proposal of G-JSA).
G-JSA to add to BOS SMS Manual will be reviewed at least once a year during the *Master Safety Document* review.

515

They identify the steps required to complete the job and the identified hazards, controls in place and the residual risk. G-JSAs provide best practice guidance and provide available, written records to be re-used each time the related task is undertaken.

G-JSAs *shall not* be used “as is” without review before they are possibly amended to make them adapted to the job. There are always unforeseen circumstances which necessitate the G-JSA to be completed before performing the job. Such circumstances are, but not limited to, the weather conditions, ship movements, experience levels of personnel carrying out the job, etc. These circumstances *shall* be amended and logged in the **TBT logbook**. If the amendments are vessel specific and valid everytime the job will be done, then a vessel specific S-JSA *should* be created (refer to S-JSA § 4.3).

Once the job is complete the TBT *shall* be reviewed by the person responsible for supervising the job.

Please take note that the G-JSA form has the same format as the S-JSA, the only difference between the two forms is the fact that the G-JSA is approved by Company and the S-JSA *should* be only used for task not covered by G-JSA, or if the vessel specifities make the G-JSA not applicable without major updates.

TBT logbook is provided for several location: Bridge, Engine Control Room and Deck.
It has to be ordered via Task Assistant (refer to *BOS-INS-03.1204 – TBT Logbook*).

4.4 Specific Job Safety Analysis (S-JSA)

When it is identified that a S-JSA is to be used, the person responsible for supervising the job *shall* develop the appropriate S-JSA form by taking the following steps:

- Fill out the details of job specific information (vessel name, date, personnel, etc.);
- Identify the job steps and hazards;
- Identify any additional hazards associated with each job step;
- Discuss and agree methods to remove the hazards;
- Use the risk assessment matrix to assess the level of residual risk of each hazard;
- The residual risk *shall* be reduced to the acceptable level according to the ALARP (As Low As Reasonably Practicable) principle.
- If the residual risk is still considered as “Medium or High” then the **Master** *shall* be advised. For such circumstances during Drydock, the **Base Manager** (or equivalent job title) *shall* be advised.



Only the **Master/Base Manager** (afloat/ashore as applicable) can authorise work to be started if the residual risk in any job step is not “Low”; and only then after further consideration of risk mitigation and possible discussion with appropriate Company Management.

- For complicated jobs involving Third parties or other departments it is advised to involve them in the development of the S-JSA;

516

- Prepare a TBT using the format on the *JSA Form* or *TBT Logbook;*
- Obtain the applicable *Permit To Work* (PTW) with appropriate isolations and lock outs if required;
- Deliver TBT and walk through if any personnel are doing the job for first time or more than 3 days have lapsed since the job was last completed;
- **Continuous Safety Awareness** - Once everything above has been completed, carry out last minute risk assessment complete the logbook entry in the Engine Control Room or Bridge as applicable and commence the task;
- After the job has been executed, the S-JSA *shall* be reviewed by the **Supervisor** with input from the team members, to ensure that any new lessons have been captured for future use;
- A copy will be filed onboard and consulted next time the same task is performed;
- *Should* the S-JSA be regarded as a repetitive job it is strongly advised to send a copy to the Company Office with the request to make a G-JSA for this job.

4.5 Finding HAZARDS

The "7 Energy Method" *should* be used to assist in determining hazards, considering that:

- Incidents result from the contact of a body/object with an energy above the threshold limit.
- Energy can Harm!

The 7 Energy Table is given below:

	Categories of Hazard Sources	Examples of Sources
1 MECHANICAL ENERGY	**Walking and standing** (at floor level)	Slippery, congested, uneven or defective floors, obstacles, narrow passageways, gratings, staging, etc…
	Walking and standing (above floor level)	Areas on several levels (ladders, bridge decks, stairways, docksides, etc.), mobile devices (ladders, scaffolds, harnesses, etc.), work at height (roofs, roof framework structures, ceilings, posts, shelves, machines, vehicles, etc.), openings in the floor deck and gratings, etc.
	Manual Handling (lifting, carrying, pulling,pushing,etc.)	Heavy loads, difficult loads (bulky, no grip, etc.), frequent handling, repetitive handling, handling requiring more than one person, etc.
	Mechanical Handling	Hoisting devices (overhead traveling cranes, fork-lift trucks, hoists, cargo hoists, cranes, etc.), hoisting tackle (slings, straps, hooks, lifting frames, etc.), loads (bulky, heavy, off-balance, etc.), etc.
	Work equipment / Workstation	Machines (moving parts, projections, etc.), portable tools (grinders), hand tools, workstation (postures, repetitive actions, etc.), etc.
	Objects and Materials (collapse, burying,etc.)	Storage of items (in stacks, in piles, in tanks, in hoppers, etc.), work performed simultaneously at different heights, work at depth (holds, wells, galleries, etc...).
	Vehicles	Fork-lift trucks, construction machines, hoisting devices, two-wheeled vehicles, etc. (traffic areas, passing areas, maneuvering areas, unloading areas, condition of vehicles, etc.)
	Utilities (Pipes, pressure vessels etc.)	Boilers, compressors, pressurized tanks, pipes, etc. (proximity of the workstation, of places of passage, protections, condition of installations, etc.)
	Environment	Noises (impact, continuous, low-pitched, high-pitched, etc.), vibrations (continuous, discontinuous, etc.), dust (diffuse, in flows, concentrated, permanent, etc.), wind (adverse weather conditions), oceanographic/weather conditions, etc.
2 CHEMICAL ENERGY	**Products and substances** (hazard labeling, MSDSs)	Products used in production, maintenance, servicing, cleaning, treatments,Solvents, paints Acids, bases, gases (02, C2H2, Argon, H2S, CO, CO2…).
	Environment (noxious atmospheres)	Confined spaces, ballast and fuel tanks, chain lockers, contaminated atmospheres, emissions, fumes, etc.

517

	Categories of Hazard Sources	Examples of Sources
3 ELECTRICAL ENERGY	**Sources**	Transformers, batteries, storage batteries, electrical generators, etc. (accessible bare conductors, defective equipment, open electrical cabinets, failure to de-energize, etc.), commissioning activity.
	Equipment	Overhead and deck level electrical wires, electrical cabinets, temporary wiring (boxes, extension cables, adaptors, etc.).
	Appliances	Motors, machines, tools, test platform, etc.
	Environment	Weather conditions, lightning, etc.
4 THERMAL ENERGY	**Equipment** (production of heat or cold)	Ovens, furnaces, boilers, refrigerated units, cold rooms, etc.
	Machines	Combustion engines, electric motors, mechanical heating machines, etc. (release of heat).
	Naked flame (hot spots)	Welding, oxyacetylene cutting, production of sparks, flames, cigarettes, etc.
	Possibility of Fire	Fuels, liquids, gases , Oxydizers, Sources of ignition.
	Environment	Ambient temperature (cold, hot).
5 RADIANT	**Visible radiation**	Luminosity, glare, UV, IR, laser, etc.
	Invisible radiation	Radio transmitter, Radars, Level measuring equipment, microwaves, X-rays.
6 NUCLEAR	**Radioactive appliances and components**	Sensors, sealed sources, gamma rays (NDT, radiography, etc.).
7 HYDRAULIC ENERGY	**Supply and Distribution**	Pumps, valves, lines, pressure…
	Reserves	Barrels, tanks, basins, sewage treatment plant, etc.
	Environment	Surface waters, adverse weather conditions, etc.
	Tests	Leak tests, hydro-tests, pressure test, flushing….

518

4.6 Risk Assessment Matrix

Using the *Risk Assessment Matrix (RAM)* makes an assessment of the residual risk of each hazard.

Taking each hazard in each job step:

- **Consider** the likelihood/possibility of the hazard occurring;
- **Consider** the worst severity of the hazard *should* it occur;
- **Select** mitigating control measures.
- **Identify** the level of residual risk, assuming the mitigation is applied from the matrix: Low, Medium or High.

Severity	Who or what would be affected?						Increasing likelihood				
	People	Environment	Assets	Reputation	Schedule	Other	A Little or no chance of occurrence. A rare combination of factors would be required for an accident or negative situation to occur. Very unlikely	B Conceivable but would require multiple failures. A rare combination of factors would be required to result in an accident or negative situation. Unlikely	C Easy to see a negative scenario but considered unlikely. An additional factor may result in an accident or negative situation. Possible	D Likely to occur and likely the team have knowledge of a similar event. It is likely an accident or negative situation would occur. Likely	E An accident or negative situation will almost certainly occur. Very likely
1	First aid injury	Slight effect <10 litres	Slight damage <10K€	Slight negative impact	Slight delay	Slight negative impact	1A	1B	1C	1D	1E
2	Medical treatment, restricted work injury	Minor effect 10 - 100 litres	Minor damage 10K€ - 100K€	Minor negative impact	Minor delay	Minor negative impact	2A	2D	2C	2D	2E
3	Lost work case or partial disability	Moderate effect 100 - 500 litres	Moderate damage 100K€ - 500K€	Moderate negative impact	Moderate delay	Moderate negative impact	3A	3B	3C	3D	3E
4	Permanent disability or fatality	Major effect 500 - 1000 litres	Major damage 500K€ - 1000K€	Major negative impact	Major delay	Major negative impact	4A	4B	4C	4D	4E
5	More than 1 fatality	Massive effect >1000 litres	Massive damage >1000K€	Massive negative impact	Massive delay	Massive negative impact	5A	5B	5C	5D	5E

Step 1 - Go to 'Who or what would be affected?' at top left of the matrix.

Establish who or what would be affected by the potential accident or negative situation if the risk is not mitigated?

Would it be people, the environment, assets, reputation, schedule or something other?

Step 2 - Go to the 'Severity' scale (1 - 5) at the far left of the matrix.

In the column of who or what would be affected, consider how severe the injury is (if people are affected) or how much negative impact the situation could cause (in any other category) if the risk is not mitigated.

Would the negative impact be slight, minor, moderate, major or massive?

Step 3 - Go to the 'Increasing likelihood' scale at top right of the matrix.

Consider the choices provided. Decide how likely a REAL accident or negative situation could happen if the risk is not mitigated?

Would it be:
A- Very unlikely?
B- Unlikely?
C- Possible?
D- Likely?
E- Very likely?

Step 4 - Move across with the selected 'Severity' and down with the selected 'Increasing likelihood'.

The coloured box where the two meet is the level of risk - low, medium or high. What you must now do is shown in the applicable box below.

519

LOW RISK — Hazards with risk ratings in the green areas can be considered as adequately controlled risk. No additional controls are required. Monitoring is required to ensure that the controls are maintained.

MEDIUM RISK — For hazards with risk ratings in the yellow areas, efforts *shall* be made to reduce the risk prior to the task commencing. If this cannot be achieved, the **Master/Manager** (afloat/ashore as applicable) *shall* be informed.

HIGH RISK — For hazards with risk ratings in the red areas, the task ***shall not*** proceed and the **Master/Manager** (afloat/ashore as applicable) *shall* be informed. If it is not possible to reduce the risk even with unlimited resources, work *shall* remain prohibited and a safer method be found to complete the task.

RISK = SEVERITY x LIKELIHOOD

4.7 Mitigation and controls

Following the findings of risk assessment, actions could be taken such as:

- Requirement for, or change in, written procedures;
- PTW;
- Modification to equipment;
- Additional Safeguards;
- Change to material specification;
- Requirement for a more detailed risk analysis;
- Use of additional/specialist Personal Protective Equipment (PPE);
- Further training required;
- Get ready to conduct a **LMRA-Last Minute Risk Assessment** if the situation changed versus the job preparation and information shared at the Tool Box Talk.
  'Conduct a LMRA' means stop the job and re-assess the risks associated to the changes. The **4C methodology** is to be used: ***Consider the Risks*** of the new situation***, Communicate the Risks, Control job & safeguards, Complete the task (housekeeping included).***

4.8 Tool Box Talks (TBT)

- A TBT *shall* be done each time a task have to be done by 2 or more persons;
- However, a single person *shall* complete the TBT LogBook prior his operation;
- The TBT contents is shown on the JSA (G-JSA or S-JSA) if a JSA is required;
- A TBT *shall* be carried out as an integral part of the safe work process and prior to starting any job which requires a S-JSA or G-JSA or is done by a team of two or more persons;
- All workers who take part in the job *shall* be included in the TBT, including any **Contractor** or shore side workers;

520

- All steps of the S-JSA or G-JSA *shall* be discussed including the hazards and controls;
- Each individual *should* clearly understand their respective duties, the hazards associated with these duties and the control measures in place.
- The TBT leader *shall* ensure and control that the proper PPE are used by the personnel for the job to be performed ➔The use of proper gloves type *shall* be particulary controlled in order to avoid hand injuries – most recurrent injury.

- Company approved *TBT Logbook* required information *shall* be stated in the *TBT Logbook*.
  4 sections in the *TBT Logbook*, which will be pre-prepared:

  - Date + hour;
  - G-JSA or S-GSA number or N/A if the job do not require a JSA to be prepared.
  - Operations Specificities, information known before starting the operations and lessons learned after the job has been conducted, housekeeping included.
  - Team Members identification: position, surname and signature.

See exemple below.

Date / hour	G-JSA #	Operations Specificities Info before Ops & Lessons learned after	Team Members (Position, Surname, Signature)
26/06/2012, 15h10	8	CL #08 done. From Tank n°5 to Rig (XYZ). Agreed 50m3. Start w/ reduced rate, increased to 50m3/h. Agreed on Emergency Shut down signal: continuous horn blast. /!\ Short hose! Use Starboard side connection.	- - -...

4.9 Continuous Safety Awareness

After completing any JSA and TBT, Continuous Safety Awareness (CSA) *shall* be conducted during the excution of the job to further ensure that the task can be completed safely.

The CSA methodology (the *4C*s) *shall* be implemented:

- **Consider** What can happen during the task and what are the risks?
- **Communicate** Talk to your team and supervisors, and ensure that everyone involved remains fully aware of the risks and continues to consider all mitigating measures.
- **Control** Ensure that all measures necessary to eliminate or mitigate the risks are implemented and remain in place.
- **Complete** Finish the task safely.

Each individual has the authority and responsibility to "**Stop Work**" if anything is considered unsafe to personnel, assets or the environment.

4.10 JSA review process

Once the job is completed, the post job review section *shall* be completed and if applicable, **anything identified that would improve safety or efficiency** of the same job in the future ***shall* be documented in the *TBT Logbook*.**

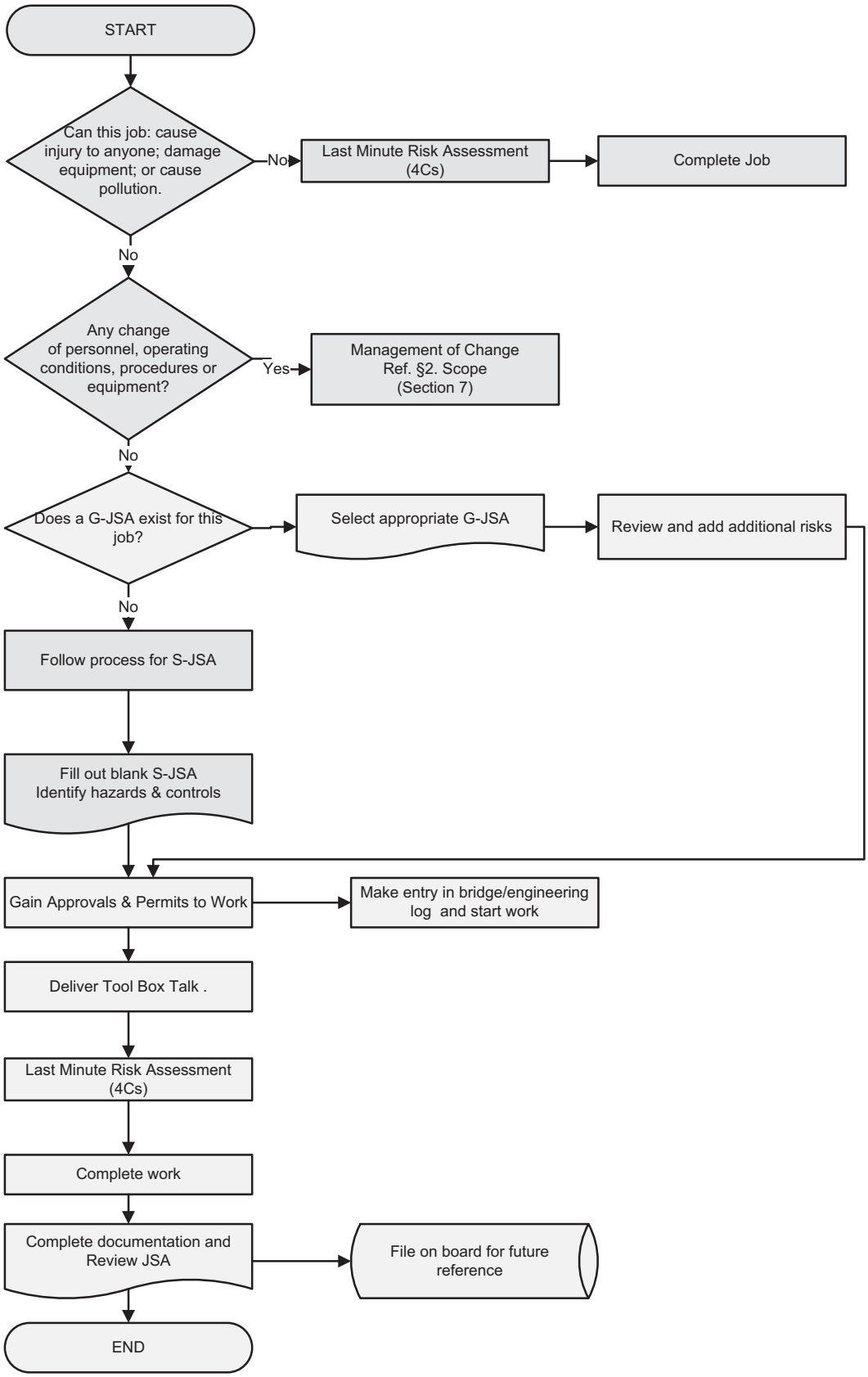
Once the job is completed, the S-JSA *shall* be reviewed by the person responsible for supervising the job. If any additions or amendment have been made other than those to make a G-JSA specific to a particular job in the *TBT logbook*, a copy of the S-JSA may be returned to the **Operations Manager** and **QHSES Coordinator** for review.

521

If the **Master** judges that the JSA can be applied to other vessels, he can share it by sending it to the QHSES Coordinator and Operations Manager.

Once per year, S-JSAs will be reviewed in order to update if needed and verify if there is a need for the creation of a G-JSA and to update accordingly the MSD/DUP. (see Chap. 2).

4.11 Job Safety Analysis Flow-chart



522

5 Records

- G-JSA Forms
- Check Lists
- “B-FRM-03.0057 - Specific Job Safety Analysis Form” (S-JSA);
- ToolBox Talks Records.

6 Related document

- B-GDL-03.0007 – OSM Guidelines.
- 4C, BOURBON.
- BOS-PLN-03.120201 - BOS Master Safety Document (=DUP).
- BOS-PLN-03.120202 - BOS Document Unique de Prévention (=MSD).
- BOS-FRM-03.0050 – Risk Analysis per Job Area.
- BOS-SPC-11.0001 - ToolBox Talks Logbook.

GSA forms:

BOS-FRM-03.0037 – G-JSA # 1 – Hotwork.
BOS-FRM-03.0038 – G-JSA # 2 – Electrical Work.
BOS-FRM-03.0039 – G-JSA # 3 – Work Aloft/Overboard.
BOS-FRM-03.0040 – G-JSA # 4 – Enclosed Space Entry.
BOS-FRM-03.0041 – G-JSA # 5 – Pressurised System.
BOS-FRM-03.0042 – G-JSA # 6 – Diving Operations.
BOS-FRM-03.0043 – G-JSA # 7 – Loading / Offloading Deck Cargo. 523
BOS-FRM-03.0044 – G-JSA # 8 – Loading / Offloading Oil Based Product.
BOS-FRM-03.0045 – G-JSA # 9 – Loading / Offloading Water Based Product.
BOS-FRM-03.0046 – G-JSA # 10 – Loading / Offloading Dry Bulk Product.
BOS-FRM-03.0047 – G-JSA # 11– Passenger Transfer via Frog or Basket.
BOS-FRM-03.0048 – G-JSA # 12 – Launching Recovery of Rescue Craft.
BOS-FRM-03.0049 – G-JSA # 13 – Engine Room work involving Tag Out / Lock Out.
BOS-FRM-03.0052 – G-JSA # 14 – Crewboat Pax Transfer via Boat-Landing.
BOS-FRM-03.0051 – G-JSA # 15 – Loading / Offloading Methanol.
BOS-FRM-03.0068 – G-JSA # 16 – Helicopter Operation With Helideck.
BOS-FRM-03.0069 – G-JSA # 17 – Helicopter Winching.

Check list forms:

BOS-FRM-03.00010 – CL # 1 – Bridge Pre-Departure Checklist;
BOS-FRM-03.0025 – CL # 2 – 500m zone Pre-Entry Checklist;
B-FRM-18.0001 – CL # 3 – New Building Hand-Over Checklist;
BOS-FRM- 03.0034 – CL # 4 – Bridge Pre-Arrival Checklist;
BOS-FRM-03.0023 – CL # 5 – Anchor Handling / Towing Preparation Checklist;
BOS-FRM-03.0026 – CL # 6 – Helicopter Landing Officer Checklist;
BOS-FRM-03.0024 – CL # 7 – Engine Pre-Departure Checklist;
BOS-FRM-03.0030 – CL # 8 – Hydrocarbon/Fuel Transfer Checklist;
BOS-FRM-03.0032 – CL # 9 – Engine Pre-Arrival Checklist;
BOS-FRM-03.0031 – CL # 10 – Dry-Bulk Transfer Checklist;
BOS-FRM-03.0036 – CL # 11 – Personnel Basket Transfer Checklist;
BOS-FRM-03.0007 – CL # 12 – Rescue Craft Pre-Launch Checklist;
CL # 19 – Loading / Offloading Methanol (in project)
BOS-FRM-03.0028 – CL # 14 – Wet Bulk transfer Checklist;
BOS-FRM-03.0058 – CL # 15 – Heavy Weather Checklist;
BOS-FRM-03.0059 – CL # 16 – Restricted Visibility Checklist;

BOS-FRM-03.0060 – CL # 17 – Shallow Water Checklist.
BOS-FRM-03.0067 – CL # 18 – Watch Handover Checklist

7 Terms and definitions

ALARP
As Low as Reasonably Practicable.

JSA
Job Safety Analysis: a detailed analysis of each step in a job to identify the risks and reduce the likelihood and/or consequence of an incident.

G-JSA
Generic Job Safety Analysis: generic analysis of safety requirements related to a task/operation.

S-JSA
Specific Job Safety Analysis: specific analysis of safety requirements particular to a task/operation.

PTW
Permit To Work

TBT
Tool Box Talk

LMRA
Last Minute Risk Assessment

524 **MSD**
Master Safety Document

DUP
Document Unique de Prévention

PPE
Personal Protective Equipment

Risk Assessment
An examination of what could cause harm to people, to decide whether enough precautions have been taken, or more *should* be done to reduce the likelihood and/or the severity of an incident.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev 01- 07/03/2013	Revision of § 2; § 3; § 4.1; § 4.2; § 4.6; § 4.8.
BOS HSE Coordinators	BOS QHSES Manager		Ver 03 - 3/12/2013	Revision of § 2, § 4.1 and § 4.9
BOS QHSES Coordinators	BOS QHSES Manager		Ver 04 - 31/12/2014	Reviewing § 2; §4.1; §4.2; §4.3; § 4.6.1. Deleting in § 2 the fact that onboard crewmembers are responsible to update the MSD. Modification made to Checklist number of Loading/Offloading the methanol.

Permit To Work

525

BOS-PRD-03.900902-ver.04



Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Permits to Work System (PTW) 5

4.2 Permits to Work in shipyards and dry docks 6

4.3 Permits to Work within the 500 metres zone 6

4.4 Multiple permit requirements 6

4.5 Training Requirements in hazard identification and risk assessment 6

4.6 PTW audit process (Day-to-day basis) 6

4.7 Enclosed Space Entry (ESE) 7

4.7.1 Ventilating an enclosed space 8

4.7.2 Testing the atmosphere 8

4.7.3 Requirements during entry to the enclosed space 9

4.7.4 Rescue team 9

4.7.5 In an emergency situation 9

526

4.8 Rescue from enclosed space 9

4.9 Hot work 10

4.10 Working aloft 11

4.11 Working over-side/outboard 12

4.12 Electrical systems 13

4.13 Pressurized systems (PTW > 7 bars) 13

4.14 Diving 14

4.15 Isolations through Lock-Out/Tag-Out 14

5 Records 16

6 Related documents 16

7 Terms and definitions 16

8 Review, approval, revision and identification of changes 17

1 Purpose

The Company operates a Permit to Work (PTW) system to ensure that identified high risk activities onboard vessels and at shore bases are planned, controlled and carried out in a safe manner. This procedure provides the Company safety standards in compliance with industry best practices.

2 Scope

The procedure provides standards for the following tasks:

- Enclosed space entry;
- Hot work;
- Working aloft and over side;
- Work on electrical systems;
- Work on pressurised systems;
- Diving and underwater work.

527

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the PTW system is implemented and maintained on all vessels and at all shore facilities under his/her juristiction.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that this procedure is implemented and maintained onboard the vessel under his/her command;

Task Supervisor has the responsibility, authority and accountability for:

a) The Task Supervisor is nominated by his/her hierarchical Manager (e.g: **Master** can delegate the role to **Second Officer** for Bridge activities, **Chief Engineer** can delegate to a **Second Officer** the role, as well as any Head Office Manager can designate one of their employees to be **Task Supervisor** if this person have all the competences and knowledge to handle the task to be performed.
b) Ensure that the standards are complied with on work sites they are responsible for;
c) Identifying if a PTW is applicable to the task being performed and make appropriate application to the issuing authority for the PTW.

Technical Superintendent/Master have the responsibility, authority and accountability for:

a) Implementing the PTW system in a shipyard, dry dock or similar location.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that requirements and expectations for all high risk tasks, including the proper use of PTW are communicated and implemented onboard all vessels under his/her jurisdiction.

528

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

QHSES Manager has the responsibility, authority and accountability for:

a) Ensuring the PTW system is implemented and maintained on all vessels and at all shore facilities under his/her juristiction.
b) Ensuring that requirements and expectations for all high risk tasks, including the proper use of PTW are communicated and implemented onboard all vessels under his/her jurisdiction.
c) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

Safety Officer has the responsibility, authority and accountability for:

a) Identifying if a PTW is applicable to the task being performed.
b) Ensuring that works on site are perfomed in compliance with SMS procedures.

4 Description

4.1 Permits to Work System (PTW)

The following steps *shall* be taken in all cases where a PTW is required.

After being instructed to carry out the task, the **Task Supervisor** *shall* complete the JSA and *shall* put in place the controls listed:

- If the JSA for the work to be covered by the PTW induces a high risk (such as hot work in hazardous area), the **Officer on watch** *shall* be informed and the PTW *should* not be emitted without Head Office approval (**Operations Manager**);
- Apply for the PTW;
- Countersign the PTW to indicate his understanding of PTW requirements;
- Conduct a Tool Box Talk (TBT) at the worksite involving all members of the work party to ensure that they are competent, aware of their responsibilities; and that they understand the controls in place and the requirements of the PTW;
- Post a copy of the PTW at the worksite and on the Bridge, Engine Control Room or shore facilities as applicable. The **Task Supervisor** *shall* ensure the PTW start/finish time is recorded with basic details in the appropriate logbook or record;
- The Permit To Work Logbook *shall* include the:
    - PTW number;
    - Area authority (Deck or Engine);
    - Summary of tasks;
    - Date & time of permit issued, revalidated, cancelled (on completion);
    - Lock out – Tag out done on equipment.
- Ensure only work specified on the PTW is undertaken;
- Retain responsibility for the work until either the PTW is cancelled or formally transferred to another Authorising Person who *shall* be made fully conversant with the situation;
- Anyone who takes over, either as a matter of routine or in an emergency from the initial **Task Supervisor**, *shall* sign the PTW to indicate transfer of full responsibility;
- If the **Task Supervisor** changes, the successor *shall* sign the PTW to indicate full transfer of responsibility;
- The PTW is automatically suspended in the event of any emergency situation arising. Before recommencing work the requirements of the PTW *shall* be re-assessed and approved by the **Task Supervisor** before re-commencing work;
- A work permit is valid for a maximum of 12 hours.
- When the work is completed, the **Task Supervisor** *shall* ensure the work site is returned to its original condition with isolation reinstated;
- The **Task Supervisor** *shall* visit the work site. If satisfied the work site is restored and safe, the **Task Supervisor** *shall* close the PTW;
- The PTW *shall* be retained on file at the vessel/shore location as applicable.
- Permit to work *shall* be approved by the **Safety Officer** and the system *shall* be audited by the **Master**.
- After issuing a PTW, the **Task Supervisor** *shall* complete the *BOS-FRM-03.0056 - Permit to work – Log out Tag* out Log book register.

If there is any doubt about ongoing safety during the validity of a PTW - STOP THE JOB and advise the Task Supervisor.

529

4.2 Permits to Work in shipyards and dry docks

Technical Superintendent, in conjunction with the **Master**, *shall* establish responsibilities with the shipyard management for the safety of the vessel, the crew and the environment prior to the vessel's arrival:

- These responsibilities *shall* be documented in a *Bridging Document* which *shall* be signed by the shipyard, the **Technical Superintendent** and the **Master** (following arrival and subsequent review);
- The Company PTW system *shall* be used for all work involving Company personnel or assets as agreed in the bridging document;
- Ship yard/dry dock employees have the responsibility to use their PTW system as agreed in the *bridging document* and *shall* maintain the highest safety standards whenever working on or with Company vessels or other assets;
- Safety watches *shall* be scheduled to ensure proper and full compliance with the watch keeping and safety requirements.

4.3 Permits to Work within the 500 metres zone

- A PTW required while a vessel is operating within the 500m zone *shall* require the approval of the **Offshore Installation Manager (OIM)** for hot work job on the deck**;**
- A PTW is automatically suspended in the event of any emergency situation arising on the vessel or installation;
- Before recommencing work where a PTW has been suspended, the conditions of the PTW *shall* be re-assessed and approved by the **Task Supervisor** before re-commencing work. In addition, approval to recommence *shall* be granted by the **OIM**.

4.4 Multiple permit requirements

530

Examples of more than single PTW requirements:

- An enclosed space entry PTW has been obtained to enter and inspect a bilge tank. It is then found that there is a need to perform hot work at the location. A hot work permit *shall* also be obtained before continuing;
- An electrical PTW has been obtained. In the course of the task, it becomes necessary to work at heights. A working aloft PTW *shall* be obtained before continuing.

4.5 Training Requirements in hazard identification and risk assessment

The Company *shall* ensure relevant crew members (all officers as a minimum) receive appropriate training in hazard identification and risk assessment, in order to apply the Permit To Work system and 'High Risk Tasks' procedures. Such training can be performed onboard or ashore (as appropriate) with records maintained in vessel files or/and employee personnel files.

Training *shall* specifically emphasise the role and responsibility of the PTW **Task Supervisor** and the mitigation of hazards associated with 'High Risk Tasks' as outlined in this procedure.

4.6 PTW audit process (Day-to-day basis)

Vessel **Master** *shall* ensure that this procedure is well implemented and maintained onboard the vessel under his/her command by auditing in a daily basis all PTW issued on board.

During this audit **Master** has to check PTW form is well completed, **Master** has to check *TBT log book* information to ensure that PTW completed are corresponding to the work that has been undertaken.

Audit process *shall* also cover a Permit to work under progress to ensure that all measures are correctly put in place by workers (LogoutTag out procedure put in place, appropriate PPE are worn by workers…).

Audit information *shall* be reported in the *BOS-FRM-03.0056 - Permit to work – Log out Tag out Log book*. This logbook will be inspected during Vessel Management visits inspections.

4.7 Enclosed Space Entry (ESE)

An enclosed space means a space which has any of the following characteristics:

- Limited openings for entry and exit;
- Unfavourable natural ventilation;
- Not designed for continuous worker occupancy.

All such spaces are clearly marked “Enclosed space – Do Not Enter” (or similar) and include, but are not limited to:

- Cargo tanks;
- Slop tanks;
- Ballast;
- Potable water tanks;
- Cofferdams;
- Duct keels;
- Void spaces;
- Chain lockers;
- Fuel tanks;
- Lubricating oil tanks;
- Waste oil tanks;
- Sewage tanks;
- Turnings;
- Any other space that is not routinely ventilated or entered.

531

Such spaces may be dangerous due to the presence of hydrocarbon, toxic or inert gas, or oxygen deficiency.

Before issuing the PTW in connection with an Enclosed Space Entry *PTW # 4 BOS-FRM-03.0017* the **Task Supervisor** *shall* ensure the following safety measures are implemented:

- In open sea, when vessel rolling angle exceeds 5°, the related risk *shall* be analysed and documented in the *TBT logbook* prior to the entry.
- Where the space has been used for carriage of liquids or bulk cargoes, Lock-Out/Tag-Out (as per Chapter 4.12) *shall* be used to isolate tank valves and/or pumps associated with the space;
- An Emergency Rescue plan relevant to the applicable space is documented and has been reviewed and approved by the **Master**. This plan is to be clearly posted at the work site;
- The atmosphere has been tested and the space ventilated as detailed below;
- Lifelines, tripod and harnesses are ready for immediate use at the entrance;
- Breathing apparatus and resuscitation equipment are ready at the entrance. Ensure that it is possible to enter the space with the equipment provided;
- Where possible, a separate means of access is identified and available for use in an emergency;
- The **Task Supervisor** is keeping an entry log and is in constant attendance outside the space, and in direct contact with a responsible person;
- Suitable notices have been prominently displayed to inform personnel of the precautions to be taken when entering tanks or other enclosed spaces, and of any restrictions placed upon the work permitted therein;
- The area where the entry is being made and the subsequent access are cordoned off and protected to prevent any falls.

NOTE 1 : External authority approval may be required if the vessel is within port limits.
NOTE 2 : Operations Manager approval is required for hot work in confined spaces previously containing hydrocarbon products.

4.7.1 Ventilating an enclosed space

No enclosed space *shall* be entered unless forced ventilation has been conducted and the atmosphere tested safe for entry:

- Natural ventilation is not adequate to achieve safe atmosphere levels;
- Spaces being ventilated *shall* have a minimum, of two openings to ensure that air being dispelled is done so effectively. If not the ventilation process will not be effective;
- As a guide, for any ballast or any tank that contain or has contained only potable water, the volume of air in the space *shall* be changed at least three times prior to entry. For example, a space with a volume of $100m^3$ *shall* have $300m^3$ of air exchange. With a blower capacity of $100m^3$/hour, the space *shall* be ventilated for at least three hours;
- For all tanks that contain and/or have contained hazardous substances and hydrocarbons, proper ventilation 24 hours prior to cleaning *shall* be performed and ventilation *shall* reach the confined space bottom;
- While personnel remain in a tank or compartment, ventilation *shall* be continuous and frequent atmosphere tests *shall* be taken.

When ventilating spaces such as chain lockers and void spaces where there will be rusting of steel work, oxygen levels in the space will be considerably reduced. Levels of less than 10% will cause immediate death.

4.7.2 Testing the atmosphere

Hydrocarbon Vapour	No more than 1% LEL.
Oxygen	No lower than 20% and no higher than 21% by volume.
Carbon Monoxide (Co)	Lower than 35 ppm.
532 Hydrogen Sulphide (H2S)	Lower than 10 ppm.

The enclosed space *shall* only be entered after the following safety measures have been taken:

- The competent person responsible for operation and maintenance of the multi-gas detector *shall* ensure that the equipment in use is certified as calibrated and checked;
- Where appropriate the competent person *shall* calibrate the equipment before use;
- Representative samples of a cross section of the atmosphere in the space *shall* be taken at various levels (high, low and medium) using an extension probe device through as many deck openings as is practical. Tests *shall* only be carried out from outside the space;
- When tests are being carried out, ventilation *shall* be stopped and a period of about 10 minutes allowed to lapse before readings are taken;
- Testing *shall* be repeated at regular intervals (about every hour) during the period personnel are within the space and recorded on the PTW;
- A full range of tests *shall* be undertaken if there is any suspicion of changing circumstances or if there has been a break in the work;
- When tests have shown a tank or compartment to be safe for entry, pockets of gas *shall* always be suspected, and regeneration of hydrocarbon gas *shall* always be considered possible, even after loose scale has been removed;
- Use of personal detectors capable of continuously monitoring the presence of hydrocarbon vapour, the oxygen content of the atmosphere, and, if appropriate, toxic vapour, *shall* be carried by personnel in the space at all times;
- If considered necessary, request additional assistance when testing atmosphere, such as from a Chemist or other professional body.

4.7.3 Requirements during entry to the enclosed space

The following *shall* be maintained:



NO ENTRY WILL BE MADE TO AN ENCLOSED SPACE WHEN THE ATMOSPHERE IN THE SPACE WILL NOT SUPPORT LIFE

- No work *shall* be carried out wearing breathing equipment as routine;
- Effective ventilation *shall* be maintained continuously whilst personnel are in the space;
- Regular atmosphere tests are carried out all the time personnel are within the space, and a full range of tests undertaken prior to re-entry after any break;
- For any ballast or any tank that contain or has contained only potable water, the volume of air in the space *shall* be changed at least three times prior to entry. For example, a space with a volume of $100m^3$ *shall* have $300m^3$ of air exchange. With a blower capacity of $100m^3$/hour, the space *shall* be ventilated for at least three hours;
- For all tanks that contain and/or have contained hazardous substances and hydrocarbons, proper ventilation 24 hours prior to cleaning *shall* be performed and ventilation *shall* reach the confined space bottom;
- The entry permit *shall* be rendered invalid if ventilation of the space stops, or if any of the conditions in the check-list change.

4.7.4 Rescue team

- The Emergency Rescue plan posted at the work site *shall* be understood by the rescue team;
- The rescue team *shall* consist of at least two persons who may stand ready at the work site or nearby depending on the type of intervention or level of risk;
- Emergency response equipment, (Self Contained Breathing Apparatus (SCBA), resuscitation equipment, explosion-proof lights, ropes, tripod, etc.) *shall* be fully tested and ready for immediate use at the entrance to the enclosed space;
- All assigned rescue team members *shall* have suitable practice in the required techniques to enter and exit through man-holes and other small spaces. Such practice *shall* be gained during Rescue from Enclosed Space drills/exercises, or as otherwise deemed suitable by the **Master** and *shall* include the wearing of SCBA sets and other applicable equipment.

533

4.7.5 In an emergency situation

- Entry into any enclosed space that has not already been proved to be safe for entry *shall* only be considered when no practical alternative exists and ONLY on permission of the **Master** onboard vessels, or the **Base/Facility Manager** if the enclosed space is situated ashore;
- Under no circumstances, *shall* entry be permitted without adequate breathing apparatus.

4.8 Rescue from enclosed space

- The alarm *shall* be raised and the **Master** *shall* be informed as soon as possible with regard to the situation;
- The **Master** *shall* inform the **Contract Manager** and **Operations Manager**;
- The **Master** *shall* also inform any offshore installations in the vicinity in the event that further medical assistance and/or evacuation may be required;
- A **Deck Officer**, preferably the **Chief Officer**, *shall* attend at the location and co-ordinate the rescue;
- Assess the overall situation and brief the rescue team to act positively but with regard to other dangers such as slipping and falling;
- Brief the rescue team with regard to paying particular attention to the condition of the casualty and the possibility of spinal injury;

- Check that all equipment, including a stretcher, is available and correct and that the SCBA set(s) and/or any other emergency rescue breathing equipment is fully operational;
- Ensure that first aid kits are available on scene;
- The person being rescued may also need breathing apparatus assistance. Where it may not be practical to provide a SCBA unit for this purpose, an EEBD (Emergency Escape Breathing Device or Breathing Hood) *shall* provide a manageable substitute;
- Confirm understanding of an agreed communication method;
- When it is ascertained that all safety measures are in place, the rescue team *should* enter the enclosed space complete with the rescue equipment and stretcher (as applicable) and recover the casualty;
- Once the casualty is removed from the enclosed space, make an initial examination of the casualty and apply first aid as necessary;
- The **Contract Manager** and **Operations Manager** and any applicable **Offshore Installation Manager** (OIM) *shall* be informed at the earliest opportunity with regard to the situation;
- If necessary, implement procedures to transfer the casualty to an installation or ashore for further professional medical treatment;
- A record of the situation *shall* be kept in the vessel's Logbooks as applicable;
- All stages of a simulated enclosed space emergency rescue *shall* be practised during drills. This includes actual entry with all pre-task safety checks, equipment and personnel suitability completed.

4.9 Hot work

A PTW is required for all hot works wherever the location *(PTW # 1, BOS-FRM-03.0018)*.

The applicable Hot Work documentation identifies the safety measures necessary for any job that is classified as "hot work" involving sparks, heat, or open flames.

534 Hot work is defined as:

- Welding;
- Grinding with abrasive wheels and brushes (outside workshops);
- Burning using oxygen and acetylene torches;
- Burning using carbon rods.

Precautions & Awareness
Fuel/Diesel tanks *shall* have all residue removed and be properly washed out to remove the likelihood of gas pockets prior to performing any hot-work:

- Ignition can be caused by heat, sparks and droplets of molten metal, by heat conduction, the accumulation of heat and by ignition of flammable gas. Burn injuries are also a potential risk of hot work;
- All relevant authorisations are given and applicable personnel properly informed before commencing;
- Stop all bunkering, fuel transfer, or handling of any inflammable materials in the vicinity;
- Check that all hot work equipment is in good condition and that flashback arrestors are fitted in place;
- Carefully check for possible defects (proper voltage, condition of valves, gauges torches, hoses and all related equipment);
- Remove, protect or cover with fireproof material any combustible or flammable material or equipment located in the immediate vicinity and in all adjacent and nearby compartments;
- Clear any flammable or combustible material from the pathway of any duct being worked upon;
- Ensure adequate ventilation and sufficient lighting is present and maintained throughout the task;
- If work is to be carried out on a storage or drainage tank, be sure that the tank is empty, gas free if applicable and that the tank remains shut during the work;
- Always determine the risk of explosion in enclosed or confined spaces (% LEL);
- Check that fire alarm systems in the area are functioning and that there is sufficient fire fighting equipment readily available, including a water source ready to douse or cool;
- Ensure that any extinguishers are suited to the type of materials surrounding the work site and the type of hot work equipment;

- Assign regular patrols to monitor the hot work area and the vicinity (rooms, corridors and other spaces) around the hot work. This includes any spaces below, adjacent to and above the immediate hot work area;
- Wherever possible, any flammable items *shall* be removed from adjacent spaces until the hot work has been completed;
- Maintain a constant fire watch during all hot work and for 2 hours minimum afterwards on completion of welding and burning work;
- The fire watch *shall* include all spaces and areas adjacent to the original hot work area.

Personal Protective Equipment (PPE) requirement
To prevent burn injuries the person performing hot work *shall* wear properly fitting and functioning PPE as suitable for the task. This includes:

- Welding mask (tinted glass, full or partial head cover);
- Reinforced leather gloves;
- Coveralls;
- Leather apron.
- If applicable hearing and respirating PPE should be taken into consideration.

Hot work in workshops
Hot work is permitted in Workshop areas providing that a full work preparayionhas been performed (JSA/PTW/TBT) and the workshop area has been inspected to ensure NO waste materials or flammable substances are stored within the area. In all cases a suitable Fire extinguisher (CO_2/Dry Powder) *shall* be provided and available adjacent to the work area, until the job is complete.

NOTE: Operations Manager approval is required for hot work in confined spaces previously containing hydrocarbon products.

4.10 Working aloft

535

A PTW is required for any work performed at heights where there is a risk of injury from falling, the Working Aloft PTW (*PTW # 3 Working Aloft and Over Side Permit, BOS-FRM-03.0019)* identifies the necessary safety measures.

Working aloft is a work in any place, including a place at, above or below ground level, where a person could be injured by falling. This is defined as a height greater than 2 meters from the deck or floor.

Although a permit is not required for work at heights below 2 meters from the deck or floor, risk assessment and JSA *shall* be conducted to consider appropriate control measures and great care *shall* always be exercised.

All JSA's relating to Working Aloft *shall* include emergency/rescue provisions and dangers associated with falling and with objects dropped from heights.

Precautions & Awareness

- All work at height is to be properly planned and organised;
- The main risk for the person performing the work at height is injury due to falling, but the area in the vicinity below *shall* also be considered as a risk area.

Further potential risk areas include:

- Falling objects;
- Exposure to electric current;
- Exhausts;
- Pressurised fluid;
- Radiation exposure (from active radars);
- Vessel motion;
- Ambient and prevailing weather conditions.

- If working in any areas with close vicinity to radio aerials, radar scanners, whistles, etc., the devices *shall* be shut down and signs advising of the ongoing work aloft *shall* be posted (refer to Lock-Out/Tag-Out, Chapter 4.12);

- Lock-Out/Tag-Out *shall* be followed as required to prevent persons operating any machinery or equipment that may inadvertently cause injury to the person working at height. This includes the vessel's whistle/horn;
- If work aloft is in the vicinity of funnels or other exhaust areas, the duty Engineer *shall* be informed and the associated machinery shut down and locked/tagged out;
- The work *shall* remain under observation and all applicable personnel *shall* be informed regarding the work being undertaken;
- An approved type safety harness with a suitable lifeline or other arresting device *shall* be worn. The harness *shall* have at least two arrest lines;
- Suitable anchor points for use with safety harnesses *shall* be identified and communicated prior to any work aloft commencing;
- The worker *shall* be secured to at least one anchor point at all times while aloft. This requirement is applicable while climbing, working, descending or changing positions aloft;
- Anchor points for using with the safety harness *shall* be such that the potential fall distance does not exceed 0,5 meters;
- Tools and equipment used in the task *shall* be maintained and fully inspected prior to work beginning;
- Tools and equipment *shall* be in good, clean condition and *shall* be secured in a suitable bag/belt or have lanyards attached;
- Drop lines *shall* be provided when necessary to pass tools to and from the work site aloft;
- All relevant personnel are informed of the PTW and work in progress.

4.11 Working over-side/outboard

A PTW is required for any work over-side/outboard *(PTW # 3 Working Aloft and Over Side, BOS-FRM-03.0019)*, to ensure the safety of personnel working outboard of the vessel using staging, pilot ladders/scaffolding or other temporary platform.

536

Working over-side/outboard on the vessel involves any work when persons are engaged to perform any work on the outboard sides of the vessel's hull and is considered as Working Aloft.

The appropriate Working at Height documentation identifies the safety measures necessary.

Hazards involved with this type of work include, but are not limited to:

- Falling into the water or onto the quayside;
- Being doused by overboard discharges;
- Risk of being struck by objects thrown or falling from the vessel or quayside.

Precautions & Awareness

- The vessel *shall not* be making way and *shall* ideally be secured alongside, anchored or similarly made fast;
- Identification and use of the correct PPE;
- The work *shall* remain under observation and all applicable personnel *shall* be informed regarding the work being undertaken;
- An approved type safety harness with a suitable lifeline or other arresting device *shall* be worn. The harness *shall* have at least two arrest lines;
- Suitable anchor points for use with safety harnesses *shall* be identified and communicated prior to any work aloft commencing;
- The worker *shall* be secured to at least one anchor point at all times while aloft. This requirement is applicable while climbing, working, descending or changing positions aloft;
- Anchor points for using with the safety harness *shall* be such that the potential fall distance does not exceed 0,5 meters;
- Approved type flotation aids (work-vest/life-jacket) *shall* be worn by all persons working over-side and any persons that are working or assisting in such a position that a fall may result in water entry;
- Tools and equipment used in the task *shall* be inspected prior to work beginning and *shall* be in good, clean condition and *shall* be secured in a suitable bag/belt or have lanyards attached;
- Drop lines *shall* be provided when necessary to pass tools to and from the work site over-side/outboard;

- A lifebuoy with suitably long lifeline *shall* be readily available at the work site. It is also advisable to float another life-buoy in the water adjacent to the work area for immediate access if a person falls into the water;
- Any applicable authorities (**Harbour Master**, etc.) *shall* be informed;
- Engine **Watch Officer** informed if any over-side/outboard work is to take place in the vicinity of any overboard discharges;
- As applicable, Lock-Out/Tag-Out instructions *shall* be followed.

4.12 Electrical systems

A PTW is required for all work on electrical systems involving electric current greater than 50 volts in:

- Electrical panels;
- Cabinets including engine room, bridge and galley control panels;
- Power circuits;
- Switchboards;
- Alternators.

The primary hazards associated with working on electrical systems are exposure to electrical current, burns, and unexpected start-ups of equipment.

The Electrical Systems identifies necessary safety measures. *(PTW # 2 Electrical Isolation, BOS-FRM-03.0021).*

Precautions & Awareness

- Be aware that even when an electrical or electronic unit is isolated, it may still have stored energy or a secondary control feed into it that is not included in the main feed isolation box;
- Identification and use of the correct Personal Protective Equipment (PPE);
- Ensure that all relevant personnel are informed;
- Lock-Out/Tag-Out *shall* be used to ensure applicable equipment is removed from service/isolated from sources of power or heat;
- It is necessary to ensure that the flow of energy (electricity) has been completely stopped and that the system cannot cause injury;
- For optimal safety the work area *shall* be cordoned off, warning notices posted and all personnel not involved with the task kept clear.

537

4.13 Pressurized systems (PTW > 7 bars)

A PTW is required for work on systems involving the flow of fluids under 7 bars of pressure such as hydraulic-powered equipment (winches, windlass, cranes, rotative brushes etc.) *(PTW # 5 Pressurised Systems, BOS-FRM-03.0020).*

The primary hazards associated with working on pressurised systems are exposure to pressurised fluid and unexpected start-ups of equipment.

The Pressurised Systems PTW identifies the safety measures necessary.

Precautions & Awareness

- Identification and use of the correct Personal Protective Equipment (PPE) according to PPE matrix; (wear Safety Goggles)
- Lock-Out/Tag-Out instruction *shall* be used to ensure equipment is removed from service/isolated from sources of power or heat;
- The de-pressuring system and all limitations is to be fully reviewed and understood by those assigned to work on any pressurised system;
- Gauges and other instruments (as applicable) *shall* be constantly monitored;

- It is necessary to ensure that the flow of energy (pressurised fluid) has been completely stopped and that the system cannot cause injury;
- For optimal safety the work area *shall* be cordoned off, warning notices posted and all personnel not involved with the task kept clear;
- Ensure that all relevant personnel are informed.

4.14 Diving

A PTW is required for any diving operations. *(PTW # 6 - Underwater, BOS-FRM-03.0022).*

Diving on the vessel involves operations when Contractors are engaged to perform any work below the waterline or otherwise in the water next to, near or underneath a vessel.

Diving operations are to be performed ONLY by professional registered divers.

No Company employee is authorised to undertake any diving task whatsoever.

Hazards associated to personnel performing the work include but are not limited to:

- The risk from operating machinery (propellers, thrusters, sea inlets, suctions, etc);
- Risks from other vessels in the vicinity;
- Risks from dropped objects from the vessel or other places in the vicinity;
- Underwater hazards (ropes, wires, objects, etc);
- Normal hazards associated with Diving physiology.

The Diving Checklist identifies the safety measures necessary.

Precautions & Awareness

538

- Verification of a valid diving permit/license *shall* be made by the **Master** or by a sub-contracted professional diver;
- Authorisation from the **Master** or designated officer *shall* be obtained;
- Identification and use of the correct equipment *shall* be completed;
- An additional qualified diver *shall* oversee the operation as **supervisor**;
- The operation *shall* be coordinated and monitored from the vessel's deck/quayside by the **Authorising Person** or competent person in addition to the **diving supervisor**;
- Ensure that tidal currents and other present and expected weather/natural conditions are known and constantly monitored;
- Any applicable authorities (**Harbour Master**, etc.) *shall* be informed of the operation;
- The duty engineering personnel *shall* be fully informed and aware of the proposed diving operations;
- All means of propulsion, including main engines and all thrusters *shall* be isolated and secured using Lock-Out/Tag-Out instructions;
- Ensure only high sea suctions (opposite to dive side) are used;
- Overboard discharges *shall* be prevented on the dive side when applicable;
- Scuppers and freeing ports *shall* be secured to prevent objects falling overboard;
- The International Code Signal Flag (A – Alpha) *shall* be flown in a position clearly visible and "Securite" transmissions made as applicable to notify and warn other shipping of the diving operations;
- Ensure that all relevant personnel are informed.

4.15 Isolations through Lock-Out/Tag-Out

This Lock-Out/Tag-Out instruction is designed to safeguard personnel performing maintenance or repair on:

- Machinery;
- Generating or supplied by electricity;
- Pressurised energy sources (steam, oil, hydraulic fluid, air, etc.).

When maintenance or servicing is required on any machinery or equipment it *shall* first be shut down and isolated from the energy source to prevent any unexpected machinery or equipment start up or the release of

stored energy that could cause injury to the personnel. Each time LO-TO procedure is applied, notification in the *BOS-FRM-03.0056 - Permit to work – Log out Tag out Log book* by the **Task Supervisor** *shall* be done.

Precautions & Awareness

- If the machine or equipment is still running, it *shall* be stopped or shut down using the normal stopping mechanism and be isolated from the energy source;
- Lock the energy isolating device. This is called "**Lock Out**";
- Attach a relevant sign (tag) to the locked-out energy isolating device as well as to any remote control device. This is called "**Tag Out**";
- Tags used onboard *shall* be a standard type showing applicable and clear information such as: Do Not Operate/Do Not Use/Do Not Start/Do Not Open. Tags *shall* be immediately available on the bridge and in the engine control room;
- Lock-Out, Tag-Out and re-energising equipment (electrical current or fluid flow) activities *shall* be documented in the deck or engine log-books as applicable.

Before permitting work to begin, the PTW **Task Supervisor** or competent person *shall*:

- Inform the **Master**, **Chief Engineer** or **Base Manager**, as applicable, when maintenance or servicing is required on any machinery or equipment that *shall* be shut down and Locked/Tagged-Out to undertake the maintenance or repair;
- Identify the source, type and amount of energy used by the machine or equipment;
- Identify all hazards posed by this energy and the means to control them;
- Carry out the actual Lock-Out/Tag-Out process;
- Ensure any stored or residual energy is controlled, dissipated or restrained using methods such as grounding, bleeding off, purging, blocking, repositioning etc.

Complete *BOS-FRM-03.0056 - Permit to work – Log out Tag out Log book*.

Stored and residual energy sources may take many forms including but not limited to:

- Pressurised systems;
- Springs;
- Capacitors;
- Elevated machine members;
- Rotating fly-wheels;
- Hydraulic systems;
- Air, gas and steam systems.

539

- Ensure the machine or equipment is fully isolated from the energy source.

When the machine or equipment is locked and tagged out, work can commence:

- Check that no personnel are near-by then check isolation by using the normal starting buttons/switches to make sure that the machine is "dead" from this control and cannot be started;

To prevent any inadvertent start up on completion of the maintenance or servicing it is vitally important to ensure that the operating control/button/switch (including any remote operating controls) are returned to the "stop/off/neutral" position after verifying isolation of the machine or equipment.

- Complete the task as assigned.

When the work is complete:

- Verify that the machinery or equipment controls (including any on any remote operating devices) are in the stop/off/neutral position
- Remove the Lock-Out and Tag-Out devices, check once more that all personnel are clear from the area and restart the machine or equipment.

5 Records

- Permit to Work (PTW).
- PTW / LOTO records.

6 Related documents

- B-FRM-03.0057 - Specific Job Safety Analysis Form (S-JSA).
- B-GDL-03.0007 – OSM Guidelines.
- BOS SMS Manual, section 9, Sub-Section Job Safety Analysis.
- BOS-PLN-03.120201 - BOS Master Safety Document (=DUP).
- BOS-PLN-03.120202 - BOS Document Unique de Prévention (=MSD).
- BOS-FRM-03.0018 - PTW # 1 - Hot Work.
- BOS-FRM-03.0021 - PTW # 2 – Electrical Isolation.
- BOS-FRM-03.0019 - PTW # 3 – Aloft & Overside.
- BOS-FRM-03.0017 - PTW # 4 – Enclosed Space Entry.
- BOS-FRM-03.0020 - PTW # 5 – Pressurized Systems.
- BOS-FRM-03.0022 - PTW # 6 – Underwater.
- BOS-FRM-03.0056 - PTW # 7 – Lock-out / Tag-out.
- BOS-FRM-03.0056-ver.01 Permit to work – Log out Tag out Log book.

540

7 Terms and definitions

DPA
Designated Person Ashore

EEBD
Emergency Escape Breathing Device

JSA
Job Safety Analysis

LEL
Lower Explosive Limit

OIM
Offshore Installation Manager

PPE
Personal Protective Equipment

ppm
Parts per million

PTW
Permit To Work

SCBA
Self Contained Breathing Apparatus

1 Purpose

HSE meetings are an essential and integral part of the implementation of the SMS Documentation and are an effective way of communicating to encourage participation through discussion, raise levels of understanding and awareness, and identify areas for improvement and initiating suggestions and corrective action.

2 Scope

HSE meetings *shall* address health, safety, hygiene and environmental matters.

HSE meetings *shall* take place at all levels of management and throughout the operational organisation as follows:

- Vessel HSE meetings;
- Company Quarterly Management Review, including HSE Committee meetings.

541

HSE Meetings

542

BOS-PRD-03.900903-ver.04



Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Vessel management HSE meetings 5

4.1.1 HSE meeting agenda 5

4.1.2 Management attendance at vessel HSE meetings 5

4.1.3 Management HSE committee meetings 6

5 Records **6**

6 Related documents **7**

7 Terms and definitions **7**

8 Review, approval, revision and identification of changes **7**

543

1 Purpose

HSE meetings are an essential and integral part of the implementation of the SMS Documentation and are an effective way of communicating to encourage participation through discussion, raise levels of understanding and awareness, and identify areas for improvement and initiating suggestions and corrective action.

2 Scope

HSE meetings *shall* address health, safety, hygiene and environmental matters.

HSE meetings *shall* take place at all levels of management and throughout the operational organisation as follows:

- Vessel HSE meetings;
- Company Quarterly Management Review, including HSE Committee meetings.

544

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation and application of this procedure onboard the vessel under his/her command.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for all HSE Meetings are communicated and implemented onboard all vessels under his/her jurisdiction.

QHSES Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for all HSE Meetings are communicated and implemented at Head Office.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

545

4 Description

4.1 Vessel management HSE meetings

- The meeting objective is to focus the attention of personnel on Health, Hygiene, Safety and Environmental protection and allow crew members to contribute to the improvement of safe operations;
- Meetings *shall* be held once per calendar month and chaired by the **Master** or delegate. This does not prevent meetings being held more frequently should the circumstances dictate this;
- Attendance is mandatory for all personnel onboard including the **Master** and **Officers** (except those personnel that are assigned watch duties);
- Notice of the meeting *shall* be given to all personnel at least 3 days beforehand so that additional discussion ideas may be generated;
- The **Master** and **Officers** are to actively encourage discussion and contribution;
- Minutes of the HSE meeting *shall* be made recording those attending and discussion against the agenda below;
- Where onboard action is agreed, the **Master** is responsible for assigning personnel to complete the actions and *shall* set a target date for completion. On completion, the **Master** *shall* verify that the action is complete and adequate and ensure this is recorded in the next HSE meeting;
- The **Master** *shall* issue a copy of the minute of meeting to the **Operations Manager and QHSES Coordinator when relevant, e.g when situations detailed involved a Third Party and need to be shared within the Company;**
- Where actions cannot be effectively addressed onboard, or require additional shore based support, they are to be submitted via the minutes to the **Q&HSE Manager**; and a *Situation Report* *shall* be emitted, in accordance of the scope defined in the *BOS-PRD-1201.901201 – Corrective Action Procedure*, for follow-up;
- A copy of the minutes is to be retained onboard using the *BOS-FRM-03.0015 – Minutes of Meeting* report and *shall* be recorded as per indications mentioned in the *Vessel Filing System.*

546

4.1.1 HSE meeting agenda

The meeting *shall* address as a minimum:

- Review of previous minutes of meeting;
- Follow-up of actions from the previous meeting;
- Discussion and agreement on actions required related to *OSM Alerts*, any other Alerts raised, memos or new procedures issued by clients, regulatory bodies and/or BOURBON or Company Management;
- Review of onboard incidents/near misses/hazardous situations (*B Safe Cards*);
- Environmental issues and concerns;
- Any inspection or audit findings;
- 1 topic of a section of the SMS manual is selected and discussed to remind crew members on some specific information;
- SMS opportunities for improvement;Corrective action follow-up and closure as required;
- Instruction from a training (or otherwise educational) program;
- Any other HSE issue raised by any crew member or other source.

If the vessel activity or contract requires it, the monthly meeting *should* be divided in two or more meeting(s)during the month (e.g. on a weekly basis).

4.1.2 Management attendance at vessel HSE meetings

When a vessel is in port and where possible, **Masters** *should* take the opportunity to schedule HSE meeting to include both vessel management and client representatives.

Shore Management *shall* make every endeavour to attend and participate in vessel HSE meetings.

When **Managers** and/or **Superintendents** are attending on board as part of their routine or for other specific proposes, they *shall* use this opportunity to participate in a vessel HSE meeting with the specific purpose of communicating Company HSE Policy, Strategy and providing appropriate feedback on Company and vessel HSE performance.

Management attendance at Vessel HSE meetings *shall* be recorded in the vessel logbook entries and on the appropriate Management visit and inspection forms.

4.1.3 Management HSE committee meetings

The HSE committee *shall* be composed of the following. Other **Managers** may be co-opted:

- **Managing Director;**
- **Operations Manager;**
- **Contracts Manager;**
- **Logistics Manager;**
- **Technical Manager;**
- **Crewing Manager;**
- **DPA** (if different to the **Operations Manager);**
- **Q & HSE Manager.**

Where possible, vessel **Masters** and **Officers** *should* attend. This allows for direct input from the fleet and direct feedback to the fleet.

The HSE committee *shall* review, analyse and discuss all matters relating to Health, Safety and the Environment that have occurred during the period following the last meeting in order to achieve continuous improvement of the HSE management process: 547

- Meetings *shall* be held once every three months and be chaired by the **Managing Director/General Manager**. This does not prevent meetings being held more frequently if desired or deemed appropriate;
- Attendance is mandatory for those nominated to attend;
- Notice of the meeting *shall* be given to attendees at least 7 days beforehand so that additional discussion ideas may be generated;
- Through review, analysis and discussion, plans and actions can be recommended, assigned and implemented by way of corrective action through lessons learned;
- Minutes of meeting *shall* be distributed throughout the Company to demonstrate management involvement in, and commitment to HSE matters;
- HSE meetings may form an integral part of the Management Review meeting required by SMS Section 12, procedure BOS-MNL-12.901200 Measurement, Analysis and Improvement. However, in this case, it is recommended that the HSE meeting agenda is specifically addressed as required by this procedure as part of the Management Review meeting.

5 Records

- Minutes of Meeting;
- Situation Reports;
- Management Vessel Visit Reports;
- HSE Visit Checklists;

6 Related documents

- BOS-FRM-03.0015 – Minutes of Meeting;
- B-FRM-1202.0012 - Situation Report;
- BOS-FRM-01.0005 – Management Vessel Visit;
- B-GDL-03.0007 – OSM Guidelines;
- BOS-FRM-03.0070 – HSE Visit Checklists;
- Yearly Bourbon HSE Plan;
- Yearly BOS Plan.

7 Terms and definitions

Corrective Action
Action to eliminate the cause of a detected non-conformity.

SMS
Safety Management System.

8 Review, approval, revision and identification of changes

548

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01- 11/03/2013	Revision of §4.1.1
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	Adding QHSES Manager roles and responsabilities § 3. Reviewing §4.1
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	§ 2 and §4.1 adding Hygiene to be included on the meetings. § 2 Deleting term “Shore base hse meetings. Replacing terms Company Management HSE committee meeting for Company Quarterly Management Review. §4.1 Replacing memo 2013-11 for procedure BOS-PRD-1201.901201 Corrective Action Procedure. Modification of diffusion of the Minutes of Meetings done by ships. Adding mentions “any other alerts raised”. §4.1.1 Replacing “Hse inspection” for “Any inspection” and incidents instead of Accidents. §4.1.4 Deletion of Management HSE Committee meeting agenda.

B Safe
Hazard Observation
and
Hazard Hunt

BOS-PRD-03.900904-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1. Purpose 3

2. Scope 3

3. Responsibility, authority and accountability 4

4. Description 5

4.1 Hazard Reporting 5

4.1.1 Application of the B-Safe card system 5

4.1.2 Common causes of accidents 6

4.1.3 Potentially unsafe working conditions 6

4.1.4 Potentially unsafe human behaviours 6

4.1.5 Potential failures in communications 6

4.1.6 Potential failures in work planning 6

4.1.7 Potential failures in work positioning 7

4.1.8 Potential failures with tools and equipment 7

4.1.9 Potential failures in housekeeping 7

4.1.10 Potential failures with PPE 7

4.1.11 Behaviour Observation card 8

4.1.12 Hazardous Conditions Observation card 8

550

4.2 Application of the Hazard Hunt system 9

5. Records 10

6. Related documents 10

7. Terms and definitions 10

8. Review, approval, revision and identification of changes 11

1. Purpose

Risk management requires the use of tools and reporting systems to help to reduce accidents and eliminate hazardous conditions and behaviours.

BOURBON has developed and implemented the *B-Safe Card* system on all vessels and at the Head Office and all of them are provided with *B-Safe Cards* and collection boxes. The number of B-Safe Cards raised onboard *shall* be reported in the *Operations Action plan* or ODA system for vessels using this application.
Onboard, for better follow up of B safe cards emitted, the Master *shall* report the b safe cards (hazardous and observations) in the *Hazards Register*.
At the Head Office, the B Safe Cards system raised by employees *shall* be reported in the *Global HSE Statistics Data form*.

Hazard hunts are also implemented to identify hazards on a regular basis and reduce the severity of their consequences.

2. Scope

Applies to personal behaviour and existence of hazardous conditions and occurrences.

This procedure addresses the reporting and management of hazards.

551

3. Responsibility, authority and accountability

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation of this procedure.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for all Hazard Observations are communicated and implemented onboard all vessels under his/her jurisdiction.

QHSES Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for all Hazard Observations are communicated and implemented at Head Office.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

All Personnel have the responsibility, authority and accountability for:

a) Reporting hazards and application of this procedure.

552

4. Description

4.1 Hazard Reporting

All hazards and unsafe behaviours *should* be reported using either the *B-Safe Card* system or *Hazard Hunt* system. When such hazards or unsafe behaviours cannot be adequately addressed or corrected onboard or at the work-site, a report *should* be submitted to the respective management for further action and effective close-out. This reporting *shall* be done via the appropriate forms:

- *Situation Report* (if recurrent problem or client complain, please refer to *BOS-PRD-1201.901201 Corrective Action Procedure § 4.2.2 Situation Reports* for guidance;
- Defect report (if technical issue, using Task Assistant or *BOS-FRM-10.0008* Defect Report if TA not available);
- Incident Report if Near-Miss or Breach of Conduct.

The *B-Safe cards should* be carefully recorded in appropriate section of the vessel *Daily Report & Operations Actions plans* (excel form recorded in the Portal).

The Hazard Hunts and the B Safe cards (hazardous and observations) results *should* be carefully recorded in the *BOS-FRM-03.0071 Hazards register.*

4.1.1 Application of the B-Safe card system

1. Consider
2. Communicate
3. Control
4. Complete

553

The *B-Safe Card* system requirements *shall* be made part of the crew familiarisation. All the work-force *should* be included in the programme to ensure fair and complete representation.
The *B-Safe Card* system is a tool to be used by **anyone** onboard, at **any time**, when noticing an unsafe situation.
The *B-Safe Card* system follows the method defined below:

1. Consider:
In a safe location, observe a person or persons who are engaged in a task. Watch carefully what they are doing.

2. Communicate:
If any hazardous or potentially hazardous behaviour is observed, stop the job and talk with the person(s) so that they understand what could have happened.

3. Control:
Complete and make notes on the *B-Safe Card*.

4. Complete:
Pass the card to onboard **Safety Officer** or the **Master** or place in the provided collection box. Data can then be analysed and corrective actions discussed at vessel HSE Meetings.

4.1.2 Common causes of accidents

Include:

- Inadequate planning;
- Taking an unsafe position;
- Not following procedures;
- Missing and/or inadequate procedures;
- Not paying attention to hazards;
- Slippery and uneven work surfaces;
- Being preoccupied;
- Poor housekeeping;
- Wrong choice or use of tools;
- Ignoring instruction;
- Failing to use Personal Protective Equipment (PPE);
- Poor communication;
- Unsafe lifting;
- Using faulty equipment.

4.1.3 Potentially unsafe working conditions

- Weather conditions;
- Condition of tools and equipment;
- Equipment design or malfunction;
- Housekeeping;
- Insufficient or missing guards and barriers;
- Workplace design.

554

4.1.4 Potentially unsafe human behaviours

- Not paying attention to the work;
- Not communicating properly;
- Not planning the job adequately;
- Not wearing the right PPE;
- Working in awkward positions;
- Not following standards, processes and procedures;
- Not selecting or using tools and equipment properly;
- Not recognising a change in job scope or conditions.

4.1.5 Potential failures in communications

- Are **Banks-Men** (Crane signal persons) using the proper signals?
- Are personnel being communicated to with relation to the ongoing task?
- Is the **Bridge Officer** communicating as applicable with the deck crew?
- Where the JSA/Permit to Work requirements properly communicated?
- Are people doing the work communicating with each other?
- Are all hazards and near misses being communicated?

4.1.6 Potential failures in work planning

- Was consideration given to the number of people and skills required for the task?
- Does everyone understand the task being undertaken?
- Are the correct tools, materials and equipment available?

- Have Risk Assessment, Job Safety Analysis (JSA), Tool Box Talk (TBT), any Checklist/Permit To Work (PTW) been correctly completed and reviewed?
- Is sufficient time allowed to complete the work?
- Are pollution prevention measures/containment in place?
- Is the Permit To Work system fully understood?
- Are locks and tags properly applied?
- Are fire and/or entry attendants are in place?

4.1.7 Potential failures in work positioning

- Strike against or be struck by something;
- Be in the potential line of fire (parting rope, wire, underneath a cargo lift etc);
- Be caught in or between objects;
- Slip, trip or fall;
- Be exposed to extreme heat or cold or to an electrical current;
- Inhale or swallow a hazardous material;
- Over-exert or stretch (e.g. using improper lifting techniques).

4.1.8 Potential failures with tools and equipment

- Is it the right tool (size, type, etc.) for the job?
- Condition of tools;
- Tool use, position, grounding, guards, lockouts, isolation and tie-backs.

4.1.9 Potential failures in housekeeping

555

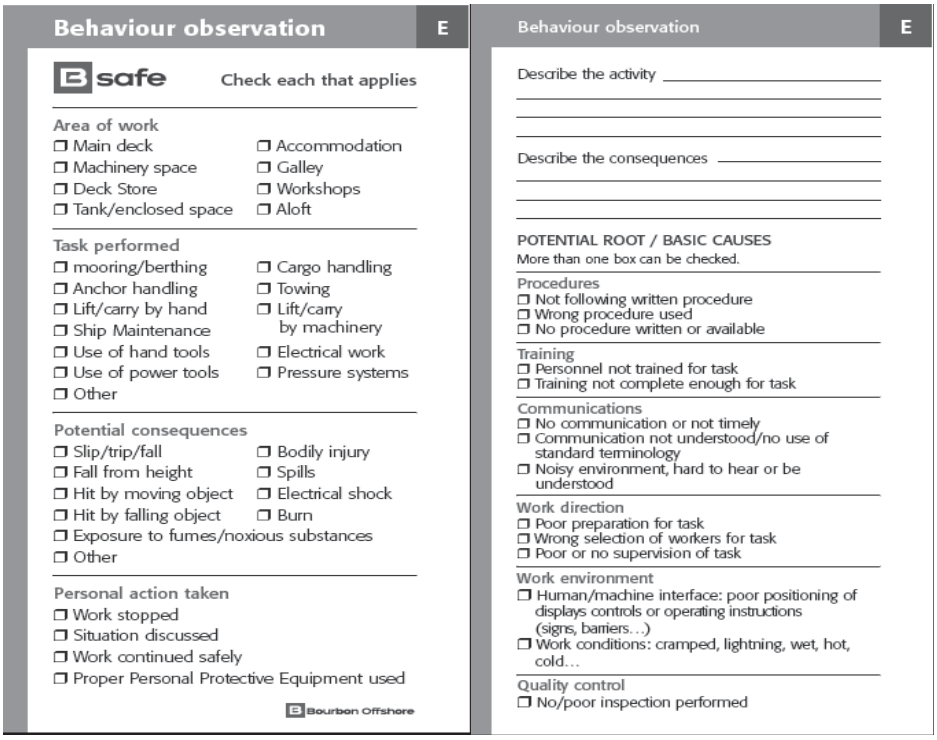
- Are people making the work space safer or are they making it worse?
- Are people correctly disposing of oily rags and other waste?
- Are people putting tools back in their proper place?

4.1.10 Potential failures with PPE

- Head and ears for hard hat, ear plugs or ear muffs;
- Eyes and face for safety glasses, face shields or dust masks;
- Body for coveralls, protective aprons, safety harnesses or breathing apparatus;
- Hands for the correct type of working gloves;
- Feet for safety boots, chemical-resistant boots or rubber boots.

-

4.1.11 Behaviour Observation card



Behaviour observation E

B safe — Check each that applies

Area of work
- ❒ Main deck
- ❒ Machinery space
- ❒ Deck Store
- ❒ Tank/enclosed space
- ❒ Accommodation
- ❒ Galley
- ❒ Workshops
- ❒ Aloft

Task performed
- ❒ mooring/berthing
- ❒ Anchor handling
- ❒ Lift/carry by hand
- ❒ Ship Maintenance
- ❒ Use of hand tools
- ❒ Use of power tools
- ❒ Other
- ❒ Cargo handling
- ❒ Towing
- ❒ Lift/carry by machinery
- ❒ Electrical work
- ❒ Pressure systems

Potential consequences
- ❒ Slip/trip/fall
- ❒ Fall from height
- ❒ Hit by moving object
- ❒ Hit by falling object
- ❒ Exposure to fumes/noxious substances
- ❒ Other
- ❒ Bodily injury
- ❒ Spills
- ❒ Electrical shock
- ❒ Burn

Personal action taken
- ❒ Work stopped
- ❒ Situation discussed
- ❒ Work continued safely
- ❒ Proper Personal Protective Equipment used

Bourbon Offshore

Behaviour observation E

Describe the activity _____

Describe the consequences _____

POTENTIAL ROOT / BASIC CAUSES
More than one box can be checked.

Procedures
- ❒ Not following written procedure
- ❒ Wrong procedure used
- ❒ No procedure written or available

Training
- ❒ Personnel not trained for task
- ❒ Training not complete enough for task

Communications
- ❒ No communication or not timely
- ❒ Communication not understood/no use of standard terminology
- ❒ Noisy environment, hard to hear or be understood

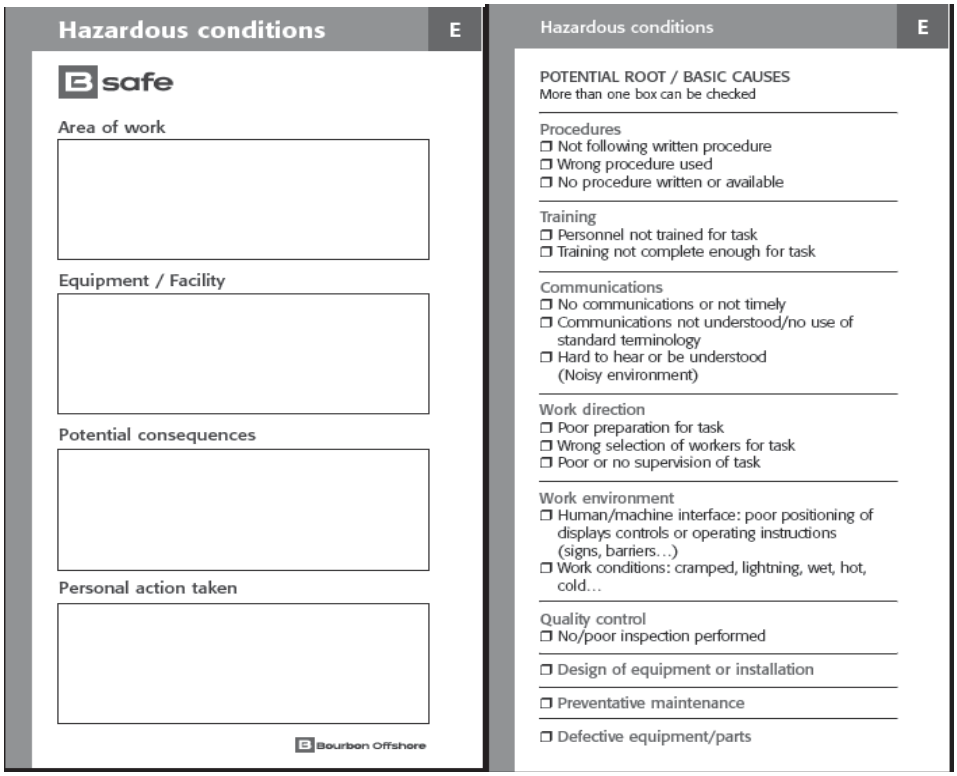
Work direction
- ❒ Poor preparation for task
- ❒ Wrong selection of workers for task
- ❒ Poor or no supervision of task

Work environment
- ❒ Human/machine interface: poor positioning of displays controls or operating instructions (signs, barriers…)
- ❒ Work conditions: cramped, lightning, wet, hot, cold…

Quality control
- ❒ No/poor inspection performed

556

4.1.12 Hazardous Conditions Observation card



Hazardous conditions E

B safe

Area of work

Equipment / Facility

Potential consequences

Personal action taken

Bourbon Offshore

Hazardous conditions E

POTENTIAL ROOT / BASIC CAUSES
More than one box can be checked

Procedures
- ❒ Not following written procedure
- ❒ Wrong procedure used
- ❒ No procedure written or available

Training
- ❒ Personnel not trained for task
- ❒ Training not complete enough for task

Communications
- ❒ No communications or not timely
- ❒ Communications not understood/no use of standard terminology
- ❒ Hard to hear or be understood (Noisy environment)

Work direction
- ❒ Poor preparation for task
- ❒ Wrong selection of workers for task
- ❒ Poor or no supervision of task

Work environment
- ❒ Human/machine interface: poor positioning of displays controls or operating instructions (signs, barriers…)
- ❒ Work conditions: cramped, lightning, wet, hot, cold…

Quality control
- ❒ No/poor inspection performed

- ❒ Design of equipment or installation
- ❒ Preventative maintenance
- ❒ Defective equipment/parts

4.2 Application of the Hazard Hunt system

Who ?
The *Hazard Hunt* system requirements *shall* be made part of the crew familiarisation. All available crew members *should* be included in the programme to ensure fair and complete representation.

Why ?
The *Hazard Hunt* is a prevention tool to identify potential hazards that are often overlooked by the employees working in the specific areas and eliminate them before the hazard results in a near miss or in an incident. Indeed, safety hazards sometimes go unnoticed, either because we forget to look for them, or because they become lost in the larger picture of production.

When ?
Hazard Hunts have to be done at least **once a month** onboard the vessels and results *shall* be recorded in the *BOS-FRM-03.0071 - Hazards Register.*
At the Head Office, they are done during Safety Campaigns launch by BOURBON HSE Department.

How ?
Hazard hunts have to be planned in advance to allow enough time and ensure the crewmembers are available for the whole exercise.
Crewmembers have to inspect another area that their usual one. Example: Engine room crewmembers *should* inspect deck or accommodation areas, crewmembers from deck *should* inspect engine room or bridge, etc…
Keep in mind hazards can be linked to health, safety, security or environment.
Take pictures of the hazards found to fill the hazard register and to build up a library to share later (during HSE meetings).
Once Hazard Hunt is completed, results and pictures have to be recorded in the Hazard Hunt Register and to be managed and properly followed-up (corrective action planned, implementation date recorded, etc.).

557

5. Records

- Behaviour Observation
- Hazardous Conditions
- Safety meeting records
- Quarterly Management Review Minutes Of Meeting
- Situation Reports
- Defect Reports
- Operations Action plans
- Daily reports

6. Related documents

- B-GDL-03.0007 – OSM Guidelines
- Behaviour Observation Card
- Hazardous Conditions Card.
- BOS-FRM-03.0015 - Minute of Meeting
- B-FRM-1202.0012 - Situation Report
- BOS-FRM-07.0001 – BOS Operations Actions Plans.
- BOS-TPL-11.0007 – Management Review Template.
- BOS-FRM-07.0007 – BOS Daily Report.
- BOS-FRM-03.0071 – Hazards Register.
- BOS-FRM-03.0072 – Global HSE Statistics Data.

558

7. Terms and definitions

JSA
Job Safety Analysis

PPE
Personal Protective Equipment

PTW
Permit To Work

TBT
Tool Box Talk

8. Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	Reviewing § 1, § 4.1.1 and § 6 Adding QHSE Manager in §3.
BOS QHSE Coordinator	BOS QHSES Manager		Ver.04 – 31/12/2014	Adding ways to report b safe cards in § 1. Reviewing reports forms to be used in section § 4.1. Deleting memo 2013-11 Situation report and replacing that the procedure Corrective action. Adding Hazards Register codification in the Related Documents.

559

Personal Protective Equipment

560

BOS-PRD-03.900905-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Personal Protective Equipment (PPE) 5

4.2 Coveralls 5

4.3 Foot protection 6

4.4 Hand protection 7

4.5 Head protection 7

4.5.1 Hard hats 7

4.5.2 Bump Caps 7

4.6 Flotation devices 8

4.7 Fall arrest systems 8

4.8 Eye protection 8

4.9 Hearing protection 8

4.10 Respiratory protection 9

4.11 Safety signage 9

4.12 PPE Matrix Table 10

5 Records 11

6 Related documents 11

7 Terms and definitions 11

8 Review, approval, revision and identification of changes 11

561

1 Purpose

Personal Protective Equipment (PPE) - is the last method of defence against injury in the event of accidental failure of control and mitigation measures in the work place, and *shall* be used at all times as required by the specific tasks in question.

2 Scope

This procedure defines PPE uses and requirements relating to specific tasks.

Consistently wearing the correct PPE whenever required is the first step of developing safety culture.

562

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained within their Company Organisation.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation of this procedure onboard the vessel under his/her command.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for PPE are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

All Personnel have the responsibility, authority and accountability for:

a) Adoption of best practices in the workplace to avoid accidents;
b) Wearing appropriate PPE;
c) Checking that other crewmembers use PPE properly and for informing them of any non-conformity with this procedure.

563

4 Description

4.1 Personal Protective Equipment (PPE)

The following PPE use is mandatory whenever any personnel are outside of the protected accommodation areas onboard vessels, offshore installations, docks, dry-docks, harbours, quaysides, yards and all similar areas:

- Hard hat head protection.
- Safety footwear.
- Additionally, personnel working in such areas *shall* wear coveralls with long sleeves.
- Safety glasses when outside of the accommodation.

All other PPE requirements *shall* be in compliance with the PPE Matrix Table (see Chapter 4.12).

The PPE matrix *shall* be posted in the appropriate accomodations (Bridge and Engine Control Room at a minimum).

The need for additional PPE *shall* be carefully considered before undertaking any work activity.

All PPE requirements and related safety issues *should* be addressed during Job Safety Analysis (JSA) and compliance ensured during subsequent pre-task Tool Box Talk (TBT) meetings.

Before commencing any task crewmembers *shall* carry out a “head to toe” check to ensure each part of the body is adequately protected for the job.

564 All PPE *shall* be inspected before use. Defective and damaged PPE *shall* be identified and immediately discarded or set aside pending repair.

Defective and damaged PPE *shall* be individually replaced as necessary prior to the crewmember commencing any work.

Company Organisation is responsible for supplying PPE to local seamen working in Company and Partner Company vessels.

All PPE *shall* meet the minimum accepted approval requirements.

It is the **Master**’s duty to ensure adequacy of PPE including proper maintenance and sanitation. PPE is Company property and *shall* not be tampered with or modified. Fancy stickers/cutting sleeves etc. is not allowed.

A record including the person’s name and date of issue to the recipient *shall* be kept of any PPE issued onboard.

Any operating area shore base that issues PPE to any Company employee *shall* also maintain a record of such issue including the person’s name and the date of issue.

NOTE: Wearing apparent jewelry is not allowed during working hours, and rings shall not be allowed, even if covered by gloves.

4.2 Coveralls

Coveralls *shall* be worn by crewmembers when performing any job or activity outside of protected accommodation areas.

Ideally, coveralls *should* be of a high visibility colour (preferably orange) with reflecting strips located on the sleeves, legs, and trunk.

Coveralls *should* be made of mostly cotton fabric.

Coveralls *shall* be maintained in a clean condition.

Coveralls *shall* be long sleeved. Cutting sleeves or rolling up sleeves are not permitted.

4.3 Foot protection

Safety footwear *shall* be worn at all times by all persons outside of protected accommodation areas and additionally, by engineering staff within interior work areas and by catering staff within interior catering work areas. Further, any person entering any work area *shall* wear safety footwear prior to entry:

- Safety footwear *shall* fit properly, and cover the whole foot.
- Safety footwear *shall* have protective steel toe caps and non-slip chemical resistant soles with adequate tread;
- Safety footwear *shall* be replaced if worn or damaged (metal exposed, torn uppers, pierced soles etc).

Within the accommodation and other inside areas of vessels, open-toed and backless footwear is not considered sufficiently protective to feet or the person and is therefore forbidden.

When off duty on board, closed shoes *shall* be worn.
When on duty on board, safety shoes are MANDATORY.

Moreover, wearing open shoes with or without heel is strictly prohibited, even in the accommodations and living areas and also for employees present onboard offshore installations.



565

4.4 Hand protection

Working gloves *shall* be worn whenever required to reduce the risk of hand injury.

Chemical Rubber gloves *shall* be worn when handling corrosive substances and chemicals.

Electrical Rubber gloves *shall be worn* when performing an electrical work.

“Butcher” gloves *shall* be worn when cutting or chopping meat or similar items requiring any force.

Gloves *shall* be of a good fit and cover the entire hand and wrist area.

Specific glove types *should* be utilised depending on the requirements and individual hazards of any specific job.

4.5 Head protection

4.5.1 Hard hats

Hard hats *shall* be worn by all persons outside of protected accommodation areas.

Hard hats *shall* be CE certified; ideally they will be light-coloured and equipped with a chinstrap.

566

The useful life of hard hats is to be verified taking into account the date of manufacture. This information *should* be stamped or marked accordingly by the manufacturer.

Hard hats *shall* be replaced prior to the marked expiry date, if any cracks or other damage is noted or after impact even if damage is unnoticeable.

Paint *should* not be applied to the plastic shell. Paint solvents can weaken the plastic and increase the risk of cracking. Paint may also conceal cracks.

Reflective tape may be used on the hard hat and aids visibility at night.

Check the condition of the suspension system that is designed to absorb impact.

Hard hats *should* be thoroughly inspected at regular intervals for cracks, tears in the fastening system, abrasion, or other signs of wear.

Check the attachment straps carefully. Long periods of use can damage the suspension system. Contact with perspiration and grease from the hair can speed deterioration of the materials used to make the suspension system.

No holes *should* be made in the plastic shell. Any modifications to the structure of the hard hat will reduce protective value of the hard hat.

4.5.2 Bump Caps

Bump Caps are a form of head protection and *shall* be used in confined spaces and engine rooms where the risk is ‘bumping of the head’ as opposed to ‘Falling objects’. If no Bump Cap is supplied the usual hard hat *shall* be worn.

Bump caps *shall* be manufactured to an approved standard equivalent to EN812 and can be used in engine and machinery spaces and inside cofferdams and tanks, where this is no risk from falling or dropped objects overhead.

On NO ACCOUNT may Bump Caps be used on deck or in exposed locations.

4.6 Flotation devices

Approved type flotation devices *shall* be worn on all exposed areas of deck, when working over-side or in a position over water, when crossing gang-ways, transferring between vessels or quaysides, when performing mooring, towing and anchor handling operations, or carrying out any other task that presents any risk whatsoever of falling into water.

Approved type flotation devices *shall* also be worn during any small craft use or when using personnel transfer baskets.

4.7 Fall arrest systems

Safety harnesses or similar fall arrest systems *shall* be used during tasks involving any work above 2-meters or any other fall hazards.

Safety Harnesses *shall* be used in conjunction with self retracting lifeline or double lanyard equipped with a shock absorber (when working at sufficient height to use a shock absorber safely). Fall arrest systems *shall* be inspected regularly. Inspection records *shall* be kept.

4.8 Eye protection

567

Goggles *shall* be worn during any task generating flying particles or other hazards for the eyes (e.g. grinding, welding, handling chemicals, etc.). Eye protection as safety glasses are mandatory and *shall* be worn outside accommodation.

The lenses *should* be made of polycarbonate. The frames *should* be heat resistant and equipped with side shields.

Standard work glasses *should* be worn only for routine tasks with no special risk.

Some charters require that safety glasses be worn at all times outside of protected accommodation areas. Compliance with any such requirement is mandatory.

4.9 Hearing protection

Hearing protection (e.g. earmuffs or plugs) *shall* be used in machinery spaces when machines are in operation and in all situations involving excessive noise.

Hearing protection is required when noise exposure exceeds 85 decibels and *should* be suited to the type of task being performed, properly fitted to the ears, and used by the same person.

To be effective, hearing protection *shall* be worn throughout exposure to noise.

In areas where noise levels are very high, muffs and plugs can be worn together to give better protection.

Most earplugs are disposable and do not require maintenance. Reusable hearing protection *should* be cleaned regularly in accordance with the manufacturer’s recommendations and kept in a dedicated case or bag.

The force of the headband holding the cups on the ears *should* be checked regularly to ensure that the muffs fit tightly enough to maintain a proper seal.

4.10 Respiratory protection

Dust masks and cartridge-type respirators are designed only to prevent solid airborne substances (e.g. dust) from entering the airways. They are not effective against chemical vapours. They are not suitable for use in the presence of liquid aerosols, gas, toxic fumes or solvents used for spray painting. Please note that dust masks do not give such protection.

Suitable respirators *shall* be selected in function of the respiratory hazards involved, (eg. *Sperian* Masks for painting in confined space).

Use of a respirator together with safety glasses is recommended.

Dust masks are disposable and do not require any maintenance.

The use of cartridge-type masks depends on the type of protection needed. The first requirement is to accurately define the nature of the hazardous substance (chemical properties, concentration in the air etc.) and the nature of potential injuries (fatal, carcinogenic, and irritating for the skin/eyes).

The working conditions *should* also be determined (heat, confined space, duration of exposure, and degree of difficulty of the task).

Various types of respirators are available including respirators with fine-particle filters, respirators with chemical cartridges, and gas masks. Care *shall* be taken to identify the risk and select the appropriate respiratory protection.

568

4.11 Safety signage

Masters *shall* ensure that signage indicating the need for personal protection equipment is posted in appropriate locations.

4.12 PPE Matrix Table

	Coveralls	Foot Protection	Head Protection	Flotation Device	Work Gloves	Butcher Gloves *(when cutting)	Chemical Rubber Gloves	Electrical Rubber gloves	Barbed Wire handler gloves	Hearing Protection	Safety glasses	Goggles	Respiratory Protection	Fall Arrest	Welding Mask	Welding Gloves	Welding Apron	Welding Spat	Chemical Apron	Face Shield
Cargo / Crane / Stores Operations	■	■	■	■	■						■									
Mooring Operations	■	■	■	■	■						■									
Anchor Handling	■	■	■	■	■						■									
Towing Operations	■	■	■	■	■						■									
Machinery Spaces	■	■	■		■					■	■									
Working at Height (+ 2 meters)	■	■	■	■	■						■			■						
Working Over Water	■	■	■	■	■						■			■						
Chipping / Painting Tasks	■	■	■	■	■					■		■	■							■
Power Tools	■	■	■		■							■								■
Chemicals / Corrosives	■	■	■				■					■	■						■	■
Small Boat Operations	■	■	■	■	■						■									
Batteries	■	■	■				■					■	■							■
Confined Spaces	■	■	■		■					■		■	■	■						
High Pressure Systems (including high pressure washing)	■	■	■		■					■		■								
Store-rooms / Handling stores		■			■		■													
Galley		■				■														
Welding / Cutting	■	■	■									■			■	■	■	■	■	■
Electrical Work	■	■	■					■				■								
Dusty Areas (inc. Dry Bulk)	■	■	■		■							■	■							
Docks, Quays, Harbours, Dry-Docks etc.	■	■	■	■	■					■	■		■							
Barbed wires'handling	■	■	■	■					■			■								

■ Mandatory Usage

■ Recommended Usage depending on circumstances

569

5 Records

- N/A

6 Related documents

- B-GDL-03.0007 – OSM Guidelines.
- BOS Master Safety Document (=DUP) - BOS-PLN-03.120201.
- BOS Document Unique de Prévention (=MSD) - BOS-PLN-03.120202.
- BOS G-JSAs.
- BOS Checklists.

7 Terms and definitions

DUP
Document Unique de Prévention.

JSA
Job Safety Analysis.

MSD
Master Safety Document.

570 **PPE**
Personal Protective Equipment.

TBT
Tool Box Talk.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01 - 2013/03/11	-
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	§4.12 PPE Matrix: Added “Chemical Apron”.
BOS QHSE Coordinator	BOS QHSES Manager		Ver.04- 31/12/2014	§4.2 Added PPE matrix to be posted into bridge and engine control room. §4.5.1 Deleted term 3 years. §4.8 Deleted sentence Special eye protection. § 4.10 Deleted Cartridge type respiratory on the sentence “Dust masks are disposable and do not require any maintenance. § 4.12 Reviewed PPE matrix.

Personal Safety

571

BOS-PRD-03.900906-ver.04



Table of Contents

1 Purpose **4**

2 Scope **4**

3 Responsibility, authority and accountability **5**

4 Description **6**

4.1 Manual handling and lifting 6
4.1.1 Common cause of injury 6
4.1.2 Employees responsibility 6
4.1.3 Training 6
4.1.4 Good lifting technique 6
4.1.5 Holding loads away from the trunk 7
4.1.6 Twisting 7
4.1.7 Stooping 7
4.1.8 Reaching upwards 7
4.1.9 Large vertical movement of the load 7
4.1.10 Long carrying distances 8
4.1.11 Strenuous pushing or pulling 8
4.1.12 Unpredictable movement of loads 8
4.1.13 Repetitive handling 8
4.1.14 Insufficient rest or recovery period 8
4.1.15 Team handling 8
4.2 Slips, Trips and Falls 9
4.2.1 Planning 9
4.2.2 Control measures 9
4.2.3 Organisation 9
4.2.4 Checking 9
4.2.5 Review 9
4.2.6 The environment 10
4.2.7 Decks and stairways 10
4.2.8 Work place maintenance 10
4.2.9 Personal Protective Equipment 10
4.3 Working with tools 10
4.3.1 Personal protection 10
4.3.2 Job safety 11
4.3.3 Safety guidelines 11
4.4 Hand tools 11
4.4.1 Insulation 12
4.5 Ladder safety 12
4.6 Power tools 13
4.6.1 General guidelines 13
4.6.2 Machine and tool guards 14
4.6.3 Grinder safety 15
4.6.4 Metal lathe safety 15

572

4.6.5 Wood lathe safety 15
4.6.6 Drill press safety 16
4.6.7 Welding and cutting 16
4.6.8 Welding guidelines 16
4.6.9 Cutting guidelines 17

5 Records 18

6 Related documents 18

7 Terms and definitions 18

8 Review, approval, revision and identification of changes 18

573

1 Purpose

To highlight common areas of risk in the work place.

2 Scope

To avoid personal injuries associated with:

- Manual handling;
- Housekeeping and slips, trips and falls;
- Working with tools.

574

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation of this procedure.

Vessel Task Supervisor has the responsibility, authority and accountability for:

a) Supervision of tasks and work teams to ensure application of Best Practices in the workplace and avoidance of accidents.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Personal Safety are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

All Personnel have the responsibility, authority and accountability for:

a) Adoption of Best practices in the workplace to avoid accidents.

575

4 Description

4.1 Manual handling and lifting

This Chapter explains the problems associated with manual handling and lifting and sets out the best practise in dealing with them.

The procedure deals with all kinds of manual handling from lifting and pushing to pulling, lowering and carrying. The load may either be inanimate (for example a box, bag or trolley), or animate (for example a person or animal).

4.1.1 Common cause of injury

Main injuries at work are caused by manual handling and consequently require three days or longer away from work. The next most common cause is slipping, tripping or falling. It is therefore important to:

- Avoid the need for hazardous manual handling so far as is reasonably practical. Ask yourself whether the load really has to be moved, or whether the work can be carried out without moving it. Can the vessel's equipment (such as a crane, winch or capstan) be used to move the load instead of a human? (Beware of any new hazards introduced by using the equipment);
- Assess the risk of injury from any manual handling that can't be avoided. You and your employees know your line of work in most detail. You are therefore the best person to carry out the assessment. Assessments *should* be recorded;
- Reduce the risk of injury so far as is practical. 'So far as is reasonably practical' means that you *should* reduce the risk until the financial cost or impracticality of reducing the risk further outweighs the benefits.

576

4.1.2 Employees responsibility

- Follow the systems of work that have been designed for their safety;
- Use any equipment provided in the appropriate manner;
- Co-operate with their supervisor/manager/employer on health and safety matters;
- Inform the company if they identify hazardous handling activities;
- Ensure their activities do not put others at risk.

4.1.3 Training

Training cannot overcome bad posture, unsuitable loads and lack of mechanical aids or bad working conditions. Training can aid in the manual handling of loads where they are suitable and have been properly assessed.

- How to use vessel's equipment, including how injuries can occur by using such equipment;
- Good handling technique;
- Work systems for the type of work and the particular environment;
- Practical training with 'practise' loads (light loads), so the trainer can 'pick up on' aspects the employee *should* work on.

4.1.4 Good lifting technique

- Plan the lift by taking a moment of time to think about how and where you will lift the object to. Use handling aids such as handles and straps where possible. Do you need help with the object? Remove any obstructions, both on the object and on the move route. Consider resting mid-lift, perhaps on a table or bench in order for you to change grip or relax for a moment;
- Place you feet shoulder width apart or where they are comfortable, making sure you are balanced and stable. Place the leading leg slightly forward if this is more comfortable;

- Adopt a good posture. Keep the load close to the waist. Bend your knees so that your hands, when grasping the load, are as level with your waist as possible. Do not kneel or over-flex the knees. Keep your back straight by tucking in your chin. Lean forward over the load slightly as this helps maintain your balance and posture and to keep a good grip. Keep shoulders level and facing in the same direction as the hips;
- Maintain a firm, secure grip. A hook grip is less strenuous than keeping the fingers straight. If you can, vary the grip as you move to prevent strain;
- Try not to jerk. Carry the object smoothly keeping control of the load. Move the feet and try not to twist from the torso when turning to the side, instead, face the way you want to go;
- Put the load down, and then adjust the positioning if necessary. Take small steps when moving the object further and don't try to move it all in one go.

4.1.5 Holding loads away from the trunk

When a load is held away from the trunk the stress on the lower back increases substantially. As a rough guide, the stress on the lower back is about five times as much when a load is held at arm's length than when it is held close to the body. The friction of a load against the worker's clothing also helps to support and steady the load when it is close to the body. Any changes that can be made to the task which allow the load to be held closer to the handler's body are likely to be beneficial.

4.1.6 Twisting

Twisting the trunk *should* be avoided when lifting or supporting a load and is particularly damaging if carried out when seated. Where it is necessary to twist the body during the handling operation, a reduction in the maximum weight of load is considered appropriate. Reductions of approximately 10%, when the degree of twist is 45%, and 20% when twisting through 90%, are suggested as reasonable. The layout of workstations where handling is to be carried out either seated or standing *should* be considered so that the need to twist the body during the task is avoided.

577

4.1.7 Stooping

This increases the load on the lower back whether it is done by bending the back, or by leaning forward with the back straight. In either case the weight of the trunk is added to the weight of the load being lifted. Attention *should* be given to storage of materials to avoid heavy or awkward loads having to be lifted from the ground.

4.1.8 Reaching upwards

Greater loads are imposed on the back, shoulders and arms when a load is handled with arms outstretched. As a result, there is a greater risk of injury when handling of a load is carried out while reaching upwards, particularly if the stretching is prolonged or repetitive. Control of the load is also more difficult when the arms are outstretched.

4.1.9 Large vertical movement of the load

The ideal height for handling of a load is around waist height. Lifting or lowering a load outside this range requires greater physical effort and increases the likelihood of injury. Where a load has to be lifted or lowered through a wide height range it will normally need to be handled outside this preferred zone. In this case the weight of the load *should* be limited to that which can safely be handled at the least favourable height.

Movement of loads can be made easier by arranging storage areas. Significant variation in the height of storage or working surfaces *should* be avoided where possible. Where practicable, heavier objects *should* be stored around waist height with space above or below this level being used for lighter or more easily handled items.
Where lifting of loads from deck level is unavoidable, the risk of injury can be substantially reduced if the load is held close to the body to allow the stronger leg muscles to be used in lifting. Factors that may prevent this

being achieved are the size of the load, obstacles on the deck, lifting from within deep bins or poor stance. Elimination of these problems will allow the task to be carried out more easily.

Team lifting may be necessary to place heavier items into their storage location if they have to be lifted from the deck.

4.1.10 Long carrying distances

If a load has to be carried more than about 10 metres, the effort involved in carrying the load is likely to predominate over that of lifting it and will often be the limiting factor in deciding whether the load *should* reasonably be handled manually. Use of transport aids such as trolleys or barrows *should* be considered whenever available. Ideally, the height of the trolley *should* be the same as that of any work surfaces from which the load is moved. Also, consider dragging items using the tugger winch or capstan if practical.

4.1.11 Strenuous pushing or pulling

Pushing or pulling can place the handler at risk of injury particularly if it is carried out with the hands below knuckle height, above shoulder height or if the action is jerky. The condition of the deck and the type of footwear worn by the handler *should* also be considered, as the risk of slipping can be significant. Decks that are wet, greasy or which have a loose or uneven surface increase the risks.

To get a load moving when pushing or pulling it, a reasonable force to apply is up to 25kg. After it is moving, a force of up to 10kg is reasonable to keep it in motion. These are not maximum limits but are likely to enable the majority of people to carry out the task with minimal risk of injury. The forces involved in pushing and pulling can be measured with a spring balance if necessary.

578

4.1.12 Unpredictable movement of loads

If there is a risk of a load suddenly becoming free (such as when pulling an object that is stuck to release it) or moving unpredictably during handling, the handler is at greater risk of injury. This risk is increased if the handler's posture is unsuitable.

4.1.13 Repetitive handling

Frequent or prolonged physical effort can give rise to injury even, where the load itself is not particularly heavy. Often, repetitive movements are combined with twisting or stooping which increases the risk still further. Work that involves these factors *should* be examined very carefully for ways in which the risks can be reduced.

4.1.14 Insufficient rest or recovery period

This factor is particularly relevant when repetitive lifting is carried out. The development of physical and mental fatigue reduces the individual capabilities of a handler over time, and consequently increases the risk of injury. Regular short halts in the work are a better means of avoiding fatigue than infrequent longer breaks and, where possible, a flexible approach to timing of work breaks *should* be adopted. Provided the tasks involved are sufficiently different in character, job rotation can also be effective in avoiding the onset of fatigue as a result of prolonged use of a particular group of muscles.

4.1.15 Team handling

Where an object is too large or heavy to be handled by one person, safe handling may perhaps be accomplished by two or more people working together. This, in itself, introduces problems, and it is essential that the task is discussed between the team members before attempting the operation. The way that the weight borne by individual team member may vary during the task *should* also be considered (e.g. when negotiating steps or stairways). It is important that the operation is effectively co-ordinated so that team

members do not hinder one another and work in unison. To achieve this, one person *should* be nominated to direct the work.

The approximate lifting capability of a two person team can be taken as two thirds their combined individual capacities. For a three person team, half of their combined capacity is considered a reasonable figure to adopt.

4.2 Slips, Trips and Falls

Overview

A large percentage of shipboard accidents are directly attributable to slips, trips and falls. With a little time, thought and commonsense, this type of accident could be greatly reduced.

Better housekeeping, improved storage and using the correct safety footwear are three areas that readily spring to mind as measures that could cut both the human and economic costs of accidents, but are three areas that are so often overlooked.

Success in preventing slip, trip and fall accidents can be greatly increased by following the basic steps below.

4.2.1 Planning

Identify where slips, trips and falls occur, talk to the crew and remove the hazard immediately where possible. At the very least we *should* be ensuring that we do everything possible to reduce the risks to their lowest level before other control measures are considered.

579

4.2.2 Control measures

Taking time to analyse methods of reducing the risks can significantly reduce the accident rate. Safer working practices, improved environmental hygiene, better use of work equipment and suitable training can all play a major role in minimising the risk of slip, trip and fall injuries.

4.2.3 Organisation

By ensuring that everyone onboard is involved in the decision making process, the chance of accident reduction is greatly enhanced. Clear procedures that designate the roles of individuals and their responsibilities within the organisational set-up will have a lifting effect on the safety culture. Confusion causes accidents.

4.2.4 Checking

Are the procedures being carried out as designed? Are there records kept to aid future assessment? Also look to report back on the successes and the failures of the systems. Advertising the successes will demonstrate to the workforce a feeling that their welfare is important and will promote a better safety culture. Reporting the failures will show that if it goes wrong it will not be brushed under the carpet, but will need another approach and is likely to encourage worker participation in seeking continued improvement.

4.2.5 Review

If measurable targets have been set it will enable detailed evaluation to take place. Have the hazards been permanently removed? Have accidents been reduced? Is there a continued dialogue with the workforce in an effort to solve the problem areas?

Of course reducing slips, trips and falls is not just about good hygiene practices, storage and policies. There are many other factors that can contribute to this major problem.

4.2.6 The environment

The effects of heat, humidity, cold, wet and dust on the workplace and how they interact with the normally safe working areas and practices. The work area *should* be well lit and free from rubbish at all times, as *should* the means of access and egress.

4.2.7 Decks and stairways

Are the applicable deck areas and stairways coated with non-slip surfaces? Are handrails in place and stairways kept free from obstruction? Are there high visibility painted areas and/or warning signs pointing out raised obstructions, fittings and other potential trip hazards on decks and in walkways? Are gratings/deck plating in good condition and secured properly? When made open is the area secured with a barrier? When the job is finished, are the gratings/plates re-secured properly?

Crew members *shall* **avoid precipitation**: RUSH is banned onboard.
Handrails ***shall*** be used when available, at least 1 hand will remained free to hold it.

4.2.8 Work place maintenance

Besides the obvious benefits of an effective cleaning programme, other maintenance is essential if we are to reduce accidents. Replacement of broken tiles, torn carpeting, etc. on interior decks that can contribute to trips, repair to leaks in pipes and machinery, cleaning and replacement of workplace lighting.

580

4.2.9 Personal Protective Equipment

Safety and non-slip footwear can be of real benefit not just in preventing foot injuries, but also in preventing slips around the vessel. Safety footwear *should* be suitable to the wearer, suitable for the work surface and *should* be properly maintained and replaced when necessary.

By adopting these simple measures we *should* see a significant reduction in the instances of slip, trip and fall accidents, whilst developing an increased awareness of the health, safety and welfare standards needed to make a safer workplace.

4.3 Working with tools

Overview

It is not possible to detail all the risks involved with working with tools, particularly in and around potentially hazardous areas such as engine rooms, machine spaces, winches and during anchor handling, etc. However, it is possible to foresee many hazards by carefully planning each job. To prevent accidents, utilise your knowledge, training, and common sense. Evaluate potential sources of injury, and attempt to eliminate all hazards.

4.3.1 Personal protection

There are several measures you *shall* take to protect yourself from the hazards associated with working with tools and similar equipment. For example, do not wear the following when working around machinery:

- Loose fitting clothing;
- Neck-ties;
- Jewellery.

Always wear safety glasses with side shields when working with tools and similar equipment. Additional protection using face shields may be necessary for the following types of work:

- Grinding, chipping, sandblasting;
- Welding.

Always wear approved hard hats, coveralls, safety footwear, suitable gloves and all other Personal Protective Equipment (PPE) as applicable and required for the job at hand.

Refer to the PPE section in this manual for more information.

4.3.2 Job safety

Before beginning any work onboard, be sure that you are authorised to perform the work to be done and inspect your tools and equipment. If a procedure is potentially hazardous to others in the area, warn fellow workers accordingly. Use warning signs or barriers, as necessary.

Notify the **Watch Officer** if you notice any unsafe conditions such as the following:

- Defective tools or equipment;
- Improperly guarded machines;
- Oil, gas, or other leaks.

Inform other employees if you see an unsafe work practice; however, be careful not to distract a person who is working with power tools.

4.3.3 Safety guidelines

581

Follow these guidelines for general safety:

- Know the hazards associated with your work. Be sure you are fully educated on the proper use and operation of any tool before beginning a job;
- Always wear appropriate safety gear and protective clothing;
- Ensure that there is adequate ventilation to prevent exposure from vapours of paints, thinners, chemicals and from other fumes and dust.

Maintain good housekeeping standards:

- Keep the work area free from slipping/tripping hazards (oil, cords, debris, etc.);
- Clean all spills immediately;
- Remove any sawdust, wood chips, and metal chips regularly;
- It is recommended that electrical cords pull down from an overhead pulley rather than lying on the floor whenever this is practical onboard;
- Leave tool and equipment guards in place;
- Know where fire extinguishers are located and how to use them;
- Make sure all tools and equipment are properly grounded and that cords are in good condition;
- Double-insulated tools or those with three-wire cords are essential for safety;
- Approved circuit breakers *should* always be used with power tools;
- Use extension cords that are large enough for the load and distance;
- Secure all compressed gas cylinders. Never use compressed gas to clean clothing or skin;
- Always use flashback arrestors on cutting/welding torches;
- Take precautions against heat stroke and heat exhaustion;
- Wear infrared safety goggles when appropriate.

4.4 Hand tools

Hand tools are non-powered tools. They include axes, wrenches, hammers, chisels, screw drivers, and other hand-operated mechanisms. Even though hand tool injuries tend to be less severe than power tool injuries, hand tool injuries are more common. Because people take everyday hand tools for granted, they forget to follow simple precautions for safety.

The most common hand tool accidents are caused by the following:

- Failure to use the right tool;
- Failure to use a tool correctly;
- Failure to keep edged tools sharp;
- Failure to replace or repair a defective tool;
- Failure to store tools safely.

Important: Use the right tool to complete a job safely, quickly, and efficiently. Follow these guidelines for general hand tool safety:

Wear safety glasses whenever you hammer or cut, especially when working with surfaces that chip or splinter:

- Do not use a screwdriver as a chisel. The tool can slip and cause a deep puncture wound;
- Do not use a chisel as a screwdriver. The tip of the chisel may break and cause an injury;
- Do not use a knife as a screwdriver. The blade can snap and injure an eye;
- Never carry a screwdriver or chisel in your pocket. If you fall, the tool could cause a serious injury. Instead, use a tool belt holder;
- Replace loose, splintered, or cracked handles. Loose hammer, axe, or maul heads can fly off defective handles;
- Use the proper wrench to tighten or loosen nuts. Pliers can chew the corners off a nut;
- When using a chisel, always chip or cut away from yourself. Use a soft-headed hammer or mallet to strike a wooden chisel handle. A metal hammer or mallet may cause the handle to split;
- Do not use a wrench if the jaws are sprung;
- Do not use impact tools, such as chisels, wedges, or drift pins, if their heads are mushroom shaped. The heads may shatter upon impact;
- Direct saw blades, knives, and other tools away from aisle areas and other employees;
- Keep knives and scissors sharp. Dull tools are more dangerous than sharp tools;
- Iron or steel hand tools may cause sparks and be hazardous around flammable substances. Use spark-resistant tools made from brass, plastic, aluminium, or wood when working around flammable hazards.

582

Improper tool storage is responsible for many shipboard accidents. Follow these guidelines to ensure proper tool storage:

- Have a specific place for each tool;
- Do not place unguarded cutting tools in a drawer. Many hand injuries are caused by rummaging through drawers that contain a jumbled assortment of sharp-edged tools;
- Store knives or chisels in their scabbards;
- Hang saws with the blades away from someone's reach;
- Provide sturdy hooks to hang most tools on;
- Rack heavy tools, such as axes and sledges, with the heavy end down.

4.4.1 Insulation

Asbestos, man-made mineral fibres, PVC, and urethane foam can be extreme respiratory hazards. To protect yourself from these and other respiratory hazards, minimise your exposure to particulate matter from insulation, fumes, dusts, and aerosols.

4.5 Ladder safety

Ladders can make many tasks easier, but they are also a continual safety hazard, especially on a moving vessel at sea. Even the best ladder is not safe unless you are trained and proficient in using ladders. Each year, many people suffer serious injuries from accidents involving ladders. Before you use a ladder, take a moment to think about doing it safely.

A secure, well-made ladder is necessary for safe ladder use. Ladders come in different styles, including step, straight, and extension. They also vary in construction and may consist of wood, aluminium, or fibre-glass. Choose the correct type and size ladder for the job.

Follow these guidelines for safe ladder usage:

- Always inspect a ladder before you climb it. Make sure the steps are sturdy and the locking mechanisms are in good working order;
- Carry ladders horizontally with the front end slightly higher than the back end;
- To open a stepladder, make sure the spreader is locked and the pail shelf is in position. To open an extension ladder, brace the bottom end and push the rungs or rails out;
- Place ladders on a solid, level surface to ensure safety;
- Watch for overhead obstructions;
- Position a straight or extension ladder so that the base of the ladder is one foot/30cm away from the vertical support for every four feet/1.22m of working ladder height (e.g. if you are working with eight feet/2.44m of ladder, place the base of the ladder two feet/61cm from the wall);
- Do not place the top of a ladder against a window or an uneven surface;
- When possible, tie the top of a straight or extension ladder to supports. Stake and tie the feet of the ladder;
- An extension ladder used for access to a high deck *shall* extend at least 1 meter beyond the support point;
- Use a wooden or plastic ladder if you *shall* work near electrical sources;
- Do not place a ladder in front of a door unless you lock and barricade the door and post a warning sign on the opposite side of the door;
- Use common sense when climbing or working on ladders;
- Wear safety shoes with slip-resistant soles and make sure they are dry before climbing;
- Never allow more than one person on a ladder;
- To climb or descend a ladder, face the ladder and firmly grip the rails, not the rungs, with both hands;
- Keep your body between the rails at all times. Do not shift your weight to one side;
- Have somebody steady the ladder if it cannot be secured otherwise;
- Do not stand on the top four rungs of an extension ladder or the top two rungs of a step ladder;
- When working on a ladder, keep two feet and one hand on the ladder at all times;
- Do not stand on the bucket shelf of a ladder;
- When working on a ladder, carry small tools on a tool belt. Use a rope to raise and lower heavy tools;
- Never leave a raised or open ladder unattended. Store ladders away from heat and moisture;
- Destroy damaged or unsafe ladders.

4.6 Power tools

Power tools can be extremely dangerous if used improperly. Common incidents associated with power tools include abrasions, cuts, lacerations, amputations, burns, electrocution, and broken bones. These accidents are often caused by the following:

- Touching the cutting, drilling, or grinding components;
- Getting caught in moving parts;
- Suffering electrical shock due to improper grounding, equipment defects, or operator misuse;
- Being struck by particles that normally eject during operation;
- Touching hot tools or work areas;
- Falling in the work area;
- Being struck by falling tools;
- When working around power tools, you *shall* wear personal protective equipment and avoid wearing loose clothing or jewellery that could catch in moving machinery.

4.6.1 General guidelines

- Use the correct tool for the job. Do not use a tool or attachment for something it was not designed to do;

- Select the correct bit, blade, cutter, or grinder wheel for the material at hand. This precaution will reduce the chance for an incident and improve the quality of your work;
- Keep all guards in place. Cover exposed belts, pulleys, gears, and shafts that could cause injury;
- Always operate tools at the correct speed for the job at hand. Working too slowly can cause an injury as easily as working to fast;
- Watch your work when operating power tools. Stop working if something distracts you;
- Do not rely on strength to perform an operation. The correct tool, blade, and method *should* not require excessive strength. If undue force is necessary, you may be using the wrong tool or have a dull blade;
- Before clearing jams or blockages on power tools, disconnect from power source. Do not use your hand to clear jams or blockages, use an appropriate tool;
- Never reach over equipment while it is running. Never disable or tamper with safety releases or other automatic switches;
- When the chance for operator injury is greatest, use a push stick to move material through a machine;
- Disconnect power tools before performing maintenance or changing components;
- Keep a firm grip on portable power tools. These tools tend to "get away" from operators and can be difficult to control;
- Remove chuck keys or adjusting tools prior to operation;
- Keep bystanders away from moving machinery;
- Do not operate power tools when you are sick, fatigued, or taking strong medication;
- When possible, secure work pieces with a clamp or vice to free the hands and minimise the chance of injury. Use a jig for pieces that are unstable or do not lie flat.

4.6.2 Machine and tool guards

584

- Moving machine parts *shall* be safeguarded to protect operators from serious injury. Belts, gears, shafts, pulleys, fly wheels, chains, and other moving parts *shall* be guarded if there is a chance they could contact a person;
- The hazards associated with moving machinery can be deadly. Hazardous areas that *shall* be guarded include the following:
  - Area where the machine either cuts, bends, moulds, or forms, the material;
  - Point of operation;
  - Pinch/nip point;

Area where moving machine parts can trap, pinch, or crush body parts (e.g. roller feeds, intermeshing gears, etc.):

- Sharp edges;
- Stored potential energy.

There are three types of barrier guards that protect people from moving machinery. They consist of the following:

- Fixed guards;
- Interlocked guards;
- Adjustable guards;
- A fixed guard is a permanent machine part that completely encases potential hazards. Fixed guards provide maximum operator protection;
- Interlock guards are connected to a machine's power source. If the guard is opened or removed, the machine automatically disengages. Interlocking guards are often preferable because they provide adequate protection to the operator, but they also allow easy machine maintenance. This is ideal for problems such as jams;
- Self-adjusting guards change their position to allow materials to pass through the moving components of a power tool. These guards accommodate various types of materials, but they provide less protection to the operator.

Important: Guards *shall* be in place. If a guard is removed to perform maintenance or repairs, follow Lock-Out/Tag-Out instructions in the *Permit To Work Procedure*. Replace the guard after repairs are completed.

Do not disable or move machine guards for any reason. If you notice that a guard is missing or damaged, contact the **Watch Officer** immediately and have the guard replaced or repaired before beginning work.

NOTE: Hand-held power tools typically have less guarding in place than stationary power tools. Use extreme caution when working with hand-held power tools and always wear a face shield.

4.6.3 Grinder safety

Grinding is classified as hot work. A Permit to Work is required prior to commencing.

- Ensure that no combustible or flammable materials are nearby that could be ignited by sparks from the grinder wheel;
- Ensure that a guard covers at least 270 degrees of the grinding wheel on bench-mounted machines;
- Place the grinder tool rest 1/8 inch/20mm from the wheel and slightly above the centre line;
- Allow the grinder to reach full speed before stepping into the grinding position. Faulty wheels usually break at the start of an operation;
- Unless otherwise designed, grind on the face of the wheel;
- Use vice-grip pliers or clamp to hold small pieces;
- Slowly move work pieces across the face of wheel in a uniform manner. This will keep the wheel sound;
- Do not grind non-ferrous materials;
- Periodically check grinder wheels for soundness. Suspend the wheel on a string and tap it. If the wheel rings, it is probably sound;
- Replace wheels that are badly worn or cracked;
- Never use a wheel that has been dropped or received a heavy blow, even if there is no apparent damage;
- Before using a new wheel, let it a run a few seconds at full speed to make sure it is balanced.

585

4.6.4 Metal lathe safety

- Make sure that all gear and belt guards are in place;
- Never leave a chuck wrench in a chuck;
- Keep your hands off chuck rims when a lathe is in operation;
- Do not attempt to screw the chuck onto the lathe spindle with the power on, as it may get cross-threaded and cause injury. Stop the machine, place a board under the chuck, and then screw on by hand;
- Steady rests *should* be properly adjusted to conform to the material being worked on;
- When filing work in a lathe, always face the head stock and chuck;
- See that tailstock, tool-holder, and work are properly clamped before turning on power;
- Never attempt to adjust a tool while the lathe is running;
- Never apply a wrench to revolving work or parts;
- Always use a brush to remove chips; never your hands;
- When possible, use pipe sleeves to cover work protruding from the end of the lathe;
- Before removing your work from the lathe, remove the tool bit;
- Use a push stick if a board stops with its end on the in-feed table;
- If a board sticks under the cutter head, turn off the machine to keep from burning the cutter knives.

4.6.5 Wood lathe safety

- Examine wood for knots and other defects before placing it in the lathe;
- Ensure that glued materials are set before placing them in the lathe;
- Before turning the lathe on, slowly turn rough materials a few times to ensure they will clear the tool rest;
- Keep hands off the chuck rim when the lathe is moving;
- Hold all wood cutting tools firmly with two hands;

- Start all jobs at the lowest speed. Ensure that materials are in a cylindrical form before advancing to higher speeds. Never turn large diameter materials at a high speed;
- Firmly screw faceplate work to the faceplate. Take care to avoid cutting too deep and hitting the screws;
- Do not cut too deep or scrape too long;
- Remove the "T" rest when sanding or polishing.

4.6.6 Drill press safety

- Securely fasten work materials to prevent spinning. Never use your hands to secure work materials;
- Use a centre punch to score the material before drilling;
- Run the drill at the correct speed. Forcing or feeding too fast can break drill bits;
- Never attempt to loosen the chuck unless the power is off;
- Lower the spindle before removing a chuck;
- Never use a regular auger bit in a drill press;
- Frequently back the drill out of deep cuts to clean and cool the bit.

4.6.7 Welding and cutting

Welding and cutting are two forms of hot work that require special safety considerations including a Permit to Work and Checklist completion. Welding and cutting is strictly prohibited without proper authorisation. Refer to Hot Work Permit in the *Permit To Work Procedure.*

Before conducting welding or cutting operations, inspect the equipment for the following:

- Welding leads *shall* be completely insulated and in good condition;
- Cutting tools *shall* be leak-free and equipped with proper fittings, gauges, regulators, and flashback devices;
- Oxygen and acetylene tanks *shall* be secured in a safe place.

586

In addition, follow these guidelines for most welding and cutting procedures:

- Always conduct welding and cutting operations in compliance with the requirements of the checklist and Permit to Work;
- Periodically check welding and cutting areas for combustible atmospheres;
- Take care to prevent sparks from starting a fire;
- Remove unused gas cylinders from the welding and cutting area;
- Keep hoses out of doorways and away from other people. A flattened hose can cause a flashback.

4.6.8 Welding guidelines

Mark hot metal with a sign or other warning when welding or cutting operations are complete. Proper selection of personal protective equipment is very important when welding; make sure your welding helmet visor is dark enough to provide adequate protection. Wear fireproof apron and gloves. In addition, take care to protect other people from the hazards of welding. For example, use a welding curtain to protect other employees from UV radiation.

There are three types of welders:

AC welders:
These welders are used for standard welding procedures. AC welders are powered by an electrical cord.

DC welders:
These are portable welders. DC welders have their own power supply.

Wire-feed welders:
These welders use inert gas for light metal work (e.g. stainless steel, aluminium, etc.).

Common hazards associated with welding include the following:

- Electrocution;
- Burns;
- UV radiation exposure;
- Oxygen depletion;
- Sparking.

In addition to the general guidelines for welding and cutting, follow these specific guidelines for safe welding operations:

- Make sure the welding area has a non-reflective, non-combustible surface;
- Ensure that adequate ventilation and exhaust are available;
- Be aware of electrocution hazards, particularly in damp conditions. Be sure that electrical cords are properly grounded. It is advisable for cords to pull down from an overhead pulley.

4.6.9 Cutting guidelines

Cutting is classified as hot work. A Permit to Work is required prior to commencing.

Gas welding and cutting tools are often powered by oxygen or acetylene gas cylinders. These tanks require special safety precautions to prevent explosions and serious injuries.

Follow the safety guidelines below, and refer to this manual for more information on gas cylinders safety:

- Ensure that acetylene/oxygen systems are equipped with flame or flashback arrestors;
- Store acetylene bottles upright and secured;
- Keep cylinder fittings and hoses free from oil and grease;
- Repair or replace defective hoses by splicing. Do not use tape;
- Do not tamper or attempt to repair cylinders, valves, or regulators;
- Do not interchange regulators or pressure gauges with other gas cylinders;
- Carefully purge hoses and torches before connecting a cylinder;
- Set acetylene pressure at or below 15 psig. Always use the minimum acceptable flow-rate;
- Never use a match to light a torch. Use an approved lighter.

5 Records

- OSM Alerts
- BOS G-JSAs
- BOS Checklists
- BOS Alerts
- BOS Safety Flash
- BOS Instructions
- BOS Memos
- BOS Newsletters

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- BOS-PLN-03.120201 – BOS Master Safety Document (=DUP)
- BOS-PLN-03.120202-fr – BOS Document Unique de Prévention (=MSD)

7 Terms and definitions

PPE
Personal Protective Equipment

588

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01 – 11/03/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	Deletion of pourcentage announced for Common cause of injury (§4.1.1).

Dangers of Hydrogen Sulphide (H_2S)

589

BOS-PRD-03.900907-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Dangers of H_2S 5

4.2 The identification of H_2S 5

4.3 The effects of H_2S 5

4.4 General precautions to be taken 5

4.5 Working in proximity to an Installation with potential H_2S 6

4.6 Entry to an enclosed space with potential H_2S 6

5 Records **7**

6 Related documents **7**

7 Terms and definitions **7**

8 Review, approval, revision and identification of changes **7**

590

1 Purpose

The following procedure specifies the methods and rules used to minimise the hazards and risks of Hydrogen Sulphide (H_2S) gas.

2 Scope

All operations whenever any potential exposure to H_2S exists.

591

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained within their Company Organisation.

Vessel Master has the responsibility, authority and accountability for:

a) Being aware of the potential occurrence of H_2S and contacting the relevant **Offshore Installation Manager (OIM)** if they believe it necessary to obtain further information;
b) Ensuring the implementation of this procedure on the vessel under his/her command when necessary.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations relating to the dangers of H_2S are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

All vessels and **shore-base personnel** have the responsibility, authority and accountability for:

a) Being aware of the potential occurrence of H_2S in daily operations and follow this procedure when appropriate.

592

4 Description

4.1 Dangers of H_2S

- H_2S is an extremely toxic gas that naturally occurs in some sub-sea offshore drilling and exploration activities;
- H_2S may also be present in unventilated spaces which have contained ballast water which has become stagnant due to the rotting of organic material in the water;
- H_2S has the highest level of toxicity of all naturally occurring gases and even in small amounts, has a strong sulphur smell that is comparable to that of “rotten eggs”;
- H_2S is heavier than air and therefore will become more concentrated in nearer the deck or ground;
- H_2S is also explosive when combined with air at a range between 4.3 to 45.5 percent by volume.

4.2 The identification of H_2S

- Close liaison *shall* be conducted between the vessel **Master** and the **Offshore Installation Manager (OIM)** to ensure that any potential areas that may be expected to produce H_2S are fully communicated;
- The smell of “rotten eggs” is the initial factor which identifies the presence of H_2S. When this occurs the **Master, Base Manager** and **Contracts Manager** *shall* be informed. At this stage the concentration will be below 10ppm;
- Should the smell of “rotten eggs” subsequently disappear this *shall* not be interpreted that the H_2S concentration has decreased. As the concentrations increases, so the ability to smell it decreases. Any signs of dizziness or coughing *should* be immediately interpreted as a rising concentration. Death can quickly follow should the concentration continue to rise above 50ppm.

593

4.3 The effects of H_2S

	Concentration	Effect
	0 – 10 ppm	Smell of “rotten eggs” Irritation of the eyes, nose and throat
	10 – 50 ppm	Smell of “rotten eggs” decreases Headache Dizziness Nausea and vomiting Coughing and breathing difficulty
	More than 50 ppm	Smell of “rotten eggs” disappears Shock Convulsion Coma Death

4.4 General precautions to be taken

Whenever operating in any known or suspected H_2S areas:

- Pre-task planning is vitally important to ensure that awareness is maintained and that all personnel are prepared to take emergency action should this be required;
- The **Master** *shall* ensure that each person who may be affected is informed of the potential hazards associated with H_2S and the precautions that *shall* be adhered to;

- H_2S detectors *shall* be provided and placed in various locations onboard the vessel, particularly on the main working deck and areas where personnel are most likely to be exposed to any H_2S release;
- Self contained, pressure demand or positive pressure respiratory equipment *shall* be provided for all personnel including passengers;
- The provided protective equipment is to be readily available, either by carrying in a dedicated pouch or located and available at convenient positions around the vessel;
- H_2S is extremely flammable therefore pure oxygen respirators ***shall never*** be used;
- Canister masks or cartridge respirators are not adequate or approved for use in H_2S environments and ***shall never*** be used;
- Training *shall* be conducted for all personnel onboard prior to any engagement in known H_2S areas and all personnel *shall* be familiar with the use of and any limitations of the provided equipment;
- Breathing bottles *should* only ever be recharged using air from a dedicated breathing air compressor or from bottled breathing air. Oxygen or air from the vessel's air system ***shall never*** be used.

4.5 Working in proximity to an Installation with potential H_2S

- Offshore installations operating where there is the potential for H_2S have external warning alarm systems in place to inform personnel of any H_2S escape. Usually, the offshore units will also display signs and notices to inform vessel crews and other persons visiting the unit location;
- All personnel onboard *shall* be are aware of, and understand the meaning of, these signs and alarms and what action to take in the event of any H_2S escape;
- Vessels *should* always work upwind of any possible sources of H_2S and always approach known or suspected H_2S locations with caution after first checking with the **OIM** that it is safe to do so;
- Vessel crews *should*, wherever possible, work as a team and avoid any single person working alone in areas that are likely to come into contact with high concentration exposure of H_2S.

594

4.6 Entry to an enclosed space with potential H_2S

- Reference *shall* be made to the Permit To Work # 4 Enclosed Space Entry as referenced in the *Permit To Work* Procedure. All entries *shall* be correctly planned and implemented with reference to this procedure. There are no exceptions.

5 Records

- Enclosed Space Entry PTWs

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- BOS-PRD-03.900902 – Permit to Work (SMS Section 9)
- BOS-FRM-03.0017 – Permit To Work # 4 Enclosed Space Entry.

7 Terms and definitions

H_2S
Hydrogen Sulphide

ppm
Part per million

PTW
Permit To Work

8 Review, approval, revision and identification of changes

595

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev. 01 – 11/03/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	-

Health

596

BOS-PRD-0304.900901-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **6**

4.1 Medical examinations 6
4.2 Control and use of alcohol onboard 6
4.3 Company Organisation requirements for third parties 6
4.4 Smoking 6
4.5 Medical treatment facilities 6
4.5.1 Qualification and responsibility 6
4.5.2 Medical records 7
4.5.3 Maintenance of hospital, medical locker and First Aid equipment 7
4.5.4 Use of Controlled Drugs 7
4.6 Malaria 8
4.6.1 General 8
4.6.2 African type of Malaria 8
4.7 Ebola Virus Disease 9
4.7.1 General 9
4.7.2 Hygiene Preventive measures 9
4.7.3 Symptoms 10
4.7.4 Case management 10
4.9 Fuel and other oils 13
4.10 Health and safety inspections 13
4.11 Recommendation to prevent contagion from infected persons 13

5 Records **14**

6 Related documents **14**

7 Terms and definitions **14**

8 Review, approval, revision and identification of changes **15**

597

1 Purpose

This procedure has been developed to ensure that all reasonable and practical steps *shall* be taken to provide and maintain healthy and safe working conditions onboard.

2 Scope

This procedure is applicable to all accommodation and workspaces onboard Company vessels.

598

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained within their Company Organisation.

This *shall* include:

- Ensuring all machinery and equipment are safely constructed, installed, operated and maintained;
- Ensuring safe systems of work are established and implemented;
- Ensuring all articles and substances are moved, stored and used safely;
- Providing the information, instruction, training and supervision necessary for compliance with health and safety requirements;
- Having available the necessary Personal Protective Equipment (PPE) to protect all persons onboard ship;
- Specifying the health and safety standards to be followed by all persons onboard ship;
- Setting up emergency procedures designed to minimise injury and damage in the event of any incidents onboard ship;
- Ensuring the investigating and reporting off all incidents and near misses onboard ship as per instructions provided in the procedure *BOS-PRD-0302.900901 Incidents Reporting and Investigation Management* ;
- Monitoring the health and safety performance of all Company ships.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, applied and reviewed onboard the vessel under their command;

b) Appointing a **Safety Officer** onboard. This appointment *shall* be recorded in the ship's Deck Logbook. Often this position is assumed by the **Second Officer;** 599

Crew members, passengers, office staff and contractors have the responsibility, authority and accountability for:

a) Taking all reasonable care for their own health and safety and for that of all others onboard the ship;

b) Co-operating with the Company Organisation, **Master**, **Safety Officer** and all others who have responsibility for health and safety onboard ship;

c) Not interfering with, or misusing, anything provided for their health and safety.

Vessel Safety Officer, as appointed by the **Master**, has the responsibility, authority and accountability for:

a) Proactively improving the standard of health and safety awareness of all members of the crew;

b) Investigating incidents and near misses and all potential hazards to occupational health and safety onboard the ship (as applicable to their designated investigation level);

c) Making recommendations to the **Master** to prevent the reoccurrence of an incident or near miss or to remove the hazard;

d) Investigating complaints by crew members about occupational health and safety;

e) Carrying out occupational health and safety inspections of each accessible part of the ship at least once every three months or more frequently if there have been substantial changes in the conditions of work. During such inspections the **Safety Officer** *shall* be accompanied by Department Head/Representative of the area of the ship being inspected;

f) Making representations and, where appropriate, recommendations to the **Master** and through him to the Company about any deficiency in respect of any legislative requirement, any code of practice or chapter contained in this procedure relating to health and safety;

g) Ensuring that all health and safety instructions, rules, procedures and guidance complied with;

h) Maintaining records describing all the circumstances and details of all incidents and near misses (including the date, persons involved and the nature of the injuries suffered, if any) and containing all statements made by witnesses, recommendations to prevent future similar incidents and near misses, details of other investigations, complaints, inspections, representations and recommendations by whosoever made;

i) Making his records available on request to the **Master;**

j) Taking action to stop any work which he/she reasonably believes may cause an accident. In such cases, he/she *shall* immediately inform the **Master** or Deputy who *shall* then be responsible for deciding when work can safely be resumed.

Medical Officer (normally the **Chief Officer**) has the responsibility, authority and accountability for:

a) Being responsible to the **Master** for:
   - Ensuring the resuscitation equipment is maintained in good working order;
   - Ensuring the medical stretcher is in good working order;
   - Training of other officers and selected ratings in first aid treatments and the use of resuscitation equipment;

b) Where a vessel is equipped with a hospital, ensuring that:
   - The hospital remains clean and functional at all times;
   - Toilet facilities are clean and functional;
   - Lighting, heating, ventilation and alarm call systems are functional ;
   - Bed mattresses, pillows and linen are in clean condition.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Health and Hygiene are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

600

4 Description

It is the crew's responsibility to look after their own health and fitness. High standards of personal cleanliness and hygiene *should* be maintained.

4.1 Medical examinations

All crew *shall* undergo regular medical examinations at a Company approved medical center according to Flag State and Company regulations.

Failure in any medical examination may cause the prevention of employment in accordance with Company requirements.

4.2 Control and use of alcohol onboard

The consumption of alcohol and drugs is totally prohibited and the Company *Drug and Alcohol Policy shall* be strictly adhered to.

4.3 Company Organisation requirements for third parties

All Company employees involved in shipping operations are subject to the same policy conditions as seafarers when engaged on Company business.

601

All Company employees visiting or sailing on Company vessels are subject to the same policy conditions as seafarers.

Visitors who have no official business onboard and supernumeraries who are carried in addition to the crew complement are subject to the same policy conditions as seafarers.

No person who is attending onboard to assist with the navigation, business, operation, repair or maintenance of the ship *shall* be allowed to carry out his task if his/her behaviour or demeanour gives rise to reasonable concern that his/her capability is impaired by drugs and/or alcohol.

4.4 Smoking

All restrictions on smoking both onboard and ashore *shall* be strictly adhered to as per the Company *Smoking Policy.*

4.5 Medical treatment facilities

4.5.1 Qualification and responsibility

The **Officer** appointed as the **Medical Officer** *shall*:

- Be in possession of a recognized first aid certificate;
- Have a thorough knowledge of the use of the contents of the:
  - International Medical Guide (WHO, ILO, IMO) for Ships and/or equivalent national publication;
  - Medical Section of the International Code of Signals;
  - Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (IMO/WHO/ILO).
- Be responsible to the **Master** for the following:
  - Following up the treatment for all onboard personnel;

- Immediate reporting of all injuries and illnesses to the **Master;**
- Daily condition reports to the **Master** on any person being treated; this reporting to be at shorter intervals, as appropriate, in serious cases;
- Requesting through the **Master**, medical advice or assistance either through Radio Medical Centers, coastal radio stations or from ships in the vicinity.

4.5.2 Medical records

The **Medical Officer** *shall* be responsible for recording in the *Medical Logbook*:

- All medical treatment, no matter how trivial, when medicines are dispensed;
- All medical treatment, when no medicines are dispensed but assistance is given;
- First aid assistance mentioning who administered it.

Entries *shall* include the date, patient's name and rank, condition of the patient, indicating symptoms and any physical or mental abnormalities noted, full details of any treatment given and any other relevant details.

When no medicine has been administered this is also to be noted in the medical log, for example good advice given.

4.5.3 Maintenance of hospital, medical locker and First Aid equipment

The **Medical Officer** *shall* be responsible for checking:

- The vessels hospital, when fitted, is kept clean and ready for use. The hospital is not intended to be used as an ordinary cabin.
- The medical locker contains all the items prescribed in the *International Medical Guide for Ships* together with any additional items required by Flag State Regulations and/or Company Organisation rules;
- The condition and contents of first aid kits, including those required by SOLAS (Chapter III: Lifesaving Appliances), and replenishing as necessary;
- The first aid kits are, as a minimum, available at the Bridge, Engine Control Room, Galley and in the Rescue boat. These First Aid kits *shall* be inspected on regular basis to confirm their condition and contents.
- The oxygen resuscitator and appendages;
- Automated External Defibrilator is mandatory onboard all vessels (ref. *BOS-INS-0701.1406 – Defibrillator*).
- Expiry date of all medical drugs onboard and ordering replenishments in good time prior to expiry. This, however, *shall* not apply to the checking and replacement of controlled drugs which are in the direct care of the **Master**.

602

Disposal of expired medicine onboard:

Medical drugs: they s*hould* be destroyed in incinerator. If no incinerator available onboard, drugs to be disposed as per Garbage Management Plan depending on the package type.
For all narcotics (e.g. Morphine / Tramadol): Request Guidance to **Logistic Manager**.

4.5.4 Use of Controlled Drugs

In the event that the use of a controlled drug is necessary, this *shall* only be done in the presence of both the **Master** and the **Medical Officer** and a careful record of the date, time and amount of the drug used *shall* be kept and signed by both the **Master** and the **Medical Officer**.

4.6 Malaria

4.6.1 General

International travel can pose various risks to health. All individuals, including seafarers, *should* receive advice on potential hazards in their destination and understand how to best protect their health. Planning, appropriate preventive measures and careful precautions can substantially reduce the risk of accidents and illness. Although the medical professionals can provide help and advice, it is the seafarers own responsibility to understand the involved risks and to take the necessary precautions for their journey.
The Company *should* assess the risk of tropical disease during a project risk assessment and as and when needed or required by the client a Malaria and other tropical diseases management plan *should* be drawn up and implemented onboard the vessels.

4.6.2 African type of Malaria

Malaria is the number one infectious disease in sub-Saharan and central Africa. This type of Malaria (C.Falciparum) can be deadly and is a serious threat to health. Protecting against C.Falciparum (and other mosquito borne diseases) is as straightforward as A B C D. Follow the 'A B C D' to prevent contracting Malaria.

'A' for Awareness
Malaria is transmitted to human beings by the bite of an infected female mosquito of malaria transmitting Anopheles species. This disease is preventable and curable. But this disease can kill, early diagnosis and treatment are essential. Always request a check-up if you are unwell and suspect malaria may be the cause. Ask for further information if anything is not clear.
Best way to have a quick and certain diagnosis is to have a medical advice by means of a thick and thin blood smear for malaria parasites. To enable an early diagnosis, malaria rapid tests are available onboard. This malaria rapid test *shall* be used if medical advice is not immediately possible (e.g. when the vessel is proceeding).

603

'B' for Bites
Preventing mosquito bites is the most important and effective way to prevent malaria. If you are not bitten, Malaria and other vector borne tropical diseases are not transmitted. Malaria vector mosquitoes especially feed between dusk and dawn. Bite prevention is based on very simple rules which *shall* be strictly adhered to:

- If not involved in operations outside, remain indoors between dusk and dawn, sleep under an impregnated mosquito net and/or use insecticides;
- Wear long-sleeved clothing, long trousers and socks, treated with an insecticide adapted for this purpose, e.g. permethrin before your trip or expatriation (you can wash your clothes several times before the repellent is not effective anymore);
- Regularly apply cream or spray based insect repellent to exposed skin (DEET>35% or ICARIDINE>20%).

'C' Chemoprophylaxis
An additional measure is to protect yourself by taking anti-malarial medication. The chemoprophylaxis is an integral part of the Malaria Control Program and some Charterers require any individual who wants to work in Sub-Saharan Africa to take malaria medication. Their requirement has to be respected unless the Bridging Document states differently. In many areas, any individual who fails to take his/her anti-malarial medication may be removed from the infected area.

Seek medical advice from your occupational Physician or your General Practitioner to determine which medication *shall* be the most suitable for you.

Scrupulously follow the directions of use for your anti-malaria medication (before, during and after being exposed to the Malaria risk) to ensure a safe and efficient protection against Malaria.

The relevant chemoprophylaxis for sub-Saharan Africa is Malarone, Doxycycline or Lariam. You *should* buy it before your trip, not in sub-Saharan Africa.

'D' for Diagnosis
Consequently, any individual who becomes ill with a fever, even slight, or a flu-like illness while travelling in a malaria-risk area and up to 1 year after returning home *should* seek prompt medical attention and *should* tell the physician his travel history.

When leaving the vessel, a card or letter *shall* be provided. This is to provide information of your travel history. Keep it in your wallet up to one year after your return. In case of illness, it *shall* be handed over to the Doctor.

The most common symptoms of Malaria are fever, chills, headache, vomiting and diarrhoea. If you feel any of those symptoms during or after your trip in sub-Saharan Africa, you must go and see a Doctor.

 Any fever *shall* be considered as a Malaria case until proven otherwise.

Treated on time, impact on health is limited with no long-term effects. Malaria is a common and life threatening disease in many tropical and subtropical areas. It is currently endemic in over 100 countries.

Do not wait until you return home before seeking medical treatment.

4.7 Ebola Virus Disease

4.7.1 General

The Ebola Virus Disease (EVD) is a virus that can be quickly transmitted. 25% to 90% of those infected are killed.

604

It can be transmitted by direct physical contact with infected dead or alive people or animals, through the blood, urine, faeces, vomit, sweat, saliva, sperm, organs or any other bodily fluids. It can also be transmitted by eating infected bats and bush meat.

The incubation period is between 2 and 21 days after exposure. The infected person is not contagious during the incubation period. There is no cure and no vaccine at present. Prevention is key to fight EVD.

All detailed preventive and contingency measures are defined in *BOS Ebola Virus Disease Contingency Plan*.

4.7.2 Hygiene Preventive measures

The following preventive measures *shall* be implemented as a minimum for vessels operating in EVD contaminated countries:

a) All employees, visitors, crew, suppliers, etc. *shall* use the washing facility or sanitizers provided before access is granted.
Efforts *should* be made to ensure that in-between the fingers are thoroughly washed.

b) Physical contacts *shall* be avoided (ie: hand shaking, kisses, etc.).

c) Functional washing facilities (including hand washing and washing machines) *shall* be available in all vessels accommodations.

d) Provide hygiene consumables e.g. soaps and detergents, disinfectants e.g. bleach, hand sanitizers, paper wipes, etc. in all locations and vessels. Alcohol-based sanitizers are the standard rubs for hand hygiene. Household bleach (a dilute solution of sodium hypochlorite—about 5-6%). Mix a 10% solution. Use mixed solution within 24 hours. (Always dilute and make fresh).

e) Accommodations cleaning *shall* be reinforced.

f) Purchase of bush meat / fresh meat *shall* be forbidden.

g) Meat *shall* be well cooked.

h) Fruits & vegetables *shall* be properly rinsed.

i) Eggs *shall* be systematically cooked. Mayonnaise is prohibited.

j) Special attention *shall* be given to the cleanliness of the galley.

k) Sexual relations, even protected, *shall* be forbidden.

l) Health conditions of all crew and onshore personnel *shall* be continuously analyzed.

m) The Business Unit *shall* ensure that ship chandler(s) will take all necessary measures to mitigate transmission of the virus.

n) Body temperature of all people onboard *shall* be **daily** tested.

4.7.3 Symptoms

The initial symptoms are the following:

- High fever;
- Severe weakness;
- Muscle and joint pain;
- Headaches;
- Throat irritation.

605

The later symptoms are the following:

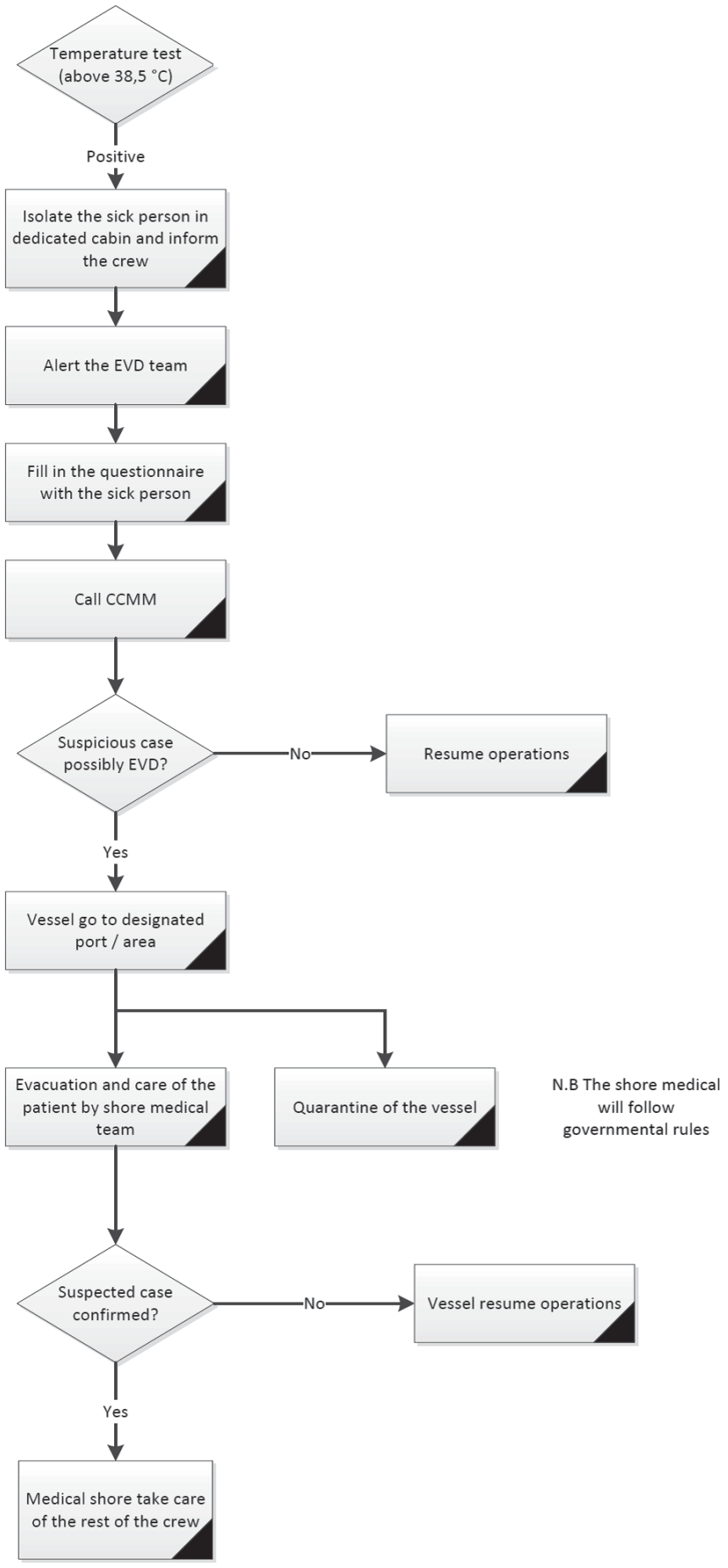
- Vomiting;
- Diarrhea;
- Rashes;
- Renal failure;
- Internal and external bleeding.

4.7.4 Case management

If someone onboard shows physical symptoms of EVD (ex. body temperature over 38.5°C), within 21 days after coming back from risk area, he becomes **a suspected case**. This situation requires specific measures to be deployed onboard the vessel.

The management of the case onboard is summarized in the flowchart below:

606


Temperature test (above 38,5 °C)
Positive
Isolate the sick person in dedicated cabin and inform the crew
Alert the EVD team
Fill in the questionnaire with the sick person
Call CCMM
Suspicious case possibly EVD?
No
Resume operations
Yes
Vessel go to designated port / area
Evacuation and care of the patient by shore medical team
Quarantine of the vessel
N.B The shore medical will follow governmental rules
Suspected case confirmed?
No
Vessel resume operations
Yes
Medical shore take care of the rest of the crew

4.8 Scabies

4.8.1 General

Scabies is a contagious, extremely itchy, skin disorder that leads to a rash.
It is not linked to a poor personal hygiene, it is caused by an infestation with a parasite - the scabies mite. Scabies mites are not visible to the naked eye. They live on the skin and burrow into it to lay eggs. The itch and rash can develop on any part of the skin, away from where the mites are actually burrowing. This means that you are infectious (and can spread scabies) before you even know you have scabies. Incubation time can take from 2 to 6 weeks.

You need close skin-to-skin contact with an infected person to catch scabies. This is because the scabies mite cannot jump or fly. Most cases of scabies are probably caught from prolonged hand-holding with an infected person. The hand is the most common site to be first affected.

4.8.2 Symptoms

- Mite tunnels (burrows). These may be seen on the skin as fine, dark, or silvery lines about 2-10 mm long. They most commonly occur in the loose skin between the fingers (the web spaces), the inner surface of the wrists, and the hands. However, they can occur on any part of the skin. You may not notice the burrows until a rash or itch develops.

- Itching. This is often severe and tends to be in one place at first (often the hands), and then spreads to other areas. The itch is generally worse at night and after a hot bath. You can have widespread itching, even with only a few mites. Scratching due to intense itching can cause minor skin damage. In some cases the damaged skin becomes infected by bacteria - a secondary skin infection.

607

- Rash. The rash usually appears soon after the itch starts. It is typically a blotchy, lumpy red rash that can appear anywhere on the body. The rash is often most obvious on the inside of the thighs, parts of the abdomen and buttocks, and armpits. The appearance of the rash is often typical. However, some people develop unusual rashes which may be confused with other skin conditions.

- Aggravation of pre-existing skin conditions. Scabies can worsen the symptoms of other skin conditions, particularly itchy skin problems such as eczema, or problems such as psoriasis. Scabies can be more difficult to diagnose in these situations too.

4.8.3 Preventive measures

To prevent the spread of scabies, all clothing, bedding and towels used by someone with scabies should be disinfected. This can be done by having the items dry cleaned, washed in hot water (60°C), or dried in hot dryer, or by placing the items in plastic bag for no less than 72 hours (scabies mites can survive outside the human body for between 24-36 hours, so it is possible to become infested by coming into contact with contaminated clothes, or bed linen).

4.8.4 Treatment

Scabicides are the products used to treat scabies. These lotions or creams will be prescribed by a doctor. The lotion should be applied to a clean body from the neck down and remain in place for the required amount of time before removal. Always read and follow the instructions carefully.

If someone on board shows some of the symptoms listed above, he shall see a doctor or healthcare provider immediately, and the rest of the crew shall be informed so the necessary preventive measures can be taken.

4.9 Fuel and other oils

With good standards of personal and industrial hygiene marine fuel oils, properly used for their intended purpose, *should* not present any significant health hazards. However prolonged exposure and inhalation of fuel oils *should* be avoided. Direct skin contact with fuel oils as this can produce dermatitis and skin cancer.

- Unnecessary or prolonged contact with fuel oils *should* therefore be avoided;
- Contact with fuel oils which have been contaminated by mixing with lubricating oils, chemicals waste or other products *should* be avoided;
- For all fuel and oils a typical MSDS sheet *should* be kept onboard.

4.10 Health and safety inspections

- The **Master** *shall* make weekly inspections throughout the vessel spaces and report the same in the official logbook;
- The **Master** *shall* ensure that the ships sanitation certificate is kept valid. All findings raised during a ship sanitation inspection *shall* be reported to the **Operation Manager**. The **Master** and **Operation Manager** *shall* ensure the findings are corrected as soon as reasonably practicable;
- The **Safety Officer** *shall* organize a Health and Safety inspection (called "Hazard hunt") with crewmembers, on a monthly basis. Please refer to *BOS-PRD-03.900904 – B safe cards and Hazard Hunt procedure*.
- The report *should* be accompanied by photos, recorded in Hazard Hunt Register, and *shall* be presented to the **Master** of the vessel.

When the report is approved by the **Master** it *shall* be sent to the **Operation Manager**, indicating corrective action taken or corrective action planning.

608

4.11 Recommendation to prevent contagion from infected persons

General recommendation:

- Ensure adequate ventilation of onboard accommodations;

The following recommendation should be applied throughout treatment:

- Segregate the patient with infectious disease;
- Ensure full cleaning of accommodation with antiseptic solutions (eg. bleach) and items washed at high temperature if possible;
- Wear a mask if necessary;
- Identify crew members that have been in contact with the patient and have them carefully monitored.

5 Records

- Medical Logbook.
- Official Logbook (= Bridge Logbook).
- Port State Inspection records
- Shipboard Safety Committee meetings
- Ship Sanitation Inspection records.
- Suspected Case Questionnaires.
- Medical Screening Checklists.
- Hazard Hunt records.
- Incidents reports.

6 Related documents

- B-POL-01.0004 –Health and Safety Policy.
- B-POL-01.0006 - Drug and Alcohol Policy.
- B-POL-01.0007 - Smoking Policy.
- B-GDL-03.0007 – OSM Guidelines.
- B-GDL-03.0025 – Ebola Contingency Guidelines.
- B-PLN-03.0003 – Ebola Virus Disease Contingency Plan.
- Malaria DVD.
- BOS-FRM-03.0071 – Hazard Hunt Register.
- B-FRM-0302.0003 – Incident reports (including Near Misses).
- BOS-PLN-0301.0001 - Ebola Virus Disease Contingency Plan.
- BOS-FRM-0301.0046 – Suspected Case Questionnaire.
- BOS-FRM-0301.0047 – Medical Screening Checklist.

609

7 Terms and definitions

CCMM
Centre de consultation médicale maritime / Medical Maritime Consultation Center.

EVD
Ebola Virus Disease.

MSDS
Material Safety Data Sheet

PPE
Personal Protective Equipment

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01- 11/03/2013	Revision of § 4.5.3
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS QHSE Coordinator	BOS QHSES Manager		Ver.04 – 31/12/2014	Adding Ebola information in parts § 4.7 & 4.8. Adding some terms & definitions. Adding new forms on part §6. Related documents.

610

Hygiene

BOS-PRD-0304.900902-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 Work in galleys, pantry and other food areas 5

Catering Personnel 5
Medical Certification 5
Qualifications 5
Working conditions 5

4.1.1 Fire risk in galleys 6

4.1.2 Access to the galley 6

4.1.3 Emergency Equipment in the galley 7

4.2 Food delivery, storage and preparation 7

4.2.1 Food delivery 7

4.2.2 Food Storage 7

4.2.3 Food preparation 9

4.3 Refrigerated rooms and store rooms 9

4.4 Accommodation spaces 10

4.5 Laundry and Wet Clothing 10

4.6 Food and water safety 10

4.7 Potable water 10

4.7.1 Identification and assessing sources of risk 11

4.7.2 Warm water installation 12

4.7.3 Cold water installation 13

4.7.4 Improving the system 13

4.7.5 Risk area 14

4.7.6 Managing the risk 14

4.7.7 Fresh Water treatment & sampling 14

4.7.7.1 Frequency of the analysis: 15

4.7.7.2 Water disinfectation 16

4.8 Health and safety inspections 17

4.9 Pest Control 17

5 Records **18**

6 Related documents **18**

7 Terms and definitions **18**

8 Review, approval, revision and identification of changes **18**

612

1 Purpose

This procedure has been developed to ensure that all reasonable and practical steps *shall* be taken to provide and maintain hygienic and safe working conditions onboard.

2 Scope

This procedure is applicable to all accommodation and workspaces onboard Company vessels with particular attention to galleys and food stores.

613

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained within their Company Organisation.

This *shall* include:

- Ensuring hygienic systems of work are established and implemented;
- Ensuring all food stores are moved, stored and prepared under hygienic conditions;
- Providing the information, instruction, training and supervision necessary for compliance with hygiene requirements;
- Specifying the hygiene standards to be followed by all persons onboard ship;
- Monitoring the hygiene performance of all Company ships and in the Company Head Office.

QHSES Manager has the responsibility, authority and accountability for:

- Verifying that the requirements of this procedure are implemented and maintained within their Company Organisation.
- Providing technical assistance when required and ensure appropriate information and lessons learned are communicated to the Regional Representatives, Corporate HSE Managers and vessels as applicable.
- Reviewing annually this procedure.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented and reviewed onboard the vessels under their command;

b) Appointing a **Safety Officer** onboard ship. This appointment *shall* be recorded in the ship's Deck Logbook. Normally this position is assigned to the **Second Officer**.

614

Crewmembers, passengers, Office staff and Contractors have the responsibility, authority and accountability for:

a) Taking all reasonable care for their own health and safety and for that of all others onboard the ship;

b) Co-operating with the Company Organisation, **Master**, **Safety Officer** and all others who have responsibility for hygiene onboard ship;

c) Not interfering with, or misusing, anything provided for their health and safety.

Vessel Safety Officer, as appointed by the **Master**, has the responsibility, authority and accountability for:

a) Proactively improving the standard of hygiene awareness of all crewmembers;

b) Making recommendations to the **Master** with regard to hygiene;

c) Investigating complaints by crew members about hygiene.

Shipboard Safety Committee and **HSE Meetings -** Shipboard Safety committee and Shipboard HSE meetings *shall* be held onboard the ships at intervals given in the procedure *HSE meetings*.

The agenda/topics for the meetings *shall* contain a review of the hygiene condition of the vessel.

Hr and Crew Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for hygiene are properly communicated to Galley staff and that appropriate training is arranged as necessary.

4 Description

It is the crew's responsibility to look after their own health and fitness. High standards of personal cleanliness and hygiene *should* be maintained.

4.1 Work in galleys, pantry and other food areas

Catering Personnel

Medical Certification

Catering personnel (including steward, room boy…) should hold a medical certificate of maximum 1 year validity. The medical examination *shall*, in addition to the fitness recognition, include blood, stool and urine analysis to confirm that the person is free of any parasites or contagious illness that may lead to food poisoning.

The Master *should* verify the medical certificate validity at each embarkation. If such valid certificate cannot be provided:

1. because it was forgotten ashore:
    - the duties of the concerned person *should* be suspended until reception of the said certificate.
2. because no medical visit has been carried out:
    - the concerned person *should* be dismissed from the vessel until mandatory medical visit is completed and adequate certificate issued.

615

Qualifications

Food handlers should be trained, qualified and competent to maintain acceptable standard of health and hygiene on board the vessel. Their training *should* cover practical cookery, food and personal hygiene, food storage, stock control, environmental protection and catering health and safety.
Any catering personnel *should* receive basic training sea survival, including fire fighting.
Additional Training Programs to awarness food handlers about health and hygiene measures are available on the portal at:
http://intranet.bourbon-online.com/CentralFunctions/Crewing/Training/TP/Pages/Safety.aspx.

The food hygiene qualifications *should* be verified at the recruiting stage or requested to the Catering Company before sending any new food handler on board a vessel.
When employed on a vessel, the Master *should* ensure that new catering personnel are efficiently familiarized with the vessel specific emergency equipment available in the kitchen (extinguishers, fixed CO2 system, fire blanket…) and emergency procedures.

Food handlers or personnel engaged in catering operations (cooks, waiters, room boys…) must be able to communicate in the Company's official language, i.e English.

Working conditions

- Catering staff *shall* ensure that high standards of personal hygiene and cleanliness in the galley, pantry, mess rooms and accommodation are maintained;
- Hands and fingernails *shall* be washed and cleaned before food is handled. This is also most important after handling uncooked meat or fish (because this contains bacteria likely to contaminate other food), and after visiting the toilet;

- All cuts, however small, *shall* be reported immediately and receive first aid attention to prevent infection;
- An open cut, burn or abrasion *shall* be covered with a waterproof dressing;
- Illness, rashes, spots or skin ailments *shall* be reported immediately as soon as the symptoms appear;
- A person suffering from dysentery or diarrhea *shall* not work in the galley, pantry or other food handling areas;
- Catering staff *shall* wear clean clothing when handling food and preparing meals. Hand basins, hot water, soap (preferably a soap solution from a dispenser) and hand drying facilities *shall* be available;
- Cleanliness of all food, crockery, cutlery, linen, utensils, equipment and storage is vital. Foodstuffs and drinking water *shall not* be stored where germs can thrive. Similarly, deep frozen food which has been defrosted *shall not* be refrozen;
- Cracked or chipped crockery and glassware *shall* be destroyed. Foodstuffs which may have come into contact with broken glass or broken crockery *shall* be thrown away;
- There *shall* be no smoking in galleys, pantries, store rooms or other places where food is prepared;
- Crockery and glassware *should* not be left submerged in washing water where it may easily be broken and cause injury. Such items *should* be washed up individually as *should* knives and any utensils or implements with sharp edges;
- Some domestic cleaning substances contain bleach or caustic soda (sodium hydroxide) whilst some disinfectants contain carbolic acid (phenol). These substances can burn the skin and they are poisonous if swallowed. They *should* be treated with caution and *should* not be mixed or used at more than the recommended strength.

Food waste, empty food containers and other garbage are major sources of pollution and disease and *should* be placed in proper storage facilities safely away from foodstuffs. Their discharge into the sea is prohibited except in the circumstances specified in the relevant national and international regulations.

616

4.1.1 Fire risk in galleys

- Galleys and pantries present particular fire risks. Care *shall* be taken in particular to avoid overheating or spilling fat or oil and to ensure that burners or heating plates are shut off when cooking is finished. Extractor flushes and ranges etc. *should* always be kept clean;
- Means to smother fat or cooking oil fires, such as a fire blanket, *shall* be readily available close to stoves;
- At all times catering staff *shall* maintain cleanliness within their working areas, especially in regard to accumulated oils and fats which may become ignited by the application of heat;
- Care *should* be taken that whenever the galley equipment is not in use and before the galley becomes unmanned, all electrical equipment *should* be switched off and isolated;
- Catering staff *shall* not attempt to repair electric or electric microwave ovens. Defects *shall* always be reported so that proper repairs may be made. The equipment *shall* be kept out of use and a warning notice displayed until it has been repaired or replaced.

4.1.2 Access to the galley

Except for emergencies, access to galley (including food storages) *shall* be restricted only to the **Catering staff**, the **medic** (if present on board), the **Captain** and the personnel carrying out inspections or maintenance tasks.

Serving food *should* never take place inside the kitchen.

Galley, storages, mess and accommodations (cabins, corridors, bridge, control room…) are non-smoking areas. Smoking on board is only permitted in a designated area that *should* not affect the non-smokers' wellbeing (e.g. if only one TV room is provided on board, it *should* remain non-smoking).

4.1.3 Emergency Equipment in the galley

Kitchen and store areas *should* be equipped with required firefighting equipment (i.e. portable extinguishers, fixed CO2 system, fire blankets,…) and First aid kit. All this equipment must be in good working order.
Regular drills and trainings *should* be conducted using a "fire in the kitchen" scenario in order to maintain good knowledge and proficiency of the Catering personnel.

In the event of a powder extinguisher is used in the kitchen or other food location (store / preparation / serving), a rigorous washing and disinfection of the area and equipment is necessary to efficiently remove the powder and avoid contamination of food.
Any food that has been in direct contact with the powder *should* be thrown away.

4.2 Food delivery, storage and preparation

4.2.1 Food delivery

When food is delivered on board (in port or offshore), drastic hygiene verifications *should* be carried out, such as, but not limited to:

- On board food delivery area *should* be kept clean and free from waste materials.
- Fridges and deep freezer containers: to verify that the cold chain has been maintained during the entire transportation of the food (temperature records on disk or other tracking tool). If such evidence is not available or if there is an unacceptable breach in the chain, the container *should* be refused.
- Ensure the container is free of undesired pest. If found, the vessel *should* do its best to minimize infestation onboard. If the pest presence is assessed as unacceptable, the container *should* be returned as soon as practically possible.
- Carry out a visual verification of the food condition. Rotten / damaged food (i.e. fruits, vegetables,…) and opened / pierced cans *should* be removed and thrown away.
- Transfer from the refrigerated containers to the vessel chill stores *should* be as fast as safely possible.

617

Any unnecessary containment (cartons, boxes…) *should* preferably be removed before storing the food in the vessel chill stores to reduce the number of further entries to reorganize everything inside.
Other ship personnel may help discharging the supplies to the stores. These personnel *should* maintain a minimum of personal hygiene (clean clothes, hands washed…). Their entry is the galley, this area *should* still remain restricted.

4.2.2 Food Storage

Each compartment must be equipped with a thermometer to ensure continuous keeping of these temperatures. Such thermometer can be requested in the dry store if temperature issue is noticed and/or needs verification.

- Temperatures in the storage areas *should* be as follow:
  - Freeze units: minus 18° C or below.
  - Cold rooms and refrigerators: above 0 ° C but not exceeding 5° C.
  - Dry food store: although there are no clear requirements, it is recommended to keep them in a dry, ventilated and cool atmosphere (around 10 ° C).
- All food storages (floors, walls, ceilings, shelves…) *shall* be maintained permanently clean, using a periodic cleaning program as well as educating the catering personnel to wash immediately if dirty.
- All food storages *shall* remain permanently tidy and free of tripping hazards, ensuring the accesses / walk ways are free of obstacles.
- Stores *should* be adequately illuminated.
- Freeze and fridge units *should* be equipped with sound alarm for eventual personnel locked up inside.
- To restrict the galley stores exclusively for the food and galley equipments.

/!\ To keep all galley hazardous products in a dedicated location / locker, isolated from food contact.

- Food arrangement in the stores *should* be as follow:
  - To remove immediately any opened, pierced, expired cans or other containment as well as food with mould of other alteration that may lead to food poisoning / contamination.
  - To place new delivered food (or food with longest expiring period) behind / under the old stock (or with shortest expiring period).
  - To segregate the food per "family" on the shelves and compartments (fish with fish, meat with meat, vegetables with vegetables…).
  - To pile the food in a way to avoid falling object.

In addition to the above, food arrangement in the cold rooms and deep freezer *should* be as follow:

- To keep raw food separate from cooked food or food which will be served without (further) heating.
- To cover all foods stored in refrigerated units with clean disposable wraps such as foil, wax paper, and plastic wrap to prevent contaminating hazard (i.e. from drip); do not use cloth or towel.
- To wrap frozen food securely in clean freezer paper or leave it in its original container to prevent freezer burn.
- For the cold rooms: if no expiry date is available, to write the date of entry on each food package (bag, wrapped plastic, box…). As they don't have validity period defined, such date will provide good indication in the storage period for future cooking. As general guidance, a temperature around 1° C *should* provide a satisfactory degree of protection for short term storage (+/- 7 days).
- For the deep freezer: always write the date of entry on the package, even if an expiry date is already embossed. Always ensure that the dates of entry are anterior to the expiry date (when available).
- To avoid as much as possible overstocking, which reduces the cooling efficiency.

618

- Never store any hot food in cold room or deep freezer.
- It is not recommended to store dairy products (such as milk, yogurt), fresh vegetables / fruits in the deep freezer.

- Food should not be stored directly on the floor of a walk unit or under piping / condensation drip.
- For dry stores: if space is reduced on board, gratings may be installed to avoid direct contact with the floor. In this case, regular removal and cleaning is needed.
- If cooked food is kept for further service, it *should* be:
  - Cooled at room temperature for no longer than 2 hours before placing in refrigerator.
  - Stored in refrigerator (temperature from 0° C to 5° C) and separated from raw food (/!\ raw food *should* never be stored above).
  - Adequately wrapped (plastic film or aluminum) to reduce the odor, prevent drying out and cross contamination.
  - Stored on the lower shelves without any food underneath to prevent eventual drip contamination.
  - Re-served within the next 12 hours.

However and although not recommended (taste alteration), cooked food can be stored in the deep freezer for longer conservation.

- Stores doors must be kept closed.

Regular defrosting of freezer and refrigerated units is part of the regular equipment maintenance. It must be carried out in a way that it won't create any disruption in the food cold chain or involve contamination / poisoning hazard (leaks, mix of food, contact with waste water or spoiled elements…).

4.2.3 Food preparation

Food preparation and storage areas of the ship *should* be maintained scrupulously clean, they *shall* be subject to at least weekly inspections by the **Master** and any failings discovered at such inspections *should* be verbally discussed on site at that time. If not rectified by the subsequent inspection, a written warning *shall* be issued by the **Master**. A duplicate *shall* be forwarded to the **Operations Manager**.

Poor conditions subject to rectification in food preparation or storage areas would include the following:

- Outdated/beyond expiry dated food remaining onboard vessel;
- Putrefying vegetables or perishable foodstuffs remaining onboard vessel;
- Infested grains or pulses remaining onboard vessel;
- Food products placed directly on the floor;
- Accumulation of dirt/fat/grease in deck, bulkhead or deck-head areas of storage or food preparation areas;
- Accumulation of cardboard/plastic/packaging materials in storage or food preparation areas;
- Peeling paint work or broken deck covering in these areas;
- Un-scrubbed or dirty deck and shelf gratings in storage or food preparation areas;
- Dusty or insect ridden conditions throughout the food storage/preparation and serving areas of the vessel;
- Faulty or odorous scuppers in storage or food preparation areas;
- Unclean cooking utensils or implements.

In the event that any defect cannot be rectified by ship's staff alone, it *shall* then be the joint responsibility of the Company Organisation and of the **Master** to ensure a prompt solution to the problem.

619

4.3 Refrigerated rooms and store rooms

- All refrigerated room doors *shall* be fitted with means of opening the door from the inside or sounding an alarm from the inside;
- A routine testing of the alarm and checking of the door clasps and inside release *should* be carried out regularly, at least at weekly intervals;
- Those using the refrigerated room *should* make themselves familiar with the operation, in darkness, of the inside release for the door and the location of the alarm button;
- All refrigerated room doors *should* be fitted with an arrangement of adequate strength to hold the door open in a seaway and *should* be secured open while stores are being handled. These doors are extremely heavy and can cause serious injury to a person caught between the door and the jamb;
- Anyone going into a refrigerated room *should* take the padlock (if any) inside with him/her. Another person *should* be informed of the entry being made;
- Cold stores or refrigerated rooms *should not* be entered if it is suspected that there has been a leakage of refrigerant. A warning notice to this effect *shall* be posted outside the doors;
- Check temperatures of fridges and freezers on a regular basis. The temperature *should* be maintained between 4ºC and 7ºC for fridges and below -18ºC for freezers;
- All stores and crates *should* be stowed securely so they do not shift or move in a seaway;
- When wooden boxes or crates are opened, protruding fastenings *should* be removed or made safe;
- Where a metal strip secures the lid of a tea chest or similar, it *should* be completely removed or made safe, otherwise its jagged edge may cause injury;
- Metal hooks not in use *should* be stowed in a special container provided for the purpose. Where hooks cannot be removed they *should* be kept clear.

4.4 Accommodation spaces

With regard to accommodation spaces of the ship, all persons onboard from the **Master** to the most junior rank, have responsibility to ensure cleanliness and tidiness throughout. In particular, the following standards *shall not* be accepted:

- Accumulations of dirty laundry other than in the ship's laundry space and that for a brief number of days prior to laundering only;
- Accumulation of packaging, plastics and other debris from ship supplies;
- Accumulation of oily rags and other fibrous materials such as waste paper;
- Entry carpeted areas soiled by deck or engine or other work space footwear;
- Storage of dirty unlaundered protective clothing within sleeping quarters;
- Stowage, temporary or otherwise, of cargo samples, bunker samples, lube oil samples, machinery spare parts, and/or other items of ship's equipment within accommodation spaces.

4.5 Laundry and Wet Clothing

- Clothing *should* be left to dry only in the designated placed. It *should* not be put to dry in any machinery space or on or close to electric heaters, radiators, etc. in accommodation spaces;
- Laundry rooms *should* be kept neat and tidy. The filters of dryers *shall* be cleaned after each drying cycle.

4.6 Food and water safety

620

Contamination of food and water is a major cause of illness, in particular a cause of diarrhoea. Much of this risk can be avoided by application of the following rules:

- Before eating or handling food and always after using the toilet, WASH YOUR HANDS;
- Unless certain of the purity of the local water supply, stick to boiled or bottled water and avoid ice in drinks. Alternatively, water can be disinfected with tablets or with a suitable filter;
- Dishes and cutlery *should* ideally be washed with disinfected water;
- Hot tea and coffee are usually safe;
- Ensure that milk has been pasteurized and that cheese, cream and ice cream are made from milk that has been pasteurized;
- Peel all fruit, eat only cooked vegetables and avoid salads;
- Ensure that seafood, fish and meat are thoroughly cooked and eaten hot whenever possible;
- Avoid leftovers and reheated food;
- Cook all meat thoroughly and eat it hot whenever possible;
- Keep your hepatitis vaccinations up to date.

Hepatitis is a potentially fatal liver disease, which can be contracted from contaminated food and drinks or from accidental contact with infected human faeces.

4.7 Potable water

When bunkering potable water the following *shall* be taken into account:

- The source of the water is reliable;
- The hose used is clean and flushed;
- The bunker valve is sealed after bunkering.

Water *shall* be bunkered solely in special assigned vessels tanks. Tanks *should* be opened up, emptied and inspected at intervals not exceeding 12 months for inspection and maintenance.
The maintenance of cargo potable water tanks *shall* be in the vessel planned maintenance system and periodically audited under ISM Code.

Minimum cleaning standards - *shall* include all of the following:

- Physically clean;
- Touch up coating as necessary;
- Fill tank with a solution of super chlorinated water at a concentration of 50 ppm chlorine and leave for a period of not less than 4 hours;

Certain operators have a requirement for this solution to be kept on board for 10 hours;

- Discharge tank completely;
- Flush out with clean potable water;
- Discharge tank completely;
- Fill with potable water;

All pumps and pipe work *should* be flushed through with the super chlorinated water and then with clean potable water prior to filling tanks.

Maintenance of Hoses Used for the Transfer of Cargo Potable Water
Only dedicated hoses *should* be used for the transfer of cargo potable water. When not in use, hoses *should* be stored in such a way to avoid contamination.

The quality of the water *should* be checked frequently. Fresh water generated onboard *should* be treated and checked as per the water plant manufacturers instructions.

A reasonably foreseeable risk of exposure to Legionella bacteria exists in hot and cold water systems. Risk areas for Legionella disease of these systems are located at water outlets where aerosol formation can exist during operation or when being maintained.

To reduce the possibility of creating conditions in which the risk from exposure to Legionella bacteria is increased, it is important to control the risk by introducing measures that do not allow proliferation of the organisms in the water system.

Proliferation of Legionella depends on the following risk-areas:

621

- Temperature: A temperature between 25 and 50 degrees Celsius (minimum temperature at the outlet of warm water system *shall* be at least 60 degrees Celsius);
- Period: A long stay period of water (stagnated) or still water in the system;
- Soil: The presence of a biological layer and sediment as medium for growing.

A simple risk assessment may show that the risks are low and in such case no further action *should* be necessary.

4.7.1 Identification and assessing sources of risk

Risk identification and assessment *shall* be done onboard.

MICROBIOLOGICAL AND CHEMICAL TEST REQUIREMENTS

Bacteriological Quality Guidance / Chemical Parameter

Required Test Limit
Enterococci 0 /100ml
E.coli 0 /100ml
Coliforms 0 /100ml
Hydrocarbons < 10 ppb
Chlorides <250 mgCl/l

Coliforms/ E.Coli / Enterococci
Legislation limit is 0 counts per 100ml.
These indicator organisms are used to assess the microbiological quality of water as reliable indicators are not available for many other pathogens. The use of the indicator bacteria, E.coli, Enterococci and coliforms, as a means of assessing the potential presence of water borne pathogens is paramount for checking water

quality and protecting public health. Frequent testing for these faecal indicators is still the most sensitive and specific way of assessing the quality of potable water.

Hydrocarbons
Test for hydrocarbons is conducted due to the potential for cross contamination with fuel and oil.

Chlorides
Legislative limits <250 mgCl/l.
Test for chlorides is conducted due to the potential for cross contamination with sea water.

Total Viable Count (TVC)
The original guideline for acceptable levels of bacterial contamination in mains/drinking water was laid down by the World Health Organisation (WHO) to be no more than 100 cfu/ml at 22°C and 10 cfu/ml at 37°C.
WHO now consider this to be an unrealistic restriction and suggests that the TVC trend is monitored for any abnormal change.
For an indication of the general condition of the water, a TVC at 22°C and 37°C check will be taken on each sample. The results should show **no abnormal change**.
In order to measure this, the results *should* be trended and analysed with reference to the historical levels achievable within that vessel, Company or area, depending on the information available.

Legionella
The danger of infection caused by Legionella bacteria is caused when it gains entry to the respiratory system. This can occur from water suspended in air in the form of a fine mist as created by showers or tap sprays.
Maintenance of cargo potable water tanks, pipe work, pumps and hoses as defined in these guidelines *should* control any contamination by Legionella in the water carried.
Should an operator require cargo potable water to be tested for Legionella the following test limit applies:
Test Limit
622 Legionella < 10^3 cfu/l (cfu = colony forming units).

If the level of alert is > 10^3 cfu/l, vessel will need to:

- Verify the origin of the deviation compared to the results obtained previously;
- Strengheting the hygienic measures and controls.

If the level of alert is > 10^4 cfu/l, the vessel will need to:

- Schedule a technical intervention to eliminate the risks: prohibite any risky situation (shower…);
- Implement immediate curative measures such as desinfectation, heat shock, etc…

4.7.2 Warm water installation

The temperature of the outlet at warm water systems *shall* be at least 60°C. The identification and assessing of the risk *should* focus on areas where this could not be reached.

Measures *should* be taken to improve the system (i.e. to increase the temp. setting of the boiler.) Or measures *should* be taken to control this risk (i.e. the system *shall* be heated up to 60ºC temperature for at least 20 minutes every week).

4.7.3 Cold water installation

The risk assessment in the cold water system *should* focus on areas where the water could be warmed up by external sources (i.e. engine room environmental temperature) in combination with proliferation and forming of a biological layer and/or sediment.

The temperature in the coldwater system *should* preferably be not more than 20ºC and not exceed 25ºC. In case the temperature exceeds 25ºC, measures *should* be taken by either to improve the system (i.e. insulation of pipes) or to implement controlling measures. The controlling measures *should* comply with the legislation.

Proliferation (stagnated or still water) is caused by (amongst others) stagnation of several weeks or still water in dead end lines. Stagnant water *should* be flushed every week. Dead end lines *should* be removed or properly separated from the system.

Where the assessment demonstrates that there is no reasonably foreseeable risk or that risks are insignificant and unlikely to increase, no further assessment or measures are necessary. However, *should* the situation change, the assessment *shall* be reviewed and any necessary changes implemented.

4.7.4 Improving the system

Where according to the assessment a Legionella risk may exist, the water system *should* be improved.

In case the system could not be improved the risk *should* be controlled.

The system *should* be improved i.e. remove dead ends.

623

Whenever (hot) taps are no longer required for use they *should* be removed and cut back to the recirculation loop.

The traditional approach to Legionella control is temperature control.

It is recommended that:

- Hot water *should* be stored at least 60°C and distributed so that it reaches this minimum temperature at the outlets;
- The release of water spray *should* be controlled;
- Water temperatures and conditions that favour the proliferation of Legionella bacteria and other micro-organism *should* be avoided;
- Water stagnation *should* be avoided;
- The use of materials that harbour bacteria and other micro-organism *should* be avoided, or provide nutrients for microbial growth;
- Maintain the cleanliness of the system and the water in it;
- Water treatment techniques *should* be used and ensure the correct and safe operation and maintenance of the water system.

Points for improvement *should* be recorded in respective form and to be dealt with according to the planning.

4.7.5 Risk area

Other significant risk findings of the assessment, which could not be improved, *should* be recorded in the Risk areas description.

Measures *should* be taken in compliance with this Risk control plan in order to deal with the controllable risks. The measures *should* be described in the Risk form.

The following items *should* be recorded:

- Description of the system;
- Plans or schematic drawings of the systems;
- A Risk assessment;
- Improvements for the system and planning;
- A written scheme of actions and control measures;
- Names and position of people responsible for carrying out the various tasks and details of precautionary measures that have been carried out, including sufficient detail to show that they were carried out correctly and the dates on which they were carried out;
- Remedial work required and carried out, and the date of completion.

A log detailing:

- Bunkering and disinfectant dosing;
- Temperature measurements at water heaters;
- Flushing programs for cabins and other tap points (temporarily) not in use;
- Exceptional activities like: Flushing, cleaning and disinfection; visits by contractors, consultants and other personnel; Sampling of water and the results of the chemical analysis;
- Maintenance and changes;
- The signature of the person carrying out the work or other form of authentication where appropriate;
- A description of the involved Legionella prevention jobs *should* be documented. Legionella prevention jobs *should* be included as part of the planned maintenance system.

624

4.7.6 Managing the risk

This plan is intended to be a written scheme for controlling the risk, which *should* be implemented and properly managed.

Precautions *should* be taken for other equipment and water systems, where appropriate, to avoid formation of aerosols, to avoid stagnant (still stand) water and to avoid water temperatures between 25 and 60 degrees Celsius. Other systems and equipment might be high pressure cleaners, windscreen washers, water hoses, etc.

4.7.7 Fresh Water treatment & sampling

In order to warrantee a certain bacterial harmlessness, it is necessary to maintain a residual free chlorine rate. This constant residual free chlorine rate, as thin as possible (0.1mg/l minimum, but 0.3 mg/l as recommended in fresh water tanks) allows to prevent potential growth of bacteriae.

Treatment of the Water with Free Chlorine (Calcium Hypochlorite HTH)
With a 68% level of free chlorine and a very low level of insoluble materials, the high purity of calcium hychlorite makes it to be a sustainable alternative to chlorine.
Moreover, the storage life of the product allows less frequent loadings. Indeed, a 65% level of free chlorine is warranted after a two-year storage period in normal storage conditions.
Its solid form makes it particularly easy to store, without specific installations or competences being required.
Its concentration at 5.4 times less than bleach allows to limit the site coverage of the storage and does not imply any retention.

The upheld packaging is the 450 g- bottle, whereby a volume of 300 m^3 of water can be treated at a level of chlorine of 1 ppm (1 mg/l).

The 450 g-bottle is equipped with an integrated measuring device, enable to adjust the treatment according both to the capacity of the tanks fonction and to the required chlorine quantity, so that a residual level of free chlorine in the treated water be maintained , thus ensuring its bacterial harmlessness.

When the product is operated, in the absence of mixture, a chlorine slot may be constituted. This slot will be dissolved by the pitching and rolling of the vessels. Thus, the level of chlorine inside the water must only be checked one hour after the product was operated and the body of water homogenized.



625

The order to be placed:

- 5 bottles of 450g each of HTH granular sanitizer product.
- 1 Chlorosense analyser referenced CS100.
- 1 Chlorosense electrodes referenced CS150.

The measurement of the free chlorine parameter will be performed using a CHLOROSENSE analyser, through severally packed electrochemical collectors, permits a precise and redundant measurement within 55 seconds.

4.7.7.1 Frequency of the analysis:

- Fresh water is to be daily analysed on board after being loaded and treated with the hth granular sanitizer product.
- Thereafter, the analysis are to be performed every three days if the parameter only evolve a little.

Fresh water tanks must be emptied,cleaned,disinfected and rinsed once a year, at least.

If the chloration is efficiently ensured, by maintaining a constant level of free chlorine, the risk of bacterial contamination will be extremely restrained.

The UV desynfection system on board of all vessels of your network will make the desinfinction more secure and reliable.

As far as warm water is concerned, the temperature of the circuit must constantly exceed 55°C, so that bacterial development is avoided (legionellas cannot stand temperature exceeding 50°C).

Fresh water analyses to be done ashore: (French Flag requirements)

- Fresh water test said 'R' for Routine is to be done every 6 months.
- Fresh water test said 'C' for Complementary is to be done every 2 years.
- At Vessel delivery : 'R' and 'C' tests.

For French flag vessels, details provided in division 215, article 215.1.26.

Samples for test 'C' :

- Total quantity of water has to be 4.5l: at least 500ml in 1 sterilised bottle, 2l must be in a glass bottle and 2l could be in a plastic bottle.
- Sample must be taken at 1 point: Galley.
- Results are valid if analysed within 48 hours after it has been taken.
- 1 method to get the sample within 48 hours is to disembark with the samples and send them from the airport to the relevant Laboratory. Eg. *Société des Eaux de Marseille*, address is SEM (laboratoire), Boulevard du Bassin, 13014 Marseille, France. ➔ Liaise with your Purchaser to obtain the Purchase Order (PO).

4.7.7.2 Water disinfectation

If any suspicion or potential contamination, disinfectation must be accomplished immediately by increasing the level of THT treatment and taking additional samples and retesting of the affected area(s) in a regular basis.
This operation should be repeated until satisfactory results are obtained and in adequation with the manufacturers instructions.
If the results are not satisfactory, tank cleaning will be requested by the vessel to the Shore base and the procedure *shall* be strictly followed-up.

626

4.8 Health and safety inspections

- The **Master** *shall* make weekly inspections throughout the vessels spaces and report the same in the official logbook;
- The **Master** *shall* ensure that the ships sanitation certificate *shall* be kept valid. All findings raised during a ship sanitation inspection *shall* be reported to the **Operations Manager**. The **Master** and **Operations Managers** *shall* ensure the findings are solved/corrected as soon as reasonably practicable;
- The **Safety Officer** *shall* organize a Health and Safety inspection (called "Hazard hunt") with crewmembers, on a monthly basis. Please refer to *B safe Hazard Observation and Hazard Hunt procedure* (BOS-PRD-03.900904).
- The report *should* be accompanied by photos, recorded in *Hazard Hunt Register*, and *shall* be presented to the **Master** of the vessel.

When the report is approved by the **Master** it *shall* be sent to the **Operations Manager**, indicating corrective action taken or corrective action planning.

4.9 Pest Control

Pest control must be a continuous task on board each vessel, aiming to fight against infestation at a preventing stage.
Inspection and care while opening containers, installation of rat guards at quay, organized food and garbage arrangements, cleanliness and many others are routine tasks aiming to prevent undesired animals on board *should* be applied.
If rats / mice are discovered or suspected on board, traps are certainly the most suitable method of destruction. If poison is suggested, it is necessary to verify first the human health impact of the products before its eventual use. Poisons that cause rapid rats/mice death are too dangerous to use in food premises.
But the most common, disturbing and hard to fight pest remain the cockroaches. Several means of disinfection of cockroaches exist, each one with positive and negative effects. However, the product the Company recommends is the Gel type, as it:

627

- provides a very effective effect
- allows localized "attacks"
- is harmless to human health
- is easy to use and to clean

The Company has listed several disinfection Gel makers. The vessel officers are therefore requested to contact their purchaser for further information and orders.
In any case, and this against any pest, the main Company objective is to keep major solutions (fumigation) as a last resort, which means only when the infestation in no longer controllable.
Prior any fumigation, the Master *should* inform his Operation Manager. Clear instructions shall be agreed with the service company carrying out the fumigation regarding the process and products that will be used.

Recommendations for the use of pesticides on board are available in the IMO Circular *"MSC.1/Circ.1358 Recommendations on the safe use of pesticides in ships",* annexed to the *SMS Section 9 – Safety Management.*

The vessel is required to hold a valid Derating certificate, issued by a competent authority upon onboard inspection. In some areas, this certificate is replaced by the general Ship Sanitation Certificate.

5 Records

- Official Logbook.
- Port State Art of Inspection records.
- Shipboard Safety Committee meetings.
- Ship Sanitation Inspection records (external documents).
- Planned Maintenance System.
- Hazard Hunt records.

6 Related documents

- B-GDL-03.0007 – OSM Guidelines.
- French Flag, division 215, article 215-1.26.
- E-Learning on the Collaborative Portal (Intranet).
- IMO Circular *"MSC.1/Circ.1358 Recommendations on the safe use of pesticides in ships".*
- BOS-INS-01.1203 - Fresh water treatment.
- BOS-FRM-03.0071- Hazard Hunt Register.
- Task Assistant ™
- BOS-FRM-0304.0002 – Hygiene Inspections (IN DRAFT).

7 Terms and definitions

628 N/A

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01- 11/03/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver. 03 – 03/12/2013	Adding on §3. Role and responsibility of the QHSES Manager. Adding on §4 1 requirements for the catering personnel Adding on §4.1.2 Access to galley, on §4.1.3 Emergency equipment in galley, on §4.2.1 Food delivery, on § 4.2.2 Food Storage and on § 4.7.7 Water disinfectation Adding title §1.2.3 Food preparation Adding information from Instruction 01-1203 Fresh water treatment on § 4.7.7 Adding §4.9 Pest Control
BOS QHSES Coordinator	BOS QHSES Manager		Ver.04 – 31/12/2014	Modified § 4.7.7.1 Frequency of the analysis. Reviewing § 4.8 Health and Safety Inspections. Adding related documents

Hazardous Substances

BOS-PRD-0304.900903-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Exposure to hazardous substances 5

4.2 Managing hazardous substances 5

4.3 Training 9

4.4 Legislation 9

5 Records 10

6 Related documents 10

7 Terms and definitions 10

8 Review, approval, revision and identification of changes 10

630

1 Purpose

Hazardous substances and dangerous goods are used widely within Company offices, facilities and onboard vessels, and the users may not be familiar with the hazards or the necessary safe working procedures.

Potential hazards include detrimental effects on the workers health, property and environment.

The purpose of this document is as an advisory text setting out general procedures for the safe use, handling and storage of hazardous substances. It is recognised that the ability of staff to identify, assess and control the use of hazardous substances and dangerous goods is limited to the specific knowledge, training and experience of the employee.

2 Scope

This procedure *shall* be applied onboard all Company vessels and facilities.

631

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under their command;
b) Ensuring the implementation of this procedure.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for Hazardous Substances are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

632

4 Description

4.1 Exposure to hazardous substances

Hazardous substances are used in many work places and take many different forms: solids, liquids, gases, mists and fumes can be present in the work place.

The route and rate of entry of hazardous substances into the body usually determines the degree of harmful effect. There are two types of effects of hazardous substances - immediate and long term. For the long-term effects, it can often be difficult to say when the problem actually began or where it was caused.

Hazardous substances may be:

- Absorbed – penetrate the skin, either through cuts or if they are fat solvents through intact skin;
- Ingested – into the body via the mouth, often as a result of poor standards of hygiene;
- Inhaled – through the respiratory system because the respiratory system is a very efficient method of transferring materials from the environment into the body.

Some hazardous substances cause health hazards from a single dose and others from an accumulation of smaller doses or from continuous exposure over long periods. The effects may be acute illness or a chronic long-term disease. Alternatively, it can be an immediate effect injury such as burns, loss of consciousness, coma and even fatality.

4.2 Storage of hazardous substances

633

4.2.1 General considerations

The importance of the proper storage of Hazardous Substances on board ship should not be underestimated. A wide variety of them, which are commonly used in the marine industry, can react violently together should the packaging become damaged or involved in a fire. The following points *should* be considered:

- **Storage areas** – such areas *should* be arranged so that in the event of a spillage or leakage the substance concerned is contained locally and does not react violently with any nearby substances or materials. The following routines *should* be undertaken :
    - retention trays placed under hazardous substances (the capacity of trays *should* be suitable for containing spillage) ;
    - absorbents available in storage areas to be used as fast as possible in case of leakage (absorbents are perishable products, check periodically expiring date). After using, aborbents *shall* be placed in appropriate receptacles.

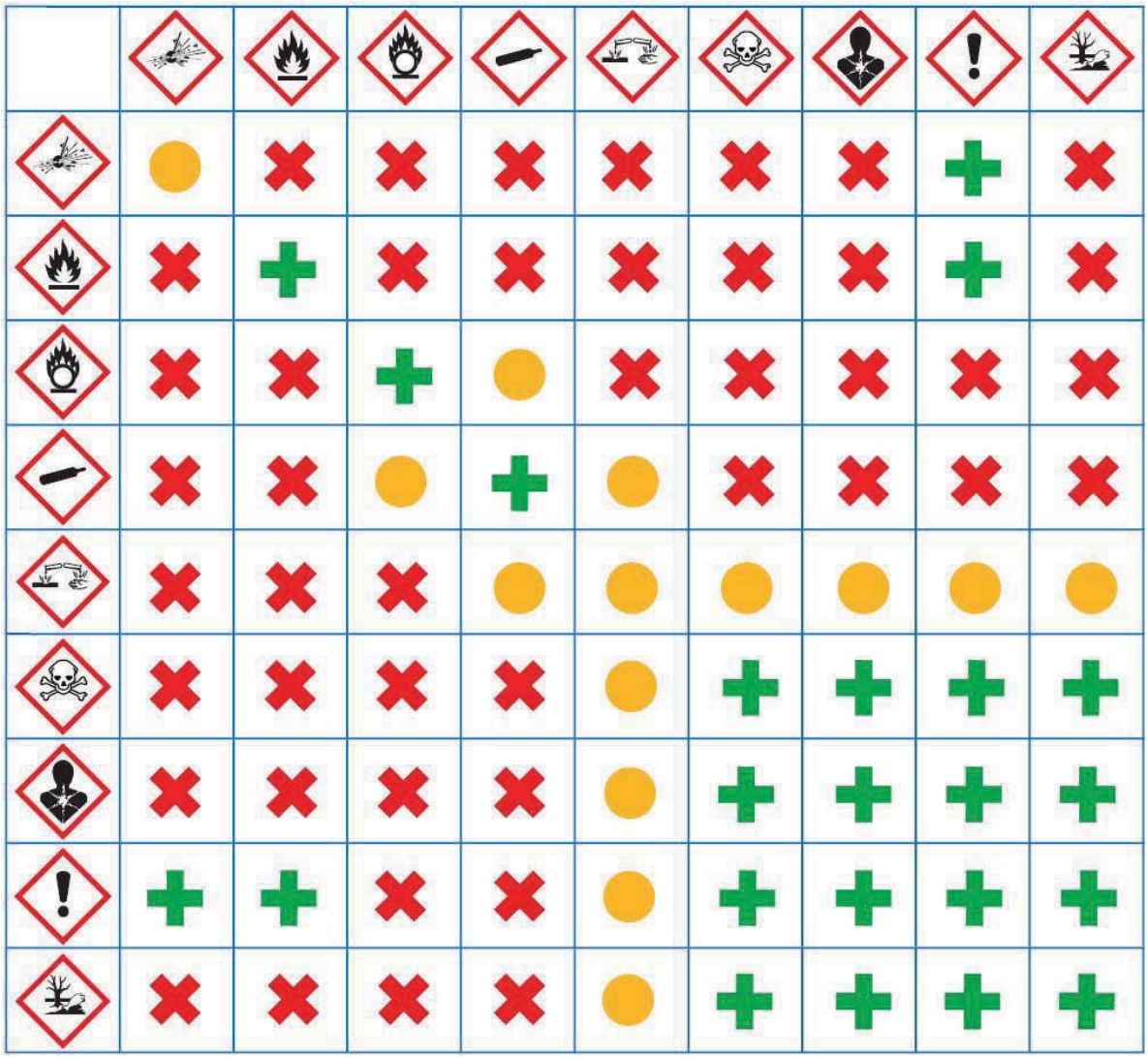
- **Segregation** – substances *shall* be stored as required in *§4.2.2 Hazardous Substances Segregation Table*. Flammable materials usually need to be stored away from other materials and protected from accidental ignition. Precautions for handling and storage contained in the Material Safety Data Sheets (MSDS) *shall* be respected. If substances have different pictograms, use the most restrictive storage requirement.

- **Safe stowage/Storage at height -** all stores *should* be securely stowed. If materials are stored at height (e.g. on shelving) make sure necessary guard rails are in place to stop items falling and, if the storage area is fitted with a fixed sprinkler system, ensure that the maximum stowage height limit is adhered to at all times.

- **Tidiness** - keep all storage areas tidy, whether in designated stores areas or at a workstation on board the ship;

4.2.2 Hazardous Substances Segregation Table

BOS-SPC-03.0006 – Hazardous Substances Segregation Table *shall* be displayed in every hazardous substances storage areas and understood by all crew members.



X : Substances cannot be stored together
O : Substances may be stored together under certain conditions
+ : Substances can be stored together

4.3 Managing hazardous substances

Step 1

Identifying Substances
Identify and list all substances, including mixtures, which are used, brought in and/or produced in location/activity, or to which employee are exposed at work.

Step 2

List

Consolidate the list and create a *Hazardous Substance Register* of all potentially hazardous substances on board. Consideration *should* also be given to substances arising from the work process (e.g. welding fumes or disturbance of insulation material), cargo back load, etc.

The *Hazardous Substance Register* *shall* contain the list of all hazardous substances and all relevant Material Safety Data Sheets (MSDS).

The list *should* contain:

- The product name;
- Quantity;
- Location;
- MSDS issue date, number and location;
- Potential hazards;
- Control methods.

Vessels *shall* create and maintain their own *Hazardous Substance Register* following this procedure.

Ensure all employees have ready access to the register for all the hazardous substances they use or to which they may be exposed.

Labels
The initial source of information for most users is the label on the container. Therefore it is vital that containers of hazardous substances are comprehensively labelled, showing the unique identification of the substance product name and general nature of the hazards (i.e. a dangerous goods class diamond or poisons cautionary statement.) **Any containers found in the work place or in the storage areas without labels *should* immediately be removed and correctly disposed of.**

MSDS
635
More detailed information on hazardous substances may be obtained in an appropriate format from MSDS supplied by the manufacturer, importer or supplier.

The MSDS *shall* provide information on:

- Product name;
- Physical description and properties;
- Uses;
- Composition;
- Health hazards;
- How to clean up if spilled;
- Correct first aid treatment;
- Handling storage;
- Exposure controls/PPE;
- Fire Fighting measures;
- Ecological information.

Employees *should* ensure that they have read and understood the contents of the products MSDS prior to handling/using the product. MSDS *should* be available at the storage location as well as in the register.

Step 3

Assess the Substance
When assessing the risks that may result from exposure to any substance it is necessary to determine if the substance is hazardous (i.e. does it present a hazard to the worker?) and what control methods may be required.

All factors in a risk assessment are interconnected. They *should* be considered in isolation and then for their combined effect.

The factors are:

- The risk associated with the hazard;
- The probability that exposure may occur;
- The exposure duration to a hazard (ranging from occasional to continuous contact with the hazard);
- The possible consequences that may result.

The assessment *should* include hazards posed by storage, handling, use and disposal of hazardous substances. Atmospheric monitoring is not routinely required for assessment, however it might be appropriate in certain circumstances to determine airborne concentrations.

Step 4

Evaluate the Level of Risk
When estimating the level of risk it is necessary to consider the following for each hazardous substances:

- The nature and severity of the hazard;
- The degree of exposure of persons in the work place;
- The existing control adequately measures control exposure.

The risk may then be identified as either High, Medium, or Low.

Low Risk
A risk may be regarded as low if the hazardous substance is already controlled or can be readily controlled in accordance with MSDS and there is not a significant risk to health.

Medium or High Risk
There is medium or high risk if:

- The severity of the acute and chronic health effects from exposure to the hazardous substances are significant;
- There is either no, or inadequate, control measures in place to protect employees from exposure;
- The level of exposure is high.

636

Control Measures
If the risk assessment indicates that there is exposure to a hazardous substance, the control or prevention of this exposure is necessary. When considering methods to control exposure, the aim is to remove the risk of exposure (i.e. remove the hazard). Where this is not possible, you must aim to reduce the exposure to As Low As Reasonable Practicable (ALARP.) It is important that all the ways chemicals may enter the body are taken into account. To do this a list of control method options *shall* be assessed.

Elimination
First, assess whether a hazardous substance can be eliminated. If practicable, eliminate the use of the hazardous substance by using an alternative method or product.

Substitution
Where elimination is not practicable, substitute with a less hazardous substance or use of the same substance in a less hazardous form or environment (increased ventilation, open area, etc.).

Isolation
If substitution is not practicable, it may be possible to isolate the worker from the hazardous process by distance or by the use of barriers.

Redesign (engineering) Controls
Engineering controls involve the use of plant or process which contain or minimize the generation of exposure to a hazardous substance, by suppression or containment of a hazardous substance, or by limiting the area of contamination in the event of spills or leaks (e.g. local exhaust ventilation or extraction system).

Administrative Controls
Administrative controls involve work practices which require people to work in safer ways. These include:

- Excluding those persons from work area who are not essential to the process, thereby reducing the number of employees exposed;

- Rotating shifts (worker) to reduce the period of exposure for employees;
- Providing means for safe storage and disposal of hazardous substances;
- Keeping lids on containers when not in use;
- House keeping (remove dust, etc);
- Emergency showers.

Personal Protective Equipment (PPE)
In many cases when working with hazardous substances it is a requirement to wear specialist/specific extra PPE beyond the Company basic working minimum PPE requirements. In such a case it is critical that the correct PPE is selected for the particular material (e.g. gloves and respirators do not have universal application). In addition to correct selection, PPE *shall* be available for use when required and *shall* be maintained in good condition. Where PPE is used, it is essential that employees are properly instructed in its use.

4.4 Training

For the information provided to be effective, training is necessary for all employees who may be exposed to chemicals or other hazardous substances in the work place. Taking into account the level of risk identified in the risk assessment, training *should* be adapted to meet the specific needs of staff that have been identified as requiring training as well as induction training for new employees.

When determining the level of training required for existing and new employees the following *should* be considered:

- The hazard associated with the hazardous substance to be used;
- The complexity of the work processes;
- Any controls, work practices and PPE which may be required to minimize the risks.

637

Existing and new employees need to be able to recognize and interpret information on any hazardous substances in the work place, therefore training programs *shall* incorporate the following:

- Labelling of containers of hazardous substances, an explanation of the information that each part of the label provides and why the information is being provided;
- How to access MSDS and the information that each part of the MSDS provides;
- Information about hazardous substances to which employees are or may be exposed in the course of their work;
- Work practice and procedures dealing with handling, use, storage, cleaning up and disposal;
- Measures used to control exposure:
  - Proper use of PPE;
  - Procedures to be followed in case of an emergency involving hazardous substances;
  - Incident reporting procedures.

4.5 Legislation

Company operations are worldwide and as such we *shall* comply with the relevant international and local codes and regulations associated with hazardous substances, dangerous goods and hazardous waste.

5 Records

- Hazardous Cargo Manifest
- Job Safety Analysis
- Permit To Work
- Hazardous Substance Register
- Material Safety Data Sheets

6 Related documents

- B-GDL-03.0007 – OSM Guidelines
- BOS-PLN-03.120201 – BOS Master Safety Document (=DUP)
- BOS-PLN-03.120202 – BOS Document Unique de Prévention (=MSD)
- BOS-SPC-03.0006 – Hazardous Substances Segregation Table

7 Terms and definitions

JSA
Job Safety Analysis

MSDS
638 Material Safety Data Sheet

PPE
Personal Protective Equipment

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01- 11/03/2013	-
BOS QHSES Manager	BOS QHSES Manager		Ver.03 – 03/12/2013	-
BOS Environmental Coordinator	BOS QHSES Manager		Ver 04 – 31/12/2014	Adding new §4.2 “Storage of hazardous substances” Update : §4.3 “Step 2 – Labels” about containers without labels in storage areas ; §6 – “Hazardous Substances Segregation Table”

SMS
Section 10

Environmental Management

639

BOS-MNL-03.901000-ver.04



Table of Contents

1 Introduction 3
1.1 Main Objective 3
1.2 Environmental Management 3
1.3 Sources of marine and atmospheric pollution 4
1.3.1 Marine pollution 4
1.3.2 Atmospheric pollution 4
1.3.3 Soil Pollution 4
2 Review, approval, revision and identification of changes 5
3 Related contents 5

640

1 Introduction

1.1 Main Objective

To develop a proactive approach to environmental management that includes identification of sources of marine atmospheric and soil pollution, and measures for the reduction of potential impacts, both onboard and ashore.

Protection of the environment is a fundamental requirement for all offshore operations.

1.2 Environmental Management

The Company *shall* establish and maintain procedures to limit the impact of their operations on the environment. These procedures *shall* include provisions for:

- The systematic identification and assessment of sources of marine and atmospheric pollution;
- Minimising adverse environmental impacts (fuel consumption, waste generation, pollutant emission, etc.);
- Ensuring the safe and responsible disposal of residual wastes;
- Contingency plans for dealing with potential pollution incidents;
- Reporting arrangements for all pollution incidents or near miss occurrences that could have resulted in pollution;
- Establishing reduction targets for all environmental impacts;
- Establishing requirements for ballast water management;

641

The Company *shall* establish and maintain procedures to limit the impact of their operations on the environment. These procedures *shall* include provisions for:

- The systematic identification and assessment of sources of marine and atmospheric pollution (e.g. waste, ballast water);
- Minimising adverse environmental impacts by establishing reduction targets for all environmental impacts (e.g fuel consumption, waste generation, pollutant emission, ~~etc~~.);
- Contingency plans for dealing with potential pollution incidents;
- Reporting arrangements for all pollution incidents or near miss occurrences that could have resulted in pollution;

The **Company** endeavours to meet the requirements of “ISO 14001”, a voluntary international standard through which environmental management systems are established, documented, implemented, maintained and continuously improved.

An Environmental Management System meeting the requirements of “ISO 14001” is a management tool enabling the Company to:

- Establish a formal framework for compliance with national, international regulations and customer expectations;
- Identify and control the environmental impact of its activities, products or services;
- Improve its environmental performance continually;
- Implement a systematic approach to setting environmental objectives and targets, to achieving these and to demonstrating that they have been achieved;
- Develop and implement procedures to measure the environmental impact of operations;

1.3 Sources of marine and atmospheric pollution

1.3.1 Marine pollution

The systematic identification and assessment of sources of marine pollution is carried out through the continuous monitoring, evaluation and assessment of all the records and reports associated with environmental issues: waste management, bilge water management, ballast water management, oil and hydrocarbon products, anti-fouling paint certificates. Incident reports and investigations, including near misses are studied. The data is carefully analysed to determine trends to ensure marine pollution are kept to an absolute minimum.

1.3.2 Atmospheric pollution

Vessels activities with fuel consumption or use of refrigerant contribute to atmospheric pollution by generating substances in the atmosphere such as Carbon Dioxide (CO2), Nitrogen Oxides (NOx), Sulphur Oxides (SOx), Carbon Monoxide (CO) or Particulate Matter (PM). This pollution *should* be monitored and reduced as much as possible:

On the operational side for energy efficient ship operation, the Ship Energy Efficient Management Plan (SEEMP) has been developed to assist the shipping industry in achieving cost-effective efficiency improvements in their operations.
The Company *shall* develop and use these tools to become as fuel and energy efficient as possible in order to reduce the atmospheric pollution from our operations.

642

Fuel consumption management is a high priority in order to comply with international environmental requirements and to support an ambitious CO2 reduction plan. The work starts in the ship design phase, with the energy efficient construction of the vessels' hull, propulsion systems and engines.
The second "IMO GHG Study 2009" indicated that a 20% reduction on a tonne per mile basis by mainly operational measures is possible and would be cost effective. The SEEMP *shall* assist the shipping industry in achieving this potential.

In 2013, the Company measured the carbon footprint of its activities, using the method of the "Bilan Carbone© from ADEME":

- This method will serve the goal in minimising CO_2 emissions on board vessels, but also at the Head Office.
- The measurement of GHG concerns direct and indirect emissions that is to say the following will be taken into account:
    - Consumption of fuel and all other kind of energy (electricity, etc.);
    - Leakage of refrigerant from refrigerated units;
    - Personnel travelling;
    - Purchases and transport of goods;
    - Waste processing;
    - Capital asset of buildings;
    - Etc.

1.3.3 Soil Pollution

The impacts on soil from Bourbon activities include:

- The discharge of vessels garbage, waste and sludge on shore. Countries where BOURBON operates do not always have reception facilities in order to handle them.
- The production of garbage, waste or sludge, the use of chemicals and emissions of pollutant during drydock operations.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	Bos Quality Representative	Rev.01➔ 11/03/2013	Update §1.3.1 ; §1.3.2 ; §1.3.3
BOS Quality Coordinator & BOS Senior QHSE Coordinator	BOS QHSES Manager		Ver.03➔ 03/12/2013	Update of §1.1 ; §1.2. Adding §1.3.3 " soil pollution"
BOS Environmental Coordinator	BOS QHSES Manager		Ver.04 -> 31/12/2014	Reviewing §1.2 and §1.3 Deleting § 1.3.4 Reducing greenhouse gas emissions.

3 Related contents

1. BOS-PRD-0303.901001 – Environmental Management (SMS Section 10)
2. BOS-PRD-07.901001 – Fuel Consumption Reporting (SMS Section 10)

643

Environmental Management

644

BOS-PRD-0303.901001-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Management of Anti-Fouling System 5

4.2 Fuel Management 5

4.3 Garbage management 5

4.3.1 Garbage collection 6

4.3.2 Disposal into the sea 8

4.3.3 Disposal ashore 10

4.3.4 Incineration 10

4.4 Training and information for shipboard personnel 11

4.5 Bilge water management 11

4.6 Ballast water management 12

4.6.1 Uptake of water ballast in harbour 13

4.6.2 Removing ballast sediment 13

4.6.3 Exchange of water ballast in open seas 13

4.7 Sewage treatment and discharge 13

4.8 Refrigerant 14

4.9 Oils and Hydrocarbon products 14

4.10 Shipboard Oil/Marine Pollution Emergency Plan (SOPEP/SMPEP) 15

4.11 Reporting and record keeping 15

4.11.1 Record Books 15

4.11.2 Waste Delivery Receipt 17

4.11.3 Reporting inadequacies of port reception facilities 17

4.11.4 Pollution incident reporting 18

4.12 Regulatory monitoring 18

4.13 Continuous improvement 18

5 Records 19

6 Related documents 19

7 Terms and definitions 20

8 Review, approval, revision and identification of changes 21

645

1 Purpose

The **Company** *shall* ensure that an environmental management process is implemented on board **Vessels** and at the **Head Office**. The **Head Office** ensures first that environmental regulations are applied and follows regulatory evolutions.
In a will to improve continuously and to answer requirements more stringent than regulations, **Head Office** implements actions and installs equipments for measuring and reducing environmental impacts from both **Vessel** and **Head Office**.
The latter mainly concern:

- Energy consumption;
- Air pollution;
- Water pollution;
- Waste management.

2 Scope

This procedure is applicable to all **Supply** and **Surfer vessels** under the operational control of BOS Affiliate, unless otherwise specified.

Some of the requirements come from **MARPOL code** and thus do not apply to all vessels:

Appendix	**Applicability**
Appendix I Prevention of pollution by oil	Applicable for all vessels, considering they are not oil tankers. However, some regulations for oil tankers are applicable to vessels carrying oil in bulk of an aggregate capacity which is equal or more than 200 m^3
Appendix II Control of pollution by noxious liquid substances in bulk	Applicable to vessels carrying noxious liquid substances in bulk.
Appendix III Prevention of pollution by harmful substances carried by sea in packaged form	Applicable to vessels carrying harmful substances in packaged form.
Appendix IV Prevention of pollution by sewage from ship	Applicable to vessels equal or above 400 UMS and vessels certified carrying more than 15 persons.
Appendix V Prevention of pollution by garbage from ships	Apply to all vessels unless otherwise specified.
Appendix VI Prevention of air pollution from ships	Apply to all vessels unless otherwise specified.

646

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

QHSES Manager has the responsibility, authority and accountability for:

a) Ensuring the implementation and application of this procedure in the Company.

Master has the responsibility, authority and accountability for:

a) Ensuring the implementation and application of this procedure onboard the vessel under his/her command.
b) Approving exchange of ballast water.
c) Updating the *Vessel Record Book* as for example *garbage record book* and *oil record book*.
d) Signing each page of the *Garbage Record Book* and of the *Oil Record Book*.
e) Checking the monitoring of the ballasting water management and all documents available to identify compliance of the company procedure.

Chief Engineer has the responsibility, authority and accountability for:

a) Checking leakage on the refrigerant system every week.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for environmental management are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for: 647

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

Regulatory Compliance Coordinator has the responsibility, authority and accountability for:

a) Keeping himself/ herself informed about all new environmental regulations applicable to BOS fleet.
b) Transmitting all information about regulations to all employee concerned.

Bridge Watch Officer has the responsibility, authority and accountability for:

a) Granting permission for disposal of garbage into the sea.
b) Checking and recording the vessel's position, weather conditions and the type of waste material to be incinerated, when incineration is allowed.

Chief Officer has the responsibility, authority and accountability for:

a) Taking over ballast water and ballast operations, in conjunction with **Chief Engineer.**

4 Description

Management objectives

The target is zero accidental environment releases (pollution) and a continual reduction in environmental impacts.

4.1 Management of Anti-Fouling System

Bourbon Offshore Surf is committed to respecting the International Convention on the Control of Harmful Anti-Fouling Systems (AFS) on Ships.

Organotin compounds which act as biocides in AFS *shall* not be (re)applied on its ships, supplies and surfers.
Each BOS vessel(s) has been delivered an *International Anti-Fouling System Certificate* certifying that:

- Either an AFS controlled under related convention and regulation has not been applied during or after construction of ship;
- Or an AFS controlled under related convention and regulation has been applied on ship previously but removed during drydock.

648 These certificates are available on board and maintained updated by the ashore service in charge.

4.2 Fuel Management

During the vessels' lifetime, a number of operational strategies *shall* be applied to achieve fuel savings. These are referenced in the Vessels SEEMPs, a mandatory document for every vessel since 1st January, 2013. These conditions the issuance of an IEEC (International Energy Efficiency Certificate) during the annual survey.

All vessels *shall* report on a daily basis their fuel consumption via the *Operational Data Application* (ODA) if the application is installed onboard. Otherwise they *shall* use *Environmental Monthly Report* (refer to the SMS procedure *BOS-PDR-07.901001 – Fuel Consumption Reporting).*

- Optimised voyage planning *should* be used to identify the most fuel efficient route and a "just in time" steady running strategy is applied to keep the engine load at a minimum;
- Weather routing *should* be considered when planning the voyage;
- Minimum safe ballast *should* be carried to ensure enabling fuel consumption optimisation at high safety standards;
- Hull and propeller maintenance *should* be conducted.

4.3 Garbage management

Each vessel *shall* establish a *Garbage Management Plan* in compliance with "Annex V of MARPOL 73/78, amended by MEPC 201 (62)".

Whilst these procedures are applicable to Company vessels exceeding 100 Gross Registered Tons (GRT), **all vessels**, irrespective of tonnage *shall* adopt and follow these procedures as far as possible in the interests of environmental protection and best practice.

Methods of collection and storage can be divided into two groups; the disposal of waste onshore and the processing of waste onboard.

Appropriate onboard procedures *shall* be developed and followed for each situation (type of vessel, number of passengers onboard, type of navigation).

All garbage *shall* be handled according to instructions given in the Garbage Management Plan.

The discharge of waste at sea when authorised, or otherwise in port, *shall* be logged in the *Garbage Record Book*.

A person or persons *shall* be designated as responsible for collecting waste and maintaining equipment in each department (deck, engine, and galley).

Waste disposal into the sea can only be done after the **Bridge Watch Officer** has been informed and has granted permission.

The **Bridge Watch Officer** *shall* only grant permission after ensuring that overboard disposal is legal with regard to the position of the vessel and type of waste.

When discharge from any processing equipment into the sea is planned, the vessel position during discharge is to be verified and recorded as required

As per Company's environmental policy, the vessel *shall* take appropriate actions in order to reduce waste onboard. Thus all vessels *shall* specify in ODA or in the *Environmental Monthly Report* the amount of waste generated classified by category. This allows the implementation of a policy of waste reduction by the Company.

649

4.3.1 Garbage collection

Collection of waste pending offloading *shall* take into account local conditions. The procedures *shall* be adapted to the reception facilities available onshore.

Some countries have special sanitary regulations and may require special disposal methods; for example incineration or sterilisation of food waste and associated packing materials in order to prevent risk of disease. Waste materials *shall* be segregated and collected using containers that are easy to handle and maintain.

As per MEPC 201(62), the garbage is now defined in 9 categories:

A. Plastics;
B. Food wastes;
C. Domestic Wastes;
D. Cooking Oil;
E. Incinerator ashes;
F. Operational wastes;
G. Cargo Residues;
H. Animal Carcass(es);
I. Fishing Gear.

The containers *shall* be colour coded for the content as following (associated with the corresponding new garbage categories):

- **Red**: Plastics → **Category A**,
- **Yellow**: Dunnage, lining and packing material → **Part of Category F**,
- **Blue**: Rags, paper, glass, bottles, metal → **Category C**,
- **Green:** Food → **Categories B**,
- **Black**: Special waste such as chemicals, batteries → **Part of Category F**,

Moreover,

- when discharging Cooking Oil into the Sludge Oil Tank, the quantity of Cooking Oil *shall* be estimated as Garbage of **Category D**.
- the Incinerator Tank *shall* be used for Incinerator Ashes → **Category E.**

Categories G, H & I are not applicable to our Vessels fleet. In particular, fishing on board, even during leisure time, is forbidden.

Waste bins *shall* be placed in sufficient numbers, in strategic locations, emptied daily by a person designated for each vessel department (deck, engine and galley) and the waste stored in segregated containers according to whether final disposal is to take place onboard or onshore.

For more precision on waste categories, refer to the *Garbage Management Plan*.

4.3.1.1 Plastics – [RED]

Plastic waste material *shall* be collected and stored onboard in containers colour coded **[red]** pending offloading onshore. This includes all materials containing plastic including synthetic mooring ropes, fishing lines, trash bags. If the waste is made of several materials including plastic, it *shall* be handled as a plastic waste material.

To reduce the volume, under certain conditions, plastic trash can be burned before storage.

It is illegal for any vessel to dump plastic trash anywhere in the sea.

650

4.3.1.2 Dunnage, lining and packing materials that float – [YELLOW]

Wooden material *shall* be collected and stored in containers colour coded **[yellow.]**

As per revised "MARPOL Annex V (resolution MEPC.201(62))", it is now illegal for any vessel to discharge dunnage, lining and packing material anywhere in the sea.

Wood material can be burned onboard.

4.3.1.3 Rags, paper, glass, bottles, metal – [BLUE]

Rags, paper, glass, bottles and metal *shall* be collected and stored in containers colour coded **[blue.]**

These materials can be burned onboard.

As per revised "MARPOL Annex V (resolution MEPC.201(62))", it is now illegal for any vessel to discharge rags, paper, glass, bottles and metal anywhere in the sea.

4.3.1.4 Food waste – [GREEN]

Food waste *shall* be collected in dedicated containers colour coded **[green.]**

If the waste has been compacted or ground to a size no larger than 25 mm, discharge into the sea is allowed at a distance of more than 3 miles from the shore outside special areas and more than 12 miles from shore inside special areas. Discharge of compacted or grounded food waste is allowed within 500 m of offshore installations, providing the distance from the nearest land is above 12 miles.

If food waste is not suitably compacted or ground, discharge is allowed only at a distance of more than 12 miles from nearest land.

Discharging is now forbidden in special areas and within 500 m of offshore installations.

Although permitted outside of 500m, discharging anywhere close to an offshore installation is **NOT** recommended.

4.3.1.5 Special refuse – [BLACK]

Special refuse *shall* be collected in containers colour coded **[black.]** It requires special handling or processing.

Special refuse *shall* be disposed of onshore in compliance with locally prevailing regulations.

Disposal anywhere in the sea is prohibited.

4.3.1.6 Special/dangerous waste

Special Waste or Dangerous Waste is waste that may harm the environment or be a danger to humans or animal life. Its disposal is normally covered by separate national legislation.

Typical categories of special waste include the following:

- Batteries;
- Light tubes;
- Residue of painting and solvents;
- Medical waste including syringes;
- Chemicals and corrosive substances;
- Oily waste, sludge, cargo residuals and residuals from tank cleaning;
- Aerosol spray cans.

651

This type of waste *shall* be delivered to an approved waste company (check with local shore base/agent) and the discharge documented in a declaration note for special and dangerous waste (check with local waste company). It *shall* NOT be discharged with the garbage.

Special or dangerous waste *shall* be segregated and stored in suitable containers. **The containers and items *shall* be labelled with reference to the declaration note.**

A copy of the declaration note for special and dangerous waste is to be filed onboard for 1 year (Company requirement) **according to the *Vessel Filing System.***

4.3.2 Disposal into the sea

It is mandatory to contact the bridge and obtain permission before discharging any waste overboard.

Floating waste *shall* be discharged in limited amounts at more than 25 miles offshore in respect to prevent the potential for washing ashore.

Food waste *shall* be ground to a particulate size no larger than 25 mm.

Plastic bags used for waste collection *shall* be recovered and disposed of in containers dedicated to collection of plastic waste; they *shall* NOT be discharged into the sea.

4.3.2.1 Waste disposal – table

Garbage Type	All ships except Offshore platforms (3)		Offshore Platforms (3)
	Outside Special Areas	Inside Special Areas (2)	
Hazardous Material	Disposal prohibited		
Plastics – Includes synthetic ropes and fishing nets and plastic garbage bags			
Incinerator Ashes			
Floating dunnage, lining and packing materials			
Paper, rags, glass, metal, bottles, crockery and similar refuse			
All other garbage including paper, rags, glass, etc. comminuted or ground (1)			
Food waste not comminuted or ground (1)	>12 miles		
Food waste comminuted or ground (1)	> 3 miles	> 12 miles	> 12 miles
Cleaning agents and additives (5) contained in deck and external surfaces wash water	Discharge permitted	Discharge permitted	Disposal prohibited
Mixed refuse types	(4)	(4)	(4)

(1) Comminuted or ground garbage must be able to pass through a screen with mesh size no larger than 25 mm.

(2) Garbage disposal regulations for Special Areas *shall* take effect in accordance with "Regulation 5(4) b of Annex V".

652

(3) Offshore Platforms and associated ships include all fixed or floating platforms engaged in exploration or exploitation of sea-bed mineral resources, and all ships alongside or within 500 m of such platforms.

(4) When garbage is mixed with other harmful substances having different disposal or discharge requirements, the more stringent disposal requirements *shall* be apply.

(5) These substances must not be harmful to the marine environment.

Oceanographic, ecological and local traffic conditions and special provisions *shall* be taken into account prior to discharging any waste products.

Special zones have been adopted concerning waste disposal at sea in several geographic zones.

These special areas, defined in “resolution 5 of MARPOL annex V” are as follows:

- The Mediterranean Sea;
- The Baltic Sea;
- The Black Sea;
- The Red Sea;
- The Gulf Area;
- The North Sea;
- The Antarctic Zone;
- The Wider Caribbean Region including the Gulf of Mexico and the Caribbean Sea.

Offloading of waste at sea *shall* be recorded in the *Garbage Record Book*.

4.3.3 Disposal ashore

Waste destined for disposal ashore may require prolonged retention on board. It *shall* be kept in dedicated colour coded containers of sufficient capacity. Special attention *shall* be paid to health regulations if prolonged retention of food waste is necessary.

Port State requirements (as existing) *shall* apply for waste handling and discharge.

Containers *shall* be weatherproof and easy to handle for transfer to shore.

Containers *shall* be positioned so that transfer of waste collected from containers is as easy as possible without adverse effect on shipboard safety or hygiene.

When garbage is to be discharged ashore, arrangements are to be made as applicable to ensure that disposal *shall* be through a reputable Company. 653

In ports where the disposal facilities are a part of the harbour service, the **Master** *shall* ensure that the vessel is allowed to use the amenities.

Offloading of waste *shall* be conducted using proper safety precautions to avoid any risk of pollution.

Offloading of waste ashore *shall* be recorded in the *Garbage Record Book*.

After each garbage offloading operation, the operator of the reception facility *shall* provide a document (receipt or certificate) specifying the amount of garbage transferred. In many developing countries, such a certificate is not available. In such cases, the vessel *shall* provide *the Waste Delivery Receipt* included in the *Vessel Filing System*.

Waste is to be delivered ashore to an approved reception facility. In case of inadequacy of port reception facilities, refer to *§* *4.11.3-Reporting inadequacies of port reception facilities*.

After transfer, empty shipboard storage containers *shall* be cleaned and if necessary disinfected.

4.3.4 Incineration

Incineration *shall* be carried out in compliance with prevailing health and safety regulations (use of personal protection equipment and the provision of extinguishing equipment *shall* be arranged and complied with).

Local or regional requirements for using the incinerator in special areas or harbour areas *shall* be checked and approval verified.

For vessels equipped with an approved type incinerator, the following wastes may be burned:

- General garbage (food, paper, cardboard, plastic, wood);
- Medical waste;
- Oil filters, oily rags, clothes, rubber;
- Sludge oil, waste oil;
- Paint scrapings.

The following wastes *shall not* be burned in an incinerator:

- Residues of cargos (defined in "MARPOL Annex 1, 2 & 3") or related contaminated packing materials;
- Polychlorinated biphenyls (PCBs);
- Garbage (defined in "Annex V") containing more than traces of heavy metals;
- Refined petroleum products containing halogen compounds;
- Sewage sludge and sludge oil either of which is not generated on board the ship;
- Exhaust gas cleaning system residues;
- PVCs (except for incinerators with IMO Type Approval Certificates).

It is mandatory to contact the bridge to obtain permission before carry out any incineration. Before giving permission the **Bridge Watch Officer** *shall* check and record the vessel's position, weather conditions and the type of waste material to be incinerated.

Incineration operations involving plastics can generate toxic gases depending on composition and combustion conditions.

Ashes may contain pieces of metal or toxic substances and *shall not* be discharged into the sea. The resulting ash from any incinerated plastic *shall* be delivered ashore.

654

The use of the incinerator is to be logged in the *Garbage Record Book* for incinerated general waste and in the *Oil Record Book* for any incinerated sludge or waste oil.

4.4 Training and information for shipboard personnel

The waste disposal plan *shall* be presented as part of the vessel familiarisation for newly embarking shipboard personnel.

Placards informing crewmembers and passengers on the requirements for waste disposal inside and outside special areas *shall* be posted in conspicuous locations.

Placards *shall* be printed in the language(s) understood by crewmembers.

Shipboard personnel *shall* be instructed in and be familiar with the waste colour code system onboard.

Assessment and verification of this awareness *shall* be periodically conducted.

4.5 Bilge water management

All bilge water *shall* be passed through an approved bilge water separator equipped with a 15-ppm sensor.

This equipment is a non-automatic discharge device so it *should* be operated manually.

Discharge is only to take place while vessel is underway and making way on passage.

The **engineer in charge** *shall* inform the bridge and request acknowledgement of the **Officer on watch** before starting the 15 ppm separator, and request vessel position and speed (the vessel must be underway).

The sludge/oil which is separated out *shall* be returned to the sludge tank. The sludge is then to be delivered ashore to an approved reception facility or burned in an incinerator.
In case of discharge in facilities, a *Waste Delivery Receipt* *shall* be issued.
In case of inadequacy of port reception facilities, refer to *§4.11.3-Reporting inadequacies of port reception facilities*.

Unless special disposition is agreed with the charterers for on-site treatment, vessel's used oil and water/sludge from the 15 ppm separator *shall* be discharged into appropriate receptacles.

Bilge water from a cargo pump room is **NEVER** to be discharged to the sea.

Bilge water is **NOT** to be mixed with any oily residues.

All records of discharges and transfers of bilge water and waste oil *shall* be recorded in the *Oil Record Book*.
It is the responsibility of the **Master** to ensure that this *Record Book* is updated.

4.6 Ballast water management

The **Chief Officer**, in conjunction and consultation with the **Chief Engineer** is responsible for ballast operations.
Monitoring of the ballast water management should include confirmation that the vessel complies with requirements of the procedure, such as port restrictions and shipboard limits including stress and stability, maximum tanks capacities and loading rates.

The standard format for a Ballast Water Management Plan is contained in the Appendix to "MEPC 127(53) Guidelines for Ballast Water Management and Development of Ballast Water Management Plans". The Appendix states that 'the plan *should* be specific to each vessel'. The format includes the following: 655

- Introduction;
- Ship Particulars;
- Index;
- Purpose;
- Plans/Drawings of the Ballast System;
- Description of the Ballast System;
- Ballast Water Sampling Points;
- Operation of the Ballast Water Management System;
- Safety Procedures for the ship and the crew;
- Operational or safety restrictions;
- Description of the method(s) used on board for ballast water;
- Management and sediment control;
- Procedures for the disposal of sediments;
- Method of Communications;
- Duties of the Ballast Water Management Officer;
- Recording Requirements;
- Crew Training and familiarisation;
- Exemptions;
- Approving Authority.

The Company *shall* develop and establish if applicable a Water Ballast Management Plan adapted for each type of vessel in accordance with the "Resolution MEPC 127(53)".
The document *BOS-PLN-0303.0002 – Ballast Water Management Plan – IN DRAFT, when put in place shall* be used as a starting point for establishing the Vessel-specific Ballast Water Management Plan.

For Clean Class vessels, the *Water Ballast Management Plan* *shall* contain information on local requirements.

If required by the arriving harbour authorities, a *ballast water report* *shall* be prepared.

As part of the voyage planning it *shall* be established if any national or local quarantine requirements for ballast water management apply.

The quarantine office for the arriving port *shall* decide the need for ballast water exchange.

4.6.1 Uptake of water ballast in harbour

Before the uptake of water ballast in harbour, information on water conditions *shall* be obtained from local port officials.

The risk of spreading harmful organisms can be reduced by avoiding uptake of water ballast (whenever possible) in areas and situations such as the following:

- Very shallow water;
- Areas where toxic algal blooms are occurring;
- The water is stirred up by propellers, dredging or natural conditions;
- Close to sewage outlets;
- There is a known outbreak of cholera;
- In darkness, when bottom dwelling organisms rise up in the water.

4.6.2 Removing ballast sediment

Routine cleaning of the ballast tanks to remove sediments *shall* be carried out in strict compliance with the applicable *JSA* in port or dry dock.

Records *shall* be maintained of all tank cleaning activities.

656

4.6.3 Exchange of water ballast in open seas

IMO/MARPOL requirements for ballast water exchange are that at least 95% of the ballast water volume *shall* be/or pumping through three times the volume of each ballast water tank.

Exchange of ballast water *shall* never threaten the stability or any other safety consideration of the vessel and any exchange of ballast water *shall* be approved by the **Master**.

A *Ballast Water Record Book* *shall* be kept updated for intercontinental voyages where local ballast water requirements may exist.

If exchange of water ballast in open seas is necessary, it *shall* only be performed in areas where exchange is permitted. The following information *shall* be included in the passage plan:

- Time needed to complete the exchange;
- Deep waters > 200 m (some port states require more than 2000m depth);
- As far as possible from shore (including islands) > 200 nm;
- Favourable weather statistics/weather forecast;
- Any additional local requirements.

4.7 Sewage treatment and discharge

The sewage corresponds to the following wastewaters:

- The drainage and other wastes from any form of toilets and urinals;
- The drainage from medical premises (dispensary, sick bay, etc.) via wash basins, wash tubs and scuppers located in such premises;
- The other wastewaters when mixed with the drainages defined above.

Every vessel exceeding 400 Gross Registered Tons (GRT) or carrying more than 15 persons *shall* have a sewage system on board, recognized by the Class Society, in accordance with "Annex IV of MARPOL Convention".

Discharge of sewage into the sea is **forbidden**, however:

- Discharge of sewage which is not macerated and disinfected above 12 nautical miles is authorized.
- Discharge of macerated and disinfected sewage above 3 nautical miles is authorized if the vessel is equipped with a sewage comminuting and disinfecting system approved by the Administration.
- Discharge of sewage is authorized below 3 nautical miles when all the following requirements are respected:
    - the ship has in operation an approved sewage treatment plant which has been certified by the Administration to meet the operational requirements of "MEPC.2(VI) or resolution MEPC.159(55)".
    - the test results of the plant are laid down in the ship's "International Sewage Pollution Prevention Certificate".
    - the effluent *shall* not produce visible floating solids nor cause discoloration of the surrounding water.

In any other case, sewage *shall* be discharged into appropriate reception facilities and a *Waste Delivery Receipt* *shall* be issued. In case of inadequacy of port reception facilities, refer to *§ 4.11.3-Reporting inadequacies of port reception facilities*.

4.8 Refrigerant

The refrigerant systems and related parameters *shall* be checked periodically to detect potential leakages of substances. The personnel responsible for these checks are to be assigned by the **Chief Engineer.** In case of leakage, it *shall* be repaired and duly reported in the Computerised Maintenance Management System. 657

Refrigerant *shall* be handled with care and *shall not* be emitted to the atmosphere.

In accordance with "MARPOL Annex VI", **if the Supplement to the "International Air Pollution Prevention (IAPP) Certificate" of a ship of 400 gross tonnage and above mentions systems containing Ozone-Depleting Substances used on board**, the vessel *shall* establish a list of these equipment and maintain *the Ozone Depleting Substances Record Book* for these equipment.

The substances and equipment containing such substances *shall* be delivered to appropriate reception facilities when removed from ships. A *Waste Delivery Receipt* *shall* be issued when equipment containing such substances is discharged in reception facilities.

4.9 Oils and Hydrocarbon products

Loading and discharging hydrocarbon products including fuel oil, base oil and oil-base mud are subject to full pre-task planning, including risk assessment and checklist use prior to starting the operation. Refer to the SMS procedures *BOS-PRD.07.900602 – Cargo Operations*, *BOS-PRD-03.900601 – Cargo and Hazardous Materials*, *BOS-PRD-07.900603 – Bunkering Operations* and related *G-JSA* and *Checklist* for more details.

Samples of oil products have to be withdrawn before any transfer inside or outside the vessel. Samples and analysis results supplied with samples *shall* be kept on board (especially sulfur level).

It is the responsibility of the **Master** to ensure that the *Oil Record Book* is updated.

Any minor spillage *shall* be immediately cleaned up using onboard spill clean-up equipment.
Larger spillage on deck or into the water *shall* be attended to as described in the vessel's *Shipboard Oil/Marine Pollution Emergency Plan* (SOPEP/SMPEP).

4.10 Shipboard Oil/Marine Pollution Emergency Plan (SOPEP/SMPEP)

In compliance with "MARPOL Annex I, Regulation 37 & MARPOL, Annex II, Regulation 17":

- Each vessel exceeding 400 Gross Registered Tons (GRT) *shall* develop a *Shipboard Oil Pollution Emergency Plan*, at the time of delivery.
- Each vessel exceeding 150 Gross Registered Tons (GRT) and carrying noxious liquid substances in bulk *shall* develop a *Shipboard Marine Pollution Emergency Plan*, at the time of delivery.
- If the vessel *shall* have the two types of plans, he may have only one plan combining the two. In this case, the document *shall* be untitled *Shipboard Marine Pollution Emergency Plan*.

All SOPEP/SMPEP *shall* be approved by the Flag Administration.

The purpose of the SOPEP/SMPEP is to establish a contingency plan to guide the crew in responding effectively in the event of pollution caused by the vessel.

The **Master** and crew *shall* consider the SOPEP/SMPEP as a practical guide for environmental protection.

The SOPEP/SMPEP includes a list of shore-based contacts to be notified for coordination of pollution control response.

The SOPEP/SMPEP references the specific pollution emergency plan of the country where the vessel is operating.

For more details on Pollution Emergency, refer to the SMS procedure *BOS-PDR-0301.901101 – Emergency and Contingency.*

658

4.11 Reporting and record keeping

4.11.1 Record Books

The following Record Books *shall* be considered as official vessel documents and *shall* be presented at each inspection and kept on board for a period defined bellow:

COMPLETED RECORD BOOK	ARCHIVING DURATION FOR
Oil Record Book	3 years after last entry made.
Garbage Record Book	2 years after last entry made.
Ballast Water Record Book	
Only if applicable : Ozone-Depleting Substances Record Book	

Each entry in these *Record Books shall* be signed by the person in charge.
Each page of these *Record Books shall* be signed by the **Master**.

Garbage Record Book:
Entries *shall* be made on each of the following occasions, when garbage is:

- discharged at sea;
- discharged ashore;
- discharged to another ship or to an offshore facility;
- incinerated.

In the event of discharge, escape or accidental loss of garbage, an entry shall be made in the *Garbage Record Book* of the circumstances of, and the reasons, for the loss. This is ***ONLY*** applicable when disposal

of waste is necessary for the purpose of securing the safety of a ship and those on board or saving life at sea or in case of damage to a ship or its equipment provided all reasonable precautions have been taken to prevent or minimize the escape.

Each entry *shall* include the following details:

- Date of discharge;
- Time of the beginning and end of discharge;
- Position of the vessel;
- Category of garbage;
- Estimated amount of each waste material discharged;
- Name of port where discharge took place;
- Name of vessel or offshore facility (if applicable).

Oil Record Book:

- The operations *shall* be recorded in chronological order as they have been executed on board;
- The dates *shall* be entered in day month and year format (dd-mm-yy); for example 23-10-14 (23rd October 2014);
- Quantity of bilge water discharged, transferred or disposed and **quantity in tanks at start and at end**, *shall* be recorded, including when using the 15 ppm equipment;
- Time of start and stop when transferring or discharging *shall* be recorded, including when using the 15 ppm equipment;
- Position of the vessel at start and at end of the transfer *shall* be recorded;
- Incineration or landing ashore of oily garbage and used filters *shall* be recorded only in the *Garbage Record Book*, with identification of the location;
- All entries are to be made and signed by the **Officer** or **Oficers in charge** of the operations concerned and each completed page *shall* be signed by the **Master**;
- Blank lines between successive entries *shall not* be left;
- If a wrong entry has been recorded in the *Oil Record Book*, it *shall* immediately be struck through with a single line in such a way that the wrong entry is still legible. The wrong entry *shall* be initialled and dated, with the new corrected entry following;
- Tank nomenclature *shall* be recorded as per the format noted within the “International Oil Pollution Prevention Certificate (IOPPC)”;
- Recording of quantities retained in the bilge water holding tanks listed under Section 3.3 of the IOPPC is **voluntary** and NOT required by the Convention;
- The recording of general maintenance of items pertaining to the Oil Waste Separator (OWS) remains **voluntary** and is NOT required to be recorded in the *Oil Record Book*;
- Every week, the amount of oil remaining in each tanks and the total amount on board *shall* be recorded, with the identification of the kind of capacity (sludge, oily water tank, etc.).
- Ships other than oil tankers carrying oil in bulk of an aggregate capacity, which is equal or more than 200 cubic meters, *shall* have and fill the *Oil record Book*, part II.
- The use of the 15 ppm separator *shall* be logged in the vessel logbook *Oil Record Book*, section D as this equipment is a non-automatic discharge device.
- All kind of information *shall* be recorded in the *Oil Record Book* is detailed at the beginning of the *Oil Record Book*.

659

Ozone-Depleting Substances Record Book :

The entries *shall* be recorded in terms of mass (kg) of substance and *shall* be completed in respect of the following:

- *recharge, full or partial, of equipment containing ozone depleting substances;*
- *repair or maintenance of equipment containing ozone depleting substances;*
- *discharge of ozone depleting substances to the atmosphere deliberate* and non-deliberate;*
- *discharge of ozone depleting substances to land-based reception facilities; and*
- *supply of ozone depleting substances to the ship.*

**deliberate emissions : emissions occurring in the course of maintaining, servicing, repairing or disposing of systems or equipment, except that deliberate emissions do not include minimal releases associated with the recapture or recycling of an ozone depleting substance.*

4.11.2 Waste Delivery Receipt

"WASTE" refers here to the following:
- Oily wastes such as mixtures, bilge water, slops, sludge (MARPOL Annex I);
- Noxious liquid substances from tank washings and cargo residues (MARPOL Annex II);
- Sewage (MARPOL Annex IV);
- Garbage (MARPOL Annex V);
- Ozone-depleting substances and exhaust gas-cleaning residues (MARPOL Annex VI).

When waste is offloaded **ashore, to another vessel or to an offshore installation**, the receiving facility *shall* provide a document certifying the transfer.

The document *shall* specify the category of waste, quantity of waste, location, and date.

The document *shall* bear the name of the reception facility and relevant license (as applicable) and be signed by a responsible person at the receiving facility.

When the Company vessel is the receiving vessel, the document *shall* be completed and provided to the issuing vessel.

In the event that this procedure cannot be followed (as in when the reception facility cannot for any reason complete or issue the document) the vessel provides the *BOS-FRM-0303.0002 - Waste Delivery Receipt*. This document *shall* be signed by a responsible person at the receiving facility.

660

In any case, a copy of this signed document *shall* be kept on board in the appropriate Record Book as long as the Record Book is archiving.
This one may be asked during a port state control.

4.11.3 Reporting inadequacies of port reception facilities

Since 2006, IMO has developed an action plan to tackle the problem of the inadequacy of port reception facilities.

If ship finds that the waste disposal facilities at a port are inadequate for any reason, the **Master** or **Officer** responsible in the first instance *should* inform the **Port Environmental Officer** (through Harbour Control) who will investigate the complaint and rectify any deficiency.

If the proper facilities cannot be provided to the **Master**'s reasonable satisfaction, the ship is to complete the form *BOS-FRM-0303.00012 – Reporting inadequacies of PRF* and forwards it to the **Operations Manager**. He/she forwards it to the Administration of the Flag State who shall notify the IMO and the port State of the occurrence.
The data collected is then used by IMO to strongly encourage Member States to fulfil their treaty obligations on providing adequate reception facilities. Reporting is consolidated in a database that can be checked at "*http:/gisis.imo.org/Public"*/. **Masters** are encouraged to make regular updates to the availability of reception facilities.

The format is applicable for:
- Oily wastes such as mixtures, bilge water, slops, sludge ("MARPOL Annex I");
- Noxious liquid substances from tank washings and cargo residues ("MARPOL Annex II");
- Sewage ("MARPOL Annex IV");
- Garbage ("MARPOL Annex V");

- Ozone-depleting substances and exhaust gas-cleaning residues (“MARPOL Annex VI”).

The format enables to specify problems encountered:
- A : No facility available;
- B : Undue delay;
- C : Use of facility technically not possible;
- D : Inconvenient location;
- E : Vessel had to shift berth involving delay/cost;
- F : Unreasonable charges for use of facilities;
- G : Other (please specify).

4.11.4 Pollution incident reporting

All pollution incidents and near-miss occurrences *shall* be reported and investigated as required in accordance with the procedures detailed in SMS Section 8 *Incident Management, Reporting, and Investigation.*

Masters are responsible for reporting incidents involving environmental pollution and the **Company** is responsible for the investigation of incidents involving environmental pollution as per SMS Section 8 – *Incident Management, Reporting, and Investigation*.

4.12 Regulatory monitoring

The company *shall* comply with environmental regulations, whether they are international, national **or local**. To this purpose, a system *shall* be implemented to identify the **existing and the** new requirements applicable to the Company, in terms of environmental management, as per this procedure. 661

An action plan *shall* be defined so that the Company complies with the regulations.

4.13 Continuous improvement

Environmental objectives *shall* be defined by the Company every year. They are based on the identification of priority areas for environmental impact reduction. In order to respect these objectives, the Company *shall* define action plans.

Every year the objectives *shall* be evaluated to improve Company’s performance.

The vessel internal audit *shall* cover compliance of the vessel to Environmental management policies.

5 Records

- Ballast Water Record Book;
- Garbage Record Book;
- Waste Delivery Receipts;
- Declaration notes for special and dangerous waste;
- Inadequacies of PRF reports;
- Incident Reports;
- Oil Record Book, part I;
- Oil Record Book, part II;
- Ozone-Depleting Substances Record Book;
- Garbage Management Plans;
- Environmental Monthly Reports
- “Fuel Consumption” and “Amount of waste generated” via ODA (software);
- Maintenance on equipment containing refrigerant via Computerised Maintenance Management Systems (software);
- Vessels SEEMPs.
- SOPEP/SMPEP Manuals

6 Related documents

- EIAPP Certificates;
- International AFS Certificates;
- IAPP Certificates;
- IOPP Certificates;
- International Sewage Pollution Prevention Certificates;
- IMO Res A963 (23), related to reduction of greenhouse gas emissions from ships;
- ISO 14001 standard;
- MARPOL 73/78, consolidated edition 2011;
- MEPC1/Circ 681, 682, 683 and 684, related to Ship Energy Efficiency Management Plan and Energy Efficiency Operational Indicator;
- MEPC 59. 60 and 61, related to technical and operational measures to regulate and reduce Greenhouse Gases;
- MEPC 127 (53), related to Ballast Water Management and Development of Ballast Water Management Plans;
- MEPC 201 (62), related to the prevention of pollution from ships (revised MARPOL Annex V);
- MEPC.1/Circ.469/Rev2: Revised Consolidated Format for Reporting Alleged Inadequacies of Port Reception Facilities;
- MEPC.1/Circ.645/Rev2: Standard Format for the Waste Delivery Receipt;
- BOS-MNL-03.900800 – Incident Management, Reporting and Investigation (SMS Section 8);
- BOS-DRT-11.0003 - Vessels Filing SystemB-FRM-0302.0003 – Incident Report;
- B-FRM-08.0001 – Environmental Monthly Report
- BOS-FRM-0303.0002 - Waste Delivery Receipt;
- BOS-FRM-0303.0010 Garbage Record Book;
- BOS-FRM-0303.00012 – Reporting inadequacies of PRF;
- BOS-PLN-0303.0001 – Vessel Garbage Management Plan.
- BOS-PLN-0303.0002 – Ballast Water Management Plan (IN DRAFT);
- BOS-PRD-0701.0003 – Regulation Monitoring Procedure;
- BOS-TPL-0701.0001 – SEEMP Template;
- ODA software;
- Computerised Maintenance Management Systems software.
- B-FRM-0302.0003 – Incident Reports;
- BOS-FRM-01.0005 – Management Vessel Visit Checklist

662

7 Terms and definitions

AFS
Anti-Fouling Systems

EEOI
Energy Efficiency Operational Indicator

GRT
Gross Registered Tons

JSA
Job Safety Analysis

IMO
International Maritime Organisation

IAPPC
International Air Pollution Prevention Certificate

IOPPC
International Oil Pollution Prevention Certificate

MARPOL
Merchant Shipping (Prevention of Oil Pollution) Regulations

663

ODA
Operational Data Application

PRF
Port Reception Facilities

SEEMP
Ship Energy Efficiency Management Plan

SMPEP
Shipboard Marine Pollution Emergency Plan

SOPEP
Shipboard Oil Pollution Emergency response Plan

GARBAGE
As defined in MARPOL, Annex V: all kinds of victual, domestic and operational waste generated during the normal operation of the ship and liable to be disposed of except those substances which are defined or listed in other Annexes to the MARPOL Convention.

RECEPTION FACILITIES
Any fixed, floating or mobile facility capable of receiving MARPOL residues/wastes from ships and fit for that purpose.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01➔11/03/2013	Update §1 ; §2 ; §3 ; §4.2 ; §4.3.1 ; §4.3.2.1 ; §4.5 ; §4.7 ; §4.7.3 ; §4.7 ; §4.11.1 ; § 4.11.2 ; § 4.11.3 ; § 4.11.4; § 4.11.5 ; § 5 ; § 6 ; § 7
BOS Quality Coordinator & BOS Senior QHSE Coordinator	BOS QHSES Manager		Ver.03➔03/12/2013	Update: §1; §2; §3; §4.1; §4.2; §4.3; §4.3.1 ; §4.3.4 ; §4.4; §4.5 ; §4.6.3; §4.8; §4.9; §4.10; §4.11.3; §4.12; §4.13; §4.14; §5 ; §6 Deletion: §4.1 Sources of marine and atmosphere pollution and § 4.11.5
BOS Environmental Coordinator	BOS QHSES Manager		Ver.04➔31/12/2014	Adding : new §4.1 “Management of Anti-Fouling System”; new §4.11.3 “Reporting inadequacies of port reception facilities” Update : §4 - moving of “management objectives” from §4.2 “Fuel Management” ; §4.2 – reporting tool modified ; §4.3.1.6 filing system added ; §4.3.3 – reporting added and waste delivery receipt modified ; §4.5 – Waste delivery receipt and reporting added ; §4.7 – discharge of sewage in reception facilities and into the sea modified ; §4.8 – update requirements regarding applicable regulation ; §4.9 and §4.10 – adding of BOS-PRD references ; §4.12 – scope of applicable regulation modified ; §6 ; §7 Rename + update : §4.3 was “Waste (garbage) management” becomes “Garbage Management” + reporting tool modified ; §4.3.1 was “Waste collection” becomes “Garbage collection” + garbage categories modified ; §4.11.1 was “Garbage Record Book” becomes “Record Books” + Garbage, Oil, Ozone-Depleting Substances Record Books added ; §4.11.2 was “Garbage transfer certificate / waste collection receipt” becomes “Waste delivery receipt” + delivery receipt and related requirements modified. Deletion : § 4.11.3 “Waste oil transfer certificate and oil Record Book” partly inserted in § 4.11.1 “Record books” and in §4.11.2 “Waste delivery receipt” ; §4.13 “Eco-friendly purchasing”

664

Fuel Management and Reporting

665

BOS-PRD-07.901001-ver.04



Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Fuel management on Diesel Electric Driven Vessels 5

4.1.1 Traditional propulsion vs Diesel Electric Driven Vessels 5

4.1.2 Harbour Stand by 5

4.1.3 Transit 5

4.1.4 Stand by at sea 6

4.1.5 On field Operational Stand By inside 500m zone 6

4.2 Fuel Management on Traditional propulsion vessel 6

4.2.1 Harbour Stand by 6

4.2.2 Transit 6

4.2.3 On field Operational Stand By inside 500m zone 6

4.2.4 Stand by at sea 6

4.3 Fuel consumption recording 7

666

5 Records 8

6 Related documents 8

7 Terms and definitions 8

8 Review, approval, revision and identification of changes 8

1 Purpose

To provide the users with guidance on achieving the targets set by BOURBON fuel management plan and provide assistance in the process of establishing a mechanism to achieve the recording of fuel consumption intensity data from fleet operations.

For easy understanding, the word fuel is kept to refer to Marine Gasoil (MGO).

2 Scope

The procedure is applicable for all Company vessels, except:

- Rescue craft;
- Small workboats;
- Remote Operated Vehicles.

Long term bare-boats vessels are included.

667

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring that the requirements of this procedure are implemented and maintained.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring that the full requirements of this procedure are effectively implemented, maintained and reviewed onboard vessels under their command.
b) Ensuring that the fuel management reporting is done on daily basis in O.D.A (Operational Data Application) and that this consumption is perfectly in line with fuel consumption recorded in *Engine Log Book*.
c) Ensuring that the vessel operations, quantity of fuel transferred and remaining on board quantity data is in line with Bridge and Engine Log books.
d) Ensuring that if vessel is not yet equipped with O.D.A, **Master** is reporting the fuel consumption on a monthly basis using Environmental Monthly Report (EMR). In this case the aggregated monthly data shall be perfectly in line with the total of daily data recorded on daily basis in *Engine log book*.
e) Ensuring that vessel is applying best operational practices whenever is possible.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for fuel management and reporting are communicated and implemented onboard all vessels under his/her jurisdiction.
b) Ensuring that if vessel is equipped with O.D.A the fuel and operational data is correctly reported on time in the application.
c) Ensuring that if vessel is not yet equipped with O.D.A the fuel and operational data is correctly reported using EMR as required by Company Head Office.
668
d) Ensuring that vessels are optimizing fuel consumption and applying best practices during on and off hire periods.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.
b) Monitoring vessels fuel management data using the Fuel Management Dashboard.

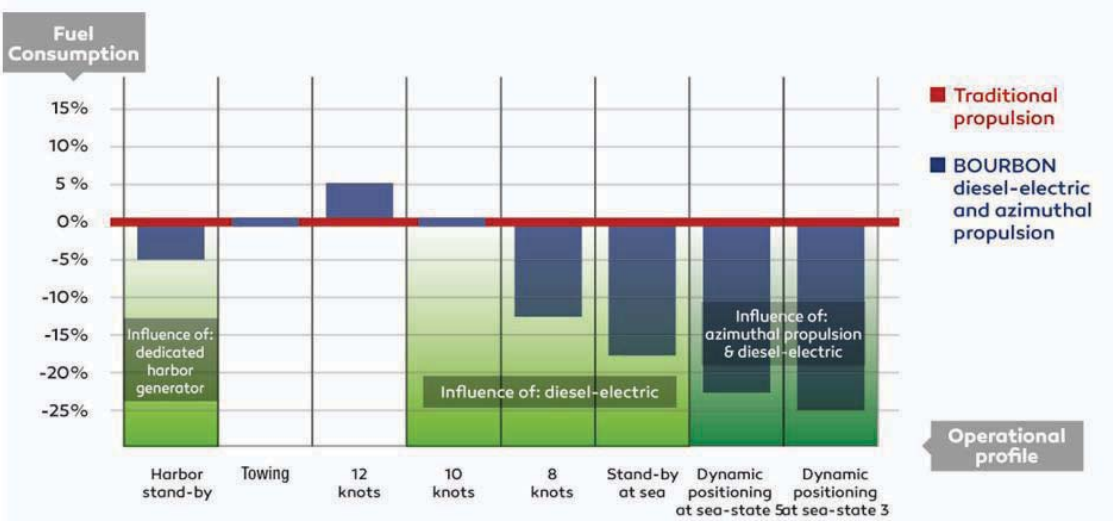
4 Description

4.1 Fuel management on Diesel Electric Driven Vessels

Low fuel consumption of diesel electric driven vessels represents a key competitive advantage. Therefore, **Masters** are expected to consider this matter with great attention and to comply with the following requirements.

This procedure has to be considered as our standard of operation and *shall* be included in **Master's** standing orders, implementation will be monitored by **Company Management** and by **Customer's Logistic Departments** through vessel's reporting.

4.1.1 Traditional propulsion vs Diesel Electric Driven Vessels



This graph shows a comparison between Traditional and Diesel Electric Driven vessels on efficiency per operating mode.
Dynamic Positioning Operations represent the biggest saving between the two propulsions.

669

4.1.2 Harbour Stand by

- If vessel is equipped with an Emergency/Harbour Diesel Generator:
  The harbour generator *shall* be preferred in any case for harbour, standby buoy or anchored station. Use of other Diesel Generator (DG) may be tolerated when Harbour DG is unavailable or when power demand is exceeding the power of Emergency/Harbour Generator . If Emergency/Harbour Diesel Generator is unavailable, this degraded situation *shall* be immediately reported to the **Operations Manager**.

4.1.3 Transit

Before any transit the **Master** *shall* estimate the best economical speed taking at least into account the vessel deadweight, the trim and the weather forecast and the possibility to transit on one engine only;

This economical speed *shall* be proposed to client onshore logistic or to **Offshore Installation Manager**/Installation Radio room depending of the transit type (to port/interfiled/to field);
Economic Speed (up to 9 knots), i.e. with one DG, is expected for all transit unless the **Master** receives a different instruction from the client, **Contracts Manager** or **Operations Manager**;

Cruise Speed (up to 10 knots), i.e. with two DGs, is to be performed only as per instruction from client, **Contracts Manager** or **Operations Manager** for commercial reasons;

Emergency Speed (above 10 knots), i.e. with three DGs, *shall* only be authorised under exceptional reasons (rescue operations, immediate hazard to vessel, property or environment).

4.1.4 Stand by at sea

On-field stand-by *shall* be performed with one DG running after proper risk evaluation (considering offshore installation vicinity, weather and tidal conditions, vessel integrity, etc.).

Evaluation of stand by time *shall* be if possible discuss with onshore/offshore logistic.

If an offshore buoy or anchorage area is available **Master** *shall* require authorization to proceed to buoy or anchorage to onshore/offshore logistic in order to optimize fuel consumption.

4.1.5 On field Operational Stand By inside 500m zone

If Operational Stand by time inside 500 meter zone exceeds 30 minutes, **Master** *shall* contact **Offshore Installation Manager**/Radio Room to request if it is possible to proceed outside 500 meter zone to go back to normal stand by and be able to reduce the number of engine. After proper risk evaluation (considering offshore installation vicinity, weather and tidal conditions, vessel integrity, etc.).

For any clarification or assistance, please contact your **Operations Manager**.

670

4.2 Fuel Management on Traditional propulsion vessel

4.2.1 Harbour Stand by

Master *shall* optimized number of auxiliary engine use in port to one when applicable.

4.2.2 Transit

Before any transit, the **Master** *shall* estimate the best economical speed taking at least into account the vessel deadweight, the trim and the weather forecast.

This economical speed *shall* be proposed to client onshore logistic or to Offshore **Installation Manager**/Installation Radio room depending of the transit type (to port/interfiled/to field).

4.2.3 On field Operational Stand By inside 500m zone

If Operational Stand by time inside 500 meter zone exceeds 30 minutes, **Master** *shall* contact **Offshore Installation Manager**/Installation Radio Room to request if it is possible to proceed outside 500 meter zone to go back to normal stand by.

For any clarification or assistance, please contact your **Operations Manager**.

4.2.4 Stand by at sea

Evaluation of stand by time *shall* be if possible discuss with onshore/offshore logistic.

If an offshore buoy or anchorage area is available **Master** *shall* require authorization to proceed to buoy or anchorage to onshore/offshore logistic in order to optimize fuel consumption.

4.3 Fuel consumption recording

BOURBON Executive Committee has identified fuel management as one of the Company priorities in order to attain a triple objective:

- Comply with more and more stringent environmental requirements;
- Support group's ambitious CO2 reduction plan;
- Decrease client's costs when vessel is on hire.
- Decrease BOURBON cost when vessel is off hire.
- Ensure fuel asset integrity.

Company Management *shall* check reporting to the following requirements:

- Returned to the Head Office in due time;
- Provided for all vessels, without exception;
- Free of errors, missing data or incorrect units;
- Consistent with earlier information and with operation profile of the vessel;
- Includes not only fuel consumption but also data on operation and machinery/propulsion hours.

Master *shall* send the datas on a daily basis into O.D.A (if vessel is equipped with this application). If vessel is not equipped with this application, **Master** *shall* send the Environmental Monthly Report to Corporate, on the 5th of the following month at the latest.

671

5 Records

- Environmental Monthly Reports.
- O.D.A datas.

6 Related documents

- B-FRM-08.0001 – Environmental Monthly Report

7 Terms and definitions

DG
Diesel Generator

DP
Dynamic Positioning

EMR
Environmental Monthly Report.

FO
Fuel Oil

672

MGO
Marine Gasoil

ODA
Operational Data Application

PMS
Plan Maintenance System

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	BOS Quality Representative	Rev.01➔ 11/03/2013	Update §4.2 ; §4.3 ; §4.3.1 Delete § 4.3.7 to § 4.3.8
BOS Quality Coordinator & BOS Senior QHSE Coordinator	BOS QHSES Manager		Ver.03➔ 03/12/2013	Update § 4.2; § 4.3.1 Deletion § 4.3.2 to § 4.3.6 that are part of the form Environmental Monthly Report.
BOS Environmental Coordinator	BOS QHSES Manager		Ver.04 ➔ 31/12/2014	Entire revision of the procedure.

SMS
Section 11

Emergency and Contingency

BOS-MNL-03.901100-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3
1.1 Main Objective 3
1.2 Contingency Plans 3
1.3 Drills and Exercises 3
1.4 Security Management 3
2 Review, approval, revision and identification of changes 4
3 Related contents 4

674

1 Introduction

1.1 Main Objective

Establish an emergency-preparedness system and regularly test it to ensure an ongoing ability to react effectively to an incident.

While every effort is made to avoid incidents and accidents, it is important to have measures in place to deal with the consequences of any unplanned event.

1.2 Contingency Plans

The Company *shall* establish shore based and shipboard contingency plans and provisions for regularly exercising them, so that shore based and shipboard organisations can respond effectively at anytime to hazards, accidents and emergencies involving the vessel. The plans *shall* specify:

- The scheduling of drills and exercises for responding to emergencies;
- Methods for recording the results of and lessons learnt from drills and exercises.

1.3 Drills and Exercises

The Company *shall* conduct regular, realistic emergency drills and exercises that test and improve the capability of crews and shore based staff to deal with a real incident. In addition, consideration *shall* be given to:

- How lessons learnt from drills and exercises will be implemented;
- The frequency of drills and exercises, taking into account training requirements.

675

1.4 Security Management

The Company *shall* establish and maintain procedures to minimise the effect of a security related incident. Such procedures *shall* include security in port and at sea. Events to be considered include dealing with terrorism, piracy, armed robbery, activists, navigation in hostile waters, refugees, stowaways, contraband and other smuggling.

2 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
Deputy QHSE Manager	QHSES Manager	Quality Representative	Rev. 01 – 11/03/2013	-
Deputy QHSE Manager	QHSES Manager		Ver.03 – 03/12/2013	-
QHSES Manager	QHSES Manager		Ver.04 – 31/12/2014	Chap. 1.4 deleted

3 Related contents

1. BOS-PRD-0301.901101 – Emergency and Contingency
2. BOS-PRD-15.901101 – Ship Security (SMS Section 11)

676

Vessel Emergency and Contingency

BOS-PRD-0301.901101-ver.04

BOURBON

Building together a sea of trust

Table of Contents

1. Purpose **3**

2. Scope **3**

3. Responsibility, authority and accountability **4**

4. Description **7**

4.1 Definition of an Emergency Situation 7

4.2 Emergency process 7

4.3 Emergency reporting 8

4.4 Assigned Person on Duty 8

4.5 Rota system for scheduling the Assigned Person on Duty 8

4.6 Identified emergencies 8

4.7 Specificities for medical emergencies 8

4.7.1 Medical assistance 9

4.7.2 Preparing a message 9

4.8 Media 10

4.9 Emergency drills and exercises 10

678

5. Records **13**

6. Related documents **13**

7. Terms and definitions **13**

8. Review, approval, revision and identification of changes **13**

1. Purpose

The purpose of this procedure is to define responsibilities and communication lines in case of emergencies and contingencies occurring during vessel activities.

All personnel, sea going and shore-based, *shall* be prepared to respond in the event of emergency situations.

It is essential that Company vessels are maintained and employees trained in order to be ready to act whenever required *should* an emergency situation be developed onboard a vessel or at a shore base.

The Company *shall* have specific contingency plans to deal with shipboard emergencies. These plans are developed to cover both vessel and shore incidents and ensure that the Company can respond to an emergency in a coordinated, prompt and effective manner.

2. Scope

Vessel emergency preparedness is required under Chapter 8 of the ISM Code referred to in Chapter IX of the SOLAS Convention and under MARPOL 73/78, Annex 1, Regulation 26. Shipboard procedures and instructions *shall* be developed to meet the SOLAS and MARPOL regulations.

This procedure is applicable to all vessels' emergency and contingency (E&C) situations and is compliant to OSM Driver 11 – Emergency preparedness and contingency planning.

Emergency and Contingency situations *shall* involve Corporate Organisation in addition to the requirements of the Company own Emergency and Contingency procedures which address the following:

- Preparation and content of a contingency plan that cover all credible emergency scenarios;
- Responsibility, authority and accountability for contingency planning;
- Trainings, drills and exercises with participation of main actors, substitutes and stakeholders;
- Emergency response record-keeping, reporting and investigation, integration of lessons learnt;
- Emergency Alarms.

679

3. Responsibility, authority and accountability

IMPORTANT NOTICE: not-withstanding the foregoing, the Master has overriding authority in any case of emergency or contingency onboard.

Managing Director has the responsibility, authority and accountability for:

a) Developing and implementing of his/her Contingency Plans within his/her respective areas of control;
b) Ensuring a controlled copy of BOS Emergency & Contingency Plan is provided to Corporate HSE;
c) Deciding when to activate the Corporate Emergency Response Team;
d) Ensuring the requirements of this procedure are implemented, applied and followed;
e) Validating emergency response exercises (scenario, schedule and supervision) proposed by the QHSES Manager to test and evaluate the plan's adequacy and response promptness;
f) Reviewing and updating the Emergency and Contingency response plan with the assistance of the QHSES Manager;
g) Keeping the COMEX regularly advised when ERT is activated.

Vessel Master's primary responsibility is to save the crew and other people, the vessel, the cargo and to protect the environment, with a minimum of injury or damage.

Vessel Master has the responsibility, authority and accountability for:

a) Acting on his initiative in taking decisions in the event of an emergency or salvage situations;
b) Complying fully with the instructions indicated in the Vessel Emergency & Contingency Plans and ensuring its application onboard;
c) Reviewing vessel specific E&CR contact list during emergency training of shipboard personnel by periodic drills under his/her supervision and reporting deficiencies to the **Operations Manager** for update of the plan if necessary;
d) Reporting to the vessel's **Deputy DPA** any deficiencies, necessary updates or area of improvement to the vessel's E&CRP;
e) Acting as the commander of the emergency onboard;
f) Acting as Communication Officer in case of a major emergency: the **Master** may delegate this function to another qualified Officer;
g) Ensuring the implementation and application of this procedure onboard the vessel under his/her command;
h) Ensuring that senior Officers are familiar with the contents of the plan;
i) Ensuring instruction and training of the personnel in the application of the procedures contained on it;
j) Using the single emergency number only for emergency situation.

680

DPA has the responsibility, authority and accountability (if Managing Director is not available) for:

a) Developing and implementing his/her Contingency plan within his/her respective areas of control;
b) Ensuring a controlled copy of BOS Emergency & Contingency Plan is provided to Corporate HSE;
c) Deciding when to activate the BOS Emergency Response Team;
d) Applying the Emergency & Contingency Plan during this crisis situation;
e) Validating Emergency Response exercises (scenario, schedule and supervision) proposed by the **QHSES Manager** to test and evaluate the adequacy of the Plan and promptness of response;
f) Reviewing and updating the Emergency and Contingency response plan;
g) Ensuring the relevance and thoroughness of exercise scenarios, taking part in crisis exercises, and giving feedback analysis;
h) Ensuring that the Rota system is planned sufficiently in advance taking into account the availability of all **Assigned Persons** (vacation, foreign mission, illness, etc.) so that there is no interruption in case of unavailability of the **Rota System Manager**;
i) Designating the **Rota System Manager** and the **Assigned Person.**

Emergency Response Team Leader (Managing Director DPA, Deputy DPA, CSO, Deputy CSO) has the responsibility, authority and accountability for:

a) Giving advice to the **Master**;
b) Assisting in taking care of the crew;
c) Informing third parties and authorities, for example P&I and H&M insurance;
d) Arranging third party assistance;
e) Keeping the Corporate Emergency Response Team informed of developments;
f) Transferring media's requests to BOURBON's Communication Department;
g) Organising the investigation determining the emergency's root causes.

Assigned Person on duty has the responsibility, authority and accountability for:

a) Keeping emergency communication watch in accordance to the Rota system's planning;
b) Suspending all professional and personal activities to deal with the emergency communication;
c) Calling the members of the emergency response team and managing the mobilization
d) Being ready to go to the Emergency Response Team (ERT) room in less than two hours.

Assigned Persons have the responsibility, authority and accountability for:

a) Informing the **Rota System Manager** of his/her availabilities and unavailabilities (vacation, foreign mission, illness, etc.) sufficiently in advance.

Rota System Manager has the responsibility, authority and accountability for:

a) Defining Rota system program's planning sufficiently in advance according to **Assigned Persons'** availabilities (vacation, foreign mission, illness, etc.) and ensuring continuity.

Contracts Manager has the responsibility, authority and accountability for:

a) Compiling and updating a list of clients and Company contacts including emergency contacts phone numbers
b) Distributing the above list to the vessels involved in the contract upon deployment;
c) Collecting from the client the information about the possible support he would provide in case of emergency (logistics, medical facilities, medical personnel, etc.);
d) Communicating the above mentioned information to the **Operations Manager**, and any necessary updates during the contract deployment;
e) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure;
f) Liaising with the client during the emergency response.

681

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that a valid zone and charter-specific emergency contact list is always available for each vessel under his supervision. He *should* obtain all charter specific information, contacts and emergency procedures from the **Contracts Manager** as per client satisfaction chain requirements and request for update of the vessel E&CRP accordingly;
b) Informing ERT should the situation downgrades;
c) Developing, implementing, checking and validating the Vessel's Specific Emergency and Contingency Response Plan within his/her respective areas of control;
d) Ensuring that the requirements and expectations for emergency and contingency planning are communicated and implemented onboard all vessels under his/her jurisdiction;
e) Ensuring that the vessel's specific E&CRP is promptly reviewed, evaluated and updated regularly, based not only on reported deficiencies but also on drill reports, feedbacks, and "lessons learned" (Vessels and Head Office).

Crewing Manager has the responsibility, authority and accountability for:

a) Designating the companies in charge of repatriation;
b) Selecting local facilities in conjunction with medical assistance companies;
c) Coordinating the care of personnel with tele medical assistance providers, medical assistance companies, and P&I;
d) Monitoring the status of injured personnel and reporting it to the **Operation Manager/DPA**.

QHSES Manager has the responsibility, authority and accountability for:

a) Organizing the Emergency Response exercises (scenario, schedule and supervision) in order to test and evaluate the adequacy of the Plan and promptness of response;
b) Advising the ERT leader regarding QHSE Topics;
c) Debriefing after simulated exercises or real events;
d) Assisting the **Managing Director** in reviewing and updating the Emergency and Contingency response plan.

QHSE Coordinators have the responsibility, authority and accountability for:

a) Updating the emergency response plan of the vessels under their responsibility by taking into account the information provided by the **Operation Managers**.
b) Checking at random that drills are performed by vessels as per SMS planning and that drills are exhaustive (roles, reporting, lessons learnt, action plans).

Support person 24/7 has the responsibility, authority and accountability for:

a) Meeting the IP at arrival point ashore and accompanying the IP to the Medical center;
b) Supporting and assisting the IP to the Medical Center;
c) Filling the connecting sheet;
d) Ensuring IP's needs (food, drink,…) are met;
e) Collecting the medical records (days off work, doctor's prescription, examination, scanner, treatment form);
f) Ensuring translation or be assisted by an interpreter when IP is in a country where he does not speak the language (e.g.: Angola, Brazil…);
g) Liaising between the medical representatives and BOS **Crewing Department**.

Support person is a local based person, who is identified as such, before the contract starts. The Support person should be a BOURBON Employee, for example the **Local HSE representative** or the **Contract Manager**.

682

4. Description

4.1 Definition of an Emergency Situation

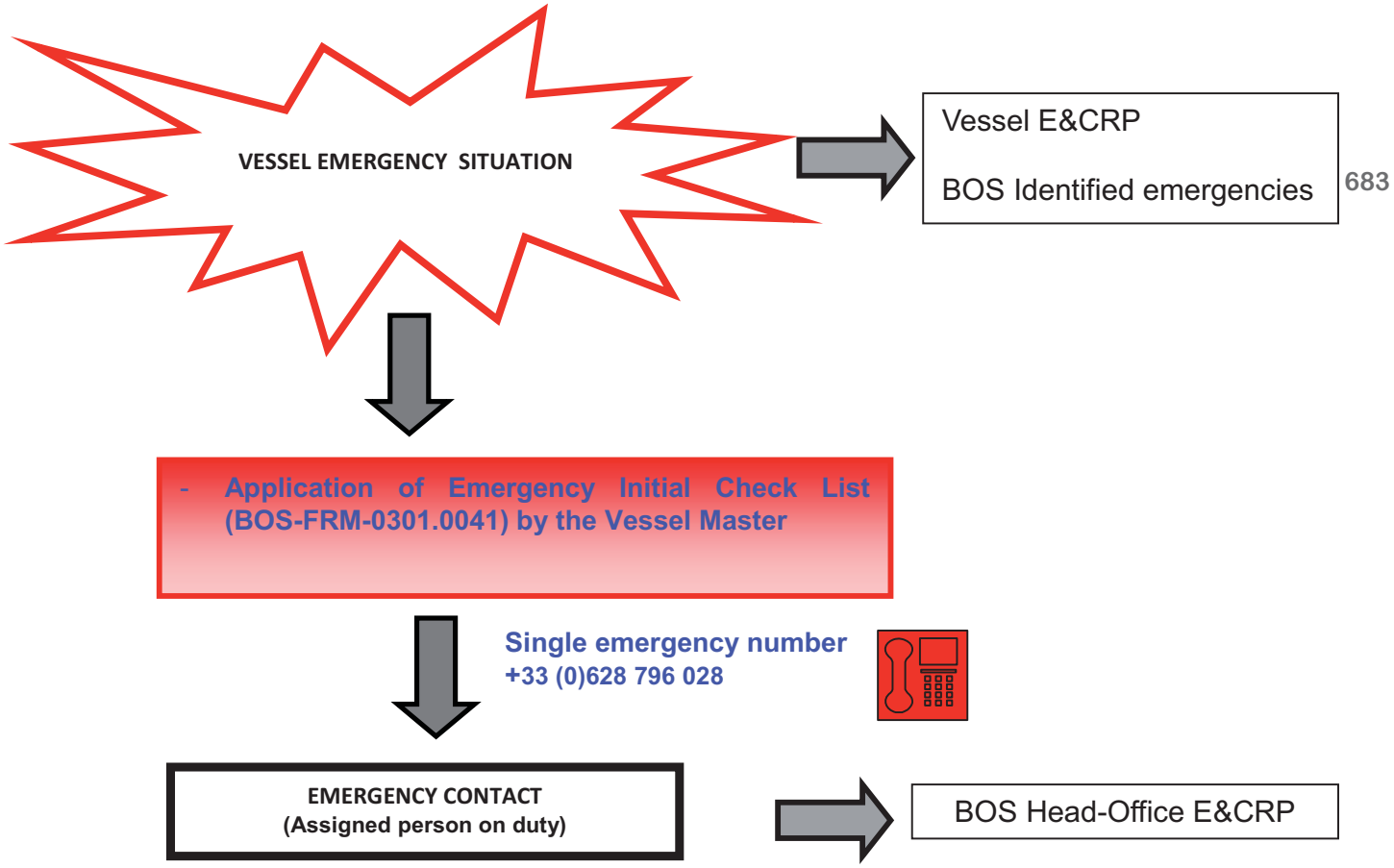
An emergency situation is a situation posing an immediate risk to health, life, property, environment, assets or reputation. Emergency situation requires immediate remedial action.

A non-exhaustive list of the identified emergencies for BOS is annexed to the present procedure.

4.2 Emergency process

Guidance for action to be taken during each identified incident or emergency situation is available on the *BOS-SPC-0301.0002 – BOS Identified Emergency Situations*.

The following flowchart outlines the primary alerting process using the Single Emergency number.
The *BOS-FRM-0301.0041 – Emergency Initial Information Check List shall* be issued as soon as possible after giving the first response to the incident.



4.3 Emergency reporting

Single emergency number :

The single emergency number can be used 24 hours a day, 7 days a week, and 365 days a year. This number *should* be used only in case of emergency situation preferably after assessing the severity level and completing the Initial Emergency Information checklist.

+33 (0)628 796 028

4.4 Assigned Person on Duty

The **DPA** *shall* designate the persons capable of acting as **Assigned Person on Duty.**

The **Assigned Person on Duty** after receiving alert from vessel, shall immediately call the Team Leader to mobilize the ERT and provide initial information collected about the situation.

4.5 Rota system for scheduling the Assigned Person on Duty

The **DPA** will designate a **Schedule Manager** using the Rota system.
The schedule *should* be defined sufficiently in advance to ensure continuity according to the availability of all **Assigned Persons** (vacation, foreign mission, illness, etc.).

In case of unavailability of the **Schedule Manager**, the **DPA** *shall* manage the Rota system's scheduling himself.

684

4.6 Identified emergencies

The following contingencies are covered in *BOS-SPC-0301.0002 – BOS Identified Emergencies*:

1. Severe injury to personnel
2. Critical Machinery Failure
3. Fire On Board
4. Man Overboard (Mob) – Witnessed
5. Man Overboard (Mob) – Unwitnessed
6. Collision
7. Pollution
8. Grounding – Stranding
9. Cargo Shift / Damage
10. Flooding
11. Abandon Ship
12. Serious Security Threat
13. Main and Emergency Electrical Power Failure
14. Search and Rescue
15. Structural Failure, including Failure of Hull openings above the Loaded Waterline
16. Serious Illness / Malaria
17. Food Poisoning
18. Confined Space Rescue
19. Rescue from Height
20. Heart Attack, Cardiac arrest, stroke
21. Loss of Steering Gear (In Draft).

4.7 Specificities for medical emergencies

Depending on the location of the vessel, the emergency process will be very different for medical emergencies.

3 different scenarios have been identified:

a) **Vessel at offshore location** : vessel is located in operational area.

b) **Vessel in transit :** vessel is transiting from DD yard to operational area or from one operational area to another one (ex. contract change)

c) **Vessel in PMP / UPMP / Shipyard :** vessel is located in the country where her dry dock or building is carried out

4.7.1 Medical assistance

- **CCMM Purpan:**

The French Center for Maritime Medicine (CCMM) is part of the Urgent Medical Aid Service (SAMU) in Toulouse and is available continuously to give advice to ships at sea. This center *shall* be called by all French Flag vessels but calls from other flags are tolerated. This service is free of charge.

After analyzing the patient's situation, CCMM advises the ship's **Master** on the recommended treatment:
Type 1 - Treatment done onboard without altering the voyage.
Type 2 - Treatment done onboard with change to the voyage plan.
Type 3 - Urgent evacuation without doctor (EVASAN).
Type 4 - Urgent evacuation with doctor (EVA-MED).
Type 5 - Onboard transfer of medical team followed by evacuation.

CCMM Purpan will communicate with **BOS Crewing Department** and **Vessel**.

- **Private medical assistance provider (ISOS, others):**

685

Medical assistance can also be provided by BOS contracted company as ISOS.

The scope of ISOS is:

- To provide radio medical assistance
- To guide the company towards ISOS habilitated medical centers
- To ensure monitoring of state of health of IP and report to the company
- To handle repatriation to home country

ISOS services are available in various languages.

ISOS assistance request can only be initiated by the Crewing Department, who will contact ISOS Head Office. After that, **ISOS Head Office** will send an approval to the local medical facility allowing patient entry and treatment.

Other assistance providers can be contracted for repatriation by the **Crewing Department**, especially in countries where ISOS is not present. The same process is followed (**Crewing Department** initiating request).

4.7.2 Preparing a message

When preparing a message, it is important to indicate clearly and concisely the type of information which will help the doctor to give his advice.

The text of any message *should* be formatted in plain language and *should* describe the medical emergency.

If language is a limiting factor, the International Code of Signals (CDPUBNV102) can be used by itself.

Messages to coast station are generally formulated RADIOMEDICAL followed by the name of the coast station to which the message is sent. The priority of the message *should* depend on the severity of the ailment. In extreme emergency the urgency signal (PAN PAN) *should* precede the address on the address line (example: PAN PAN RADIOMEDICAL (*Station Name*) RADIO).

4.8 Media

The goal of press relations in a crisis situation is to preserve the image of the Company.

No communication with media is allowed at vessel level.

Any attempts of media to obtain information or to communicate directly with vessel *shall* be refused. Media *shall* be asked to contact **Bourbon Communication Department**. These requests *shall* also be reported to Emergency Response Team ashore.

4.9 Emergency drills and exercises

Musters, fire-fighting and lifeboat drills, and drills prescribed by national laws and regulations and by international instruments, *shall* be conducted in a manner that minimizes the disturbance of rest periods and does not induce fatigue.

- Drills and safety exercises are used to determine and record the training needs of individual employees and records are maintained onboard and/or ashore.
- The vessel **Master** is responsible for ensuring that any onboard training requirements are completed as required.
- Certain essential instructions associated with the SMS are defined on board each vessel. The procedure to provide these instructions and other relevant information to joining crew is through their familiarisation induction onboard. Individuals are trained in their designated emergency response role.
- Such instructions and other information will be provided to seafarers in a working language understood by them.
- A major exercise (with vessel(s), shore base, Head Office and if possible Client) is carried out at least annually by the Ship Manager. The scope of an exercise is consistent with the size and composition of the fleet and its operating areas.

686

Records of training are maintained in the following manner:

- Onboard, results of exercises and drills (training) are documented and analysed to identify lessons learnt by the vessel crew (*BOS-FRM-03.0009 – Drill Report Form*). Drills *shall* be documented and *shall* record “lessons learned” during simulated emergency situations, thus allowing the periodical incorporation of the “lessons learned” into the Plan. On the basis of the drill reports, the plan *shall* therefore be reviewed, evaluated and updated regularly. It is recommended to test all elements of the Emergency & Contingency Response Plan and procedures. The scenario of these drills and exercises will be varied to encompass different aspects of the responses required for that particular emergency.

- Emergency drills and exercises *shall* be performed with as much realism as possible to an actual emergency situation in order to better prepare and train personnel.

- All personnel mustered are individually responsible to ensure their presence is accounted for by the **Chief Officer**. Any missing person at the muster point will be searched for. All personnel will thereafter report promptly to their assigned duties according to the ship’s Muster List.

- Masters and Officers *shall* verify the suitability of procedures and instructions as applied to each drill situation and when required, *shall* make any improvement necessary.

- The suitability and practicality of all emergency and lifesaving equipment *shall* also be assessed and any recommendations for improvement made.

- Following each emergency drill and exercise, a general safety meeting of all crew *shall* be conducted during which the drill or exercise will be analysed and critiqued.

- To gain maximum value from the exercise, this meeting *shall* provide opportunity to discuss the less successful parts of the exercise and formulate methods for future improvement (*BOS-FRM-03.0009 – Drill Report Form*).

- On completion of the post-exercise meeting, all people present *shall* sign the applicable Drill Report Form (*BOS-FRM-03.0009 – Drill Report Form*) to affirm their participation in the drill / training exercise and the follow-up critique meeting.

- All emergency drills and exercises conducted onboard the vessel *shall* be further documented with an entry in the ship's log-books as applicable.

- These measures are essential in order to provide the necessary documented evidence of compliance required by internal and external inspection and audit parties.

- The **Master** of each vessel is responsible to ensure full compliance with the Annual Programme of Emergency Drills and Exercises training programme onboard the vessel under his / her command.

- Emergency Drills and Exercises *shall* be conducted with consideration to any vessel and area specific requirements or best practice recommendations.

- **IMPORTANT! - When conducting drills, exercises or other training, the safety of personnel is the utmost importance.** Nobody *should* be placed into any position that may cause them injury or harm. All training *shall* be completed safely.

687

Drills and trainings shown in this table are to be conducted as a minimum. Each vessel **Master** is responsible for ensuring that all regulatory drills and training are done as per applicable regulations.
As per SOLAS requirement: **Abandon Ship** and **Fire Onboard** *shall* be done **within 24 hours** after the vessel left port **if more than 25% of the crew did not take part in these drills during the month before the departure date.**

WEEK	EMERGENCY DRILLS TO BE COMPLETED
1	**Man-Overboard & Search and Rescue (SAR)**
2	**Abandon Ship**
3	**Fire Onboard** AND **Loss of Steering**
4	**Shipboard Security** OR **ISPS** OR **Civil Unrest** OR **Terrorism** OR **Piracy** OR **Stowaways** OR **Refugees**
5	Pollution Incident AND Heavy Weather
6	**Abandon Ship** AND Grounding (OR Flooding) AND Collision
7	**Fire Onboard**
8	**Rescue from an Enclosed Space**
9	Response to Serious Injury OR Serious Illness OR Death onboard
10	**Abandon Ship**
11	**Fire Onboard**
12	**Man-Overboard & Search and Rescue (SAR)**
13	Main Engine Failure OR Electrical Power Failure
14	**Abandon Ship**
15	**Fire Onboard AND Loss of Steering**
16	**(Shipboard Security** OR **ISPS** OR **Civil Unrest** OR **Terrorism** OR **Piracy** OR **Stowaways** OR **Refugees)** AND **Rescue from an Enclosed Space**
17	Pollution Incident AND Heavy Weather
18	**Abandon Ship** AND Grounding (OR Flooding) AND Collision
19	**Fire Onboard**
20	**Food poisoning or heart attack / Cardiac arrest / Stroke**
21	Response to Serious Injury OR Serious Illness OR Death onboard
22	**Abandon Ship**
23	**Fire Onboard**
24	**Man-Overboard & Search and Rescue (SAR)** AND Rescue from an Enclosed Space
25	Main Engine Failure OR Electrical Power Failure
26	**Abandon Ship**
27	**Fire Onboard** AND **Loss of Steering**
28	**Shipboard Security** OR **ISPS** OR **Civil Unrest** OR **Terrorism** OR **Piracy** OR **Stowaways** OR **Refugees**
29	Pollution Incident AND Heavy Weather
30	**Abandon Ship** AND Grounding (OR Flooding) AND Collision
31	**Fire Onboard**
32	**Rescue from an Enclosed Space**
33	Response to Serious Injury OR Serious Illness OR Death onboard
34	**Abandon Ship**
35	**Fire Onboard**
36	**Man-Overboard & Search and Rescue (SAR)**
37	Main Engine Failure OR Electrical Power Failure
38	**Abandon Ship**
39	**Fire Onboard AND Loss of Steering**
40	**(Shipboard Security** OR **ISPS** OR **Civil Unrest** OR **Terrorism** OR **Piracy** OR **Stowaways** OR **Refugees)** AND **Rescue from an Enclosed Space**
41	Pollution Incident AND Heavy Weather
42	**Abandon Ship** AND Grounding (OR Flooding) AND **Collision**
43	**Fire Onboard**
44	**Food poisoning or heart attack / Cardiac arrest / Stroke**
45	Response to Serious Injury OR Serious Illness OR Death onboard
46	**Abandon Ship**
47	**Fire Onboard**
48	**Man-Overboard & Search and Rescue (SAR)** AND **Rescue from an Enclosed Space**
49	Main Engine Failure OR Electrical Power Failure
50	**Abandon Ship**
51	**Fire Onboard**
52	**Shipboard Security** OR **ISPS** OR **Civil Unrest** OR **Terrorism** OR **Piracy** OR **Stowaways** OR **Refugees**

688

Some weeks have more than 1 drill to be completed. The compulsory drills (SOLAS) are underlined and must not be delayed.
When ''OR'' is visible in the line, it means that 1 of the drills must be done. During the next occurrence, the other drill listed on the line will be conducted.
Abandon Ship & Fire Onboard drills *shall* be held on board not exceeding one week for passenger craft (HSC Code § 18.5.2).
During Dry docks periods, vessels *shall* contact his/her **Deputy DPA** to get the calendar of the emergency drills they should perform.

5. Records

- Drill Report Forms.
- Vessel Emergency & Contingency Response Flowcharts.

6. Related documents

- BOS-MNL-0301.0001 – Emergency & Contingency Response Plan (E&CRP).
- BOS-PRD-0301.0001 –Head Office Emergency & Contingency Response.
- BOS-SPC-0301.0002 - BOS Identified Emergencies.
- BOS-FRM-0301.0048 – Vessel Emergency & Contingency Response Flowchart.
- BOS-FRM-03.0009 – Drill Report Form

7. Terms and definitions

ERCP Emergency and Contingency Response Plan

CCMM: Centre de consultation médicale maritime

CSO Company Security Officer

DPA Designated Person Ashore

ERT Emergency Response Team

IP Injured / Illness Person

ISOS International SOS

MOB Man Overboard

MRCC Marine Rescue Coordination Center

QHSES Quality & Hygiene Safety Environment and Security

689

8. Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	Quality Representative	01- 11/03/2013	Update of §4.2 and § 4.3
BOS QHSES Manager	BOS QHSES Manager		03- 03/12/2013	Update of § 4.1 Musters, fire-fighting and lifeboat drills, and drills prescribed by national laws and regulations and by international instruments, *shall* be conducted in a manner that minimizes the disturbance of rest periods and does not induce fatigue.
BOS QHSES Manager	BOS QHSES Manager		Ver 04 – 31/12/2014	All chapters

Ship Security

BOS-PRD-15.901101-ver.04

691

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose **3**

2 Scope **3**

3 Responsibility, authority and accountability **4**

4 Description **5**

4.1 ISPS Code general requirements 5

4.1.1 Change of security level 5

4.2 Shipboard security 6

4.2.1 Security at berth or anchor 6

4.2.2 Security on passage 7

4.2.3 Attack or attempted boarding 7

4.2.4 Piracy 8

4.2.5 Civil unrest 8

5 Records **9**

6 Related documents **9**

7 Terms and definitions **9**

692 **8 Review, approval, revision and identification of changes** **10**

1 Purpose

To manage ship security and prevent piracy in the seaway. To ensure control of persons having potential access to the vessel in port, at anchor.

2 Scope

This document is provided to meet *OSM Guidelines* and is provided as supplementary information to the vessel specific Ship Security Plan (SSP) or emergency response requirements contained in the Company specific Emergency and Contingency Plans.

Relevant response and security levels as defined in ISPS code are defined in the SSP.

693

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring the requirements of this procedure are implemented, applied and followed.

Vessel Master has the responsibility, authority and accountability for:

a) Ensuring the implementation and application of this procedure onboard the vessel under his/her command;
b) Application and enhancement of the security measures that are in place onboard the vessel under his/her command at any time;
c) To protect the Security Documentation (hard copy and datas) from unauthorized access.

Ship Security Officer (SSO) has the responsibility, authority and accountability for:

a) Application and enhancement of the security measures that are in place onboard the vessel on which he/she is serving at any time;
b) Training of the vessel's crew on which he/she is serving in terms of security practices linked to the SSP and the carrying out of regular security related drills and exercises.

Bridge Watch Officer has the responsibility, authority and accountability for:

a) Monitoring access to the vessel and ensuring ISPS security checks and verification of identity;
b) Ensuring all personnel accessing the vessel are aware of the Company SMS and emergency safety requirements in place, whilst onboard the vessel.

Company Security Manager has the responsibility, authority and accountability to:

a) Assess and monitor local security situations including harbour and offshore security plans;
b) Issue and update all operation levels and dedicated security procedures;
c) Inform and coordinate all vessels regarding security information linked to operations;
d) Control all security measures applied onboard any vessel operating under Company's responsibility;
e) If required, propose specific security training.

694

Company Security Officer (CSO) has the responsibility, authority and accountability for:

a) Ensuring a Ship Security Assessment (SSA) is properly carried out for each Company vessel and that suitable ship-specific SSPs are thereafter prepared and submitted for approval;
b) Training of Company vessel's crew in terms of security practices linked to the SSP and the carrying out of regular security related drills and exercises.

Operations Manager has the responsibility, authority and accountability for:

a) Ensuring that the requirements and expectations for ship security are communicated and implemented onboard all vessels under his/her jurisdiction.

Contracts Manager has the responsibility, authority and accountability for:

a) Monitoring compliance with this procedure and liaising with the vessel **Master** to best ensure all practical means are addressed to support the **Master** executing his/her duties in respect of this procedure.

BOS CSO is also appointed as **Company Security Manager** except for Nigeria and Cameroon. In these countries, the Affiliate Security Department will be the focal points to be contacted for any Security information.

4 Description

Note: Security related informations *shall* NOT be recorded / present in a Computer based system (Task assistant / any other software).

4.1 ISPS Code general requirements

The basic concepts of ISPS code are outlined as follows:

For ships, these requirements include:
- Creation of Ship Security Plans (SSP);
- Appointment and training of **Ship Security Officers (SSO)**;
- Appointment and training of (maritime) **Company Security Officers (CSO)**;
- Ongoing training of crew and carrying out drills and exercises;
- Identification of onboard items of security related equipment.

For port facilities, these requirements include:
- Creation of Port Facility Security Plans (PFSP);
- Appointment and training of Port Facility Security Officers (PFSO);
- Ongoing training of staff and carrying out drills and exercises;
- Identification of items of security related equipment.

In addition, the ISPS Code further demands that ships and port facilities have in place measures to ensure effective:
- Monitoring and control over access to the ship or port facility;
- Monitoring of the activities of people and cargo;
- Readily available security communications.

695

Recognising that each ship (or even class of ship) and each port facility will undoubtedly present different security related risks, the methods by which they meet their obligations in terms of the ISPS Code will vary greatly.

These differing response measures are in effect formulated into either ship or port facility security plans, with these plans ultimately being approved by the Administration (Flag State) or contracting government.

Additionnal security procedures improving the SSP can be found in the binder “Security Documents”.

4.1.1 Change of security level

Security levels are identified as security level 1, 2, or 3 and these in-general terms correspond to a normal, heightened and exceptional threat situation, respectively:

Security Level 1
The level for which minimum appropriate protective security measures *shall* be maintained at all times.

Security Level 2
The level for which appropriate additional protective security measures *shall* be maintained for a period of time as a result of heightened risk of a security incident.

Security Level 3
The level for which further specific protective security measures *shall* be maintained for a limited period of time when a security incident is probable or imminent, although it may not be possible to identify the specific target.

The identification and communicating of the security levels by the contracting government helps establishing good links between Company Security Officer, Ship Security Officer and Port Facility Security Officer as each security level can change, the implementation of pre-arranged and/or relevant security measures have to be put in place.

Any change in the Security Level of the vessel or as advised by any port facility or other location *shall* be made known as soon as practical and possible to all personnel onboard.

Actions *shall* be taken in accordance with the Ship Security Plan (SSP).

Any change in the Security Level of the vessel or as advised by any port facility or other location *shall* be reported as an event.

All changes on Security level *shall* be reported to the **Company Security Officer** and included in the Bridge Log Book.

4.2 Shipboard security

In the event of a threat or actual occurrence of any acts of piracy, terrorism or civil unrest the Business-Units and/or the Client Representative will inform the vessel **Master** at the earliest opportunity.

In every case, a record of any attempted or direct action by pirates/terrorists/others against any vessel *shall* be clearly recorded in the *Bridge Log Book*.

Company reporting for any security incident *shall* be completed using the applicable form or by the electronic data management system.

696

4.2.1 Security at berth or anchor

- A duty watch is to be assigned to monitor the gangway and any other access points to the vessel;
- The watch *shall* also patrol the deck at regular intervals and maintain vigilance with regard to any small boats or other craft approaching;
- It is advisable to assign more than one person to this duty;
- Sufficient personnel are to be assigned to the watch to ensure that the gangway is not left unattended during routine patrols;
- A sign reading “No unauthorised entry” in English language and the local language *shall* be posted at the gangway;
- No persons *shall* be allowed access to the vessel unless on official business;
- Persons are to produce a valid identity and are to be logged onboard in a security register/gangway log;
- The register *shall* record the name, company, purpose of the visit and the time of entry and departure from the vessel;
- All persons entering the vessel are to be escorted to the bridge for introduction and safety induction;
- Any persons unwilling or unable to produce a valid identity *shall* be refused access to the vessel;
- Any attempts by persons in boarding any vessel without valid identity or under any suspicious circumstances *shall* be reported to the **Bridge Watch Officer**;
- The **Bridge Watch Officer** must inform the **Master**, who will inform the **Ship Security Officer (SSO)** the **Company Security Officer (CSO**) and the Port Facility Security Officer (PFSO) in addition to any local security Authorities with responsibilities for the port facility;
- Unauthorised personnel *shall* be barred from the accommodation and living quarters unless they have legitimate business;
- Persons authorised to enter the accommodation *shall* be accompanied;
- The **Bridge Watch Officer** *shall* provide or delegate provision of safety inductions for persons authorised to enter the accommodation;
- No unaccompanied baggage, parcels, stores or other items are permitted onboard without official notification and documentation;
- The duty watch *shall* be instructed to notify an officer in case of any suspicious activity;

- Storerooms, doors and hatches *shall* be locked during periods of inactivity (e.g. during meal times, overnight and at all times when immediate access by the crew is not required;
- Hand tools, paint and oil products, pharmaceuticals, personal belongings and other valuable materials *should* be kept in secure areas;
- Unoccupied cabins and storerooms *shall* be kept locked when in port and at anchor.

4.2.2 Security on passage

- In all potential security risk areas of operation, watch keeping *shall* be reinforced by assigning additional seaman to watch duty;
- A good watch *shall* be maintained by sight and radar – pirates are known in some areas to utilise radar "blind spots" particularly astern of the vessel;
- Maintain a good watch for any suspicious vessels approaching, especially from astern;
- During night passage through known or suspected criminal activity areas, navigation lights only *shall* be shown;
- All deck lights *should* be extinguished and searchlights *shall* be maintained ready for use;
- All access ways *shall* be closed and locked from the inside;
- The back deck and any other visible areas are to be constantly monitored from the bridge. Additional personnel *shall* be assigned watch-keeping duties as necessary.

4.2.3 Attack or attempted boarding

Sound the distinctive alarm on the ship's whistle/horn and internal alarm system. **This signal *shall* consist of alternate short and prolonged blasts for a period of at least 30 seconds.**

Acoustic signal



697

- The **Master**, if not already present, *shall* proceed to the bridge and assume command;
- The **Master** *shall* activate the Ship Security Alert System (SSAS) and other distress signals, establish relevant communications with the shore-base, local authorities, other vessels and any offshore facilities in the area and request assistance as applicable;
- The crew and other personnel onboard *shall* proceed to the designated security muster station;
- Ensure that all access points, including doors and hatches, are closed and locked secure from the inside;
- Following head count, the Officer in charge of the muster point report back to **Captain**.
- Regarding the operational situation, **Master** decides or not of the "Safe Haven" option.
- **Captain** orders to crew to move from Muster point to citadel.
- Attempt to outrun or otherwise escape by increasing speed and turning to head directly into prevailing seas and swell and by otherwise taking evasive action as deemed appropriate;
- Try to establish VHF communication with other vessels and Security team.

4.2.4 Piracy

- In such a case when pirates manage to board the vessel, all persons *shall* stay calm and be as co-operative as possible;
- They *shall not* worsen the situation by acting aggressively or making any threats, comments or remarks that may antagonise the intruders;
- In all cases, the safety of personnel is paramount;
- Without jeopardising the safety of the crew, **Captain** to activate the Ship Security Alert System (SSAS) and alert Security officials, the Business Units, other vessels, any offshore facilities or other contacts as soon as possible;
- If possible, without jeopardising the safety of the crew or causing suspicion amongst the intruders, inform the Security officials and shore-base how many intruders are involved, where they are on the vessel and what weapons they have in addition to any other pertinent information;
- Listen to any demands made by the intruders and if these can be reasonably met (handing over of valuables, money etc.) give them whatever they demand without resistance and let them depart unhindered;
- Since the motive for most attacks is to steal money or other valuables, passive co-operation with the intruders is recommended to re-establish a safe situation as quickly as possible;
- Theft or other minor security breaches *should* always be reported to the Business Units, the Company and security officials immediately. Immediate reporting is necessary to alert the facility and other vessels and take adequate protective measures.

4.2.5 Civil unrest

Should the vessel be located at a port, quay or other facility when warning of impending civil unrest, such as that as may have security consequences for the crew, vessel and other assets is issued, the **Master** is to follow the guidelines and instructions written in the SSP and at a minimum, implement the following options:

698

- Commence communications with the Company, client representatives and port facility representatives as applicable;
- Inform the **Contracts Manager** and **Operations Manager**/**DPA** if time permits;
- The crew and other personnel onboard *shall* proceed to the designated security muster station as the developing situation dictates;
- A head count *shall* be taken and all personnel briefed as to the nature of the situation;
- No person *shall* be allowed to leave the vessel for any reason without the expressed permission of the **Master**;
- A duty watch is to be assigned to monitor the gangway and any other access points to the vessel;
- The watch *shall* also patrol the deck at regular intervals and maintain vigilance with regard to any small boats or other craft approaching. It is advisable to assign more than one person to this duty;
- A sign reading “No unauthorised entry” in English and the local language *shall* be posted at the gangway;
- No persons *shall* be allowed access to the vessel unless on official business;
- Persons are to produce a valid identity and are to be logged onboard in a security register;
- Such a register *shall* record the name, Company, purpose of visit and the time of entry and departure from the vessel;
- All persons entering the vessel are to be escorted to the bridge for introduction and safety induction;
- Any persons unwilling or unable to produce a valid identity *shall* be barred from access to the vessel;
- Any attempts by persons in boarding any vessel without valid identity or under any suspicious circumstances *shall* be reported to the **Bridge Watch Officer**;
- The **Bridge Watch Officer** must inform the **Master**, who will inform the **Ship Security Officer (SSO)** the **Company Security Officer (CSO)** and the **Port Facility Security Officer (PFSO)** in addition to any local security Authorities with responsibilities for the port facility;
- Unauthorized personnel *shall* be barred from the accommodation and living quarters. *Should* they have legitimate business in such areas, they are to be accompanied. Such arrangements are to be made by the **Bridge Watch Officer** following safety induction;
- No unaccompanied baggage, parcels, stores or other items are permitted onboard without official notification and documentation;

- The duty watch *shall* be instructed to notify an officer in case of any suspicious activity;
- Ensure that all access points that are not in immediate use, including doors and hatches, are closed and locked secure from the inside;
- Start the main engines, single up mooring lines and other necessary preparations to depart the berth at short notice;
- Consider leaving the berth and anchoring, or leaving the port all together.
- Ensure that the customer and **Contracts Manager** are informed prior to any departure, particularly if there is any possibility that the vessel may be used for any emergency evacuation.

5 Records

- Deck log book entries
- ISPS Vessel Visitors Log
- Security Breach-Incident Reports

6 Related documents

- B-GDL-03.0007 – OSM Guidelines.
- ISPS Code.
- Ship Security Plan.
- BOS-INS-15.1201 – Citadel Implementation onboard BOS Vessels.
- BOS-FRM-15.0014 – Security Breach-Incident Report.

7 Terms and definitions

CSO
Company Security Officers

699

DPA
Designated Person Ashore

ISPS Code
International Ship and Port facility Security Code

PFSO
Port Facility Security Officers

PFSP
Port Facility Security Plans

SSA
Ship Security Assessment

SSAS
Ship Security Alert System

SSO
Ship Security Officers

SSP
Ship Security Plans

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
Company Security Officer	QHSES Manager	Quality Representative	Rev.01- 11/03/2013	Deletions of chapters 4.3 *Piracy Attack Flowchart* and 4.4 *Citatel* *Update of §3, §4.1, §4.2.3, §4.2.4* *Replaced by BOS-INS-15.1201 Citadel Implementation onboard BOS Vessels*
Company Security Officer	QHSES Manager		Ver.03 – 03/12/2013	-
Company Security Officer	QHSES Manager		Ver.04 – 31/12/2014	-

700

SMS
Section 12

Measurement, Analysis and Improvement

701

BOS-MNL-12.901200-ver.04

BOURBON
Building together a sea of trust

Table of Contents

1 Introduction 3

1.1 Main Objective 3

1.2 Company Inspections 3

1.3 Internal Audit 3

1.4 Management Review 3

1.5 Continual Improvement 4

2 Review, approval, revision and identification of changes 4

3 Related contents 4

702

1 Introduction

1.1 Main Objective

Establish and implement appropriate measurement and feedback processes to focus on and drive continuous improvement.

1.2 Company Inspections

The Company *shall* ensure that procedures are in place for shore based management to carry out frequent inspections to monitor the condition of vessels as at the Head Office. Inspections *shall* also be carried out to ensure compliance with rules and regulations among all vessels under fleet management and Head Office. The procedures *shall* include provision for recording the results of all inspections and the close-out of all action items.
Internal inspections include:

- Management visits (Vessels);
- OVIQ inspections (Vessels);
- OSMSA inspection (Head Office).

1.3 Internal Audit

The Company *shall* carry out internal audits to verify that both vessel and shore based staff are consistently following the management system. Annual audits *shall* be made of all vessels under fleet management and of all onshore support functions.

703

Following an audit, steps *shall* be taken to verify and record the implementation and effectiveness of any improvement opportunities recommended as a result of the audit.
Internal audits include:

- ISM (Vessels & Head Office);
- ISPS (Vessels);
- ISO 9001 (Head Office);
- MLC audits (Manning agencies).

1.4 Management Review

The Company's senior management *shall* review the Quality Management System as a minimum once per year to verify the adequacy of the system or to improve its effectiveness.
Within BOS, management reviews *should* be conducted in a quarterly basis. These reviews *shall* establish at least once per year improvement opportunities, as per the *BOURBON Quality Progress Plan*, as a result of:

- Feedback and analysis of results from internal and external audits and inspections, including charterers ones;
- Analysis of Customer's feedback;
- Any output on ISO audits or any other quality improvement action plan;
- Review of trends from Situation Reports and HSE reporting;
- The status of corrective and preventive actions;
- Review of the Key Performance Indicators of the Company business;
- Monitoring of both positive and negative trends;
- The output from onboard Master's reviews relative to the management system;
- Ability to provide services in compliance with the ISM code and OVMSA inspections;
- Follow-up actions taken and closed-out following previous reviews, including especially process reviews;
- Any output relative to a resource needs or information about Department structuration;

- Any other changes that could affect the Quality Management System, including legislative and regulatory changes.

The review system *shall* include provision for recording and maintaining the results of each management review and a record of participants.

The Management Reviews Minutes of Meetings are dispatched to the Head Office Departments Managers.

1.5 Continual Improvement

The Company *shall* establish KPIs to measure their Quality Management System's effectiveness in meeting the Organisation's goals and regulatory responsibilities.

The Company *shall* use the KPIs to identify areas that need attention to ensure continuous improvement in the performance of their Quality Management Systems. The review of these KPIs *shall* be done at least during the management reviews and the process reviews with appropriate actions plans.

All follow-up actions plans *shall* include the clear assignment of responsibility, authority and accountability for all improvement actions.

2 Review, approval, revision and identification of changes

704

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	Quality Representative	Rev.01 - 11/03/2013	Reviewed of 2.Scope, 3. Responsibility, authority and accountability. § 4.1, § 4.2, § 4.4,§4.4.1, §4.4.2, 4.5, 4.6, 4.6.2, 4.7 updated.
BOS QHSES Manager	BOS QHSES Manager		Ver.03- 03/12/2013	Reviewed of § 1.2, § 1.4 and § 3. Related Documents.
BOS Quality Department	BOS QHSES Manager		Ver.04 – 31/12/2014	§1.2 Adding Internal Inspections Type. §1.3 Adding Internal Audits Type §1.4 Adding Frequency of Management Reviews, change wording Quarterly Review per Management Review. §1.5 Review of KPI system of collection.

3 Related contents

- BOS-PRD-1202.901201 – SMS Measurement and Analysis (SMS Section 12).
- BOS-PRD-1201.901202 – Corrective Action (SMS Section 12);
- B-CHR-1202.0002 – QMS Audits and Inspections Flow;
- B-FRM-1202.0009 – Description of Non conformities and Observations (present on the Company Filing System);
- B-FRM-1202.0019 – Management Vessel Visit Check-List (present on the Company Filing System);
- B-FRM-1201.0008 – Process Review (present on the Company Filing System);
- B-FRM-1201.0007 – Quality Improvement Action Plan (present on the Company Filing System);
- BOS-FRM-1202.0007- OVIQ Internal Inspection Checklist (present on the Company Filing System).

SMS
Measurement and Analysis

705

BOS-PRD-1202.901201-ver.04



Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 7

4.1 Audits and Inspections 7

4.1.1 Internal audit 7

4.1.2 External audits 8

4.1.3 Vessel inspections 8

4.1.3.1 Vessel Internal inspections 9

4.1.3.2 Vessel External inspections 9

4.1.3.3 Vessel inspection using CMID or OVID 10

4.1.3.4 Audits and Inspection treatment 10

4.2 OSM Self-Assessment 10

4.3 Annual SMS Management Review 11

4.3.1 Review meetings 11

4.3.2 Review Committee 11

4.3.3 Review meetings agenda 11

706 4.4 Masters annual SMS review 12

5 Records 13

6 Related documents 13

7 Terms and definitions 15

8 Review, approval, revision and identification of changes 17

1 Purpose

All Companies *shall* ensure the establishment of an effective Measurement, Analysis and Improvement Process to assess the strengths and weaknesses of the Safety Management System.

The Measurement, Analysis and Improvement Process acts as a management tool for independent assessment for use in obtaining objective evidence that the existing requirements have been met.

Since the Measurement, Analysis and Improvement Process evaluates the effectiveness and efficiency of the Company. It is important that management ensures improvement actions are taken in response to findings and results.

2 Scope

Applies to the following requirements:

- Internal audits of Head Office and vessels (ISO audit(s) is only conducted at the Head Office);
- External audits at Head Office and vessels (ISO audit(s) is only conducted at the Head Office);
- French Flag Inspections;
- Maritime Labour Convention (MLC) Inspections;
- Class Inspections.
- Management Self-Assessment to *OSM guidelines* (only conducted at Head Office);
- Routine Vessel visits and inspections;
- Vessel quality assurance by use of *CMID standard* from IMCA or *OVID* from OCIMF;
- Management Review;
- Annual **Masters** SMS Review;

707

This procedure applies to all BOURBON OFFSHORE SURF Company.

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring implementation of this procedure;
b) Monitoring the Management Reviews and ensuring that all the improvement opportunities are discussed during these meetings (cf. *§ 1.4 Management Review* from *SMS section 12 – Measurement, Analysis and Improvement*);
c) Arranging and coordinating the SMS Management Review Committee activities and meetings.

SMS Management Review Committee has the responsibility, authority and accountability for:

a) Participating to the SMS Management Review;
b) Proposing changes and improvements in relation to the Company Safety Management System (SMS).

Designated Person Ashore (DPA)/Deputy DPA have the responsibility, authority and accountability for:

a) Ensuring the verification of compliance with Safety Management System requirements through the organisation of audits and inspections;
b) Ensuring that corrective actions are followed-up, as required;
c) Ensuring follow-up process that *shall* include the verification of corrective actions taken, evidences of closure and verification of implementation effectiveness;
d) Ensuring complete implementation of Master Annual SMS Review process;
e) Verifying successful implementation and closure of all actions from SMS Management Reviews.

Operations Managers (act as Deputies DPA) have the responsibility, authority and accountability for:

a) Ensuring that a Management Vessel Visit Check-List is in place for a senior member of the operations or technical team who has seagoing experience to visit each ship periodically;
b) Ensuring that a corrective action plan, when required, is developed from the Management Vessel Visit Report and the Management Vessel Visit Check-List, with assigned responsibilities and completion dates;
c) Ensuring that all external / internal audit reports received from the vessels are forwarded to relevant personal as per BOS procedures;
d) Verifying the correct implementation of the corrective actions of these audits excluding ISO and Manning Agencies audits.

708

Q & HSE Manager/Quality Representative has the responsibility, authority and accountability for:

a) Managing internal audits and inspection program within the Company and external audits of its Suppliers/Sub-contractors (ISO Internal audits, Manning Agency).
b) Ensuring follow-up process that *shall* include the verification of corrective actions taken, evidences of closure and verification of implementation effectiveness;
c) Selecting **QMS Auditors** and ensuring their proficiency and competence;
d) Managing the QMS Auditors Pool of the Company;
e) Participating in the selection of the accredited training providers for Q&HSE and security disciplines;
f) Facilitating with **Department Manager** and monitoring the OSM Self-Assessments.

Audit Manager has the responsibility, authority and accountability for:

a) Managing vessel internal audits and inspections program within the Company ;
b) Ensuring follow-up process that *shall* include the verification of corrective actions taken, evidences of closure and verification of implementation effectiveness;
c) Selecting the **Auditors** that will perform the audits, using t**he QMS Auditors Pool;**
d) Participating in the selection of the accredited training providers for Q&HSE and security disciplines;
e) Managing the Root Causes Committee with the support of **Department Manager(s)**.

Official Certificates and Documents Department have the responsibility, authority and accountability for:

a) Managing external audits and inspection program within the Company (ISM, ISPS, Flag and Class Inspections board vessels).
b) Verifying that all Statutory Certificates have been edited and available onboard;

QHSE Deputy Manager has the responsibility, authority and accountability for:

a) Ensuring that all Department Managers received the instructions discussed during the SMS Management Review Committee ;
b) Participating to the update of the SMS Management Review Tracker file;
c) Ensuring that Annual Review is carried out as per calendar;
d) Analyzing and providing feedback from SMS Management Annual revision to Managers and vessels.

Department Manager has the responsibility, authority and accountability for:

a) Managing with the support of the **Q & HSE Manager / Quality Representative**, the OSM Self-Assessments.

QMS Auditor has the responsibility, authority and accountability for:

a) Conducting audits on Company vessels, Head Office, suppliers and sub-contractors against the defined audit criteria;
b) Reporting its results;
c) Maintaining his/her proficiency and competence.
d) Providing any feedback for improvement during the Annual Competence and Performance Evaluation.

Vessel Master has the responsibility, authority and accountability for:

a) Performing an annual review of the Company SMS;
b) Assessing the Company SMS for effectiveness;
c) Obtaining feedback from vessel **Crews** in relation to application of the Company SMS;
d) Proposing opportunities for improvement of the Company SMS;
e) Ensuring the vessel is in possession of a current inspection document to standard required by IMCA/CMID (CMID 149 form) or OCIMF/OVID (OVID inspection set) depending on the requirements of the Company;
f) Ensuring vessel availability during audits and inspections;
g) Ensuring that all kind of audit reports received onboard are forwarded to their **Operations Manager and Deputy DPA** to the appropriate distribution list (ref. 4.1.3.4 “Audits and Inspection treatment”).
h) Ensuring all respective identified non-conformities and corrective actions are managed and closed out timely.

709

ISM Coordinator has the responsibility, authority and accountability for:

a) Managing ISM External Audits at the Head Office;
b) Ensuring that all relevant persons receive the last report issued by the external auditor/inspector;
c) Proposing corrective action together with **Masters**, **Operations Manager/Deputy DPA**;
d) Providing proposed corrective action to the External auditors/inspectors for approval and send a copy to the respective vessel;
e) Ensuring that Master Annual Review are carried out as per calendar;
f) Analyzing and providing feedback from Master Annual reviews to Managers and vessels.

OVID Coordinator has the responsibility, authority and accountability for:

a) Ensuring that all relevant persons receive the last report issued by the external auditor/inspector from OCIMF
b) Proposing corrective action together with **Masters** and **Operations Manager / Deputy DPA**.
c) Providing proposed corrective action to the OCIMF Members for approval and send a copy to the respective vessel;
d) Providing the state of maturity of the Safety Management System (SMS) to the OCIMF Members.

Operations Assistant has the responsibility, authority and accountability for:

e) Ensuring that all relevant persons receive the last report issued by the external auditor/inspector (Flag and Class Annual and specific Inspections and Surveys).
f) Proposing corrective action together with **Masters** and **Operations Manager / Deputy DPA**.

g) Providing proposed corrective action to the External auditors/inspectors for approval and send a copy to the respective vessel;

HR Manager has the responsibility, authority and accountability for:

a) Ensuring that all relevant persons receive the last report issued by the E**xternal Auditor / Inspector** (External Manning Agencies inspections).
b) Proposing corrective action together with **Masters** and **Operations Manager/DPA Deputy**.
c) Providing proposed corrective action to the **External Auditor / Inspector** for approval and send a copy to the respective vessel;

710

4 Description

4.1 Audits and Inspections

4.1.1 Internal audit

Internal audits *shall* be conducted at Company Offices, and vessels.

Internal audits *shall* be conducted onboard ISM vessels, and at **Head Office** on a 12 monthly basis in order to verify compliance with requirements of applicable *ISO* standards, *ISM* and *ISPS codes*. In exceptional circumstances, this interval may be exceeded by not more than three months, and Flag authorities *shall* be informed.

In order to plan such audits, the Audits and Inspections Schedule *shall* be defined. The scope of the audit may vary and is influenced by the size, nature and complexity of the Company to be audited. In any case, combined audits are preferred.

As part of these audits, internal OVID inspections can be added to the scope of audits & inspections to be performed onboard. If so, the QMS Auditor *shall* use the OVID form *BOS-FRM-1202.0007 – OVIQ Check List*.

Regularly, the **Quality Representative and the Audit Manager** *shall* update the Audits and Inspections Schedule and send it to the Corporate **Quality, Audits and Inspections Coordinator**.

711

Corporate QMS Audits *shall* be conducted against the BOURBON QMS criteria by **Corporate QMS Auditors**. Only Corporate Quality *shall* designate **Corporate QMS Auditors**.

The **Quality Representatives** *shall* designate, establish and maintain a Company QMS Auditor Pool list adequate to the requirements of the *Competence and Evaluation of Auditor Specifications*. A minimum number of **Auditors** *shall* be trained in compliance to the *Quality Training – QMS Auditors*. Once established, the respective QMS Auditors Pool list *shall* be sent to the Corporate **Quality, Audits and Inspections Coordinator** for consolidation.

The evaluation of **Auditors** and **Audit Team Leaders** *shall* be planned, implemented and recorded in compliance with the *Competence and Evaluation of Auditors Specifications*. The evaluation *shall* identify training and other skill enhancement needs.

Audit to a specific Company, *shall* be planned per different units, vessels, offices and may be declined per processes.

Audits that have the SMS in scope ensure that the safety and pollution-prevention activities, as well as other applicable International Regulations, Codes and Standards (e.g. *ISM*, *ISPS*, *ISO 9001*, MLC and *ISO 14001*) comply with the QMS, namely the *OSM Guidelines*.

Companies *shall* use the *Internal Audit Guidelines* as reference for performing internal audits which states the following requirements:

- Initiating the audit;
- Conducting document review;
- Preparing for the on-site audit activities;
- Conducting on-site audit activities;
- Preparing, approving and distributing the audit report;
- Completing the audit;
- Conducting audit follow-up.

The following Corporate forms *shall* be used for internal auditing purposes and are available on the QMS site:

- *Audit Check-List;*
- *Audit Personal Sheet;*
- *Audit Plan;*
- *Audit Report;*
- *Description of Non-Conformities and Observations.*

Any specific Audit Check-List from any discipline when relevant *shall* be approved by the **Quality Director of BOURBON** and integrated in the *Audit Protocol*.

4.1.2 External audits

External ISO 9001 and ISM audits *shall* be conducted within 12 months at the Head Office by respective Flag State in order to verify compliance with the requirements of applicable *ISO Standards*, *ISM Code*.
External ISM audits *shall* be carried out within 3 months before or after the anniversary date of the Document of Compliance.



External ISPS audits *shall* not be carried out after the anniversary date of the ISSC certificate.

External audits and verification *shall* be made by Flag State to *ISM* and *ISPS* (if relevant).

An External audit is conducted onboard to verify compliance of the Company system with the requirements of the ISM Code. At the delivery of the vessel, a preliminary audit *shall* be performed by the Administration. An interim Safety Management Certificate is issued for a period not exceeding 6 months by the Administration or an organization recognised by the Administration or, at the request of the Administration by another Contracting Government at this time.
712
Before the end of this period, an initial audit *shall* be realised onboard to verify and guarantee that the Company Management System is compliant to International and National Regulations, Standards, Laws and Code.
If the system is found in compliance, a definitive certificate valid for 5 years *shall* be established by the Administration.
An intermediate audit *shall* be conducted on board ships between the second and the third year, and a renewal audit before the end of the 5 years period to reissue the certificate.

External audits *shall* be conducted to **Suppliers/Sub-contractors** as detailed in the *QMS Audits, Inspections and Self-Assessment Programme*.

Corporate Organisation *shall* conduct a QMS audit at the Affiliate Company Office as detailed in the *QMS Audits, Inspections and Self-Assessment Programme* to meet Group strategic planning and objectives.

External audits may also be conducted periodically by **Charterers**/**Clients** to their own contractual requirements or to an Operational Management System which may be comparable to the standards required by OCIMF/OVMSA or BOURBON/OSM.

4.1.3 Vessel inspections

Vessel inspections provide the opportunity for management to ensure that each vessel is performing at the highest standards of safety and efficiency and that communication channels between the vessel and the Company are working correctly.

The purpose of inspections is to check that established standards are being complied with, and that appropriate corrective actions are identified and followed.

An inspection is different to a standard visit or an audit, which look at the efficiency of the processes that form the Management System. In many cases the findings of an inspection *shall* be the objective evidence of failures of the Management System.

4.1.3.1 Vessel Internal inspections

At least twice per year, the vessel *shall* be inspected by the Company Senior Management using the specific *Management Vessel Visit Checklist*. The **Visiting Manager** *shall* ensure that the vessel is aware of inspection date.

The visit gives opportunities to identify any deficiency in the Vessel Management System and ensure that improvement actions plans are put in place.
In regard to material state of a ship, it also gives a strong indication of the effectiveness of its Crew and level of shore support.

This specific checklist is available for the purpose of ascertaining basic standards on vessels without going to the depth or detail of vessel inspections, audits or similar. The *Management Vessel Visit Checklist* is developed for use by typically non-operational managers, such as visiting senior management.

Senior management vessel visits enable overview of conditions in a practical manner, providing guidance for coverage of the following areas:

- Approaching the vessel;
- Boarding the vessel – gangway and deck;
- Discussion with **Master** and **Chief Engineer**;
- General discussion with officers and ratings;
- General vessel tour;
- Closing discussion with **Master**.

713

It is important that prior to and/or during the vessel inspection, the **Visiting Manager** reviews the vessel audit Reports (ISM internal & external audits, Port state Control, OVID/ CMID, etc…) and checks the status of any non-conformities and corrective actions previously raised. The requirements are as detailed below:

- Read previous Ship Inspection Reports;
- Read previous Audit Reports;
- Make notes of issues highlighted (to ensure they have been addressed);
- Check progress on any issues raised by the vessel;

On completion of the visit, the **Master** and **Visiting Manager** *shall* sign and date the *Management Vessel Visit Checklist.* The completed *Management Vessel Visit Checklist* is then forwarded to the respective **Operations Manager**, who is responsible to develop any necessary *Corrective Action Plan*, assigning responsibilities and following-up actions with appropriate completion dates.

4.1.3.2 Vessel External Inspections (Flag and Class).

Vessel *shall* be inspected by the External Authorities once per year.

These external inspections and surveys aim to verify that ships are well managed and maintained and to check that surveys are being carried out effectively by the Recognised Organisations.

All vessels types are subject to expanded inspection and the following areas are supposed to be checked:

- Vessel structure involving assessment of the hull and deck condition;
- Watertight/weatertight doors, ventilators and hatchways conditions;
- Emergency systems, covering emergency lighting, as well as steering gear and bilge pumping equipment;
- Radio communications, covering areas such as main installation functioning, global maritime distress safety systems, and back-up energy sources.

- Fire safety and alarms systems including tests of the crew's ability to use firefighting equipment and firemen's outfits, tests of fire doors, extinguisher systems, alarms, and remote stopping of ventilation and fuel pump systems.
- Living and working conditions, such as the condition of mooring equipment, including machinery foundations.
- Lifesaving appliances verifying the launching arrangements for survival and rescue craft and workboats;
- Pollution prevention measures by checking that effectiveness test of oil filtering equipment are carried out.

In addition, external inspections relative to Maritime Labour Convention (MLC) standard *shall* be conducted to vessels as detailed in the procedure (IN PROJECT).

4.1.3.3 Vessel inspection using CMID or OVID

All vessels *shall* be inspected using OVIQ 7100 report as per OCIMF standards or CMID 149 form as per IMCA standards.

As detailed in the *OVID Guidelines and Procedure* - IN DRAFT, OVID inspections are initiated by OCIMF Members for **Client** or contract requirement and inspections are performed by external accredited **OCIMF Inspectors** with results recorded into the OCIMF Vessel Inspection Database (OVID Database). However the vessel can also use internal *BOS-FRM-1202.0007 – OVIQ Check List* as the basis for completing the inspection requirement
The OVID questions are best practices and not statutory requirements helping to understand what precautions should be taken onboard. Responses to these findings show what is challenged and what is contested.

714

The vessel inspection documents and status of corrective actions *shall* be maintained on board and provided to **Clients**/**Charterers** as required by contract.

The **Operations Department** *shall* follow-up the corrective actions implementation in response to OVID/IMCA inspections.

4.1.3.4 Audits and Inspection treatment

All audit reports raised onboard vessels *shall* be immediately forwarded to their **Operations Manager** as detailed in all the *Audits and Inspections procedures* listed on § 6. Related Documents using the email address:

dist_bos_audits_surveys@bourbon-online.com

The other specific audits reports *shall* be immediately forwarded to the Respective Head Office Process Owners and respective Person(s) Assigned.

4.2 OSM Self-Assessment

All Companies *shall* conduct a routine OSM Self-Assessment to the HSE Drivers required by the *OSM Guidelines*. The *OSM Self-Assessment Checklist shall* be used in that case.

The purpose of the OSM Self-Assessment is to determine the state of maturity of the Safety Management System (SMS) and provide opportunities and targets (drivers) for improvement. State *shall* be released within OVID/OVMSA and access granted to all OCIMF Members.

The OSM Self-Assessment *shall* be conducted twice per year or more frequently, as necessary, to achieve specific targets and objectives.

4.3 Annual SMS Management Review

4.3.1 Review meetings

In compliance with *ISM*, the Company Organisation *shall* meet and review the implementation of the SMS ashore and on the ships to determine its effectiveness in meeting the Company objectives.

This *shall* be done at intervals not exceeding 12 months. Any postponement of the meeting can only be authorised by the **Managing Director** in writing.

Continuous improvement *shall* be attained through the development of an annual management actions plan arising from the SMS Management Review.

Minutes *shall* be kept and all recommendations and action requirements *shall* be recorded. The minutes of meetings may be made into a report and copied to all vessels, Head Office facilities and **Corporate HSE** in Marseilles.

Managers actioned *shall* be held accountable for completion of assigned actions in the required time scale. When actions are completed, evidence *shall* be sent to the **DPA**.

The **DPA** *shall* verify the successful implementation and closure of all such actions.

4.3.2 Review Committee

The SMS Management Review Committee *shall* comprise **Senior** and **Other Management Personnel** that have responsibilities within the SMS. Membership of the SMS Management Review Committee may be as a minimum:

715

- **Crewing and HR Manager;**
- **Operations Managers;**
- **Q &HSE Manager/Quality Representatives;**
- **Technical Manager;**
- **Managing Director;**
- **DPA** (if different to **HSE Manager** or **Operations Manager**).

The **Managing Director** is responsible for arranging and coordinating the SMS Management Review Committee activities and meetings.

4.3.3 Review meetings agenda

The meetings *shall* as a minimum address the following:

- Minutes and outstanding actions from the previous meeting;
- Minutes and actions from SMS Management Review meetings;
- Non-conformities from audit findings;
- Root cause analysis of non-conformity;
- Masters findings from SMS review;
- Port State Control inspections findings;
- OVID inspections findings, areas of non-conformities and associated trends;
- Lagging performance indicators and identify corrective action;
- Client Complaints and Improvement of the service related to customer requirements;
- Areas for improvement in effectiveness of QMS processes;
- Identify and consider the impact of any new and applicable legislation and regulation;
- Review of management policies and level of commitment;
- Current progress and implementation of 12 months *Company Plans*;
- Determine key goals, objectives and performance indicators for the next 12 months;
- Identify the required resources to achieve the goals and objectives;

- Review the implementation of, and participation in, the senior management vessel/shore visit program;
- Review risk management and effectiveness of Company Organisation procedures.

4.4 Masters annual SMS review

In compliance with *ISM Code*, the **Master** *shall* carry out an annual review of the Company SMS at periods not exceeding 12 months to determine its applicability to his vessel and its effectiveness in achieving a safe operation:

- **ISM Coordinator** *shall* inform the **Masters** when the review *may* be carried out and submitted;
- **Masters** *shall* liaise and discuss with the heads of each department onboard the applicable Company SMS procedures;
- The **Master** *shall* identify areas where the procedures are inadequate, not applicable to the vessel or difficult to comply with;
- The **Master** *shall* prepare and submit a detailed report of findings to the **ISM Coordinator** as required by the SMS;
- The Master *shall* use the *Master SMS Review Form* and complete all sections listed. The objective is to provide a yearly exhaustive feedback from all Masters having sailed onboard.
- The **ISM Coordinator** *shall* analyse the Master's SMS Reviews and raise management corrective action to address specific concerns and suggestions or improvements.
- The **ISM Coordinator** *shall* provide appropriate feedback to the **Master.**
- Master's SMS Review, together with the results of any corrective action, *shall* be analysed at the annual SMS Management Review.
- A copy of the Master's SMS Review *shall* be retained on file onboard the vessel.
- **DPA** *shall* ensure complete implementation of Master Annual SMS Review process.

716 The planning of the SMS Review *shall* be sent yearly to the DPA, Deputy DPA/Operations Manager and ISM Coordinator as indicated in the table below:

Vessel Type	Deadline
MPSV and PSV	End of April
AHTS	End of June
FSIV and TUG	End of August
CREWBOAT	End of October

5 Records

- Audits and Inspections Schedules;
- Audit Plans;
- Audit Personal Sheet;
- Audit Check Lists;
- Audit Reports;
- Description of Non-Conformities and Observations;
- Corrective Actions;
- Auditors Competence and Performance Evaluation;
- Masters SMS Review;
- Minutes of SMS Management Reviews;
- Operational Safety Management Self-Assessments Check-Lists;
- IMCA/CMID Inspection Report M149;
- OVID Database;
- OVIQ Records;
- OVPQ Document;
- QMS Auditor Pools;
- Minutes of Meeting of the “Annual Masters Reviews Analysis”
- Management Vessel Visit Check-Lists;
- Management Vessel Visit Reports;
- Management Vessel Visit Action Plans.

717

6 Related documents

- B-BPC-03.0001 – OSM Self-Assessment Best Practices;
- B-CHR-1202.0001 – Audit Programme Management Chart;
- B-CHR-1202.0002 – QMS Audits and Inspections Flow;
- B-CHR-1202.0003 – Audits Activities Flow-Chart;
- B-CHR-1202.0004 – Conceptual Evaluation of Auditors;
- B-CHR-1202.0005 – Audit Corrective Action Flow-Chart;
- B-CHR-1201.0014 – Quality Corrective Action Flow-Chart;
- B-FRM-1201.0012 – Situation Report;
- B-FRM-1202.0001 – Audit Plan;
- B-FRM-1202.0002 – Audit Check-List;
- B-FRM-1202.0003 – Audit Personal Sheet;
- B-FRM-1202.0004 – Audit Report;
- B-FRM-1202.0005 – Auditor Competence and Performance Evaluation;
- B-FRM-1202.0009 – Description of Non-Conformities and Observations;
- B-FRM-1202.0027 – OSM Self-Assessment (OSMSA) Check-List;
- B-FRM-1202.0010 – Audits and Inspections Schedule;
- B-FRM-1202.0015 – BOURBON QMS Auditor Pool;
- B-FRM-11.0001 – Minutes of Meeting;
- BOS-FRM-01.0005 – Management Vessel Visit Checklist;
- B-GDL-03.0007 – Operational Safety Management Guidelines;
- B-GDL-1202.0001 – Internal Audit Guidelines;
- B-GDL-1202.0002 – Audit Programme Management Guidelines;
- B-GDL-1202.0006 – OVID Guidelines;

- B-MNL-1202.0108 – Audit Protocol Portfolio;
- B-PLN-1201.1201 – Quality Training 2012 – QMS Auditors;
- B-PLN-1202.0002 – QMS Audits and Inspections Programme;
- B-PRS-03 – Health, Safety and Environment Process;
- B-PRS-1202 – Audits and Inspections Process;
- BOS-PRS-03 – Health, Safety and Environment Process
- BOS-PRS-12 – Measurement, Analysis and Improvement;
- B-SPC-1202.0001 – Competence and Evaluation of Auditors Specifications;
- BOS-PRD-1202.0003 – ISM External Audits Monitoring Procedure;
- BOS-PRD-1202.0005 – OVID Monitoring Procedure (IN DRAFT);
- BOS-FRM-1201.0003 – Master's SMS Review;
- BOS-PRD-1201.901202 – Corrective Action (SMS Section 12);
- BOS-DRT-11.0001 – Process List;
- BOS-PRD-1202.0004 – Third Party Audits;
- BOS-PRD-1202.0005 – OVID Inspection Monitoring;
- ISM code (external);
- ISO 14001 standard (external);
- ISO 9001 standard (external);
- ISPS code (external);
- OVIQ Documents (external);
- Maritime Labour Convention (external)
- OVIQ Document (IN DRAFT);

718

7 Terms and definitions

Audit
Systematic, independent and documented **process** for obtaining **audit evidence** and evaluating it objectively to determine the extent to which **audit criteria** are fulfilled. Audits are used to determine the extent to which a **management system requirements** are fulfilled.

Audit evidence
Records, statements of fact or other information which are relevant to the audit criteria and verifiable.

Audits findings:
Audit findings are used to assess the effectiveness of the quality management system and to identify opportunities for improvement.

Audit plan
Description of the activities and arrangements for an audit.

Audit Inspection program
Set of one or more audits planned for a specific time frame and directed towards a specific purpose.

Audit scope
Extent and boundaries of an audit. The audit scope generally includes a description of a physical locations, Organisational units, activities and processes, as well as the time period covered.

Auditee
Organisation being audited.

719

Auditor
Person with the demonstrated personal attributes and competence to conduct an audit.

Corrective action
Action to eliminate a detected non-conformity.

DOC
Document of Compliance

DPA
Designated Person Ashore

IMCA/CMID
International Maritime contractors Association
Common marine inspection Document

Inspection
Conformity evaluation by observation and judgment accompanied as appropriate by measurement, testing or gauging.

ISM
International Safety Management Code.

ISPS
International Ship & Port Facility Security Code.

ISSC
International Ship Security Certificate.

MLC
Maritime Labour Convention.

Non-Conformity
Non-fulfilment of a requirement. Major Non-Conformity *shall* be understood as a systematic non-fulfilment of a critical requirement that jeopardizes a process of the management system, posing a serious threat to safety, security or quality. Minor Non conformity *shall* be understood as an isolated non-fulfilment of a requirement, which does not jeopardise a process of the management system.

Observation
Act of viewing a fact or occurrence.

OSM
Operational Safety Management

OCIMF/OVID/OVIQ/OVPQ
Oil Companies International Marine forum
Offshore Vessel Inspection Database
Offshore Vessel Inspection Questionnaire
Offshore Vessel Particulars Questionnaire

OVMSA
Offshore Vessel Management Self-Assessment.

Preventive action
Action to eliminate the cause of a potential non-conformity or other undesirable potential situation.

Quality Management System (QMS)
720 BOURBON excellence management system that integrates different management systems, namely the **Safety Management System**, Competence Management System, Risk Management System, among others.

Record
Document stating results achieved or providing evidence of activities performed. Documents that provide objective evidence of activities performed or results achieved.

Recommendation
Statement that may originate from an observation. A recommendation from observation is not binding, although it represents an opportunity for improvement.

Safety Management System (SMS)
A systematic approach to managing safety, including the necessary organisational structures, accountabilities, **policies** and **procedures**.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	BOS QHSES Manager	Quality Representative	Rev.01-11/03/2013	Review of chapters 2, 3, 6 Update §4.1, §4.2, §4.4, §4.4.1, §4.4.2, §4.5, §4.6, §4.6.2, § 4.7.
BOS QHSES Manager	BOS QHSES Manager		Ver.03-03/12/2013	Review of chapters § 3, §4.1.2, § 4.1.3.1, § 4.1.3.2, § 4.1.3.3, § 4.1.3.4, §4.3.1, § 4.3.3 and § 4.4.
BOS QHSES Manager	BOS QHSES Manager		Ver.04 – 31/12/2014	§ 2 Add some audits criteria. § 3 *Bullet points deleted for Operations Manager role and added for Audit Manager responsibilities. *Add Quality Manager, Deputy QHSE Manager and Official Certificates and Documents department Job Titles. *Add the term CMID 149 to the Vessel Master. Separate OVID Coordinator, HR Manager and Operations Assistant Job titles. *Change the sentence “Vessel Inspection Checklist” for “Management Vessel Visit Checklist”. § 4.1.3.2 Add inspection of workboat § 4.1.3.3 Add information about OVID information and OVID External treatment. § 4.4 Modification of the planning of Master Annual SMS Review.

721

Corrective Action Procedure

722

BOS-PRD-1201.901201-ver.02



Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Generalities 5

4.2 Raised situations 6

4.2.1 B-Safe Card 6

4.2.2 Situation Report 7

4.2.3 Quality Corrective action 7

4.2.4 Audit corrective action 8

4.3 Detecting and analysing causes 8

4.4 Corrective action 9

4.5 Implementation, follow-up and improvement 10

5 Records 10

6 Related documents 11

7 Terms and definitions 12

8 Review, approval, revision and identification of changes 13

723

1 Purpose

Quality *shall* ensure the establishment of an effective and efficient management of corrective actions to assess improvement opportunities in the Quality Management System (QMS).

This procedure establishes requirements on implementing effective corrective actions capable of satisfying quality assurance and regulatory requirements.

They include all activities necessary to measure the efficiency of the corrective actions as:

- Identification of the non-conformity or of any undesirable situation;
- Evaluation of the magnitude of the problem;
- Real and/or potential impact on BOS activities;
- Investigation of the non-conformity or of any undesirable situation;
- Root cause analysis;
- Action plan management;
- Plan implementation;
- Follow-up with verification of closure.

2 Scope

This procedure is applicable to Bourbon Offshore Surf.

724

3 Responsibility, authority and accountability

Managing Director has the responsibility, authority and accountability for:

a) Ensuring this procedure is implemented within BOS Company.

QHSES Manager has the responsibility, authority and accountability for:

a) Ensuring that the Situation Report form is always available to all BOS Company **Employees**;
b) Ensuring implementation of the relevant corrective action taken in the Company Management Systems when applicable;
c) Sharing best practices and lessons learned within BOS.

Quality Representative has the responsibility, authority and accountability for:

a) Following-up of Situation Reports raised by the fleet;
b) Monitoring quality and audit corrective actions;
c) Defining the conclusion grade and criteria clause of each situation raised via a Situation Report;
d) Verifying effectiveness of assigned quality and audit corrective actions within BOS;
e) Coordinating the treatment of the Situation Reports and investigations of the potential root cause;
f) Collecting the evidences of closure of Situation Reports.

Audit Manager has the responsibility, authority and accountability for:

a) Managing and following up the vessels audit process;
b) Organising the vessels audits plan;
c) Evaluating the internal auditors;
d) Implementing and improving vessels audits checklists;
e) Verifying effectiveness of corrective actions.

Audit Team Leader has the responsibility, authority and accountability for: 725

a) Defining the conclusion grade and criteria clause of each audit findings;
b) Verifying and approving the audit corrective actions;
c) Verifying effectiveness of corrective actions.

Process Owners have the responsibility, authority and accountability for:

a) Designating an **Implementation Responsible** for any deviations, non-conformity raised during audits, or by suggestions, complaints and remarks within his/her process;
b) Approving respective corrective actions;
c) Verifying effectiveness of corrective actions;
d) Contributing to the treatment of the Situation Report, including participation to the investigation of the potential root cause;
e) Collecting the evidences of closure of any situation raised onboard.

Implementation Responsible has the responsibility, authority and accountability for:

a) Analysing causes as per **Process Owner** requirements;
b) Defining a corrective action with due date;
c) Implementing the approved corrective actions;
d) Verifying effectiveness of corrective actions.

Designated Person Ashore has the responsibility, authority and accountability for:
a) Verifying effectiveness of an ISM corrective action.

Operations Managers have the responsibility, authority and accountability for:
a) Acting as Deputies Designated Person Ashore (DPA);
b) Contributing to the analyse of the potential root cause when designated;
c) Contributing to the verification of effectiveness of an ISM, OVID, Third party corrective action.

Company Security Officer has the responsibility, authority and accountability for:
a) Verifying effectiveness of an ISPS corrective action.

HR Manager has the responsibility, authority and accountability for:
a) Verifying effectiveness of a MLC corrective action.

All Employees have the responsibility, authority and accountability for:
a) Identifying and reporting anything that is not in line with his/her expectations, using the Situation Report form, and handing it over to the **Quality Representative**.

4 Description

4.1 Generalities

The BOURBON criteria are used as a reference against which conformity is determined and may include applicable policies, guidelines, procedures, standards, laws and regulations, Management System requirements, contractual requirements or maritime codes of conduct.

726

BOURBON criteria include the following standards/codes:
a) BOURBON Quality Management System (QMS);
b) ISM Code;
c) ISPS Code;
d) ISO 9001;
e) ISO 14001;
f) OHSAS 18001;
g) Offshore Vessel Inspection Questionnaire (OVIQ);
h) Marine Labour Convention (MLC).

When a non-fulfilment of a requirement is detected, i.e. non-conformity or anything not in line with the process activities expectations, a corrective action *shall* be set up in order to eliminate the root cause of the non-conformity or the deviation. A non-conformity or deviation may have various detected causes, in such a case it can be necessary to combine various corrective actions.

Non-conformities and deviations may result from:
- Internal audits;
- External audits namely Clients, Certifications Bodies, Flag Society, Classification Society;
- Anything not in line with process activities expectations;
- Any suggestions, complaints or remarks.

Non-conformities are graded by the **Audit Team Leader** when auditing, or by the **Quality Representative** in non-audit situations as:
- Major non-conformity: *shall* be understood as a systematic non-fulfillment of a critical requirement that jeopardizes a process of the Management System, posing a serious threat to Safety, Security, or Quality;
- Minor non-conformity: *shall* be understood as an isolated non-fulfillment of a requirement, which does not jeopardizes a process of the Management System.
- Observations *shall* be understood as a recommendation of improvement. They are not binding although they represent an opportunity of improvement.

Time for closing of **major non-conformity**:	**Immediate or date stipulated in the report by the Audit Team Leader**
Time for closing of **minor non-conformity**:	Mandatory, less than six months, if not otherwise stated by statutory or regulatory requirements.
Time for closing of observation (not mandatory):	Recommended, less than six months for internal audits and situations reports.

When the non-conformity is issued after an external audit, the timescale presented *shall* be respected.
Time for closing non-conformities issued after an internal audit *shall* be respected.

All non-conformities *shall* be described, analysed and assessed with the objective to avoid reoccurrences and to improve the effectiveness of the Quality Management System.

Source examples are (but not limited to):

- Action Plans;
- Audits Programme Recordables;
- Audit Reports;
- Audits Records;
- B-Safe Cards;
- Client Actions Plans;
- Corporate Quality Supports;
- Documentation Reviews;
- Improvement Action Plans;
- Inspections Recordables
- Management Reviews;
- Operation Action Plans;
- OSMSA;
- Process Reviews;
- QMS Management Reviews;
- Quality Meetings;
- Noting;
- Supplier Evaluations;
- Situation Reports.

727

4.2 Raised situations

4.2.1 B-Safe Card

All hazard and unsafe behaviours onboard vessels and at Head Office *shall* be reported using the *B-Safe Card* system.

When hazard or unsafe behaviours cannot be adequately addressed or corrected onboard, it *shall* be transmitted through a Situation Report and submitted to the **Quality Representative. Operations Manager** *shall* be in copy of any Situation Report raised onboard vessels. A quality corrective action *shall* be set up in order to avoid reoccurrence (see 4.2.4).

Depending on Clients requirements, copies of the B-Safe Cards filled by the vessel may be requested by other parties such as **Contracts Manager** in a regular basis (daily, weekly, monthly…).

Moreover, pro active B Safe cards *shall* be sent to the QHSE Coordinator by the Master to be shared as applicable within the fleet.

The criteria that will be considered are in particular:

- Risk reduced by the measure (probability/gravity);
- Cost of the measure or cost reduction induced by the measure;
- Way it reduces the difficulty of the task(s);
- Way it improves the well-being of employees (equipment, work equipment)
- How communication is improved by the proposal.

4.2.2 Situation Report

Potential non-conformities, suggestions, remarks or complaints *shall* be filled in the *Situation Report* form by all **Employees** and handed over to the **Quality Representative. Operations Manager** *shall* be in copy of any Situation Report raised onboard vessels.

Examples of situation(s) that may be reported through the Situation Report tool are (but not limited to):

- Suggestion relative to the design of an equipment (especially after delivery) or to notify a solution found to improve the design of a same series of vessels (as for e.g. noise level, fire flaps…);
- Improvement of the BOS Company Management Systems;
- Situation(s) that slow down the activity of the Company;
- Medicine logistic problems;
- Crew change difficulties;
- Excessive delivery times;
- Reception of material and/or equipment not compliant to what have been ordered, equipment not fitted for the operations or with bad quality, equipment not compliant to the international, national laws and regulations;
- Operations that need to find solution with **Third parties** and/or **Contracting Companies**;
- Any Clients complaints or suggestions;
- Recurrence of the same problems.

728

Depending of the situation reported, the **Quality Representative** *shall* classify the situation as follow:

- Irrevelant, when the situation reported has been identified not threatening the activities or already raised through previous situation report(s) and followed-up;
- Relevant, when the situation reported may have an impact on the activities.
  In this case, he/she *shall* raise:
  - A quality corrective action if the non-conformity or observation already occurred or,
  - A preventive action if, as detailed in the *Preventive Action Guidelines*, the non-conformity/situation has not occurred but may occur.

4.2.3 Quality Corrective action

As described in the *Quality Corrective Action Flow-Chart*, if the situation reported is relevant and if the situation analysed has already occurred, the **Quality Representative** *shall* grade in the *Description of Non-Conformities and Observations* form the non-conformity as minor-conformity, major non-conformity, or observation. Non-conformities, observations, and their supporting evidences *shall* be recorded.

- When an observation is detected, the **Quality Representative** *shall* issue a recommendation for improvement. Recommendations issued from observations are not binding, although they represent an opportunity for improvement.
- Minor and major non-conformity *shall* be sent immediately to the respective **Process Owner**. Once understood, the **Process Owner** *shall* designate an **Implementation Responsible**. A Quality Corrective Action *shall* be issued by the **Implementation Responsible.** Feedback *shall* be provided to the **Initiator** and to the **Quality Representative** of any non-conformity and if appropriate to other areas within the Company.

If the situation reported is irrelevant, the **Quality Representative** *shall* close and file the *Situation Report*. The **Employee** that raised the situation *should* be informed of this decision.

4.2.4 Audit corrective action

A non-conformity or observation detected during an Audit *shall* be reported in the *Description of Non-Conformities and Observations* form. The **Audit Team** is responsible for describing the situation.

Once the non-conformity or observation is described, the **Audit Team Leader** *shall* grade in the *Description of Non-Conformities and Observations* (as part of the Audit Report) as:

- An observation;
- A minor non-conformity;
- Or a major non-conformity.

These conclusions and their supporting audit evidences *shall* be kept and recorded onboard and at the Head Office.

Once graded, conclusions *shall* be reviewed with the **Auditee** to obtain acknowledgement that the audit evidence is accurate, and that the non-conformities and observations are understood. Every attempt *shall* be made to resolve any diverging opinions concerning the audit evidence and/or findings, and unresolved points *shall* be recorded.



As indicated in the *Internal Audit Guidelines,* the Audit Report illustrates the record evidence of the conducted audit against the **Auditee**'s Management System. The **Audit Team** *shall* present the Audit Report at the end of the closing meeting in order that the **Auditee** *shall* keep the necessary information which *shall* allow to immediately identify which corrective actions *shall* be taken to improve its Management System.

When an observation is detected and understood, the **Audit Team Leader** and the **Auditee** *shall* issue a recommendation for improvement. Recommendations issued from Observations are not binding, although they represent an opportunity for improvement.

729

Once understood, minor and major non-conformity *shall* be reviewed by the **Auditee** and the **Audit Team Leader** for formal agreement. Both *shall* agree, or not, the non-conformity. If the non-conformity is not agreed, an appeal *shall* be attached to the Audit Report. The appeal and the Audit Report *shall* be sent to the **QHSES Manager, Process Owner and/or Designated Person Ashore** depending of the source of the audits who *shall* determine the need for an audit corrective action. Once agreed, an audit corrective action *shall* be issued by the **Auditee**. Feedback *shall* be provided to the **Auditee** of any non-conformity and if appropriate to other areas within the Organisation.

4.3 Detecting and analysing causes



Each non-conformity or deviation *shall* originate a root cause analysis to establish a corrective action.



A root cause is a source of a deviation or non-conformity, which if removed or mitigated will respectively disappear or decrease to acceptable levels.

The **Process Owner** *shall* designate an **Implementation Responsible** in order to identify the root cause.

TapRooT™ methodology, which combines incident identification, analysis, and dynamic report, *shall* be used for investigating all incidents. In this case, the **Implementation Responsible**, designated by the **Process Owner**, *shall* be in charge of the root cause analysis in TapRooT ™.

The **Implementation Responsible** *shall* have the necessary competence, availability and legitimacy to implement the corrective action. He/she *shall:*

- Assess and analyse the cause(s) of each deviation, non-conformity and/or incident raised;
- Measure the impact of each cause(s) detected;
- Identify a corrective action per non-conformity, deviation or incident generated to prevent reoccurrence;
- Ensure the Management of Change when applicable;
- Determine an action plan with due date.

For assessing and analysing causes, quality tools may be used, such as (but not limited to):

- *5 Why's* (by default to any circumstances except to incident cases);
- *5 WH*;
- Fault Tree Method;
- Flow Chart;
- Statisticals trends including histogram;
- *Ishikawa Model*;
- Pareto Chart.
- TapRoot ™ tools (exclusive to HSE matters).

Once root cause and proposal of Corrective Action have been analysed and found, it *shall* be submitted for approval to the respective **Process Owner** and **Audit Team Leader**. If the corrective action is not approved, another corrective action *shall* be proposed until approval.

4.4 Corrective action



A corrective action is an action to eliminate the root cause of a detected non-conformity or other undesirable situation while a correction is just an action to eliminate a detected non-conformity (also know as a 'quick fix'). It is recommended but not mandatory to involve experts during this phase.

When identifying a corrective action, consideration *shall* be given to:

- Customer Focus;
- Leadership;
- Involvement of people;
- Process approach;
- System approach to management;
- Continual improvement;
- Factual approach to decision making;
- Mutually beneficial supplier relationships;

730

When proposing a corrective action, attention *shall* be given to:

- Efficiency and effectiveness: The solutions need to have a reasonable probability of solving the problem. Moreover, a criteria of effectiveness *should* be defined by the **responsible Process Owner** when applicable, in particular when treating ISO 9001 findings. When this criteria is reached, the corrective action is considered as efficient and the finding can be closed.
- Budget: The corrective action cost *shall* be within the budget of the Company and appropriate;
- Employee Involvement: The employees affected by the problem *shall* be involved when identifying causes;
- Focus on Systems: The solutions *shall* be focused on systemic view. Employees do make mistakes, but that is not usually the root cause of the problem.

If a non-conformity or deviation has various causes, it can be necessary to combine corrective actions. Various non-conformities or deviations *shall* not be combined.

A corrective action:

- including several processes or initiated by Quality *shall* be called Quality Corrective Action (see 4.2.3);
- issued after an audit *shall* be called Audit Corrective Action (see 4.2.4).

In all cases, corrective action *shall* be approved by the respective **Process Owner**.

A Root Cause Committee may work on systematic deviations and take adequate measures.

A Root Cause Committee *shall* be composed of the following, as a minimum:

- **Process Owner**;
- **Designated Person Ashore** / **Deputies DPA** when it is relative to ISM;
- **Company Security Officer** when it is relative to ISPS;
- **Quality Representative**;

- **ISM Coordinator**, **HR Manager**;
- **Audit Manager** and/or **QHSE Coordinators** for vessel audit non-conformities;
- Other **Managers** or **Implementation Responsible(s)** may be co-opted.

4.5 Implementation, follow-up and improvement

Once approved, the corrective action *shall* be sent to the **Implementation Responsible**.
The implementation phase *shall* be monitored and evidences *shall* be recorded.

The completed *Description of Non-Conformities and Observations* *shall* be forwarded to all parties involved in the process. The effectiveness of the corrective action *shall* be verified by all parties included or involved in this process, namely:

If a quality corrective action
Quality Representative;
Respective Process Owner;
Implementation Responsible;
DPA (If ISM);
CSO (If ISPS).

If an audit corrective action
Quality Representative (**QHSE Coordinators** by delegation);
Respective Process Owner;
Implementation Responsible;
DPA (If ISM);
CSO (If ISPS);
Audit Manager;
Next **Audit Team Leader** (< 6 months)

Effectiveness of any corrective action taken *shall* be assessed in the next internal audit and the result *shall* be recorded on the Audit Report. Once the corrective action is proven effective, and when the **Quality Representative** for a quality corrective action, the **Audit Team Leader** for an audit corrective action have evidences of completion and effectiveness, the corrective action *shall* be closed. 731

Quality and audit corrective actions *shall* be consolidated by the **Quality Representative** in the appropriate documentation system (*Quality Improvement Action Plan* form or AUDINS software…).

Once the corrective action is proven effectively closed, it may become a best practice to share within the BOURBON World.

5 Records

- Audit Plans;
- Audit and inspections Reports;
- Description of Non-Conformities and Observations;
- B-Safe Cards;
- Situation Reports;
- BOURBON Quality Bridging Follow-ups;
- Corrective Actions;
- Evidences;
- Quality Improvement Action Plans;
- Management Review Records;
- Process Reviews Records.

6 Related documents

- B-CHR-11.0004 - Quality Management System, an Integrated Excellence Management Systems;
- B-CHR-1202.0001 - Audit Programme Management Chart;
- B-CHR-1202.0002 - QMS Audits and Inspections Flow;
- B-CHR-1202.0003 - Audits Activities Flow-Chart;
- B-CHR-1202.0005 - Audit Corrective Action Flow-Chart;
- B-CHR-1202.0014 - Quality Corrective Action Flow-Chart;
- B-FRM-1202.0001 - Audit Plan;
- B-FRM-1202.0002 - Audit Check List;
- B-FRM-1202.0003 - Audit Personal Sheet;
- B-FRM-1202.0004 - Audit Report;
- B-FRM-1202.0009 - Description of Non-Conformities and Observations;
- B-FRM-1202.0012 - Situation Report;
- B-GDL-11.0001 - Document Control Guidelines;
- B-GDL-1202.0001 - Internal Audit Guidelines;
- B-GDL-1202.0002 - Audit Programme Management Guidelines;
- B-GDL-1202.0005 - Control of Non-Conforming Guidelines
- B-PGM-1202.0002 - QMS Audits, Inspections and Self-Assessment;
- B-PLN-1201.2011 - BOURBON Quality Plan;
- B-PRS-12 - Measurement, Analysis and Improvement Process;
- B-PRS-1201 - Processes and Improvement Process;
- B-PRS-1202 - Audits and Inspections Process;
- B-PRS-1203 – Analysis and Reporting;
- BOS-PRS-12 – Measurement, Analysis and Improvement Process;
- BOS-PRS-1201 – Process and Improvement;
- BOS-PRS-1202 – Audits and Inspections Process;
- BOS-PRS-1203 – Analysis and Reporting;
- B-FRM-11.0012 – Bourbon Quality Representatives;
- B-FRM-1201.0007 – Quality Improvement Action Plan;
- B-DRT-11.0004 – Bourbon Quality Representatives Directory;
- BOS-INS-03.1201 – Vessels Allocation by QHSE Coordinators;
- TapRooT ™.

732

7 Terms and definitions

Correction
Action to eliminate a detected **non-conformity**.

Corrective action
Action to eliminate the cause of a detected **non-conformity**.

DPA
Designated Person Ashore.

Fault Tree Method
The fault tree is used to search an orderly chain of causes leading to default.

Flow-Chart
A flow chart is a type of diagram that represents a process or related activities, showing the steps as boxes of various kinds, and their order by connecting these with arrows. This diagrammatic representation can give a step-by-step solution to a given problem.

Histogram
An histogram is a bar chart representing a frequency distribution; heights of the bars represent observed frequencies.

Implementation Responsible
Person designated by a **Process Owner** in order to identify adequate improvement actions. The **Implementation Responsible** *shall* have the necessary competence, availability and legitimacy to define and implement the improvement action.

733

Inspection
Conformity evaluation by observation and judgment accompanied as appropriate by measurement, testing or gauging.

Ishikawa Diagram
This diagram is used to order and visualize the relationship between an "effect "and all linked causes.

Non-conformity
Non-fulfillment of a **requirement**.
NOTE: In Bourbon, **non-conformities** are graded as:
Major ***non-conformity***: ***shall*** be understood as a systematic non-fulfillment of a critical requirement that jeopardizes a process of the management system, posing a serious threat to safety, security, or quality.
Minor ***non-conformity***: ***shall*** be understood as an isolated non-fulfillment of a requirement, which does not jeopardizes a process of the management system.

OVIQ
Offshore Vessel Inspection Questionnaire.

Pareto Chart
The Pareto principle (also known as the 80-20 rule, the law of the vital few, and the principle of factor sparsity) states that, for many events, roughly 80% of the effects come from 20% of the causes. The pareto chart is used to order and visualize the 80-20 rule.

Preventive action
Action to eliminate the cause of a potential **non-conformity**.

Root Cause Committee
Organisation of a meeting at Head Office within several persons to discuss root causes analysis and determines corrective actions.

5 Why's
The 5 Why's' is used to identify the root causes of a problem to avoid analysing superficial causes.

5WH
The 5WH is a tool used to describe a situation (problem, causes, solutions,...) and to accurately analyse all elements.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Version (Nº and date)	Changes (chapter/reference)
BOS QHSES Manager	Quality Director of BOURBON	Quality Director of BOURBON	01- 11/03/2013	Update chapters 2, 3, and 6. Review of §4.1.
BOS QHSES Manager	Quality Director of BOURBON		CR (BOS-PRD-1201.901202-rev.01) 10 January 2013	Full revision
BOS Quality Department	BOS QHSE Manager		Ver.01 – 31/12/2014	§3: Deletion of Deputy QHSE Manager job title, Adding Audit Manager job title. Replacing Quality Coordinator by Quality Representative job title. Adding HR Manager roles and responsibilities. §4.2.1: Adding Information about pro active b safe cards (memo 2013-08). §4.2.2 ; §4.4; §4.5: Adding Audins software. Adding memo BOS 2013-08 QHSE Award.

734

Preventive Action

BOS-PRD-1201.901202-ver.02

735

BOURBON

Building together a sea of trust

Table of Contents

1 Purpose 3

2 Scope 3

3 Responsibility, authority and accountability 4

4 Description 5

4.1 Generalities 5

4.2 Suggestions and potential undesirable situations 5

4.3 Preventive action 5

4.4 Implementation and follow-up phase 7

5 Records 8

6 Related documents 9

7 Terms and definitions 10

8 Review, approval, revision and identification of changes 12

736

1 Purpose

This procedure determines how to establish actions to eliminate causes of potential non-conformities in order to prevent their occurrence.

2 Scope

This procedure is applicable to Bourbon Offshore Surf Organisation.

737

3 Responsibility, authority and accountability

QHSES Manager has the responsibility, authority and accountability for**:**

a) Ensuring that the *Situation Report* form is always available to all BOS Company **Employees**;
b) Ensuring implementation of the relevant corrective action taken in the Company Management Systems when applicable;
c) Sharing best practices and lessons learned within BOS.

Quality Representative has the responsibility, authority and accountability for:

a) Following-up Situation Reports raised by the fleet and the Head Office;
b) Monitoring preventive action within his/her respective Organisation;
c) Agreeing potential causes identified within his/her respective Corporate Organisation;
d) Verifying effectiveness of preventive action within his/her respective Corporate Organisation;
e) Sharing best practices.

Designated Person Ashore has the responsibility, authority and accountability for:

a) Verifying effectiveness of an ISM preventive action.

Operations Managers have the responsibility, authority and accountability for:

a) Acting as Deputies Designated Persons Ashore (DPA);
b) Contributing to the analyse of the potential root cause when designated;
c) Contributing to the verification of effectiveness of an ISM preventive action.

Company Security Officer has the responsibility, authority and accountability for:

a) Verifying effectiveness of an ISPS preventive action.

738 **Process Owners** have the responsibility, authority and accountability for:

a) Agreeing potential causes;
b) Designating a responsible for the improvement action once the potential causes are agreed;
c) Verifying effectiveness of preventive action within Corporate Organisation;
d) Congratulating the **Employee** that initiated the preventive action, after its successful implementation.

Implementation Responsible has the responsibility, authority and accountability for:

a) Defining a preventive action plan with due date;
b) Implementing the approved preventive action;
c) Verifying effectiveness of preventive action.

All Employees have the responsibility, authority and accountability for:

a) Identifying and reporting anything that is not in line with their expectations, in the *Situation Report* and handing it over to the **Quality Representative.**

4 Description

4.1 Generalities

A preventive action is an action to eliminate the cause(s) of a **potential** non-conformity or other undesirable **potential** situation(s).

The potential non-conformity/situation **has not occurred** but **may occur**. A preventive action allows the Organisation to take proactive measures to ensure that a potential non-conformity/situation does not occur.

4.2 Suggestions and potential undesirable situations

All **Employees**:

- Can detect a potential situation that may generate a potential undesirable situation;
- May have suggestions, remarks or complaints that can improve the Quality Management System.

As described in the *Preventive Action Flow-Chart*, and the *Quality Corrective Action Flow-Chart*, all **Employees,** can detect and report anything that is not in line with his/her expectations (ref. to *BOS-PRD-1201.901201 Corrective Action Procedure*). In this case, the **Employee** has the authority for describing the situation in the *Situation Report*. The form *shall* then be handed over to the **Quality Representative,** and if raised by a Vessel also to the **Operations Manager**. Evidences *shall* be kept and registered.

739

Other sources examples are (but not limited to):

- Processes trend analysis. A worsening trend *should* indicate that if no action is taken, a potential non-conformity may occur;
- Formal and informal customer feedback;
- Corrective action monitoring and analysis;
- Evaluation of non-conformities that occurred in similar circumstances, but in other situations processes, or other parts of the respective Organisation, or even in other BOURBON Organisations;
- Risk assessment and monitoring;
- Noting.

Once described, the **Quality Representative** is responsible for defining if the situation is relevant. In any case, the **Quality Representative** *shall* archive the filed Situation Reports in the respective QMS filing system.

4.3 Preventive action

As indicated in the *Preventive Action Flow-Chart*, once the **Quality Representative** accepts the relevancy, he/she *shall* inform the adequate **Process Owners** of the potential risk.

The respective **Process Owner** is responsible for identifying causes.

Once the potential causes are agreed, the respective **Process Owner** *shall* designate an **Implementation Responsible** in order to identify the adequate preventive action. The **Implementation Responsible** *shall* have the necessary competence, availability and legitimacy to define and implement the preventive action.

The **Implementation Responsible** *shall:*

- Assess and analyse the potential causes;
- Defining the potential impact;
- Define an action plan adapted to the potential impact.

Assessing and analysing potential causes
Efficiency and effectiveness: The solutions need to have a reasonable probability of solving the potential problem; **Budget:** The preventive action cost *shall* be within the budget of the impacted Organisation and appropriate; **Employee involvement:** **Employees** affected by the potential problem *should* be involved when identifying potential causes; **Focus on systems:** The solutions *shall* be focused on a systemic view. **Employees** do make mistakes, but that is not usually the root cause of the problem.

740

Quality tools (not limited to):
5 Why's: The 5 Why's' is used to identify the root causes of a problem to avoid analyzing superficial causes. **5 WH**: The 5WH is a tool used to describe a situation (problem, causes, solutions, etc.) and to accurately analyse all elements. **Fault Tree Method**: The fault tree is used to search an orderly chain of causes leading to root cause. **Flow-Chart**: A flow-chart is a type of diagram that represents a process or related activities, showing the steps as boxes of various kinds, and their order by connecting these with arrows. This diagrammatic representation can give a step-by-step solution to a given problem. **Histogram**: An histogram is a bar chart representing a frequency distribution; heights of the bars represent observed frequencies. **Ishikawa Diagram**: This diagram is used to order and visualize the relationship between an "effect "and all linked causes. **Pareto Chart**: The Pareto principle (also known as the 80-20 rule), states that, for many events, roughly 80% of the effects come from 20% of the causes. The Pareto chart is used to order and visualize the 80-20 rule. **TapRoot™:** TapRooT™ methodology – and corresponding software, which combines incident identification, analysis, and dynamic report, *shall* be used for investigating all incidents and any other type of deviation or non-conformity when applicable. In this cases, the **Implementation Responsible**, designated by the **Process Owner**, *shall* be in charge of the root cause analysis in TapRooT™.

The preventive action *shall* be described in the *Quality Improvement Action Plan*. A due date *shall* be indicated for implementation.

Once completed, the Preventive Action *shall* be approved by the respective **Process Owner**. If the Preventive Action plan is not approved, the **Implementation Responsible** *shall* propose another Preventive Action until approval.

Once the preventive action is approved, the preventive action *shall* be:

- Implemented as indicated in the preventive action plan;
- Postponed.

If the preventive action is reported:

- Reasons *shall* be explained to the **Quality Representative** and to the **Implementation Responsible**;
- The **Implementation Responsible** *should* adapt the preventive action and propose it again to the respective **Process Owner** until agreement for implementation.

4.4 Implementation and follow-up phase

The implementation phase *shall* be monitored and evidences *shall* be recorded.

The completed Preventive Action *shall* be forwarded to all parties involved. The effectiveness of the preventive action *shall* be verified by all parties included or involved in this process, namely:

Preventive Action Verification
Quality Representative;
Respective Process Owner;
Implementation Responsible;
DPA/Deputies DPA (If ISM);
CSO (If ISPS).

Once the preventive action is proven effective, and when the **Quality Representative** has evidences of completion and effectiveness, the **Process Owner** and the **Quality Representative** *shall* congratulate the **Employee** that initiated the preventive action. 741

Once the preventive action is proven effectively closed, it *should* become a best practice to share within the BOURBON World.

5 Records

- Situation Reports;
- Evidences;
- Root Cause Analysis;
- Quality Improvement Action Plans.

742

6 Related documents

- B-GDL-11.0001 – Document Control Guidelines;
- B-CHR-1201.0007 – Preventive Action Flow-Chart;
- B-CHR-1201.0017 – Quality Improvement Flow;
- B-FRM-1201.0007 – Quality Improvement Action Plan;
- B-FRM-1201.0012 – Situation Report;
- B-CHR-1201.0014 – Quality Corrective Action Flow-Chart;
- B-GDL-1201.0005 – Corrective Action Guidelines;
- B-PLN-1201.2012 – BOURBON Quality Plan;
- B-PRS-1201 – Processes and Improvement Process;
- B-FRM-1202.0009 – Description of Non-Conformities and Observations;
- B-FRM-1202.0023 – 5 Why's Analysis Model;
- BOS-DRT-11.0001 – Processes List;

743

7 Terms and definitions

Terms and definitions in the audit process are based on ISO 9000:2005 standard.

Audit
Systematic, independent and documented process for obtaining **audit evidence** and evaluating it objectively to determine the extent to which the **audit criteria** are fulfilled.

Audit conclusion
Outcome of an **audit**, provided by the **Audit team** after consideration of the audit objectives and all **audit findings**.

Audit criteria
Set of policies, **procedures** or **requirements**.

Audit evidence
Records, statements of fact or other **information** which are relevant to the **audit criteria**.

Audit findings
Results of the evaluation of the collected **audit evidence** against **audit criteria**.

Audit plan
Description of the activities and arrangements for an **audit**.

Audit Programme
Set of one or more **audits** planned for a specific time frame and directed towards a specific purpose.

744

Audit scope
Extent and boundaries of an **audit**. The audit scope generally includes a description of the physical locations, organisational units, activities and processes, as well as the time period covered.

Audit team
One or more **Auditors** conducting an **audit**, supported if needed by **Technical Experts**. The audit team includes Auditors-in-Training.

Auditee
Organisation being audited.

Combined audit
When two or more management systems are audited together.

Competence
Demonstrated personal attributes and demonstrated ability to apply knowledge and skills.

Correction
Action to eliminate a detected **non-conformity**.

Corrective action
Action to eliminate the cause of a detected **non-conformity**.

Document
information and its supporting medium.

DPA
Designated Person Ashore.

Information
Meaningful data.

Inspection
Conformity evaluation by observation and judgment accompanied as appropriate by measurement, testing or gauging.

Joint audit
When two or more auditing organisations cooperate to audit a single **auditee**.

Non-conformity
Non-fulfillment of a **requirement**.
NOTE: In Bourbon, non-conformities are graded as:
Major non-conformity: ***shall*** be understood as a systematic non-fulfillment of a critical requirement that jeopardizes a process of the management system, posing a serious threat to safety, security, or quality.
Minor non-conformity: ***shall*** be understood as an isolated non-fulfillment of a requirement, which does not jeopardizes a process of the management system.

Objective evidence
Data supporting the existence or verity of something.

Quality Representative
Person designated to ensure implementation and compliance to the **QMS** within its own Organisation. The Quality Representative is assigned to Affiliate QHSE Managers at **Affiliate Organisations**. This role *shall* be assigned to the higher hierarchical level of an **Affiliate Organisation**, ***should*** the **Affiliate QHSE Manager** position not exist.

Preventive action
Action to eliminate the cause of a potential **non-conformity**.

Procedure
Specified way to carry out an activity or a **process**.

745

Process
Set of interrelated or interacting activities which transforms inputs into outputs.

Record
Document stating results achieved or providing evidence of activities performed.

Requirement
Need or expectation that is stated, generally implied or obligatory.

Technical Expert
Person who provides specific knowledge or expertise to the **Audit team**. A Technical Expert does not act as an **Auditor** in the Audit team.

8 Review, approval, revision and identification of changes

Reviewed by (job title)	Approved by (job title)	Validated by	Revision (Nº and date)	Changes (chapter/reference)
BOS Deputy QHSE Manager	BOS QHSES Manager	Quality Director of BOURBON	Ver.01 – 03/12/2013	-
BOS Deputy QHSE Manager	BOS QHSES Manager		Ver.02 – 31/12/2014	Replacing in all the procedure “assigned Deputy QHSE Manager and Quality Coordinator” by “Quality Representative”. §3. Deleting QHSE Coordinators roles and responsibilities.

746



Bourbon Offshore Surf
148, rue Sainte
13007 Marseille, France

p: +33 (0)4 91 13 08 00

BOURBON
Building together a sea of trust