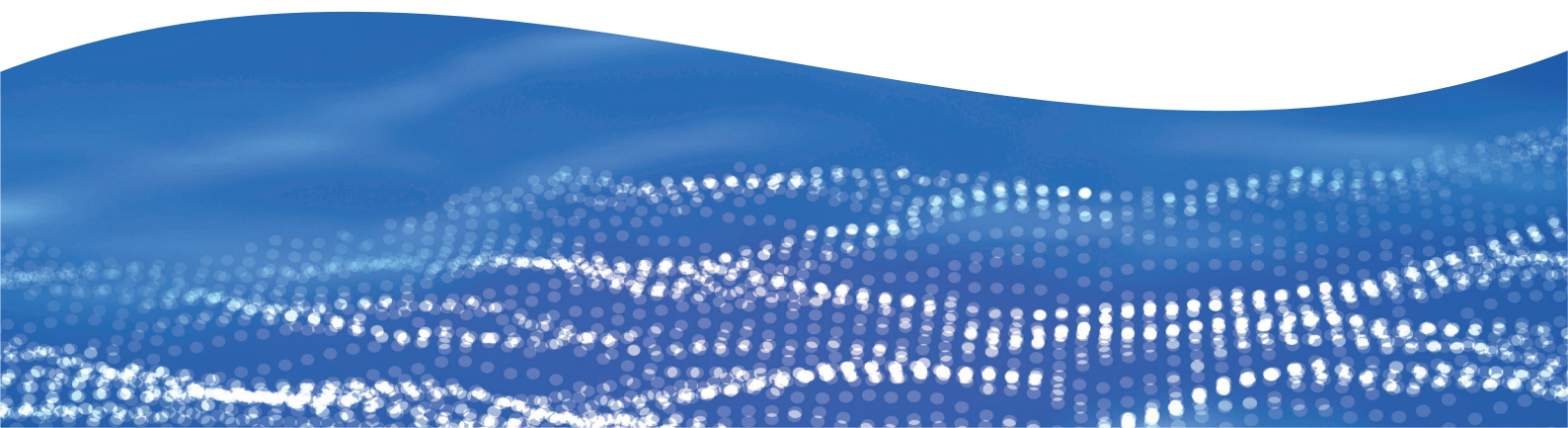




Simultaneous Operations (SIMOPS)

IMCA M 203 Rev. 0.2
January 2021





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IMCA M 203 – Version History

Date	Reason	Revision
January 2021	Minor editorial changes made during review process	Rev. 0.2
August 2016	Minor editorial changes made during review process	Rev. 0.1
March 2010	Initial publication	Rev. 0

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1 Introduction

1.1 Purpose and Scope

This document is intended to provide guidance for all parties involved in simultaneous marine operations (SIMOPS) in support of offshore exploration, construction, installation, production, maintenance and decommissioning activities across all maritime sectors where SIMOPS may take place.

The structure of the document reflects the order of SIMOPS activities – from when it is identified that two or more marine operations are to be carried out simultaneously, through the planning, execution and management of such activities.

The risks associated with simultaneous operations can be eliminated, minimised or managed through proper planning, communication and supervision.

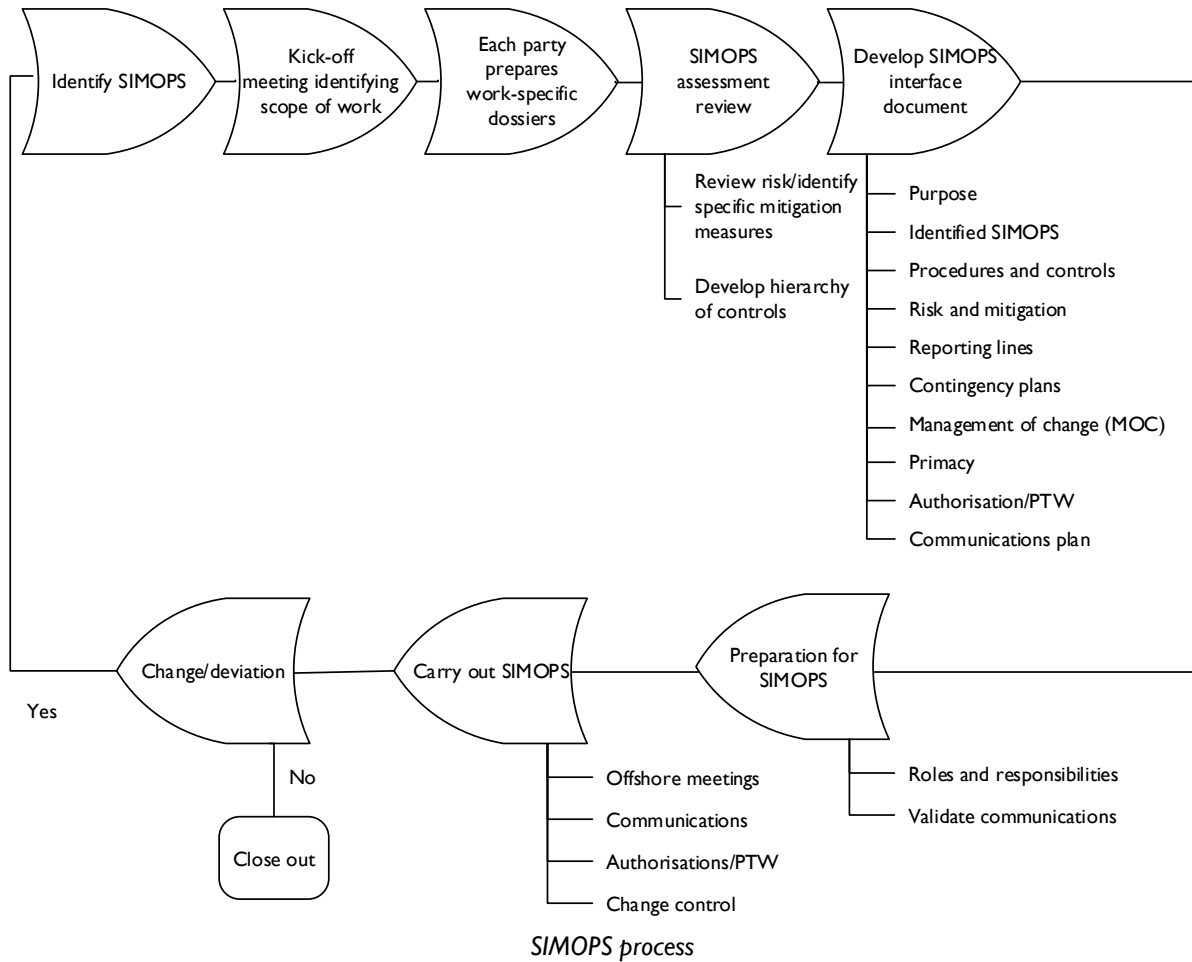
2 Glossary

A number of specialised terms are used in this document. It is assumed that readers are familiar with most of them. However, a number of them, although in use for many years, could be misunderstood. These terms are defined below to ensure that readers understand what is meant by them in this document.

Close proximity	Within the 500 metre zone
DP system	A DP system is the entire system necessary to maintain a DP vessel's position including computers, sensors, thrusters and power generation amongst others
DP vessel	A unit or a vessel which maintains its position with a dynamic positioning system
DP Loss of position	A situation where the vessel cannot maintain heading and/or position as a result of drift off, or drive off.
FPSO	Floating production, storage and offloading unit/vessel
FPU	Floating production unit
HIRA	Hazard identification and risk assessment
MOC	Management of change: a procedure to manage circumstances which deviate from the agreed procedure
OIM	Offshore installation manager
PIC	The person-in-charge or controlling authority or entity directing field operations.
PTW	'Permit to work'; a system to manage and control work tasks and the personnel carrying them out
Redundancy	Ability of a component or system to maintain or restore its function when a single failure has occurred, achieved for instance by installation of multiple components, systems, or alternative means of performing a function
ROV	Remotely operated vehicle
SIMOPS	Refers to two or more potentially clashing operations occurring, for example, at the same time/same place
SURF	Subsea umbilicals, risers and flowlines

3 SIMOPS Flowchart – Life Cycle Model for SIMOPS

The flowchart below sets out the life cycle model for the SIMOPS process. The various elements identified in the SIMOPS process are set out in further detail in this document.



4 The SIMOPS Process

4.1 Identifying SIMOPS

4.1.1 What are SIMOPS?

SIMOPS (simultaneous operations) are described as the potential clash of activities which could bring about an undesired event or set of circumstances, e.g. safety, environment, damage to assets, schedule, commercial, financial, etc.

This document covers SIMOPS in marine operational activities associated with offshore operations that occur in support of offshore exploration and production, and the marine renewable energy sector. SIMOPS are defined as performing two or more operations concurrently. These activities typically include, but are not limited to, the following:

- ◆ An approved vessel undertaking a non-routine operation within an installation's 500m zone;
- ◆ subsea umbilicals, risers and flowlines (SURF) operations;
- ◆ field developments with multi-vessel/contractor operations.

Vessels include, for example, diving support vessels, heavy lift vessels, supply boats, barges, pipelay and cable lay, accommodation, seismic, survey, ROV vessels, and any other vessel operating in dynamic positioning mode. Installations cover, for example, fixed and floating production platforms, drilling rigs, DP production units, FPSOs and FPU's.

SIMOPS often involve multiple companies (owners, contractors, subcontractors, vendors), large multi-disciplined workforces and a wide range of daily, 24-hour, routine and non-routine construction and commissioning activities.

4.1.2 How do you identify a SIMOP?

It is important that SIMOPS are identified at an early stage before the work commences as it may take considerable time to undergo the complete process. SIMOPS may come about as the result of the following issues:

- ◆ schedule clashes, e.g. activities in same area at the same time;
- ◆ physical clashes, e.g. anchor patterns, loss of position;
- ◆ failure impacts, e.g. explosions, leakage, gas, etc.;
- ◆ interference between platform operations and vessel operations;
- ◆ contracts and third party interfaces, e.g. liabilities, risk/insurance;
- ◆ environmental impacts, e.g. currents, icebergs, weather limitations;
- ◆ territorial clashes, e.g. 500m zone, existing infrastructure;
- ◆ any other combined/simultaneous activity in the area of operation which could compromise the success of the project.

4.2 The SIMOPS Process

4.2.1 Kick-Off Meeting

Once a SIMOPS has been identified, a kick-off meeting should be arranged for all parties to the SIMOPS and the client so that the operational work scope can be drawn up. The party in overall charge of coordination (for example client, OIM or master of a specific vessel) should be identified. This is a significant step which must be actioned at as early a stage as possible.

The kick-off meeting should identify all the SIMOPS activities to be carried out. A risk assessment of all the anticipated operations should be undertaken to:

- ◆ identify constraints and hazards associated with all the activities;
- ◆ draw up a checklist of the corresponding mitigation measures.

Each party to the SIMOPS activities should draw up a dossier which is intended to provide a work-specific summary identified by that party for their part in the SIMOPS activities.

In order that each party can draw up their work-specific SIMOPS dossiers, the kick off meeting should:

- ◆ define the responsibilities and nominate the responsible person for each party;
- ◆ clarify the person-in-charge or controlling authority or entity directing field operations;
- ◆ identify the input required from each party;
- ◆ Identify if, or confirm that marine assurance of SIMOPS vessels has been undertaken and is available for review.

A risk assessment of all anticipated operations should be undertaken to:

- ◆ identify the time frame for each part of the SIMOPS work, including timings of pre-operations meetings and the actual SIMOPS activities themselves.
- ◆ Identify potential constraints and hazards associated with all the activities;
- ◆ Identify potential contingencies;
- ◆ Identify possible alternatives to minimise or avoid a SIMOPS activity altogether;
- ◆ As a result of the outcome of the risk assessment, draw up a checklist of the corresponding mitigation measures.

4.3 Preparation of Work-Specific Dossiers by Each Party Involved in the SIMOPS

4.3.1 Work-Specific Dossiers

Based on the kick-off meeting scope of work developed for the field operations, a dossier containing all pertinent work-specific information for each of the SIMOPS operations should be prepared by each of the parties to the SIMOPS. This information is needed to enable a systematic SIMOPS assessment to be conducted effectively.

4.3.2 Contents of Work-Specific Dossier

IMCA has a number of guidance documents that will assist parties when compiling the work specific dossier:

- ◆ [IMCA M 205](#) – Guidance on operational communications;
- ◆ [IMCA M 220](#) – Guidance on operational activity planning;
- ◆ [IMCA S&L 001](#) – Guidance for the management of change in the offshore environment.

Each dossier should contain the following:

- ◆ A summary of the work set out in a step-by-step procedure together with an associated indicative schedule and identification of the main installation features and equipment to be utilised;
- ◆ Scale drawings showing the work-specific SIMOPS operations identifying the surrounding offshore installations associated with the activities. The exclusion and restriction zones should also be identified on these drawings;
- ◆ A list of the assets – platforms, vessels, jack-ups, etc. – to be used in each specific part of the SIMOPS;
- ◆ A summary of the constraints relating to each work-specific SIMOPS activity;

- ◆ Organisation chart. An organisation chart for each party in the SIMOPS should be drawn up with the key positions identified;
- ◆ A summary of the main hazards for each of the operations. These should have been in the work-specific risk assessment for each operation and should clearly identify the areas of risk associated with each step of the SIMOPS;
- ◆ Presentation of the mitigation strategies and precautions proposed for each step of the work-specific SIMOPS operations. A risk register should be developed and the mitigation strategies to be put in place should be identified;
- ◆ Management of change procedure for identified deviations from the SIMOPS procedure. A management of change procedure may be needed and the method for review and approval of any change identified within the procedure;
- ◆ Escape route identification. The escape routes for each vessel should be identified;
- ◆ Weather limitations. The weather window associated with each operation should be identified and should include the time required to undertake the operation plus appropriate contingency and identification of any sea/environmental conditions limitations;
- ◆ Communications. Since SIMOPS may result in multiple vessels operating in close proximity, clear concise communications between all involved parties are critical to successful operations. Communication systems for use should be clearly identified including backups. The methods, radio frequencies and schedule of communication for normal work activities and for emergencies should be identified. This can include contact details such as emails and phones, including emergency contacts;
- ◆ Acoustic method allocation and limitations. The acoustic systems used by each vessel working in the field should be identified. A process should be developed for the management of all acoustic positioning systems used in the field to avoid acoustic interference between vessels and their associated ROV and subsea tools and equipment;
- ◆ Checklist of actions to be taken for each work-specific SIMOPS operation including a list of hold points;
- ◆ Contingency plans:
 - Operations. This should cover operational contingency plans. Should a vessel involved in the SIMOPS move into a position where its close proximity to other vessels or structures becomes a concern, then the master, offshore installation manager (OIM) or other person-in-charge (PIC) has the right to stop the work until operations can be safely resumed. Examples include:
 - intended scope of work to take longer than scheduled and could impact other incompatible activities
 - equipment failure
 - communications failure
 - unplanned / unforeseen change of work scope
 - Weather. The weather window needs to be agreed in advance for any weather sensitive operation and appropriate plans identified should the weather limitations be exceeded.
 - Current. The impact of current needs to be evaluated in advance and appropriate plans identified should any limitations be exceeded.
 - DP loss of position. Risks include that of collision, diver safety, lifting incidents, etc. should a vessel involved in the SIMOPS experience a loss of position.

Appropriate contingency plans, including identification of appropriate redundancy should be in place to address the potential for loss of position.
 - Communications. Key controls for the loss of communication while in close proximity to other vessels and/or installations or during critical operations include:
 - having a plan in place for switching to alternative or secondary communications systems
 - testing communications systems and the backup systems prior to the commencement of SIMOPS

- notification arrangements through secondary or alternative systems to the PIC of a failure in communications
- stop the work as directed by the master, OIM or other designated person
- Emergency response. Appropriate vessel specific emergency response plans should be drawn up.
- Familiarisation: Plan to be in place to familiarise the crew of the vessels involved (this may include the installation crew also).

4.4 Carry Out SIMOPS Assessment Review

4.4.1 Purpose of the Assessment Review

A meeting of all the parties involved in the SIMOPS should be set up to review each party's work-specific dossier in a systematic manner

Appropriate tools should be used to clearly identify all the risks in conducting SIMOPS contained in each party's dossier and the review meeting should agree the required specific mitigation measures to be implemented to allow SIMOPS to proceed.

Methodology/tools which can be used to identify the risks are:

- ◆ hazard identification and risk assessment (HIRA);
- ◆ clash analysis;
- ◆ interdependency analysis.

4.4.2 Development of Hierarchy of Controls

It is important that, during the SIMOPS assessment review, the roles and responsibilities of each of the parties within the SIMOPS are identified and a hierarchy of control established for each work-specific SIMOPS activity.

The roles and responsibilities for all parties and individuals who have authority within the SIMOPS should be established. This should cover reporting lines in normal and emergency modes and hierarchy of controls for the different phases of operations.

Management hierarchy should identify authorisations required for work to proceed. An authorisation control system should be established which also clearly identifies controls that would stop the SIMOPS, e.g. weather limits, change in another party's SIMOPS activities, vessel loss of position, vessel loss of anchor, loss of communications, incident or near-miss stopping an operation.

4.5 Development of a SIMOPS/Interface Document

It is important that SIMOPS/interface documentation be developed for the SIMOPS activities. Depending on the scope of the SIMOPS activities, this could comprise one document covering all the work or alternatively could comprise several documents, covering specific, clearly identified SIMOPS activities. Each interface document should:

- ◆ Set out the activities covered by the document and should be applicable to all parties' operations for the specified activity. A SIMOPS matrix, where appropriate, may be developed to identify which activities are permissible when conducted simultaneously;
- ◆ Be developed on a discrete basis for various phases of work within the SIMOPS to prevent this becoming an unwieldy document;
- ◆ Contain a validation exercise to be carried out against the original SIMOPS assessment review to ensure that all mitigation and controls are in place.

The SIMOPS interface document should cover the following:

- ◆ Purpose and scope;
- ◆ Glossary of terms;
- ◆ Roles and responsibilities, including organisation and reporting lines/requirements;
- ◆ SIMOPS operations – description of scope of work to be covered by the specific document;
- ◆ Procedures and controls;
- ◆ SIMOPS risk and mitigations;
- ◆ Contingency / Emergency plans;
- ◆ Change control – deviation requests;
- ◆ Establishment of who has primacy (who is in overall charge of communications, PTW and operations);
- ◆ Authorisations to proceed process (PTW);
- ◆ Communication plan – covering both regular and emergency communications. This should include:
 - contact information
 - designated language
 - channels and frequencies for communication
 - notification and verification procedures
 - critical communications (weather, course or position changes etc.)
 - loss of communication procedure
 - planned radio silence procedures
 - status reporting
 - testing and emergency drills requirements

4.6 Preparation for SIMOPS

In the preparation of the start of each of the SIMOPS activities, it is important that a pre-operations briefing is undertaken to:

- ◆ Ensure that all parties at site are aware of roles and responsibilities and hierarchy of controls;
- ◆ Confirm operational readiness;
- ◆ Validate all lines of communications, operational and emergency prior to final authorisation to proceed being given.

4.7 Undertaking the SIMOPS

Once the SIMOPS has started, it is important that there is regular communication between all involved parties.

4.7.1 Daily Meetings

During the whole duration of the SIMOPS work, a daily conference call (or meeting if feasible) should be held between the representatives of the involved parties to review the progress of the current SIMOPS activity and to organise the planning and safety of the remaining work.

4.7.2 Regular Communications

During the SIMOPS, the communications plan identified in the SIMOPS interface document should be followed. Regular checks should be made and documented between vessels in the 500m zone. During certain critical activities it may be desirable to initiate continuous, real-time communications, either two-way or by one vessel describing the operation and the others listening.

The communications plan should have identified the preferred means of continuous communications to ensure that important information is received and directed to the appropriate person or person-in-charge (PIC).

4.7.3 Emergency Communications

The communications plan should have identified the method for emergency communications.

4.7.4 PTW/Authorisations

The SIMOPS should be co-ordinated through the PIC identified in the interface document. The SIMOPS should be managed through a single PTW system managed by the PIC. SIMOPS co-ordination and management should be achieved through the arrangements established and set out in the interface document.

4.7.5 Change Control

Throughout the SIMOPS operations there should be a system in place to monitor the hierarchy of controls to ensure all parties recognise a deviation from the control limits and therefore apply an 'all stop' or management of change (MOC) as appropriate.

When a deviation from the control limits is identified, the change identified should follow the agreed change control mechanism set out in the interface document.

4.8 SIMOPS Close Out

Once the SIMOPS activities have been completed, it is good practice to undertake a close out process, either on a company-by-company basis or a project basis. The aim of the close out review is to capture any lessons learnt for use in further SIMOPS activities.