Guidance on
Simultaneous Operations
(SIMOPS)
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Guidance on Simultaneous Operations (SIMOPS)

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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 oil and gas exploration and production or related construction and survey activities.

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

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. PIC should also issue permits to work

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 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.

**SIMOPS process**
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. SIMOPS are defined as performing two or more operations concurrently. These activities typically include, but are not limited to, the following:

- A 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 vessels operating in dynamic positioning mode. Installations cover, for example, fixed and floating production platforms, drilling rigs, DP production units, FPSOs and FPUs.

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. SIMOPS may come about as the result of the following issues:

- Schedule clashes, e.g. activities in same area at 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 project success criteria.

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 scope of work for the operations can be drawn up. The party in overall charge (for example client, OIM or master of a specific vessel) should be identified.

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;
- identify the input required from each party; and
- identify the time frame for each part of the SIMOPS work, including timings of pre-operations meetings and the actual SIMOPS activities themselves.

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 and 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

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 the SIMOPS;
- Presentation of the mitigation strategies and precautions proposed for 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 is 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. The methods, radio frequencies and schedule of communication for normal work activities and for emergencies should be identified;
- 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;
- 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.
  - 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.
  - DP loss of position including DP failures/drive off. Risks include that of collision, diver safety, lifting incidents etc should a vessel involved in the SIMOPS experience a loss of position as a result of loss of reference system, power management or thruster failure.
    Appropriate contingency plans, including identification of appropriate redundancy should be in place to address potentials 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 backup prior to the commencement of critical operations;
    - 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.

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 enable a review to be undertaken of 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 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 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.

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;
♦ 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 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 **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.

4.8.1 **Useful Reference Documents:**

IMCA S&L 001 – *Guidance for the management of change in the offshore environment*

IMCA S&L 003 – *Guidance on the initial and refresher familiarisation of vessel crews*