

# **SIMOPs – Simultaneous Operations in Oil and Gas Installations and work Sites**

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## **ABSTRACT**

Simultaneous operations can be defined as conducting independent operations in which the course of any operation may impact the safety of personnel, equipment, and environment of another operation. Operations are meant in terms of performing drilling, completion, work over, and construction or production activities simultaneously, mainly at offshore facilities. In general, they have an impact on the installation safety procedures and contingency planning program. Thus, for the purpose of performing simultaneous operations, they must comply with organizational safety and technological requirements. They are to be coordinated through joint planning efforts by supervisors who plan and direct activities. Typical chain-of-command as well as simultaneous operations decision making process flow diagrams are presented in this chapter. Basic steps to be regarded are performing risk assessment, assess and control risks, monitor the simultaneous tasks and communicate the control measures. Communication is the key to performing these tasks safely.

This report will focus on the strengths of creating and implementing a SIMOPS plans for an organization as well as the

downfalls to not including them in your onshore and offshore strategy. By learning to identify possible SIMOPS situations for project early on in the development phase, we will be able to distinguish those possible situations which may cause costly delays or worse, cause serious harm or injury to onshore/ off shore oil and gas installations and personnel.

## **INTRODUCTION**

The objective & scope of the Simultaneous Operations covers, Engineering / Civil / Construction, Production, Pipeline or Well Operation activities within the Installation /Site or development, performed by 2 or more independently managed organisations where the physical proximity

is small enough for there to be potential adverse interaction. The scope of the Report overview matrix and guidelines is to maintain the same level of safety at the Installation /Site during simultaneous activities that is equivalent to the level of safety without the simultaneous activities.

All personnel involved in simultaneous operations must be diligent in communicating their activities with others

involved in the operations. Documentation of operations, checks and audits should continue throughout each stage of the simultaneous operation.

**BACKGROUND**

*Key Principle for Managing Simultaneous Operations (SIMOP's)* the purpose of this document is to define the restrictions that shall apply to specific simultaneous operations or activities and ensure the Risks and Potential hazards introduced are identified, assessed and managed by use of established procedures and guidelines. This is to ensure that all the simultaneous operations are carried out in a safe, cost effective and timely manner.

The document addresses situations where there may be a potential interaction between simultaneous operations or activities managed by independent organisations at the Installation / Site resulting in additional hazards to those involved. It identifies the possible sources of hazards and describes the method for ensuring adequate management thereof including roles and responsibilities.

**OBJECTIVES AND SCOPE**

The scope of the Simultaneous Operations covers, Engineering / Civil / Construction, Production, Pipeline or Well Operation activities within the Installation /Site or development, performed by 2 or more independently managed organisations where the physical proximity is small enough for there to be potential adverse interaction.

The scope of the documents overview matrix and guidelines is to maintain the same level of safety at the Installation / Site during simultaneous activities that is equivalent to the level of safety without the simultaneous activities.

**METHODOLOGY**

The procedure shall apply to independently manage simultaneous operations that could increase the level of risk on any of Installations or work sites.

The following section of the SIMOP's matrix demonstrates the methodology of use.

	Well Start-up	Train Start-up (Hydrocarbon)	Normal Production/Operation	Major Maintenance Activities	Construction Activities (Operational Site)	Construction Activities (Well Pads)	Construction Activities (Pipelines)	Pipeline Repairs	Vehicle Entry/Movements
1	Well Start-up	N/A	Y	Y	R <sup>1</sup>	Y	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>
2	Train Start-up (Hydrocarbon)	Y	N/A	R	R <sup>1</sup>	R <sup>1</sup>	Y	R	Y
3	Normal Production/Operation	Y	R <sup>1</sup>	N/A	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	Y	R <sup>1</sup>
4	Major Maintenance Activities	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	N/A	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	Y
5	Construction Activities (Operational Site)	Y	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	N/A	Y	Y	Y
6	Construction Activities (Well Pads)	R <sup>1</sup>	Y	R <sup>1</sup>	R <sup>1</sup>	Y	N/A	R <sup>1</sup>	Y
7	Construction Activities (Pipelines)	N	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	Y	R <sup>1</sup>	N/A	R <sup>1</sup>
8	Pipeline Repairs	R <sup>1</sup>	Y	R <sup>1</sup>	R <sup>1</sup>	Y	R <sup>1</sup>	Y	N/A
9	Vehicle Entry/Movements	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	R <sup>1</sup>	N/A
10	Excavation / Ground Disturbance	R <sup>1</sup>	N	R <sup>1</sup>	Y	R <sup>1</sup>	R <sup>1</sup>	Y	R <sup>1</sup>

R<sup>1</sup> = Note 1 of Reference Sheet 10

1. Well Start-up: Risk assessment required for any excavation / ground disturbance work is to be allowed to continue when well start-up operations to commence.

The matrix and guidelines for restrictions in the document are applicable to new activities and for existing sites where there are established, on-going production and drilling operations.

**ROLES AND RESPONSIBILITIES**

Everyone involved in SIMOPs must exercise good judgment, promptly respond to any unusual situation, discontinue operations if a potentially hazardous situation arises, and recommend changes to reflect prevailing operational conditions.

**O Director Operations**

- **Director Projects**
- **Installation and Site Managers**
- **Department Heads**
- **Site HSE Managers**
- **Performing Authorities**

### **SIMOPs MANAGEMENT**

**Categories of SIMOPs** Pre-defined production, drilling / well intervention, construction / commissioning and Simultaneous Operation-specific assessments have been used in the development of this document, to identify and assess hazards from potential Simultaneous Operations and to categorise the SIMOP's into:

- **‘Allowed Subject to normal PTW/procedural controls’**
- **‘Restricted’**
- **‘Not Permitted’**
- **‘Not Applicable’**

### **SIMOPs Matrix**

The SIMOPs categories are identified in a matrix, Reference and reference notes are provided for each activity in the matrix, and these include:

- A description of any hazard associated with the activity specific to the site
- References to any applicable standards, procedures, policies and project design documentation for conducting the individual activities (i.e. not as Simultaneous Operation)

- 1. Ensures risk assessments** in place.
- 2. Ensures good handover** between shifts since the permit has to be handed in after the completion of each shift.
- 3. Allows management to highlight and control activities.**
- 4. Do not** carry out **simultaneous co-activities** without prior inspections and approval.
- 5. Co-ordinators** should ensure the assigned task for individuals are specified.
- 6. Continuous supervision** must be carried out.

### **Process for Managing SIMOP's**

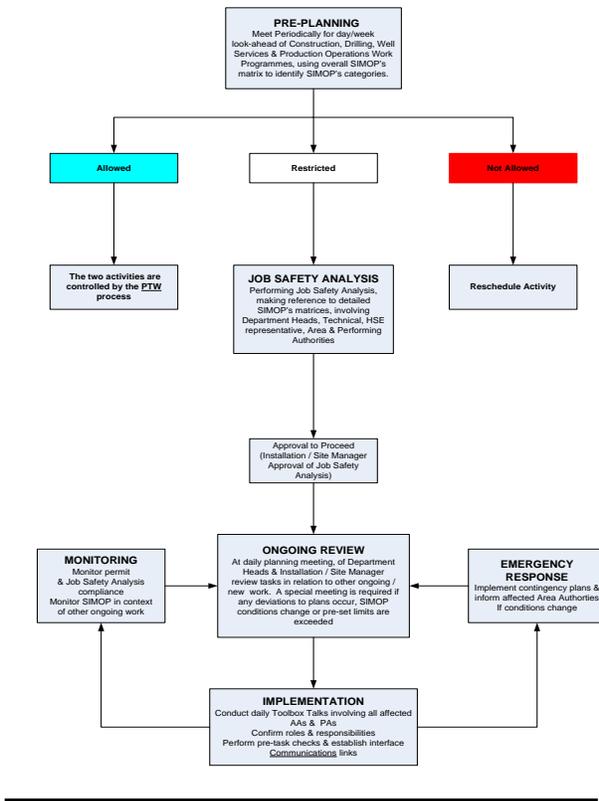
Site activities are normally controlled by either a PTW system, Procedures or Standing Instructions etc., underpinned by specific or generic Job Safety Analyses. SIMOP's may alter the risk exposure, depending on the prevailing conditions. The Process for addressing any increased risk associated with SIMOP's is detailed in the flow-chart. The steps involve:

- Pre-planning, using the overview matrix referencing the activities that constitute simultaneous operations and the reference and reference notes to be followed
- Job Safety Analysis in line with Cairn Work Control standards, using the overview matrix and associated references, taking into account the prevailing conditions to list hazards and identify:

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### **GENERAL RECOMMENDATIONS**

## Process Flow Chart for ‘Restricted’ SIMOPs



## CONCLUSIONS

Operations with two or more installations and simultaneous operations such as construction and production need appropriate management systems and controls for effective use of resources and to minimise risk. Simultaneous operations are defined as the potential clash of activities. It may occur as a result of clash in schedules or physical clashes, failure impacts, interference. An early risk assessment for all the operations identifying the hazards and constraints. Proper contingency plans should be in place identifying redundancy in case

intended scope of work take longer than scheduled and affect other operations, or an equipment failure occur or take in to account unforeseen weather conditions.

The *permit to work system* is an effective safety management tool to control and manage risk when multiple hazardous activities are being carried out concurrently in a confined environment such as an onshore/offshore well-pads or any other industrial plant.

It has been observed during my work experience *successful Communication* is key in simultaneous operations. I would like to expand on the key factors to be considered like; Proper plan to switch to alternate communication system if it fails, system to be tested before the commencement of operations, proper notification arrangements in case of a failure, consent to stop the work immediately in case of an emergency. Appropriate emergency response plans should be in place.

The major challenge facing the success of SIMOPS are command/control and clear/comprehensive communication – which imperatively, must be established from the onset and maintained daily for SIMOPS to be performed in a safe and controlled manner. To ensure that this challenge is taken care of, roles must be clearly defined, and every involved personnel must meet the training and competency requirements for effective SIMOPS.

## **REFERENCES**

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