
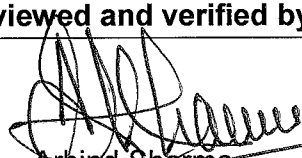
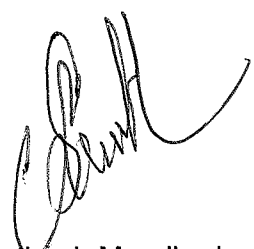
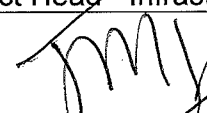



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## TECHNICAL STANDARD (TS)

# SIMULTANEOUS OPERATIONS

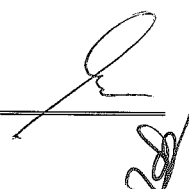
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20/2/23  
20-02-23

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### Document Change Note

Rev. No	Rev. Date	Comments / Changes
00	02-12-2022	New Issue



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## 1 PURPOSE

The purpose of this Simultaneous Operations (SIMOPS) Procedure is to provide all personnel from the construction and commissioning groups who are involved with simultaneous operations on AMNS projects with a sound knowledge of the relevant safe work practices and procedures applicable to simultaneous operations. This Procedure shall also be used to determine the compatibility, interference and limitations raised during the planning and operational stages of any simultaneous operation.

## 2 SCOPE

The requirements of this Simultaneous Operations Procedure (SIMOPS) shall be applied to all AMNS construction and commissioning activities to highlight and mitigate any potential restrictions and/or safety impact when planning SIMOPS work activities due to take place at the same time and in the same/vicinity location.

## 3 DEFINITIONS & ABBREVIATIONS

### 3.1 DEFINITIONS

**SIMOPS:** Two or more different activities that are occurring close enough to each other that there is a risk of interference, clashing or risk transfer.

### 3.2 ABBREVIATIONS

HSE	:	Health Safety and Environment
PPE	:	Personnel Protective Equipment
SIMOPS	:	Simultaneous operations
SOL	:	Simultaneous operations Leader
JSA	:	Job Safety Analysis
HIRA	:	Hazard Identification Risk Assessment
PTW	:	Permit To Work
MOPO	:	Matrix of Permitted Operations



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## 4 RESPONSIBILITIES

AMNS is responsible for all its own arrangements for the simultaneous activities. AMNS shall ensure that all its employees and those of its contractors, visitors and suppliers follow the simultaneous operation as stipulated in this Plan.

However, everyone concerned will be responsible for strictly observing and implementing this plan and procedures for its full success during the lifetime of the project.

### 4.1 PROJECT HEAD

- He has overall responsibility for SIMOPS.
- Ensure that SIMOPS Workshop/ meeting takes place prior to such activities involving Section Head, HSE lead and contractor area incharge
- Ensure compliance to SIMOPS procedure

### 4.2 HSE MANAGER

- Review SIMOPS activity and agree priorities, interfaces, etc.
- Check Job Safety Analysis is prepared and approved.
- Convey HSE expectations to subcontractors.
- Confirm Work Permit is applied for and approved.
- Check rigging and electrical tools are inspected.
- Check toolbox meeting held.
- Check fire and rescue team is notified.
- Ensure subcontractors are familiar with incident reporting procedures.
- Ensure on-site construction and safety monitoring occurs.
- Arrange training, as required.

### 4.3 SIMULTANEOUS OPERATIONS LEADER (S.O.L.) (AREA INCHARGE)

The Simultaneous Operations Leader (S.O.L) is responsible for proper coordination and safe interfaces between sections as well as identification and resolution of any potential impact on other operations. The S.O.L. liaises with all section heads and supervisors such as Construction, Commissioning and Safety (HSE). The S.O.L. ensures that all members of the construction and commissioning teams duly enforce the requirements of this SIMOPS procedure. The S.O.L. acts under guidance and control of the Section Head, additionally he will report and liaise with Construction, Commissioning and HSE departments as required. It is the responsibility of the SOL to follow up to completion of all planned SIMOPS activities and to report to the Section Head any trend or omission, which could potentially jeopardize the planning schedule, work areas or Plant. In the event of a disagreement regarding the safety or schedule of a proposed simultaneous operation or the continuation of an activity in progress, the matter should be decided by the SOL and referred to the Section head for approval. The SOL shall attend the daily permit to work coordination meeting.



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#### 4.4 COMMISSIONING MANAGER

In addition to the duties defined by the Permit to Work Procedure the Commissioning Manager is responsible for:

- Overall control of all commissioning works.
- Authorisation of commissioning personnel like permit controllers, authorized electrical responsible persons, other key personnel etc.

#### 4.5 SECTION HEAD

The Section Head is responsible for:

- Overall control of all remaining construction activities.
- Authorisation of commissioning personnel like PTW Authorisers, authorized electrical responsible persons, other key personnel etc.
- Coordinating with the commissioning manager and various planning and control sections to ensure most optimum schedule is achieved for all SIMOPS works.

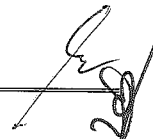
#### 4.6 TASK SUPERVISORS

The safety of SIMOPS operations is dependent to a great degree on the general communication, coordination and cooperation between the Task Supervisors, Safety in-charges and Area in-charges involved. In this respect, and in addition to the usual job preparation, Task Supervisors shall:

- Ensure that their works have been planned and that the Area section head, SIMOPS Leader, Commissioning Area Authority and other involved supervisors have been informed of the schedule and any potential constraints and interferences.
- Ensure the necessary permits to work are authorised.
- Confirm starting time and duration.
- Confirm evaluation of potential constraints and interference.
- Ensure that necessary equipment and personnel are available, ready to commence work to schedule and understand the nature of the SIMOPS activity.

During the SIMOPS activities, direct control of the works shall be maintained by:

- Continuous supervision and monitoring.
- Clear instruction, constantly updated according to progress and events.
- Enhanced checking and testing.
- Good communication and detailed instructions e.g., Tool Box Meetings (TBMs), method statements, Job Safety Analysis, etc. The Task Supervisors, however, remain responsible for performing their day-to-day operations safely.



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## 5. SIMULTANEOUS OPERATION PROCEDURE

When there is a scenario warranting SIMOPS procedure to be invoked, Section Head shall arrange a SIMOPS workshop or a meeting involving the AMNS area incharges going to carry out such activities.

### Examples:

- Two or more potentially conflicting activities or process operations are being coordinated in the same location at the same time.
- When multiple contractors and/or large multi-disciplinary workforce is working at a single location and in close proximity in space and time.
- Work involving the use of cranes over the top of live flow lines in a gas plant.

### 5.1 SIMOPS ASSESSMENT PROCESS:

- Relevant parties (Civil, Mechanical, Electrical, transport, operations, commissioning etc.) come together in order to develop an appropriate HIRAC and JSA.
- Identify activities which occur simultaneously (potential clash of activities)
- Evaluate the risk of SIMOPS (Demonstrate ALARP)
- Team exercise by various functions
- To form basis for controlling risk arising from SIMOPS

### 5.2 MATRIX OF PERMITTED OPERATIONS (MOPO)

Matrix of permitted activities/ operations shall be derived as an outcome of SIMOPS workshop/ meeting.

Refer Annexures:

- AMNS/Project/TS/HSEM/17/F01 - SIMOPS Checklist
- AMNS/Project/TS/HSEM/17/F02 - Matrix of Permitted Operations (MOPO) for SIMOPS

### 5.3 PLANNING AND CONTROL

#### 5.3.1 Commissioning Planning

When both construction and commissioning operations shall be undertaken at the same time on AMNS Projects, an evaluation SIMOPS operations shall be carried out for safety and efficiency. For this purpose, commissioning will maintain permanently up-dated and marked-up copies of electrical single-line diagrams identifying energized circuits and P&IDs identifying pressurized equipment, location of isolations

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(spades, spools, valves, etc.) copy for commissioning use the other copy for the SIMOPS Operations Leader (S.O.L.).

### 5.3.2 SIMOPS Planning and Control

Any SIMOPS activity undertaken by Construction, Commissioning and/or Production Operations shall be reviewed and scheduled to minimize any potential interference or safety impact. Information relevant to any SIMOPS activity, which has potential impact to the other personnel working in the same area, shall be informed to all concerned personnel prior to the commencement of the planned SIMOPS activity. SIMOPS activities for which special safety precautions shall be subject to a risk evaluation such as a Job Safety Analysis (JSA). Urgent decisions regarding any SIMOPS shall fall under the responsibility of the Project Head, the S.O.L. and the Commissioning Manager, who, through joint agreement, shall reach conclusion as to which activity takes precedent.

### 5.3.3 Construction Planning

Every effort shall be extended to ensure conflicting activities are well planned and do not create potential impact to other works ongoing at the same time in the same area.

## 5.4 AREA CLASSIFICATION

Two types of areas are defined on projects: Construction areas and Commissioning / operation areas.

### Construction Areas: SIMULTANEOUS OPERATIONS (SIMOPS)

All construction areas fall under the responsibility of the Project Head and the Section Heads. These areas by nature do not have any live systems and are still under construction completion. In general, no permit to work is required to work in these areas however, for certain tasks the construction permit to work procedure applies.

**Commissioning Areas:** All areas which fall under the responsibility of the Commissioning Manager shall be deemed as Restricted Areas. Restricted areas shall be surrounded by security fencing and shall have warning signs erected. All work in restricted areas must be performed with a valid permit to work and entry is also restricted to authorized /permitted personnel.

The commissioning areas fall into two categories as follows:

#### a) Restricted Areas.

The restricted areas shall be clearly identified at the worksite and include fencing around areas. The restricted areas contain a mix of live systems and systems that are still under construction completion. Special care shall be taken when working in these areas to ensure that the requirements of this Procedure are fulfilled.



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#### **b) Prohibited Area.**

A prohibited area shall be clearly identified by warning tapes and signboards.

### **5.5 COMMISSIONING**

The Commissioning Manager has responsibility for the planning of all commissioning works and for establishing, together with the SIMOPS Leader, the requirements of the SIMOPS activities. This shall include but not be limited to the following:

- Planning of concurrent activities performed by different sections.
- Ensuring that a general agreement on work organization and schedule is reached to minimize disruption.
- Promote good and effective communication between all work parties.

#### **5.5.1 Planning**

The Commissioning Manager shall issue planning forecasts which are reviewed by respective management planning groups to identify areas of Simultaneous Operations. When SIMOPS are identified the Commissioning Manager will advise all affected parties and the Construction and Commissioning planning schedules will be updated to incorporate SIMOPS. The commissioning program shall incorporate all relevant information relating to SIMOPS including constraints, limitations, and areas of conflict and include or refer to applicable emergency procedures. When conflicting operations are identified the S.O.L. will liaise with Construction and Commissioning Managers to decide which activity takes priority.

#### **5.5.2 SIMOPS**

Preparation Prior to commencing SIMOPS the Section Heads and SOL will meet with all involved parties to verify the aspects of the operation, confirm emergency procedures and identify any constraints and/or limitations and conflicting activities. Once the planning of the operation is confirmed and the detailed program and/or procedures approved, every effort shall be extended to mobilize equipment and personnel to meet and achieve the schedule. Methods of communication shall be clearly established between all work parties during the planning of any SIMOPS activity.

#### **5.5.3 Organization for SIMOPS**

All Site personnel, without exception, have an individual responsibility to ensure that any SIMOPS activities are carried out correctly and efficiently.

- Ensures that all persons working under his control follow PTW conditions.
- Ensures the task is completed to schedule.
- Person responsible for the work



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## 5.6 MEETINGS

### 5.6.1 Regular SIMOPS meetings shall be held and are required to:

- Ensure the highest standards of safety awareness for all personnel.
- Ensure proper communication, cooperation and coordination is maintained between the different teams working on the SIMOPS.
- Ensure proper planning and progress of SIMOPS activities to minimize unproductive downtimes.
- Ensure strict application of the Site HSE Plan and Commissioning Permit to Work Procedure.

Prior to start-up of SIMOPS activities a kick-off meeting (SIMOPS WORKSHOP) shall be convened by the Commissioning Manager, Section Heads, SIMOPS Leader and supervision undertaking the SIMOPS works to ensure that all precautions have been implemented and equipment is available to carry out the intended task to the planned schedule.

In addition to usual topics and tasks, the kick-off meeting is the opportunity for supervisory personnel to:

- Review and confirm planning of future concurrent activities, according to the actual progress of running operations and to identify potential conflicts.
- Authorize work to be performed under the permit to work system highlighting SIMOPS events and address safety concerns.

Tool Box Talks shall be held on daily basis and shall include current SIMOPS topics in their agenda. Specific emphasis will be given to the SIMOPS having potential impact on commissioning and production activities and methods of raising the alarm in the event of an emergency. Toolbox meetings shall also address the Job Safety Analysis and necessary escape routes, location of safety equipment and muster points.

## 5.7 PERMIT TO WORK (PTW)

Permit to Work Procedure is applicable for all SIMOPS works on AMNS projects. The mentioned Work Permit Procedure shall be utilized for all activities performed on commissioning period up to operation.

## 5.8 HIRAC/ JOB SAFETY ANALYSIS (J.S.A.)

The objective of a HIRAC/ Job Safety Analysis (J.S.A.) is to systematically review high risk or frequently performed tasks to identify and mitigate safety hazards before the tasks commence. The objective of the JSA is to analyze potential hazards associated with a specific task. The JSA is a behavior tool used to identify and minimize risk associated with

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routine, non-routine and high-risk job tasks. Job Safety Analysis is a structured approach for identifying potential hazards in a job and devising corrective steps. Since it considers actions (behaviors) as well as physical and environmental conditions, it is a good way to increase safety awareness and achieve sustainable improvements in safety performance. The extent of the SIMOPS works shall be evaluated using this method of hazard identification and as a minimum the JSA shall address the following;

- Identification of the work area, including plot plans, P&ID, isometric drawings etc. and a method statement for the work execution.
- Review of the key steps of the work.
- Hazard identification.
- Permit to Work requirements.
- Lock out and tag out requirements.
- Crane operation requirements.
- Tools and equipment's.
- PPE and additional requirements for fall protection, special protective clothing, etc.
- Toolbox Meetings.
- Emergency response preparations
- Material handling and waste management plan (as required).
- Housekeeping.

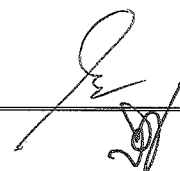
The results of the JSA study will be incorporated into the work schedule and shall be endorsed by the SIMOPS Leader, prior to commencing the SIMOPS activities.

## 5.9 NEAR MISS AND INCIDENT REPORTING

Near miss and incident reporting for any SIMOPS activity shall be in accordance with the Incident & Accident Reporting Procedure. A formal report shall be issued for each and every near miss and/or incident relating to any SIMOPS activity.

## 5.10 CHECK-LISTS

The preparation of the SIMOPS activities as far as organization, equipment, material and procedures are concerned, shall be shared between construction and commissioning organizations. To assist these organizations in preparing for pre-determined start-up phases, the following checklist will be used prior at each step of the works and responsibilities allocated to the disciplines and supervisors in charge. This checklist is filling by Safety Authorities and Approved by SIMOPS Leader (S.O.L). After Approved this document is reviewed by Commissioning Manager for closing.



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## 5.11 PERSONNEL CONTROL

All areas under simultaneous operations shall be restricted to unauthorized access by personnel not involved in the operation. The following measures shall be put in place to control entry into these areas. Entry into Restricted Areas Access to restricted areas will be controlled by badges, manned security points and the permit to work system. Construction personnel shall not be allowed access into any restricted area without a valid permit to work and exchanging their gate pass at the security gate control.

## 5.12 ALARMS AND COMMUNICATION

A full-time safety supervisor shall be stationed in each of the restricted areas and shall maintain communication between the construction and commissioning personnel. Emergency alarms shall be activated in each of the restricted areas.

## 5.13 EMERGENCY RESPONSE

All emergency evacuations shall be carried out in accordance with the Emergency Response Procedure. Whenever mustering of personnel is required, all construction and commissioning production personnel shall muster outside of the restricted areas.

## 5.14 LIFTING AND RIGGING OPERATIONS

Prior to entry into a SIMOPS area, all cranes and rigging equipment shall be inspected and confirmed as fit for purpose. All lifting operations over live equipment shall be subjected to a risk assessment, which shall be approved by Lifting Supervisor.

Risk Assessments shall include as a minimum the following information:

- Plot Plan showing crane location with respect to intended lift
- Boom Length.
- Boom Angle.
- Crane Radius.
- Crane Capacity/ Load to be lifted
- Percentage of crane capacity.

In all instances the crane manufacturer's specifications and limitations shall be taken into account when planning any lift over live plant. He shall be familiar with the type of crane being operated and shall be tested for competency. A competent rigging supervisor who has been properly trained in rigging and lifting practices shall be present at the work face at all times during the lifting activities.

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## 6. CHECKING, CORRECTIVE AND PREVENTIVE ACTION

Periodic audits / Inspections shall be carried out to assess the compliance to the procedure and effectiveness of the controls. Any deviations shall be reported to Project Head & Section Head for corrective/preventive actions if needed.

## 7. TRAINING

AMNS Project sites shall ensure that those involved in use of SIMOPS procedure are trained and made responsible for implementation.

Section Heads are trained in how to develop MOPO for various SIMOPS scenarios.

## 8. MANAGEMENT OF RECORDS

S.No	HSE MS RECORD	MAINTAINED BY	RETENTION TIME
1.	SIMOPS Workshop meeting attendance forms	HSE Department	1 Year
2.	SIMOPS Checklists	HSE Department	1 Year
3.	MOPO records	HSE Department	1 Year

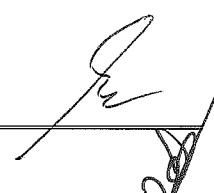
## 9. REFERENCE DOCUMENTS

AMNS/Project/TS/HSEM/01	Excavation & piling Safety
AMNS/Project/TS/HSEM/02	Formwork, Concreting and Masonry works
AMNS/Project/TS/HSEM/03	Scaffold Safety
AMNS/Project/TS/HSEM/04	Working at height safety
AMNS/Project/TS/HSEM/06	Electrical Safety
AMNS/Project/TS/HSEM/08	Plant and Machinery Operations
AMNS/Project/TS/HSEM/09	Traffic Management
AMNS/Project/TS/HSEM/10	Lifting Operations Safety
AMNS/Project/TS/HSEM/11	Structural Steel erection
AMNS/Project/TS/HSEM/14	Working in confined space
AMNS/Project/TS/HSEM/16	Radiography safety
AMNS/Project/TS/HSEM/19	Blasting and painting safety
AMNS/Project/TS/HSEM/21	Dismantling & Demolition Safety
AMNS/Project/SOP/HSEM/04	Hot work Safety
AMNS/Project/SOP/HSEM/10	Hydro Test Safety

## 10. ANNEXURES

AMNS/Project/TS/HSEM/17/F01 - SIMOPS Checklist

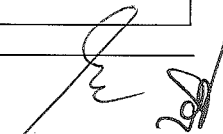
AMNS/Project/TS/HSEM/17/F02 - Matrix of Permitted Operations (MOPO) for SIMOPS



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Person in charge:  Main Contractor:  Activity:  Construction:  Commissioning:  Production:	Location:  Unit:  Date:
--------------------------------------------------------------------------------------------------------------------------	-------------------------------------

Simops Checklist		Yes	No	N/A	If No, Explain
<b>General</b>					
1	Has person-in-charge been assigned for the SIMOPS?				
2	Has supervisory cover been provided?				
3	Has SIMOPS work plan been developed?				
4	Is copy of permit available?				
5	Have all persons involved in the SIMOPS been instructed in -?				
5a	SIMOPS procedures				
5b	Emergency procedures and alarms.				
5c	Muster Point Locations				
5d	Fire fighting equipment and locations?				
6	Is good housekeeping practiced?				
7	Is smoking restricted to designated areas?				
8	Has electrical equipment been suitable grounded and inspected?				
9	Have all personnel working in the restricted area registered at the security gate?				
10	Are welding works required?				
11	Are all non-essential personnel removed from the SIMOPS area?				



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### Gas Checking

1	Are gas detectors calibrated and tested?				
2	Do gas detectors initiate and audible alarm when LEL is detected?				
3	Is gas tested authorised for this activity?				

### Safety

1	Is adequate PPE being worn?				
2	Is fire watch / stand-by man assigned?				
3	Are a fire hose and/or fire extinguisher available?				
4	Barriers and warning signs erected?				
5	Are gas checks completed and recorded?				
6	Is MSDS available?				
7	Has emergency response team been informed?				
8	Is radiography required?				
9	Are confined space procedures being followed?				
10	Are gas detectors and/or ESD systems inhibited?				
11	Are all sparks being contained?				
12	Has JSA been developed?				

### Construction work – Naked Flame works

1	Are daily toolbox meetings held?				
2	Is work permit authorised and available?				
3	Are conditions of the permit being followed?				
4	Are suitable flame retardant materials being used to contain sparks?				
5	Have all necessary isolations been completed?				
6	Are welding machines inspected and positioned in suitable location?				
7	Are welding cables insulated and in good condition?				
8	Are compressed gas cylinders secured, fitted with flame arrestors and free from grease and oil?				

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### Construction work – Rigging and Lifting

1	Are rigging and lifting personnel qualified and competent?				
2	Has risk assessment been undertaken and addressed with all personnel?				
3	Are the crane, shackles and slings visually inspected prior to the start of lifting operations?				
4	Is the rigging and lifting equipment colour coded?				
5	Is the crane operation qualified?				
6	Are crane inspection records available?				
7	Is rigging supervisor clearly identified by wearing a green work vest?				

### Construction works - Blasting and Painting

1	Has toolbox meeting been held?				
2	Are paints and thinners stored in safe location?				
3	Have critical lines and vessels been identified, checked and determined as safe to blast?				
4	Is surrounding area sufficiently protected from blast materials and pain overspray?				

### Commissioning Works

1	Is all equipment depressurised and/or isolated?				
2	Is equipment purged of gas and/or vapour?				
3	Is electrical and/or mechanical equipment locked-out and tagged?				
4	Are open drains and culverts covered?				
5	Are all necessary permits to work authorised?				
6	Are electrical isolations recorded?				
7	Are process/mechanical isolations recorded?				
8	Is commissioning Supervisor assigned?				

Signed:

Date:





**SAMPLE MOPO**

Definitions		Operations/ Activities												Tie in activities	Testing and commissioning
	Operations not allowed	Crane operations	Excavation (by excavators)	Loader operations	Forklift operations	Tipper operations	Trailer operations	Steel pipe / erections	Hot work	Cable laying	Pressure testing	Radiography testing			
	Operations allowed with clear demonstration of controls														
	Operations allowed														
N/A	Not applicable														
		Crane Operations													
		Excavation (By Excavator)													
		Loader Operations													
		Forklift Operations													
		Tipper Operations													
		Trailer Operations													
		Steel / pipe erection													
		Hot work													
		Cable laying													
		Pressure testing													
		Radiography testing													
		Tie in activities													
		Testing & Commissioning													