



DYNAMIC POSITIONING CONFERENCE
October 9-10, 2007

SIMOPS/OPERATIONS

**Planning and Communicating for
Conducting Safe SIMOPS**

Don Ross
Pegasus International, Inc.

ABSTRACT

Each day around the world, in both the offshore oil and gas industry and other marine industries, there are ongoing Simultaneous Operations (SIMOPS). These can range from something as common as a crew change with a crew boat, to a much larger scale involving multiple, heavy construction assets and personnel. While some of these SIMOPS are so common place they are all but virtually overlooked by most, all must be addressed if only offshore between the vessels involved for the safety of all personnel.

When working on any offshore project where a possible SIMOPS situation can occur, we should think of SIMOPS in the terms of “Sharing Information Maximizes Our Personnel Safety”. With this stated, a plan can be created by following a process outlined as SIMOPS - **S**tudy the project, **I**dentify possible SIMOPS, **M**eet with all Parties Involved, **O**rganize a **P**lan, and **S**hare the plan/Information. This practice should begin at project inception and is repeated throughout the entire process until completion. Thus making the SIMOPS plan dynamic and causes communication between all parties, document control, tracking, and distribution essential.

This paper 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 offshore strategy. By learning to identify possible SIMOPS situations for your project early on in the development phase, you will be able to distinguish those possible situations which may cause costly delays or worse, cause serious harm or injury to your offshore personnel.

INTRODUCTION

SIMOPS can be a broad topic in the OIL and Gas arena; therefore, this paper’s target is vessel and seafloor SIMOPS, not platform operation SIMOPS. This paper focuses on vessel SIMOPS at the DP level, and not the back deck operation’s level, which most often is looked at more closely than the DP operations, because DP is viewed most often as a secondary task.

DEFINITIONS

For the purpose of this paper:

Vessel SIMOPS: Two or more vessels operating in the same or same general area / close proximity to each other.

Seafloor SIMOPS: Working in and around hardware (trees, caissons, piles, pipelines, umbilicals, UTA’s PLETS, manifolds, etc...) on the seafloor.

Master/OIM/Officer: Licensed professionals, not titles assigned to individuals, as some construction vessels may call someone an OIM when they are in actuality a Superintendent, and not a licensed OIM.

Life of Project: Conceptual, pre-construction/construction and operation stages.

Notes

It has been in the author's experience that fundamental problems which arise from SIMOPS has not been from the technical side, it has been more from the planning side where a vessel(s) were unaware of the other vessel being in the field, each other intentions/duties and that acoustics were being used.

The Master is expressed throughout the document because it has been the author's experience that the masters are often the last people to find out about any of the decisions made by others and at the last minute they have to make decisions under pressure from others about operations involving their vessel. The author is expressing many Master's concerns that have been shared with him over the years throughout the document.

STUDY AND IDENTIFICATION OF POSSIBLE SIMOPS

The conceptual stage of a project should be entered with the mentality of: "The avoided SIMOPS is the best SIMOPS". This would be a perfect world scenario. However, it is well known that all SIMOPS cannot be avoided (for example food, fuel, material, crew changes, etc); Therefore, in an effort to avoid problems arising from any operations, possible SIMOPS need to be identified as early as possible.

Project Conceptual Stage

Throughout the life of any project, and more importantly during times of vessel traffic (operations, drilling, construction, survey, etc....), a study of the schedule should be made regularly and at every revision to identify any possible SIMOPS along with dates, types of vessels, vessel names, vessel duties and vessel durations for all vessels planned to be in the field and/or work area.

In order to track this information, a Conceptual Field Sketch (shown in Figure 1) should be used to help create a schedule of operations.

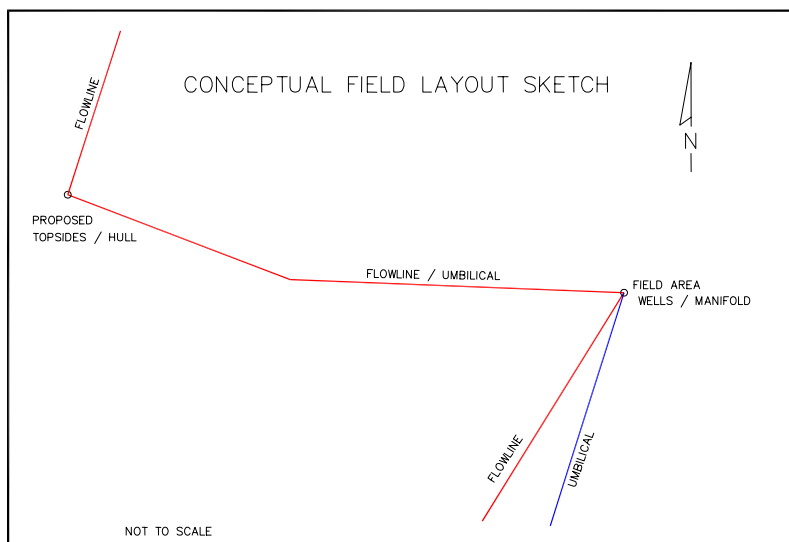


Figure 1: Conceptual Field Sketch

Once a sketch/drawing has been created, then review of the work plan using the drawings and a roughed out schedule can be used to have the first conceptual meeting to see what SIMOPS may be possible at this stage of the project. A meeting should happen when changes occur throughout the conceptual stage until either the project is halted or moves into the next phases, detail engineering and/or construction.

Once there is a field/work area sketch and a rough schedule created, a field/project top manager should call a joint meeting with members of several disciplines from the Oil and Gas Operator's side to have discussions about the project's field area operations, as known at the current time, to try to identify problem spots such as vessel SIMOPS. This meeting should include the following team members at a minimum:

- Exploration Geophysical Group Members
This group is responsible for information about possible seismic vessels/activities, and can contact seismic contractors to see if any spec shoots are planned for the area of operations. Due to the amount of acoustic noise, it is important to determine what operations are happening in the near vicinity, outside the immediate work area.
- Drilling Group Members
This group can keep the team informed about possible drilling rigs and type of positioning system used – DP or Moorings; **if DP, we know that they will be an acoustic array out. This is heads up number 1 for acoustic SIMOPS.**
- Operations Group Members
This group can keep the team informed about possible activities and vessels that will be working in the field or near the platforms/rigs.
- Construction Group Members
This group is responsible for keeping the team members informed about upcoming construction activities and can let the group know which contractors may be chosen or bid for this work.
- Regulatory Group Members
This group can research with the MMS to see if there are other long term operations planned for the area or short term operations which may happen before project start.
- GIS / Survey Group Members
This group can create maps illustrating what hazards / structures may exist on the sea floor.

From this meeting(s), a field schedule (Gantt chart type), such as Table 1, should be created illustrating what activities may be happening at what time (at a high level), along with assigning each possible SIMOPS identified a number or name (tag), and each vessel/operational/task SIMOPS Hierarchy number.

Project Example, Results Study 1 - Possible Work to Be Carried Out In The Area																	
Group	Task	Year 1												Year 2			
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Geology & Geophysical	Seismic																
Drilling	New Well																
	Completion																
Operations	Maintenance																
	Workover																
Construction Group	Route Surveys																
	Pipeline - Construction																
	Umbilical Lay																
	Field Development																
	Setting Floater																
	Floater in Place																
Regulatory																	
	Other's Activities Proposed																

Table 1: Conceptual Type Schedule, Looking At Long Term Project Goals

The early assignment of the SIMOPS vessel Hierarchy order makes the overall planning of the operation much smoother, and smoothes the way for a lot less of in-house bully and fighting tactics during the planning stages; However, when assigning the hierarchy, great consideration must be given to the vessel(s) who will be relying on advanced DP (acoustic type) because these vessels tend to be high dollar (drill ships, heavy construction vessels, etc...) operations which other vessels can easily interfere with.

Do not be afraid to have vessels with like Hierarchies. As the project moves along, the true Hierarchy can be worked out. For example a Heavy Lift barge, a Large Pipelay Vessel, and a Drill Rig may be given the same Hierarchy at the beginning, but different economic and schedule factors have changed and the more formal re-assignment from upper management comes down and thus causing the SIMOPS Hierarchy order change as needed.

Example 1: SIMOPS Hierarchy Assignment Example

Example 2: SIMOPS Hierarchy Assignment Example

The manager may ask which group will have the hardest time to re-assign/re-schedule or which vessels have the more sensitive DP requirements to complete their tasks, and what is driving the order of the work for those vessels at that particular time. From the information gathered, either as a group or an individual, decisions can be made to reassign vessel Hierarchy.

This table lays out the project at a high level with low level detail to aid with the SIMOPS planning and early SIMOPS Identification and should be as complete as possible and should be revised regularly throughout the life of the project and becomes more specific after each meeting as the project progresses.

- Possible SIMOPS identification tag
- Vessels/Groups the SIMOPS is between
- Vessel Hierarchy
- The vessel's main activity
- Possible DP SIMOPS and or vessel clash type
- Possible Mitigation/Solution
- Notes
- Any other data that is thought to be pertinent

Table 2: Vessel SIMOPS Identification Table

Project Example, Results Study 1 - Possible Work to Be Carried Out In The Area - Preliminary SIMOPS Identified

SIMOPS	Year	Vessel – Hierarchy	Month	SIMOPS Between	Possible Vessels	Activity	Possible Clash Type	Possible SIMOPS - Clashes	Mitigation - Problem Area	Notes
1	1	A – 1	Feb	Geology & Geophysics	Seismic Gun Boat	Acquiring data	Data Acquisition	Acoustic/Navigation	Frequency Management / Survey Plans	These vessels may be separated in field
		B – 2		Construction	AUV/Deeptow Vessel	Acquiring data	Data Acquisition	Acoustic/Navigation	Frequency Management / Survey Plans	These vessels may be separated in field
		C – 4			ROV Vessel	Acquiring data	Data Acquisition	Acoustic/Navigation	Frequency Management / Survey Plans	These vessels may be separated in field
		D – 3			Geotechnical Operations	Acquiring data	Data Acquisition	Acoustic/Navigation	Frequency Management / Survey Plans	These vessels may be separated in field
2	1	E – 1	April	Drilling	Drilling Vessel	Drilling	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management Vessel Movement Plans, DP LBL Array Plans	These vessels may be separated in field
		F – 3			Supply Vessels / Crew Boats	Bringing Drilling Supplies	N/A - Propellers Causing Acoustic Noise	Navigation	Sail Plans / Date / Side to be Set Up On	These vessels are always coming and going, will use Fan Beam for DP Operations while at Drill ship
		G – 2		Construction	Tugs	Towing Hull	N/A - Propellers Causing Acoustic Noise	Navigation	Work plans / sail plans	These vessels may be separated in field, but will be close to the Hull
		H – 2			Anchor Handlers	Setting Mooring Lines	Acoustic Interference to Others	Acoustic/Navigation	Work plans / sail plans	This / these vessels will be running around the 12 mooring pattern
		I – 1			Heavy Lift Barge(s)	Setting Hull, Moorings preset	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / DP LBL Array Plans	These vessels may be separated in field
		J – 2			ROV Vessel (s)	Assisting Heavy Lift Barge	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	These vessels may be separated in field
3	1	K -1	Sep	Drilling	Drilling Vessel	Completing Wells	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Pipelay, Umbilical Lay)
		L – 3			Supply Vessels / Crew Boats	Bringing Drilling Supplies	DP - Fan Beam Interference	Navigation	Drilling will sort out	These vessels are always coming and going, will use Fan Beam for DP Operations while at Drill ship
		M – 2		Construction	Pipelay Vessel	Laying Pipe	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Drilling, Umbilical Lay)
		N – 1			SCR Hang-off Vessel	Hang-off SCR	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Will be in close proximity to the floater and ROV vessel, divers may be present, along with crew boats and supply vessels

Don Ross

SIMOPS / Operations

Planning and Communicating

		O - 3			AUV/Deeptow Vessel	Acquiring data	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	These vessels may be separated in field but the pipeline route runs to the drilling area, watch out for acoustic signal travel and figure out how close is close enough for the drilling rig.
		P - 3			ROV Vessel	Aiding With SCR	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel will be sandwiched in-between the heavy lift barge and the platform in an area where divers may be present. This vessel will need fan beam. The ROV and survey acoustics should be monitored because the SCR hang off vessel may be using acoustics to position its self or a Fan Beam system
		Q - 3			ROV Vessel	Aiding Pipelay Vessel	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel may be the same vessel as M, but if not and for this scope of work, the vessel may be in close proximity to other vessels and could cause acoustic Interference
		R - 4			Tugs	Bringing Supplies	N/A - Propellers Causing Acoustic Noise	Navigation	Work plans / Sail plans	May be in close proximity for short durations to other vessels
		S - 2			ROV Vessel	Setting Arrays/Survey	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel could be inside the Mooring Pattern (inside 500m zone) of the floater, it could be in the area of the drill ship (inside 500m zone)
4	1	T - 1	Aug	Drilling	Drilling Vessel	Drilling Well	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Pipelay, Umbilical Lay)
		U - 3			Supply Vessels / Crew Boats	Bringing Drilling Supplies	DP - Fan Beam Interference	Navigation	Drilling will sort out	These vessels are always coming and going, will use Fan Beam for DP Operations while at Drill ship
		V - 2		Construction	Pipelay Vessel	Laying Pipe	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Drilling, Umbilical Lay)
		W - 1			SCR Hang-off Vessel	Hang-off SCR	DP - Acoustic Interference, Fan Beam Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Will be in close proximity to the floater and ROV vessel, divers may be present, along with crew boats and supply vessels
		X -1			Field Development	Setting Manifolds, Flying Leads, Jumpers, Jumper Metrology, SDU's, etc.	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This may be a case where we will have 2 vessels with ROV's in Close Proximity to each other. This would be a case for Fan-Beams. Survey frequency management is important for no clashes. ROV's will have a SIMOPS issue.

Don Ross

SIMOPS / Operations

Planning and Communicating

		Y - 3			ROV Vessel	Aiding With SCR	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel will be sandwiched in-between the heavy lift barge and the platform in an area where divers may be present. This vessel will need fan beam. The ROV and survey acoustics should be monitored because the SCR hang off vessel may be using acoustics to position its self or a Fan Beam system
		Z -3			ROV Vessel	Aiding Pipelay Vessel	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel may be the same vessel as M, but if not and for this scope of work, the vessel may be in close proximity to other vessels and could cause acoustic interference
		AA - 2			Umbilical Vessel	Laying Umbilical	DP-Acoustic Interference, Fan Beam Interference			Will be in close proximity to the Floater using Fan-Beam. Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Drilling, Pipe lay). Can Have Clashes with field development vessels
		AB - 3			Tugs	Bringing Supplies	N/A - Propellers Causing Acoustic Noise	Navigation	Work plans / Sail plans	May be in close proximity for short durations to other vessels
		AC - 3			ROV Vessel	Setting Arrays/Survey	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans, and other vessels	This vessel could be inside the Mooring Pattern (inside 500m zone) of the floater, it could be in the area of the drill ship (inside 500m zone)
5	1	AD - 1	Jan	Drilling	Drilling Vessel	Completing Wells	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Pipelay, Umbilical Lay)
		AE - 3			Supply Vessels / Crew Boats	Bringing Drilling Supplies	DP - Fan Beam Interference	Navigation	Drilling will sort out	These vessels are always coming and going, will use Fan Beam for DP Operations while at Drill ship
		AF - 2		Construction	Pipelay Vessel	Laying Pipe	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Drilling, Umbilical Lay)
		AG - 1			SCR Hang-off Vessel	Hang-off SCR	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Will be in close proximity to the floater and ROV vessel, divers may be present, along with crew boats and supply vessels
		AH - 3			AUV/Deeptow Vessel	Acquiring data	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	These vessels may be separated in field but the pipeline route runs to the drilling area, watch out for acoustic signal travel and figure out how close is close enough for the drilling rig.

Don Ross

SIMOPS / Operations

Planning and Communicating

		AI – 3			ROV Vessel	Aiding With SCR	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel will be sandwiched in-between the heavy lift barge and the platform in an area where divers may be present. This vessel will need fan beam. The ROV and survey acoustics should be monitored because the SCR hang off vessel may be using acoustics to position its self or a Fan Beam system
		AJ – 3			ROV Vessel	Aiding Pipelay Vessel	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel may be the same vessel as M, but if not and for this scope of work, the vessel may be in close proximity to other vessels and could cause acoustic Interference
		AK – 4			Tugs	Bringing Supplies	N/A - Propellers Causing Acoustic Noise	Navigation	Work plans / Sail plans	May be in close proximity for short durations to other vessels
		AL – 2		Geology & Geophysics	Seismic Gun Boat	Acquiring data	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management/ Survey Plan	Try to talk the Geology and Geophysics group to push this back a month or so, if not, work out an acoustic plan and clear with drilling contractor that all will be ok.
		AM – 1		Regulatory	Seismic Gun Boat	Acquiring data	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management/ Survey Plan	Try to speak to other operator if this shoot is for another operator or the seismic company if this is a spec shoot to postpone the work, or begin early on with discussions on acoustic management plans.
		A0 – 2			ROV Vessel	Setting Arrays/Survey	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel could be inside the Mooring Pattern (inside 500m zone) of the floater, it could be in the area of the drill ship (inside 500m zone)
6	1	AE -1	Aug	Drilling	Drilling Vessel	Drilling Well	DP - Acoustic Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Pipelay, Umbilical Lay)
		AF – 3			Supply Vessels / Crew Boats	Bringing Drilling Supplies	DP - Fan Beam Interference	Navigation	Drilling will sort out	These vessels are always coming and going, will use Fan Beam for DP Operations while at Drill ship
		AG – 2		Construction	Pipelay Vessel	Laying Pipe	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Drilling, Umbilical Lay)
		AH – 1			SCR Hang-off Vessel	Hang-off SCR	DP - Acoustic Interference, Fan Beam Interference	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	Will be in close proximity to the floater and ROV vessel, divers may be present, along with crew boats and supply vessels

Don Ross

SIMOPS / Operations

Planning and Communicating

		AI – 1			Field Development	Setting Manifolds, Flying Leads, Jumpers, Metrology, SDU's, etc.	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This may be a case where we will have 2 vessels with ROV's in Close Proximity to each other. This would be a case for Fan-Beams. Survey frequency management is important for no clashes. ROV's will have a SIMOPS issue.
		AJ – 3			ROV Vessel	Aiding With SCR	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel will be sandwiched in-between the heavy lift barge and the platform in an area where divers may be present. This vessel will need fan beam. The ROV and survey acoustics should be monitored because the SCR hang off vessel may be using acoustics to position its self or a Fan Beam system
		AK – 3			ROV Vessel	Aiding Pipelay Vessel	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans	This vessel may be the same vessel as M, but if not and for this scope of work, the vessel may be in close proximity to other vessels and could cause acoustic interference
		AL – 2			Umbilical Vessel	Laying Umbilical	DP-Acoustic Interference, Fan Beam Interference			Will be in close proximity to the Floater using Fan-Beam. Some of the vessels may be in close proximity (ex. Setting LBL Arrays, Drilling, Pipe lay). Can Have Clashes with field development vessels
		AM – 2		Geology & Geophysics	Seismic Gun Boat	Acquiring data	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management/ Survey Plan	Try to talk the Geology and Geophysics group to push this back a month or so, if not, work out an acoustic plan and clear with drilling contractor that all will be ok.
		AN – 1		Regulatory	Seismic Gun Boat	Acquiring data	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management/ Survey Plan	Try to speak to other operator if this shoot is for another operator or the seismic company if this is a spec shoot to postpone the work, or begin early on with discussions on acoustic management plans.
		AO – 4			Tugs	Bringing Supplies	N/A - Propellers Causing Acoustic Noise	Navigation	Work plans / Sail plans	May be in close proximity for short durations to other vessels
		AP – 2			ROV Vessel	Setting Arrays/Survey	Acoustic Interference to Others	Acoustic/Navigation	Frequency Management / Survey Plans / LBL - USBL Plans, and other vessels	This vessel could be inside the Mooring Pattern (inside 500m zone) of the floater, it could be in the area of the drill ship (inside 500m zone)

Conceptual Schedules

With the implementation of early planning, enough time will be allowed for significant discussion, debate, reasoning etc... to create a case for an argument to move all non essential SIMOPS. Furthermore, if the SIMOPS cannot be avoided, this early planning may give some insight as to which contractors/vessels will be more suited to work together.

Planning Examples:

Example: Avoiding a SIMOPS

Early on someone spots a drill ship drilling and a seismic shoot being scheduled for the same area, as in SIMOPS Number 5 during January Year 2 in the table above:

If the drill ship is planned on being a DP vessel with an acoustic positioning, it would be wise for the geophysical group to try to reschedule or swap this seismic shoot with another shoot planned if at all possible.

The earlier this is identified, the more time one will have to work this out, because the Master/OIM of the drilling vessel may say it is too dangerous to stay hooked up to the BOP and continue drilling while the geophysical vessel is working. With this said, more than likely the Seismic operation will be placed on hold until the master/OIM of the drill ship feels comfortable.

Example: Choosing Vessels

When planning ahead, it is easier to see future SIMOPS in relation to what type of vessels (drill ship and lay vessel, lay vessel and ROV vessel, etc...) will be working together and allows one time to think through which contractors and types of vessels have histories of working together and/or are more suited to work with each other.

Example: Bidding Process

If the SIMOPS is not immediate, it gives time to get information about the vessels in question. Or if early enough in the process, the client should make their request for detail vessel information such as vessel equipment, vessel size, DP system specifications, etc... along with SIMOPS plans and vessel operating/SIMOPS procedures during the bidding process. With this information early in the project, the SIMOPS plan can start to take shape. Similarly in the bidding process, a hypothetical SIMOPS schedule can be laid out with input from the contractors to see how they would work through it.

SIMOPS Plan Phase I

The aforementioned information should be gathered and reported, this now begins the SIMOPS formal Plan. This data should be placed in a section called preliminary planning. As the plan moves forward, this should not be deleted, but should be placed in the appendix as preliminary planning.

The information below this statement begins SIMOPS Plan Phase II information

FORMAL PLANNING**Project Pre-Construction / Construction Stage / Operations Stage:**

The project has now been sanctioned and has been passed to the construction group; therefore, custody of the Vessel SIMOPS tracking and planning should be transferred to the construction/planning group. This group has to play close attention due to the fact that the construction is a real thing. It is not a pipe dream anymore and the SIMOPS possibilities become a true reality.

The pre-construction/construction stage is one in the same with the exception of the kick-off meeting being the main meeting in the Pre-Construction stage. After that one meeting, for the purposes of this paper, all other meetings will be considered the construction phase. After the construction phase, this process/plan will be passed to the operations group and this usually happens towards the end of construction. Therefore, these three stages are treated as one, just because they slowly transform from one to the other.

Once the construction/drilling/vessel operation contracts have been let, then an appropriate list should be made of what vessels are planned to be used and when along with all vessel specifics such as size, shape, contact numbers, number of thrusters, current DP/vessel health (since this is dynamic), etc... should be made.

Preconstruction Activities / Pre-Operation Activities:

This is the Stage where someone needs to be placed in charge of the SIMOPS Identification and this person is to look diligently through the schedules to make sure that everyone is forewarned about upcoming SIMOPS – The earlier the warning, the more time to plan and work them out. Additionally, all vessel information, along with their DP operations, should be collected during the bid stage should be passed to the person heading up the SIMOPS portion of the project.

At the pre-construction stage, an overall planned schedule of vessels and operations along with all project maps should be created. A new detailed schedule should be made now of how things stand and it should be more specific than the one in Table 1. Table 3 shown below, is a better example of what this schedule should look like.

	August - Year 1				September -Year 1																			
Task	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Topside Activities																								
SCR Hang off - Heavy Lift Barge																								
ROV Support - SCR Hang-off																								
Umbilical Lay - Vessel 1																								
Umbilical Lay - Vessel 2																								
Array Setting For Heavy Lift Barge's DP system (Acoustic)																								
Supplies Needed																								
Route Survey																								
SIMOPS																								
Field																								

Don Ross	SIMOPS / Operations										Planning and Communicating									
Completion																				
Drilling																				
Field Array Setting																				
ROV Support For Completion																				
Supplies																				
Crew Change - Crew Boat																				
Crew Change - Chopper																				
Route Survey																				
SIMOPS																				

Table 3: Vessel SIMOPS Identification Table for Pre-Construction / Construction / Operations of SIMOPS Number 3 and 4 From Table 1

When comparing Table 3 to Table 1, it is clear that this schedule has become more detailed than the one before, and as the SIMOPS becomes nearer, the schedule should be refined even more.

At this stage the current maps (approved for construction) and overall field layouts and the newly revised schedule needs to be sent to the same groups as before (restated below so the reader does not have to go back to look at the team members involved) along with added construction team members (**bolded**) for review and comment along with asking the question which topics the group would like to be placed on the agenda, espically on the DP side of the project before actual meetings are held. This shipment of information should be sent at least 30 or more days before the project begins to give the members of the team time to comment before the meetings begin. Remember, this is to prepare for a Huge kick off meeting.

The groups which was referred to having members of several disciplines from the Oil and Gas operator's side and the construction contractor's side which should include at a minimum (as noted before):

- Exploration Geophysical Group Members
- Drilling Group Members
- Operations Group Members
- Construction Group Members
- Regulatory Group Members
- GIS / Survey Group Members

With the addition of:

- **Contractors**
This group needs to be present to discuss their techniques to be used during the SIMOPS.
- **Vessel Operators**
This group needs to be present, if different from the contractor, because they own the vessel and will share some responsibility and liability for the vessel operations.
- **Contractor's Surveyors / Acoustic Specialist**
This group needs to be present to discuss possible survey/acoustic issues that may come up and to hammer out a frequency management scheme/plan
- **Vessel Masters/OIM/DP Officers**
This group I put last but these are the most important group of all. I say this because if this group does not like the plan, it does not go forward.

Once comments and suggestions have been collected, recorded, and prepared for discussions and ideas for the agenda, a meeting leader makes the ultimate decision on what the meeting agenda will be, but will use

the agenda list which was asked for to see if anyone may bring up a topic that the leader may not have thought of.

This open dialog passing both project and SIMOPS information should happen throughout the project never seizing as the project moves forward. This will help identify any red lights.

MEETING WITH ALL PARTIES INVOLVED

There are two locations where the meetings should be held, one is in a office and the second being offshore.

Construction Phase / Operations Phase

OFFICE MEETINGS

Once the Pre-Construction data delivery has been made, and the comments received have been recorded there should be a meeting called to discuss high Level SIMOPS and operations. This can be a project operational SIMOPS Identification meeting which has a DP SIMOPS portion. This will allow contractors to pass their contact information and basically state their DP/SIMOPS operation rules, identify SIMOPS concerns, and verbally answer any questions that anyone has at the beginning of the project before any work begins.

The very first meeting held should be a project kick off meeting called the Pre-Construction meeting. After the first Pre-Construction meeting, there should be other more detail meetings which should be SIMOPS specific, discussing each individual SIMOPS in detail.

All of the meeting attendees should be the same as in the list of the pre-construction group and of course others should be added if anyone feels the need. If anyone is unable to meet, then they should telephone conference in. In today's world, almost all of the vessels have a way to call into the meeting because this gives both the on-duty and off duty master a chance to be represented. This is important because each master may have a different proto-call for their vessel.

As the SIMOPS get nearer a more specific detailed schedule should be made and distributed (this can be a section out of the main project schedule). This one should show vessel names. Each SIMOPS should be identified by its assigned number or name (tag).

These meeting should be a HAZID type meeting and each Vessel Owner Operator should have the following documents to be passed out such as each vessel's:

- SIMOPS Procedures
This information is asked for because there are some vessels out there that have no procedures, or the master does not know them well.
- Stand off and approach rules
This information tends to vary from vessel to vessel.
- Contact information (call sign, radio working frequency, number of radios, phone number, names of masters and all officers, etc...)

This information allows the SIMOPS coordinator to have everything he/she needs to distribute to all parties.

- Emergency bridging procedures
This information is asked for contacts in case of an accident or emergency.
- Most Recent DP Audit
This information allows other masters to determine the status of a vessel that will be next to them.
- Vessel's current DP health
This information ascertains the true health of the DP system before the SIMOPS takes place. This information should be asked for again offshore, in case things have changed.
- Reports of DP incidents/run off and cause/repair reports
This information gives all masters involved, an idea of what type of problems, if any, this vessel has had. This knowledge will aid in how the vessel will set up if both master's feel comfortable to perform the work.
- Primary, secondary, and tertiary positioning system (GPS-1, GPS-2, Acoustic, Fan Beam, etc...), along with (if acoustics is named as one) how many beacons on board, are they depth rated for the work being performed, and what is the array plan.
This information is asked for at this time to see the true DP class of a vessel. There are some vessels that just have 2 GPS systems only, or in a case of a SIMOPS that may be all they have available to use.
- Number of officers on bridge when SIMOPS is being performed
- Details of the operations being performed
- Preference of types of prisms and their placement if a laser type system is to be used
This information is useful for discussion, because masters of a vessel may request that the master/OIM of the other vessel/platform ask that their guys not wear reflective tape on their coveralls, shirts as this has been proven to be hazardous.
- Acoustic frequency preferences for both DP and survey
This information is asked for so that the frequency table can be created and discussed. One question to ask is: Can frequencies be changed in the field if necessary? Sometimes, the answer is no.
- Layout plan / DP equipment layout (engine specs, DP system specs)
This information allows other masters to understand the layout and operation of the vessel that they will be working with.
- DP trial procedures
This information is needed so that when one vessel does something unusual by another vessel, the other vessel will know if that is part of their procedure and not just a run off or out of control vessel.
- DP vessel check list to be filled out offshore
This information is asked for to prove that the vessel has all necessary documentation. If they do not, all essential forms should be forwarded directly.
- Vessel classification proof and vessel last inspection reports/findings

This list is just a minimum of the information that should be brought to be discussed and discussion Topics other than what is listed above may include:

Don Ross	SIMOPS / Operations	Planning and Communicating
<ul style="list-style-type: none">- Potential vessel set up in certain wind/sea/and currents- Emergency procedures (break away, drift plans) during the SIMOPS if a vessel or both vessels have issues- SIMOPS communication protocol (radio channels, phone numbers, or satellite phone dedicated to SIMOPS Operations).- Acoustic frequency preferences- Vessel approach methods/protocol- Safety issues		

All meetings shall be held in a manner where a truthful, non-biased discussion of each vessel should be held. By truthful, the true health of the vessel and DP system should be stated and handled by Masters and OIMs. Vessel Masters should state what type of DP system they have, number of working redundant systems, if acoustics is listed as a redundant system, then number of working beacons shall be disclosed and working depth of the pole and beacons. Furthermore, vessels should discuss how many officers will be on the bridge while the SIMOPS is being conducted (as one probably already knows this can change per vessel). Likewise, safety discussions should be held such as emergency breakaway plans. However, all of this should be discussed in detail at the time of the offshore SIMOPS meeting between vessels due to the dynamics of field conditions.

From this meeting, the SIMOPS coordinator should come out with enough information to begin building a more detailed SIMOPS Plan.

From this meeting(s) the sections of the SIMOPS Plan that should be complete are:

- Vessel Section (one for each vessel)
 - This should be taken from the discussion list above.
- Frequency use chart
 - This should show which vessels are using which frequencies for acoustic interference
- Comment Section
 - Each SIMOPS should have its comment section and a detailed list of which vessels will be working in the SIMOPS, along with the type of reference system the vessel will be using, radio channel, and phone number for SIMOPS. Furthermore, this section should include the comments that were made during the meetings held about this SIMOP
- Sketches of the SIMOPS operations if available (can be by hand)
- Preplanned emergency vessel breakaway procedures
- Sketches of vessel setups

SIMOPS Plan Phase II

The aforementioned information should be gathered and reported, this now becomes the first revision to the SIMOPS Plan. This is a formal report of the Kick Off Meeting held. The meeting minutes should be included in an Appendix. All Schedules should be included to inform the general timing of the events. Each schedule revision should be sent to all parties that were in the meeting and when SIMOPS fall off, and then all parties should be notified.

OFFSHORE MEETINGS

This is probably the most important meeting(s). There should be a vessel to vessel(s) meeting between all vessel involved before the SIMOPS begins. If the vessels have a speaker phone, phone would be better than radio because of clear open channels. If not the radio will work or if possible a meeting should be held on a vessel with both parties involved face to face. The leader of this meeting will be the vessel which is chosen to be the lead vessel in the SIMOPS.

These meetings should be held, and all Masters/officers on board should be able to ask any questions that they have. Meeting minutes should be taken by all vessels involved in this communication. The meeting notes and decisions should be faxed/mailed to the person in charge of SIMOPS as soon as possible after the meeting is complete. This information is to be added in the SIMOPS plan in a section under the SIMOPS Number/Name as offshore notes.

Before/During these meetings, the Masters/OIMs/officers onboard the vessel which is directing the SIMOPS (Lead Vessel) may create sketches showing vessel set-up's and planned operations. This would enable each vessel to have some knowledge and understanding of what is going on, which is helpful for the complicated SIMOPS. Once the sketch is created, it should be faxed/mailed to the vessel(s) that are involved in the SIMOPS. These sketches should be placed in the SIMOPS Plan under Sketches and drawings under the SIMOPS Number. However, if the other vessels which are involved in the SIMOPS are struggling to get the lead vessel to understand their vessel set up requirements, they may need to create a sketch to send to the lead vessel. If this is the case then only the sketch that is decided upon to be the proper set up needs to be sent in.

Each vessel should fill out their DP Operations Check list prior and after the SIMOPS and these should be sent to all vessels involved in the SIMOPS and to the SIMOPS coordinator to be added into the SIMOPS plan under the SIMOPS number, Vessel Check list. If master's feel that this is not needed, then just a note to the SIMOPS coordinator stating that this is not needed and this should be placed in the SIMOPS plan as if it was filed.

Once the SIMOPS is completed, a report from both vessels should be made including lessons learned, procedures not adhered to, and changes made on the fly and a copy of the Bridge Log(s) should be made and sent to the SIMOPS manager to add into the SIMOPS sections labeled as Lessons Learned, Things Changed, Vessel Logs, and General Notes. This may not help the SIMOPS in progress, but it may help the future SIMOPS.

IMPORTANT: In this meeting emergency exit/breakaway plans should be discussed/understood and any other safety issues should be addressed in this meeting recorded and faxed/mailed to the other vessel(s) involved in the SIMOPS and this to shall be sent to the SIMOPS coordinator to be placed in the SIMOPS Plan under the SIMOPS Number in a section called offshore Safety Brief/Plan.

SIMOPS Plan Phase III

This phase of the SIMOPS plan is adding in all of the information gathered from offshore. This phase closes out one section of the SIMOPS plan at a time. On the SIMOPS Plan Record sheet mentioned earlier one would want to put completed.

Each schedule revision should be sent to all parties that were in the meeting and when SIMOPS fall off, and then all parties should be notified.

Surprise Vessels / Vessels Mobilized Quickly**For the Contractor/Vessel Owner/Operator - When the First Call Comes In**

Every project experiences problems and clients search out vessels to repair the emergency issue. This can be an ROV vessel, supply vessel, survey vessel, drill ship, moored rigs, etc...

When these vessels come into play, there exists a possibility of SIMOPS. The most frequent thing overlooked is all of the questions that were asked of the other vessels, especially the frequency management and types of available DP equipment.

Example: Grief caused by a surprise vessel:

The one that causes the most grief is the acoustic positioning systems on this surprise vessel, because one member of the team does not tell anyone else and when it hits the field, they start working and shut down other vessels due to clashes.

Some recommended questions to be asked by a vessel operator when one of their vessels is picked up in a hurry on a quick charter and things are flying fast for the mobilization:

- Are there other vessels in the areas?
- Are there SIMOPS plans in place?
- Can we have a look at your project's SIMOPS procedures?
- Is there a possibility of SIMOPS?
- What is the contact information for other vessels in the area?

This is a good one, if one gets this information call the other vessels to let them know that you will be in the field.
- Can I see a project overview and where will we be working and where are others working at?
- Do you have a SIMOPS coordinator/manager?

The only major issue with not planning with a surprise vessel in the field can create havoc and cause delays/problems with other vessels or possibly cause a heavy construction vessel to call all stop.

For the Operator Who Does Have and Does Not Have a SIMOPS Plan in Place

The Operator/Client who hires this vessel should get with the project team as discussed earlier and try to collect as much information about the vessel and pass to the other vessels operating in the field at the time of this vessel being in the field.

Case Example: Surprise Vessel

Pipelay was ongoing on a project when a phone call came in at 0200 asking what the heck (profanity) is a seismic vessel doing out here. We are shut down, do you know how much this is costing us, find out who the vessel is working for. I asked, what is the name of the vessel? I woke up all of the client project managers asking them to check with their geophysicist to see if they had a gun boat working while I looked for the owner/operator of the vessel. Well we all found out that the vessel was working for no one at the time, it was a spec shoot. The data they were collecting they had ambitions of selling to the client that they stopped all work on.

SIMOPS Plan Ideas

Along with the three phases mentioned in this document, the SIMOPS plan should include a statement of rules which was compiled from the meetings. These rules should be set up on the basis of the strictest vessel rules.

As the project moves forward and SIMOPS are identified, they should label it with a SIMOPS number or other identification/designation, and if a SIMOPS is deleted, a table like a document register should be kept up and this should be shown as deleted. This table should show which vessel is the lead vessel during the SIMOPS. However, when it comes to SIMOPS, if one master is not happy, it is all halted no matter which vessel is in the lead.

A couple of examples are:

Example: Communication Rules

Vessels in route to the SIMOPS Lead vessel will give the Lead vessel a radio call on Channel 16 when 4 hours out, again when 2 hours out, again when 1 hour out, and will hold at the 500m zone. At that time, the vessels will have the SIMOPS offshore meeting and once everything is understood, the vessel shall come in as mutually agreed upon between the vessel masters.

Example: Notification of Operations Rules

Any time a vessel is preparing to launch an ROV and/or use acoustic positioning, they are to call all other vessel's in the area to let them know that they are going in the water and will be using acoustics and the frequencies that they are using. If other vessels see problems with their acoustics at this time or shortly after they are to notify the vessel which made the call.

Example: DP Trial Rules

Each vessel involved in a SIMOPS shall perform a DP trial a minimum of 1 mile away from all other vessels in the area of operations or in the vicinity of the trial. All results will be faxed to all vessels and the SIMOPS coordinator.

In the course of working on many projects with different operators, two different schools of thought on Frequency Management can be observed. One school is hard, rigid rules and pre-assignment of channels. The other is to have meetings and work out the frequencies to be used, and when they change or other vessels are preparing to come into the field, pass the frequencies that are being used to them and work out which ones they are to use with them.

The Author's preference is option two, which allows flexibility and one vessel can change as he moves site to site if need be. The vessel is not locked into something that may not be useable and where it is located would be perfectly ok to use the frequencies.

Some sections that may be included in one's SIMOPS Plan May Include:

- 1) Project Overview
- 2) Current Project Schedule and SIMOPS Identification Table
- 3) Project Drawings
- 4) Project Contact List
- 5) Project SIMOPS Operational Rules
- 6) Revision History
- 7) Detail SIMOPS Section (one for each SIMOPS being specific to each SIMOPS) with subsections such as:
 - Vessel names to be involved in the SIMOPS
 - SIMOPS schedule(s)
 - SIMOPS procedures
 - Emergency procedures
 - Communication protocol
 - Frequency assignments
 - Vessel approach protocol
 - Sketches and drawings from meetings
 - Comments from meetings
 - Safety notes from meeting
 - HAZID Notes
 - Onshore Meeting notes (one for each meeting)
 - Offshore Meeting Information with subsets being:
 - o Bridge logs
 - o Sketches
 - o DP trial results
 - o DP check lists
 - o Lessons learned
 - o Changes made to procedure
 - o DP problems/failures/issues
 - o Safety notes

- HAZID notes

8) General Project Vessel Data (a section like this for each vessel)

- SIMOPS Procedures/rules
- DP Class
- Stand off and approach rules
- Contact information (call sign, radio working frequency, number of radios, phone number, names of masters and all officers, etc...)
- Emergency bridging procedures
- Most Recent DP Audit
- Vessel's current DP health
- Reports of DP incidents/run off and cause/repair reports
- Primary, secondary, and tertiary positioning system (GPS-1, GPS-2, Acoustic, Fan Beam, etc...), along with, if acoustics is named as one, how many beacons on board and are they depth rated for the work being performed, and what is the array plan.
- Number of officers on bridge when SIMOPS is being performed
- Details of the operations being performed
- Preference of types of prisms and their placement if a laser type system is to be used
- Acoustic frequency preferences for both DP and survey
- Layout plan / DP equipment layout (engine specs, DP system specs)
- DP trial procedures
- DP vessel check list to be filled out offshore
- Vessel classification proof and vessel last inspection reports/findings
- Survey (positioning) Sub Contractor and Contacts

9) Surprise Vessel Section

Should have all of the information included in section 8, plus:

- Issues caused by the surprise vessel

10) Appendix

- A section for any thing that caused a revision from the above list
- Comment Section

This list is not conclusive, it is only placed here to help others develop their plan, because like everything in life, what is good for one person may not be good for the other. But please make a plan and discuss all operations openly and freely when working around other vessels.

Sharing Project/SIMOPS Information

The information gathered in the processes outlined here should be shared between all parties. One could argue all day long what is the best method. Some possible methods could be:

- A project website
This would allow the SIMOPS coordinator to place the files and anyone with an internet connection could have access to download the information.
- A FTP site
Would be very similar to the project website, but most have found the website to be better

- Email
The SIMOPS coordinator would have to email everyone on the list, which could be a bad option for the vessels if the files get too large
- Paper Copies
This is a tried and true way of getting the data across. Reports could be shipped every crew change to the vessels if need be.
- Digital Copies (CD/Disk/DVD)
This is a good medium to send out. However, this would require being shipped in the same manner as the paper copy and should be included with a paper copy.

One thing always to remember is the slow communication speed and baud rates that the vessels have when sending information to them. With all of this said, one very important thing to create is a detail contact and distribution list to make sure everyone is in the loop.

The possibilities of SIMOPS are very fluid and dynamic. The processing of the SIMOPS plan will be an evolving process, but the key is to get the information and process it. Revision history and document control is a must. However, communication between the entire team, especially the masters, is essential. It is better to have someone throw the information away and not need it then not to have it when they need it.

The earlier everything can be worked out the better, because some of the plans created may have to be sent out by a crew change as a result of being too large to email.

Communications are the key. The author has found that there are more issues with lack of communication when it comes to SIMOPS than technical issues.

TECHNICAL THOUGHTS / Q&A

This section was added because some sections of the industry have asked me address this issues. Some of these groups include clients, engineers, masters, surveyors and many others and when it comes to SIMOPS these become more critical than just standard DP operations. At times people who assign the work never think about this and it is almost never considered in engineering decisions on vessel choices.

Thought 1:

Many vessels may claim that they are DP II, However, the only system that may be available is two GPS system, with the weak link and problem area being the antenna. On most vessels, one can safely bet that the antennas are less than 30 feet apart. Therefore, it would be safe to say that if something masks one antenna, it will mask the other. With this said, the only time that multi-path and/or masking should occur is when a vessel is too close to a structure in which this would be a SIMOPS situation. This is more than likely to occur when a smaller vessel is near a larger vessel or platform.

Thought 2:

Along the same lines, if a vessel is in deep water and has a taught line system along with the 2 GPS systems, can the taught line actually be counted as a working part of the DP system for redundancy? Does this reduce the operational class of the DP system at the site?

Thought 3:

If a vessel has a hydrophone pole and has only one beacon along with the 2 GPS beacons and is in deepwater to ultra deep water, does the 1% slant rule apply? If it does, is the DP positional foot print good enough call this one beacon set up as a redundant positional system? What if the vessel does not have compatts depth rated? These thought is not questioning the vessels which set out a full array, this is only questioning some of the vessels that have minimal equipment and do not have the capability of setting a full array.

CASE STUDIES WHERE GOOD PLANNING MOVED WORK FORWARD

Case 1: Drilling slipped behind schedule and compatt arrays needed to be set, compatts needed to be boxed in and base lines needed to be calibrated in and around the drilling area while a DP Drill Ship was on site.

Here is a replica of the drawing that was shown to the master of the drillship after discussions of which acoustic frequencies/channels we were going to use.

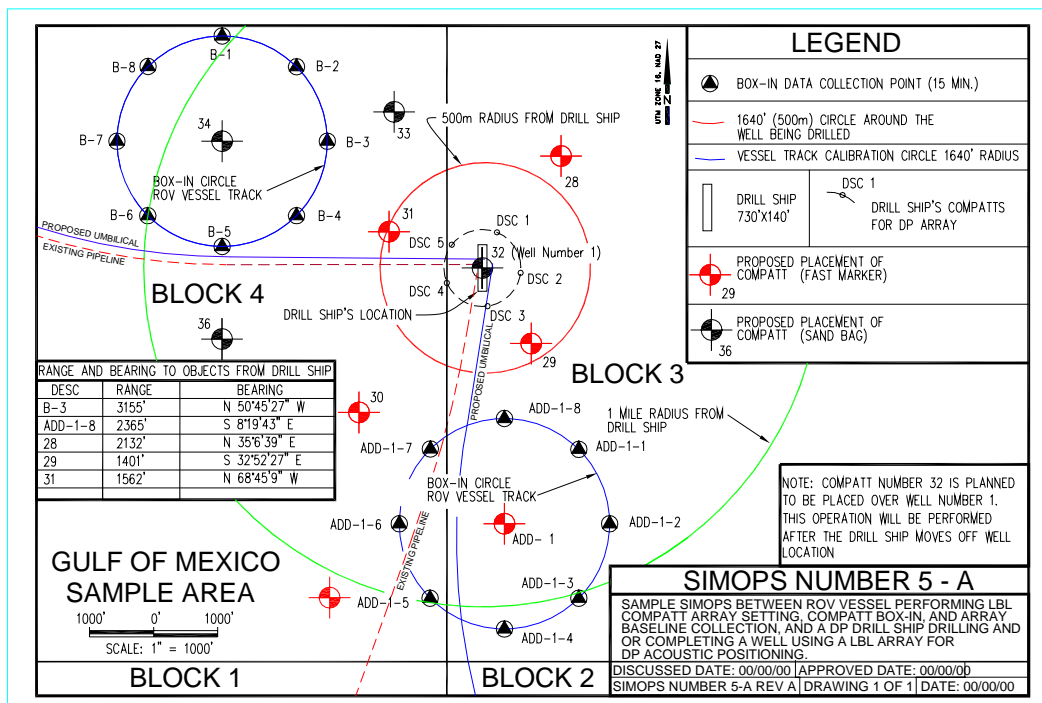


Figure 2: Case Study 1 Example of Compatts Placed In and Around A Drill Site With A DP Drillship on Location, Drawing 1 of 2

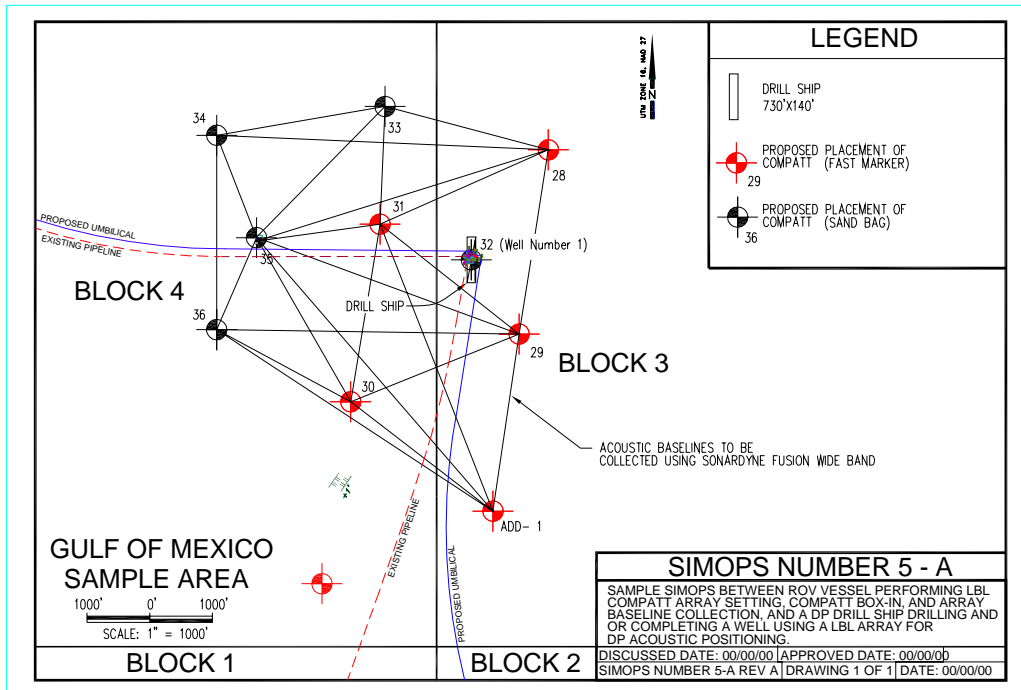


Figure 3: Case Study 1 Example of Compatts Placed In And Around A Drill Site With A DP Drillship on Location, Drawing 2 of 2

These 2 drawings helped clearly explain the planned operations to the masters and officers on both vessels involved. The Master called the author up and had a great deal of conversation about the plans. He laid out his plans for emergency operations and what we needed to do and what we were expected to do. The vessel which the author was on only had one officer on the bridge and the master decided that the author would be his representative on the drill ship and was instructed to take good notes and to brief the master when he got back on the vessel.

Case 2: An AUV Survey Was Needed In And Around A Drill Ship Due To Pipeline/Flowline Route Deviations

An AUV operating in the vicinity of a Drill Ship. We began discussion weeks before hand to discuss how close we could get to the drillship. The master set the rules, and they were followed. The early on discussions allowed for better survey planning to get data that was in the restricted area.

What is great about this was at first they said no way this is going to happen, but with a little discussion, and time to prepare, it became possible.

There were some conversations held in the field shortly before the work initiated and this was due to some slight changes in the program which were not relayed to the master of the drill ship.

Case 3: SIMOPS at a Floating Platform, this was totally amazing

The project demanded a huge array in the area of the floating facility to all for all of the umbilical and pipeline risers to be positioned using the array. By planning ahead and using forward thinking we were able to have 2 lay vessels using LBL in the same array, while a Heavy lift ship was starting up and setting their array and had 2 other ROV vessels positioning their ROV's without anyone stepping on anybody else. This worked well because of forward planning and allowing the vessels to have some flexibility in the field to adjust accordingly to work around each other.

CASE STUDY WHERE ROV VESSEL IS CALLED OUT LAST MINUTE TO HELP A DP DRILLSHIP

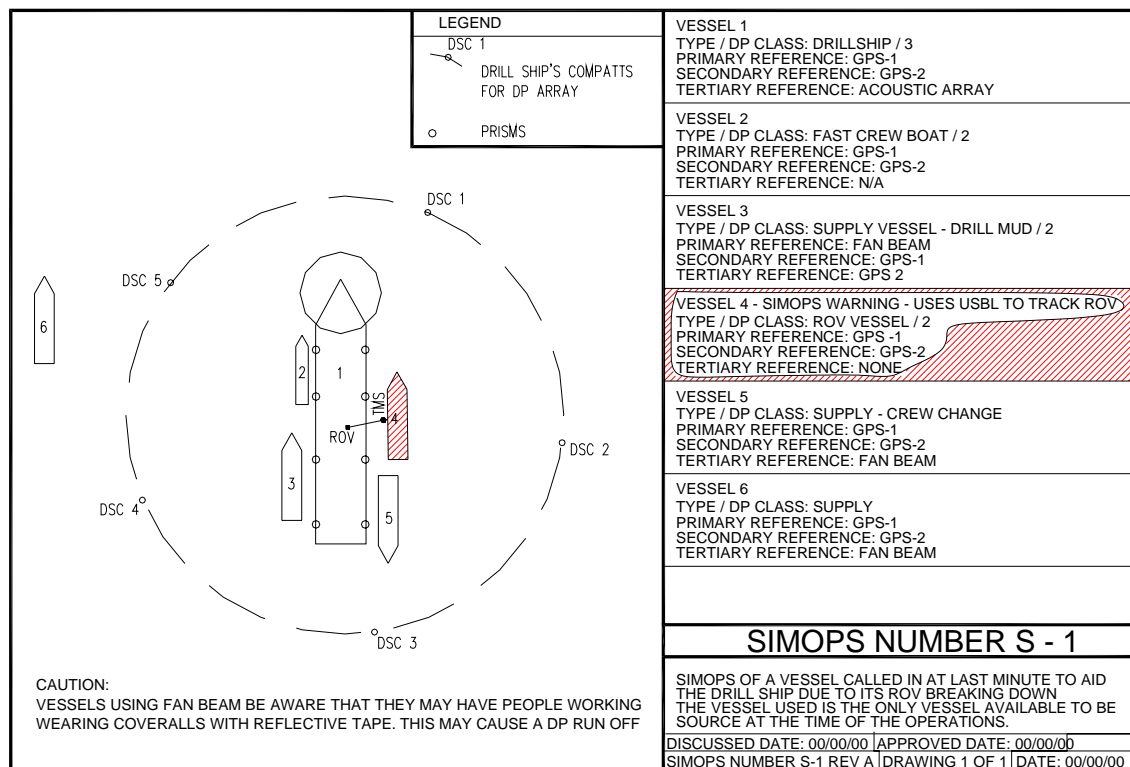


Figure 4: Case Study 4 Example of A Surprise Vessel Showing Up And No Questions Asked

If you look at all of the vessels in this picture, Number 4 sticks out. This vessel sticks out because it is listed as a DP-2 vessel, but the only thing it has to use for this case is the 2 GPS units. Question is this vessel truly a DP-2 Class Vessel in this case? If one of the GPS antennas is masked, what are the chances of the second?

The other question about this operation is, if someone perceives this as a non-issue, what about the caveat that is placed in everyone's contract that reads something like this "The GPS system is operated by the government and degradation of signal and turning off of the signal can happen at

anytime and the contractor does not guarantee the operation of the GPS system....” but yet they will place his vessel on DP with this being his sole control with one officer on the bridge.

To make things even better, this vessel had one officer and a deck hand on the bridge during this operation. The DP drilling vessel did not know of this information. If he was aware of this, he would have called the operation off.

CONCLUSION

This may seem all fundamental, but sometimes surprisingly enough the information included in this document never even gets dreamed of until someone calls into offshore and states “we are shut down due to this other vessel.” Or worse case, drilling calls construction and states, “my rig is down because of your survey boat”. However, both those would be better than to have a call from a drill ship that we ran off due to loss of acoustics for the DP system because another vessel has shown up in the field, launched their ROV and started work.

If someone reads this and they do not have a SIMOPS system or plan, please keep open lines of communication between the vessels and make sure they speak and all vessels are kept in the loop of what other vessels are doing now and in the future.

This all takes time and the cost of doing this does not significantly increase the cost of a project based on the potential savings of keeping the vessel working non stop due to costly SIMOPS issues throughout the project.

I would like to give special thanks for the clients, employers and mostly all of the vessels and crews that I have worked with over the past years. Without the knowledge that they shared with me and allowed me to gain, this paper could have never been created.

Furthermore, the inspiration of this paper was from the time that I spent offshore working with different vessels in different parts of the world and hearing the master’s and DP officers complaints and concerns, which was mostly that they are kept in the dark about all or most operations.

Lets all do our part in keeping everyone working safely throughout all of our projects.