23

Simultaneous Operation Optimizations to Accelerate Well Preparation and Minimize Production Shortfall

SIMPOSIUM IATMI 2018
PADANG| 1-3 OKTOBER 2018

Simultaneous Operation Optimizations to Accelerate Well Preparation and Minimize Production Shortfall

Alvin I. Handoko[1], Hanifan M. Biyanni[1], Boby W. Hendarno[1], Rangga Saputra[1]
PT Pertamina Hulu Mahakam[1]

Abstract

Simultaneous Operations (SIMOPS) between construction, drilling, and production division has been a common practice in PT. Pertamina Hulu Mahakam (PHM), in particular within Tunu, Tambora, and Handil field. The SIMOPS is governed by an operation matrix, which defines a safe working radius between entities during different operation phases.

However, the upcoming Handil campaign requires several operations with working radius that conflicts with the matrix's requirements. Also, to meet the ambitious production and well delivery targets, several optimizations are prepared by the drilling team. The optimizations including reassessment of the matrix's allowable simultaneous operation, safe working radius, and well plugging requirements.

This paper describes the optimization methods and the result on PHM's Handil campaign.

Keywords: SIMOPS, SIMOPS Matrix, Rig Move, Drilling Planning

1. Introduction

Tunu, Tambora, and Handil (TTH) are gas, condensate, and oil producer fields currently developed by PT Pertamina Hulu Mahakam. The fields are characterized by swamp area located in Mahakam river delta. Swamp barge rigs are the primary drilling means utilized by the operator since the field's discovery.

Handil, in particular, is one the first developed among the swamp fields. Oil has been the primary product of Handil, with gas reservoirs also targeted on the upcoming development campaign.

Several particular Handil operating conditions are that the surface locations are densely populated, shallow gas hazard, aging wellhead and production facilities which require unique intervention, and dual-completion type wells. These conditions resulted in various challenges especially during Simultaneous Operations (SIMOPS) as described in following chapters.

1.1 Operation Overview

On TTH field, a typical new development well progresses through the following sequence before can be Put on Production (PoP):

1. Site Preparation
   a. Dredging

      Due to its swamp & river environment, sediment dredging must be performed to ensure the rig can safely move in/out and operate at a level seabed. On river mouth area, heavy sedimentation regularly occurs and dredging process might take months to complete. The dredging is carried out with a crane barge and managed by Construction Division.

   b. Well Plugging

      Existing platform's co-slot wells and any adjacent wells with potential well trajectory collision will be temporary plugged as a mitigation prior drilling a new well. The plug is typically installed via slickline on a Well Intervention Barge, managed by Well Intervention Division.

Well plugging requirements are continuously challenged due to the production loss imposed during the plugging duration, and may risk production restart ability on sensitive wells.

c. Surface Facilities Removal

Any existing pipeline, platform, or other installation, including co-slot well's X-Mas Tree, which may cause potential obstruction with upcoming rig operation will be safely removed before rig move in. This operation is very common in Handil field with old platform design that does not allow slot expansion. The removal is performed with crane barge assistance and managed by Construction Division.

d. Conductor Pipe (CP) Driving

As part of the well architecture, a conductor pipe must be driven first. The CP will be driven with hydraulic hammer by crane barge to reduce rig usage. Pre-determined driving criteria are minimum penetration depth (~ 100 m in Handil field) or the pipe/hammer body refusal. Due to pipe's natural deflection and various formation/soil resistance behaviors, the CP string will be deflected at a certain inclination and azimuth. The operation is managed by Construction Division.

In Handil, due to its inland delta environment, the overall site preparation progress above can be completed in an average of 1.5 months prior to rig arrival.

2. Drilling & Completion

On Handil, the common well types are Handil Light Architecture and Handil Shallow Architecture. The light architecture enables production from main and deep reservoir, while shallow architecture taps into shallow sand reservoirs completed with Gravel Pack completion. These well types can be completed in 14 days average.

Shallow gas presence in TTH has been quite well known. Several shallow gas events during the field development have triggered strict safety procedures to be implemented both inside rig and nearby facilities during shallow gas drilling.

3. Well Connection

a. Surface Facility Reinstatement
The surface facility will be reinstalled immediately once the rig has left the working area.

b. Well Unplugging
Temporary plugs will be retrieved by well intervention barge.

c. Pipeline Installation / Connection
On several remote Handil areas, new pipeline installation might be required. Nevertheless, due to the abundance of existing or non-producing lines, new Handil wells typically do not require new pipeline.

d. Perforation & Clean Up
Well Intervention barge will perforate the well, if note previously perforated during rig completion operation. A clean up process will follow.

e. Leak Test & PoP

In average, a new Handil well will require 3 months of progress before the well can be produced. For now, these sequences have to be followed in order and cannot be performed simultaneously. Several well preparations, however, can be performed simultaneously as long as the fleet still can accommodate. Generally, any disruption on one part of the above may lead to the delay of the following sequence, and in the end delaying the production.

Handil Site Manager will oversee the process described above and acts as the Responsible for Safety and Environment on Site (RSES). Currently, drilling supervisor or the company

man acts as the delegation, or RSES-D. Any SIMOPS-related job located within the rig's responsibility radius will require the RSES-D's authorization.

1.2 SIMOPS Matrix

Any operations, e.g. well preparation activities mentioned above, well maintenance, or production monitoring, within the defined perimeter conducted by different parties at a same time is categorized as SIMOPS operation.

A SIMOPS working matrix is prepared as a guideline in order to have a safe working environment for all related parties. This matrix is derived from the company's internal rule (Pertamina Hulu Mahakam, 2018), which defines any allowable work within certain radius from drilling on specific rig operation (Figure 1).

The matrix governs any simultaneous job based on the following working radius from well center:

1. <75 m, as the radius affected by the rig mast drop zone
2. 75 – 200 m, as the defined SIMOPS area based on the company rule
3. 200 – 500 m, as the maximum extension of the RSES-D's responsibility area

The allowable activities are also dictated by the criticality level of ongoing rig operation:

1. Rig move in to or out from platform, including ballasting and de-ballasting operation. The main risk involved during this operation is rig stability, which may lead to rig-platform collision or rig tilting.
2. Shallow Gas Phase. One of the most critical phase during drilling, as only diverter will be installed (no well shut-in capability). As mentioned above, previous catastrophic experiences have driven stringent SIMOPS condition during shallow gas phase. Shallow gas phase itself is generally completed within 3-5 days.
3. Non - Shallow Gas or Reservoir Drilling Phase. With the ability to secure well, these phases have the most relaxed SIMOPS condition.
4. Well Control / Loss / Other Downgraded Situation. A strict SIMOPS condition is applied on these cases just like during Shallow Gas Phase.

2. Challenges

2018 Handil drilling campaign consists of 12 wells, 7 Shallow and 5 Light Architecture wells. All wells will have to progress through the steps mentioned above. Some will even need platform replacement due to slot incompatibility. Shallow gas phase will occur on all wells.

In-time well delivery is expected given the ambitious production target set by the management. Aside from an efficient drilling operation, the well is expected to be produced as soon as possible. Aside from meeting each division's targets, specific challenges related to the current campaign are:

2.2 Conflicting Working Radius

As previously described, SIMOPS Matrix has governed different working radius during different phases. Unfortunately, several wells are located within a very close proximity (Figure 4) such that very limited SIMOPS can be performed as regulated on the Matrix.

4 wells are clustered together within 500 m radius, and another 3 wells are clustered also within 500 m radius. During shallow gas phase, no other activity, except those mentioned in SIMOPS matrix, is allowed in this working radius. Consequently, any well preparation-related operation will have to be suspended. An estimated total of 50 days of operation standby is foreseen only as mitigation until the rig has completed shallow gas phase. This delay will also

potentially lead to delayed well PoP and even increased production shortfall due to extended plugging duration.

Location clustering itself is part of PHM's operation optimization by reducing rig move time. Whenever possible, drilling sequence has to be arranged so that the rig can travel efficiently between well locations (no *back-and-forth* rig moving). Nevertheless, the drilling sequence cannot be easily shuffled to solve planning constraint imposed by the SIMOPS restrictions described above. Fleet availability, expected production profiles, and equipment delivery are some of the other limitations that must also be satisfied during the campaign. Thus, another solution must be devised to reduce the potential operation stand by time.

2.3 Well Plugging Requirements

As mentioned above, several wells will have to be temporary plugged as part of trajectory Anti-Collision (AC) and heavy lifting (on rig's *moon pool* area) mitigations. Currently, co-slot wells / wells within same platform, shall be plugged as part of mitigations for the risks above. Adjacent wells will be plugged only if a potential collision risk is present.

PHM's current well plugging requirement is based on AC simulation result of the trajectory modeling software, with validation from Direction Driller's simulation result. In short, a potential AC issue occurs when there is a risk of *center-to-center* distance is less than 1.5 m and a calculated *safety factor* between 2 wells is less than 1.5.

This requirement become less certain due to the actual well's trajectory is heavily affected by the actual CP direction. As outlined above, the CP is driven by construction barge before rig arrival. Currently, the actual CP's direction, can only be obtained once rig arrived on location, leading a last minute AC re-assessment. Therefore, to accommodate this uncertainty, a conservative approach is taken to temporary plug any well within 360^{o} coverage of CP direction.

Such conservative approach leads to a high number of wells required for plugging. This condition leads to other issues; a limited plug inventory and high production shortfall. Conflicting plugging duration leads to individual plug cannot be immediately reused on different wells. To procure additional plugs is not an economic solution, given the limited delivery time and the temporary nature of the plugs. Additionally, several wells will face a strong plugging reluctance especially if the well is a high producer or a sensitive well. Another method must be considered to adjust the plugging requirements without increasing the AC risk during drilling.

3. Methodology

Two independent solutions are then worked out to tackle the aforementioned challenges.

3.1 SIMOPS Matrix Reassessment

One approach is to review the current SIMOPS requirement by simulating various worst cases scenario by focusing on shallow gas phase. The aim is to study the technical background of the stringent requirement of SIMOPS during this phase, identify any possible mitigation measures, and finally modify the Matrix.

3.1.2 Basis of Study

Several entities were involved in the study, including drilling, production, engineering, and safety divisions. The scope is to define a safe working distance considering the worst case scenario during shallow gas phase, which is an uncontrolled shallow gas blowout. The defined safe working distance is serves as the basis for risk assessment prior to modifying the SIMOPS Matrix.

The work is then divided into different divisions as follows:

a. Drilling: set up any possible worst case scenario based on well architecture concept, rig equipment

limitation, and other operational concern

b. Production / Engineering: Perform Worst Case Discharge (WCD) Flow rate simulation based on reservoir and wellbore modeling.

c. Safety: Evaluate the method and compliancy to the industrial standard.

3.1.3 Worst Case Scenarios

Several possible shallow gas blowout scenarios are set up with different criticality and escalations. These variations are then simulated independently and the results are then compared. Both light (12-1/4" hole size) and shallow (17-1/2" hole size) architectures are considered on the scenario. The scenarios are:

a. Scenario 1: Shallow gas venting through open diverting / overboard line

b. Scenario 2: Blocked diverting lines, leak on connection seal/gasket between CP and Diverter

c. Scenario 3: Blocked diverting lines, rupture on diverter unit

d. Scenario 4: Blocked diverting lines, damage on formation below CP (maximum500 psi holding pressure) leading to subsea release of shallow gas

3.1.4 Safe Distance Criteria

The primary considerations for safe working distance are gas dispersion and heat radiation. A more realistic and less conservative approach is taken to choose applicable criteria. Following controlling parameters are then defined based on above considerations:

a. No risk of physical consequence escalation from gas dispersion, or distance **outside 100% Lower Flammable Limit** (LFL) radius

b. Minimize psychological effect / focus disturbance on the other activity to ensure the job can be secured properly in safest manner and procedure, or distance **outside 40% LFL** – executive action threshold for flammable gas point detectors

c. Safe and permanent unprotected personnel presence from heat radiation if fire / flaring occurred, or distance **outside 2.0 kW/m^2 of heat radiation area**

The company's internal rule (Pertamina Hulu Mahakam, 2018) also serves as the safety standard for these parameters.

3.2 CP Direction Improvement

CP direction control is continuously monitored and improved in order to have a better certainty in CP direction. The improvement process is managed by a dedicated CP driving team. A continuous feedback-and-modification cycle is implemented upon completion of a CP driving and the actual direction has been confirmed. In general, the CP driving method improvements that have been performed:

a. Stabilization fins installation on first and second CP joint. The fins provide torsion resistance to the pipe's body when driven. Any twisting of the pipe's body is prevented by the fin's resisting force to soil.

b. CP Driving Sleeve, which prevents pipe rotation especially during penetrating soft formation.

c. Fit-Up Frame, a customized working platform to improve working safety and pipe joining accuracy.

d. Stabbing Angle, a customized "kick-off" plate which assists CP shoe's deflection when first penetrating formation.

e. On-site measurement of pipe deflection as one of pipe selection

criteria. Pipes with high natural deflection are prioritized as the first or second joint. They tend to have a higher inclination and, coupled with the stabilization fins, mostly resulted in better azimuth accuracy.

The improvement methods described above are added one by one based on the feedback from several wells. Any potential future improvement is always foreseen and will be incorporated into the driving procedures as well.

4. Result and Discussion

4.1 SIMOPS Reassessment Study Result

The study result summary based on various aforementioned scenarios is as follows:

a. Maximum safety distance for 100% LFL dispersion is **88.8 m**, coming from scenario 4

b. Maximum safety distance for 40% LFL dispersion is **182.3 m**, coming from scenario 2

c. Maximum safety distance for heat radiation of 2 kW/m^2 is **220.4 m**, coming from scenario 3

The sensitivity of well architecture (hole size effect) to the simulation is as follows:

a. Scenario 1: 12-1/4" hole size will always give higher gas rate in continuous flowing mode than the 17-1/2" hole size. The presence of drill pipe in the hole will reduce the blow out rate fairly, but increases the gas velocity significantly.

b. Scenario 2 and 3: Instantaneous release rate with 17-1/2" hole size will give higher value than 12-1/4" hole size considering larger trapped volume in wellbore due to blockage of the diverting line prior the sudden release.

c. Scenario 4: Channels will be generated underground and shallow gas continuously through these channels. Gas bubbles will go up to the water surface and form bubble pool. The mass rate of gas bubbles is considered similar to maximum gas flowrate of the well considering shallow water depth (4 m). Thus, the maximum gas flow rate is taken from 12-1/4" hole size without drill pipe presence.

The result is summarized in Table 1.

Based on the result above, the maximum safe working distance is at 220.4 m, governed by the safe zone for a permanent presence of unprotected personnel in case of shallow gas blowout occur. Therefore, theoretically, any previously restricted SIMOPS activity outside this radius can be allowed during shallow gas phase.

On the other hand, additional mitigations must be set in place to ensure that all operation under RSES-D responsibility area (500 m) is fully under control during shallow gas phase, the most critical period during drilling. The mitigation measures are described in Table 2. The checklist must be fully satisfied before any activity can be performed outside the maximum safety distance.

As a result, **250 m** is then defined as the new SIMOPS area. Any non-flaring activity outside 250 m radius from well center is now allowed during shallow gas phase, as long as the aforesaid mitigation measures checklist has been fulfilled.

A comparison between initial and modified SIMOPS matrix is available in Table 3.

4.2 Effect to Conflicting Working Radius

The reduced allowable working radius enables well preparation SIMOPS activity even during shallow gas phase. With this approach, only 2 wells on 2 different cluster positions are still located within SIMOPS radius (Figure 5). These clusters are now grouped and considered as a single well preparation sequence.

The modified SIMOPS successfully eliminates any potential stand by caused by restrictions during shallow gas phase. Well

preparation activities are performed in parallel with drilling operation on all Handil wells (except on 2 clustered wells), allowing the sequences described above to be progressed without any idle period.

4.3 CP Direction

Continuous improvement in CP driving method has lead into an increased accuracy in CP direction. The current database now keeps the maximum CP direction error at 50^{o} azimuth differences; although the average error is lower at 15^{o}. Therefore, any anti-collision plugging requirement to anticipate CP direction uncertainty has been decreased from 360^{o} (all direction) to 100^{o} (50^{o} to the left and right from the plan) as the base case. Nevertheless, specific well trajectory may still require additional well plugging should there is a potential AC issue regardless of an accurate CP direction.

Overall, the new approach has reduced an average of 50% plugging requirement of adjacent well during Handil campaign. This reduction allows plugging management by well intervention division without the need to procure additional plugs. Potential production shortfall also reduced, along with number of wells previously covered by 360^{o} radius.

5. Conclusion

In conclusion, the reassessment to the technical background of the SIMOPS Matrix has allowed a modification to optimize the well preparation delivery, without sacrificing the operational safety. This optimization has prevented an estimated of 50 total operation stand by days due to restricted SIMOPS activity during rig shallow gas phase.

On top of That, the continuously-improved CP driving method has increased the company's confidence to limit the direction CP's uncertainty. This effort has reduced the well plugging requirements for AC mitigation, which in turn postpone the need to procure additional plugs and prevent potential production shortfall.

The combination of optimizations above have allowed the 2018 Handil drilling campaign to be delivered safely, in time, and hopefully achieved PHM's ambitious production and well delivery target.

6. Acknowledgement

The authors wish to acknowledge PT Pertamina Hulu Mahakam and SKK Migas for the permission and providing the well Data. Additionally, the authors would like to thank all entities related during the technical study and safety discussion throughout the Handil Campaign: Engineering dept., Field Operation dept., and HSE dept.

7. References

Pertamina Hulu Mahakam, 2018. *MHK COMP SPE EP SAF 0253 Impacted Area, Restricted Area and Fire Zones*. 00 ed. Balikpapan: Pertamina Hulu Mahakam.

Pertamina Hulu Mahakam, 2018. *MHK-COMP-RUL-EP-FP-0450 Drilling & Production Simultaneous Activity*. Balikpapan: Pertamina Hulu Mahakam.

Setyaningsih, A., Caroko, B., Prabowo, A. (ECP/PRO) , 2018. *E-HDL-18-011 Safety Distance Calculation during Drilling Shallow Gas Mode Study Rerport*. Rev.C1. Balikpapan: Pertamina Hulu Mahakam.

List of Figures

Drilling, Production, and Construction SIMOPS Activity Matrix

Disclaimer: *The table below is only example for publication purposes and not the actual operation working matrix*

	Coiled Tubing, Snubbing, Wireline (Non Flaring)			Coiled Tubing, Snubbing, Wireline (Flaring)			Crane Barge Activities or Vessels requiring Anchoring			Construction Operation Supported by LCT Vessel			Operations Supported by Sea Truck		
Radius	<75m	75 - 200m	200 - 500m	<75m	75 - 200m	200 - 500m	<75m	75 - 200m	200 - 500m	<75m	75 - 200m	200 - 500m	<75m	75 - 200m	200 - 500m
Rig Move in/Out, Ballasting/Deballasting	NO	NO	YES	NO	NO	YES	NO	NO	YES	NO	NO	YES	NO	NO	YES
Shallow Gas Phase	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Non-SG Phase	NO	YES	YES	NO	YES*	YES	NO	YES*	YES	NO	YES*	YES	YES	YES	YES
Reservoir Drilling Phase	NO	YES	YES	NO	YES*	YES	NO	YES*	YES	NO	YES*	YES	YES	YES	YES
Well Control or Other Downgraded Situation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Figure 1*Initial SIMOPS Matrix*

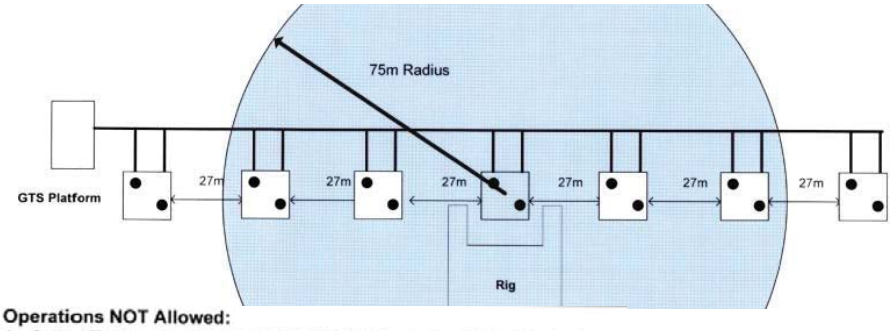
Drilling, Production, and Construction Modified SIMOPS Activity Matrix

Disclaimer: *The table below is only example for publication purposes and not the actual operation working matrix*

	Coiled Tubing, Snubbing, Wireline (Non Flaring)			Coiled Tubing, Snubbing, Wireline (Flaring)			Crane Barge Activities or Vessels requiring Anchoring			Construction Operation Supported by LCT Vessel			Operations Supported by Sea Truck		
Radius	<75m	75 - 250m	250 - 500m	<75m	75 - 250m	250 - 500m	<75m	75 - 250m	250 - 500m	<75m	75 - 250m	250 - 500m	<75m	75 - 250m	250 - 500m
Rig Move in/Out, Ballasting/Deballasting	NO	NO	YES	NO	NO	YES	NO	NO	YES	NO	NO	YES	NO	NO	YES
Shallow Gas Phase	NO	NO	YES*	NO	NO	YES*	NO	NO	YES*	NO	NO	YES*	NO	NO	YES
Non-SG Phase	NO	YES	YES	NO	YES*	YES	NO	YES*	YES	NO	YES*	YES	YES	YES	YES
Reservoir Drilling Phase	NO	YES	YES	NO	YES*	YES	NO	YES*	YES	NO	YES*	YES	YES	YES	YES
Well Control or Other Downgraded Situation	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Figure 2 *Modified SIMOPS Matrix*

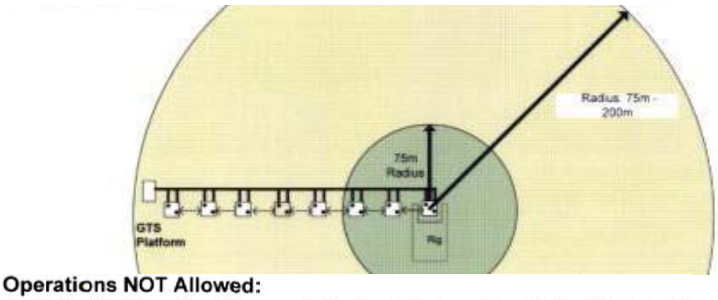
Two Directly Adjacent Platforms from Well Center
(75 m Radius)



Operations NOT Allowed:
1. Coiled Tubing, Snubbing and Wireline Work on Live Wells (Flaring).
2. Coiled Tubing, Snubbing and Wireline Work on Dead Wells (No Flaring).

Operations Allowed
1. Hydrotesting of Production Lines
2. Operations Supported by Sea Truck. I.e. Wellhead maintenance.

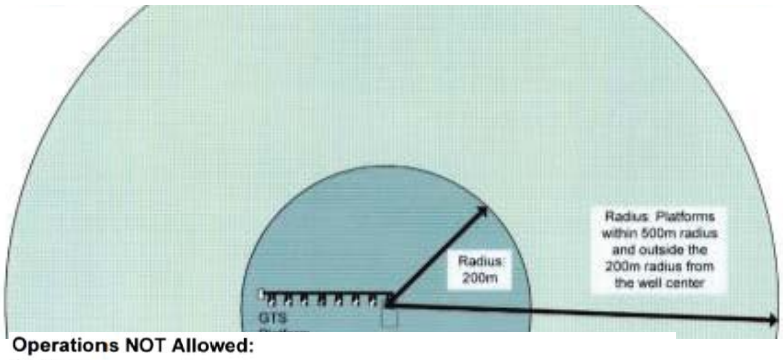
Adjacent Platforms from Well Center
(75 m < Radius < 200 m)



Operations NOT Allowed:
1. Coiled Tubing, Snubbing and Wireline Work on Live Wells (Flaring). (*)
2. Leak Testing of Production Lines With HC. (*)
3. Crane Barge Activities or Vessels Requiring Anchoring. (*)

Operations Allowed
1. Coiled Tubing, Snubbing and Wireline Work on Dead Wells (No Flaring).
2. Hot and Cold Works Including Nake Flame Works.

Remote Platforms or Platforms on GTS Extension
(200 m < Radius < 500 m)



Operations NOT Allowed:
1. None

Operations Allowed:
1. Coiled Tubing, Snubbing and Wireline Work on Live Wells (Flaring).
2. Coiled Tubing, Snubbing and Wireline Work on Dead Wells (No Flaring).
3. Hot and Cold Works Including Nake Flame Works.

Figure 3 *SIMOPS Area Illustration*

Figure 4 *Well Locations with 500 m Working Radius*

Figure 5 *Well Locations with 250 m Working Radius*

List of Tables

Table 1 *Various Scenarios Safe Distance Calculation Summary*

Scenario	OH Size	Max. gas flow rate (MMscfd)	Remarks	Safety distance from drilling wellhead location (in meter)		
				100% LFL	40% LFL	2.0 kW/m2
Scenario#1	12.25" (with DP)	24	Continuous flow	24.8	38.7	64
Scenario#2*	17.50" (no DP)	153	Instant released after gas build up in riser once diverter line is blocked	86.9	**182.3**	148.8
Scenario#3*	17.50" (no DP)	512		8.6	25.9	**220.4**
Scenario#4	12.25" (no DP)	24	Subsea release	**88.8**	171.9	12.3

Table 2 *Additional Mitigation Measures Checklist*

No.	Mitigation description	Y/N checklist
1	The other activity outside radius 250 m from drilling wellhead must not involving any downgraded situation.	
2	PHM Permit To Work (PTW) system to be used for all work carried out within radius up to 500 m.	
3	All PTW must be approved and reviewed by RSES-D after a review on a specific Job Risk Assessment (JRA) related to the job.	
4	A Pre-Job Safety Meeting (PJSM) must be held by the related entity to ensure that all mitigation in the approved JRA and PTW has been strictly followed.	
5	Ensure good communication between entities and to RSES-D	
6	The other activity must stop hot work and job must be secured in safely manner as soon as practicable as RSES-D notify an anomaly on the shallow gas drilling operation such as, but not limited to, a dynamic or static losses more than 5 m3/hr, rig pump / engine failure, and kick indication	
7	The other activity representative is responsible to notify RSES-D as soon as any failure / difficulty is detected leading to any integrity deterioration of the hydrocarbon containment, including the defect on production facility, well barrier, and also pressure control equipment of well intervention unit.	
8	Ensure all of the personnel involved in the other activity have escape way in case blow out happen. Rig position blocking the escape route.	

Table 3 *Modified SIMOPS Matrix General Comparison*

SIMOPS aspects / criteria	TTH SIMOPS Matrix rev.1 (26 Oct 2016)	Handil specific SIMOPS Matrix rev.0 (14 May 2018)
SIMOPS Radius partition	<75 meter, 75-200 meter, 200-500 meter	<75 meter, 75-250 meter, 250-500 meter
Drilling Activity: Shallow Gas Phase	No other activity is allowed in all SIMOPS radius (up to 500 meter radius) except to keep producing adjacent well and for offset well plugging related to well collision risk.	All non-flaring activity outside **250 meter** radius from drilling wellhead location is **allowed with authorization** given by RSES-D*. **all minimum mitigation as listed in table 2 must be fulfilled and well documented*