DIMENSION BID

CTS TASK SHEET

Title	Risk Assessment Exercise					
Target Population	Field Engineers & Field Specialists					
This requirement is applicable to:	✓	JFE		FST		EOT
	✓	FE1	✓	FS1		EO1
	✓	FE2	✓	FS2		EO2
			✓	FS3		EO3
					✓	GEO

Objective:

The objective of this task is to train the employees on how to apply the principles of Risk Management to an actual operational risk situation in CT operations.

Tasks:

- Identify operational risks in a job at location
- Write a risk management plan to safely operate in the face of the identified risk
- Gain an expert comment on the risk whenever required and obtain the appropriate management approval to perform the job.

Please attach a risk management plan as an evidence.

Note:

- Exemptions are exclusively used to obtain "permission" for operations that violated the conditions of safety standard.
- Exemptions are required to be created, documented and communicated across the team to increase awareness on that particular risks.

REQUIRED EVIDENCE:

1 Risk Management Plan ☑

OVERALL SCORE	STRONG			ADEQUATE			IMPROVEMENT NEEDED		
	10	9	8	7	6	5	4	3	2

MENTOR / ASSESSOR's Comments & Recommendation:			
Objective met. Task completed			
Signature		Assessment Date	15/10/24
Name	KUNG YEE HAN	Position	TA

FSM / OM Comments & Recommendation: Task completed			
Signature		Assessment Date	15/10/24
Name	RIDHWAN AZIZAN	Position	FSM

No.	Key Risk		Causes/Consequences	Existing Mitigation	L	I	Current RR	New Mitigations	Action Party	Due Date	L	I	Target RR	Remark
1	**PROJECT TEAM RISK**													
1	Failure to get required personnel into the country due to Visa issues	Causes	Late submission or government rejection	a. Give adequate reminder (at least one month) to all subcontractors and personnel to secure their visas	Unlikely	Moderate	L				Unlikely	Moderate	L	
		Consequences	Unable to get required personnel to site to perform their job	a. Consider remote support b. Consider capable local contractor to support										
2	**TECHNICAL / TECHNOLOGY**													
	General Risk													
2	HSE incidents on the rig during drilling campaign	Causes	Lack of understanding of the area of responsibility when incident occur.	a. Pre-spud/pre-mob briefing before drilling to emphasize on safety b. To monitor implementation of toolbox meeting/JHA/safety meeting/Risk identification/Stop work policy (Normal SOP) c. Organize MHSEV throughout drilling campaign on the rig	Unlikely	Moderate	L				Unlikely	Moderate	L	
			Incident not follow up properly from previous wells/operations	Share Safety Alert/HSE case lesson learnt among crew onboard during daily/weekly meeting										
			Poor HSE practice and enforcement	a. HSE awareness campaign on the rig b. To implement Wells HSE Plan (inculcate safety culture among all personnel) c. Frequent monitoring/dedicated PCSB SSE d. Review the requirement for double-crew readiness (third-party), and ensure extra personnel for dual derrick activity e.g. extra crane operator during top hole section.									
			Poor housekeeping	Frequent monitoring/dedicated PCSB SSE										
			Inexperience manpower	Implementation of CCC (competency card)										
			Fatigue due to long working hours	To implement Wells HSE Plan., i.e. Hearts & Minds (inculcate safety culture among all personnel)										
			Improper handover between tour change	Drilling to monitor implementation of toolbox meeting/JHA/safety meeting/Risk identification/Stop work policy (Normal SOP)										
			Crew morale due to the last well in rig sequence.	Implement HSE recognition/incentive scheme										
			Lack of communication between crew	a. Ensure Accountability Flowchart been reviewed with relevant personnel and action as required. B. To include task/Safety Monitor in list of Role Requirement for HSE procedure "Mechanical Lifting and Hoisting Standard "										
			Equipment failure	Collaborate with OEM to identify potential limits/alarms if excessive pressure occurs when extending racker arms laterally.										
			Lack of situational awareness	a. "Line of Fire" awareness and enhancement of "Situational Awareness" to the crew through Heart & Mind b. Emphasis on the needs of comprehensive ToolBox Talk covering all potential hazard, not limited to high consequence hazard									
			Fall from height	a. Proper PPE, i.e., Hard Hat with chin strap fully fastened b. Proper equipment layout and escape route identification. c. Ensure guardrail to be more than 200mm horizontal distance of the edges of the scaffolding platform. d. Ensure 3-point contact for personnel movement up/down scaffolding e. Ensure escape route / access ladder available for safe evacuation. f. Where there is possibility of serious harm from a fall less than 2 meters, fall protection (Body Harness) is needed. Consideration should also be given to situations where a person may slide down on inclines surface before reaching a point at which a fall can occur.									
			Congested area											
			Lifting activity	Compliance to PTW & Lifting plan										
			Poor planning/inspection of preparation of load prior to lifting - Drop object Hazard	a. Check availability and condition of suitable/approved lifting points on load. b. Competent Personnel On-site c. Review Lifting Plan prior execution				Extra proppant big bag available on location	1. Kessler (HSE), Agus SLB, Farhan	30 Sep 2023				
			Perform physical check of crane operator licenses, enquire about sleeping hours and ensure he/she is sober and mentally sound	a. Ensure the operators have valid operating licenses and are valid b. Physically check bag condition										
		Consequences	HSE exposure: a) Injury b) Fatality	a.Medic available onboard at all time										
3	Unsafe working condition at Rig Floor and Cantilever deck	Causes	Multiple equipment stackup (CT stack up, Slickline stack up and Pumping stack up during pumping job / tag top of RCP) with Multiple lifting activities	a. Proper equipment layout and escape route identification.	Possible	Moderate	M	a. Lifting plan with sequence b. Agreed footprint of the equipment on the rig floor and cantilever	a. Zaeem DB & Agus SLB b. Zaeem DB, Agus SLB, Farhan, DSV, Rig OIM	a. 30 Sep 2023 b. 1 Sep 2023	Unlikely	Moderate	L	
			Improper/insufficient PPE while working at height	a. Proper PPE, i.e., Hard Hat with chin strap fully fastened c. Ensure guardrail to be more than 200mm horizontal distance of the edges of the scaffolding platform. d. Ensure 3-point contact for personnel movement up/down scaffolding e. Ensure escape route / access ladder available for safe evacuation. g. Where there is possibility of serious harm from a fall less than 2 meters, fall protection (Body Harness) is needed. Consideration should also be given to situations where a person may slide down on inclines surface before reaching a point at which a fall can occur. h. Ensure compliance to JHA and PTW									
		Consequences	Fall from height	Ensure medic onboard				Ensure medic aware on the complexity of the operation	Kessler (HSE), DSV, Rig OIM	30 Sep 2023				
	Cementing													
4	Failure to bump top cementing plug	Causes	Incorrect displacement calculations	a. Use incompressible displacement fluid if possible, take into account surface line volume, perform mud pump efficiency check prior cementing job. b. Take minimum 50% of casing caliper ID c. Have sufficient shoe track to allow half shoe track overdisplacement	Possible	Moderate	M	a. Drop calibration plug to confirm the accurate displacement volume b. Use extra fins on the wiper plug to reduce the failure of the fins	a. Myat, DSV b. Myat	a. During operation b. 1 Sep 2023	Unlikely	Moderate	L	
			Loading of cement plugs in cement head improperly	a. Have good QAQC on plug selection , storage & handling b. Ensure servicing of Cementing head / lock pin , stopper before job. c. DSV to witness loading of plug (no more than 48 hours before job)										
		Consequences	Higher TOC than desired	a. Ensure to prepare for additional bits to drill out cement via CT										
			Requirement of slickline plug to set the WAB	a. To install X nipple below WAB setting depth and set during green cement				a. To rig up slickline and standby during cementing job for contingency run	a. Kuswanto Geowell, DSV	a. During operation				
			Potentially lower TOC behind casing	a. Perf and remedial work to be considered										

2	Fracturing the cement behind tubing during pumping operation	Causes	Uncontained fracture propagation	a. To design cement UCS higher than formation UCS b. To start pumping job once the target cement UCS has been achieved	Possible	Moderate	M				Possible	Moderate	M		
			Inflexible cement	To ensure cement is sufficiently flexible to absorb fracturing pressure without cement sheath failure.											
		Consequenc	Micro annulus behind tubing	To install WAB in 9-5/8" casing											
			Sustained casing pressure	To install WAB in 9-5/8" casing											
	Pumping														
5	Premature screenout	Causes	Tortuosity	a. Optimized pumping schedule and add 0.5 PPA	Unlikely	Moderate	L				Unlikely	Moderate	L		
			Pump failure	a. QAQC surface & down hole equipment at workshop and perform rig survey. b. Dry run the whole system at base & onsite.											
			Incompetent personnel	a. Ensure experience personnel (CV review).											
			Large tubing volume causing roping effects	a. Conduct pumping hydraulic simulation to rule out roping during the main job b. Increase viscosity and pumping rate (40# gel and go to 16 bpm if necessary)				a. During tubing volume displacement, pump with 5 bpm or less so that any fracture creation is limited in size. b. Once tubing volume displacement completed, pump at least 16 bpm to avoid roping effect	a. Agus SLB b. Agus SLB	a. During operation b. During Operation					
		Consequences	Sand production												
			Production deferrment												
			Facility damage												
			Loss of short string(upper zone)												
			Cost impact												
6	Acid handling	Causes	Improper handling (Transportation, storage, lifting, mixing, pumping, return, and etc)	a. Ensure adequate soda ash for neutralization process b. To ensure following the acid handling procedure including SDS Tagging and spill recovery c. Ensure personnel handling the acid are trained	Unlikely	Moderate	L				Unlikely	Moderate	L		
		Consequences	HSE issue -Personnel injury, chemical spill and asset damage	a. To ensure strictly follow the acid handling procedure b. Ensure seamless communication between offshore & office team. Activate ERP. d. Ensure medic available onboard. e. To ensure the required equipment is available onboard (Eyewash station) and located near acid working f. Strictly follow PPE procedures											
7	Proppant flowback	Causes	Flow rate exceed the critical flow rate	Utilized Resin Coated Proppant (RCP) to bind and hold the proppant in place within the fracture	Possible	Moderate	M	Specific study and simulation to model proppant flowback for RCP	Agus SLB, Rizwan, Farhan	30 Sep 2023	Unlikely	Moderate	L		
			Low formation UCS (low fracture closure pressure (FCP)												
			Multi fractures - fractures with less/different proppant packing will be easier for proppant to flowback (not packing uniformly)					To consider installing the TT sand screen during intervention phase	Suman	During production					
			RCP failure (not fully cured)	To model RCP curing time and properties with lab test											
			No screen to hold the proppant in place	Utilized Resin Coated Proppant (RCP) typed to bind and hold the proppant in place within the fracture											
			High production gas flow velocity	To control the drawdown at min sand failure rate (MSFR) area											
			Require high rate to push dart at especially in high angle	Check fracture extension rate during step rate test, used as guideline											
		Consequences	Sand control not achieved (sand production)					To consider installing the TT sand screen during intervention phase	Suman	During production					
			Unpropped near wellbore sand face					Check fracture extension rate during step rate test, used as guideline	Agus SLB, Rizwan, Fakhrin, Sunanda, Farhan	During operation					
			Overflushing existing frac below when pushing dart	Pump minimum rate during dart displacement											
	Coiled Tubing														
8	Coil tubing run issue	Causes	Coil tubing plugging	a. Do proper QA/QC tools and equipment and have upfront agreement of QA/QC requirement with contractor (by third party QA/QC engineer 3-4 weeks prior mobilization) b. Contractor have to follow the requirement in the maintenance manual/reference c. Perform SID discussion with Rig Team prior CT job.	Possible	Major	H				Unlikely	Major	M		
			Problem with measuring depth tool	a. To have proper QA/QC prior mobilization b. Contractor to provide back up measuring depth system at Rig c. To have pre-inspection prior to run											
			Broken BHA	a. Proper QA/QC prior to mobilization b. Obtain COC of BHA from contractor											
			Corroded/pitting CT	Optimize acidizing program				a. Proper QA/QC prior to mobilization b. To have WT inspection and not exceed fatigue time of CT prior mobilization c. To have back up coil tubing as per contract d. To consider CT real time thickness monitoring e. To consider new coil tubing f. To ensure CT equipment meet industry standard	a. Zaeem DB, Mifdhal b. Zaeem DB, Mifdhal c. Zaeem DB d. Zaeem DB e. Zaeem DB f. Zaeem DB, Mifdhal	a. 15 Oct 2023 b. 15 Oct 2023 c. 15 Oct 2023 d. During operation e. 15 Oct 2023 f. 15 Oct 2023					
			Crew competency	a. To follow CCC system b. Stipulate the crew requirement in the contract c. Review and screen crew CV/resume											
		Consequences	CT stuck	a. Utilize hydraulic shifting tool b. Use agitator and lubricant c. To have sufficient centralization in BHA d. Pre-modification of BHA conducted in workshop, not at site e. To have coil tubing fishing package ready				a. To have coil tubing fishing package ready. Detailed out with provider. b. Detailed simulation of proppant cleanout. Sticky/tacky RCP. Not fully set due to lack of P&T c. Proper equipment for milling BHA (motor, bit)	a. Zaeem DB, Farhan b. Zaeem DB, Rizwan, Fakhrin, Sunanda, Farhan c. Zaeem DB	a. 15 Oct 2023 b. 15 Oct 2023 c. 15 Oct 2023					
			Personnel Injury	a.PPE provided & fire extinguisher b.Rig to be inform & prepare for fire water pump											
9	CT No return at the surface	Causes	Loss circulation/return	a. Introduce nitrogen to lighten fluid column & increase AV b. Increase the pumping rate	Possible	Major	H	a. To conduct simulation to represent the initial conditions of the well and to model the cleanup efficiency	Zaeem DB, Farhan	30 Sep 2023	Unlikely	Major	M		
			Clogged nozzle orifice	a. Monitor circulation pressure as indication for friction at nozzle. b. Install downhole filter as part of BHA configuration											
			Premature burst of rupture disc	a. Monitor circulation pressure as indication for friction at nozzle b. Establish differential pressure calculation for rupture disc											
			Insufficient annular velocity between completion tubing and CT	a. Introduce nitrogen to lighten fluid column b. Perform penetration for sand interval in low interval as reference to Basic Sediment Water (BSW) at surface. c. Introduce lifting gel in sequence during cleanout process d. Increase the pumping rate b. To perform cleanout simulation using (CIRCA) being performed and confirm ability to reach target depth				To change Coiled Tubing size from 1.5" to 2" in order to have higher pumping capacity and increased annular velocity to at least 150 ft/min	Zaeem DB, Farhan	15 Oct 2023					

		Consequences	Coil Tubing stuck/ Fish LIH	a. Ensure sufficient circulation bottoms up and monitor closely BSW at surface b. Check for any anomaly on the weight for dragging, set down and overpull during cleanup process c. Ensure sufficient circulation and return for a specific depth such as tubing ID reduction, inclination d. To pickup coil regularly during RIH and injection e. To follow coil stuck release procedure f. To perform CT conveyance simulation and Tubing Forces Analysis using certified software to identify potential held up depth due to coil limitation				Prepare sufficient friction reducer as addictive to be pumped when encountered lockup	Zaeem DB	During operation				
10	Coil tubing parted (Infill 5 - Limitless)	Causes	5.Corroded/pitting CT	a. Proper QA/QC prior to mobilization b. Optimize acidizing program c. To have WT inspection and not exceed fatigue time of CT prior mobilization d. To have back up coil tubing as per contract e. To ensure CT equipment meet industry standard	Unlikely	Major	M	**Planning** a. To consider CT real time thickness monitoring b. To consider new coil tubing c. To ensure CT equipment meet industry standard	1. Zaeem DB 2. Zaeem DB 3. Zaeem DB, Mifdhal	1. During operation 2. 15 Oct 2023 3. 15 Oct 2023	Unlikely	Major	M	
			Bolt or any object stucked at the injector gripper block (PCINO - Bukit Tua CTU Incident)	a. Proper QA/QC and maintenance record prior to mobilization b. To continuously monitor coiled tension during POOH c. Ensure to have coil life/coil fatigue ratio is in good condition - min. 80%										
		Consequences	Coiled tubing fishing	Ensure CT fishing package readily availble onboard										
			HSE exposure	Medic available onboard at all time										
			Prolonged operation											
11	Coil Tubing Stuck (Infill 5 - Limitless)	Causes	1. insufficient Annular Velocity	Use nitrified during clean out	Possible	Major	H	a. Consider to use taper reel coil tubing - depend on availability b. Ensure to have coil life/coil fatigue ratio is in good condition - min. 80% c. Use bigger coil tubing size (2" if possible)	1. Zaeem DB 2. Zaeem DB, Mifdhal 3. Zaeem DB, Farhan	1. 15 Oct 2023 2. 15 Oct 2023 3. 15 Oct 2023	Unlikely	Major	M	
			2. Improper HiVis fluid train	a. Run sufficient volume Hivis fluid train b. To perform lab test (HiVis with RCP)										
			3. Pumping and circulation interuption during clean out	a. Ensure back up pump is readily available (cement unit and rig pump) b. Dry run the whole system at base & onsite. c. Coil tubing pump unit to have sufficient plunger size, therefore the pumping operation can be conducted in full lock up position										
		Consequences	1. Require fishing operation	Ensure CT fishing package readily availble onboard										
			2. Lost the well	N/A										
12	Coil tubing improper cleanout (Infill 5 - Limitless)	Causes	1.Coil tubing plugging	a. Do proper QA/QC for tools and equipment b. Contractor have to follow the requirement in the maintenance manual/reference c. Perform SID discussion with Rig Team prior CT job. d. Perform break circulation every certain depth using filtered/clean brine	Possible	Moderate	M	**Planning** a. To have upfront agreement on QA/QC requirement with contractor (by third party QA/QC engineer 3-4 weeks prior mobilization)	a. Zaeem DB, Mifdhal	15 Sep 2023	Possible	Moderate	M	
			3.Problem with measuring depth tool due to depth correlation malfunction	a. To have proper QA/QC prior mobilization Operation b. To have pre-inspection prior to run c. Always perform real-time depth check between digital and manual depth counter at the reel d. For cleanout / tagging reference, always flag the coil as depth reference.				**Planning** a. Contractor to provide back up measuring depth system at Rig	a. Zaeem DB	15 Sep 2023				
			Improper cleanout pumping design, i.e, insufficient annular velocity, poorly design of hivis pill, improper BHA milling tool	a. To achieve minimum annular velocity 150 ft/min and to confirm by simulation b. To have sufficient hivis pill onboard 3 Dedicated nitrogen unit onboard c. To check and validate milling BHA, downhole mud motor specification										
			6.Crew competency	a. To follow CCC system b. Review and screen crew CV/resume c. Stipulate the crew requirement in the contract										
		Consequences	Prolonged operation	a. Resequence activities / well if possible to avoid wait on equipment										
	Upper Completion													
13	Erosion of completion accessories	Causes	Pumping proppant inside completion tubing		Possible	Moderate	M	a. To check the pumping parameters and RCP characteristics b. To check track record on frac job thru completion tubing c. Proper cleanout procedure during proppant cleanout	a. Haszimi SLB, Agus SLB b. Haszimi SLB c. Zaeem DB	a. 30 Sep 2023 b. 30 Sep 2023 c. 30 Sep 2023	Possible	Moderate	M	
			Proppant pass thru / stuck inside the TRSV internal profile											
		Consequ	Safety valve unable to closed	To prepare safety valve exercise tool										
	Limitless System													
14	Risk related to New Technology Limitless Fracturing System (Infill 5) - Unable to communicate to reservoir	Causes	Limitless frac sleeve does not open after dropping dart	a. To RIH shifting tool via CT to manually shift open the frac sleeve	Possible	Moderate	M	a. To prepare contingency frac sleeve to provide communication between reservoir and perform frac job b. To prepare contingency wireline (eline) perforation to provide communication between reservoir and perform frac job	a. Farhan b. Farhan	a. 30 Sep 2023 b. 30 Sep 2023	Possible	Moderate	M	
			Dart degradation period short vs time required to execute the job until complete	Conduct dissolution test of the dart				a. Acid available to accelerate the dissolution (to confirm via lab test) b. To prepare backup dart on board	a. Agus SLB b. Sabri PG	a. During operation b. During operation				
			Not able to open Toe sub											
		Consequences	No production from the target sand	To RIH shifting tool via CT to manually shift open the frac sleeve				Prepare sufficient friction reducer as additive to be pumped when encountered lockup	Zaeem DB	During operation				
			Unable to have seal off on the zone below					To prepare backup dart on board	Sabri PG	During operation				
			Unable to land dart on frac sleeve					To prepare contingency wireline perforation	Farhan	30 Sep 2023				
15	Incompatible Limitless Surface stack up	Causes	Stack up connections does not fit with each other	a. Check availability of connection and discuss alternatives available b. Perform fit test prior to job to ensure it is compatable. c. To have an agreed surface stack up drawing by all parties involved (with the details regarding ID, OD, length, connection type and any other that's required detail.)	Possible	Minor	L				Possible	Minor	L	
		Consequenc	Unable to make up the surface equipment	Drift test using dummy dart with actual surface stack up										
			Additional operation standby time											