

<b>Title</b>	Maintenance – Coiled Tubing Equipment							
<b>Target Population</b>	Field Engineers, Field Specialists & Equipment Operators							
This requirement is applicable to:	✓ JFE	✓ FE1	✓ FE2	✓ FST	✓ FS1	✓ FS2	✓ FS3	✓ EOT
								✓ EO1
								✓ EO2
								✓ EO3
								✓ GEO

**Objective:**

The objective of this task is to evaluate and verify the employee's competency in performing basic maintenance on Coil Tubing Unit under supervision including:

Description		JFE	FE1	FST	FS1	EOT	EO1	EO2	EO3	GEO
1	Batch Mixer	✓			✓	✓				✓
2	Fluid Pumping Unit	✓		✓			✓	✓		✓
3	Nitrogen Converter	✓	✓		✓			✓	✓	✓
4	Coiled Tubing Unit including:	✓	✓		✓				✓	✓
	Power Pack									
	Control Cabin									
	CT Reel									
	Injector Head									
	Pressure Control Equipment			✓						
5	Basic BHA Components	✓	✓	✓				✓	✓	✓

The employee should be able to identify the components of CT equipment including those found in hydraulic circuits, explain their functions, ratings and maintenance procedures. This include filling out the EMC 1 form.

He should have basic knowledge of hydraulics including the various components and principles of operations.

**Tasks:**

The employee will be assigned under an experienced mechanic / electrician or a mentor in the base to guide him in performing the maintenance tasks. This include tracing of the hydraulic lines by referring to Operation and Maintenance Manual.

1. Identify the main components and functions of CTU (i.e. injector head, CT reel, stripper, BOP etc.)
2. Identify main components and functions of basic BHA
3. Physically check the CTU components and fill out the EMC 1 form.
4. Assist in assembly and disassembly of the following components (whenever possible):
  - Injector head conversion. Identify each parts.

- Reel swivel maintenance. Identify each parts.
- Stripper (replace inserts/brass bushing). Identify each parts.
- BOP conversion/replacing inserts including function and pressure testing. Identify each parts.
- Downhole tools (connectors, check valves, nozzles)

5. Show and explain the hydraulics system of the CT unit.

6. Prepare a report for the activities and explain it to the assigned mentor

**IMPORTANT NOTE:** The assigned Assessor must conduct the required evaluation to evaluate employee's competency and provide feedback through the respective Task Evaluation Forms PRIOR TO completing this Task Sheet.

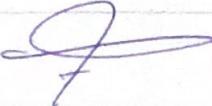
This task is deemed INCOMPLETE without the Task Evaluation Forms

**Brief summary of employee's learning outcome (to be completed by Assessor):**

need improvement in hydraulic system  
but can perform E&M 1 and  
can operate batch mixer

Assessor's Comments & Recommendation:

Good team work

Signature		Assessment Date	16/01/2025
Name	Asmar Abd Rose	Position	C/ Mechanic

FSM / OM Comments & Recommendation:

Task completed

Signature		Assessment Date	16/1/25
Name	Rishabh A2124N	Position	SEM

# DIMENSION BID

## TASK EVALUATION FOR BASIC MAINTENANCE

(ref. CTS-FORM-93 BASIC MAINTENANCE)

NAME	SHAHRI IZHAM BIN ALIAS
EMPLOYMENT DATE	11/6/2023
PERFORMANCE CRITERIA	<ol style="list-style-type: none"><li><b>Equipment design, technical specification, components and functions:</b> Know and understand equipment design, technical specifications, components and functions</li><li><b>Equipment operation:</b> Able to operate the equipment</li><li><b>Equipment maintenance / care:</b> Able to perform equipment recommended care / maintenance</li><li><b>Equipment maintenance report:</b> Able to track on all required equipment data prior to plan for next maintenance</li><li><b>Maintenance analysis:</b> Able to analyse equipment problem based on problem report and EMC. Hence, to identify root cause and best practice to avoid the same problem from happen</li></ol>

### ASSESSMENT RESULT SUMMARY

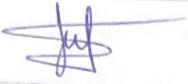
Element of Competency	Score	Assessed By	Assessment Date
1. Batch Mixer	90 %	Taufiq	20/1/2025
2. Fluid Pumping Unit			
3. Nitrogen Converter			
4. Coiled Tubing Unit			
4.1 Power Pack			
4.2 Control Cabin			
4.3 CT Reel		MA	
4.4 Injector Head			
4.5.1 Pressure Control Equipment (Stripper)			
4.5.2 Pressure Control Equipment (SBOP)			
4.5.3 Pressure Control Equipment (Combi BOP)			
5. Maintenance Reporting			

**Important Note:** The minimum passing score is 80%. If the score falls below the minimum passing score, the employee must repeat the assessment

# DIMENSION BID

Assessor's Comments & Recommendation (COMPULSORY):

Able to operate BMX unit stand alone and without supervision. Complete task for break out from EOT to EO1

Signature		Assessment Date	20/1/2025
Name	TUFIQ ISMAIL	Position	CT SUPERVISOR

# DIMENSION BID

## 1. BATCH MIXER

THEORY		COMMENT
1.	Identify the Batch Mixer and explain its functions	Complete
2.	Show where the following components of Batch Mixer Power Pack and explain the function <ul style="list-style-type: none"> <li>i. Engine component</li> <li>ii. Hydraulic line</li> <li>iii. Parameter on control panel</li> <li>iv. Zone 2 system</li> </ul>	Complete /
3.	Show where the following components of Batch Mixer Tank and explain the function <ul style="list-style-type: none"> <li>i. C-Pump</li> <li>ii. Agitator</li> <li>iii. Actuator Valve</li> <li>iv. Butterfly Valve</li> <li>v. Volute</li> <li>vi. Jetting</li> </ul>	Complete /
4.	How did you rig up hydraulic hose from BMX Power Pack to Tank?	Done
5.	How did you rig up 4" line?	Done
6.	What should you check BEFORE start the Batch Mixer Power Pack?	Done
7.	What should you check and monitor during operating the Batch Mixer Power Pack?	Done
8.	What is the safety precaution during operating the Batch Mixer Power Pack?	Done
9.	What should you check BEFORE stop the Batch Mixer Power Pack?	Done
10.	What should you check BEFORE start the Batch Mixer Tank?	Done
11.	What should you check and monitor during operating the Batch Mixer Tank?	Done
12.	What is the safety precaution during operating the Batch Mixer Power Pack?	Done
13.	What should you check BEFORE stop the Batch Mixer Tank?	Done
PRACTICAL		
1.	Show how to carry out following basic maintenance <ul style="list-style-type: none"> <li>i. Check coolant level</li> <li>ii. Replace fan and alternator belt</li> <li>iii. Replace engine oil filter</li> <li>iv. Check battery voltage</li> <li>v. Clean crankcase vent breather</li> <li>vi. Clean exhaust cooler (pyroban)</li> <li>vii. Change transmission oil</li> <li>viii. Change fuel filter</li> <li>ix. Replace air filter</li> <li>x. Clean flame trap</li> <li>xi. Grease bearing</li> <li>xii. Redress c-pump</li> </ul>	Complete as per required  <del>AT</del> Taufiq Ismail

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

# DIMENSION BID

RUN #3

Equipment Maintenance Checklist 1		PRE JOB	LOCATION	ON JOB	LOCATION	POST JOB	LOCATION
Equipment type	CTU Batch Mixer						
Location Address/Details	Ground floor						
Equipment number	CTU-BM-101						
Y   N Checklist		Running Hours					
Appearance and Safety Equipment:		Date: 11/12/2023					
<input checked="" type="checkbox"/> Ensure unit appearance good and clean <input checked="" type="checkbox"/> Verify that all earth/ground cables are in place, well connected <input checked="" type="checkbox"/> Skid condition visually check for any damage <input checked="" type="checkbox"/> Fire extinguisher is present and certified		Air System: <input checked="" type="checkbox"/> Check any visible leaks ensure air up 90-110psi <input checked="" type="checkbox"/> Gauges in good condition <input checked="" type="checkbox"/> Air reservoir tanks drain any water <input checked="" type="checkbox"/> Air hose, connections piping, valves and actuators condition <input checked="" type="checkbox"/> All pressure control valve working properly <input checked="" type="checkbox"/> All gauges in good condition					
Cooling System:		Air Cleaner: <input checked="" type="checkbox"/> Check the elements for water or soot and clean as required					
<input checked="" type="checkbox"/> Coolant level & condition <input checked="" type="checkbox"/> Check visible leaks <input checked="" type="checkbox"/> Radiator hose & clamp condition <input checked="" type="checkbox"/> Perform visual and physical check on radiator fan		Zone II System: <input checked="" type="checkbox"/> Flame traps - check cleanliness <input checked="" type="checkbox"/> Air intake valve (flapper) - check condition <input checked="" type="checkbox"/> Spark arrestor - check condition					
Engine Inspection:		Paddles / Agitator: <input checked="" type="checkbox"/> Check oil level (SAE 90) <input checked="" type="checkbox"/> Grease bearing <input checked="" type="checkbox"/> Check agitators rotation					
<input checked="" type="checkbox"/> Check engine oil level (SAE 15w-40) not humidity or too dark <input checked="" type="checkbox"/> Check any general leaks on all filter, hoses and connectors <input checked="" type="checkbox"/> Check fan hub, fanbelt condition/ tension <input checked="" type="checkbox"/> Check battery cable connectors (if applicable) <input checked="" type="checkbox"/> Check condition of engine hoses <input checked="" type="checkbox"/> Check for rusted part repair/repaint if required <input checked="" type="checkbox"/> Check the crankcase vent system for excessive blow by <input checked="" type="checkbox"/> Check engine mounting condition - tight any loose bolt		System Pressure: Fuel pressure @ idle speed      psi Fuel pressure @ 1800 RPM      psi Oil pressure @ cold start      90      psi Oil pressure @ 180deg F      90      psi					
Controls / Instrumentation:		Certifications: Sling condition/ Due on 01/12/25 MPI due 11/12/25 Visual Test due 11/12/24					
<input checked="" type="checkbox"/> Normal kill tested <input checked="" type="checkbox"/> Emergency kill tested <input checked="" type="checkbox"/> Oil pressure gauge in good condition <input checked="" type="checkbox"/> Tachometer display in good condition <input checked="" type="checkbox"/> Throttle control in good condition <input checked="" type="checkbox"/> Engine stop cable/button in good condition <input checked="" type="checkbox"/> Engine start cable/button in good condition							
Exhaust System:							
<input checked="" type="checkbox"/> Pipework - check for any leak or damage <input checked="" type="checkbox"/> Condition/Operation of exhaust flapper <input checked="" type="checkbox"/> Condition of exhaust wrap are in place and in good condition							
Transmission/ Gearbox:							
<input checked="" type="checkbox"/> Check level sight glass/dipstick shows in full (SAE 90) <input checked="" type="checkbox"/> Check condition of the gearbox breather filter							
Hydraulic System:							
<input checked="" type="checkbox"/> Check Hyd. Hoses/valve/connections undamaged and clean <input checked="" type="checkbox"/> Hyd. tank - drain any water <input checked="" type="checkbox"/> Check hydraulic oil level (2" from top) (Tellus 46) <input checked="" type="checkbox"/> Check hydraulic gauges <input checked="" type="checkbox"/> Check condition of fittings & couplings							
Fuel System:							
<input checked="" type="checkbox"/> Check for any water contamination in the fuel filter sight bowl <input checked="" type="checkbox"/> Check fuel tank breather cap condition <input checked="" type="checkbox"/> Check for leaks on fuel lines, connections, and hoses <input checked="" type="checkbox"/> Fuel filter - check condition <input checked="" type="checkbox"/> Fill up the diesel tank to 90% (if applicable) <input checked="" type="checkbox"/> Drain 3 litre fuel from drain valve							
Please state the equipment readiness							
Ready				Not Ready			
Maintenance type done. (Please state if any spare used)							
Preventive Maintenance				Corrective Maintenance			
NAME	POSITION	EXAMINER SIGNATURE		VERIFIED BY			
Doc.Ref.No.: CTS-FORM-13 Rev. No. 04 Effective Date: 01/02/2022 (Rev.00,00 issued 01/11/18-OBsolete)	EOT CONTROLLED COPY						

## DIMENSION BID

KUN 3

Equipment Maintenance Checklist 1		PRE JOB	LOCATION	ON JOB	LOCATION	POST JOB	LOCATION
Equipment Type	Batch Mixer Tank						
Equipment number	777-123456						
Y N Checklist		Location Mix Tank: D-1000-A-Hay					
Date: 10/10/2023							
Appearance & Safety Equipment:							
<input checked="" type="checkbox"/> Ensure unit is clean <input checked="" type="checkbox"/> Skid condition - visually check for any damage <input checked="" type="checkbox"/> Walkway/Ladders - check for any damage <input checked="" type="checkbox"/> Ensure anti-slip installed at walkway/ladder							
Labelling:							
<input checked="" type="checkbox"/> MWL and SWL in place <input checked="" type="checkbox"/> Last annual inspection							
Lifting Devices:							
<input checked="" type="checkbox"/> Inspection on shackles and pins, slings and lugs <input checked="" type="checkbox"/> MPI on pad eye if necessary <input checked="" type="checkbox"/> Mark the inspection date and due date <input checked="" type="checkbox"/> Load test is current <input checked="" type="checkbox"/> All protection caps and ID tags in place.							
Corrosion, Dent, Defects in Weld:							
<input checked="" type="checkbox"/> Check for rust in weld, no leaks <input checked="" type="checkbox"/> Check for leakages or any damage at tank <input checked="" type="checkbox"/> Check all piping, manhole covers, valves							
Safety Equipment and Certification:							
<input checked="" type="checkbox"/> Visual inspection of all pad eyes and lifting gear <input checked="" type="checkbox"/> Safety guards and rail in working condition							
Please state the equipment readiness:							
Ready				Not Ready			
<p>- fill up with 1W</p>							
Maintenance type done. (Please state if any spare used)							
Preventive Maintenance				Corrective Maintenance			
NAME		POSITION		EXAMINER SIGNATURE		VERIFIED BY	
SHARIBU		EOT					