

|                                    |  |   |     |   |     |   |     |  |
|------------------------------------|--|---|-----|---|-----|---|-----|--|
| <b>Title</b>                       | Maintenance – Coiled Tubing Equipment                    |   |     |   |     |   |     |  |
| <b>Target Population</b>           | Field Engineers, Field Specialists & Equipment Operators |   |     |   |     |   |     |  |
| 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 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:     | ✓   | ✓   |     | ✓   |     |     |     | ✓   | ✓   |
|             | <i>Power Pack</i>                 |     |     |     |     |     |     |     |     |     |
|             | <i>Control Cabin</i>              |     |     |     |     |     |     |     |     |     |
|             | <i>CT Reel</i>                    |     |     |     |     |     |     |     |     |     |
|             | <i>Injector Head</i>              |     |     |     |     |     |     |     |     |     |
|             | <i>Pressure Control Equipment</i> |     |     |     | ✓   |     |     |     |     |     |
| 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.

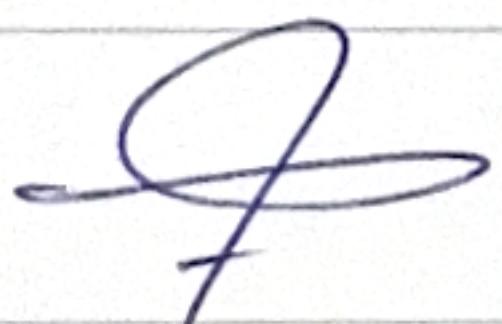
This task is deemed INCOMPLETE without the Task Evaluation Forms

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

Need to improve hand on skill in hydraulic system can perform Enc 2.

**Assessor's Comments & Recommendation:**

Good team work.

|           |   |                 |             |
|-----------|---|-----------------|-------------|
| Signature |  | Assessment Date | 16/01/2025  |
| Name      | Asman Abd Razuk   | Position        | c/ Mechanic |

**FSM / OM Comments & Recommendation:**

- To improve in term of troubleshooting.

|           |   |                 |         |
|-----------|---|-----------------|---------|
| Signature |  | Assessment Date | 19/1/25 |
| Name      | RIDHWAAN AZZAM  | Position        | FSM     |

# DIMENSION BID

## Equipment Maintenance Checklist 1

| PRE JOB | LOCATION | ON JOB | LOCATION | POST JOB | LOCATION |
|---------|----------|--------|----------|----------|----------|
|         |          |        |          |          |          |
|         |          |        |          | ✓        | DLC      |

|                                    |  |
|------------------------------------|--|
| Equipment type                     | : Batch Mixer Tank                                 |
| Equipment number                   | : CTU / BM / 01                                    |
| <b>Y N Checklist</b>               |  |
| Appearance & Safety Equipment:     |  |
| ✓                                  | Ensure unit is clean                               |
| ✓                                  | Skid condition - visually check for any damage     |
| ✓                                  | Walkway/ladders - check for any damage             |
| ✓                                  | Ensure anti slip installed at walkway/ladder       |
| Labelling                          |  |
|                                    | MGW and SWL in place                               |
|                                    | Last annual inspection                             |
| Lifting Devices                    |  |
| ✓                                  | Inspection on shackles and pins, slings and lugs   |
| ✓                                  | MPI on pad eye if necessary                        |
| ✓                                  | Mark the inspection date and due date              |
| ✓                                  | Load test is current                               |
| ✓                                  | All protection caps and ID tags in place.          |
| Corrosion, Dent, Defects in Weld   |  |
| ✓                                  | Check for rust in weld, no leaks                   |
| ✓                                  | Check for leakages or any damage at tank           |
| ✓                                  | Check all piping, manhole covers, valves           |
| Safety Equipment and Certification |  |
| ✓                                  | Visual inspection of all pad eyes and lifting gear |
| ✓                                  | Safety guards and rail in working condition        |

|                       |  |
|-----------------------|--|
| Location Mob/Demob:   | DLC  |
| Date                  | : 30/03/2024                                       |
| <b>Y N Checklist</b>  |  |
| C-Pump:               |  |
|                       | C-Pump packing - check condition                   |
|                       | Check operation and shut in pressure 30 ps         |
|                       | 4x5 C-Pump > 45 psi                                |
|                       | 5x6 C-Pump > 55 psi                                |
|                       | Perform circulation test                           |
| Mixing tank & piping: |  |
|                       | Check condition of mixing tank & paddle            |
|                       | Check condition of suction & discharge piping      |
|                       | Check condition of B/F Valve & grease              |
|                       | Check condition of safety railing w/comp lock pin  |
|                       | Mixing head + circulation jet - no cement build up |
| Paddles / Agitator:   |  |
|                       | Check oil level (SAE 90)                           |
|                       | Grease bearing                                     |
|                       | Check agitators rotation                           |
| Certifications:       |  |
|                       | Sling condition/ Due on F/24                       |
|                       | MPI due F/24                                       |
|                       | Visual Test due P/24                               |

### Please state the equipment readiness

Ready

Not Ready

Ready for job but need to replace  
C-pump seal

### Maintenance type done. (Please state if any spare used)

Preventive Maintenance

Corrective Maintenance

NAME

HULAF

POSITION

EO

EXAMINER SIGNATURE

VERIFIED BY

# DIMENSION BID

## Equipment Maintenance Checklist 1

| PRE JOB | LOCATION | ON JOB | LOCATION | POST JOB | LOCATION  |
|---------|----------|--------|----------|----------|-----------|
|         |          |        |          | ✓        | DULNG - C |

|                                  |  |  |  |  |  |
|----------------------------------|--|--|--|--|--|
| Equipment type                   | : CTU Batch Mixer  |  |  |  |  |
| Location Mob/ Demob              | : DULNG - C  |  |  |  |  |
| Equipment number                 | : CTU / Bmp / 01   |  |  |  |  |
| Y N Checklist                    |  |  |  |  |  |
| Appearance and Safety Equipment: |  |  |  |  |  |
| ✓                                | Ensure unit appearance good and clean                            |  |  |  |  |
| ✓                                | Verify that all earth/ground cables are in place, well connected |  |  |  |  |
| ✓                                | Skid condition - visually check for any damage                   |  |  |  |  |
| ✓                                | Fire extinguisher is present and certified                       |  |  |  |  |
| Cooling System:                  |  |  |  |  |  |
| ✓                                | Coolant level & condition  |  |  |  |  |
| ✓                                | Check visible leaks  |  |  |  |  |
| ✓                                | Radiator hose & clamp condition                                  |  |  |  |  |
| ✓                                | Perform visual and physical check on radiator fin                |  |  |  |  |
| Engine Inpection:                |  |  |  |  |  |
| ✓                                | Check engine oil level(SAE 15w-40) not be milty or too dark      |  |  |  |  |
| ✓                                | Check any general leaks on all filter ,hoses, and connectors.    |  |  |  |  |
| ✓                                | Check fan, hub, fanbelt condition/ tension                       |  |  |  |  |
| N A                              | Check Battery cable connectors (if applicable)                   |  |  |  |  |
| ✓                                | Check condition of engine hoses                                  |  |  |  |  |
| ✓                                | Check for rusted part- repair/repaint if required                |  |  |  |  |
| ✓                                | Check the crankcase vent system for excessive blow by            |  |  |  |  |
| ✓                                | Check engine mounting condition - tight any loose bolt           |  |  |  |  |
| Controls / Instrumentation:      |  |  |  |  |  |
| ✓                                | Normal kill tested   |  |  |  |  |
| ✓                                | Emergency kill tested  |  |  |  |  |
| ✓                                | Oil pressure gauge in good condition                             |  |  |  |  |
| ✓                                | Tachometer display in good condition                             |  |  |  |  |
| ✓                                | Throttle control in good condition                               |  |  |  |  |
| ✓                                | Engine stop cable/button in good condition                       |  |  |  |  |
| ✓                                | Engine start cable/button in good condition                      |  |  |  |  |
| Exhaust System:                  |  |  |  |  |  |
| ✓                                | Pipework - check for any leak or damage                          |  |  |  |  |
| ✓                                | Condition/Operation of exhaust flapper                           |  |  |  |  |
| N T                              | Condition of exhaust wrap are in place and in good condition     |  |  |  |  |
| Transmission, Gearbox:           |  |  |  |  |  |
| ✓                                | Check level Sight glass/dipstick shows in full (SAE 90)          |  |  |  |  |
| ✓                                | Check condition of the gearbox breather filter                   |  |  |  |  |
| Hydraulic System:                |  |  |  |  |  |
| ✓                                | Check Hyd. Hoses/valve/connections undamage and clean            |  |  |  |  |
| ✓                                | Hyd. tank - drain any water                                      |  |  |  |  |
| ✓                                | Check hydraulic oil level (2" from top) (Tellus 46)              |  |  |  |  |
| ✓                                | Check hydraulic gauges   |  |  |  |  |
| ✓                                | Check condition of fittings & couplings                          |  |  |  |  |
| Fuel System:                     |  |  |  |  |  |
| ✓                                | Check for any water contamination in the fuel filter sight bowl  |  |  |  |  |
| ✓                                | Check fuel tank breather cap condition                           |  |  |  |  |
| ✓                                | Check for leaks on fuel lines, connections, and hoses            |  |  |  |  |
| ✓                                | Fuel filter - check condition                                    |  |  |  |  |
| ✓                                | Fill up the diesel tank to 90% (if applicable)                   |  |  |  |  |
| ✓                                | Drain 1 litre fuel from drain valve                              |  |  |  |  |

Please state the equipment readiness

Ready

Not Ready

Ready for job but need to replace  
C-pump seal

Maintenance type done..(Please state if any spare used)

Preventive Maintenance

Corrective Maintenance

NAME

HULAF

POSITION

TO

EXAMINER SIGNATURE

VERIFIED-BY

# DIMENSION BID

## TASK EVALUATION FOR BASIC MAINTENANCE

(ref. CTS-FORM-93 BASIC MAINTENANCE)

|                      |   |
|----------------------|---|
| NAME                 | AHMAD HULAIF AIMAN BIN AHMAD HAMINIZA   |
| EMPLOYMENT DATE      |   |
| 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                               | 85%   | MOHD SYUKRI AWANG | 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                                  |       |                   |                 |
| 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):

- \* Can stay alone operate & rig up bma
- \* understanding during operation & mixing

Signature



Assessment Date

20 - 01 - 25

Name

MATHO SYUKRI AWANG

Position

FS

# DIMENSION BID

## 1. BATCH MIXER

| THEORY  | COMMENT  |
|---|--|
| 1. Identify the Batch Mixer and explain its functions   | done   |
| 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>   | done<br>done<br>done<br>done                                 |
| 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>   | done<br>done<br>done<br>done<br>done<br>done<br>done<br>done |
| 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   |
| <b>PRACTICAL</b>  |  |
| 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> | done   |

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