


<div>SCOPE OF WORKS</div> <div>E&P O&M SERVICES SDN BHD</div> <div>TENDER NO: EPOMS-SCM-CC-19-061 PROVISIONS OF CARGO OIL TANK & PRESSURE VESSEL DEMUCKING AND CLEANING SERVICES (WEST MALAYSIA)</div>	<div>EXHIBIT</div> <div>I</div>
	<div>CONTRACT</div> <div>DOCUMENT</div>

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Attachment:

Appendix I - PEETI Checklist

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SCOPE OF WORKS

1.0 INTRODUCTION

- 1.1 This Exhibit outlines the Scope of Works for the **PROVISIONS OF CARGO OIL TANK & PRESSURE VESSEL DEMUCKING AND CLEANING SERVICES** under EPOMS operated facilities in West Malaysia.
- 1.2 The WORKS shall include but not limited to the provision of all personnel including the onshore project management, supervision and all necessary manpower, equipment, personnel protective equipment's (specifically for a Confined Space entry) and other services to accomplish the WORK.
- 1.3 Should there be any conflict among the Exhibits; the most stringent requirement shall govern. In all instances of conflicts, CONTRACTOR shall obtain written interpretation for COMPANY approval, which shall be final and binding. No WORK shall commence without obtaining prior COMPANY approval.
- 1.4 CONTRACTOR shall be responsible to maintain the good practice of work in accordance with international standard or as specified by the COMPANY, authorities and regulatory requirement.
- 1.5 WORK shall be performed in accordance to methodology, competent and certified manpower, equipment and PPE requirements as per the latest requirement of:
 - I. DOSH Industry Code of Practice for Safe Working in a Confined Space 2010
 - II. HSE Procedure – PETRONAS Carigali Confined Space Entry (Rev. 4 March 2017)
 - III. PETRONAS Technical Standard (PTS) 18.52.08 Confined Space Entry (Jan 2018)


2.0 DEFINITIONS

AGT	Authorized Gas Tester (registered with DOSH Malaysia)
ACH	Air Change per Hour
BA	Breathing Apparatus
COMPANY	E&P O&M Services Sdn. Bhd. or EPOMS
CLIENT	COMPANY's Client
CONTRACTOR	Contractor awarded for the WORKS under this contract
CCC	Contractor Competency Card
EIS	Equipment Isolation Sheet
HPWJ	High Pressure Water Jet
JCC	Job Completion Certificate
JHA	Job Hazard Analysis
JMS	Job Method Statement
MTO	Material Take Off
PTW	Permit to Work
PPE	Personal Protective Equipment (specifically for confined space environment)
RA	Risk Assessment
SCBA	Self-Contained Breathing Apparatus
SWL	Safe Working Load/Limit
WORKS	All works and services stipulated in this document and all other related documents/exhibits under this contract

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3.0 GENERAL SCOPE OF WORKS

- 3.1 CONTRACTOR shall undertake the WORKS in safely, timely and in a cost-effective manner.
- 3.2 WORKS shall only be carried out with an approved WORKPACK and a valid PTW approved by COMPANY complete with all the relevant procedures, JHA and RA attached.
- 3.3 CONTRACTOR shall provide all the competent and certified manpower, PPE, tools, equipment, parts, spares, consumables and relevant services to successfully undertake the WORKS.
- 3.4 Prior WORKS commencement, CONTRACTOR shall prepare the work site complete with the erection of the manhole entry temporary shed, boot wash station and safety rescue equipment shed to accommodate the entry activities.
- 3.5 CONTRACTOR's AGT personnel and **TENORM** personnel shall perform the gas testing and **TENORM** testing prior to the Cargo Oil Tank/Pressure Vessel entry.
- 3.6 CONTRACTOR shall supply appropriate Breathing Apparatus (such as SCBA, Airline BA, Multi-gas Face Mask with cartridges etc.) deem necessary to complete the WORKS.
- 3.7 CONTRACTOR shall supply and install the ventilation system equipment for working in a confined space. In addition, CONTRACTOR shall submit the ventilation plan and its system calculation in order to achieve **10 ACH** as per regulated by DOSH FMA 1967 Item 25 Clause 2(a) Ventilation. Continuous and adequate ventilation throughout WORKS duration is mandatory.
- 3.8 CONTRACTOR shall supply and install a pumping system (air driven) complete with hoses, fitting connections and appurtenances in order to extract liquid-oil mixture out from the Cargo Oil Tank/Pressure Vessel into the designated location specified by COMPANY. Hoses and all connections shall be tight sealed as to prevent any spillage during the WORKS.
- 3.9 CONTRACTOR shall clean, demuck, remove sludge, debris or any foreign substances found from the Cargo Oil Tank/Pressure Vessel with a sound cleanliness level for the purpose of subsequent inspection activities by others. The level of cleanliness shall be verified and approved by COMPANY's representative at site. All the removed items shall be placed into the oil/water proof gunny sack and shall be winched out onto the main deck for disposal into the scheduled waste plastic drums.
- 3.10 CONTRACTOR shall supply and erect a suitable lifting means either using a Tripod or an A-Frame complete with air winch and rigging accessories with Safe Working Load (SWL) of a minimum 150kg depending on the heaviest load that will be lifted with a sufficient safety factor. CONTRACTOR shall also supply a man-rescue equipment inclusive of Para-guard stretcher and a double hook lanyard harness.
- 3.11 CONTRACTOR shall perform all the necessary clean up housekeeping, reinstatements, removal, packing, lifting and all other demobilization activities for the WORKS.


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4.0 SPECIFIC SCOPE OF WORKS FOR PRESSURE VESSEL

- 4.1 CONTRACTOR shall identify and perform isolation, spading, blinding activities on the pressure vessel. EIS shall be produced and submitted for COMPANY's review and approval.
- 4.2 Rigging equipment and its ancillaries for isolation work shall be supplied by CONTRACTOR.
- 4.3 CONTRACTOR shall supply the consumables and provide MTO list such as gaskets, stud bolt, nuts and washer as per size and rating according to the relevant drawings of the pressure vessel.
- 4.4 Once the pressure vessel has been completely depressurized, CONTRACTOR shall perform a chemical soaking activity using a biodegradable chemical. MSDS of such chemical shall be submitted to COMPANY in dual languages i.e. English and Bahasa for approval.
- 4.5 Complete draining-out activities shall be achieved either by dismantling/dropping the identified spool or via a pumping activity.
- 4.6 Ventilation requirement is as per **Clause 3.0 Item 3.7** above.
- 4.7 Cleaning of the pressure vessel internal shall be performed using a combination of manual scoping and HPWJ.
- 4.8 CONTRACTOR shall perform the reinstatement and boxing up the pressure vessel once the inspection work is completed and approved by COMPANY representative.
- 4.9 For the completeness of the boxing-up activities and the integrity of the joint, CONTRACTOR shall perform a leak test by injecting the Nitrogen gas supplied by CONTRACTOR; minimum pressure is at 1 barg; and reassure that all the joints are leaked tight. Retightening work of the joint shall be by CONTRACTOR. Nitrogen rack and its ancillaries shall be supplied by CONTRACTOR unless otherwise stated.

5.0 DELIVERABLES & DOCUMENTATION

- 5.1 Prior to the site execution, CONTRACTOR shall produce and compile detailed workpack which shall contain comprehensive information and plan for the WORKS for COMPANY review and approval and shall include the followings (but not limited to):
 - I. Work Scope
 - II. Job Method Statement
 - III. Project organization chart
 - IV. Project Schedule and manpower loading
 - V. Equipment loading and its layout arrangement at site
 - VI. Site Specific Procedures
 - VII. Job Hazard Analysis
 - VIII. Risk Assessment
 - IX. CONTRACTOR's Competency Card (CCC)

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- X. CONTRACTOR'S Emergency Response Plan
- XI. Ventilation plan and calculation
- XII. Equipment Isolation Sheet
- XIII. Material take-off list
- XIV. Drawings and other documentation

5.2 Upon completion of WORKS, CONTRACTOR is responsible to prepare a comprehensive Close-Out report. The content of the report shall cover all aspects of the WORKS execution including the daily progress report, pictures, findings, JCC, etc. In addition, the report also must include a compilation of all WORKS lessons learnt.

6.0 EQUIPMENT, TOOLS AND CONSUMABLES REQUIREMENT


6.1 As a minimum, the following equipment, tools and consumables are required to carry out the WORKS and shall be supplied by CONTRACTOR (but not limited to):

- I. Oil/water proof gunny sack
- II. 200 liters plastic drum with resealable lid
- III. 20 x 4 ft Cargo Basket and Tools Box Container
- IV. Disposal coveralls, nitrile gloves, rubber boots
- V. Tripod/A-Frame with Air Winch (Min. SWL: 150kg)
- VI. Air-driven pump complete with piping, air hoses, fitting connection and appurtenances
- VII. Diesel driven air compressor (capacity: 750cfm) complete with air manifold
- VIII. Exhaust/Ventilation system equipment (air blower, air educator, collapsible ducting)
- IX. Ex-type: spotlight, torch light, headlamp, digital camera etc.
- X. Rigging equipment and ancillaries
- XI. Scaffolding material
- XII. Cotton Rags/Floor Mop
- XIII. Biodegradable chemical Rigwash
- XIV. Communication equipment (walkie-talkie, spare battery, charger unit)
- XV. Personal Gas Detector (to be supplied according to the number of pax for tank entry)
- XVI. Confined Space Personal Protective Equipment
- XVII. Confined Space Man-rescue Equipment
- XVIII. Non-metallic shovel and scraper
- XIX. Plastic cling film/canvas/masking tapes etc.
- XX. Nitrogen gas complete with rack, hoses, pressure regulator etc.

Note: All electrical cable and tools supplied shall be of Explosion Proof type (Ex). Refer PEETI Checklist attached for compliance.

6.2 Prior to CONTRACTOR's equipment and tools are mobilized to offshore, it is a requirement for these items to be inspected, tested and **GREEN-TAGGED** by COMPANY or its representative. Any non-compliance findings on the equipment or tools that deem replacement shall be replaced at CONTRACTOR's cost.

6.3 CONTRACTOR shall be responsible for the safe transportation, loading and unloading of the material, equipment, tools and consumables to the offshore site. This include adequate and special protection for

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adverse weather and sea state. CONTRACTOR shall be responsible to make the required packing and preservation to mobilize the equipment to the offshore site safely.

6.4 During execution of WORKS, any equipment or tools found defected shall be reported to COMPANY and CONTRACTOR shall make a replacement at no cost to the COMPANY. The delivery of the replacement equipment or tools to site shall be expedited in an urgency manner according to the predefine date by COMPANY.

6.5 Equipment, tools and consumables timesheet shall be daily compiled, reviewed and approved by COMPANY representative at site i.e. CSR, OIM etc. For consumables utilization, the final invoice shall be following the approved consumables timesheet. Remaining non-utilize consumables shall be non-chargeable to COMPANY.

7.0 HEALTH, SAFETY AND ENVIRONMENTS (HSE)

7.1 CONTRACTOR shall be responsible for all safety matters related to WORKS that may give impact to the workers/personnel and asset on the facility.


7.2 CONTRACTOR shall be fully responsible for taking all necessary measures and safety precautions before, during and after the performance of WORKS, and maintaining the works/construction areas in a clean and safe condition at all times. CONTRACTOR shall take all precautions to protect all assets and lives from damage, injuries or losses resulting from the performance of any part of WORKS.

7.3 All proposed personnel to execute the service shall have a valid (but not limited to only below applicable certificates):

- a) PETRONAS Offshore Safety Passport
- b) Basic Offshore Safety Induction and Emergency Training Certificate (BOSIET)
- c) Offshore Medical Report
- d) PETRONAS or EPOMS Permit to Work (PTW) Training for PTW Applicants
- e) Confined space entry card/certificates
- f) Approved Gas Tester (AGT) registered under DOSH Malaysia
- g) H₂S Training
- h) Urine, Drug and Alcohol Test (UDAT) – prior mob to site

7.4 CONTRACTOR shall be knowledgeable and adhere fully to COMPANY's approved specific procedures, safety practices and in particular COMPANY's Health, Safety and Environment (HSE) Manual while executing specified WORKS. These regulations are to be treated as complementary to any safety rules or regulations of the CONTRACTOR.

7.5 CONTRACTOR shall plan for a 12-hour shift for offshore execution work schedule, with the possibility of extended working hours or overtime hours by COMPANY consent and written approval.

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8.0 PERSONNEL REQUIREMENT

8.1 CONTRACTOR shall provide as a minimum, a qualified and certified personnel as per following:

- I. Project Engineer
- II. General Supervisor
- III. Safety & Health Officer
- IV. AGT (DOSH registered)
- V. Rigger/Scaffolder
- VI. Firewatcher

8.2 PROJECT ENGINEER (PE)

The personnel shall possess a recognized degree/diploma in Engineering and has five (5) years of working experience as a PE for an onshore AND offshore floater's crude oil tank and pressure vessel cleaning job. Must have a valid AESP certificate throughout the duration of the WORKS.

8.3 GENERAL SUPERVISOR (GS)

Also known as a Work Leader, the personnel shall possess a recognized diploma in Engineering and has at least five (5) years of experience in a supervisory role or minimum (10) years of experience in a supervisory role for candidates without degree/diploma qualifications in an onshore AND offshore floater's crude oil tank and pressure vessel cleaning job. Must have a valid AESP certificate throughout the duration of the WORKS.

8.4 SAFETY HEALTH OFFICER (SHO)

The personnel shall possess a recognized degree/diploma in Engineering and have five (5) years of working experience as an SHO or minimum (8) years of experience for candidates without degree/diploma qualifications in an onshore AND offshore environment.

The personnel shall be well versed in government regulations and oil and gas industry practices pertaining to health, safety and environment aspects of work execution. He must be able to lead the preparation of JHA, RA and safety audit at work site.

8.5 AUTHORISED GAS TESTER (AGT)


The personnel shall be a registered **DOSH AGT** and the certificate shall valid throughout the duration of WORKS. Minimum of five (5) years of working experience in an onshore AND offshore environment. Must have a valid AESP certificate throughout the duration of the WORKS.

8.6 RIGGER/SCAFFOLDER

The personnel shall have five (5) years of working experience in an onshore AND offshore tank (crude oil) and pressure vessel cleaning job. Must have a valid AESP certificate throughout the duration of the WORKS. For scaffolder, one pax personnel shall have a Level 2 competency certificate for green-tagging approval purpose.

8.7 Resume of all personnel shall be submitted together with necessary supporting documents and certificates for COMPANY review and approval. CONTRACTOR shall adhere to all the requirement stipulated by COMPANY. COMPANY shall not be liable to borne any additional cost due to the Non-compliance of the requirement by the CONTRACTOR.

8.8 CONTRACTOR's manpower traveling to offshore shall possess a valid BOSIET and Offshore Medical

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certificates at all times. Both certificates shall be valid within 60 days before the expiry date throughout the WORKS duration. Contractor's Competency Card or CCC shall be printed out and produced by CONTRACTOR and shall be signed approved by COMPANY prior mobilization.

- 8.9 The proposed manpower shall undergo Urine Drug and Alcohol Test (UDAT) at COMPANY's approved panel clinic prior to mobilization for the WORKS at CONTRACTOR's cost. In any event of a Non-negative result from UDAT, CONTRACTOR shall replace the personnel immediately within 24 hours and any consequence impacted to the affected personnel shall be handled by the CONTRACTOR at no cost to COMPANY.


9.0 TRAINING REQUIREMENT

- 9.1 CONTRACTOR's PTW initiator shall have attended the latest revision i.e. Rev. 5 (2018) of Petronas PTW training. This requirement shall be met when working on PETRONAS facilities. For Non-PETRONAS facilities, the PTW initiator shall attend a one-day EPOMS's PTW Training at EPOMS designated training venue at a cost of RM500/pax (Non-claimable). Non-compliance on these requirements shall disqualify the personnel to act as PTW initiator at site.
- 9.2 All CONTRACTOR's proposed personnel shall have attended the H₂S Training and are well aware with the hazard and risk when working with the H₂S environment. Proof of training attendance shall be submitted to COMPANY for review and approval. Unless otherwise, all training requirement cost i.e. training provider, logistics, accommodation etc. shall be borne by CONTRACTOR.

10.0 COMPANY'S RESPONSIBILITIES

- 10.1 CONTRACTOR's accommodation at offshore and logistic from and to the embarkation point shall be under COMPANY's responsibility.
- 10.2 For the crude oil tank site preparation, pre-cleaning activities such as crude oil washing, initial gas freeing, gas inerting and purging shall be done by COMPANY.
- 10.3 Unless otherwise stated in specific WORKS, COMPANY shall supply the Scheduled Waste (SW) sticker for CONTRACTOR. Onshore disposal of scheduled waste material shall be handled by COMPANY.
- 10.4 COMPANY shall manage the transferring work of the schedule waste plastic drum from ship/platform main deck/laydown area to the supply boat using CONTRACTOR's supplied Cargo Basket.
- 10.5 At site, COMPANY shall provide diesel, electrical power supply and fresh water supply accordingly to CONTRACTOR. All electrical equipment shall be of Explosion Proof type (Ex). Power rating detail for each facility shall be informed to CONTRACTOR prior work execution.
- 10.6 COMPANY or its authorized representative shall have free and immediate access to the CONTRACTOR's facilities to inspect their equipment and tools. This is to confirm that the equipment and tools used provided is to the required specification. COMPANY shall witness all tests (pump test, air winch lifting test etc.) with appropriate advance notification given for such test. All records of inspection and testing are to be kept in order and shall form part of the essential document upon completion of WORKS.

11.0 PROVISION OF SPECIALIST (3RD PARTY SERVICES)

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- 11.1 CONTRACTOR is responsible to provide all necessary competent and experienced specialist including to perform the WORKS. The specialist services shall include but not limited to the special equipment and manpower for TENORM, Abseiler etc.
- 11.2 A minimum of three (3) quotations are required. CONTRACTOR shall perform a bid evaluation exercise. In the bid evaluation report, CONTRACTOR shall provide its recommendation for COMPANY's approval. Engagement of 3rd Party services shall commence once received COMPANY's approval.

END of DOCUMENT