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PETRONAS

Section 1: Health, Safety, Security and Environment**1.1 Introduction**

This section provides the requirements on HSSE as well as emergency response management throughout the Exploration and Production (E&P) life cycle. This section also includes the general expectations on the obligation of Contractor(s) including Health, Safety, Security and Environment Management System (HSSE MS) requirements.

1.2 Health, Safety, Security and Environment Management System (HSSE MS) Requirements

Contractor(s) shall establish an appropriate health, safety, security and environment management system to their organisation, business and operational needs in the upstream oil and gas industry in Malaysia ("Contractor's HSSE MS").

Contractor's HSSE MS shall comply to Malaysian laws and regulations, PETRONAS requirements and international standards and best practices of a prudent contractor. The PETRONAS requirements are listed in Appendix 1

Contractor's HSSE MS shall include but not limited to the following elements:

- a) Leadership and commitment;
- b) Policy and strategic objectives;
- c) Organisation, responsibilities, resources, standards and documents;
- d) Hazards and Effects Management Process ("HEMP");
- e) Planning and procedures;
- f) Implementation and monitoring;
- g) Assurance; and
- h) Management review

Contractor(s) shall ensure that the Contractor's HSSE MS is and remains relevant throughout all phases of the E&P operations and updates the document accordingly when entering a new E&P life cycle phase. A copy of the Contractor's HSSE MS manual and revisions shall be submitted to PETRONAS, in the form to be specified by PETRONAS, within one (1) month upon Contractor's Management endorsement.

1.2.1 Leadership and Commitment

This element shall address the high-level leadership and commitment which strengthens HSSE culture for the effective

implementation of HSSE MS that drives sustainable HSSE performance.

1.2.1.1 Visible HSSE Leadership

Top Management of the Contractor(s) shall demonstrate HSSE leadership to promote culture in which all employees share a unified commitment to HSSE, through the following but not limited to:

- a) Embedding HSSE considerations in decisions and communicating the same expectation to all employees and stakeholders;
- b) Leading or participating in site visits to engage with employees and contractors;
- c) Leading or actively participating in HSSE meetings (not limited to Management Reviews, assurances, incident investigations, HSSE Committees, HSSE campaigns; and
- d) Ensuring the effectiveness and continual improvement of the HSSE Management System through a formal review process.

Management at all levels shall communicate with their employees and contractors with clear HSSE commitments and messages through daily job briefings, toolbox meetings and other meetings.

1.2.1.2 Proactive in Managing HSSE Risks

Management shall demonstrate understanding of HSSE risks associated with specific business activities, for example:

- a) Identifying major HSSE hazards and risks to the business throughout the asset life cycle;
- b) Being proactive in target setting by integrating PETRONAS HSSE targets and risk mitigations into business activities including leading (proactive) and lagging (reactive) KPIs and cascade to all employees & contractors;
- c) Prioritising and providing resources to manage the risks to as low as reasonably practicable (ALARP);
- d) Taking corrective actions if the existing controls are ineffective; and

- e) Identifying and implementing learnings from lessons learnt.

1.2.1.3 Accountability & Informed Involvement

Management shall demonstrate accountability and informed involvement in HSSE matters through the following but not limited to:

- a) Embed HSSE values in business strategies and plans;
- b) Include HSSE KPIs into personal scorecard;
- c) Jointly develop and discuss HSSE plans and targets and indicators with their managers, employees and contractors for continual improvement;
- d) Align KPIs and targets and ensure that performance is evaluated against leading (proactive) and lagging (reactive) indicators at appropriate levels. Employees shall have HSSE targets and indicators in their performance appraisals;
- e) Provide directions and expectations to contractors/stakeholders;
- f) Attend HSSE-related trainings;
- g) Being personally involved in programmes/initiatives that improve HSSE;
- h) Attend and Chair meetings as required by HSSE MS;
- i) Take actions against concerns and grievances raised by employees/contractors arising from incidents, audits, visits and others; and
- j) Take overall responsibility and accountability in safeguarding the health, safety, security and wellbeing of employees, contractors, as well as effectiveness of the HSSE MS.

Leaders at all levels shall ensure compliance with applicable laws, regulations and PETRONAS HSSE requirements.

1.2.1.4 HSSE Culture

Management shall establish, promote and maintain a generative HSSE culture in the organisation, as per the following but not limited to:

- a) Assigning responsibility and accountability to manage HSSE risks and hold individuals accountable for their

- HSSE behaviours and performance;
- b) Recognising positive behaviours
- c) Providing and receiving feedback on HSSE behaviours and performance and celebrate successes;
- d) Including HSSE behaviours and performance in decisions for performance rewards, employees' development and employees' promotions;
- e) Enforcing consequence management on HSSE violations based on appropriate HSSE indicators, as per Contractor(s) policies and guidelines;
- f) Developing HSSE competency;
- g) Protecting employees from reprisals when reporting grievances, incidents, hazards and risks; and
- h) Ensuring compliance with Contractor(s) HSSE requirements by reporting HSSE incidents, near misses and issues.

1.2.2 Policies and Strategic Objectives

Contractor(s) shall develop HSSE Policies and/or commitments (e.g. OSH Policy, Environmental Policy, Security Policy, Substance Misuse Policy, Stop Work) and approved by the relevant approving authority of Contractor(s).

Contractor(s) shall also establish strategic objectives as a framework for setting and reviewing HSSE plans and targets. Contractor(s) shall consider the overall risk levels of its business activities taking into consideration the legal requirements, technological changes, emerging issues and stakeholders' expectations.

1.2.2.1 Content

The Contractor(s) HSSE Policies (with management and operational control) and any related policies shall be accessible to its employees and contractors and shall:

- a) Include commitment to take reasonable and practicable steps to prevent and eliminate the risk of injuries, occupational illnesses and damage to properties as well as conservation of the environment;
- b) Be relevant and take into consideration the current and future nature and scale of the activities, products and

- services of the contractors;
- c) Include a commitment to fulfil Malaysian legal requirements and other requirements;
- d) Include commitment and participation of employees and relevant stakeholders; and
- e) Be approved and signed by the relevant approving authority of Contractor(s) and be kept current.

The HSSE Policy shall be reviewed to ensure it remain applicable, relevant and updated by the Contractor(s) throughout the Contract period.

Contractor(s) shall ensure their contractors establish HSSE policies and to be consistent with the Contractor(s) policies.

1.2.2.2 Dissemination

The HSSE Policies shall be communicated to all Contractor's employees and contractors and it shall be readily available in a language and format that is easily understood.

Contractor(s) shall ensure their employees and contractors to be informed of their personal roles in meeting the requirements of the policies.

Records shall be maintained to demonstrate that Contractor's employees and contractors have received this information.

Any changes in HSSE Policies shall be timely communicated to all employees and contractors.

1.2.2.3 Strategic HSSE Objectives

Contractor(s) shall establish and maintain documented HSSE objectives aligned towards HSSE Policy Statements, Corporate Commitments (e.g. Carbon Commitments and Human Rights), risk profile and its business needs that can be defined in measurable terms at all levels.

Strategic objectives shall consider the legal requirements, technological changes, emerging issues and the result of consultation with employees to:

- a) Provide assurance that the HSSE MS is established and effectively implemented at site;
- b) Prevent or reduce identified risks of undesired effects; and
- c) Achieve continual improvement.

The strategic objectives shall be the framework in establishing and reviewing HSSE Plan to ensure continuous improvement.

The strategic objectives shall be communicated, monitored and updated, as appropriate.

1.2.3 Organization, Responsibilities, Resources, Standards and Documents

Contractor(s) shall address the organisation's resources and documentation for strategic and sustainable HSSE performance.

Responsibilities at all levels shall be clearly described, communicated, understood and demonstrated. Employees including contractors at each level of the organisation shall assume responsibility for those aspects of the HSSE MS over which they have control.

Contractor(s) shall identify relevant laws and regulations, standards and other requirements applicable for their operations.

All HSSE documents management system shall have systematic identification, accessibility and periodic review.

1.2.3.1 Contractor's Structure, Roles and Responsibilities (R&R)

Contractor(s) shall ensure that it has adequate resources to comply with any applicable laws and regulations and to ensure effective implementation of HSSE.

The organisational structure, roles, responsibilities, authorities, accountabilities and interrelations (e.g. partners, contractors, regulators) shall be defined, documented, communicated and reviewed on regular basis.

Dedicated personnel to be employed in managing HSSE and

emergencies in the Contractor(s) organisation.

Responsibilities shall be assigned for every HSSE critical activity. Performance standards and mechanisms for verification shall also be in place.

Contractor's employees and their contractors competencies for HSSE critical activities shall be defined.

Responsibilities and requirements associated with the work execution shall be understood by the employees.

1.2.3.2 HSSE Advisors or Management Representatives (MR)

HSSE Advisors or MR shall be HSSE competent persons with the following criteria:

- a) Meet the relevant regulatory and professional requirements including but not limited to competent Process Safety, Safety & Health Officer (SHO), Certified Environment Professional in Scheduled Waste Management (CePSWaM), Certified Environmental Professionals in the Operation of Industrial Effluent Treatment Systems (CePIETSO), Industrial Hygienist, Occupational Health Nurse (OHN) and Occupational Health Doctor (OHD). The requirements for OHN and OHD are stipulated in Appendix 2; and
- b) Have knowledge of their contractors and its activities, and HSSE issues.

The HSSE Advisors or MR shall have authority to ensure Contractor(s) HSSE MS requirements are established, implemented and maintained in all locations and spheres of operation which include but not limited to:

- a) Monitor and communicate information on HSSE issues and best practice from internal and external sources;
- b) Collate HSSE performance reports and maintain HSSE performance data for internal use and external reporting to local authorities;
- c) Provide regular updates on the status of HSSE performance to Management for review and co-ordinate the preparation and verification of the annual

- HSSE Report, wherever applicable; and
- d) Maintain a schedule of HSSE assurance/inspections and participate in the review of findings from all assurance/inspections/incident investigations.

1.2.3.3 Resources

Contractor(s) shall provide the necessary resources to ensure effective implementation of the HSSE MS.

Contractor(s) shall integrate HSSE MS into recruitment, selection and placement processes to ensure that personnel are qualified, competent, and physically and mentally fit for their assigned tasks.

Contractor(s) shall ensure current resource levels are sufficient to meet the requirements for staffing all HSSE critical roles which shall be regularly reviewed. Procedures shall ensure that any changes in resource level do not increase HSSE risks e.g. leave rotations shall ensure resource does not drop to a level that will compromise HSSE critical activities and shall comply with the requirements in Management of Change.

1.2.3.4 Competent Personnel

All assigned personnel must possess the competency to execute the given R&R.

A HSSE competency assurance process for HSSE critical activities shall be defined, documented, reviewed and maintained in relevant documentation such as hazard register, HSE case, CIMAH and DOSO report.

All line department personnel who perform HSSE critical activities require relevant experience, qualifications and training to ensure they are competent to undertake these important risk control measures.

The competency requirements of all HSSE critical activities shall be periodically reviewed and improved. The competence of employees shall be reassessed, and shortfalls addressed.

Emergency Response and Crisis Management (ERCM):**a) Emergency Procedure and Plan**

Contractor(s) shall establish site specific ERCM procedures and plan for all operations worksites, including non-permanent installations and projects.

The ERCM plan shall cover, but not limited to Emergency Response Team (ERT) and Emergency Management Team (EMT), communication flow and Incident Action Plan (IAP). The plans and procedures shall be made available to PETRONAS upon request. Refer to Appendix 3 for Emergency Preparedness and Response Minimum Requirements.

b) Training

Contractor(s) shall provide training to establish and maintain the competency of individuals and emergency teams.

c) Exercises and Drills

Contractor(s) shall plan and conduct Tier 1 and Tier 2 emergency response exercises on annual basis and Tier-3 upon approval from PETRONAS. Contractor(s) shall provide facilities and assistance during exercises or drills with relevant Government Authorities upon request by PETRONAS. Contractor(s) shall continuously evaluate the effectiveness of the drills and exercises conducted and identify areas for improvement.

d) Business Continuity Collaboration

For any sharing of Facilities and/or Services required from other Contractor(s) during emergency shall be referred to Volume 11 Section 12.

e) Emergency Protocol Reference Guideline

The emergency protocol reference guideline shall be used during managing emergencies for example but not limited to:

- i. Joint Security Protocol;
- ii. Joint Crisis Protocol;

- iii. Joint Maritime Search and Rescue; and
- iv. Joint Aeronautical Search and Rescue.

f) Holding Statement, Media and Press Release

- i. Contractor(s) shall prepare a holding statement for any reportable HSSE incidents that have impact on the reputation and credibility of Contractor(s) or PETRONAS, both in terms of media and public concern. The holding statement shall contain information relating to the incident or emergency, refer to Appendix 3.
- ii. For any HSSE related emergency, crisis or incident requiring a media and press release, Contractor(s) shall follow Media Relations Guideline and Press Release template as per Appendix 4.
- iii. The completed template shall be submitted via email to PETRONAS through MPM HSE for approval.

Offshore Safety Passport (OSP):

Contractor(s) shall establish the OSP system to manage and control the issuance of OSP. The PETRONAS Offshore Safety Passport Guideline for Malaysia Upstream shall be the reference document related to OSP. Training requirements as stated in the said guideline shall also be applicable to marine vessel crew who utilises a helicopter or for visitors offshore facilities.

The medical requirement for fitness to work offshore shall comply with PETRONAS Guidelines on Medical Assessment of Fitness to Work for Offshore and Remote Onshore Workers.

Contractor(s) shall comply on requirement for reporting of non-compliances to PETRONAS Guidelines on Medical Assessment of Fitness to Work for Offshore and Remote Onshore Workers, if any. The process is to:

- a) Conduct full investigation as per Contractor(s) respective Standard Operating Procedures (SOP);

- b) Submit the investigation report, together with action taken by Contractor(s) and recommendation to PETRONAS; and
- c) Present the investigation findings to PETRONAS, if required. Please refer to Appendix 5 for details.

Malaysia Safety Database System (MySDS):

Contractor(s) shall use MySDS as reference when issuing safety passports to third-party contractors. Contractor(s) shall update basic safety requirements for example OPITO Basic Offshore Safety Induction and Emergency Training (BOSIET) and Basic Safety Training (BST) or Standards of Training, Certification and Watchkeeping for Seafarers-STCW Basic Training (BT) in MySDS. Contractor(s) may opt to keep its own employees training and medical records in MySDS.

Safety Training and Medical Assessment for Personnel Working at Remote Onshore Location:

High risk personnel for example new staff, personnel unfamiliar with work surroundings, expatriate working at onshore remote location shall undergo safety training as per PETRONAS Basic Onshore Safety and Emergency Training Module Requirements at PETRONAS approved training centres whilst low risk personnel shall attend basic safety induction training as a minimum.

All personnel shall undergo medical examination as per PETRONAS Guidelines on Medical Assessment of Fitness to Work for Offshore and Remote Onshore Workers. Contractor(s) shall issue a valid onshore safety passport prior to mobilising personnel to work location.

1.2.3.5 Third-Party Contractor and Service Providers HSSE Management

Contractor(s) shall establish and maintain processes to ensure their HSSE MS are aligned with PETRONAS associated HSSE documents that stipulate contract requirements for Malaysia Upstream Operations

Contractor(s) shall develop and maintain a system to manage the third-party contractor's compliance to HSSE MS in line with international or equivalent standards for example IOGP, IPIECA and other relevant oil and gas industry association.

Contractor(s) shall:

- a) Develop annual third-party contractors' HSSE assurance programmes as part of annual Contractor's HSSE Plan. The documented evidence pertaining to the assurance shall always be made available together with any follow-up action taken. Specify action to be taken in case of non-compliance with standards, terms and conditions defining merits and demerits for HSSE performance and the requirement for at least an annual formal review of HSSE MS for contracts running for long periods;
- b) Identify personnel with relevant competency and experience as being responsible for all activities in the contracting process and the execution of the contract for every contract;
- c) Establish competency assessment program against HSSE risks for every contract prior to contract award; and
- d) Demonstrate that third-party contractor's HSSE MS are being subjected to continuous improvement in the course of execution phase.

Third-party contractors' HSSE management shall be based on the principle that only employees who are competent and equipment which meets the Contractor(s) specification, are allowed at the Contractor's operations.

HSSE risks shall be formally assessed for every contract prior to the invitation to tender. This shall include, but not limited to the following:

- a) The contract's activities and operations that impact the Contractor(s);
- b) The Contractor's activities and operations that impact the third-party contractors' employees; and
- c) The third-party contractors' activities and operations

that impact other interested parties in the workplace.

This shall follow PETRONAS Tender Evaluation Criteria as per Figure 1.10-1.

TECHNICAL REQUIREMENTS			BIDDER A																												
A. GENERAL CRITERIA			REMARKS	PARITY BAND																											
1	Compliance with Health, Safety and Environment (HSE): Colour Band assigned to Bidders are based on Bidder's aggregate score to the industry standard questionnaire, OGP 423-June 2010 as follows:																														
<table><tr><th>No</th><th>Section</th><th>Weightage %</th></tr><tr><td>1</td><td>Leadership and Commitment</td><td>20</td></tr><tr><td>2</td><td>HSE Policy and Strategic Objectives</td><td>10</td></tr><tr><td>3</td><td>Organization, Responsibilities, Resources, Standards and Documentation</td><td>15</td></tr><tr><td>4</td><td>Risk Management</td><td>15</td></tr><tr><td>5</td><td>Planning and Procedures</td><td>10</td></tr><tr><td>6</td><td>Implementation and Performance Monitoring</td><td>15</td></tr><tr><td>7</td><td>HSE Auditing and Management Review of HSEMS</td><td>10</td></tr><tr><td>8</td><td>HSE management – additional features</td><td>5</td></tr></table>					No	Section	Weightage %	1	Leadership and Commitment	20	2	HSE Policy and Strategic Objectives	10	3	Organization, Responsibilities, Resources, Standards and Documentation	15	4	Risk Management	15	5	Planning and Procedures	10	6	Implementation and Performance Monitoring	15	7	HSE Auditing and Management Review of HSEMS	10	8	HSE management – additional features	5
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Figure 1.10-1: Tender Evaluation Criteria

All high-risk contracts shall have a documented demonstration as to how the risks from hazards and effects are reduced to ALARP. This can be in the form of a HSE Case for major contracts or a HSSE Plan.

Contractor(s) shall conduct an evaluation on third-party contractor's HSE performance as per contract requirement to ensure:

- Clear deliverables and performance standards that have been agreed upon have been implemented and systems are put in place to assure HSSE and technical compliance; and
- Defined outsourced function and processes are controlled and consistent with legal and other requirements.

1.2.3.6 Communication

Contractor(s) shall establish a formal platform and mechanism for internal and external HSSE communication

process that encourages two-way communication, consultation and participation while addressing HSSE issues for continual improvement.

Contractor(s) shall emphasize the consultation and participation of non-managerial employees in the implementation of all the elements of its HSSE MS.

External communication processes shall include the identification of designated contact personnel from the Contractor(s) to ensure appropriate information are communicated in a timely and consistent manner especially during emergencies where regular updates are required to be delivered in a clear, concise and unambiguous manner.

Contractor(s) shall establish a formal documented HSSE induction process to ensure all employees and contractors are aware of the following but not limited to:

- a) The relevant workplace hazards and risks;
- b) Their HSSE responsibilities and their rights in relation to stop work authority;
- c) Their contribution to the effectiveness of the HSSE MS, including the benefits of improved HSE performance; and
- d) The implications and potential consequences of not conforming to HSSE requirements.

1.2.3.7 Legal and Other Governing Bodies' Requirement

Contractor(s) shall establish an on-going compliance management program across the organisation which include the following but not limited to:

- a) Developing procedures to identify the relevant legal standards and other requirements applicable to their operations in the HSSE legal register. This includes tracking of new requirements, changes and deviation, and Evaluation of Compliance (EOC);
- b) Having clear, consolidated knowledge and understanding of relevant obligations;
- c) Having a clear verifiable, centralised and standardised process to evaluate and maintain knowledge of

compliance;

- d) Establishing a governance mechanism for example MOC to track and monitor any new regulation and/or deviation from existing procedures that impact regulatory compliance which require significant changes to operations until full compliance is implemented. All action plans identified shall be endorsed by the Contractor(s) management;
- e) Ensuring all licenses, permits and written approvals obtained from regulatory bodies are kept, maintained and made available upon request by PETRONAS, for example, during DDA, Assurance, or others; and
- f) Managing non-compliances for example warning letters, compounds and court cases from regulatory bodies and shall be reported to PETRONAS accordingly.

Site management team shall always be required to have visibility on the organisation compliance status. The HSSE legal register shall be kept and maintained to demonstrate compliance to conduct the annual EOC exercise.

1.2.3.8 Document and Control

Contractor(s) shall establish a documentation management system either in hardcopy and/or electric format which includes formal administration, custodianship and review frequency requirement for technical correctness and communication of correct use. The appropriate approving authorities for review and approval shall be established.

Contractor(s) shall establish, maintain and continuously improve HSSE MS manual in accordance with the requirement of this document. The scope shall include the activities, products and services within the Contractor's control that can impact the HSSE performance.

Contractor's HSSE MS to describe or reference the processes, documents and standards used to manage HSSE and assist employees and third-party contractors in understanding how Contractor will meet the objectives of the HSSE policy. HSSE MS shall be accessible to employees and third-party

contractors in the most effective format. All related documents to HSSE MS shall be identified and controlled to ensure relevancy.

The MOC process shall be applied for document and data changes, as well as communication of the changes. Obsolete documentation shall be identified and removed from circulation.

1.2.4 Hazards and Effects Management Process

Hazards and effects management process (HEMP) describes the identification of HSSE hazards and evaluation of HSSE risks, for all activities, products and services, and development of controls and recovery measures to reduce HSSE risks to ALARP.

1.2.4.1 HSSE Risk Assessment Requirement

Contractor(s) shall identify statutory HSSE risk assessment requirements, demonstrate that the risks are reduced to ALARP and conduct periodic review of risk assessments as per statutory requirements. Examples of statutory HSSE risk assessment in Malaysia are Chemical Health Risk Assessment (CHRA), EIA, HSE Case, Control of Industrial Major Accident Hazards (CIMAHA), DOSO and others. Contractor(s) shall refer to PETRONAS Minimum HSE Case Requirements for Malaysia Upstream Operations Guideline for details of HSSE Case requirements, and its implementation during each lifecycle of an asset.

Contractor(s) shall comply with risk assessment requirement as stipulated in Appendix 6. For development projects, Contractor(s) shall refer to HSSE Requirement for Development Phase Guideline for details of HSSE risk management requirements for each project phase.

Contractor(s) shall conduct Health Risk Assessment (HRA) to identify health hazards, assess potential risks to health, determine control measures to protect the health and well-being of workers as per PETRONAS Guiding Notes for Health Risk Assessment.

Contractor(s) shall conduct Social Risk Assessments to address human rights risks from business activities across a project or business life cycle. PETRONAS shall be informed on the execution plan and the mitigation measures.

For any Security Risk Assessment for upstream projects inclusive of all exploration and production phases; Contractor(s) shall implement all measures identified and specified in the Security Risk Assessment.

A HSSE risk assessment shall be conducted for all activities within the control and influence of the Contractor(s) which include the following but not limited to:

- a) Merger, acquisition, divestment, exploration, design and development, commissioning, operations and production, product delivery, decommissioning, abandonment and restoration;
- b) All activities, products, and/or services carried out by all personnel having access to the workplace and facilities at the workplace including third-party contractors; and
- c) Routine, non-routine, and/or emergency operating conditions and activities including normal and abnormal operating conditions.

Contractor(s) shall also determine and assess the other risks and opportunities related to the establishment, implementation, operations and maintenance of its HSSE MS, which include the following but not limited to:

- a) Opportunities to adapt work, work organisation and work environment to employees;
- b) Opportunities to eliminate hazards and reduce HSSE risks; and
- c) Other opportunities for improving the HSSE MS.

Contractor(s) shall develop and maintain procedures to:

- a) Systematically identify HSSE hazards, effects and aspects arising from activities and services of the Contractor(s);
- b) Assess the HSSE risks and significance of the identified hazards, effects and aspects for all operations and assets;
- c) Describe the process of establishing control measures

based on the risk assessment. Hierarchy of controls such as elimination, substitution, isolation, engineering, administrative and Personal Protective Equipment (PPE) shall be applied to reduce the risk; and

- d) Describe the process of establishing recovery measures based on the risk assessment. Recovery measures such as medical response, emergency response, oil spill response, fire-fighting equipment shall be evaluated and applied to minimize the consequence of the event.

1.2.4.2 Identification of Hazards and Effects

HEMP procedures shall include a process for updating the hazards, effects and aspect/impact inventories/registers as a result of plant facility changes, process and technology changes or findings arising from inspections, assurances, incidents, etc.

Identification of HSSE hazards shall be carried out through relevant HSSE risk assessments required by regulation and/or other requirements, including potential human failures on situations influencing human performance. Some examples of HSSE risk assessments are stipulated in Appendix 7.

A comprehensive inventory or register of HSSE hazards shall be maintained by the Contractor(s).

1.2.4.3 Assessment

All hazards, effects and aspects/impacts identified in the HEMP process shall be ranked based on the risk matrix.

A qualitative assessment of the risk is adequate for most situations but when the risk level is intolerable, a Quantitative Risk Assessment (QRA) is required.

In all cases, identified risk reduction measures shall be undertaken to bring the risk to a level deemed ALARP.

Risk assessment and significance evaluation methodology considering the severity of the consequence, frequency of the

activities and probability of the incident occurrence as per Contractors' risk assessment matrix.

A complete review of the assessments (hazard register and aspect tables/registers) shall be conducted at minimum once in every five (5) years or earlier, if there are significant changes to HSSE risk level.

Assessments shall be conducted by a team comprising competent personnel and the personnel directly involved with the risk.

1.2.4.4 Control Measures

Control measures identified through risk assessment shall be implemented to bring the risk level to ALARP. This shall be maintained to ensure its integrity and continuous improvement to further lower the risk.

Responsibilities and accountabilities shall be clearly defined for implementation and maintenance of control measures.

Performance standards for control measures shall be monitored and measured routinely. The results shall be analysed for trend(s) and reviewed for the development of appropriate intervention plans.

A complete review of the control measures shall be conducted if there are any significant changes to HSSE risk level, lessons learnt from incidents, industry best practices, and others.

1.2.4.5 Recovery Measures

The recovery measures shall be maintained to ensure its integrity and continuous improvement to further lower the risk.

Responsibilities and accountabilities shall be clearly defined for implementation and maintenance of recovery measures.

Performance standards for recovery measures shall be monitored and measured routinely. The results shall be analysed for trend(s) and reviewed for the development of appropriate intervention plans.

A complete review of the recovery measures shall be conducted if there are any significant changes to HSSE risk level, lessons learnt from incidents, post-mortem of drills or exercises, industry best practices, and others.

1.2.5 Planning and Procedures

1.2.5.1 Planning

Contractor(s) shall establish:

- a) A HSSE plan to address HSSE risks and opportunities associated with the upstream oil and gas activities and operations within the Contractor's organisation; and
- b) A plan to address legal and regulatory requirements of the Government of Malaysia and PETRONAS.

Contractor(s) shall establish site-specific HSSE plan(s) to address HSSE risks and opportunities associated with, but not limited to, the following activities within the Contractor's organisation:

- a) Exploration, seismic, drilling;
- b) Construction and fabrication;
- c) Hook-up and commissioning;
- d) Production operations; and
- e) Decommissioning.

Contractor(s) shall ensure that all HSSE plans that are established within the Contractor's organisation is aligned with the Contractor's HSSE policies and strategic objectives. The targets and plans shall clearly identify accountable parties and milestones.

For activities within the Contractor's organisation that involves third-party contractor, the Contractor(s) shall ensure that:

- a) Contractor's HSSE plan and site-specific HSSE plan(s) are communicated to the third-party contractor; and
- b) The relevant elements in the Contractor's HSSE plan and site-specific HSSE plan(s) are incorporated in the third-party contractor's HSSE plan.

Contractor's HSSE plan shall include PETRONAS HSSE's planning budget expectations and submit to PETRONAS yearly.

Contractor(s) HSSE targets and plans shall be communicated to its employees.

1.2.5.2 Procedures

Contractor(s) shall establish the necessary governing procedures to address regulatory and PETRONAS' requirements.

Contractor(s) shall establish specific and dedicated governing procedures for all high risk and HSSE-critical activities.

Contractor(s) shall establish the procedures listed in Appendix 8 as a minimum if the Contractor's organisation is engaged in upstream operations.

1.2.6 Implementation and Monitoring

Contractor(s) shall ensure there are systems in place to verify that the tasks and activities are carried out in accordance with the governing procedures and work instructions.

Contractor(s) shall establish HSSE performance objectives and targets to ensure progression towards the long-term goals of no harm to people, asset, reputation and no damage to the environment.

1.2.6.1 Implementation

Contractor(s) shall ensure implementation of activities and tasks according to the HSSE plan, procedures, work instructions, in-line with HSSE policy of the company.

1.2.6.2 Performance Monitoring & Reporting

Contractor(s) shall report HSSE key performance indicators (KPIs) as stipulated in PETRONAS HSSE Performance Monitoring and Reporting Guideline. All reportable KPIs shall be submitted to PETRONAS on monthly and quarterly basis not later than the tenth (10th) of the following month via MyHSE 2.0. Other KPIs that are required to be monitored internally

shall also be adhered to and available when requested. PETRONAS may require Contractor to submit supplementary attachments for the reporting for further analysis or information.

1.2.6.3 Records

Contractor(s) shall establish and maintain procedures for the identification, maintenance, retention and disposition of HSSE records.

1.2.6.4 Non-compliance, Corrective and Preventive Actions

Contractor(s) shall establish procedures with defined responsibilities and accountabilities for:

- a) Handling and investigating non-conformances against legislations, regulations and HSSE MS including its governing document;
- b) Initiating and completing corrective and preventive actions; and
- c) Evaluating the effectiveness of corrective and preventive actions taken.

1.2.6.5 Incident Notification, Investigation and Reporting

For incidents that require immediate notification, the use of fastest available means such as Short Messaging System (SMS) or phone call is necessary before the official reporting via Notification Form (NF) is made. Contractor(s) shall notify the relevant Government Authorities in accordance with the applicable regulatory requirements and provide updates to PETRONAS Communication Centre (COMCEN) for all notifications.

All HSSE incidents including high potential incidents shall be notified to PETRONAS using PETRONAS NF as per Appendix 9 via MyHSE within specified time as indicated in Appendix 10.

In the event of prolonged incident or aggravated injury, the NF shall be updated and sent to PETRONAS COMCEN accordingly marked with 'Update No XX' until closure. Contractor(s) shall be responsible to inform PETRONAS and relevant Government Authorities for request of external assistance when emergency

escalates to Tier 3. Contractor(s) shall notify any suspected endemic or pandemic cases during such outbreak.

Contractor(s) shall conduct HSSE incident investigation for all incidents including death case(s), produce report and keep the investigation report accordingly. The minimum requirements for death case investigations shall be referred to Appendix 10.

Contractor(s) shall submit HSSE alert and HSSE lessons learnt, meeting timeline and format as per PETRONAS Incident Notification, Investigation and Reporting Guideline for Major and High Potential Incident.

Contractor(s) shall submit to PETRONAS Incident Investigation Report endorsed by its Management and/or present the incident investigation upon request. The timeline and format of incident investigation report are as per PETRONAS Incident Notification, Investigation and Reporting Guideline for Major and High Potential Incident.

Contractor(s) shall alert PETRONAS immediately on oil spill incidents including unknown oil spills. For unknown spills, samples shall be collected, analysed and reported as per PETRONAS Guidelines on Upstream Hydrocarbon Fingerprinting.

Contractor(s) shall submit the reporting of all MEDEVAC cases related to illnesses, work and non-work related. Contractor(s) also shall report death case(s) on monthly basis on tenth (10th) of each month following the format in Appendix 11.

1.2.7 Assurance

Contractor(s) shall establish assurance procedures and programmes to review and verify effectiveness of the HSSE management system including for third-party contractors. It shall include assurance by assessors independent of the process or facility being assessed.

Contractor(s) shall retain documented information as evidence of the implementation of the assurance programme and the

assurance results.

1.2.7.1 Assurance Programme and Plan

The assurance programme shall include:

- a) Self-assurance programme undertaken by the Contractor(s) such as Functional Assessment and Management System Assessment;
- b) Internal audit programme undertaken on Contractor(s) by internal audit function;
- c) External audits i.e. audit conducted on the Contractor(s) by external parties, for example insurer, certification bodies and shareholders; and
- d) PETRONAS and Malaysia Government Agencies e.g. Department of Occupational Safety & Health (DOSH), Department of Environment (DOE).

Annual assurance plan shall be in place for all business activities that cover E&P phases.

Only competent and appointed personnel shall be part of the assurance team as per Section 1.2.7.2.

Contractor(s) shall develop and maintain a system to ensure that assurance/audit findings are recorded, prioritised, corrective actions identified, action parties are assigned, and targeted completion dates are identified, corrective actions tracked to final close-out, corrective actions close-out verified and communicated to relevant employees and stakeholders.

Best practices and key lessons learnt from assurance shall be captured and shared across the Contractor's organisation.

1.2.7.2 Assessor Competency

The HSSE assurance procedure shall specify the requirements of assurance team in terms of competency and experience in a particular subject or area of the assurance.

1.2.7.3 Third-Party Contractor Assurance

Contractor(s) to ensure third-party contractor establish their HSSE procedure and assurance programme.

An HSSE inspection or assurance programme for all contracts shall be in place and implemented to monitor effective implementation of the HSSE MS that interfaces between the Contractor(s) and third-party contractor.

1.2.8 Management Review

This element shall address the process to annually review the effectiveness and suitability of HSSE MS in managing HSSE risk and ensuring continuous improvement in HSSE performance.

1.2.8.1 Management Review Requirements

A formal process shall be in place for Contractor(s) Top Management to review the suitability, adequacy and effectiveness of the HSSE MS in managing HSSE risks and ensuring continuous improvement in HSSE performance. The review shall address items as per Appendix 12.

HSSE performance shall be analysed for trends to facilitate decision making.

Contractor's commitment for continuous improvement shall be consistent with the outcome from management review and shall include any decisions and actions related to possible changes affecting:

- a) HSSE performance;
- b) HSSE policy statement and strategic objectives, plan, programmes and targets;
- c) Resources; and
- d) Other elements of the HSSE MS.

Contractor(s) shall conduct the management review of HSSE MS once a year as a minimum requirement.

Results of management reviews and identified remedial actions shall be documented, communicated to employees and other stakeholders and monitored until closure.

1.3 Other Specific Requirements

1.3.1 Self-Regulation

Contractor(s) shall strictly adhere to any self-regulation arrangement with the relevant Government Authorities for upstream Malaysia operations.

1.3.2 Process Safety Management (PSM)

Contractor(s) shall establish a systematic approach for an effective management of process hazards. The systematic approach shall include guiding documents, performance monitoring and assurance activities to ensure sustainable implementation.

As a minimum, the management system shall address the following aspects:

- a) Mechanical Integrity (MI);
- b) Management of Change (MOC);
- c) Operating Procedures (OP);
- d) Process Hazard Analysis (PHA);
- e) Pre-Activity Safety Review (PASR);
- f) Process Safety Information (PSI);
- g) Design Integrity (DI); and
- h) Proprietary and Licensed Technology Assessment (PLTA).

PETRONAS E&P Process Safety Management Minimum Requirements shall be the primary reference for Contractor(s) to use when implementing PSM in its company's Process Safety KPIs monitoring. Contractor's reporting shall also comply with the requirements as stipulated in PETRONAS HSSE Performance Monitoring and Reporting Guideline.

Contractor(s) shall also establish and implement the framework in reducing Process Safety-related incidents for example LOPC and fire incidents as part of the PSM initiatives.

1.3.3 Environmental Management

Contractor(s) shall adhere to the relevant Environmental Quality Act and its regulations and PETRONAS E&P Minimum Environmental Specifications (MES) shall be referred to by Contractor(s) when planning and implementing environmental management programmes.

When there is a need to implement measures under or beyond minimum requirements, Contractor(s) shall conduct cost benefit analysis to ascertain the level of protection requirement and submit to PETRONAS for approval.

1.3.4 Aviation Safety

Contractor(s) shall ensure that all offshore and onshore helidecks and helipads are certified in accordance with Civil Aviation Authority Malaysia requirements and related standards applicable in Malaysia.

For helicopter and aeroplane basic configuration, the requirements shall follow Appendix 14.

Contractor(s) shall establish requirements on aviation safety which include passenger management, operations and maintenance of aircraft. The requirements shall be as per OGP Aircraft Management Guideline Report No. 590, May 2017 or its latest revision if any, as a minimum.

1.3.5 Security Management

- a) Key Point Installation and Protected Area:
Application by Contractor(s) for Key Point Installation and operating within protected area shall be reviewed and endorsed by PETRONAS. For installations within the Exclusive Economic Zones, refer to PPGUA Volume 11, Section 8. Contractor(s) shall forward any request by relevant Government Authorities on matters relating to Key Point Installation and Protected Area to PETRONAS for further action.

b) Security Coordination:

Joint Security Protocol shall be referred to when encountering security threats offshore.

Any request for coordination meeting for security coverage from the Government Authorities shall be referred to PPGUA Volume 11, Section 8.

1.3.6 Occupational Health and Industrial Hygiene

Contractor(s) shall establish occupational health and industrial hygiene programmes which cover all activities carried out by employees and third-party contractors.

Contractor(s) shall establish a medical assessment management system for its own employees. For third-party contractors, Contractor(s) shall ensure that all medical assessment for Fitness to Work and Return to Work shall be certified by MPM Approved Medical Examiner (AME), and in accordance with PETRONAS Guidelines on Medical Assessment of Fitness to Work for Offshore and Remote Onshore Workers.

Contractor(s) shall implement a requirement for all personnel to declare health status prior to embarkation to offshore work sites. In the implementation of this requirement:

- a) Contractor(s) may develop its own format for pre-embarkation health status declaration and align such format with the details in Appendix 15;
- b) Contractor(s) shall take necessary action for any personnel including third-party contractors found providing false declaration; and
- c) Contractor(s) shall ensure that no discrimination and/or negative consequence is imposed on any personnel including third-party contractors for providing the health declaration.

Contractor(s) shall ensure that respirator users had undergone the respirator fit test programme by MPM Approved Fit Tester or by fit tester under the MPM Approved Self-Managed programme. PETRONAS Guideline on Respirator Fit Test Programme for Upstream Oil and Gas Industry in Malaysia shall be referred to for all fit test programme.

Contractor(s) shall implement the minimum requirements on competencies for Remote Site Medics as stipulated in Appendix 16.

1.3.7 Food Safety Management

Contractor(s) shall establish an offshore food safety management that aligned with the Hazard Analysis Critical Control Points (HACCP) principle and apply good hygiene practices. The HACCP principle shall include the following elements but not limited to:

- a) Identify and assess hazards;
- b) Identify Critical Control Points (CCP);
- c) Establish critical limits;
- d) Identify monitoring procedures;
- e) Establish corrective action;
- f) Validate/Verify HACCP plan; and
- g) Establish documentation and record keeping.

The above shall cover all activities related to offshore food services including managing food to remote satellite locations.

Contractor(s) shall ensure internal competency such as HSSE and catering service contract holder focal person to attend HACCP Awareness Training with refresher every three (3) years.

Contractor(s) shall ensure offshore food service provider key personnel such as catering provider management, operations management, supply chain, and catering supervisors for example camp boss and chief cook have valid HACCP training certificates.

Offshore catering crews shall have valid food handling course certificates and be trained every three (3) years.

Contractor(s) shall ensure maximum four (4) hours rule when serving food at temperatures between five (5) degree C and sixty (60) degree C for offshore and onshore location(s).

As a minimum, the risk assessment for biological hazards involving food contamination or food poisoning scenarios shall consider single fatality as a potential consequence.

1.3.8 Human Rights

Contractor(s) shall take reasonable steps to ensure policies and guidelines are in place to demonstrate its respect for human rights including its employees and contract personnel providing services to Contractor

These shall include labour rights, workplace health and safety, security and conditions of employment. The contents shall be made known to employees and contract personnel in languages they understand.

Contractor(s) shall provide human rights awareness training to its employees and contract personnel and ensure all employees and contract personnel providing services to Contractor attend the training. The grievance mechanism shall be made known to them and in languages they understand.

Contractor(s) shall establish a grievance mechanism programme that include the process to handle stakeholder's feedback including their employees, contract personnel and any party involved in providing services to Contractor. They shall be made known of key HSSE information, expectations and process for raising concerns through the grievance mechanism.

Contractor(s) shall provide timely feedback to PETRONAS regarding the Contractor's human rights performance throughout the Contract, as gathered through personnel engagements, questionnaires and other appropriate means as required.

1.3.9 Substance Misuse

Contractor(s) shall establish a policy on substance misuse which includes the prohibition of unauthorised consumption, possession, distribution, purchase or sale of any substance, or being under the influence of any such substance either within its premises, or while performing work and/or business.

Contractor(s) shall provide a substance misuse free workplace as it can be a threat to HSSE.

Contractor(s) shall demonstrate that Substance Misuse Control

Programmes are part of their HSSE management. The requirement shall be as per PETRONAS Guideline On Substance Misuse Control Programme.

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