

MALAYSIA – THAILAND JOINT AUTHORITY

PROCEDURES

FOR

DRILLING OPERATIONS

(REVISION I)

14th DECEMBER 2009

MTJA

*FOR THE EXPLORATION AND EXPLOITATION OF THE RESOURCES OF THE SEA-BED
OF THE TWO COUNTRIES IN THE GULF OF THAILAND (JOINT DEVELOPMENT AREA)*

MALAYSIA - THAILAND JOINT AUTHORITY
PROCEDURES FOR DRILLING OPERATIONS

The Malaysia - Thailand Joint Authority (MTJA) hereby makes the following Procedures:

PART I

PRELIMINARY

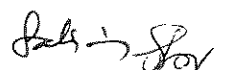
1. These Procedures may be cited as the Malaysia – Thailand Joint Authority Procedures for Drilling Operations and shall come into force on 14th December 2009.

2. Exception and Exemption

Any Contractor may under special circumstances apply in writing to the MTJA for exception to or exemption from these Procedures, and the MTJA may grant such exception or exemption.

3. Amendment

- (1) These Procedures may be amended by the MTJA from time to time by giving written notice to the Contractor.
- (2) In amending these Procedures, the MTJA shall also take into consideration incremental expenditures which may be incurred by the Contractor in complying with the amended Procedures.



PART II

MATERIAL HANDLING AND DISPOSAL

4. All waste materials from the drilling and related operations shall be handled and disposed of in a manner that does not create any hazard to safety or health or the environment.

(1) Material Handling

(a) Bulk Materials

- (i) All materials handled in bulk such as barite, bentonite and cement shall be stored in properly designed containers to minimise contamination of the material from chemical and high humidity.
- (ii) Such container shall be properly labelled.
- (iii) Extreme care shall be taken during loading, transporting and unloading bulk material to minimise contamination.
- (iv) All handling equipments and tank shall be inspected on a regular basis for foreign substances that cause contamination.
- (v) Air dryers and condensation tanks shall also be inspected on a regular basis to ensure that they are functioning properly.

(b) Other Materials

- (i) Drilling fluid additives not handled in bulk shall be packaged in properly labelled containers and pallets which shall be water- resistant to minimise deterioration.
- (ii) Liquid fuel and oil shall be transported, transferred and stored in closed systems.
- (iii) Liquid fuel stored at or above deck level or ground surface shall be contained in closed, properly vented containers located at least five (5) metres from the well for offshore drilling.

(iv) For well unloading operations during workover, flammable liquids, including condensate, and crude oil shall be safely handled and properly contained, and may be placed in vessel having open tops provided it does not create a hazard for on-going operations.

(v) After discharging fuel, the pumps shall be shut-off, the pressure released, the transfer hoses drained into the supply vessel and both hose ends securely plugged.

(c) Precautions to avoid spillage and hazards

(i) All precautions shall be taken to avoid spillage while transferring fuel from supply vessel to the drilling site.

(ii) Appropriate precautions shall be taken when any damage or loss could create any hazard to persons or the environment.

(2) Disposal of Materials

(a) Drilling Mud and Cuttings

(i) Drilling mud which contains environmentally non-acceptable oil, or spent oil/synthetic based mud and other remnant toxic materials shall be recovered, inventoried, properly labelled, contained and transported safely to shore or to a safe area designated for disposal thereof.

(ii) Cuttings from water based mud and from environmentally acceptable oil/synthetic based mud may be disposed of into the sea.

(iii) Cuttings drilled with environmentally non-acceptable oil based mud shall be properly and adequately washed and treated before disposing of into the sea.

(b) Solid Wastes

Any solid waste such as papers, cans, wire scrap metals, bottles, glass and plastic shall be transported to shore in appropriate containers for safe disposal at a site approved by the relevant government or local authorities.

(c) Fluid Waste

- (i) Oil and gas produced during formation-flow testing shall be properly stored in a suitable container and either transferred to shore for disposal or flared in a proper manner using an appropriate burner.
- (ii) For offshore operations, waste engine lube oil, fuel oil, lubricants and other fluid mixtures containing oil shall be collected in suitable containers and transferred to shore for safe disposal at a site approved by the relevant government or local authorities.
- (iii) Used acids and excess acids shall be collected and stored in suitable containers for transportation to shore to be disposed of in a proper manner unless such acids are neutralised and disposed of into the sea upon approval by the MTJA.

(d) Sewage

Sanitary and galley waste shall be disposed of in accordance with good petroleum industry practice on waste management.

(3) Pollution Prevention

- (a) The Contractor shall ensure that offshore oil and water production separation facilities contain safeguards to prevent emission of pollutants into the sea.
- (b) An oil spill from a drilling operation shall be reported by the Contractor to the MTJA immediately noting size, type of pollutants, location and weather conditions, and appropriated actions shall be taken immediately by the Contractor.
- (c) All Contractors or other persons involved in drilling, extracting, producing, processing, transporting and marketing of oil and gas in the Joint Development Area shall individually or jointly, maintain, organise and coordinate oil spill contingency plans which encompass all its facilities offshore.

(d) Such oil spill contingency plan to be submitted to the MTJA shall have the following objectives:

- (i) to design, fabricate and maintain all facilities offshore in such manner to prevent and minimise the frequency of spills, through the use of automatic controls, valves and other methods;
- (ii) to respond quickly, effectively and with proper knowledge to contain, and to clean up oil or other spills; and
- (iii) to evaluate the damage resulting from the spill and take steps, where necessary to assist the rehabilitation of the affected area.

PART III

WELL EVALUATION

5. General Provisions

The Contractor shall collect sufficient well information and samples during the drilling of any well to permit a geological and reservoir evaluation of the well.

6. Drilling Cuttings

(1) Sample Frequency

- (a) The frequency of sampling drill cuttings for geological purpose shall be one sample each:
 - (i) for every five (5) metres drilled in objective zones in exploration and appraisal wells;
 - (ii) for every ten (10) metres drilled in other part of the hole in exploration and appraisal wells; and
 - (iii) for every ten (10) metres drilled in development wells unless approved otherwise by the MTJA.

- (b) Samples prior to setting surface casing on platform development wells shall be collected on only the first well, provided the wells are drilled with riser.
- (c) Sampling frequency shall be indicated in the Drilling Programme.

(2) Sample Container

Each container of drill cuttings shall be accurately and durably labelled when filled, with the name of the well and the depth interval. Where samples cannot be collected, the reasons thereof and the depth interval shall be recorded.

7. Cores

Proposals for coring shall be indicated in the Drilling Programme to include, but not limited to, the depth interval of coring, objectives and reservoirs for the following types of cores:

(1) Conventional Cores

- (a) The cores recovered from the core barrels shall be properly extracted, oriented, marked and described immediately, properly placed and oriented in cored containers.
- (b) The cores shall be accurately and durably labelled with the name of the well, the depth interval of the core, and the sequential number of the container, if more than one.

(2) Side Wall Cores

- (a) Side wall cores shall be properly extracted and physically described at the well site or in the case of side wall cores that are to be preserved for future analysis. A chip taken from the core prior to preservation shall be described.
- (b) The cores shall be placed in suitable containers that are accurately and durably labelled with name of the well and the depth of the core.

8. Well Logging

- (1) The Contractor shall properly and timely submit to the MTJA:
 - (a) applicable reports and logs;
 - (b) field prints in either digital or hard copy format of individual runs of all electrical, radioactive, or other well logging operations, directional and other surveys; and
 - (c) final prints of electric logs and all other logs including well logging, directional and other surveys in electronic media such as Compact Disc.
- (2) All occurrences of oil, gas and other minerals of potential geological interest shall be noted on a marked wireline and Logging While Drilling (LWD) log to include all important zones of porosity and interpreted contents thereof, cased intervals and complete details on drill-stem or wireline formation tests.

9. Oil and Gas Flow Testing

(1) Oil Wells

A production test of oil wells shall be of at least two (2) hours duration following stabilisation of flow.

(2) Gas Wells

A deliverability test for gas wells shall be of at least two (2) hours duration following stabilisation of flow.

PART IV

REPORTING AND RECORDING

10. Priority Reports

(1) General

- (a) The contractor shall, in addition to the requirements of the provisions of paragraph 14 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997, inform the MTJA immediately by the most rapid and practical means of every significant situation, event or accident, including but not limited to the loss of life, missing persons, serious injury, fire, loss of well control, imminent threat to safety of drilling unit, drilling rig or personnel, oil or toxic chemical spill, or the confirmed discovery of oil and gas.
- (b) The Contractor shall submit to the MTJA, as soon as practicable, a comprehensive written report of the situation, event or accident, and shall notify other persons or authorities as circumstances require.

(2) Rig Arrival and Rig Release Notice

The Contractor shall inform the MTJA within 24 hours by facsimile, e-mail or equivalent means:

- (a) of the date that the drilling unit arrives at the well location;
- (b) of the actual hour and date of spudding the well; and
- (c) of the actual hour and date that the drilling rig or drilling unit is released from the well.

11. Supporting Reports

The Contractor shall submit to the MTJA, as soon as practicable, reports obtained or compiled by the Contractor regarding applied research work or studies, that contain information which is relevant to the safety of drilling operations in any Contract Area.

12. Final Drilling and Well Completion Report

- (1) The Contractor shall submit to the MTJA a final drilling and well completion report within ninety (90) days after a well has been drilled and completed, suspended or abandoned.
- (2) The report shall include, but not limited to, the following information:
 - (a) Well number and type;
 - (b) Rig name and type;
 - (c) Surface and sub-surface location grid and geographical coordinates of the well;
 - (d) Well depth (measured depth and true vertical depth);
 - (e) Maximum angle reached;
 - (f) Total days spent on the well;
 - (g) Summary of drilling operations;
 - (h) Reservoir and geological details;
 - (i) Completion diagram showing all downhole components (with their inside diameter, outside diameter, length, depth of installation) and description of wellhead and Christmas tree;
 - (j) Type and density of fluid left in the hole;
 - (k) Perforated intervals;
 - (l) Initial production test results, if available, including registered pressure, fluid and gas flow rates and duration of test;

- (m) List of wireline or LWD logs and its interpretation (cored intervals should also be shown);
- (n) Casing size, type, grades, weights, depths set in measured depth and true vertical depth;
- (o) Mud composition and amount used;
- (p) Cement density, composition, volume of cement used and their estimated top in annulus;
- (q) Depth - time chart, actual against proposed;
- (r) Operational-time breakdown;
- (s) Directional drilling results and wellbore trace;
- (t) Final estimated well cost.

13. Operational Records

The Contractor shall ensure that all information generated during drilling and related operations, necessary to maintain a comprehensive record of operations, shall be recorded in a proper form and manner at the time and on the location.

PART V

PLUGGING AND ABANDONMENT OF WELLS

14. Responsibility to Abandon A Well

- (1) The Contractor shall ensure that:
 - (a) any well or a portion thereof that is not suspended or completed is abandoned; and
 - (b) where any well is abandoned, it shall be abandoned in accordance with these Procedures.

- (2) The Contractor shall ensure that any well or a portion thereof that has not been abandoned in accordance with these Procedures shall be re-abandoned in accordance with these Procedures.

15. Application to Abandon A Well

The Contractor shall submit to the MTJA a written request for approval of the intent to abandon any well, together with a programme outlining the procedures of the operations, and reasons for abandonment in case of any producible well.

16. Subsequent Report of Abandonment

- (1) The Contractor shall submit to the MTJA a detailed report of the manner in which the abandonment or plugging work was accomplished, including the nature and quantities of materials used in the plugging and the location and extent, by depths, of casing left in the well and the volume of drilling fluid and cement left in the well.
- (2) If an attempt was made to cut and pull any casing string, a description of the methods used and results obtained shall be included.
- (3) The Contractor shall include abandonment report in the final well report for exploration and appraisal wells. The abandonment shall be reported separately for production wells.

17. Permanent Abandonment

- (1) Isolation of Zones in Open Hole
 - (a) In uncased portions of wells, cement plugs shall be spaced to extend thirty (30) metres below the bottom to thirty (30) metres above the top of any oil and gas zones, and fresh water zones shallower than three hundred (300) metres, to isolate the formation fluids in the strata in which they are found and to prevent them from escaping into other strata or the surface.

- (b) Such cement plugs which are not supported by the plugs or by the bottom of the well and are located above or against the abnormally pressured zones of hydrocarbon bearing zones, after waiting-on-cement to harden, shall be tagged with a force of 66,700 Newtons (15,000 pounds) or the maximum safe tagging weight that can be applied with the string in use.
- (c) After an unsuccessful fishing operation for stuck pipe (i.e. the fish), where possible, the fish shall be perforated and cement shall be pumped through the perforations to cement the annulus between the fish and the hole to isolate any open sands that are present.
- (d) If any hydrocarbon bearing sands are exposed below the fish, the Contractor shall consider taking remedial action to prevent cross flow between them, and where this is not possible, a cement plug shall be positioned above the fish to isolate the fish from the open hole above the fish.
- (e) The placement of additional cement plugs to prevent the migration of formation fluids may be required by the MTJA.

(2) Isolation of Open Hole

The Contractor shall ensure that where there is an open hole below the casing, a cement plug shall be placed in the deepest casing string in accordance with paragraph 17 (2) (a), and in the event that lost circulation conditions have been experienced or are anticipated, a permanent-type bridge plug may be placed in accordance with paragraph 17 (2) (b).

- (a) The Contractor shall ensure that a cement plug is set by the displacement method so as to extend a minimum of thirty (30) metres above an thirty (30) metres below the casing shoe; and
- (b) The Contractor shall ensure that:
 - (i) a permanent-type bridge plug is set within forty-five (45) metres above the casing shoe; and

- (ii) this bridge plug shall be tested in accordance with paragraph 17 (7) prior to placing subsequent plugs; and before setting the plug attempts shall be made to cure losses.

(3) Plugging or Isolation of Perforated Intervals

The Contractor shall ensure that:

- (a) a cement plug shall be set by a displacement method opposite all open perforations (perforations not squeezed with cement) extending a minimum of thirty (30) metres above and thirty (30) metres below the perforated interval or down to a casing plug, whichever is less; and
- (b) in lieu of setting a cement plug by such displacement method, one of the following methods shall be used:
 - (i) a cement retainer with effective back pressure control or a permanent packer set not less than fifteen (15) metres and not more than thirty (30) metres above the top of the perforated interval with a cement plug calculated to extend at least to the top of the perforated interval and fifteen (15) metres above the retainer or packer;
 - (ii) a permanent-type bridge plug is set not more than forty-five (45) metres above the top of the perforated interval; or
 - (iii) such other method as may be approved by MTJA for a specific situation.

(4) Plugging of Casing Stubs

The Contractor shall ensure that if any casing is cut and recovered leaving a stub, one of the following methods shall be used to plug the casing stub:

(a) Stub Terminating Inside Casing String

A stub terminating inside a casing string shall be plugged by one of the following methods:

- (i) a cement plug is set so as to extend thirty (30) metres above and thirty (30) metres below the stub;

- (ii) a cement retainer is set approximately fifteen (15) metres above the stub with a volume of cement equivalent to forty-five (45) metres squeezed below the retainer and fifteen (15) metres above the retainer; or
- (iii) a permanent-type bridge plug is set approximately fifteen (15) metres above the stub.

(b) Stub Terminating Below Casing String

If the stub is below the next larger string, plugging shall be accomplished in accordance with either paragraph 17 (1) or paragraph 17 (2).

(c) Liner Top or Screen

Liner top or screen that is impractical to be removed shall be plugged in accordance with paragraph 17 (4) (a).

(5) Plugging of Annular Space

The Contractor shall ensure that any annular space communicating with any open hole and extending to the sea floor shall be plugged with cement.

(6) Surface Plug

The Contractor shall ensure that a cement plug of at least forty-five (45) metres in length, with the top of the plug forty-five (45) metres or less below the sea floor, shall be placed in the smallest string of the casing which extends to the sea floor.

(7) Testing Of Plugs

The Contractor shall ensure that the setting and location of the first plug below the surface plug shall be verified by one of the following methods:

- (a) by placing a minimum pipe weight of 66,700 Newtons (15,000 pounds) on the cement plug or bridge plug. The cement placed above the bridge plug need not be tested; or
- (b) by testing the casing against the plug with a minimum pump pressure of 6,900 kilo-Pascal (1,000 pounds per square inch) with no more than a 10 percent pressure drop during a 15-minute period.

(8) Drilling Fluid

The Contractor shall ensure that each of the respective intervals of the hole between the various plugs shall be filled with drilling fluid of sufficient density to exert hydrostatic pressure exceeding the greatest formation pressure encountered while drilling the intervals between the plugs, and in addition thereto, such hole shall be circulated so that the drilling fluid is gas-free and of uniform fluid weight.

(9) Clearance of Location

The Contractor shall ensure that all casing, wellhead equipment, and pilings shall be removed as deep as practically possible below the sea floor, and the Contractor shall provide written verification to the MTJA that the location has been cleared of all obstructions.

(10) Abandonment of Radioactive Source

- (a) Where a logging tool containing a radioactive source is lodged downhole in a well, recovery efforts must be made and any operations that may cause damage to the radioactive source shall not be performed. If any inspection reveals any damage to the radioactive source, the repair of the sealed radioactive source shall be performed only by competent persons.
- (b) The logging tool recovery operations shall be taken with extreme precautions to prevent the exposure of the radioactive source to people, equipment and the environment.
- (c) During logging tool recovery operations:
 - (i) circulated drilling mud shall be monitored. If the drilling mud shows an abnormally high radioactive content, the logging tool recovery operations shall be stopped and the Contractor shall notify the relevant authorities immediately; and
 - (ii) the Contractor shall submit to the MTJA the details of equipment, radioactive source identified by type and quantity, radioactive intensity, well path, container type, pressure and

temperature tolerant of the container along with the daily activity report.

- (d) When it becomes apparent that efforts to recover the radioactive source will not be successful and the radioactive source abandonment will be required, the Contractor shall provide the circumstances that resulted in the inability to retrieve the source at least 24 hours in advance and the proposed procedures of the abandonment to the MTJA. The Contractor shall ensure that such abandonment procedures shall be executed within 30 days after the radioactive source has been classified as irretrievable and the following requirements shall be implemented:
 - (i) upon abandonment of the well, a 30-100 metres cement plug must be set opposite the radioactive source and shall be tested by placing a minimum pipe weight of 15,000 pounds on the cement plug or by testing with a minimum pressure of 1,000 pounds per square inch with no more than a 10 percent pressure drop during a 15 minute period; and
 - (ii) the radioactive source shall be covered with cement plug on top of which a whipstock shoe or other mechanical devices of equal effectiveness shall be set.

18. Well suspension

(1) Semi-Permanent Well Suspension

The Contractor shall ensure that any well which is to be suspended with no immediate intention to return to the well for further operations shall be filled with drilling fluid and cemented as required for permanent abandonment in accordance with paragraph 17.

(2) Temporary Well Suspension

- (a) The Contractor shall ensure that any well which is to be temporarily suspended prior to drilling ahead, completion or abandonment shall be filled with appropriate weighted fluid and cemented in accordance with

paragraph 17 (1), paragraph 17 (2) and paragraph 17 (3), and shall be equipped with a dual safety feature in the form of kill fluid together with one of the following:

- (i) pressure tested casing or cement plug;
 - (ii) in-flow tested liner lap; or
 - (iii) kill string.
- (b) The Contractor shall ensure that in all cases wellhead valve assembly tree, wellhead cap or Blowout Preventer (BOP) shall be employed to give pumping access to such well.

(3) Batch Drilling Suspension

- (a) Once drilling to Total Depth (TD) of the Top Section is completed, casing shall be run and cemented. Appropriate fluid shall be filled and the well shall be sealed with an appropriate Wellhead Cap to ensure that the well is safe before skidding rig to the next well.
- (b) Once drilling to the Intermediate section TD is carried out;
- (i) in case the Intermediate section is above hydrocarbon bearing zone, the well shall be cased, cemented and filled with appropriate drilling fluid. A Suspension Cap shall be installed and a Retrievable Bridge Plug may also be installed (if necessary) before skidding the rig.
 - (ii) in case the Intermediate section is drilled into any hydrocarbon bearing zone, the well shall be cased, cemented and filled with appropriate drilling fluid. A Suspension Cap shall be installed and a Retrievable Bridge Plug may also be installed (if necessary) before skidding the rig.
- (c) At the TD of wells;
- (i) in the case of a cased-hole production well, the production casing or liner shall be run and cemented as appropriate. For the monobore, the tubing shall be run and cemented. Appropriate fluid shall be filled in the well. A Sub-surface safety valve and x-mas

tree shall be installed before skidding the rig and handing it over to perforation operation.

- (ii) in the case of an opened-hole production well, the Contractor shall submit the well suspension program including justification of suspension for the MTJA's approval on a case-by-case basis.

19. Suspended Wells

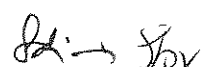
- (1) The Contractor shall ensure that any well that is suspended and that has not been completed shall be either completed or abandoned within five (5) years from the date of suspension.
- (2) The Contractor shall ensure that every well that is completed and suspended shall be inspected at least one each year and reported to the MTJA and shall be placed on production or abandoned, as the case may be, within a period of three (3) years from the date of suspension unless prior written approval has been given by the MTJA for the extension of the period.

PART VI

SAFETY

20. Location of Offshore Installations

The Contractor shall ensure that the location of drilling rigs, platforms or other offshore installations (hereinafter referred to as "offshore installations") be in accordance with the provision of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997.



21. Identification and Marking of Offshore Installations

The Contractor shall ensure that all offshore installations be marked so they are easily identified from vessels and aircraft, and they shall be clearly visible in daylight and darkness.

22. Safety Zones

The Contractor shall ensure that the establishment of the safety zones of the offshore installations and all matters relating thereto be in accordance with the provisions of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operation) Regulations 1997.

23. Installation Logbook

- (1) The Contractor shall keep and maintain a logbook in relation to:
 - (a) every manned offshore installation; and
 - (b) every fixed offshore installation which is being constructed, assembled or dismantled. Such logbook shall be kept on an attendant vessel or any other completed installations.

- (2) The Contractor shall ensure that:
 - (a) Every offshore installation logbook shall, before any other entry is made therein, contain the following:
 - (i) the registered name or other designation of the relevant installation;
 - (ii) the name of the owner and the address, to which communications to him are to be sent; and
 - (iii) the name of the person or persons in charge;and if at any time while the logbook is in use these entries change, the logbook shall be amended appropriately.
 - (b) All entries shall be made in the offshore installation logbook regarding every occurrence:

- (i) affecting or likely to affect the safety of the installation or the safety, health and welfare of persons on or working from the installation; and
 - (ii) involving the offshore installation and endangering persons in its neighbourhoods.
- (c) All entries in an offshore installation logbook shall be in the English language and signed by the person-in-charge within 24 hours of the occurrence which is the subject of the entry and shall include the time at which the entry was made and signed.
- (d) No entry in any offshore installation logbook shall be erased or rendered illegible and no page or any part thereof shall be removed or mutilated.
- (e) No entry in any offshore logbook shall be amended or cancelled except by a further entry.
- (f) The offshore installation logbook shall be supplemented by a separated continuous record of the persons on or working from such installation and shall include:
 - (i) the full names of every such person;
 - (ii) the date and time of his or her arrival and, if he or she is no longer on or working from such installation, of his or her departure;
 - (iii) the designation or job title; and
 - (iv) the name and address of his or her employer.
- (3) The Contractors shall maintain at a place ashore a record of the persons on or working from the offshore installation. Such record shall include:
 - (i) the information specified in paragraph 23 (2) (f);
 - (ii) the nationality;
 - (iii) the date of birth;
 - (iv) the usual resident of those persons; and
 - (v) the name, address and relationship of their next-of-kin (if any).

24. General Maintenance

- (1) The Contractor shall ensure that:
 - (a) all parts of every offshore installation and its equipment shall be so maintained as to ensure the safety of such installation and the safety and health of the persons thereon; and
 - (b) there shall be in force at all times in respect of all parts of every offshore installation and its equipment a scheme to provide for their systematic examination, maintenance and, where appropriate, testing of critical equipment.
- (2) The Contractor shall ensure that all maintenance, examination and testing of any part of an offshore installation and its equipment shall be carried out by, or under the supervision of, a qualified person.
- (3) The Contractor shall ensure that:
 - (a) where any examination or test shows that any critical equipment cannot be safely used until repaired, the person who makes the examination or test shall immediately report the fact in writing to the person-in-charge who shall read and sign the report and enter the report in the offshore installation logbook; and
 - (b) such equipment shall not be used by any person until repaired and found satisfactory by a responsible person.

25. Hazardous Areas

The Contractor shall ensure that:

- (a) all drawings of any offshore installation shall clearly and accurately show the hazardous areas; and
- (b) the door or hatch for any opening giving access to a hazardous area shall bear on the outside the words "HAZARDOUS AREA" in red capital letter at least fifty (50) millimetres high.

26. Accidents

- (1) The Contractor shall notify the MTJA of any accident or incident, other than accident or incident referred to paragraph 14 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997, occurring within five hundred (500) metres of any offshore installation causing death or serious bodily injury.
- (2) The Contractor shall enter particulars of every noticeable accident or incident in such installation logbook.
- (3) The Contractor shall ensure that particulars of the accident or incident are entered in the offshore installation logbook where an accident or incident occurs on any offshore installation which disables a person employed on such installation for more than three days from performing the normal duties of his employment.

27. Fire Protection and Prevention

(1) Fire Fighting System

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 13 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997:

- (a) the fire fighting system include a combination of water and chemical fire fighting system which shall be installed at every offshore installation so as to provide adequate and reliable method of extinguishing all classes of fire;
- (b) portable fire extinguishers suitable for all classes of fire shall be strategically located throughout any offshore installation. Such extinguishers shall be regularly inspected and tested and replaced immediately if found unsatisfactory; and
- (c) a diagram of the fire fighting system showing the location of all equipment shall be posted at prominent places on every offshore installation.

(2) Fire Alarm System

The Contractor shall ensure that:

- (a) every manned offshore installation shall be provided with a fire alarm system which shall consist of a few manually actuated stations strategically located near evacuation routes, and an alarm sounding device; and
- (b) the source of electrical power for the fire alarm system shall be from a certified source of supply which during failure is backed up by a battery supply to maintain the operability of the system.

(3) Naked Light

The Contractor shall:

- (a) ensure that no person shall either use a naked light or smoke on any offshore installation except otherwise in a designated area; and
- (b) make rules permitting persons to use naked lights and to smoke on relevant offshore installations during certain hours and in a designated area.

(4) Fire Detection System

The Contractor shall ensure that:

- (a) every offshore installation shall be provided with fire detection system; and
- (b) a diagram of such fire detection system showing the location of all detection points shall be posted at prominent places on every offshore installation.

(5) Gas Detection System

The Contractor shall ensure that:

- (a) an efficient system of detection shall be provided to monitor automatically the presence of any accumulation of flammable or noxious gas on every offshore installation;

- (b) such system shall be properly maintained and monitored at regular intervals;
- (c) in cases where Hydrogen Sulphide is or may be present, a sufficient number of sets of self-contained compressed air breathing apparatus shall be provided. For workers on the drilling floor and in the mud room the breathing apparatus shall be stored near the work point; and
- (d) breathing aids and filter masks shall not be stored in locked receptacles.

28. Dangerous Substances

- (1) The Contractor shall ensure that no person on any offshore installation shall be in possession of:
 - (a) any radioactive, corrosive, toxic or explosive substance or any substance which is stored or used at a pressure greater than atmospheric pressure except in suitable receptacles clearly marked with the contents at a place as far as reasonably practicable from any hazardous area and any living accommodation; and
 - (b) any flammable substance except in suitable receptacles clearly marked with the contents at a place as far as reasonably practicable from any other hazardous area and any living accommodation.
- (2) The Contractor shall ensure that no person on any offshore installation shall use any of the substance referred to in sub-paragraph (a) or (b) unless all reasonably practicable precautions have been taken against any danger to which any person on such installation may be exposed by the use of the substance.

29. Dangerous Machinery and Apparatus

The Contractor shall ensure that:

- (1) every dangerous part of any machinery or apparatus shall as far as is practicable be effectively guarded. For the purpose of these Procedures the term "effectively guarded" means being provided with:
 - (a) in the case of any moving dangerous part:
 - (i) an enclosure covering the movable parts which incorporate such safety devices as to prevent the dangerous part from moving until it is enclosed in such a way as to prevent any person or his clothing from coming into contact with that part and prevent any movable part of the enclosure from moving unless, by cutting of the power or otherwise, risk of injury from the dangerous part is prevented; or
 - (ii) a fixed enclosure adequately secured in such a positions as to prevent any person or his clothing from coming into contact with the dangerous part; and
 - (b) in the case of any other dangerous part a fixed enclosure adequately secured in such a position as to prevent any person or his clothing from coming into contact with the dangerous part.
- (2) The Contractor shall ensure that all safety guards and safety devices provided of moving dangerous parts of any machinery or apparatus shall be constantly maintained and kept in position while the parts for which they are provided are moving, except when such parts are necessarily exposed for an examination, adjustment or lubrication which is necessary to carry out while they are moving and all practicable arrangements are made to reduce to a minimum the risk of injury to all persons at risk.
- (3) The Contractor shall ensure that where it is necessary to remove or render inoperative the safety guards or safety devices in order to perform an examination, adjustment or lubrication, no person other than a qualified person shall perform that operation.

30. Examination of Lifting Appliances and Lifting Gear

The Contactor shall ensure that:

- (a) without prejudice to the generality of paragraph 24(2), every lifting appliance and every piece of lifting gear shall be thoroughly examined and, where necessary, tested by a competent person:
 - (i) before it is used for the first time; or
 - (ii) having already been used, if and whenever substantially altered or repaired, before it is again used; and within a valid period in compliance with good petroleum industry practice.
- (b) whenever any examination shows that any such appliance or piece of gear cannot be safely used until repaired, written notice of such condition shall be given to the person-in-charge of such appliance or gear, as the case may be, forthwith by the person who made the examination or test.

31. Marking of Lifting Appliances and Lifting Gear

The Contractor shall ensure that every lifting appliance or piece of lifting gear used as or forming part of any equipment of every offshore installation shall be plainly marked with its safe working load or loads as shown on the latest record of thorough examination and no lifting appliance or piece of lifting gear shall be used by any person for any load exceeding the safe working load marked thereon.

32. Electrical Equipment

The Contractor shall ensure that all electrical equipment shall be sufficient in size and power for the work for which it is to be used and so constructed, installed, protected, worked and maintained as to prevent danger.

33. Movement of Offshore Installations

The Contractor shall ensure that no person other than those who are essential to the operation and whose presence is necessary shall be on any offshore installation when it is being raised or lowered or dismantled.

34. Safety Programme

The Contractor shall ensure that:

- (a) safety procedure manuals are provided at every manned offshore installation. In the case of unmanned installation, such manuals are to be provided at the nearest manned offshore installation or the accommodation barge or the nearest base of operation; and
- (b) all equipment on all offshore installations shall be periodically inspected and the result thereof shall be submitted to the MTJA on request.

35. Personal Protective Equipment (PPE)

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 15 of the Malaysia-Thailand Joint Authority (Standards or Petroleum Operations) Regulations 1997:

- (a) the following shall be complied on every offshore installation:
 - (i) a suitable safety helmet for every person on every offshore installation; and
 - (ii) sufficient suitable protective clothing and equipment required for workers in performing their work, including eye protectors, ear protectors, welding masks or goggles, welding aprons, breathing apparatus for use in toxic or oxygen deficient atmospheres, gloves, overalls, safety boots or shoes for all persons engaged in operation where they are exposed to risk of injury or disease; and
- (b) all PPE and safety equipment shall be kept in good repair and in clean condition.

36. Life - Saving Appliances

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 19 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulation 1997, every survival craft, life raft, and other life-saving appliances with which every offshore installation is provided shall:

- (a) be of a type for the time being approved for offshore installations of a class or description which includes that installation;
- (b) be properly constructed of suitable materials having regard to its life-saving function and the circumstances in which it may be used or kept ready for use;
- (c) be of such colour as to make it conspicuous when in use; and
- (d) be available for immediate use and shall be protected from damage.

37. Means of Escape and Alarm and Public Address System

The Contractor shall ensure that:

- (a) every offshore installation shall be provided with suitable and sufficient means for person to descend from such installation to the water in an emergency in addition to any life – saving appliances provided;
- (b) any appliance used in the means so provided which does not form part of such installation shall be stowed so as to be readily available and so designed and constructed as to be capable of withstanding wind and waves when in use;
- (c) on every manned offshore installation there shall be provided:
 - (i) a general alarm system capable of raising the alarm by signals audible at every part such installation where oral communication is practicable; and
 - (ii) a public address system capable of being heard distinctly at all parts of such installation where persons are present and oral communication is practicable;

- (d) each of the systems provided under sub-paragraph (c) shall also be capable of providing a conspicuous visible warning in every part of such installation:
 - (i) in the case of the general alarm system where oral communication is not practicable; and
 - (ii) in the case of the public address system, where persons are present and oral communication is not practicable;
- (e) each of the systems provided under sub-paragraph (c) shall be supplied by two sources of electric power which shall be independent of each other and one of which shall be so designed as to be available in any emergency; and
- (f) there shall be displayed at or near to each place for operating either of the systems so provided clear instructions in appropriate languages for operating it.

38. Communications

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 11 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997:

- (a) any communication equipment shall be installed in a separate room and provided with adequate facilities for the use of the radio operator; and
- (b) no room in which any such equipment is installed shall be in a hazardous area.

39. Radio Operators

The Contractor shall ensure that at least one person who is properly trained to be the radio operator with respect to the equipment provided on every offshore installation shall be present on such installation at all times when it is manned.

40. Helicopter Landing Officer

The Contractor shall ensure that:

- (a) a competent person appointed by the person-in-charge to be responsible for the control of helicopter operations in relation to every offshore installation, shall be present on such installation at all times when it is manned ; and
- (b) all persons engaged in all helicopter operations or who are in or near any helicopter landing area, are under the immediate and effective control of the helicopter landing officer.

41. Operation Information

The Contractor shall ensure that:

- (a) every offshore installation shall be provided with suitable means for ascertaining at all times the following:
 - (i) the wind speed and direction;
 - (ii) the air temperature; and
 - (iii) the barometric pressure;
- (b) every mobile installation shall be provided with suitable means for ascertaining at all times the following;
 - (i) the roll, pitch, heave, yaw and heading of such installation; and
 - (ii) the sea state; and
- (c) every offshore installation shall at time be provided with a scheme for the systematic ascertainment and recording of:
 - (i) the matters referred to in sub-paragraph (a) and, in the case of a mobile installation, sub-paragraph (b); and
 - (ii) the visibility and the cloud base and cover.



42. Safety Drills

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 12 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997:

- (a) each person on every offshore installation is thoroughly familiar with all site alarms and the location of life-saving appliances; and
- (b) each person when working on such installation shall participate in the appropriate emergency drills and emergency response training.

43. Living Quarters

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 17 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997:

- (a) such living quarters shall be designed, equipped and located so that acceptable safety for all accommodated personnel is attained;
- (b) in the preparation of development concepts, special emphasis shall be given to separation of the areas with drilling, production and auxiliary systems from areas for such living quarters; and
- (c) the capacity of such living quarters shall be tailored to personnel requirements.

44. Drinking Water

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 17 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997, an adequate supply of clean wholesome drinking water shall be provided and maintained on every offshore installation, at suitable points clearly marked "Drinking Water" and conveniently accessible to all persons on such installation.

45. Provisions

The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 17 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997, all provisions for consumption by persons on every offshore installation shall be fit for human consumption and of good quality, with proper observance for religious requirement.

46. Sick Bay

- (1) The Contractor shall ensure that in addition to the requirements of the provisions of paragraph 16 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997, a room in a position conveniently accessible to all persons on every offshore installation suitable for the medical treatment and care of sick and injured persons (in these Procedures referred to as the "sick bay"):
 - (a) be provided and maintained in good order and in a clean condition;
 - (b) be properly constructed and provided with interior surfaces which may easily be kept clean; and
 - (c) be provided with the necessary equipment, medicines; sundries, instruments, appliances, dressings and first aid kits.
- (2) The Contractor shall ensure that any door or hatch for any opening giving access to any sick bay shall bear on the outside the words "SICK BAY" in red capital letters at least fifty (50) millimetres high.

47. Medical Staff

- (1) The Contractor shall ensure that in addition to the requirements of the provision of paragraph 16 of the Malaysia-Thailand Joint Authority (Standards of Petroleum Operations) Regulations 1997, at least one medically trained person be available on every manned offshore installation. In these Procedures the term "medically trained person" means a person who:
 - (a) is the holder of a certificate or other qualification relating to First-Aid; and

(b) has received adequate training in the use of the mechanical artificial respiration equipment.

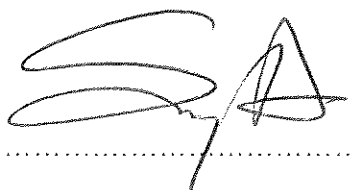
48. Other Steps for Pollution Prevention

Notwithstanding the provisions of paragraph 4(3), the Contractor shall ensure that all steps are taken to prevent, control and minimise pollution of the environment during all phases of drilling operations.

49. Enforcement

These Procedures shall replace the Malaysia-Thailand Joint Authority Procedures for Drilling Operations dated 25th May 1996.

Given on the 14th day of December 2009



Chief Executive Officer

MALAYSIA-THAILAND JOINT AUTHORITY

(By order and approval of the MTJA Board at the 88th MTJA Board Meeting on 12th December 2009)