



PETRONAS Procedures and Guidelines for Upstream Activities (PPGUA 3.0)



EXPLORATION VOLUME 5

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VOLUME 5

EXPLORATION

Table of Contents

Executive Summary	5
Contact Information	5
Definitions	5
Section 1: Exploration Production Sharing Contract Management	6
1.1 Work Programme & Budget	6
1.2 Exploration Seismic/Non-Seismic Acquisition and Processing Proposal	6
1.2.1 Submission	6
1.2.2 Presentation	6-7
1.3 Well Proposal and Notice of Operation	7
1.3.1 Submission	7
1.3.2 Presentation	8
1.3.3 Deviation from Notice of Operation	8
1.4 Exploration Well/Seismic Operation Monitoring	8
1.4.1 Reporting	8
1.4.2 Data Submission	8
1.4.3 Well Abandonment and Suspension	9
1.4.4 Security Notification	9
1.5 Post Drilling Reports	9
1.5.1 Submission	9-10
1.5.2 Presentation	10
1.6 Additional Budget Request	10
1.7 Technical Quarterly Review Meeting	10
1.7.1 Prospects and Leads	10
1.7.2 Exploration Progress	10
1.8 Annual Review of Petroleum Resources	10
1.8.1 Hydrocarbon Resources Volume	10
1.8.2 Prospects and Leads	10
1.9 Gas Holding	11
1.9.1 Application	11
1.9.2 Extension of Gas Holding Period	11
1.9.3 Submission	11
1.9.4 Condition of Application	11
1.9.5 Oil Discovery within Gas Holding Area	11-12
1.9.6 Areal Extent of the Gas Field Area	12-13
1.10 Commercial Quantity Declaration	13

VOLUME 5

EXPLORATION

1.11 Exploration Period Extension	13
1.12 Relinquishment	13
1.12.1 Relinquishment with Notification	13
1.12.2 Document Submission	13
1.13 Production Sharing Contract Governance	13
1.13.1 Press Release and Publications	13
1.13.2 Information Release for Asia Pacific Scout Check (APSC)/ Malaysia International Chamber of Commerce and Industry (MICCI) Meetings	14
1.13.3 Data Disclosure, Data Trade and Data Transfer	14
1.13.4 Farm In/Farm Out Exercise	14
Section 2: Seismic Data Acquisition/Processing Operation	15
2.1 Marine Seismic Acquisition	15
2.1.1 Health, Safety and Environment and Technical Audit	15
2.1.2 Notification to Authorities	15-16
2.1.3 Fish Trap Scouting Survey	16-17
2.1.4 Survey Operation	17-18
2.1.5 Post Survey	18
2.1.6 Seismic Processing	18-20
2.2 Ocean Bottom/Transition Zone Seismic Acquisition	21
2.2.1 Health, Safety and Environment and Technical Audit	21
2.2.2 Notification to Authorities	21-22
2.2.3 Fish Trap Scouting Survey	22-23
2.2.4 Scouting	23
2.2.5 Survey Operation	23-24
2.2.6 Post Survey	24
2.2.7 Seismic Processing	25
2.3 Land Seismic	25
2.3.1 Health, Safety and Environment and Technical Audit	25
2.3.2 Notification to Authorities	25-26
2.3.3 Scouting and Permitting	26
2.3.4 Survey Operation	26-27
2.3.5 Post Survey	27
2.3.6 Seismic Processing	27
Section 3: Non-Seismic Survey	28
3.1 Land Electro Magnetic/Onshore Transient Electro Magnetic	28
3.1.1 Health, Safety and Environment and Technical Audit	28
3.1.2 Notification to Authorities	28-29
3.1.3 Scouting and Permitting	29

VOLUME 5

EXPLORATION

3.1.4 Survey Operation	29
3.1.5 Post Survey	29-30
3.2 Marine Control Source Electro Magnetic/Seabed Logging Survey	30
3.2.1 Pre-Survey	30
3.2.2 Survey Operation	30
3.2.3 Post Survey	31
3.3 Airborne Gravity, Magnetic and Gradiometry Survey	31
3.3.1 Pre-Survey	31
3.3.2 Survey Operation	31-32
3.3.3 Post Survey	32
3.4 Onshore and Offshore Geochemical Survey	32
3.4.1 Pre-Survey	32
3.4.2 Survey Operation	32-33
3.4.3 Post Survey	33
Section 4: Geo Hazard Survey	34
4.1 Geo Hazard Site Survey	34
4.1.1 Pre-Survey	34
4.1.2 Survey Operation	34-35
4.1.3 Post Survey	35
4.2 Soil Boring Survey	35
4.2.1 Pre-Survey	35
4.2.2 Survey Operation	36
4.2.3 Post Survey	36
Abbreviations	37-38
Appendix 1	39-40
Appendix 2	41-47
Appendix 3	48-49
Appendix 4	50-51

VOLUME 5

EXPLORATION

Executive Summary

This section underlines the technical and administrative procedures and guidelines for all exploration activities carried out by Contractor while in exploration phase.

This section generally explains the activities, operations and documentation to provide a common and cohesive understanding on its implementation.

In cases where scopes are not listed or specified in this volume, Contractor shall derive and implement the scope based on applicable Malaysian laws, modern industry best practices, internationally accepted codes and standards.

Contact Information

General inquiries regarding content of this volume shall be made to:

Senior General Manager
Petroleum Resource Exploration
Petroleum Management Unit

Definitions

TERM	DEFINITION
Drill Stem Test (DST)	Well test conducted with the drill string still in the hole.
Logging While Drilling (LWD)	The measurement of formation properties during the excavation of the hole.
Measurements While Drilling (MWD)	The evaluation of physical properties, usually including pressure, temperature and well-bore trajectory in three-dimensional space, while extending a well-bore.

VOLUME 5

EXPLORATION

Section 1: Exploration Production Sharing Contract Management

This section provides the work processes to assist Contractor to manage its exploration activities. The Exploration PSC and Business Development (EPBD) section oversees that all exploration activities conducted by Contractor are in accordance with PETRONAS' requirements.

1.1 Work Programme & Budget

Prior to executing any exploration operations, Contractor shall submit a Work Programme & Budget (WPB) to PETRONAS. Detail procedures and guidelines are available for reference in Volume 4, Section 1: Work Programme & Budget (WPB) and Related Processes.

1.2 Exploration Seismic/Non-Seismic Acquisition and Processing Proposal

1.2.1 Submission

Contractor shall submit its proposal on the seismic/non-seismic acquisition and processing for PETRONAS' approval. The proposal must be submitted at least one (1) month prior to the operation commencement. A cover letter must be included with the proposal.

The proposal shall include but not limited to:

- a) the proposed survey area with a proper Coordinate Reference System (CRS), complete with geodetic parameters information;
- b) the proposed acquisition days (start and end date);
- c) the proposed Approved Contract Value (ACV);
- d) survey parameters and proposed geological targets;
- e) shooting direction and plan;
- f) a pre-plot map (fold/survey operation);
- g) vessel specifications including support/chase vessel's name, flag and call sign;
- h) an Emergency and Security Response Plan; and
- i) processing plan

PETRONAS must be notified of any significant changes in the final approved programme at least one (1) week before operation commencement.

1.2.2 Presentation

The seismic/non-seismic acquisition and processing proposal shall be presented to PETRONAS at least one (1) month prior to operation commencement. PETRONAS' recommendations shall be taken into

VOLUME 5

EXPLORATION

account and recorded by Contractor. Any conditions on the approval of the programme must be incorporated by Contractor unless justification is made to and subsequently agreed by PETRONAS.

The operational guideline is as stated in Section 2: Seismic Data Acquisition/Processing Operation in this volume.

1.3 Well Proposal and Notice of Operation

1.3.1 Submission

The well proposal for any exploration wells shall be submitted to PETRONAS for approval. The submission must be made at least one (1) month prior to the operation commencement. A cover letter must be included with the proposal.

The content of the well proposal shall incorporate but not limited to the following:

- a) well name (in accordance with PETRONAS Well Naming Guidelines);
- b) well objectives;
- c) well location with a proper CRS, complete with geodetic parameters information;
- d) geological and geophysical (G&G) analysis of the prospect – petroleum system;
- e) depth and time structure maps;
- f) structural/stratigraphic cross sections;
- g) interpreted seismic line passing through the proposed well location;
- h) assessment of hydrocarbon resources, estimated reservoir parameters and geological risk factors (in accordance with PETRONAS' Definition and Guidelines for Classification of Hydrocarbon Resources);
- i) pore pressure/temperature/fracture gradient analysis;
- j) well trajectory and Final Total Depth (FTD) criteria;
- k) well geological operation requirements – formation evaluation, cutting sampling, well testing; and
- l) geohazards analysis.

Contractor shall adhere to Volume 8, Section 1: Drilling Programme Approval in submitting the Notice of Operation (NOOP) for well drilling.

VOLUME 5

EXPLORATION

1.3.2 Presentation

The well programme shall be presented to PETRONAS at least one (1) month prior to operation commencement. PETRONAS' recommendations shall be recorded and taken into account by Contractor.

Any conditions on the approval of the programme must be incorporated by the Contractor unless justification is made to and subsequently agreed by PETRONAS.

1.3.3 Deviation from Notice of Operation

Contractor shall immediately request PETRONAS' approval for any deviation from NOOP (according to Volume 8, Section 1: Drilling Programme Approval).

1.4 Exploration Well/Seismic Operation Monitoring

1.4.1 Reporting

Contractor shall provide PETRONAS with daily reports of the well/seismic operation. The daily reports for well drilling operations shall include but not limited to the following:

- a) Daily Drilling Report and Daily Cost Report (refer to Volume 8, Section 2: Recording and Reporting);
- b) Daily Geological Report;
- c) prognosis against actual tops depth, formation tops, geological target correlation;
- d) lithological summary;
- e) hydrocarbon shows (oil or gas shows) summary;
- f) latest acquired well data, including MWD/LWD logs, wireline logs, mudlogs, DST results, pressure data and formation fluid sampling results; and
- g) HSE incident report.

All mentioned reports are to be sent by 8.30 am in an acceptable digital format (such as PDF, LAS, DLIS and ASCII).

For seismic survey operation monitoring, refer to Section 2.1.4 in this volume.

1.4.2 Data Submission

All acquired data throughout operations must be recorded and submitted to PETRONAS in accordance with Volume 10, Section 5: Data Management and Data Submission. A transmittal form is required for any data submission to PETRONAS.

VOLUME 5

EXPLORATION

1.4.3 Well Abandonment and Suspension

Abandonment or suspension of any well programme must be approved by PETRONAS (refer to Volume 8, Section 9: Plug and Abandonment of Wells). Any technical recommendations made must be incorporated unless justification has been made to and subsequently agreed by PETRONAS.

1.4.4 Security Notification

Contractor shall develop a Security Response Plan (refer to PETRONAS' Guideline on Managing and Reporting Security Issues for Marine Survey Operations in Malaysia). Any potential threats to exploration activities and national security must be immediately reported to PETRONAS for government authorities' intervention (as per Appendix 3: Security Notification Flowchart).

1.5 Post Drilling Reports

1.5.1 Submission

Contractor shall submit the final well geological evaluation report within three (3) months after the well has been drilled and abandoned or suspended (in accordance with Volume 10, Section 5: Data Management and Data Submission).

The final well geological evaluation report shall include but not limited to:

- a) geological summary;
 - time and depth structure maps for target reservoirs
 - structural cross-section along the well trajectory
 - updated seismic cross-section along the well trajectory
 - time-depth analysis
 - petroleum system analysis
 - hydrocarbon resource assessment
- b) final well location with CRS, complete with geodetic parameters information;
- c) operations summary;
- d) final well profile (includes lithology, depth, seismic, casing shoe);
- e) well completion/composite logs;
- f) final well log analysis;
- g) temperature/pressure analysis; and
- h) post well montage.

If the well result is dependent on any particular geological analysis or studies that may take longer than three (3) months to complete, a preliminary well result shall be included. The analysis shall be submitted

VOLUME 5

EXPLORATION

as an addendum once it is available.

1.5.2 Presentation

Contractor shall present the post well evaluation results to PETRONAS. The discovery of any resources and/or any revision to the field hydrocarbon resources shall be endorsed by PETRONAS' Exploration Resources Review Committee (ERRC). This shall be presented within two (2) months from the abandonment or suspension of the well. The comments or recommendations by PETRONAS shall be incorporated accordingly by Contractor.

1.6 Additional Budget Request

Contractor shall adhere to Volume 4, Section 1: Work Programme & Budget (WPB) and Related Processes.

1.7 Technical Quarterly Review Meeting

PETRONAS shall hold Technical Quarterly Review Meeting (TQRM) once every quarter or as and when required. The discussion shall include prospects and leads updates and exploration progress.

1.7.1 Prospects and Leads

PETRONAS shall be informed of any newly identified prospects and leads at the respective blocks through G&G interpretation works.

1.7.2 Exploration Progress

PETRONAS shall be informed of any exploration activities such as well drilling, seismic acquisition and studies and any upcoming plans for the respective blocks in line with the approved WPB.

1.8 Annual Review of Petroleum Resources

Contractor shall adhere to Volume 4, Section 2: Annual Review of Petroleum Resources (ARPR) in formulating the ARPR.

1.8.1 Hydrocarbon Resources Volume

In the event that G&G interpretation works and exploration well discoveries revealed that there is a change in the volume of petroleum resources (undiscovered/discovered), such change shall be endorsed by PETRONAS (as per Section 1.5.2, in accordance with Volume 4, Section 2: Annual Review of Petroleum Resources (ARPR)).

1.8.2 Prospects and Leads

If there is any newly identified prospects and leads post TQRM, it shall be presented, reviewed and endorsed by PETRONAS.

VOLUME 5

EXPLORATION

1.9 Gas Holding

1.9.1 Application

In the event the Contractor intends to apply for a gas holding, the written application shall be made to PETRONAS at least three (3) months prior to the expiry of the exploration period.

1.9.2 Extension of Gas Holding Period

An application for extension of the gas holding period shall be submitted to PETRONAS at least six (6) months prior to the expiry of the period.

1.9.3 Submission

Contractor shall submit a detail G&G evaluation for both gas holding area and extension application as per the information required in Appendix 1 - Gas Holding Technical Data Requirements.

1.9.4 Condition of Application

Contractor may apply for the gas holding area under the following circumstances:

- a) where the Contractor has successfully drilled the well(s), conducted conclusive G&G evaluation and proved the existence of non-associated gas in the identified reservoir, either by:
 - producing gas through production testing;
 - gas sample discovery;
 - wireline log interpretation; and/or
 - wellbore-calibrated seismic anomalies.
- b) where the Contractor has proved one or more of the identified reservoirs are commercially viable for development as agreed by PETRONAS.
- c) where the Contractor has found non-associated gas reservoirs with associated oil legs, which (in the opinion of the Contractor, supported by well and engineering data) the volume of the crude oil are not considered to be commercially viable at the time of application and subsequently agreed by PETRONAS.

1.9.5 Oil Discovery within Gas Holding Area

In the event Contractor discovered reservoirs with associated oil legs such oil and associated gas shall belong to PETRONAS exclusively.

If in PETRONAS' opinion, a significant volume of crude oil is found in any reservoirs within the gas holding area and if later appraisal activities prove that such oil leg can be exploited commercially (including any reservoirs that are not subject to any gas holding

VOLUME 5

EXPLORATION

rights), PETRONAS may ask the Contractor to develop the crude oil and associated gas.

1.9.6 Areal Extent of the Gas Field Area

Contractor shall limit their applications to the gas field area within the following:

- a) to the non-associated gas reservoir(s) penetrated by the discovered well (the reservoirs concerned must be specified);
- b) the immediate geological structural feature of the discovered well may be included provided a firm work programme of an other well is proposed;
- c) geologically connected reservoir extensions into adjoining or adjacent fault-block (provided a firm work programme is proposed).

The criteria in determining the extent of the non-associated gas reservoir outline(s) is as follows:

- a) for structural accumulations, an allowance of thirty (30) metres down dip and beyond the net proved or probable Gas Water Contact (GWC), to cover interpretation uncertainties;
- b) for stratigraphic accumulations, an allowance of half a kilometre beyond the net proved or probable non-associated gas reservoir, to cover interpretation uncertainties in the horizontal direction;
- c) structural controls such as fault-planes, fault-spills and saddle spill points when present, will prevail over the extent permitted for the above.

The extent of the non-associated gas field outline shall be limited to the following:

- a) the identified reservoir within the immediate geological structural features where the discovery well was drilled and its extensions, as approved by PETRONAS;
- b) the area enclosed by the perimeter formed around the identified reservoirs;
- c) in the case of multiple reservoirs application located within the same gas field, the area will be defined (with no further allowance) by the composite of the outer most perimeter formed by overlapping the approved outlines of all the identified reservoirs; and/or
- d) the extent of the composite outline of the gas field for convenience of a working arrangement (Contractor's rights

VOLUME 5

EXPLORATION

pertaining to the gas field under the Contract shall be confined to the individual gas reservoir and its outline, as approved by PETRONAS).

1.10 Commercial Quantity Declaration

Contractor shall submit an official letter with an area development plan to declare the commercial quantity of the oil field to PETRONAS in accordance with the Contract.

1.11 Exploration Period Extension

Contractor shall apply in writing for approval to extend the exploration period for the respective blocks in accordance with the Contract.

1.12 Relinquishment

The process flow for relinquishment of the exploration period is as follows:

Figure 1: Relinquishment Process Flowchart



1.12.1 Relinquishment with Notification

The notification of relinquishment shall be made to PETRONAS in accordance with the Contract.

1.12.2 Document Submission

Contractor shall also provide PETRONAS with a list of available Geological, Geophysical, Petrophysical and Engineering data, acquired through seismic investigation, well drilling, interpretative works, in accordance with Volume 10, Section 5: Data Management and Data Submission.

1.13 Production Sharing Contract Governance

1.13.1 Press Release and Publications

Contractor shall seek PETRONAS' approval for any press release or publications to magazine, website or brochures related to exploration petroleum operations. PETRONAS is to endorse all materials. For detail guidance, refer to Volume 10, Section 7: Upstream Information Release.

VOLUME 5

EXPLORATION

1.13.2 Information Release for Asia Pacific Scout Check (APSC)/Malaysia International Chamber of Commerce and Industry (MICCI) Meetings

Contractor shall submit a written request for PETRONAS' approval, detailing the information to be shared at least two (2) weeks prior to any release, publication or sharing of information to facilitate APSC and MICCI meetings.

1.13.3 Data Disclosure, Data Trade and Data Transfer

Contractor shall seek written approval from PETRONAS prior to any information release. A copy of the signed Confidentiality Agreement (CA) for reference shall be submitted to PETRONAS.

Contractor shall fully observe the confidential nature of the data and PETRONAS' right of ownership of the data.

1.13.4 Farm In/Farm Out Exercise

PETRONAS shall be notified of any farm in and farm out of Participating Interests. A written request shall be submitted to PETRONAS for approval.

VOLUME 5

EXPLORATION

Section 2: Seismic Data Acquisition/Processing Operation

2.1 Marine Seismic Acquisition

2.1.1 Health, Safety and Environment and Technical Audit

Contractor shall:

- a) ensure any vessels and equipment comply with all HSE requirements;
- b) conduct technical inspections on the main vessel, equipment, Quality Control (QC) procedures and escort vessels prior to mobilisation to the survey area (in line with the contract specifications);
- c) include the need to provide halal food on all vessels in the Tender;
- d) stipulate that alcohol is strictly prohibited on all vessels in the Tender;
- e) provide a list of focal/on duty personnel to be contacted for emergency purposes;
- f) conduct an Environmental Impact Assessment (EIA) prior to the survey, subject to statutory requirements (if the authority requires it);
- g) develop its own Project Safety Plan with an evacuation programme (this requirement also applies to survey contractor);
- h) adhere to all HSE requirements (refer to Volume 3: Health Safety & Environment);
- i) develop a Security Response Plan to deal with any security emergency issues (refer to PETRONAS' Guideline on Managing and Reporting Security Issues for Marine Survey Operations in Malaysia); and
- j) ensure that all personnel employed onboard the survey vessel have undergone basic sea survival training and shall adhere to HSE guidelines.

2.1.2 Notification to Authorities

The notification requirement is intended to avoid any interference and ensure safe operations.

Contractor shall send out the NOOP to government agencies within one (1) month prior to the operation commencement. For the distribution list, refer to Appendix 2 - List of Government Agencies. The notification shall include the following:

- a) area of operations with CRS, complete with geodetic parameters information;

VOLUME 5

EXPLORATION

- b) timing and duration; and
- c) vessel information with specifications (such as name, place of registration, call sign and chase/support vessels).

Contractor shall engage the relevant government agencies, accompanied by PETRONAS, on the seismic programme. The topics for discussion shall include:

- a) area of operations;
- b) timing and project duration;
- c) acquisition plan and type of survey;
- d) vessels information with specifications;
- e) fish trap scouting plan;
- f) rate of compensation and claim and negotiation period;
- g) HSE Response Plan – Communication Flowchart; and
- h) contact details.

Contractor shall also prepare a Notice to Mariners, preferably in different languages, for the fishermen. This must be distributed to the Marine Department Malaysia and the Department of Fisheries (DOF), Malaysia.

Consent from the Ministry of Foreign Affairs and relevant authorities of the affected countries shall be obtained prior to operations beyond Malaysian maritime borders. The relevant approval shall be sought through PETRONAS.

Contractor is not permitted to proceed with any operations in areas of high potential security risk unless otherwise advised by the relevant government authorities.

2.1.3 Fish Trap Scouting Survey

Contractor shall:

- a) conduct a fish trap scouting survey within the operation area and inform PETRONAS and the Department of Fisheries (DOF), Malaysia accordingly. The survey must be conducted prior to commencing a marine survey and at least two (2) weeks prior to the main vessel being mobilised;
- b) elect to contract chase vessel (within PETRONAS approved fleets) to conduct the survey;
- c) ensure representatives from both the fishermen and the DOF are included as witnesses to the survey (the DOF shall appoint these representatives);

VOLUME 5

EXPLORATION

- d) ensure that all personnel have undergone basic sea survival training prior to going onboard the vessel for the fish trap survey; and
- e) adhere to HSE guidelines.

If representatives of the fishermen are not available, Contractor may elect or send a company representative as witness.

During the survey, any static/floating fish trap and Fish Aggregating Device (FAD) structures must be tagged accordingly. Requirements for the tagging exercise shall include:

- a) coloured cloth or plastic sheet with the FAD number written on using a permanent marker;
- b) identification of fish trap/FAD type;
- c) date and time of tagging for each FAD;
- d) coordinate of the FAD's location;
- e) photo of the FAD; and
- f) report for tagged FADs.

The fishermen must remove their own FADs promptly after the tagging exercise. Any remaining FADs shall be cleared by Contractor. All records of cleared FADs shall follow the requirements listed in this section.

PETRONAS must be informed immediately of any interruptions, commotions or conflicts involving the fishermen.

Contractor shall submit a detail report to the DOF. This report will include the information outlined in this section for verification and will inform PETRONAS of the number of FADs tagged and cleared.

2.1.4 Survey Operation

Contractor shall ensure that the survey is carried out as per the final programme (as mentioned in Section 1.2.2). PETRONAS requires a daily report of the operation (by email). It shall include but not limited to:

- a) daily and cumulative production;
- b) daily and cumulative cost;
- c) HSE issues/statistics;
- d) a progress map with fold map and raw brute stack;
- e) navigation details; and
- f) an operational plan for the next two-three days.

VOLUME 5

EXPLORATION

If any fish traps/FADs were found during the operation, they must be tagged, recorded and removed.

PETRONAS must be informed immediately if problems arise during the survey. Reporting on security issues must follow Section 1.4.4/ Appendix 3: Security Notification Flowchart.

2.1.5 Post Survey

Compensation for any removed fish traps/FADs shall be given accordingly. All claims must be made to the DOF within one (1) month after seismic acquisition is completed.

Negotiations will take place after one (1) month for the verified and agreed claims. PETRONAS, DOF and representatives of the fishermen shall be present. Compensation rates for the different types of fish traps/FADs shall follow Appendix 4 - Standard Compensation Rates for Fish Traps/FAD(s). The agreed compensation payments must be made through the DOF. Contractor shall submit a compensation request letter and a closeout report to PETRONAS for any compensation made.

Contractor shall submit all seismic data, maps and a full seismic acquisition closeout report to PETRONAS within two (2) months of survey completion. The report shall be provided in hard and soft copy and the deliverables shall include but not limited to:

- a) survey sail and full-fold acquired;
- b) seismic data field tapes;
- c) navigation data field tapes;
- d) bathymetric data; and
- e) final survey operations report.

For detail data submission guidelines, refer to Volume 10, Section 5: Data Management and Data Submission.

2.1.6 Seismic Processing

Contractor shall submit:

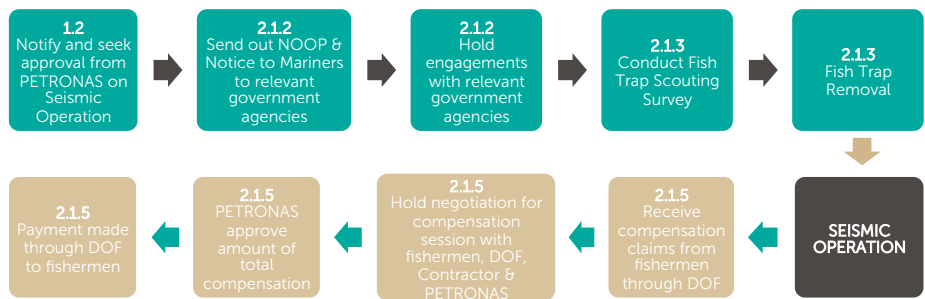
- a) a tentative plan for the processing of seismic data (within one (1) month prior to commencement of the processing work) which shall include but not limited to:
 - objective
 - processing sequence
 - duration
 - main deliverables

VOLUME 5
EXPLORATION

- b) all processed data deliverables after completing the processing work (such as CMP gathers, stacked volumes and velocity files) as required by the Contract;
- c) all seismic data and maps to PETRONAS prior to expiry of the block, as required by the Contract.

Figure 2 contains the process sequence for any marine seismic survey and Figure 3 provides the timeline.

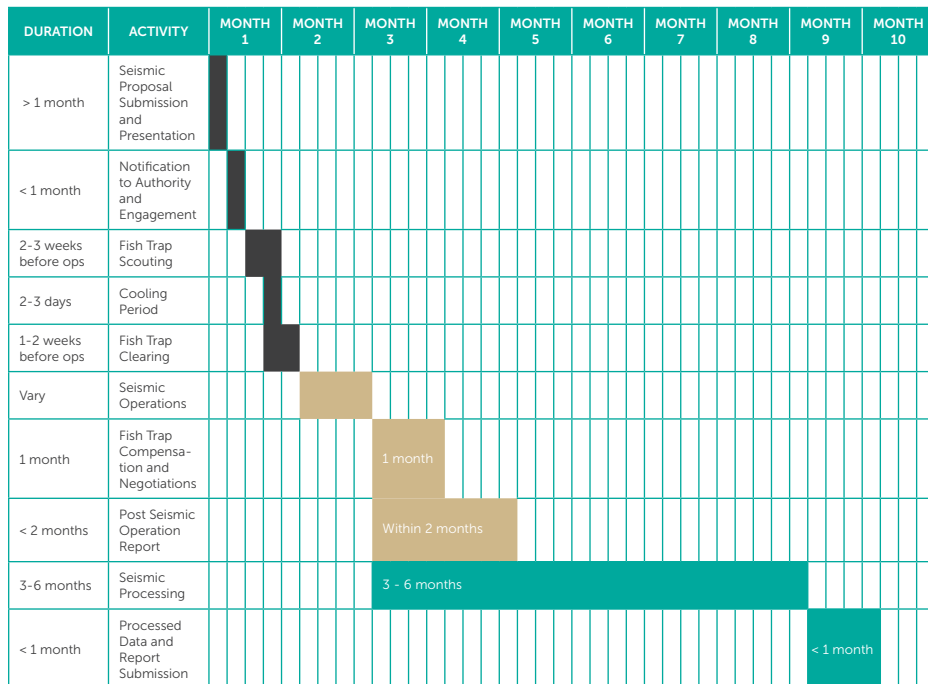
Figure 2: Process Sequence for Marine Seismic Survey



VOLUME 5

EXPLORATION

Figure 3: Timeline for Marine Seismic Survey



VOLUME 5

EXPLORATION

2.2 Ocean Bottom/Transition Zone Seismic Acquisition

2.2.1 Health, Safety and Environment and Technical Audit

Contractor shall:

- a) ensure all vessels and equipment comply with HSE requirements;
- b) conduct technical inspections on all vessels, equipment and QC procedures prior to commencement of the survey (in line with contract specifications);
- c) include the need to provide halal food (on the vessels and base camp) in the Tender;
- d) stipulate that alcohol is strictly prohibited (on the vessels and base camp) in the Tender;
- e) prepare a list of focal/on duty personnel to be contacted for emergency purposes;
- f) conduct an EIA prior to the survey (subject to statutory requirements or if authorities require);
- g) develop its own Project Safety Plan with an evacuation programme (this requirement also applies to survey contractor);
- h) adhere to all HSE requirements (refer to Volume 3: Health, Safety & Environment);
- i) develop a Security Response Plan for any security emergency issues (refer to PETRONAS' Guideline on Managing and Reporting Security Issues for Marine Survey Operations in Malaysia); and
- j) ensure that all personnel employed onboard the survey vessel have undergone basic sea survival training and shall adhere to HSE guidelines.

2.2.2 Notification to Authorities

Contractor shall send out the NOOP to the relevant State Authorities and government agencies within one (1) month prior to the operation commencement. Refer to Appendix 2 - List of Government Agencies for the distribution list.

The NOOP shall include the following:

- a) area of operations with CRS, complete with geodetic parameters information;
- b) timing and duration; and
- c) vessel information with specifications (such as name, place of registration, call sign and chase/support vessels).

VOLUME 5

EXPLORATION

Contractor shall engage the relevant government agencies on the seismic programme, accompanied by PETRONAS. The topics for discussion shall include:

- a) area of operations;
- b) timing and project duration;
- c) acquisition plan and type of survey;
- d) base camp location (if applicable);
- e) information on the vessels, including specifications;
- f) fish trap scouting plan;
- g) rate of compensation and claim and negotiation period;
- h) HSE Response Plan – Communication Flowchart;
- i) contact details; and
- j) logistical matters.

Contractor shall also prepare a Notice to Mariners (preferably in different languages) for the fishermen. This must be distributed to the Marine Department Malaysia and the DOF, Malaysia.

Operations must not be conducted beyond Malaysian maritime borders without consent from the Ministry of Foreign Affairs and authorities of the affected countries. The relevant approval shall be sought through PETRONAS.

Contractor is not permitted to proceed with any operations in areas of high potential security risk unless otherwise advised by the relevant government authorities.

2.2.3 Fish Trap Scouting Survey

Contractor shall:

- a) conduct a fish trap scouting survey within the operation area and inform PETRONAS and the DOF, Malaysia accordingly. The survey must be conducted prior to commencing a marine survey and at least two (2) weeks prior to the main vessel being mobilised;
- b) elect contract chase vessel (within PETRONAS' approved fleets) to conduct the survey;
- c) ensure representatives from both the fishermen and the DOF are included as witnesses to the survey (the DOF shall appoint these representatives);
- d) ensure that all personnel have undergone basic sea survival training prior to going onboard the vessel for the fish trap survey; and
- e) adhere to HSE guidelines

VOLUME 5

EXPLORATION

If representatives of the fishermen are not available, Contractor may elect or send a company representative as witness.

During the survey, any static/floating fish trap and Fish Aggregating Device (FAD) structures must be tagged accordingly. Requirements for the tagging exercise shall include:

- a) coloured cloth or plastic sheet with the FAD number written on using a permanent marker;
- b) identification of fish trap/FAD type;
- c) date and time of tagging for each FAD;
- d) coordinate of the FAD's location;
- e) photo of the FAD; and
- f) report for tagged FADs.

The fishermen must remove their own FADs promptly after the tagging exercise. Any remaining FADs shall be cleared by Contractor. All records of cleared FADs shall follow the requirements listed in this section.

PETRONAS must be informed immediately of any interruptions, commotions or conflicts involving the fishermen.

Contractor shall submit a detail report to the DOF. This report will include the information outlined in this section for verification and will inform PETRONAS of the number of FADs tagged and cleared.

2.2.4 Scouting

Contractor shall:

- a) obtain approval from PETRONAS before proceeding with the scouting survey (logistics, shore base and survey area);
- b) conduct bathymetric and seabed surveys before the operation (if required) to check on under water buried cable and other potential underwater obstructions.

2.2.5 Survey Operation

Contractor shall ensure the survey is carried out as per the approved programme proposal (refer to Section 1.2.2). Contractor shall provide PETRONAS with a daily report of the operation (by email). It should include but not limited to the following:

- a) daily and cumulative production;
- b) daily and cumulative cost;
- c) HSE issues/statistics;

VOLUME 5

EXPLORATION

- d) details of the lead of survey/drilling;
- e) explosive consumption/balance stock (if applicable);
- f) progress map with fold map and raw brute stack;
- g) navigation details/land survey; and
- h) an Operational Plan for the next three (3) days.

Any fish traps/FADs found during the operation must be tagged, recorded and removed appropriately.

PETRONAS must be informed immediately should any problems arise during the survey. Reporting on security issues must follow Section 1.4.4/Appendix 3 - Security Notification Flowchart.

2.2.6 Post Survey

Any removed fish traps/FADs shall be compensated for. All claims made to the DOF must be completed within one (1) month after acquisition. Negotiation will take place after one (1) month for the agreed claims. PETRONAS, DOF and the representatives of the fishermen shall be present. The compensation rates for different types of fish traps/FADs shall follow Appendix 4 - Standard Compensation Rates for Fish Traps/FAD(s). The agreed compensation payments must be made through the DOF. Contractor shall submit a compensation request letter and a closeout report to PETRONAS for any compensation made.

Contractor must provide all seismic data, maps and a full acquisition closeout report to PETRONAS. This must be submitted within two (2) months of survey completion. The report shall be provided in hard and soft copy and the deliverables shall include but not limited to:

- a) survey sail and full-fold acquired;
- b) seismic data field tapes;
- c) navigation data field tapes;
- d) bathymetric data; and
- e) final survey operations report.

Refer to Volume 10, Section 5: Data Management and Data Submission for detail data submission guidelines.

VOLUME 5

EXPLORATION

2.2.7 Seismic Processing

Contractor shall submit:

- a) a tentative plan for the processing of seismic data (within one (1) month prior to commencement of the processing work) which shall include but not limited to:
 - objective(s)
 - processing sequence
 - duration
 - main deliverables
- b) all processed data deliverables after completing the processing work (including CMP gathers, stacked volumes and velocity files), as required by the Contract; and
- c) all seismic data and maps prior to expiry of the block, as required by the Contract.

2.3 Land Seismic

2.3.1 Health, Safety and Environment and Technical Audit

Contractor shall:

- a) ensure that all equipment, vehicles and the base camp/fly camp comply with HSE requirements;
- b) carry out a seismic crew technical audit, QC procedures check and parameter test (if required) prior to commencement of operation;
- c) ensure final acquisition parameters are conveyed to PETRONAS;
- d) include the need to provide halal food (at the base camp/fly camp) in the Tender;
- e) stipulate that alcohol is strictly prohibited (at the base camp/fly camp) in the Tender;
- f) prepare a list of focal/on duty personnel to be contacted for emergency purposes ;
- g) conduct an EIA prior to the survey, subject to statutory requirements (if the authority requires it);
- h) develop its own Project Safety Plan with an evacuation programme (this requirement also applies to survey contractor); and
- i) adhere to all HSE requirements (refer to Volume 3: Health, Safety and Environment).

2.3.2 Notification to Authorities

Contractor shall send out the NOOP to the relevant State Authorities and government agencies within one (1) month prior to the operation commencement. Refer to Appendix 2 - List of

VOLUME 5

EXPLORATION

Government Agencies for the distribution list. The notification shall include the following:

- a) area of operations with CRS, complete with geodetic parameters information;
- b) timing and duration; and
- c) survey methodology.

Contractor must engage the relevant government agencies, accompanied by PETRONAS, on the seismic programme. The topics for discussion shall include:

- a) area of operations;
- b) timing and project duration;
- c) an acquisition plan and type of survey;
- d) base camp/fly camp location;
- e) vehicles and equipment;
- f) survey area scouting plan;
- g) rate of compensation and claim and negotiation period;
- h) HSE Response Plan – Communication Flowchart;
- i) contact details; and
- j) logistic and land permitting issues.

Contractor is not permitted to proceed with any operations in areas of high potential security risk unless otherwise advised by the relevant government authorities.

2.3.3 Scouting and Permitting

Contractor shall seek approval from PETRONAS before proceeding with any scouting plan to ascertain survey logistics, terrain and so on. All land permitting related to the survey operations shall be carried out by Contractor (PETRONAS will need to be informed). If the land is privately owned, Contractor shall liaise with the owner for permission to operate within the area.

2.3.4 Survey Operation

Contractor shall ensure that the survey is carried out as per final programme (as mentioned in Section 1.2.2). Contractor shall provide PETRONAS with a daily report of the operation (by email). It shall include but not limited to:

- a) daily and cumulative production;
- b) daily and cumulative costs;
- c) HSE issues/statistics;
- d) a progress map with fold map and raw brute stack; and

VOLUME 5

EXPLORATION

- e) an operational plan for the next three (3) days.

PETRONAS must be informed immediately if problems arise during the survey. Reporting on security issues must follow Section 1.4.4/ Appendix 3 - Security Notification Flowchart.

2.3.5 Post Survey

Contractor shall submit all seismic data, maps and full acquisition closeout report to PETRONAS within two (2) months of survey completion. The report shall be provided in hard and soft copy. The final submission shall include but not limited to:

- a) full-fold coverage map;
- b) seismic data field tapes;
- c) navigation data field tapes; and
- d) final survey operations report.

Detail information on data submission is available in Volume 10, Section 5: Data Management and Data Submission.

2.3.6 Seismic Processing

Contractor shall submit:

- a) a tentative plan for processing the seismic data (within one (1) month prior the commencement of the processing work), which shall include but not limited to:
 - objective(s)
 - processing sequence
 - duration
 - main deliverables
- b) all processed data deliverables after completing the processing work (including a minimum of CMP gathers, stacked volumes and velocity files), as required by the Contract; and
- c) all seismic data and maps prior to expiry of the block, as required by the Contract.

VOLUME 5

EXPLORATION

Section 3: Non-Seismic Survey

3.1 Land Electro Magnetic/Onshore Transient Electro Magnetic

3.1.1 Health, Safety and Environment and Technical Audit

Contractor shall:

- a) ensure all equipment, vehicles and the base/fly camp comply with HSE requirements;
- b) carry out a technical audit and parameter test (if required) on the Land Electro Magnetic/Transient Electro Magnetic crew prior to commencement of operation;
- c) include the need to provide halal food (at the base camp/fly camp) in the Tender;
- d) stipulate that alcohol is strictly prohibited (at the base camp/fly camp) in the Tender;
- e) prepare a list of focal/on duty personnel to be contacted for emergency purposes;
- f) develop its own Project Safety Plan with an evacuation programme (this requirement also applies to survey contractor); and
- g) adhere to all HSE requirements.

3.1.2 Notification to Authorities

Contractor shall send out a NOOP to the relevant State Authorities and government agencies within one (1) month prior to the operation commencement. Refer to Appendix 2 - List of Government Agencies for the distribution list. The notification shall include the following:

- a) area of operations with CRS, complete with Geodetic Parameters information;
- b) timing and duration; and
- c) survey method.

Contractor shall also engage the relevant government agencies accompanied by PETRONAS on the seismic programme. Topics for discussion will include:

- a) area of operations;
- b) timing and project duration;
- c) acquisition plan and type of survey;
- d) base camp/fly camp location;
- e) vehicles and equipment;
- f) survey area scouting plan;
- g) rate of compensation and claim and negotiation period;

VOLUME 5

EXPLORATION

- h) HSE and Security Affairs Response Plan – Communication Flowchart;
- i) contact details; and
- j) logistic and land permitting issue.

Contractor is not permitted to proceed with any operations in areas of high potential security risk unless otherwise advised by the relevant government authorities.

3.1.3 Scouting and Permitting

Contractor is required to obtain approval from PETRONAS before proceeding with any scouting plan to ascertain the logistics, terrain conditions and any other survey issues. All permitting related to the survey operations shall be carried out by Contractor. If the land is privately owned, Contractor shall liaise with the owner for permission to operate within the area.

3.1.4 Survey Operation

Contractor shall ensure the survey is carried out as per the final programme as mentioned in Section 1.2.2. Contractor shall provide PETRONAS with a daily report of the operation (by email). It should include a minimum of the following:

- a) daily and cumulative production;
- b) daily and cumulative cost;
- c) HSE issues/statistics;
- d) a progress map; and
- e) a plan for the next three (3) days.

PETRONAS must be informed immediately if problems arise during the survey. Reporting on security issues must follow Section 1.4.4/ Appendix 3 - Security Notification Flowchart.

3.1.5 Post Survey

Contractor shall submit all data, maps and full acquisition closeout report to PETRONAS within two (2) months of survey completion. The report shall be provided in hard and soft copy and the deliverables must include a minimum of the following:

- a) survey map;
- b) survey raw/processed data;
- c) electromagnetic inversion results; and
- d) final survey operations, processing and inversion report.

VOLUME 5

EXPLORATION

Refer to Volume 10, Section 5: Data Management and Data Submission for detail data submission guidelines.

3.2 Marine Control Source Electro Magnetic/Seabed Logging Survey

3.2.1 Pre-Survey

Contractor shall:

- a) provide a Control Source Electro Magnetic (CSEM)/seabed logging proposal together with a project schedule to PETRONAS
- b) submit the notification one (1) month prior to the survey commencement and include a minimum of the following:
 - area of operations with CRS, complete with geodetic parameters information;
 - timing and duration;
 - vessel name; and
 - survey specifications.
- c) conduct an EIA prior the survey (subject to statutory requirements, especially for coastal and deepwater areas)
- d) perform a fish trap scouting survey prior to the survey (if required) (for detail guidelines, refer to Section 2.1.3 in this volume)

The operation shall not be conducted beyond Malaysian waters without prior consent from the relevant authorities and authorities of the affected countries.

3.2.2 Survey Operation

Contractor shall:

- a) ensure the survey is carried out as per the final programme (PETRONAS must be notified of any deviation prior to proceeding);
- b) provide PETRONAS with a daily report of the operation (by email) to include a minimum of the following:
 - daily and cumulative production
 - daily and cumulative cost
 - HSE/operational issues and statistics
 - an operational plan for the next three (3) days
- c) inform PETRONAS immediately if any problem arises during the survey (Reporting on security issues must follow Section 1.4.4/ Appendix 3 -Security Notification Flowchart).

VOLUME 5

EXPLORATION

3.2.3 Post Survey

Contractor shall:

- a) notify PETRONAS once the survey has been completed;
- b) submit an acquisition closeout report to PETRONAS (with all data and maps) two (2) months upon survey completion and prior to expiry of the block as required by the Contract. The report shall be provided in hard and soft copy.
- c) submit a data processing and inversion report within two (2) months of completion of the processing works.

3.3 Airborne Gravity, Magnetic and Gradiometry Survey

3.3.1 Pre-Survey

Contractor shall:

- a) give notification of operation to PETRONAS and all relevant authorities, including the Department of Civil Aviation (DCA), the Ministry of Defence (MOD) and the Department of Survey and Mapping (DSM) two (2) months prior to the survey;
- b) highlight the area of operation, the timing and duration of the survey;
- c) provide the company's information and details of the aircraft (including name, place of registration and specifications);
- d) ensure that all personnel onboard the survey aircraft have undergone basic survival training and shall adhere to PETRONAS' guidelines for HSE; and
- e) ensure the vessel to be deployed and its equipment complies with PETRONAS' HSE guidelines.

The area of operation shall be verified by DSM. The survey operation shall not encroach beyond Malaysian international boundaries without prior consent from the relevant authorities and authorities of the affected country. This shall be obtained through PETRONAS.

3.3.2 Survey Operation

Contractor shall ensure that:

- a) a list of focal points for the designated operation is provided;
- b) all personnel employed onboard the aircraft carry their personal identification;
- c) the operation is carried out as per earlier notification. PETRONAS shall be notified of any deviation prior to the operation;

VOLUME 5

EXPLORATION

- d) the equipment, vehicles and base camp comply with HSE requirements;
- e) a technical audit of the crew and QC procedures check (if required) is carried out prior to commencement of operation;
- f) the final acquisition parameters are submitted to PETRONAS;
- g) PETRONAS is informed immediately should any problem arise during the survey; and
- h) reporting on security issues follows Section 1.4.4/Appendix 3 - Security Notification Flowchart.

3.3.3 Post Survey

Contractor shall:

- a) notify PETRONAS once the survey has been completed;
- b) submit a complete report, together with all the acquired raw data to PETRONAS two (2) months after the completion of the survey.

Refer to Volume 10, Section 5: Data Management and Data Submission for detail data submission guidelines.

3.4 Onshore and Offshore Geochemical Survey

3.4.1 Pre-Survey

Contractor shall prepare and present the survey proposal to PETRONAS at least one (1) month prior to the survey commencement. The proposal shall include but not limited to:

- a) area of operations;
- b) timing and duration;
- c) vessel name (for offshore); and
- d) survey specifications.

Contractor is not permitted to proceed with any operations in areas of high potential security risk unless otherwise advised by the relevant government authorities.

3.4.2 Survey Operation

Contractor shall ensure that:

- a) the survey is carried out as per the final programme;
- b) the equipment, vehicles and base camp comply with HSE requirements;
- c) a technical audit of the crew and a QC procedures check (if required) are carried out prior to commencement of the survey;

VOLUME 5

EXPLORATION

- d) PETRONAS is provided with a daily report of the operation (by email) which includes a minimum of the following:
 - daily and cumulative production
 - daily and cumulative costs
 - HSE/operational issues
 - an operation plan for the next two-three days
- e) PETRONAS is informed immediately should any problem arise; and
- f) reporting on security issues follows Section 1.4.4/Appendix 3 - Security Notification Flowchart.

3.4.3 Post Survey

Contractor shall submit the closeout report (in hard and soft copy) to PETRONAS, together with all data and maps two (2) months after the completion of the survey.

VOLUME 5

EXPLORATION

Section 4: Geo Hazard Survey

4.1 Geo Hazard Site Survey

Contractor shall conduct a drill site investigation survey prior to any drilling. The deliverables shall include but not limited to:

- a) bathymetry map;
- b) seabed features map;
- c) shallow zone geology analysis of the survey area; and
- d) shallow gas anomalies.

For deepwater exploration drilling, subject to drilling requirements, a detail drill site investigation study shall be undertaken prior to the drilling operation.

4.1.1 Pre-Survey

Contractor shall:

- a) give notification to PETRONAS and the relevant authorities one (1) month prior to survey commencement;
- b) inform PETRONAS and the authorities of the area of operation, timing and duration of survey, together with the vessel's information (name, place of registration, call sign and specifications);
- c) conduct an EIA and submit a report to the authority and PETRONAS prior to the survey (if required), subject to statutory requirements;
- d) ensure that all personnel onboard the survey vessel have undergone basic sea survival training and shall adhere to PETRONAS' HSE guidelines; and
- e) ensure the vessel and its equipment to be deployed comply with PETRONAS' HSE guidelines.

The area of operation must not extend beyond Malaysian waters, without prior consent from the relevant authorities and the authorities of the affected country. Approval shall be obtained through PETRONAS.

4.1.2 Survey Operation

Contractor shall:

- a) prepare a list of focal/on duty personnel to be contacted in the case of an emergency;
- b) ensure that all personnel employed onboard the vessel carry their personal identification;

VOLUME 5

EXPLORATION

- c) ensure that the operation to be conducted is carried out as per earlier notification. PETRONAS shall be notified of any deviation from it prior to its operation; and
- d) immediately inform PETRONAS of any emergencies or issues arising between other authorities.

4.1.3 Post Survey

Contractor shall:

- a) notify PETRONAS once the survey has been completed;
- b) submit a preliminary report to PETRONAS one (1) month after survey completion, together with all acquired raw data; and
- c) submit the final report within three (3) months after survey completion

4.2 Soil Boring Survey

Contractor must conduct a soil boring survey prior to any drilling utilising jack-up rigs.

4.2.1 Pre-Survey

Contractor shall:

- a) notify PETRONAS and the relevant authorities one (1) month prior to survey commencement;
- b) provide the area of operations, timing and duration of survey and the vessel's information (name, place of registration, call sign and specifications);
- c) conduct an EIA and submit a completed report to the authority and PETRONAS prior to the survey (if required due to statutory requirements e.g. for protected areas);
- d) ensure all personnel onboard the survey vessel have undergone basic sea survival training and adhere to PETRONAS' HSE guidelines; and
- e) ensure the vessel to be deployed and its equipment comply with PETRONAS' HSE guidelines.

The area of operation must not extend beyond Malaysian waters without prior consent from the relevant authorities and authorities of the affected country. Approval shall be sought through PETRONAS.

VOLUME 5

EXPLORATION

4.2.2 Survey Operation

Contractor shall:

- a) provide a list of focal/on duty personnel to be contacted in the case of an emergency;
- b) ensure that all personnel employed onboard the vessel carry their personal identification;
- c) ensure that the operation to be conducted is as per earlier notification. PETRONAS shall be notified of any deviation from it prior to its operation;
- d) inform PETRONAS of any emergencies or any issues arising between other authorities

4.2.3 Post Survey

Contractor shall:

- a) notify PETRONAS once the survey has been completed;
- b) submit a preliminary report together with all acquired raw data to PETRONAS one (1) month after survey completion; and
- c) submit the final report within three (3) months of survey completion.

VOLUME 5

EXPLORATION

Abbreviations

TERM	IN FULL
ACV	Approved Contract Value
APSC	Asia Pacific Scout Check
ARPR	Annual Review of Petroleum Resources
ASCII	American Standard Code for Information Interchange
CA	Confidentiality Agreement
CEO	Chief Executive Officer
CMP	Common Mid Point
COMCEN	Communication Centre
CRS	Coordinate Reference System
CSD	Corporate Security Division
CSEM	Control Source Electro Magnetic
DCA	Department of Civil Aviation
DLIS	Digital Logging International Standard
DOF	Department of Fisheries
DSM/JUPEM	The Department of Survey and Mapping/Jabatan Ukur dan Pemetaan Malaysia
DST	Drill Stem Test
E&P	Exploration & Production
ECC	Emergency Communication Centre
EIA	Environmental Impact Assessment
EPBD	Exploration PSC and Business Development
ERRC	Exploration Resources Review Committee
EVP	Executive Vice President
FAD	Fish Aggregating Device
FTD	Final Total Depth
G&G	Geological and Geophysical
GM	General Manager
GWC	Gas Water Contact
HQ	Head Quarter
HSE	Health, Safety and Environment
IMT	Incident Management Team

VOLUME 5

EXPLORATION

TERM	IN FULL
JLM	Jabatan Laut Malaysia
JV	Joint Venture
LAS	Log ASCII Standard
LWD	Logging While Drilling
MICCI	Malaysia International Chamber of Commerce and Industry
MMEA/APMM	Malaysia Maritime Enforcement Agency/Agensi Penguatkuasaan Maritim Malaysia
MOD	The Ministry of Defence
MWD	Measurements While Drilling
NOOP	Notice of Operation
OIM	Offshore Installation Manager
PDF	Portable Document Format
PMO	Peninsular Malaysia Operations
PMU	Petroleum Management Unit
PREX	Petroleum Resource Exploration
PSC	Production Sharing Contract
QC	Quality Control
SBO	Sabah Operations
SKO	Sarawak Operations
SM	Senior Manager
TLDM	Tentera Laut Diraja Malaysia
TQRM	Technical Quarterly Review Meeting
TUDM	Tentera Udara Diraja Malaysia
VP, PM	Vice President, Petroleum Management
WPB	Work Programme & Budget

VOLUME 5

EXPLORATION

Appendix 1

Gas Holding Technical Data Requirements

Depth structure map of the top of each identified reservoir in scales of 1:12,500, 1:25,000 or 1:50,000, whichever is applicable and each map to incorporate the following information:

- i. geographical and XY coordinates (with proper CRS) and grids
- ii. name of field, reservoir and Contractor
- iii. labelled depth contours at twenty (20) metres or fifty (50) feet intervals
- iv. location of discovery well
- v. labelled interpreted fluid contacts
- vi. labelled stratigraphic boundary of reservoir

Map of identified holding area or composite of multiple identified reservoirs, in scales of 1:12,500, 1:25,000 and 1:50,000 whichever is applicable, incorporating the following information:

- i. geographical and XY coordinates (with proper CRS) and grids
- ii. name of field and reservoir(s)
- iii. location of discovery well
- iv. labelled perimeter of superimposed identified holding areas
- v. labelled the external perimeter with control points at approximately two hundred metre (200m) intervals for individual gas reservoir
- vi. list of corresponding geographical and XY coordinates of external most control points for individual gas reservoir under application consistent with Section 1.9.4 in this volume.
- vii. list of corresponding geographical and XY coordinates of external most control points for identified holding area consistent with Section 1.9.4 in this volume.

Structural cross-section of identified reservoirs in a reasonable vertical, horizontal scale exaggeration incorporating the following information:

- i. name of field and reservoir(s)
- ii. labelled subsea depth axis at appropriate intervals
- iii. labelled top and base of identified reservoir(s)
- iv. discovery well location and stratigraphy penetrated
- v. labelled fluids and spill levels
- vi. labelled formation tests depths and results
- vii. index map of the cross-section

VOLUME 5

EXPLORATION

Discovery well completion log prints of scale 1:500 incorporating the following information:

- i. composite of wireline and mudlog data
- ii. stratigraphy, reservoir names and brief lithologic description
- iii. petrophysical analyses results
- iv. hydrocarbon shows
- v. gas readings and composition
- vi. formation tests depths and results

Pressure analysis incorporating the following information:

- i. graphical plot of pressure vs. subsea depth in metre
- ii. labelled pressure points and corresponding reservoir names
- iii. labelled all fluids and hydrostatic pressure gradients
- iv. labelled proved fluid levels and interpreted contacts

Hydrocarbon Resource assessment incorporating the following information:

- i. method of assessment
- ii. reservoir name(s)
- iii. subsea depth interval penetrated by discovery well
- iv. fluid levels and interpreted contact, estimated reservoir input parameters and recovery factors
- v. proved initially-in-place and potential recovery
- vi. expectation initially-in-place and potential recovery

Other supporting evidence as seen fit by Contractor, but not limited to the following:

- i. geophysical seismic section and time slices
- ii. stratigraphic section
- iii. laboratory analyses results
- iv. references

VOLUME 5

EXPLORATION

Appendix 2

List of Government Agencies

Correspondences must follow its region of operations, Peninsular Malaysia, Sarawak and Sabah accordingly.

STATE GOVERNMENTS	
Yang Berbahagia Setiausaha Kerajaan Negeri Terengganu Pejabat Setiausaha Kerajaan Tingkat 15, Wisma Darul Iman 20503 Kuala Terengganu Terengganu	Tel : 09-6231957 Fax: 09-6234278
Yang Berbahagia Setiausaha Kerajaan Negeri Kelantan Pejabat Setiausaha Kerajaan Kompleks Kota Darul Naim 15503 Kota Bharu Kelantan	Tel : 09-7481957 ext. 6509 / 6510 Fax: 09-7443203
Yang Berbahagia Setiausaha Kerajaan Negeri Pahang Pejabat Setiausaha Kerajaan Negeri Wisma Sri Pahang 25503 Kuantan Pahang	Tel : 09-5126600 Fax: 09-5157448
Yang Berbahagia Setiausaha Kerajaan Negeri Sarawak Tingkat 20, Wisma Bapa Malaysia Petra Jaya 93502 Kuching Sarawak	Tel : 082-440127 / 440222 / 440333 Fax: 082-441677
Residen Bahagian Miri Pejabat Residen Miri Jalan Kingsway 98000 Miri Sarawak	Tel : 085-433203 Fax: 085-432876

VOLUME 5

EXPLORATION

Yang Berbahagia Setiausaha Kerajaan Negeri Sabah Pejabat Setiausaha Kerajaan Negeri Jabatan Ketua Menteri Tingkat 6, Wisma Innoprise Teluk Likas 88817 Kota Kinabalu Sabah	Tel : 088-328000 Fax: 088-328209
NATIONAL SECURITY COUNCIL	
Setiausaha Bahagian Unit Dasar Keselamatan Maritim (Bahagian Keselamatan & Kedaulatan Maritim) Setiausaha Majlis Keselamatan Negara Jabatan Perdana Menteri Aras LG, Blok Barat, Bangunan Perdana Putra Pusat Pentadbiran Kerajaan Persekutuan 62502 W.P Putrajaya	Tel : 03-88726817 Fax: 03-88883091
MALAYSIA MARITIME ENFORCEMENT AGENCY	
Ketua Pengarah Agensi Penguatkuasaan Maritim Malaysia Jabatan Perdana Menteri Aras 4-11, One IOI Square IOI Resort 62502 W.P Putrajaya	Tel : 03-89957096 Fax: 03-89414000
Pengarah Pusat Penyelarasan Penguatkuasaan Maritim Bahagian Keselamatan Negara Jalan Iskandar Shah Teluk Muruh 32200 Lumut Perak	Tel : 05-6804111 / 6834113 / 6835291 / 6834961

VOLUME 5

EXPLORATION

Ketua Penguatkuasa Wilayah Pejabat Wilayah, Wilayah Maritim Timur Agensi Penguatkuasaan Maritim Malaysia Jabatan Perdana Menteri Blok A & B, Wisma Belia Bandar Indera Mahkota 25200 Kuantan Pahang	Tel : 09-5717300 Fax: 09-5733569
Ketua Penguatkuasa Wilayah Pejabat Wilayah Wilayah Maritim Sabah dan Labuan Agensi Penguatkuasaan Maritim Malaysia Jabatan Perdana Menteri Tingkat 5, Wisma Dixon Jalan Punat Tanah Batu 3 1/2, Off Jalan Tuaran Karung Berkunci 2059 88999 Kota Kinabalu Sabah	Tel : 088-524611 Fax: 088-384161
Pejabat Wilayah Agensi Penguatkuasaan Maritim Malaysia Wisma Maritim Sarawak Jabatan Perdana Menteri Kompleks APMM Wilayah Sarawak Lot 1128, Jalan Bako Muara Tebas, 93050 Kuching Sarawak.	Tel : 082-432490 / 432475 Fax: 082-432471
ROYAL MALAYSIAN NAVY	
Pengarah Operasi Bahagian Rancang & Operasi Markas Markas Tentera Laut Kementerian Pertahanan (Kementah) Jalan Padang Tembak 50634 Kuala Lumpur	Tel : 03-20713199 Fax: 03-26981680
Ketua Pengarah Pusat Hidrografi Nasional Bandar Armada Putra Pulau Indah 42009 Pelabuhan Kelang Selangor	Tel : 03-31694400 ext 4409 Fax: 603-31033111

VOLUME 5

EXPLORATION

Pegawai Pemerintah Markas Wilayah Laut 1 Pangkalan TLDM Tanjung Gelang 25990 Kuantan Pahang	Tel : 09-5833601 ext 2146 / 2122 Fax: 09-5833330
Pegawai Pemerintah Markas Wilayah Laut 2 Pangkalan TLDM, Kota Kinabalu Teluk Sepanggar 88846 Kota Kinabalu Sabah	Tel : 088-482008 Fax: 088-473061
Pegawai Pemerintah KD Sri Sandakan Pengkalan Pelabuhan Lama 90000 Sandakan Sabah	Tel : 089-210066 Fax: 089-219709
Pegawai Pemerintah RNO Kuching Lot 3292 Seksyen 64 Ktld Jalan Datuk Abang Abdul Rahim 93450 Kuching Sarawak	Tel : 082-336400 ext 405 / 201 Fax: 082-336415
DEPARTMENT OF FISHERIES MALAYSIA	
Pengarah Bahagian Pelesenan dan Pengurusan Sumber Ibu Pejabat Perikanan Malaysia Kementerian Pertanian Malaysia Aras 1-7, Menara Blok 4G2 Wisma Tani Presint 4 Pusat Pentadbiran Kerajaan Persekutuan 62628 W.P Putrajaya	Tel : 03-88704000 Fax: 03-88892786
Pengarah Jabatan Perikanan Negeri Terengganu Wisma Perikanan Negeri Taman Perikanan Chendering 21080 Chendering Terengganu	Tel : 09-6163442 / 6173353 Fax: 09-6173351

VOLUME 5

EXPLORATION

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Pengarah Pejabat Perikanan Negeri Pahang Tingkat 2, Wisma Persekutuan Jalan Gambut 25000 Kuantan Pahang	Tel : 09-5161508 Fax: 09-5164482
Pengarah Jabatan Perikanan Sabah Aras 4, Blok B Wisma Pertanian Sabah Jalan Tasik Luyang (Off Jalan Maktab Gaya) 88624 Kota Kinabalu Sabah	Tel : 088-235966 / 245489 / 245484 Fax: 088-240511
Pengarah Jabatan Perikanan Labuan KM 4, Jalan Patau-Patau Peti Surat 81411 87024 W.P Labuan	Tel : 087-415881 Fax: 087-412885
Pengarah Jabatan Perikanan Laut Sarawak Tingkat 15, Bgn. Sultan Iskandar Jalan Simpang Tiga, Peti Surat 1375 93728 Kuching Sarawak	Tel : 082-252743 / 250357 Fax: 082-415499
Pengarah Jabatan Perikanan Laut Sarawak Wilayah Tiga Bahagian Miri, Limbang dan Bintulu Jalan Krokop Peti Surat 849 98008 Miri Sarawak	Tel : 085-653041 Fax: 085-658790

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MARINE DEPARTMENT MALAYSIA	
Ketua Pengarah Laut Ibu Pejabat Laut Jabatan Laut Malaysia Peti Surat 12, Jalan Limbungan 42007 Pelabuhan Klang Selangor	Tel : 03-33467777 Fax: 03-31685289 / 31685020
Pengarah Laut Wilayah Jabatan Laut Wilayah Timur Jalan Hiliran 20300 Kuala Terengganu Terengganu	Tel : 09-6221471 Fax: 09-6233676
Pengarah Laut Wilayah Jabatan Laut Wilayah Sabah No 2, Kompleks Jabatan Laut Teluk Salut, Jalan Sepanggar Beg Berkunci 2011 88450 Kota Kinabalu Sabah	Tel : 088-401111 Fax: 088-401180
Pengarah Jabatan Laut Malaysia Pejabat Laut Wilayah Labuan Peti Surat 81005 Jalan Merdeka 87012 W.P Labuan	Tel : 087-413511 Fax: 087-413515
Pengarah Laut Wilayah Jabatan Laut Wilayah Sarawak Kompleks Jabatan Laut Wilayah Sarawak Lot 683, Section 66 Jalan Utama Tanah Puteh 93619 Kuching Sarawak	Tel : 082-484159 Fax: 082-331778
Ketua Pejabat Jalan Kubu Beg Berkunci No. 18 98009 Miri Sarawak	Tel : 085-442121 Fax: 085-418608

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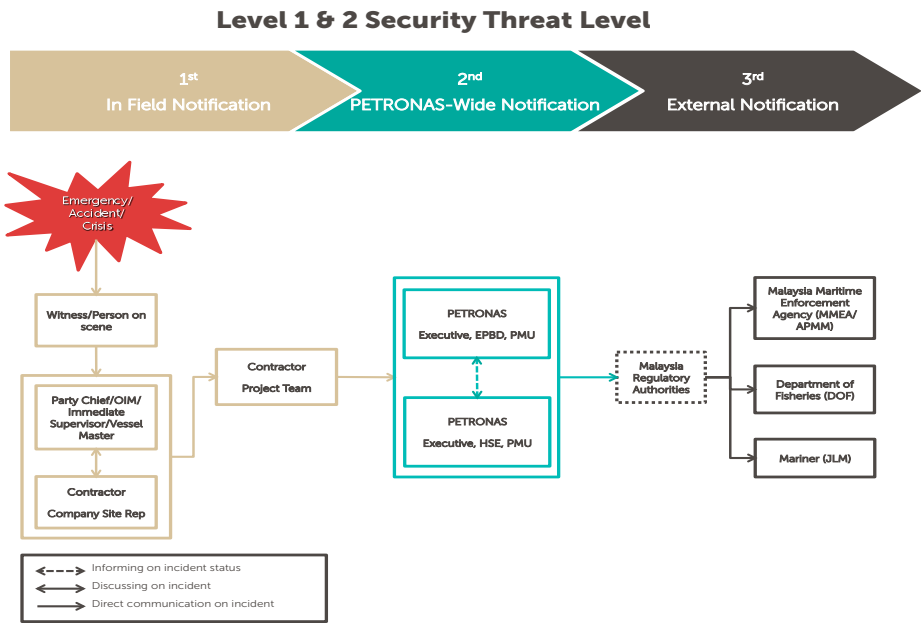
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DEPARTMENT OF SURVEY AND NATIONAL MAPPING	
Pengarah Ukur Bahagian (Pemetaan) Jabatan Ukur Dan Pemetaan Malaysia Wisma JUPEM, Jalan Semarak 50578 W.P Kuala Lumpur	Tel : 03-26170800 Fax: 03-26933618

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Appendix 3

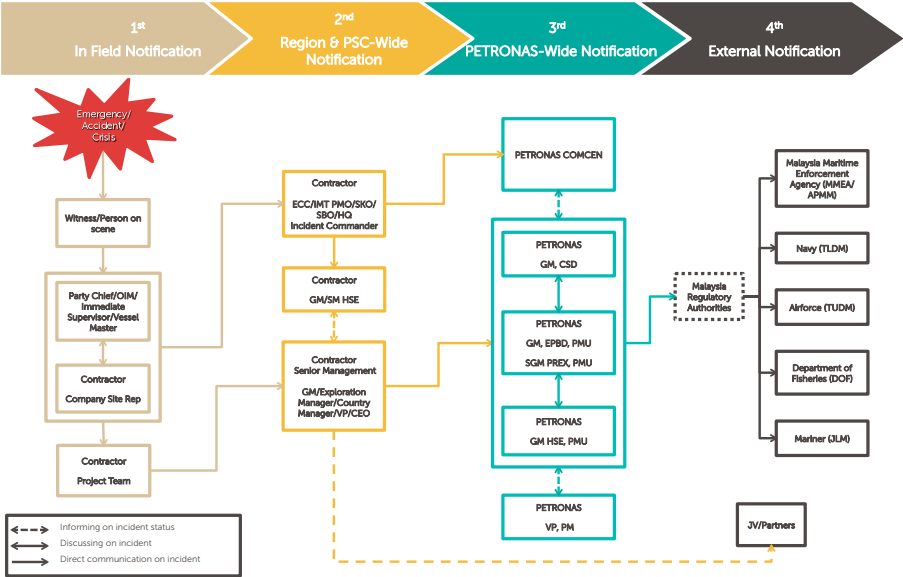
Security Notification Flowchart
(based on PETRONAS' Guideline on Managing and Reporting Security Issues during Exploration Activities in Malaysia)



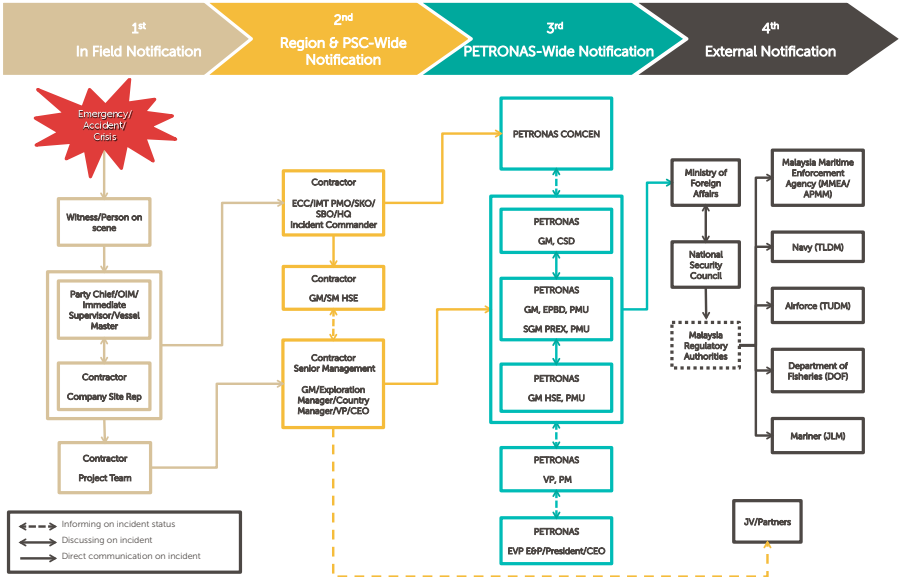
VOLUME 5

EXPLORATION

Level 3 Security Threat Level



Level 4 Security Threat Level



Appendix 4

Standard Compensation Rates for Fish Traps/FAD(s)

NEW STANDARD COMPENSATION RATE FOR DAMAGED FISH TRAP AND FAD CLAIMS IN MALAYSIA									
(IN RINGGIT MALAYSIA)									
EQUIPMENT TYPES	PENINSULAR A			PENINSULAR B			SARAWAK		SABAH/LABUAN
	OLD RATES	NEW RATES	MAXIMUM	OLD RATES	NEW RATES	MAXIMUM	PER UNIT	MAXIMUM	PER UNIT
1) Unjam									
Ibu	100	200	8,000	100	200	8,000	-	-	-
Mesin/Panau	-	300	8,000	-	300	8,000	300	-	-
Buai/Lawa-lawa	-	250	8,000	-	250	8,000	-	-	250
Bawah/Rangas	-	-	8,000	-	-	8,000	-	-	-
Payao (Pukat Laut Dalam)	-	-	-	-	-	-	18,117	-	-
Payao (Pancing Laut Dalam)	-	-	-	-	-	-	-	-	1,550
Payao Tuna (Laut Dalam)	-	-	-	-	-	-	-	-	18,117
2) Rawai									
Timbul/Pantai/Pertengahan	-	-	-	-	-	-	1,600	-	1,800
Tenggelam	-	-	-	-	-	-	2,100	-	-
Laut dalam	-	-	-	-	-	-	-	-	15,000
3) Pukat									
Hanyut Tangsi (Monofilamen)	-	-	-	-	-	-	600	-	400
Hanyut (Multifilamen)	-	-	-	-	-	-	2,700	-	-
Tenggelam Tangsi spesifikasi: 2.25" - 5.5"	-	-	-	-	-	-	250	-	250
Tenggelam Nilon (Laut Dalam)	-	-	-	-	-	-	-	-	8,000
Tiga Lapis	-	-	-	-	-	-	-	-	100

VOLUME 5

EXPLORATION

NEW STANDARD COMPENSATION RATE FOR DAMAGED FISH TRAP AND FAD CLAIMS IN MALAYSIA									
(IN RINGGIT MALAYSIA)									
EQUIPMENT TYPES	PENINSULAR A			PENINSULAR B			SARAWAK		SABAH/LABUAN
	OLD RATES	NEW RATES	MAXIMUM	OLD RATES	NEW RATES	MAXIMUM	PER UNIT	MAXIMUM	PER UNIT
4) Bubu									
Tradisional	150	300		-	-		400	-	-
Lipat/Moden	-	-		-	-		800	-	1,500
5) Bagang	-	-		-	-		-	-	21,300
Notes:									
1) Peninsular A: Kelantan and Terengganu									
2) Peninsular B: Pahang and Johor									