



**HSE-MS BRIDGING DOCUMENT:
Brunei Shell Petroleum, Aban
& Service Companies
for the jack-up rig
'Deep Driller 8 (DD8)'
Drilling Campaign
2010-2014**

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ABBREVIATIONS AND DEFINITIONS

| | | | |
|-----------------|---|---|---|
| ALARP | As Low as Reasonably Practicable | LOTO | Lock Out Tag Out |
| AMOS | (Aban) Asset Management Operating System | m | Metres |
| BA | Breathing Apparatus | Medevac | Evacuation from the rig of an injured person or persons – usually by helicopter |
| BOP | Blow Out Preventer | MOC | Management of Change |
| BSP | Brunei Shell Petroleum Sdn.Bhd. | MODU | Mobile Offshore Drilling Unit |
| CAP | Competent Approved Person (BSP Lifting & Hoisting) | MOPO | Matrix of Permitted Operations |
| CAR | Corrective Action Report | MSDS | Material Safety Data Sheet |
| CPRA | Concurrent Production and Rig Activities | OIM/MIC | Offshore Installation Manager/Man in Charge of DD8 |
| DDR | Daily Drilling Report | OSC | On Scene Commander (OIM/MIC) |
| DROPS | Dropped Objects Management System | OSR | On Scene Representative (DSV) |
| DSI | Drilling Standing Instructions | PA/GA | Public Address / General Alarm |
| DSV | BSP Drilling Supervisor (NDSV for Night DSV) | PMS | Planned (preventative) Maintenance System |
| EC | Emergency Coordinator | PPE | Personal Protective Equipment |
| ECC | Emergency Co-ordination Centre | psi | Pounds per square inch |
| ECT | Emergency Co-ordination Team | PTW | Permit to Work |
| EOWR | End Of Well Report | RAM | (Shell) Risk Assessment Matrix |
| EPA | Shell Exploration & Production Asia Pacific region | Ref | Reference |
| DD8 | Aban Deep Driller 8 | RM | Aban Rig Manager |
| H2S | Hydrogen Sulphide | SBV | Standby vessel |
| HAZID | Hazard Identification | SI | Standards International |
| HDA | Helideck Assistant | SSE | Short Service Employee |
| HLO | Helicopter Landing Officer | TA | Technical Authority |
| HRA | Health Risk Assessment | tba | To Be Advised |
| HSE | Health, Safety and the Environment | TD | Technical Directorate |
| HSE-MS | Health, Safety and the Environment Management System | TVD | True Vertical Depth |
| IMO | International Maritime Organisation | UPS | Uninterrupted power supply |
| ISO14001 | International Standard for Environmental Management Systems | VSL | Term for BSP Switchboard |
| IWCF | International Well Control Forum | WDF | Waste Disposal Form |
| JRA | Job Risk Assessment | WSDE | Wellsite Drilling Engineer |
| KPI | Key Performance Indicator | SMART | Aban behaviour-based observation programme |
| LFI | Learning from Incidents |  | Prevailing (key) procedure |

1 INTRODUCTION

1.1 Purpose

The overall aim of HSE management systems is to ensure the effective management of risks to the environment and the health and safety of people, the assets and the reputation of all parties involved in the work programme.

This is the HSE Bridging Document for well operations utilising Aban's jack-up rig 'DD8' in BSP throughout 2010-2013. It provides effective interfacing of the HSE Management Systems used by the companies involved in executing the work both on location and throughout the supply chain.

A key point of note is that the DD8 rig contract is categorised as a Mode 2 contract. This means that Aban executes all aspects of the job under its own HSE Management System, provides the necessary instructions and supervision and verifies the proper functioning of its HSE Management System. BSP is responsible for verifying the overall effectiveness of the HSE Management System controls put in place by Aban, and assuring that both BSP and Aban's HSE Management Systems are appropriately compatible.

Notwithstanding the above, the overall purpose of this document is to enable the effective management of HSE, quality and integrity. Its consistent application will ensure that the standards of HSE and quality achieved meet the requirements of all parties whilst resolving any conflicts and overlaps between the various HSE-MS.

In order to fulfil the responsibilities of BSP and Aban, a process of discussion and review of relevant documentation and management systems by both parties has been completed.

BSP, Aban and service companies accept the DD8 HSE Case and procedures within Aban HSE Management System (with the exception of procedures and amendments identified in this Bridging Document) as the mutually agreed method of managing HSE on the DD8, and as having satisfactorily assessed the hazards of undertaking the operations. In addition, BSP sets additional non-conflicting requirements in a number of key areas. These requirements are also clearly referenced in this HSE Bridging Document.

Aban and service companies accept that the EPA/BSP Wells Management System (with the exception of the standards and procedures identified in the HSE Bridging Document and any deviations identified in the Well Programmes) as the mutually agreed method of managing the well design and operational activity below the rotary table.

This document bridges between the DD8 HSE Case, Aban HSE-MS, BSP HSE-MS, service company procedures, and the Wells Management System as illustrated in Figure 1.

Full compliance with the DD8 HSE Case, this HSE Bridging Document and identified procedures will provide an assurance that all HSE critical tasks and activities will be carried out in a manner which will minimize the risk involved and will meet BSP and Aban standards, legislation and acceptable industry standards and/or recognised good oil field practice.

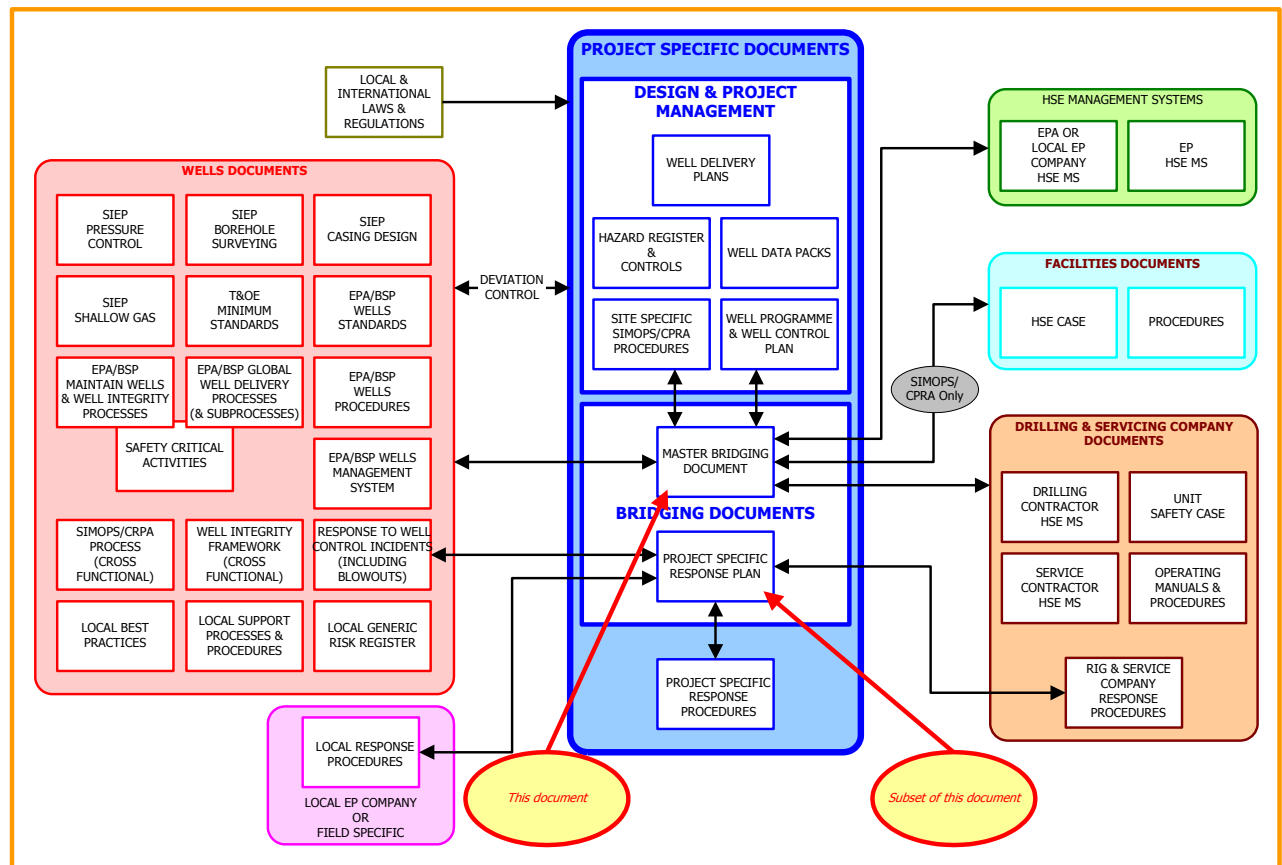


Figure 1: UIA/BSP Wells Documentation

This HSE Bridging document is for the DD8 drilling campaigns to be undertaken offshore Brunei (BSP):

- And together with the Shell ([Ref 1](#)) Wells documents and Work Programmes forms the primary set of working instructions for Shell Well Engineering supervisory personnel,
- And together with Aban and Sub-Contractor procedures and Work Programme(s) forms the primary set of working instructions for supervisory personnel of Well Engineering Contractors,
- And along with the DD8 HSE Case is the governing guidance document as to how HSE shall be managed during the work programme. The instruction herein ensures that the standards of HSE achieved by any one party through the application of its HSE-MS are not compromised by another or others, whilst undertaking shared activities,
- And is a demonstration of where gaps have been identified in the application of the individual HSE management systems in the work programme as a whole and how these gaps will be managed,
- And is a demonstration that suitable and sufficient barriers and controls are, or will be, in place such that risks to people, assets, environment and reputation are as low as reasonably practicable and that hazards identified have been adequately addressed.

The specific HSE objectives and targets for the work programmes are provided within the Contract HSE Plan 2010.

1.2 Scope

This document specifically applies to the DD8 well operations from the time when Aban's DD8 has been mobilised to site and accepted by BSP to commence operations. It includes:

- Well preparation work using the DD8,
- Well construction operations,
- Well Services operations whilst DD8 is on location,
- Materials and logistics operations for the work programme,
- Rig move between locations.

It is relevant to all personnel involved in any activity relating to the above operations including BSP, Aban, service companies and sub-contractors.

This document does not include activities involving site preparation and site restoration.

The installation of the drilling rig and the execution of drilling operations cause a significant change to routine HSE management on and about the various locations. There will be:

- ♦ A significant increase in logistics transport movements in the local area,
- ♦ Lifting activities including a large number of non-routine lifts,
- ♦ Significant increase in the use of chemicals and potential discharges,
- ♦ Potential disturbance to natural ecosystems.

This document addresses all areas where work programmes have a significant influence for the duration of the campaigns with the exception of contractor premises outside of Shell HSE-MS influence and routine 3rd party supplies (e.g. diesel and water). This document does not apply to areas where there is no significant change in HSE management or activity as a result of this operation.

This Bridging Document ceases to be relevant at a time when the DD8 is released from well operations associated with the BSP work programme listed in section 1.6.2.

1.3 Key interface principles

The DD8 rig contracts have been categorised as Mode 2. This means that Aban execute all aspects of the job under its own HSE Management System, provides the necessary instructions and supervision and verifies the proper functioning of its HSE Management System. BSP is responsible for verifying the overall effectiveness of the HSE Management System controls put in place by Aban, and assuring that both BSP's and Aban's HSE Management Systems are appropriately compatible.

Where any one party's employees, assets or reputation may be at risk from the others activities, the respective responsibilities and arrangements for the management of the risks are agreed and documented.

Bridging arrangements outlined in this document are arrived at through consultation and agreement with the main parties involved (BSP, Aban and service companies), and shall be endorsed by them. The imposition of one party's HSE-MS upon the other(s) will not be deemed to provide adequate control.

Bridging arrangements outlined in this document shall address all aspects of the shared activities and shall be communicated by those responsible to all personnel engaged in or affected by the shared activities.

The final documented HSE bridging interface must be a live document, which serves as a working reference of the controls to be implemented during the execution of the shared activities.

1.4 Methodology

The process for developing this HSE Bridging Document involved the following:

- ♦ Review of Shell and BSP HSE Management System and individual procedures,
- ♦ Review of the Aban HSE Manual and individual procedures within,
- ♦ Review of the Aban DD8 HSE Case,
- ♦ Review of the Aban Contract HSE Plan,
- ♦ Review of BSP Wells documents as they apply to HSE,
- ♦ Consideration of the EPA template and guidance for Master Bridging documents,
- ♦ Review by, and incorporating comments from, key stakeholders.

1.5 Distribution and Revision Control

This bridging document shall be distributed as part of the "Project HSE Interface Documents". These documents consist of the following:

- ♦ Contract HSE Plan,
- ♦ HSE Bridging Document and Appendices,
- ♦ Emergency Response procedures,
- ♦ Telephone Contact lists.

The HSE Bridging Document and associated interfacing arrangements shall be subject to a process of confirmation of effectiveness and to quarterly review/update to ensure continuing suitability. These activities shall be conducted in a manner agreed by the parties involved.

1.6 Project Description

1.6.1 Drilling Rig



Figure 2: DD8

DD8 is a non-propelled, 5th generation KFELS Super B Class self-elevating independent leg Mobile Offshore Drilling Unit (MODU), capable of drilling high temperature / high pressure (HT/HP) oil and gas wells up to 10700m (35,000ft) deep in water depths of 107m (350ft). DD8 is registered under the Singapore administration and classed by the American Bureau of Shipping (ABS).

1.6.2 Well Locations and Timing

At the time of writing this HSE bridging document, the DD8 is contracted to conduct well programmes in BSP as follows:

- Mampak 2/3
- Champion West project – CWDP-01
- Champion Waterflood wells

The exact well locations shall be given in each Well Programme.

1.6.3 Metocean Conditions, Forecasting and Response

As a minimum, daily weather forecasts pertinent to each well location shall be provided to the DD8.

Responses to inclement weather situations will be as per relevant contingency procedures pertinent to the operation at the time.

2 POLICY AND STRATEGIC OBJECTIVES

2.1 Policy

The HSE policies of BSP, Aban and relevant service companies have been compared and are in alignment for this work programme. In general policies are integral of Health, Safety and Environment and the principles and commitment remain consistent.

2.2 Strategic Objectives

The overall objective of the work programmes is to successfully complete them as planned and in a safe and efficient manner. In terms of HSE objectives, targets and key deliverables, these are detailed in the Contract HSE Plan.

2.3 HSE-MS Overview

2.3.1 Introduction

All work shall be carried out in accordance with the policies and procedures of BSP, Aban and the individual contractors, this bridging document, the Work Programmes and Wells Documents.

No work will be performed which in any way conflicts with BSP, Aban or other contractor HSE objectives. In such cases where conflict does occur, work shall be stopped when safe to do so and the work program re-assessed and amended as required utilising the management of change process.

The DD8 rig contract has been categorised as Mode 2. As such, the Aban HSE-MS is the primary HSE management system on the rig. The BSP HSE-MS as well as relevant Shell global standards and procedures have been used to compare the Aban HSE-MS for appropriate compatibility. From this, BSP has assessed and verified the overall effectiveness of the Aban HSE-MS as being adequate to manage the HSE risk.

2.3.2 BSP

 [BSP HSE Management Manual – BSP-02-Guideline-0367](#)

The BSP HSE-MS conforms to Shell global HSE-MS requirements. Further, there are a number of areas where BSP has specific local requirements. These are documented within the respective standards and procedures.

Notwithstanding the Mode 2 contract categorisation, where Aban or contractor systems and procedures do not cover specialist activities adequately, Shell global or BSP systems and procedures will take precedence. Where this is the case, these procedures will be identified in this Bridging Document.

2.3.3 Aban

 [Aban QHSE Program Operating Instructions - SAF 100.00](#)

The Aban HSE-MS is the primary HSE management system for the work programme and addresses drilling and rig-related activities on the DD8. This system is summarised in the DD8 HSE Case and Contract HSE Plan and describes how each element of the HSE-MS is applied to the work programme.

The Aban HSE-MS has been examined against the requirements of the work programme and the strength of the BSP HSE-MS through a procedures review and capability evaluation.

The Aban HSE-MS is available on the rig during the work programme from the OIM and the HSE Adviser. A full set of the manuals will also be held in the Aban office onshore.

2.3.4 Service Companies Involved

| Service Provided | Service Company | Comment |
|-----------------------------------|---------------------|--|
| Drilling Fluids | Baker Hughes | Contractor HSE-MS's are accessible through the respective representatives on the rig, or through the HSE representatives or Engineers located at the BSP or Contractor offices |
| Directional Drilling | Halliburton SS | |
| Mud Logging | Geoservices | |
| Cementing and Pumping | Dowell SLB | |
| Casing/Tubular Running | Tube Tek | |
| Electric Wireline Logging and TCP | Baker Atlas | |
| Fishing Equipment and Services | Smith Red Baron | |
| Casing drilling | Weatherford / Tesco | |
| Gravel pack | Halliburton | |
| Wellhead Installation Services | Cameron | |

2.3.5 Logistics Providers

2.3.5.1 Road transport logistics

Road transport logistics will be undertaken by Megalift and managed through contracts with Aban.

Crew transport will be provided by Aban for transport to and from the BSP Anduki Heliport.

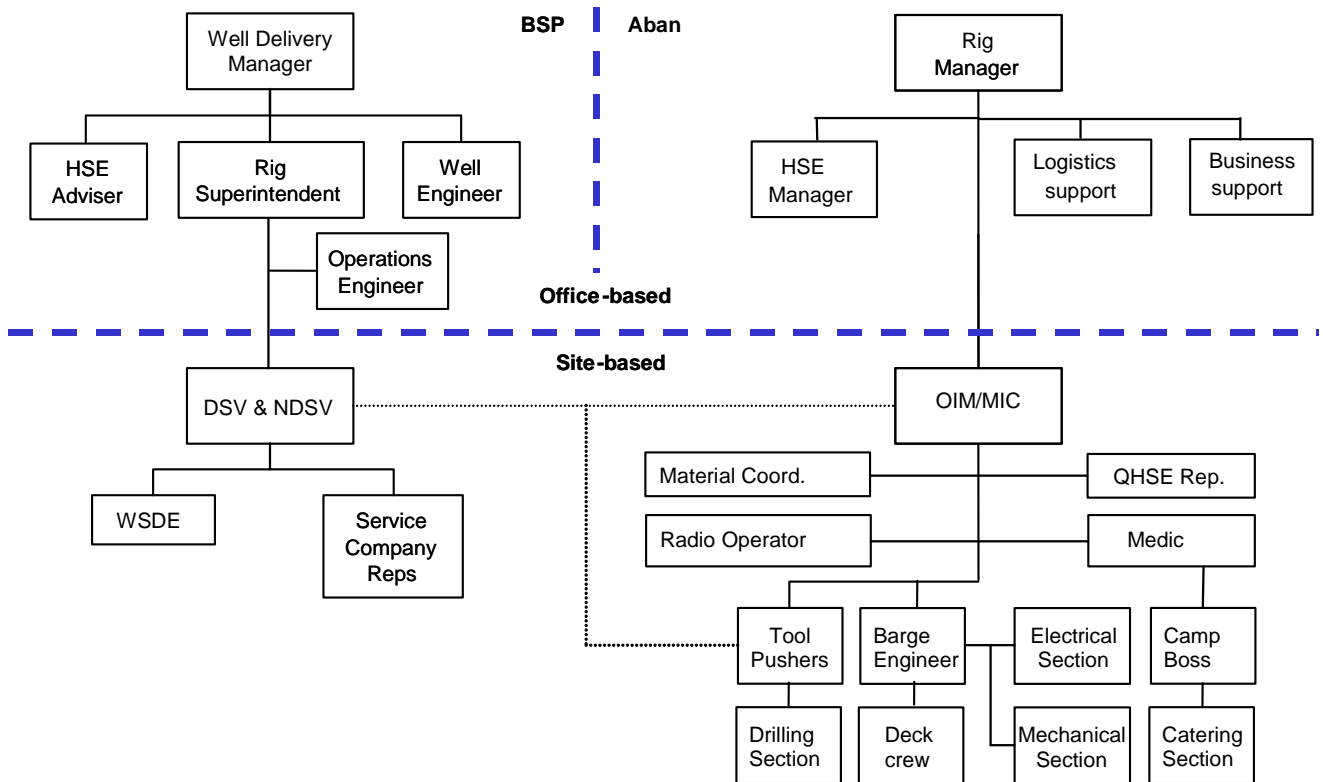
2.3.5.2 Air and Marine transport logistics

BSP (SAV) helicopters shall be used to transport personnel to and from the rig.

BSP (SMR) marine vessels shall be used to transport equipment and materials to and from the rig. They shall also provide the necessary logistical and security support when on location.

3 ORGANISATION, RESPONSIBILITIES & TRAINING

3.1 Project Organisation



3.2 HSE Responsibilities

3.2.1 Wellsite

The general HSE responsibilities of all site personnel and the specific HSE responsibilities of site supervisory personnel are summarized in Appendix 4.

3.2.2 Project management (office-based)

The roles and responsibilities of the office project management team are summarised in Appendix 4.

3.2.3 Subcontractors

Sub-contractors are managed under their respective contracts.

All sub-contractors working on the campaign and within associated activities are required to comply with the HSE requirements as identified within the contract with their employer and with the requirements as outlined by this HSE-MS Bridging Document.

Specialist activities may be performed under the sub-contractors own procedures. In this respect it is understood that the sub-contractor is the 'specialist' or 'expert'. Where a sub-contractor company will be acting under its own procedures these will be communicated and agreed to by the OIM and DSV in advance of the work.

3.2.3.1 Sub-Contractor Selection

[Aban QHSE Manual - QUA 100.00 & Forms: QUO-001/-002](#)

Aban has a procedure for the selection and management of subcontractors, as noted above. Further, there is an associated Vendor HSE Assessment Questionnaire for prequalification purposes.

Note also that an Aban obligation towards the management of subcontractors is included in Article 18 of the standard contract HSE terms and conditions.

3.2.4 Accountability for Safety

All personnel are accountable for ensuring safety within their workplace including working safely, looking after others and themselves, and following all rules and procedures.

Supervisors are expected to ensure that their teams understand what is expected of them, take positive action if someone fails to meet the agreed expectations, and support decisions to stop work where unsafe acts or conditions exist.

Accountability for Safety and the 12 Shell Life Saving Rules are required to be communicated clearly to all teams to increase understanding and compliance.

3.3 Training and Competency

3.3.1 Introduction

Contract Terms and Conditions between BSP and its contractors require that personnel have specific skills and HSE training for their position and level of responsibility. Employees are to be provided with appropriate training such that they can gain and enhance required competencies in order to undertake their roles safely. Employers are required to provide employees with training and knowledge for the safe operation and use of all plant, objects, substances, and protective clothing and equipment that they will, or may be required to, use or handle.

The training and skills requirements for the work programme have been reviewed against the BSP Mandatory HSE Training Matrix. In addition, Aban have specific rig personnel training requirements as per Aban procedures and training matrix and these shall be in place during the work programme.

A number of contract-specified (contract C090084/TSW for DD8) training courses require special focus and additional training requirements were also identified. These are described in the following sections.

3.3.2 Pre-Mobilisation HSE Inductions

Aban personnel undergo a comprehensive introduction to the company's Quality Management System, typically delivered by a senior Aban manager. This programme provides focus on Aban's HSE expectations and sets the scene for building a robust safety culture. Further, all personnel must undertake the mandatory BSP HSE Induction prior to working for the programme.

Further induction to the respective well programmes will be undertaken via pre-spud meetings (ref sections 3.3.5.2 and 6.1.5.1).

3.3.3 Rig Site HSE Induction, Orientation & Familiarisation

 [Aban QHSE Manual - SAF 114.00 QHSE Site Orientation/Induction.](#)

All personnel arriving at the rig for the first time shall undergo the Aban DD8 site HSE induction prior to being allowed to work. The OIM/MIC or a delegate and/or the DSV also meet these personnel to emphasise his expectations of them with regard to HSE on the rig.

When first arriving at the rig all personnel will be issued with a T-card. Each individual T-card is placed in the appropriate section of the T-Card Muster Board to indicate that the person is on site. When the person leaves the rig the T-Card is removed from the board.

In addition, and immediately following their induction, personnel shall attend a rig familiarisation to orientate them with;

- ♦ Emergency alarms, escape routes, emergency equipment (e.g. lifeboats, life rafts, etc) and muster arrangements,
- ♦ High activity areas,
- ♦ Limited & restricted access areas,
- ♦ Zones where height hazards may be present (overhead activity 'drop' zones, working at height areas),
- ♦ PTW system overview and requirements,
- ♦ Project specific equipment,
- ♦ Project hazard identification,
- ♦ PPE requirements.

The DD8 HSE Adviser shall keep a log of personnel who have undertaken Rig HSE Inductions.

3.3.4 Exercises and Drills

 [BSP/Aban Contract – C090084/TSW](#)

 [DD8 Emergency Response Plan 2010](#)

Exercises and drills shall be held to test the effectiveness of the emergency procedures, equipment and the familiarity of personnel with them.

The minimum required exercises and drill types and frequencies are detailed in the DD8 Emergency Response Plan 2010. A similar plan shall be developed for subsequent years of the contract.

3.3.5 Work Programme Familiarisation

3.3.5.1 DWOP, Pre-phase Review and After Action Review

Drilling the well on paper sessions shall be held for each well to be drilled. These provide the opportunity for critical review of the planned and executed programme activities and the incorporation of learning from previous well programmes.

3.3.5.2 Pre-Spud Meetings

Pre-spud meetings shall be held for each well to be drilled. These shall be held offshore and provide the crew with a detailed overview of the key work programme highlights and any relevant HSE issues.

3.3.6 Additional Training Requirements

3.3.6.1 Safety Leadership

Senior staff shall undertake Safety Leadership training.

Rig front line supervisors shall undertake BSP Worksite Supervisor IMS-5 for competence in worksite HSE supervision.

3.3.6.2 Crane Operations

 [BSP Lifting and Hoisting Standard – BSP-ASS-Standard-004](#)

All Crane Operators shall be qualified to L9456 Crane Operator Offshore certification (BSP criteria), or equivalent. For current equivalently certified Crane Operators, their certification documents may be reviewed and approved by the relevant BSP Lifting and Hoisting Technical Authority thereby negating the need for the specific training programme. Onsite assessments may be required in these cases.

All Crane Operators, Banksmen, Riggers, Roustabouts and forklift operators involved in lifting and loading/unloading operations shall be qualified to L2049A Rigging and Slings (BSP criteria) or equivalent. They shall also receive an orientation of the lifting equipment location and lifting activity areas as part of their rig familiarisation.

3.3.6.3 Forklift

 [BSP Lifting and Hoisting Standard – BSP-ASS-Standard-004](#)

All forklift operators are to be qualified to L2021 Forklift Truck Driving certification (BSP criteria) or equivalent. Aban shall ensure that forklift operators are appropriately trained for the specific class of forklift to be used.

Refer also to section 3.3.6.2 above.

3.3.6.4 Electrical Competence

 [BSP Electrical Safety Rules – BSP-02-Standard-1629](#)

 [BSP General Electrical Safety – BSP-02-Standard-1630](#)

DD8 electricians must be qualified and certified, equivalent to or greater than that required by BSP procedures (Electrical Safety Rules & General Electrical Safety).

To perform hazardous area electrical work electricians must be both qualified to perform prescribed electrical work and must have specific competency in hazardous areas.

3.3.6.5 Fitness To Work

 [BSP Fitness to Work Medical Assessment – BSP-20.02.01-Standard-S041](#)

The BSP Fitness to Work Medical Assessments provides details of the requirements for assuring medical fitness. For offshore travel and working, BSP requires all personnel to undergo medical assessments by a BSP-approved medical practitioner. Aban personnel and all other service providers who travel offshore in Brunei have adhered to this requirement.

3.3.7 Work Programme Specific

3.3.7.1 PTW

 [Aban QHSE Manual - SAF 300.00 Permit to Work System](#)

For the initial work programme in Mampak, the Aban PTW system shall be used. All users of this system shall be trained in its use and have been assessed competent prior to undertaking work requiring a permit.

 [BSP Safe System of Work – BSP-02-Procedure-1622 \(Module 3\)](#)

When the rig mobilises to the Champion West location, from this time the BSP electronic Permit to Work system (SSoW) shall be used on the DD8 and thereafter throughout the duration of the remainder of the work programmes. All users of this system shall be trained in its use and have been assessed competent prior to undertaking work requiring a permit.

3.3.7.2 Well Control

 [BSP/Aban Contract – C090084/TSW](#)

Senior supervisors shall be trained to, and be assessed competent in, IWCF Well Control and Blowout Prevention (Supervisor's standard - Subsea), or Wellcap

Drillers and Assistant Drillers shall be trained to, and be assessed competent in, IWCF Well Control and Blowout Prevention (Driller's standard - Subsea), or Wellcap.

3.3.8 New Hires and Short Service Employees

 [Aban Training Manual – TRA 200.50 Short Service Employee Program](#)

Aban will operate a coloured hardhat system. As this is a new rig a pragmatic solution to cover the first six months of rig operation is required. The assigning of SSE status during this period will be at the discretion of the OIM/MIC, after which the system will align with procedure.

All personnel new to the rig and those personnel that are new to their positions (e.g. via promotion) shall be easily identifiable through the wearing of GREEN hardhats. When on shift these personnel shall wear green hardhats for a period of 6 calendar months. After this period and upon successful completion of mandatory OJT, Aban employees will change to WHITE hardhats. Personnel from other companies will then change to hardhat colours representing their respective company's.

New hires, and those new to a particular position, shall be properly supervised by an experienced employee at all times during their tour until deemed as having demonstrated their ability to safely assume the job responsibilities they were hired to perform, and are competent to carry out the tasks of their designated position.

Notification of new hires during the work programme needs to be timely to allow all of the training criteria to be met before they commence work on the rig. All contractors are required to ensure this is achieved.

A competent member of the DD8 crew shall escort any visitors to the DD8.

4 HAZARDS & EFFECTS MANAGEMENT

4.1 Initial hazard identification and assessment

4.1.1 DD8 HSE Case

 [Aban HSE Case for DD8](#)

Aban has undertaken identification and assessment of hazards associated with operational activities for the DD8, and put in place controls to eliminate or mitigate these hazards. HAZID, Bow tie and ALARP demonstration workshops were held with crew and client representatives. There were no hazards deemed as presenting unacceptable risk providing identified measures are put in place.

4.1.2 HSE Critical Tasks and Equipment

 [Aban HSE Case for DD8 Part 3](#)

HSE Critical Equipment and HSE Critical Tasks have been identified through the preparation of the Aban DD8 HSE Case. HSE Critical Tasks are linked to those project personnel with responsibility for managing the tasks as part of their individual roles.

4.1.3 Matrix of Permitted Operations (MOPO)

 [Aban HSE Case for DD8 Part 4 section 7](#)

A MOPO pertaining to operations and activities on or around the DD8 has been generated in conjunction with the development of the DD8 HSE Case. The MOPO is key to the effective management of risk associated with simultaneous operations on the facility.

4.1.4 Risk Assessment

 [Shell Yellow Guide – Risk Assessment Matrix \(pre-2010 version\)](#)

The Shell Risk Assessment Matrix was used during DD8 HSE Case construction for the qualitative assessment of risk relating to actual and potential consequences arising from an adverse event.

This matrix is also to be used as the basis for determining the investigation level for any incident that occurs.

| Severity | Consequences | | | | Increasing likelihood | | | | |
|----------|--------------------------------|-----------------|-----------------|-----------------|--------------------------------|--------------------------|---|---|--|
| | People | Assets | Environment | Reputation | A | B | C | D | E |
| | | | | | Never heard of in the Industry | Heard of in the Industry | Has happened in the Organisation or more than once per year in the Industry | Has happened at the Location or more than once per year in the Organisation | Has happened more than once per year at the Location |
| 0 | No injury or health effect | No damage | No effect | No impact | | | | | |
| 1 | Slight injury or health effect | Slight damage | Slight effect | Slight impact | | | | | |
| 2 | Minor injury or health effect | Minor damage | Minor effect | Minor impact | | | | | |
| 3 | Major injury or health effect | Moderate damage | Moderate effect | Moderate impact | | | | | |
| 4 | PTD or up to 3 fatalities | Major damage | Major effect | Major impact | | | | | |
| 5 | More than 3 fatalities | Massive damage | Massive effect | Massive impact | | | | | |

Definitions:

- Industry - Oil and gas Exploration and Production
- Organisation - EP Region, eg EPA
- Location - Rig or facility

4.1.5 Health Risk Assessment (HRA)

A Health Risk Assessment shall be prepared for the DD8. This HRA shall be based on typical offshore rig operations and modified to encompass all known health hazards relevant to the DD8 operations.

The implementation and effectiveness of controls identified in the HRA shall be assessed and verified during a health audit of the rig planned to be undertaken within the first four weeks of operations. Subsequently the HRA will be updated with any newly obtained information.

4.1.6 Environmental Aspects Register (EAR)

An Environmental Aspects Register has been developed for the DD8. This EAR has been based on typical offshore rig operations and modified to encompass all known environmental hazards relevant to the DD8 operations.

The implementation and effectiveness of controls identified in the EAR shall be assessed and verified during an environmental audit of the rig planned to be undertaken within the first six to eight weeks of operations. Subsequently the EAR will be updated with any newly obtained information.

BSP and Aban are committed to ensuring that all activities associated with the drilling operations will avoid or minimise adverse effects on the environment through maintaining transparent and well-managed waste treatment, storage and disposal; responsible chemical storage and handling; efficient use of resources; and effective recovery measures to mitigate any accidental releases.

4.2 Task-level hazard identification and assessment

4.2.1 Job Risk Assessment (JRA)

[Aban QHSE Manual \(SAF 330.00\) Job Risk Assessment](#)

[Aban QHSE Manual \(Form: SAF.019\) Job risk assessment](#)

For task level hazard identification and analysis, the Aban JRA process shall be used throughout the well programmes.

Planning for work activities shall include the reviewing or preparing of JRA specific for the tasks to be undertaken. A JRA shall be carried out anytime one or more of the following circumstances apply:

- The supervisor and/or crew are uncertain of the level of risk.
- Whenever a routine or non-routine complex task creates appreciable risk.
- To support PTW application

Aban shall also address recovery measures in their JRA to ensure that robust recovery plans are identified and the necessary resources are available at all times each work activity is being undertaken.

4.2.2 Toolbox Talks

[Aban QHSE Manual \(SAF 330.00\) Job Risk Assessment: Section 5.11 Communication](#)

Prior to commencing the work activity, all personnel involved (directly or indirectly) shall fully understand their individual roles and responsibilities. These roles and responsibilities shall be communicated at the pre-task meeting.

In the event of a crew change taking place during the task, the JRA shall be reviewed and updated by the new work team before proceeding with the task.

4.2.3 SMART Observation Programme

[Aban QHSE Manual \(SAF 112.00\) Behavioural based safety process](#)

[Aban QHSE Manual \(Form: SAF.004\) SMART Card](#)

The SMART (See, Monitor, Act, Reinforce, Track) programme is the Aban equivalent of the BSP PAKAT system (modelled on Dupont 'Safety Training Observation Programme') for behavioural observations and intervention, and shall be used throughout the work programme.

All personnel on the rig shall be encouraged to make observations and interventions and record these on the cards. By submitting their cards, this will allow action and trend tracking under the Aban system, and also ensure all cards are considered for monthly and quarterly awards. The BSP Rig Superintendent may, at his discretion, provide additional small ad hoc rewards to encourage SMART card participation.

4.2.4 Weekly Area Inspections and Hazard Hunts

 [Aban HSE Plan 2010](#)

Weekly area inspections will be conducted across the rig, including the derrick, and throughout the work programme. Inclusive in these inspections is the identification of any hazards present, and in this regard specific hazard hunts will be undertaken. Remedial action shall be taken to rectify any hazardous situations found. These shall, where possible, be addressed immediately or, where this is not possible, actions shall be raised in the CAR and tracked to closure.

4.3 Project Specific Hazards and Controls

4.3.1 Well Control

 [Aban Well Control Manual](#)

 [Shell Pressure Control Manual for Drilling and Workover Operations – EP-2002-1500](#)

 [Shell Global Standard for Temporary Pipe Work \(EP2006-5393\)](#)

To achieve a safe and efficient drilling operation, all wells require careful planning and equipment selection, clear and complete drilling procedures and standing instructions, a high level of crew training and competence, and close supervision. Refer to competence requirements for Drillers, Assistant Drillers and Senior Supervisors in section 3.3.7.2 of this Bridging Document.

Aban shall utilise well control procedures as per their well control manual and will retain primacy on all well control events.

In the event of a well control kick the OIM/MIC shall be in charge as per the Aban Well Control Manual stated under section 1.0. Responsibility for shutting-in a well lies with the Driller and Aban will ensure that the Driller is aware that he is empowered to perform this task.

Standards for well control are also referenced within the drilling programmes for each of the wells.

Two copies of EP 2002-1500 Rev 1 Pressure Control Manual for Drilling and Workover Operations are to be on the DD8 and referred to for supplementary information and procedures guidance.

Aban shall install, operate and test the Blow Out Prevention equipment at least in accordance with agreed policies, unless otherwise instructed in writing by BSP. Typically BOP pressure testing will be carried out every 14 days.

Aban shall immediately report to the BSP Rig Superintendent any and all changes in critical function of the BOP equipment.

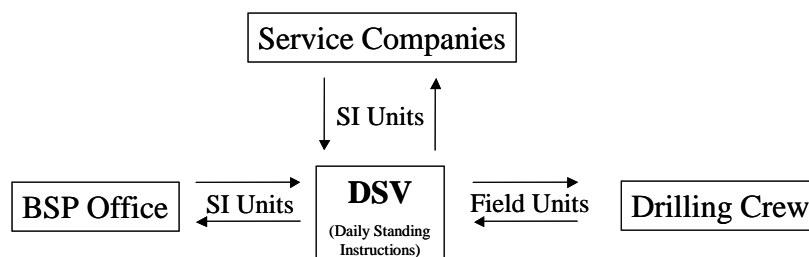
All temporary pipe work in use shall comply with the Shell Temporary Pipe Work standard EP2006-5393.

The Driller and Mud Logger shall be informed of all mud transfers with details of volumes, time intervals and completion of the activity. In an effort to maintain drilling operations, and if it is absolutely necessary to make a mud transfer while drilling, the well must be in a stable condition. In these cases careful consideration of the total volume of the two tanks involved in the mud transfer shall be made.

4.3.2 Measuring Units

Consistency in the type and use of measurement units (e.g. SI or field units) simplifies communication and helps to reduce the risk of misunderstanding and errors occurring. The agreed set of units for the well programmes is as follows:

Flow Chart for Unit Reporting



4.3.3 Rig Structural Integrity

Refer to DD8 HSE Case Part 2 'Facility and Operations' for details pertaining to the design regulations, codes and standards to which the rig has been built.

4.3.3.1 Load analysis

On a day-to-day basis records are normally kept of any changes to the weight, for example the variable loading of equipment, consumption of fuel or filling / emptying tanks.

Refer to DD8 HSE Case Part 2 section 3.4 to 3.6 for further details pertaining to load analysis.

4.3.3.2 Environmental loading

Refer to DD8 HSE Case Part 2 section 3.7 for further details pertaining to environmental loading.

4.3.4 Adverse Weather

4.3.4.1 Weather Forecasts

DD8 shall be supplied with location-specific metrological forecasts daily.

4.3.4.2 Adverse weather procedures

 [Aban Marine Operations Manual](#)

 [Aban Task Risk Mitigation Policy \(TRM 105.17\)](#)

Aban has procedures for safe operation during adverse weather. For example, the Marine Operations Manual sets wind limitations for cranes at 40 knots. Further, the DD8 HSE Case includes details of controls in place to mitigate the effects of adverse weather.

4.3.5 Occupational Health and Hygiene

 [Aban QHSE Manual - HLT 100-00 to 440.00](#)

The Aban QHSE Manual Health section includes procedures that address health and hygiene issues. These include respiratory protection (100.00), malaria (210.00), medic responsibilities (220.00), food safety (300.00), noise (400.00), sewage worker protection (410.00), hand/arm vibration (420.00), and manual handling (430.00) procedures. These Aban procedures take precedence for the work programmes.

For other health-related procedures BSP or Shell procedures shall take precedence. These include Fitness to Work (ref section 3.3.6.4 of this bridging document), medical facilities and equipment (Shell EP2005-0151), and some medical guidelines and protocols (ref section 5.11.3 of this bridging document).

Certain food preparation protocols will need to be observed in order to address the food hygiene requirements of Muslim workers. This will include the religious cleansing of food preparation areas and the provision of Halal food.

4.3.5.1 Potable Water Testing and Cleanliness

 [Shell HSE Manual - Drinking Water Guidelines \(EP95-0330\)](#)

Monthly potable water analysis shall be conducted onshore in accordance with Shell procedures. If results indicate that water quality is outside acceptable criteria then a treatment programme is to be implemented immediately.

Weekly coliform testing shall be undertaken on the rig and the results logged and reported.

Potable water tanks shall be cleaned annually in accordance with Shell procedures (for transport tanks).

4.3.6 Hazardous Materials Handling

4.3.6.1 Chemicals

 [Aban QHSE Manual - Forms: ENV-002 and ENV-002](#)

 [BSP Chemicals Management Guidelines -BSP-ACT-Guideline-1653](#)

The preparation and handling of drilling fluids, especially SBM, requires particular attention to additional PPE requirements, housekeeping and specific containment and clean-up equipment. For housekeeping, adequate secondary containment shall be employed to collect and contain all excess liquids or spills prior to clean up and to prevent any spills from reaching the deck or sea.

PPE requirements are identified on the respective MSDS and where required the onsite HSE Adviser or drilling fluids contractor will advise and guide personnel on specific PPE requirements.

Hardcopies of all MSDS shall be available with the HSE Adviser and Medic and in the drilling office, sack room, mud mixing areas and cement unit. Posters with the main chemicals identified and their HSE requirements shall be prepared and displayed. The MSDS for all chemicals used during drilling operations shall be registered in BSP chemicals management systems (recognising the possible delay in incorporation).

Chemicals must be technically, commercially and HSE approved by BSP before shipment to and use onsite.

Chemical waste shall be segregated, if they are non-compatible chemicals, based on information contained in MSDS.

4.3.6.2 Compressed Gas Cylinders

 [Aban QHSE Manual - SAF 361.00 Pressurised systems, vessels and piping](#)

Identification, storage, handling and use of compressed gas cylinders will be as detailed in the Aban procedure. Due to the flammable nature of the contents of some cylinders and the stored energy in other cylinders, extra care is required when transporting, lifting, storing and using this equipment.

4.3.6.3 Explosives

 [Aban QHSE Manual - Form: SAF-013 Perforating gun usage permit checklist](#)

Any handling and use of explosives shall be by specialist service company personnel trained and competent in such activities. Where explosives are required to be used, every effort should be made to ensure that their time on the site is minimised to reduce the risk. An explosives register shall be used.

Explosives shall be correctly stored in suitable locked containers prior to use and shipment. Primary and Secondary explosives shall be stored in separate containers and kept apart a safe distance.

The Aban permit checklist shall be used to supplement specialist contractor procedures where necessary.

4.3.6.4 Ionising Radiation

 [Aban QHSE Manual - Form: SAF-014 Radioactive source usage permit checklist](#)

Any handling and use of radiation sources shall be by specialist service company personnel trained and competent in such activities. Where radiation sources are required to be used, every effort should be made to ensure that their time on the site is minimised to reduce the risk.

Radiation sources shall be correctly stored in suitable locked containers prior to use or shipment.

Shipping, storage, import/export and handling of radioactive material and irradiating apparatus shall comply with Brunei regulatory requirements.

The Aban permit checklist shall be used to supplement specialist contractor procedures where necessary.

4.3.7 Height Hazards

Hazards associated with height are recognised as one of the industry's greatest concerns. Activities and areas where personnel are exposed to height hazards have been identified. Addressed in this section are;

- ♦ Working at Height,
- ♦ Dropped Objects Prevention,
- ♦ Rigging, slinging and lifting,
- ♦ Forklift.

4.3.7.1 Working at Height

 [Aban QHSE Manual - SAF 302.00 Working over water](#)

 [Aban QHSE Manual - SAF 340.00 Manriding](#)

 [Aban QHSE Manual - Form: SAF-015 Manriding operations checklist](#)

 [Aban QHSE Manual - SAF 350.00 Fall Protection](#)

 [BSP Lifting & Hoisting Standard \(BSP-ASS-Standard-004\) – for personnel lifting using work baskets](#)

Working at height issues have been identified and where possible eliminated. However, due to the design of the rig and its physical size and layout, there will from time to time be a requirement to work at height.

All work at height requires a PTW and associated JSA, toolbox talk, etc.

Further, at any time a person is working at height outside the boundaries of 'traditional' fall protection (e.g. dedicated stairs, walkways and platforms fitted with handrails), they must be connected 100% of the time to a suitable connection point using correct fall protection/arrest equipment and work at height practices.

The following work at heights tasks have been identified;

- ♦ Possible use of scaffolds for access and maintenance. Scaffolding activity is strictly controlled under the PTW system, and scaffolds and working platforms shall only be constructed, inspected and certified by personnel competent to do so.
- ♦ Man-riding operations are only allowed above the rig floor with line of sight and always under PTW control. Along with the man-riding harness the person man-riding must have a static line with secondary fall arrest connected. There is a dedicated man-riding winch installed. No swivels or tail chain are to be used and non-rotating wire is required.
- ♦ Personnel lifting using the man basket – this shall not be operated on a utility winch

4.3.7.2 *Dropped Objects Prevention*

 [Aban QHSE Manual - SAF 500.00 DROPS](#)

 [Shell Prevention of Dropped Objects Manual \(EP2009-9039\)](#)

Historically drilling operations have a relative high risk of dropped objects. These types of incidents tend to have a very high potential and are also random in terms of who they may affect. Potential for dropped objects will be a topic for discussion at toolbox talks, HSE meetings and, possibly, inductions.

The Shell manual will take precedence for overarching requirements for the prevention of dropped objects, and for mitigation of their consequences should a dropped object occur. The Aban procedure remains valid for the onsite DROPS programme.

Further more practical measures to reduce the risk include;

- ♦ The carrying out of an independent dropped objects survey prior to mobilisation,
- ♦ Rig acceptance prior to spud will include a mast inspection checklist and a dropped objects survey,
- ♦ All work in the derrick that requires tools to be taken to height will be:
 - Utilising tethered tools,
 - Managed by a register, and
 - Controlled under the PTW system
- ♦ Weekly derrick inspections
- ♦ Equipment and materials will be transported in approved lifting devices like containers and baskets, significantly reducing the chance of loose objects. Particular attention will be paid to the correct slinging and securing of tubular lifts coming and going from the rig. For loads to the rig this responsibility lays with the yard supervisor, the truck driver and the logistics coordinator. For loads coming from the rig location the verification responsibility is with the Crane Operator and Banksman.
- ♦ During lifting operations areas will be controlled as much as possible with barriers with access allowed only for authorised personnel
- ♦ Personnel transfers between vessels shall be by FROG, and by exception only. Prior approval from the onshore RM/WDTL shall be sought. Such transfers shall be limited to where there are no safer alternatives and be subject to an authorised PTW (incl. JSA, Toolbox meeting, etc).

4.3.7.3 *Rigging, Slinging and Lifting*

 [BSP Lifting Equipment Management Manual \(BSP-ASS-Guideline-006\)](#)

 [BSP Lifting & Hoisting Standard \(BSP-ASS-Standard-004\)](#)

 [BSP Procedure for Lifting Equipment Inspection and Certification \(BSP-72-Standard-012\)](#)

The BSP Lifting and Hoisting documents listed above shall be used as the prevailing documents for the management and use of lifting equipment and for lifting operations throughout the work programme.

Aban shall appoint personnel responsible for managing lifting activity and, in addition, appoint personnel responsible for managing the lifting gear store including ensuring compliance with pre-use and regular inspection requirements. These are consistent with BSP procedures for assigning a person in charge of a lift and CAP.

Stipulation on the provision of experienced and competent crane operators is inherent in contract terms and conditions. Refer to section 3.3.6.2 of this Bridging Document.

Due to the large number of lifting operations and limited space on the rig, it is recognised that lifting operations present possibly one of the largest hazards in this operation. For that reason the following additional measures have been put in place:

- ♦ Minimisation of manual handling by use of pre-mixed bulk fluids (e.g. brine, etc), bulk dry chemicals (e.g. barite, bentonite, cement, etc) and use of some dedicated large chemical containers (liquids) and big bags for dry chemicals, that are movable by forklift and crane,
- ♦ Use of forklift in the sack room, and training of forklift drivers,
- ♦ Installation of barriers and signs in working areas to prevent unauthorised personnel access to the lifting zone,
- ♦ Crews will receive Banksman (incl. Rigging and slinging) training.

During the work programme, colour coding of lifting equipment shall be in accordance with the BSP colour-coding standard.

Portable lifting tackle shall be fully inspected and certified on a 6-monthly frequency.

4.3.7.4 Forklift

BSP Lifting & Hoisting Standard (BSP-ASS-Standard-004)

The use of a forklift on the rig was deemed necessary to manage the movement and storage of chemicals and reduce manual handling effort.

A number of constraints are placed on the forklift and its operations:

- ♦ The forklift will operate on the rig only within the sack room,
- ♦ A revolving beacon and audible reversing alarm shall be installed and operational during use,
- ♦ The forklift will have restrictions on the height to which it can raise a load,
- ♦ The forklift will only be operated by a suitably qualified and certified person,
- ♦ The forklift will have clear standing instructions on the dashboard.

Onboard mechanics will conduct monthly and quarterly inspections of all forklifts, which will be documented in AMOS, under supervision of the Chief Mechanic.

4.3.8 Solids Control Equipment

Baker FES has detailed operations and maintenance manuals for all equipment in use for the work programme. These shall be available electronically from the onsite engineer, and shall accompany the equipment on the rig site in hard copy format. All engineers have total access to these and drawings for this work programme.

All rotating equipment shall be fitted with guarding so as to prevent personnel from entrapment. The units shall be fully protected by safety covers and cages provided by the manufacturer and are to be maintained at all times. Other than the replacement of shaker screens, all other maintenance shall be carried out and controlled under the PTW system. Therefore opening up or removal of guarding of rotational equipment is strictly controlled under the PTW system. Along with PTW, JSA must be completed and Tool Box talks must take place before work commences, and toolbox talks shall be documented.

All engineers shall be trained and know how to operate all the equipment they must operate.

Once dried, drilled cuttings will be disposed of in accordance with local regulatory and BSP requirements for each area of operation (refer to BSP Offshore Drilling Muds and Cuttings Disposal Principles and Management Guidelines, BSP-09-Guideline-014).

4.3.9 Carriage and Use of Personal Electronic Equipment

BSP Travelling Offshore (Module 29, BSP-14-Procedure-1625)

Non-intrinsically safe electrical equipment can affect the safe operation of the facility. If inadvertently carried into or used within hazardous areas risks include the potential for ignition sources and adverse electrical interference with explosives use or perforating operations. As such, controls relating to the carriage, storage, inspection and use shall be introduced.

Non-intrinsically safe electrical equipment includes, but is not limited to, mobile phones, pagers, radios, electronic cameras, digital cameras, lap top computers, electric razors, torches and other battery-powered equipment. Written permission must be obtained from BSP EOP/1 or WOP/1 (BSP Senior Offshore Supervisors) before any of these items can be taken offshore. This letter of permission must also be communicated to the security officers at the BSP embarkation points.

Personal mobile phones, pagers and other prohibited items shall be declared to the dispatchers on check in at the BSP embarkation points, and can be collected for safe storage.

Where non-intrinsically safe equipment, approved to be offshore, is to be used in operational areas a PTW must first be raised and approved, and a gas test completed prior to and at specified frequencies throughout the period of operation.

4.3.10 Rig Security and Access

 [Aban QHSE Manual – SAF 114.00 QHSE Site Orientation/Induction](#)

 [Aban QHSE Manual – SAF 510.00 Helicopter Operations](#)

 [BSP Travelling Offshore – Module 29, BSP-14-Procedure-1625](#)

All personnel accessing the rig shall hold a valid offshore pass indicating that they meet the minimum BSP and Aban offshore travel requirements.

Primary access security will be managed at the BSP-operated heliport facilities e.g. BSP Anduki heliport. As such, BSP procedures for checking in of passengers, personal baggage and freight will apply. Security staff at the heliport will conduct checks for prohibited items. Travelling passengers shall be briefed prior to the flight both in terms of safety and security.

The Medic or HSE Adviser shall meet all personnel when they arrive onboard the rig and administer the registration of these personnel. All personnel new to the facility shall undergo a rig HSE induction and orientation. Along with safety aspects, the induction includes aspects relating to the security of the rig e.g. prohibited items, etc.

All personnel will be issued with a T-card when first arriving at the DD8. Each individual T-card is placed in the appropriate section of the T-Card Muster Board to indicate that the person is on site. When the person leaves the site the T-Card is removed from the board.

Personnel onboard (POB) lists shall be generated and communicated to the Aban and BSP shore bases, immediately after any change in status.

A 500m exclusion zone for marine vessels shall be in force around the DD8 during well operations. Only those vessels with approval from the OIM/MIC may enter this zone. Incident notifications shall be raised should any unauthorised vessel enter the exclusion zone.

4.3.11 Noise and Vibrations

 [Aban QHSE Manual - HLT 400.00 Noise](#)

 [Aban QHSE Manual - HLT 420.00 Hand / Arm vibration \(HAVS\)](#)

Noise and vibrations cannot be completely eliminated. Traditionally the major sleep disturbing noises are other personnel talking in the accommodation hallways, squealing of the draw works brake, air horns and clanging of pipes. In the case of the DD8, the design of the rig and rig equipment attenuates much of the noise generated outside the accommodation. For noise within the accommodation, crews shall be constantly reminded (e.g. signage, HSE meetings) to keep noise levels to a minimum when they are nearby sleeping areas.







A noise survey has been conducted for the DD8. All high noise areas shall be identified and posted to advise personnel that appropriate hearing protection shall be worn in those areas.

Vibration of rig systems and equipment is not expected to present a hazard to the health and wellbeing of personnel. Operation of vibrating hand tools (e.g. needle gun) have the potential to induce 'white finger' however the identification and control of these hazards shall be through the use of PTW, JSA and toolbox meetings.

4.3.12 Flogging Spanners

Hydraulic wrenches, air impact wrenches and torque wrenches shall be supplied when required. Unfortunately, in drilling operations, access to the big bolts and nuts on wellhead and well control equipment is often restricted and in some cases using flogging spanners is the only way to make up or break out the bolts. Any flogging spanners used shall be made from approved materials and inspected before use for burrs and cracks. A JRA shall be prepared and care is required in their handling and use.

4.3.13 Environmental Controls

-  [Aban HSE Case for DD8](#)
-  [Aban Environmental Impact Register](#)
-  [Aban QHSE Manual - ENV 100.00 to ENV 480.00](#)
-  [BSP Waste Handling Procedure \(Module 51\) – BSP-02-Procedure-1636](#)
-  [BSP Oil Spill Contingency Plan – BSP-02-Procedure-0660](#)
-  [BSP Offshore Muds and Cuttings Disposal Principles and Management Guidelines – BSP-09-Guideline-014](#)

BSP and Aban are committed to jointly ensuring that all activities associated with the work programmes will avoid or minimise adverse effects on the environment through maintaining transparent and well-managed waste treatment, storage and disposal; responsible chemical storage and handling; efficient use of resources; and effective recovery measures to mitigate any accidental releases.

Wastes are to be segregated as much as is practicable on the rig. An estimate of the weight or volume of these waste streams is to be recorded (monthly by the WSDE) and reported on a quarterly basis to TSW/21. Standard skips are provided by BSP to ship the waste to shore for disposal.

Aban hold the responsibility to ensure waste is disposed of from each rig location as per the BSP waste management procedures listed above.

Disposal of mud and cuttings shall be in accordance with the BSP Offshore Muds and Cuttings Disposal Principles and Management Guidelines and in line with the work programme requirements dependent on location.

Oil spills from BSP operations shall be dealt with in accordance with the BSP Oil Spill Emergency Response Procedures. Aban shall ensure that spill kits are provided on the rig for containment and cleanup of any minor spills.

4.3.14 Logistics Operations and Supply

4.3.14.1 Helicopters

-  [BSP Aviation Operations Manual – BSP-SAV-Standard-001-A/B/C/D](#)

BSP will be providing helicopter transport for all personnel to and from the DD8 throughout the work programmes, in accordance with the procedure listed above.

4.3.14.2 Supply and Standby Vessels

-  [BSP Marine Procedures Module 3, Support Craft Operations – BSP-14.05-Procedure-103](#)

In most cases, and taking into account existing mitigations, no dedicated standby vessel will be in attendance at the DD8.

Periodically equipment and materials will be transported to and from the rig and wastes collected and transported back to shore. A supply vessel(s) will be utilised for this purpose and will follow BSP procedures for this activity. The rig shall work only one (1) supply vessel at any one time.

Key interfaces are within the 500m exclusion zone with approval to enter provided by the DD8 OIM/MIC in agreement with the supply/standby vessel Master after respective checklists are completed. DD8 is to issue its 500m pre-entry checklists to incoming vessels and rely on its systems and not those of the vessel owners to manage the interface. Once on location, effective communication between the vessel deck crew and the DD8 Crane Operator and Banksman is essential for safe load transfer operations, once the DD8 OIM/MIC gives approval.

Helicopters can be worked concurrently with supply vessels alongside however crane booms need to be stationary and the Crane Operator must be out of the crane cab during final helicopter approach, landing and take-off. This requirement must be clearly specified on the JRA associated with crane operations.

4.3.14.3 Bunkering

-  [BSP Marine Procedures Module 5, Supply Vessel Operations – BSP-14.05-Procedure-105](#)

The BSP procedure for Supply Vessel Operations shall be the reference document for bunkering operations throughout the work programmes.

Hose connection types and colour coding shall be in accordance with Section 4.4 of the above-mentioned procedure. Quick release self-sealing couplings shall be used for all hydrocarbon based products, base oil and Synthetic Based Mud.

Provision and arrangement of floats for floating hoses shall be in accordance with Section 3.17.5 of the above-mentioned procedure.

Bulk hoses shall be hydro tested when first made up. In service leaking testing shall be carried out using potable water wherever possible.

When undertaking fuel transfers no other bunkering is to take place. However, concurrent bunkering of other fluids/bulks (mud, cement, barite, bentonite, etc) is permitted.

4.3.14.4 Supply Bases

Supply bases shall be managed in accordance with the respective BSP or contractor HSE-MS standards and procedures.

4.3.14.5 Land Transport

 [BSP Land Transport Policy and Guidelines \(BSP-14.02 Policy/Guideline 001\)](#)

 [Aban QHSE Manual – SAF 550.00 Vehicle Transportation Standards](#)

 [Aban Brunei Travel Policy](#)

The utilisation of land transport presents a significant HSE risk exposure to personnel, the public, and equipment being moved between suppliers and shore-based logistics yards/wharves. As such, BSP places particular emphasis on road safety and has a suite of standards and procedures to provide guidance and direction to eliminate or at least reduce the risk of an adverse event. Contractor procedures for land transport shall be closely aligned with the BSP requirements for all work-related land transport activity.

4.3.14.6 Rig Moves

 [Aban Marine Operations Manual](#)

Rig moves shall be conducted using Aban procedures for these activities. Liaison with BSP Marine, BSP Aviation and Well Engineering Departments shall be maintained where required.

5 PLANNING AND PROCEDURES

5.1 Planning, Programmes and Manuals

During the planning process attempts are made to eliminate, mitigate or avoid most of the risks identified prior to the execution of the work programme. Subsurface/well risks are identified early in the process and are highlighted in the Well Data Packs. The WDTL signs off the Work Programme(s) to certify that all identified subsurface/well risks have been acknowledged and addressed.

The project Well Engineer compiles the Work Programme and together with Well Engineering documentation and the HSE Interfacing Documents these form the main set of instructions for the DSV and well construction team. These documents, including the specific procedures referenced therein, are translated on site into a set of standing instructions to the Toolpusher, Driller, Roustabout Foreman and Crane Operator, who in turn communicate to and direct their respective crews.

It is the responsibility of the BSP DSV and the Aban OIM/MIC to continually assess the suitability of these documents and liaise with the Well Engineer and the shore-based BSP and Aban project supervisors recommending any alterations that may be required. Deviation is to be agreed with the issuer who can assess what level of authorisation is required for the change in accordance with change management controls, see Management of Change – section 5.16 of this Bridging Document.

5.2 Procedures and policies

The Aban HSE-MS, Contract HSE Plan ([Ref 2](#)) and the DD8 HSE Case summarise the safe systems of work operated by Aban. Other contractors have developed safe work practices for their activities and equipment.

BSP has reviewed the procedures, work instructions and general safety guidelines of Aban and compared them with BSP and Shell global procedures. As the contract between Aban and BSP is categorised as Mode 2, Aban procedures will, in the main, prevail during the work programmes. This Bridging Document supports this and also highlights those activities where this is not the case.

A comparison with other contractor's procedures has not taken place and the default is that the Shell procedures will apply where there is a potential conflict unless otherwise agreed between the OIM/MIC and the BSP DSV.

Note that HSE policies of all key contractors and BSP are fundamentally aligned.

5.3 DD8 Drawing Set

[Aban HSE Case for DD8, Part 2 Section 8 References](#)

This section of the DD8 HSE Case gives a listing of the general and machinery arrangement drawings for the DD8.

5.4 Hazardous Area Classification

[Aban Hazardous Area Plan](#)

Hazardous area classifications have been designated for specific areas throughout the DD8 and shall be made available on the rig.

5.5 Permit to Work

[Aban QHSE Manual - SAF 300.00 Permit to Work System](#)

For the initial work programme in Mampak, the Aban PTW system shall be used. All users of this system shall be trained in its use and have been assessed competent prior to undertaking work requiring a permit.

[BSP Safe System of Work – BSP-02-Procedure-1622 \(Module 3\)](#)

When the rig mobilises to the Champion West location, from this time the BSP electronic Permit to Work system (SSoW) shall be used on the DD8 and thereafter throughout the duration of the remainder of the work programmes. All users of this system shall be trained in its use and have been assessed competent prior to undertaking work requiring a permit.

For both PTW systems, the OIM/MIC and DSV shall jointly assure that any simultaneous activities within all spheres of influence are considered under the PTW system and MOPO.

PTW are used in conjunction with relevant work procedures and instructions, JRA, toolbox talks and other related procedures e.g. LOTO, confined space, hot work, etc. As such, personnel are required to be conversant with these associated procedures.

For LOTO, where practicable, double lock-out shall be implemented to provide an additional level of safety.

5.6 Working Hours

 [BSP Human Resources Policy and Practice Manual – BSP-20-Guideline-HRPPM-0002](#)

Working hours have been set according to Brunei legislation, BSP and Aban guidance and industrial award practises that are designed to maintain safe and healthy work conditions. The following shall be applied to all BSP and Aban staff, and their contractors and subcontractors, for the duration of the work programmes;

- ♦ Normal shift rotation:
 - 28 days on / 28 days off, or 28 days on / 14 days off. Rotation is dependent on crew location status (ie expat or local),
 - 12 hours work with 12 hours time-off per day, with additional overlap time required for effective handover and pre-tour meetings.
- ♦ Call-Out work single shift (short-term or emergency)
 - 16 hours work with 8 hours time-off.

A minimum of 8 hours rest must be taken between shifts.

Time-off is intended to provide an adequate period of rest and sleep and accordingly all persons working these types of work patterns are expected to be "work free" in all capacities during such periods.

Call-out work is not to exceed 16 hours in one shift and consultation is required with the OIM/MIC and BSP DSV to ensure adequate safeguards are in-place and safe working conditions are maintained. All such arrangements must be discussed with, understood and agreed to by the workers concerned. Where additional hours have been approved these must not exceed 16 hours in one shift.

The maximum continuous duration for BSP and Contractor personnel working during the work programmes shall be no longer than thirty-five (35) consecutive days. The BSP Rig Superintendent shall be advised if any personnel are to exceed 28 days continuous duration.

The day rig crew works from 0600 to 1800 and the night rig crew starts at 1800 and works through to 0600. Rig management will generally operate in a similar fashion. All other personnel work from midday to midnight or midnight to midday. This provides supervisory continuity during the main management meeting periods.

5.7 PPE

 [Aban QHSE Manual - SAF 110.00 General Safety Rules](#)

 [Aban QHSE Manual - SAF 350.00 Fall protection](#)

 [Aban QHSE Manual - SAF 540.00 Eye protection program](#)

 [Aban QHSE Manual - HLT 100.00 Respiratory protection](#)

 [Aban QHSE Manual - HLT 400.00 Noise](#)

Minimum PPE standards apply for all personnel working on the rig location. PPE shall be worn when working in, visiting or passing through all operational areas and includes;

- ♦ Eye protection – Safety glasses, with side shields. Prescription safety glasses must be rated for the expected exposure and impact and must also have side shields fitted,
- ♦ Approved plastic hardhat with chinstrap,
- ♦ Safety boots with steel toecaps,
- ♦ Hearing protection (Class meeting or exceeding noise exposure levels) in high noise areas,
- ♦ Hand gloves,
- ♦ Coveralls – covering full body and limbs. Coveralls shall be made from fire retardant material
- ♦ Specific additional PPE is required for hazardous activities. The Rig HSE Adviser will guide personnel on these requirements.

Hard hats, coveralls, safety footwear and safety glasses are MANDATORY in all operational areas.

The correct class of hearing protection shall be worn in high noise areas. Hearing protection (ear plugs) shall be worn as a matter of course in situations where personnel need to raise their voices, due to background noise, in order to talk with others within a range of 2m.

When outside recognised accommodation and administration areas, personnel are required to comply with these requirements regarding gloves, in addition to the wearing of mandatory PPE:

- ♦ Always have gloves in their possession, and the default practice is that personnel should be wearing gloves,
- ♦ For work activity, specific glove type(s) shall be determined during preparation of JRA's,
- ♦ When carrying out tasks that require the removal of gloves, e.g. calibration of instruments, this can be expected and should be noted on the JRA.
- ♦ Wear the correct type of glove for the task being undertaken, e.g. when selecting gloves for chemicals handling follow the guidance from the MSDS.

5.8 Hand-over

Aban Shift Handover Log

The passing on of critical safety and operational information during a shift change shall be through a written and verbal exchange. Each discipline shall have a dedicated handover log for use between shifts and tours. Relevant historical and planned events and data shall be clearly described in a legible format. Each handover shall be presented to the oncoming party who must acknowledge full understanding by cross checking and confirming information as they assume responsibility for their shift.

Supervisors have the responsibility to ensure adherence to this important requirement and the quality of handovers.

Short period relief of the Driller shall be by the Toolpusher.

It is strongly recommended that the Toolpusher overlap with the crew changes of the Drillers and be present on the drill floor during these periods.

The handovers shall, as a minimum, cover the following information:

- ♦ Any hazards identified during the previous shift that could not be eliminated, and the controls that are in place
- ♦ Any alarms tripped over the shift
- ♦ Any troubleshooting of operational processes that took place, including remedial action taken and the final status
- ♦ Any critical aspects of the operation (including HSE) that is being monitored
- ♦ Information should be rig specific and should include reference to any procedures in place at the time of the handover (Work Permits, Hole Problems, Well Control, Maintenance work in progress)
- ♦ Any critical equipment or components that have been taken out of service or bypassed.

5.9 Communication

Clear and effective communication is critical for the safe execution of tasks and activities.

All operational instructions relating to the well programme shall be channelled through the BSP Well Engineer.

All HSE and well control incidents shall be notified to the Aban Rig Manager and BSP Rig Superintendent.

Rig calls to onshore team shall take place daily.

Seamless communication of instructions between the various disciplines on the rig is also imperative. To this end the OIM/MIC and the BSP DSV will play a major role in the efficient communication and implementation of the work programmes.

Standard phone, fax and computer connections have been (will be) set up for the rig. These will allow access to selected Aban and BSP systems and documents, email and also the Internet.

For the DD8 there is a public address system installed. This system allows local telephone communications and also alarm and public address functionality. Telephone handsets and speakers will be located in strategic positions about the DD8.

For communication of other HSE information refer sections 6.1.5, 6.1.6 and 6.1.7 of this document.

5.10 Management of Change

5.10.1 Introduction

Changes relevant to the work programme can occur in information, equipment, procedures, personnel and conditions. Both Aban and BSP corporate policies state or imply that changes and their potential impact on HSE must be recognised and managed to reduce the resulting risk to ALARP.

To achieve this objective, change management processes will be in place for the work programmes. Hazard identification and assessment methods mentioned within this Bridging Document in sections 4 & 5 and their sub-sections, and in the DD8 HSE Case, will be used to recognise and evaluate the impact of change both prior to and during a job.

The over-arching principle is that the decision as to which change management procedures are to be followed for any given case is determined by which company has produced the documents concerned, or has ownership and responsibility for the equipment concerned. Where a change has a knock-on impact on other documents, systems or equipment (e.g. a change to the rig has an impact on the bridging document) then these impacts and updates must be addressed concurrently.

In overview:

- ♦ Requirements for change may be identified at any time,
- ♦ Routine opportunities to optimise operations may be taken by the execution team and do not require formal change control. This is a matter for professional judgement and the requirement for whether formal change control is required should not be taken in isolation. The Well Activity Owner and other members of the Project Team/technical experts shall be consulted,
- ♦ Change management should be a subject at the morning operations meeting – changes can often be stopped before they happen or deviations quickly corrected through team discussion and peer assist for complex operations,
- ♦ All significant changes, particularly those that increase risk or affect the Well Technical Specifications are subject to change control,
- ♦ Proposed changes should be carefully thought through and the Change Proposer should be prepared to substantiate the change including the gains to be made, the resources required and the regrets value of not making the change (HSE, cost and time impact),
- ♦ Changes are to be engineered to the same level of detail as the original design or better,
- ♦ Proposed changes are documented on a Change Control Request Form,
- ♦ The Technical Review Team and Well Review Board monitor for unauthorised changes in addition to endorsing changes.

It is the responsibility of supervisors at all levels to ensure that the management of change is carried out correctly within their respective areas, and it is the responsibility of project management to ensure that adequate resources exist to carry out the change management process in a safe manner.

5.10.2 BSP Well Engineering Department

EPA/BSP Well Delivery Process Section 7 Sub Processes – Change Management

For Well Delivery Process related changes, the above-mentioned change management procedure and forms shall prevail. If such changes impact upon any of the other project documentation, the originator/approver of the relevant document will make/approve changes as necessary.

Where a change is minor and does not warrant a published revision of the programme, as determined by the BSP Well Engineer, Rig Superintendent and DSV, the decision can be made after agreement between the parties.

If a programme amendment/dispensation is required, this shall be authorised by the TA Level 3 approver (BSP WDTL). Project specific deviations from 'shoulds' in standards, and 'shalls' in Wells procedures, will be endorsed by TA Level 2 approvers (Head of Well Operations). Finally, specific deviations from Group Well Engineering standards and 'shalls' in Wells minimum standards will be authorised by TA Level 1 (Regional Chief Well Engineer).

The BSP Well Engineering departments are also responsible for ensuring the interface with all drilling contractors is managed appropriately with respect to change. The most obvious of these is Aban, discussed below, but the same applies to any other contractors directly employed. The principle to be followed is as before, every company is to provide change management procedures for their own

equipment and procedures. The BSP Well Engineering departments reserve the right to review all proposed changes to procedures, personnel and equipment before implementation.

5.10.3 Aban

 [Aban ISM 900.00 Section IX](#)

Aban is responsible for managing changes to the DD8 equipment and operation. This includes Aban procedures as well as any changes to the rig structure, HSE case, etc.

Proposed equipment modifications and procedure changes must be discussed between BSP and Aban at project management level and/or on the rig to ensure that an informed decision is made and that any impacts on other project documentation and systems are sufficiently considered. Some changes also require BSP approval under the contract (e.g. change of key personnel).








5.10.4 Responsibility for Change Management & Communication

In all cases where project management agrees change, the party responsible for approving the change is also responsible for communicating the change to those companies/departments impacted. Office coordinators are responsible for passing information to site supervisors, and site supervisors for passing information to all appropriate DD8 personnel. Minor changes agreed on the DD8 must be passed back to office-based project management for information and inclusion in future planning.

5.11 Emergency Plans and Procedures

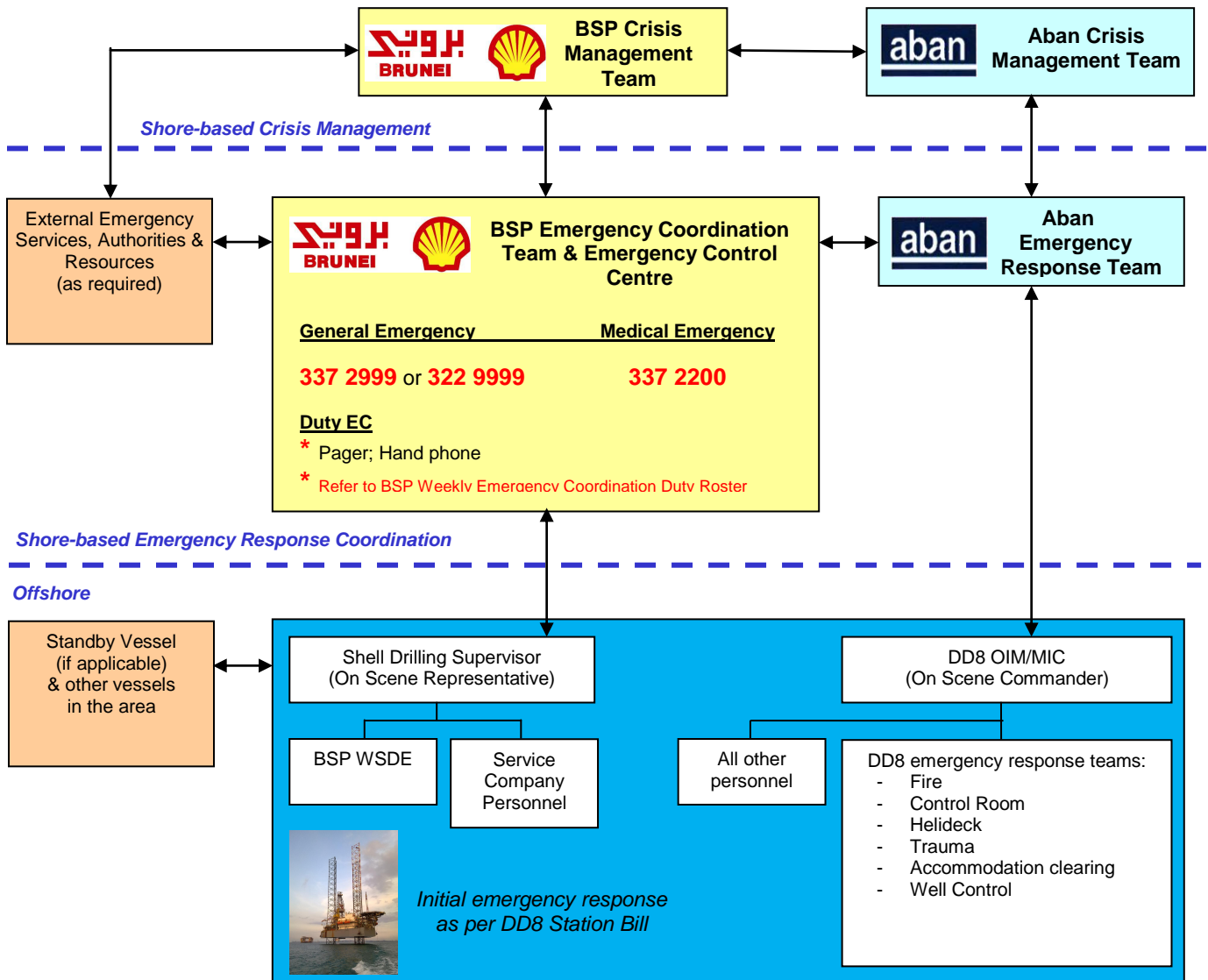
5.11.1 Introduction

What constitutes an emergency, who initiates an emergency response and who controls any emergency response are described in the various BSP and Aban emergency response plans and procedures. All emergencies arising on the DD8, and any arising elsewhere that may impact DD8 operations, shall be managed in accordance with the documents listed below:

| Aban | BSP |
|---|--|
| <ul style="list-style-type: none">  DD8 Station Bill  DD8 Emergency Response Plan | <ul style="list-style-type: none">  BSP Emergency Coordination Procedures (BSP-02-Procedure-0359)  BSP Well Engineering Emergency Response Procedures (BSP-02-Procedure-0384)  Panaga Health Centre Emergency Procedure (MER) (BSP-02-Procedure-0389)  BSP Oil Spill Emergency Response Procedures (BSP-02-Procedure-0660)  EPA/BSP Routine & Emergency Response for Well Control Incidents (including blowouts) |

Emergency response to well control incidents is further specified in this section. In addition, responses to some unplanned events that would not necessarily cause a formal emergency are defined.

5.11.2 General Emergency Coordination Communications Structure



Site response – DD8

A Station Bill has been provided for the DD8. All personnel are required to read and understand the Station Bill and comply with its requirements.

With reference to the Aban and BSP emergency response procedures the:

- ♦ **On Scene Commander (OSC) is the Aban OIM/MIC on location**
- ♦ **On Scene Representative (OSR) is the BSP Drilling Supervisor on location**

Sometimes the emergency situation may be controllable locally. However the BSP shore-based emergency coordination should be informed of the situation. If the threat exists that the situation has or may escalate, then external support and resources shall be advised and may be mobilised.

5.11.3 Medical Emergency Response and Follow-up

A medical emergency response may require a MEDEVAC. In these cases the initial overall protocol in place for all locations is as per BSP procedures illustrated in Appendix 2. In general, Aban utilise International SOS (ISOS) for their medical support services. Once the patient is stable in a tier 3 hospital, Aban procedures will be enacted to address repatriation and follow-up issues.

5.11.4 Well Control Emergency

 [Aban Well Control Manual](#)

 [Shell Pressure Control Manual for Drilling and Workover Operations – EP-2002-1500](#)

Responsibility for shutting-in a well lies with the Driller and Aban will ensure that the Driller is aware that he is empowered to perform this task.

Any decision regarding well kill will be a joint decision between BSP and Aban. Ultimate responsibility for any well kill decision rests with the DSV (offshore) and BSP WDTL (onshore), however the execution of any well kill operation will be the responsibility of the Aban OIM/MIC.

At all times there will be a minimum of one Aban employee on the rig floor who is competent in well control, demonstrated by holding a current International Well Control Forum (IWCF) certificate. All Aban personnel must know and comply with the Aban approved well control procedures and work instructions and the aforementioned Shell documents.

For well blowout, any recovery action should be organised at the time by specialists (e.g. Alert Disaster Control, Singapore). Given that there are no trained blow-out specialists located in Brunei, and neither is there any specific blow-out contingency equipment, there is very little that can be done in terms of pre-planning especially since there are many different scenarios possible that each require a completely different recovery plan. Specialists engaged for support shall provide the necessary equipment, personnel and services to effect a well blowout emergency response. BSP and Aban shall provide all necessary information and other resources to the specialist as required.

5.11.5 Response - Onshore Logistics

Response to an emergency outside BSP or Contractor controlled sites relating to onshore logistics e.g. truck carrying pipe or chemicals has an accident on route, would be initiated as per any public response and dealt with by the emergency services (Police, Fire and Ambulance).

5.11.6 Response - Yards

Responses to emergencies at the yards of Contractors are strictly managed by the emergency response plans of the individual contractors.

5.11.7 Other emergencies

5.11.7.1 *Black-out Recovery of DD8*

 [Aban Maintenance Manual](#)

Power generation and management systems, including back-up systems and UPS, are provided throughout the DD8. There are UPS systems supporting both the fire/gas detection systems and the PA/GA system. Emergency egress lighting has battery back-up.

The ESD and Fire and gas detection systems are supplied with clean 120Vac power from a UPS source. In addition to being UPS supported each has a dual power source from a 120Vac main and Emergency supply.

Electrical power from the Emergency Generator can be back-fed to any distribution panel, with the exception of the drilling panel. In cases where main engines are down, this is an interim method to provide power to rig systems while the main engines are reinstated.

5.11.7.2 *Rescue from Rig Confined Space*

 [Aban QHSE Manual \(SAF 310.00\) Confined Space entry Table 2](#)

Although confined space entry is not specifically planned for during well operations there may be instances where it is required on the DD8, e.g. tank cleaning.

Note that confined spaces are not restricted solely to enclosed spaces and also include partially enclosed spaces such as open top tanks etc where there is a risk of encountering hazardous atmospheres, substances or conditions.

Robust monitoring and recovery procedures shall be in place and emergency escape packs for all personnel entering the confined space shall be made available prior to and throughout the confined space activity.

The team appointed and registered on the confined space entry JRA and PTW for rescue will be personnel identified from the DD8 team as being BA and confined space competent.

5.11.7.3 Rescue From Heights

 [Aban QHSE Manual \(SAF 340.00\) Work at Height](#)

A pre-defined rescue crew, in accordance with Aban procedures, will carry out rescue from height on the DD8.

The dedicated man-riding winch shall be utilised for rescue of personnel from height in the derrick and the operation of this unit will be under PTW and shall be logged. The unit has the following features:

- ♦ Is operated by competent personnel only,
- ♦ Has a slack line cut-out,
- ♦ Has emergency air shut off and two braking systems,
- ♦ Has an emergency lowering system,
- ♦ Has limit switch adjustments to set maximum pay-out and haul in limits,
- ♦ Only operated in line of sight.

Potential for suspension trauma shall be considered and recovery measures detailed on the JRA.

6 IMPLEMENTATION, MONITORING & CORRECTIVE ACTION

6.1 Implementation

6.1.1 Overview

HSE-MS for the well programmes is implemented through:

- ♦ Accountability for Safety,
- ♦ Inductions,
- ♦ Selection, training and competence of personnel,
- ♦ Roll out and enforcement of the HSE-MS documentation prior to and during the work programme, including the DD8 HSE Case and this Bridging Document,
- ♦ Identification and assigning of HSE Critical Roles and Responsibilities,
- ♦ Monitoring of HSE performance against the Contract HSE plan,
- ♦ Focussed meetings and handovers,
- ♦ SMART observation and intervention programme,
- ♦ Contractor HSE meetings,
- ♦ Management and project team site visits,
- ♦ Inspections, review and audits,
- ♦ External HSE communications,
- ♦ HSE promotions.

6.1.2 Inductions and Orientation

 [Aban QHSE Manual – SAF 114.00 QHSE Site orientation / Induction](#)

Personnel inductions shall be held to highlight the main objectives, the key documents and their relationship to each other and the key features of the HSE-MS as applied to this work programme.

DD8 site inductions and familiarisation orientations shall be held for all new personnel arriving at the rig – refer to section 3.3.3 of this document.

6.1.3 Training and Mentoring

 [Aban Training Manual and Training Matrix](#)

 [Aban Training Manual – TRA 200.50 Short Service Employee Program](#)

Training and competence assessment of individuals in key HSE areas are important tools for managing the HSE-MS applicable to this work programme and for achieving the HSE objectives. Training and competence issues are discussed in section 3.3 of this Bridging Document. In particular, competency assessments of Drillers (e.g. well control), Crane Operators, Forklift Drivers, Banksman, and Electricians, are critical to safe operations.

Refer to section 3.3.8 of this Bridging Document for information on Short Service Employees.

6.1.4 Document Distribution

Timely distribution, prior to well operations, of key project HSE documents, including the HSE Case, this Bridging Document and the Emergency Response Procedures, to key supervisory personnel of both BSP and Aban is important to ensure they have the time to digest the information.

Other documents that will be rolled out to key personnel include:

- ♦ Work (Well) Programmes,
- ♦ Aban Contract HSE Plan

6.1.5 Meetings

Meetings, both scheduled and unscheduled are essential for effective communication of HSE issues. The following meetings will occur during operations on site.

6.1.5.1 Rig-based meetings

- ♦ Pre-spud meeting:

Pre-spud meetings are intended for all personnel who are to work on the DD8. Pre-spud meetings shall be held for each well to be drilled and they will highlight key work programme aspects and relevant HSE issues.

- ♦ Morning supervisory meeting:

 [Aban QHSE Manual – SAF 270.00 Health/Safety/Environmental meetings and drills](#)

Held early morning with the senior supervisors to discuss the operations for the coming day including any operations that will need a PTW.

Subsequently, and when required, there will be a brief meeting with contractor representatives on drilling-specific issues.

- ♦ Pre-tour meetings:

 [Aban QHSE Manual – SAF 270.00 Health/Safety/Environmental meetings and drills](#)

Pre-tour for each crew - it is expected that all drilling personnel that have not attended the supervisory meeting in the morning will attend the pre-tour meeting. Issues raised at the morning meetings, which affect the workforce, are communicated via the pre-tour meeting. The first pre-tour meeting after a crew change will be more extensive to include an overview of operations past and present and a refreshment of JRA for routine operations should this be required.

- ♦ Pre-job toolbox meetings:

 [Aban QHSE Manual \(SAF 330.00\) Job Risk Assessment: Section 5.11 Communication](#)

Toolbox meetings shall be held prior to each work activity. JRA for the activity shall be discussed, reviewed and updated as required to enable more detailed hazard and control barrier identification and assessment prior to commencing the tasks.

- ♦ Weekly HSE meeting.

 [Aban QHSE Manual – SAF 270.00 Health/Safety/Environmental meetings and drills](#)

HSE performance is reviewed on site every week during the HSE meeting. Special issues, such as incidents and learning points from both internal and external sources, are discussed and this is the opportunity for onboard personnel to reflect on and discuss HSE issues that can be improved.

6.1.5.2 Office-based meetings

- ♦ Daily morning and afternoon conference calls between key parties related to the operations.
- ♦ Monthly contract meeting,
- ♦ Quarterly and Annual business performance review.

6.1.5.3 Drilling Community-based (e.g. Menang) meetings

- ♦ Menang partner meetings including technical presentations and discussion:
Contractors are required to be involved in the scheduled Menang meetings on a weekly basis.
- ♦ Menang HSE meeting:
Contractors are required to actively participate in the Menang HSE meetings on a monthly basis.
- ♦ Steering group committee:
Selected representatives from BSP and the contractor community are involved in the steering group
- ♦ Business Partner Forum:
Contractor Managers and selected BSP management and HSE gather for HSE discussions generally focussed on a specific theme of the quarter.

6.1.6 Other HSE Communication

There will be regular roll-out of HSE documentation during the work programme. This will include;

- ♦ HSE Alerts from Aban, BSP, contractors and industry,
- ♦ Safety videos (for safety meetings),
- ♦ Hazard Packs and posters,
- ♦ LFI packages.

6.1.7 Promotion of HSE

 [Aban QHSE Manual – SAF 400.00 QHSE Bulletins](#)

Provision of HSE material to the rig operation is mainly via internal and external HSE Alerts. This process is described in the Aban procedure stated above.

The SMART card system (refer to section 4.2.3) is the Aban behaviour-based observation programme. There are monthly and quarterly incentives aligned to the quality participation of the programme. The best cards may be selected for reward under the Drilling community (e.g. Menang) partnership arrangements.

Performance bonuses are to be paid to crews for achieving specific milestones throughout the work programme.

6.2 Monitoring

 [Shell Performance Monitoring and Reporting Specification 2010](#)

 [Shell EPA/BSP Wells Documentation](#)

 [Aban QHSE Manual](#)

6.2.1 Reports

HSE objectives, targets and KPIs have been set and are contained in the Aban Contract HSE Plan. Monitoring of the DD8 HSE performance will be undertaken in accordance with this Plan.

Other reporting requirements include;

- ♦ Daily Drilling Reports (some HSE content),
- ♦ Mud Reports (some data recorded here to be included in the environmental report),
- ♦ Incident reports, incident investigation reports,
- ♦ Aban SMART card trend summaries,
- ♦ Aban rig HSE Adviser monthly reports,
- ♦ Monthly HSE statistical reports (submission of all project participants required).

6.2.1.1 Environmental Reporting

 [Shell Performance Monitoring and Reporting Specification 2010](#)

BSP is required to collate and report environmental data. This includes process emissions and discharges (volumes and quality), spills and contamination, waste disposal, energy use and efficiency, and the use of chemicals, water and other raw materials that arise from all BSP operations.

The DSV, with assistance from the WSDE, shall ensure that recording of all relevant environmental data is undertaken throughout the work programme. The environmental reporting shall include;

- ♦ Rig fuel usage,
- ♦ Chemical usage (via daily mud report and EOWR),
- ♦ Details of drilling waste transfers to disposal (WDF and EOWR),
- ♦ Where SBM is used, details of residual oil on cuttings percentages (%OOC) prior to disposal of the dried cuttings overboard (DDR and EOWR),
- ♦ Details of fluid transfers between tankers and rig site (DDR and EOWR)
- ♦ Details of any spills (Fountain),
- ♦ Segregated waste disposal (Waste Stream Log), ie for recycling and disposal

- ♦ Details of domestic and industrial waste removed (WDF).

6.2.2 Records

Record keeping will be primarily in accordance with Aban procedures as detailed in the Aban HSE-MS. However, consideration shall be given to BSP requirements and individual contractors will maintain records in accordance with their own corporate HSE-MS procedures.

6.3 Corrective action

6.3.1 Incident Notification, Reporting and Investigation

- 📖 Aban QHSE Manual - SAF 200.00 Notification of incidents and reporting of illness or injury
- 📖 Aban QHSE Manual - SAF 210.00 Personal injury / illness classification
- 📖 Aban QHSE Manual - SAF 220.00 Initial incident investigation procedure (actual and potential severity guides)
- 📖 BSP Incident reporting and classification – BSP-02.01.05-Procedure-1621 (Module 30)
- 📖 BSP Incident investigation procedure – BSP-02-Procedure-1620 (Module 31)
- 📖 Shell Incident Reporting and Follow-up – EP2005-0170
- 📖 Shell Performance Monitoring and Reporting (PMR) Specification 2010

The SMART card system allows the reporting of unsafe practices or hazardous situations where immediate action is able to rectify the issue. All SMART cards are assessed by the onboard HSE Advisor and are made available for review by the OIM, Senior Toolpusher and DSV.

Upon further investigation the OIM, Senior Toolpusher or DSV may upgrade a SMART card to an incident report. Similarly applicable for Life Saving Rules violation.

All incidents that occur during the work programme are to be reported immediately to the OIM and communicated in detail to the DSV. A '24hrs flyer' should be sent within 24hrs via TSW HSE admin.

All incidents for the work programme will be reported and recorded in the BSP Fountain Impact database by the DSV. To manage reporting consistency the detail will be discussed between the DSV, OIM and Senior Toolpusher (and where necessary the BSP Rig Superintendent) and agreed by all parties before the report is entered into Fountain.

Where an investigation is required, BSP and Aban will appoint a team and perform the investigation. While Aban procedures will be used, close consideration shall be given to BSP Incident Investigation Procedure and Shell Group Standards. It is understood that each company has a responsibility to perform incident investigations in accordance with their own corporate HSE requirements however where appropriate the requirements of the different systems will be addressed in a single investigation process.

For rating the severity of actual consequences, and also for determining the severity and likelihood of potential consequences of an incident, the Shell RAM (2010) shall be used.

6.3.2 BSP 'Fountain' and Aban 'CAR'

The Shell Fountain database is to be used to record all action items arising from incident investigations, audits and reviews that require BSP follow-up. Specific action parties and target dates are included to ensure each action is tracked to closure.

Similarly, Aban utilises their Corrective Action Report (CAR) database. This is also used to record SMART cards and monitor any follow-up actions resulting.

Where practicable, agreement shall be reached as to which system will best manage each particular issue for inclusion, so far as to mitigate duplication. Where the Aban system is used, Aban are responsible for providing BSP with monthly updates of progress made towards closing out action items.

7 EQUIPMENT AND MATERIALS INTEGRITY

7.1 Certification, Design and Inspection Standards

7.1.1 Standards

The standards as per Wells Documents (ref section 1.1, Figure 1) apply as a minimum to all the drilling equipment and materials used on this work programme and are reflected in all Well Engineering contracts. Where there is a conflict between Well Engineering and Engineering standards, these will need to be resolved by the applicable Technical Authorities and Project Leaders since the additional requirements would not have been in the Well Engineering contracts and hence may have a commercial and/or schedule impact.

7.1.2 Certification

 [Aban DD8 HSE Case Part 2 Facility and Operation Section 3.2](#)

7.1.2.1 DD8

DD8 is a non-propelled, 5th generation KFELS Super B Class self-elevating independent leg Mobile Offshore Drilling Unit (MODU), capable of drilling high temperature / high pressure (HT/HP) oil and gas wells up to 35,000ft deep in water depths of 350ft.

DD8 is registered under the Singapore administration and classed by the American Bureau of Shipping (ABS) with the following classification:

- American Bureau of Shipping, A1 Self-Elevating Drilling Unit, CDS (2001 Rules)
- IMO Certification : Yes
- Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989 with 1991 Amendments

The DD8 is identified with the IMO number 8769080

Refer to the DD8 HSE Case Part 2 for further details relating to rig construction and certification.

7.1.2.2 Lifting and Hoisting

All DD8 lifting and hoisting equipment shall be inspected and maintained in accordance with DD8 certifying authority requirements.

7.1.2.3 Vessels

All DD8 pressure vessels shall be inspected and maintained to ensure compliance with DD8 certifying authority requirements.

7.1.3 Third Party Equipment Checks

 [Aban QHSE Manual – SAF 520.00 Third Party and Subcontractor equipment](#)

BSP, third party and sub-contractors' equipment provided for use on-board the unit that has been identified as safety critical is subject to verification and is required to meet the performance standards established within the unit's verification scheme. Any safety critical equipment provided by contractors and sub-contractors is assessed against defined performance standards, which is based on recognized industry-wide standards, prior to being taken offshore.

BSP, third party and sub-contractors' equipment provided for use in hazardous areas must be certified as fit for use in such areas. Prior to use the equipment shall be checked to ensure it complies with the hazardous area requirements.

When equipment arrives on the DD8, the OIM/MIC, or his delegate, will inspect the equipment and review its associated documentation and assess the contents thereof against the performance standards. It is at the OIM/MIC's discretion, based on his findings, to reject any piece of equipment covered within the verification scheme that does not meet the requirements thereof.

The requirements for supply of air, water or power to any 3rd party equipment or other contractors' equipment from the rig should be verified with Aban prior to sending the equipment offshore. On the DD8 it will be further subject to the 3rd party equipment check and PTW control (if applicable).

7.2 Maintenance Procedures

Aban Maintenance Manual

The maintenance of all Aban equipment is carried out in accordance with the Aban Asset Management Operating System (AMOS) documented in the Aban Maintenance Manual. This maintenance program is a comprehensive and systematic approach that includes inspection, reporting of results, analysis of these results and suitable response actions to these. The system encompasses all of the Aban equipment and critical DD8 equipment is managed through a periodic inspection policy and overhaul schedule. Aban personnel are responsible for implementing the system.

Subcontractors are responsible for the preventive maintenance of their own equipment in accordance with individual maintenance schemes and procedures that they will need to have available on site. These subcontractors are required to satisfy the OIM/MIC and the BSP DSV that such maintenance has been performed so that the equipment is safe, fit for purpose and fully operational.

7.3 Materials

Aban QHSE Manual – QUA 100.00 to QUA 160.00

Notwithstanding the procedure listed above, the procurement of all spares, replacement parts and materials will be in accordance with the individual contracts. Adequate documentation verifying any equipment as fit for purpose must be provided. If the documentation does not arrive with the equipment, the equipment will not be put into service until such time as verification can be made to the satisfaction of the OIM/MIC and/or the BSP DSV, as appropriate.

Hazardous substances are managed through individual contract specifications, hazardous waste management procedures and MSDS.

MSDS shall be made available within a register kept onsite.

The drilling fluids contractor will manage drilling fluid requirements onsite including quantity requirements, handling, storage and removal, although rig crews usually do the actual handling of drilling-related chemicals.

8 AUDITS AND REVIEWS

8.1 Audits/visits

Audits and management visits will be conducted as per the Contract HSE Plan. BSP HSE plans also include a schedule of BSP and Contractor management site visits and audits.

8.2 Reviewing

A management review of the well development program HSE performance will be performed following completion of each well and involve the respective BSP Well Engineering Teams, Aban and the principal other contractors. This review is part of the end of well review and will address HSE performance against targets set and analysis of incidents that occurred during the program with an emphasis on adopting lessons learned for future operations.

Actions arising from this review will be recorded in the BSP Well Engineering Action Tracker Data Base.

9 GENERAL

9.1 Legal framework

9.1.1 Brunei

This section gives a synopsis of the present legislative requirements affecting the business process performed by Brunei Shell Petroleum (for the purpose of clarity, hereafter referred to as The Company).

Since the Brunei Legal system is modelled loosely on the English system and incorporates certain Common Law concepts and principles of equity, any company such as BSP might be liable in Brunei for negligence or for breach of contract. In addition the Company could also be sued for breach of statutory duty or failure to conform to safety regulations.

| Date of Enactment | Legislation Title | Brief Description | Related HSE-MS Documentation |
|----------------------|--|--|---|
| | Labour Act (CAP93) | In principle this act limits workers hours to a maximum of 56 hrs per week, and 12 hrs per day. | Generally applied through all business processes, but specifically in - HR Policy & Guidelines Manual |
| 1957 | Workmen's Compensation Act | Within 10 days of an accident the Company is obliged to report all work related - fatalities, and - injuries or occupational illnesses where the injured person is totally or partially disabled from earning full wages at the work at which he/she was employed for more than 3 consecutive days (this includes all lost work and restricted work cases in excess of 3 days for work carried out on behalf of or for BSP) | Incident Reporting & Classification (Module 30) |
| | Petroleum Mining Act | | |
| | Petroleum (Pipelines) Act | | |
| 1988 (Ammended 1991) | The Merchant Shipping (Safety Zones) Order | | |
| Agreements | | | |
| 1963 | Onshore Mining Agreement | Consolidated into the Concession Agreement 1989 | |
| 1963 | 1st Offshore Mining Agreement | | |
| 1968 | 2nd Offshore Agreement | | |
| 1982 | 3rd Offshore Agreement | | |
| 1989 | Concession Agreements | <p>The right to inspect</p> <ul style="list-style-type: none"> - wells, plant, equipment, buildings and other items made by, or acts performed by The Company. - and check the accuracy of records, measuring appliance, maps and plans held by The Company. <p>The Company shall comply with instructions given, from time to time, by the Government of Negara Brunei Darussalam, for maintaining the health and safety of persons employed by The Company.</p> <p>Petroleum shall be confined according to generally accepted standards of good petroleum field operations in tanks, gas holders and pipes. Tanks shall not be erected within 100yards of any reservoir, public works or building which is not property of The Company without consent from the Government of Negara Brunei Darussalam.</p> <p>Installations erected in the sea shall be made, placed, marked and buoyed in such a way to leave safe and convenient channels for shipping in the area. If required by the Government of Negara Brunei Darussalam, illuminations</p> | |

| | | | |
|--|--|---|--|
| | | <p>shall be provided for all derricks, piers, survey marks or any other installation in the sea.</p> <p>The Company is required to maintain all apparatus, appliances and wells capable of producing petroleum, in good repair and condition. The Company is also required to carry out all operations in a workmanlike manner and in accordance with generally accepted standards of good petroleum field operations and conservation practices. This includes clauses relating to wells which include:</p> <p>Wells cannot be drilled less than 400 ft from the boundary of Scheduled Lands nor deviate outside those lands, without the consent from the Government of Negara Brunei Darussalam.</p> <p>Drilling operations shall not be carried out within 50 yards of any reservoir, public road, public works or any building which is not the property of The Company, without the consent of the Government of Negara Brunei Darussalam.</p> <p>The Company shall immediately notify the Government of Negara Brunei Darussalam as soon as the site for a new well has been decided upon and that well shall be numbered in accordance with the scheme administered by The Company.</p> <p>Wells cannot be abandoned or the permanent casings recovered without the prior consent of the Government of Negara Brunei Darussalam and they may also require that abandonment takes place in the presence of an officer authorised by the Government.</p> <p>All practicable steps shall be taken to prevent the escape of petroleum or waste products, to prevent damage to adjoining petroleum bearing strata and to prevent the fortuitous entry of water into petroleum bearing strata.</p> <p>The Company is required to take all practical steps to prevent pollution of any water-well, spring, stream, river, lake, reservoir, estuary or harbour, the coastal waters and the shoreline; also to comply at all times with good environmental practice, ensuring minimal damage to the surface of the Scheduled Lands, trees, crop, buildings, structures and other properties.</p> | |
|--|--|---|--|

In addition to the above register of legislation there are several laws and regulations, which must be complied with in relation to environmental management, see references below.

Legislation

- [Environmental Legislation Matrix](#)
- [Fisheries Act 1984 \(CAP.61\)](#)
- [Forest Act 2002 \(CAP.64\)](#)
- [Land Code Act 1984 \(CAP. 40\)](#)
- [Mining Act 1984 \(CAP.42\)](#)
- [Miscellaneous Licenses Act \(CAP. 127\)](#)
- [Municipal Boards Act 1984 \(CAP.57\)](#)
- [Petroleum Mining Act 2002 \(CAP.44\)](#)
- [Poisons Act 1984 \(CAP.114\)](#)
- [Town and Country Planning Act 1984 \(CAP.143\)](#)
- [Wildlife Protection Act 1984 \(CAP.102\)](#)
- [Workplace Health and Safety Order 2009](#)
- [Laws of Brunei \(Link\)](#)

9.1.2 Document Reference List

Refer to Appendix 5: 'HSE Interfacing Matrix of Key Procedures' for the list of procedures relevant to this Bridging Document.

In addition, additional documents that apply include those listed below:

| Ref | Document Title | Doc No./Location |
|-----|------------------------------------|---------------------------------|
| 1 | EPA/BSP Well Engineering documents | EPA/TSW website |
| 2 | Aban Contract HSE Plan 2010 | <i>On rig</i> |
| 3 | Shell Risk Assessment Matrix 2010 | Shell RAM |

Appendix 1 – Contact Numbers

Offshore

| Name | Company | Position | Land Line | Extn. | Mobile |
|---------------------------------|---------|-------------|-----------|-------|--------|
| John Revert / Meine Hoekstra | Aban | OIM | | | |
| Greg Pond / Dale Clayton | Aban | HSE Adviser | | | |
| Barry McGrath / Gary Wright | BSP | DSV | | | |

Onshore

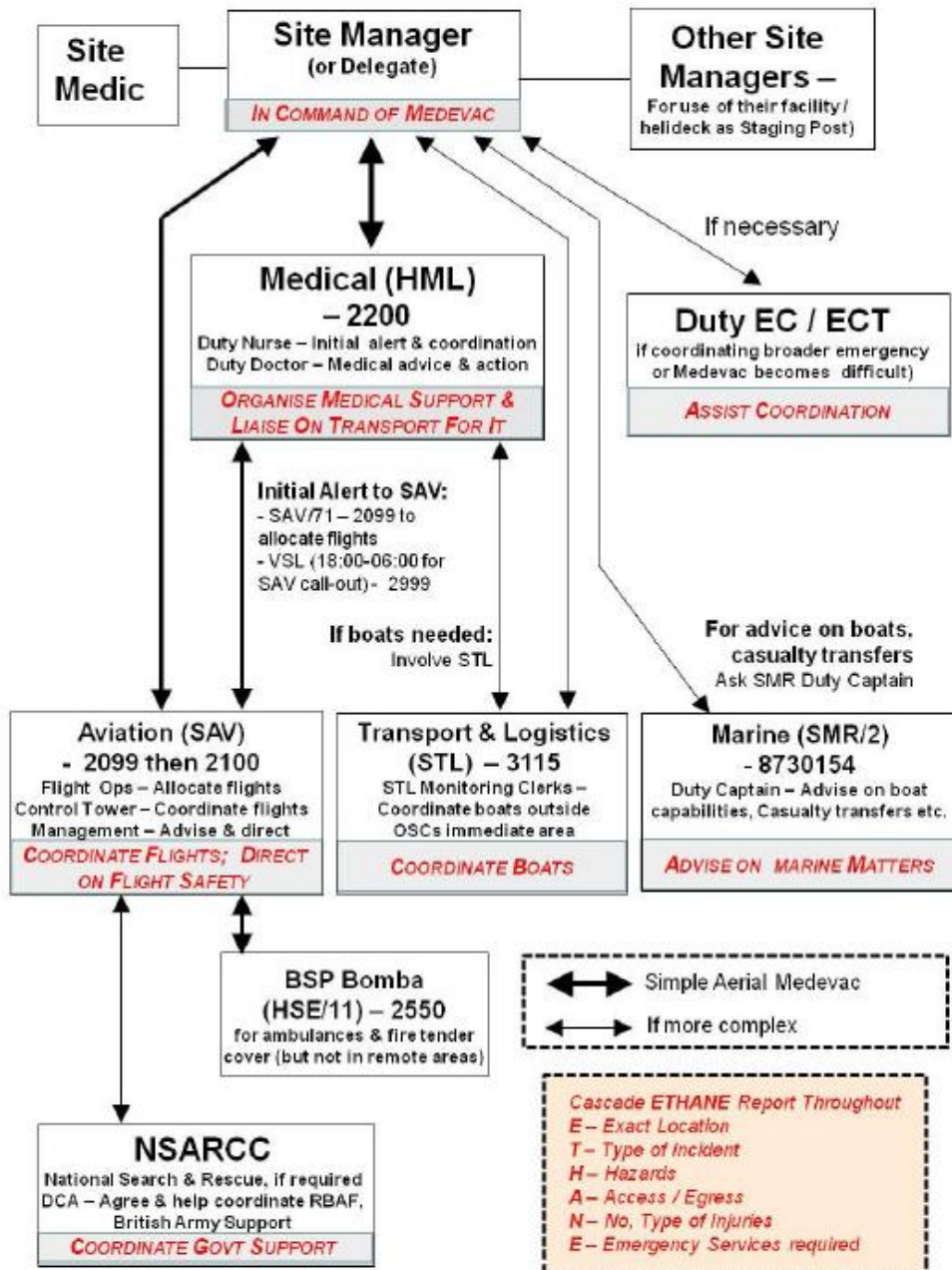
| Name | Company | Position | Land Line | Extn. | Mobile |
|--|---------|--------------------------------|---------------|-----------|----------------------------|
| Henk Holtrust | Aban | DD8 Rig Manager | +673 333 7942 | 110 | +673 877 5050 |
| Henk Holtrust | Aban | DD8 Rig Manager (Direct) | +673 333 7941 | | +673 877 5050 |
| Eddie McWilliams | Aban | QHSE Manager | +673 333 7942 | 108 | +65 9825 5916 |
| Peter Wong | Aban | Materials (MATCO) | +673 333 7942 | 102 | +673 873 9191 |
| tba | Aban | Finance | TBA | 103/4/5/6 | TBA |
| ABAN BRUNEI OFFICE W10, Lot 4192. SPG 353. Jan Maulana, Kuala Belait KA 2931. Brunei, Darussalam | Aban | Office (Reception) | +673 333 7942 | 113 | N/A |
| (Not Installed - Future Use) | Aban | Fax | +673 333 7943 | | N/A |
| Andrew Grisdale | BSP | Hd of Well Delivery | +673 337 7844 | | +673 877 7465 |
| Liew Anchaboh | BSP | Rig Superintendent | +673 337 5954 | | +673 898 8294 |
| Badley Hogan- Smith | BSP | Well Engineer | +673 337 3653 | | +673 872 0424 |
| Brent Fougere | BSP | TSW HSE Team Lead | +673 337 6691 | | +673 896 5850 (private) |

International SOS

| | | |
|-------------------------------------|--|---------------------------|
| ISOS – membership # 11ACPA000014 | Accident, Emergency and Air Medivac Services (24 hrs) | +6-03-2716 3033 - KL |
| | | +65-6338 7800 - S'pore |

Appendix 2 – BSP Medevac Procedure

From BSP “Emergency Coordination Procedures”, BSP-02-Pro-0359, Rev 9.0



Appendix 3 – Work Requiring a Permit to Work

The table below identifies the work that requires a Permit to Work. At his discretion, the OIM/MIC can specify that a PTW is required for any activity.

- a. Any **hot work** which involves welding, burning, heating, any other spark producing activity, or potential ignition source (Exception: hot work performed in an approved, designated safe welding area which means the welder's bench and immediate surrounding area).
- b. Work requiring entry into any tank or **Confined Space**.
- c. Work where there is a danger of falling into the sea or any **Working Over Water** activity.
- d. Hazard introduced by the use of **Non-Approved Electrical Equipment** (e.g., camera flashguns, radios, telephones, etc.).
- e. Work on any **Pressurized System** where there is a possibility of pressure being released.
- f. Work on electrical or mechanical equipment requiring **Energy Isolation or Lock Out/Tag Out** and to ensure the safety of personnel.
- g. Work on electrical equipment or using electrical devices in hazardous areas that create potential **Ignition Sources**.
- h. Work carried out **Below the Vessel's Water Line** (i.e., columns, pontoons, tanks, etc.) that might affect the station keeping, stability of the rig, structural or watertight integrity.
- i. Work that temporarily impacts or **Disables Safety Systems** (e.g., fire fighting, gas detection, watertight doors/hatches, etc.).
- j. Work involving perforating or acidizing operations or use of radioactive materials, explosives, or other **Dangerous Substances**. (Refer to the Forms section of this Manual for the Radioactive Source Usage Permit Checklist and the Perforating Gun Usage Permit Checklist as a minimum requirement to ensure the appropriate procedures are observed.)
- k. Work on/or near **moving equipment** where safety barriers and guards have to be bypassed.
- l. Work involving **Heavy Lifts** with material handling equipment (i.e., cranes, Blow-out Preventer [BOP] hoists, etc.) that are near maximum safe working loads (approaching 75%) and always when using the crane main blocks.
- m. The Master Dump Valve or any other valve in the mud system that can discharge directly overboard shall be locked at all times by the use of a mechanical lock, and a permit shall be **raised anytime the dump valve is opened (de-isolated)**. When locked, mud system overboard dump valves are long-term isolations and require an **Isolation Certificate** to be issued and posted at Permit Control Centre.
- n. **Man Riding Operations** that require personnel to be hoisted or raised by any means above a height of 6 feet (1.8m).

Note: As per Aban HSE-MS, the designated "Safe Welding Area" does not require a "Hot Work Permit" but a JRA will be in place for jobs done in that area.

Appendix 4 – HSE Responsibilities Overview

Wellsite

The general HSE responsibilities of all site personnel and the specific HSE responsibilities of senior site supervisory and HSE-related personnel are summarised below.

All

- ♦ All personnel are required to adhere to Shell “Life Saving Rules” and sign off on the ‘Commitment’ poster,
- ♦ All personnel have the right and responsibility to cease or have any activity/operation ceased or suspended if they feel it is unsafe,
- ♦ It is the responsibility of all supervisors to ensure personnel are appropriately trained and competent for the tasks required of them,
- ♦ HSE critical responsibilities (defined in HSE Case and individual Job Descriptions) shall be adhered to.

BSP Drilling Supervisor (DSV)

- ♦ Accountable to the shore-based BSP Rig Superintendent,
- ♦ Overall safety of the well, On Scene Representative during emergencies,
- ♦ Ensuring all Well Engineering personnel and contractors adhere to policies and procedures, this HSE Bridging Document and the Work Programme, as a means of achieving the work programme and HSE targets and goals identified,
- ♦ Effectively directing and supervising Well Engineering Contractor Supervisors,
- ♦ Delivery of BSP HSE commitment and HSE expectations,
- ♦ Following and promoting the Contract HSE Plan onsite,
- ♦ Adherence to and actively managing HSE Critical Tasks,
- ♦ For drilling-related activities and CPRA, or where other work will impact on drilling operations, the BSP DSV shall countersign the PTW to understand and acknowledge the work and work controls,
- ♦ Prepare adequate hand-overs,
- ♦ Prepare and sign off standing instructions (DSI),
- ♦ Communication of any HSE issues to the Aban OIM/MIC, and the project team,
- ♦ Enforce Change Management,
- ♦ Ensure attendance of all Well Engineering Contractors at pre-tour meetings,
- ♦ Raising incident notifications in accordance with BSP procedure,
- ♦ Ensuring persons are only deployed to locations and tasks for which they are trained and competent.

BSP Night Drilling Supervisors (NDSV)

- ♦ The NDSV is accountable to the DSV and assumes his responsibilities when the DSV is off duty,
- ♦ Informs the DSV in case of a well control incident or other emergency,
- ♦ For drilling-related activities and CPRA, or where other work will impact on drilling operations, the BSP NDSV shall countersign the PTW to understand and acknowledge the work and work controls,
- ♦ Informs the DSV of deviations to the Work Programme in a timely manner,
- ♦ Communication of any HSE issues to the DSV.

For convenience, in this document, when referring to “DSV’s” this will include the NDSV’s.

BSP Wellsite Drilling Engineer (WSDE)

- ♦ Assists the DSV with day to day administration of the well programme,
- ♦ Monitors compliance to ISO14001 requirements to achieve environmental objectives,
- ♦ Reports waste stream data and chemical/liquid consumption related to well operations,
- ♦ Performs event logging duties during an emergency,
- ♦ Communication of any HSE issues to the DSV.

DD8 OIM/MIC

- ♦ Person in Charge,
- ♦ Reports to shore-based Aban Rig Manager,
- ♦ Overall responsibility for rig HSE,
- ♦ Promoting the Aban Contract HSE Plan onsite,
- ♦ Manages PTW system and appoints Permit Coordinator
- ♦ Authorises PTW
- ♦ Ensuring adherence to policies and procedures, this HSE Bridging Document and the Work Programme, as a means of achieving the work programme and HSE targets and goals identified,
- ♦ Perform regular rig inspections,
- ♦ Ensure PMS is followed and appropriate certification is available on site for verification.
- ♦ Prepare adequate hand-overs,
- ♦ Prepare and sign off standing instructions for Driller and others,
- ♦ Adheres to and actively manages HSE Critical Tasks,
- ♦ Ensuring persons are only deployed to locations and tasks for which they are trained and competent,
- ♦ PTW – Authorises for work to commence.

DD8 Toolpusher (TP)

- ♦ Reports to OIM/MIC
- ♦ Direction and supervision of the rig crews,
- ♦ Perform regular rig inspections,
- ♦ Conduct pre-tour meetings and ensures participation of other contractors,
- ♦ The Night Toolpusher assumes responsibility for the Aban OIM/MIC duties whenever the OIM is off duty,
- ♦ Informs the Aban OIM/MIC in case of a well control incident or other emergency,
- ♦ Relieves the Driller for break times.
- ♦ PTW 'Area Supervisor'.

DD8 Driller

- ♦ Reports to Toolpusher,
- ♦ Supervises rig floor crew,
- ♦ Follow standing instructions issued by DSV & OIM/MIC,
- ♦ Adheres to and actively manages HSE Critical Tasks,
- ♦ Prepares adequate hand-overs,
- ♦ PTW 'Area Supervisor'.

DD8 Barge Engineer

- ♦ Reports to OIM/MIC
- ♦ Supervises roustabouts, crane operators, and electrical and mechanical sections
- ♦ Responsible for ensuring preventative maintenance is conducted as per AMOS,
- ♦ Adheres to and actively manages HSE Critical Tasks,
- ♦ Prepares adequate hand-overs, including instructions for sub-ordinates,
- ♦ PTW 'Area Supervisor'.

DD8 QHSE Adviser

- ♦ Reports to OIM/MIC
- ♦ Responsible for collating and maintaining information relating to HSE matters for all rig site operations,
- ♦ Assist with HSE Meetings and agenda,
- ♦ Ensuring communication of the Aban Contract HSE Plan throughout all levels of the rig-site work force,
- ♦ Perform daily and weekly surveys of rig operations and activities,

- ♦ Ensuring that all personnel have attended the site induction briefing, rig site familiarisation and emergency response orientation,
- ♦ Coordinate JRA reviews and advise supervisors of recommendations for safe management of critical and non-routine tasks,
- ♦ Coordinate safety training and identify and conduct special needs training,
- ♦ Promotes and continuously coaches personnel on the use of the SMART card system and other HSE tools and documents,
- ♦ Adheres to and actively manages HSE Critical Tasks,
- ♦ Performs and assists with incident investigations, audits and inspections.

DD8 Medic

- ♦ Reports to OIM/MIC,
- ♦ Supervises the catering section,
- ♦ Provide first line medical support for ill or injured personnel,
- ♦ Arrange for medical transfer to attending hospital for serious illness or injury,
- ♦ Responsible for POB monitoring and T-Card control.
- ♦ Other administrative duties as assigned by the OIM/MIC.

DD8 Radio Operator

- ♦ Reports to OIM/MIC,
- ♦ Manages radio communications operationally and during emergencies, undertakes flight-following,

DD8 Helicopter Landing Officer

- ♦ Barge Engineer, QHSE Advisor and the Deck Foremen provide HLO coverage. All Roustabouts will be trained as Helideck Assistants.
- ♦ Manages safe arrival and departure of helicopters, embarkation/disembarkation of passengers and freight and helideck emergency response.

DD8 Camp Boss

- ♦ Reports to the Medic,
- ♦ Supervises the catering crew and stewards,
- ♦ Ensures the highest standards of general and food hygiene are maintained onboard.

Other Contractor and Sub-Contractor Supervisors

- ♦ Promoting and following the HSE Plan onsite,
- ♦ Ensuring that the HSE policies and procedures are followed as a means of achieving the HSE targets and goals identified, and in doing so closely interface with the OIM/MIC and DSV,
- ♦ Direction and supervision of the contractor crews,
- ♦ Ensures appropriate equipment certification is available for verification,
- ♦ Attend and ensure contractor staff attend pre-tour meetings,
- ♦ Adheres to and actively manages HSE Critical Tasks,
- ♦ Permit Applicant.
- ♦ Prepares adequate hand-overs.

Project management (shore-based)

The roles and responsibilities of the office project management team are summarised below.

BSP Rig Superintendent

- ♦ Overall accountability for work programme HSE performance,
- ♦ Promoting and following the Contract HSE Plan,
- ♦ Enforcing the HSE-MS for the work programme to Well Engineering personnel and contractors.
- ♦ Enforcing contract compliance with directly held contracts or through contract holders,
- ♦ Ensuring all incidents are properly reported, investigated and closed out in a timely manner,
- ♦ Ensure appropriate change management is applied.

BSP Well/Operations Engineer

- ♦ Ensure adherence to the Work Programme and schedule and preparing deviations if so required,
- ♦ Embed safe practices in the Work Programme,
- ♦ Implement change management with correct approvals,
- ♦ Day to day advice and reporting of well operations.

BSP HSE Advisor

- ♦ Provision of HSE-MS support as required to the BSP project team,
- ♦ Additional HSE support to Aban and contractors as appropriate,
- ♦ Participate in the preparations and delivery of pre-start activities,
- ♦ Monitoring of project HSE Performance and initiate actions where there are areas of concern in consultation with BSP/Aban project leaders,
- ♦ Assist and/or facilitate incident investigations and complete or assist with completion of incident reports.

Aban Rig Manager

- ♦ Implement and communicate the Aban Contract HSE Plan with Aban personnel and sub-contractors,
- ♦ Provide the necessary resources, including equipment, materials and trained and competent personnel to meet legislative, contractual and safety requirements,
- ♦ Ensure all HSE critical activities are identified and assigned to competent personnel.
- ♦ Ensuring that the HSE Bridging document and HSE policies and procedures are followed as a means of achieving the HSE targets and goals identified,
- ♦ Providing competent and adequate numbers of quality staff for the all rig functions,
- ♦ Verify quality of the training,
- ♦ Ensuring the AMOS system is followed properly and appropriate certification is available offshore,
- ♦ Ensure legislative and contract compliance of all equipment,
- ♦ Ensure action item close out in a timely manner.

Aban HSE Manager

- ♦ Ensure training requirements are met prior to sending personnel to the rig,
- ♦ Analyse statistical HSE data on a regular basis and communicate these to Aban and BSP,
- ♦ Ensure adequate procedures are in place and updates are managed in accordance to priorities,
- ♦ Timely action item tracking and close out,
- ♦ Ensure all applicable MSDS are available on the rig,
- ♦ Assist and/or facilitate incident investigations and complete or assist with completion of incident reports,
- ♦ Communicating the contents of Aban Contract HSE Plan with Aban personnel and sub-contractors and promoting the plan onsite,

Contractor Managers and Supervisors

- ♦ Ensuring that the HSE Bridging document and HSE policies and procedures are followed as a means of achieving the HSE targets and goals identified,

- ♦ Each contractor will appoint a Supervisor and a delegate from its on-site personnel,
- ♦ Ensure training requirements are met prior to sending personnel to the rig,
- ♦ Ensuring all loads leave the yard properly stowed, secured and slung,
- ♦ Ensure all applicable MSDS for chemicals supplied are available on the rig,
- ♦ Ensuring the appropriate equipment certification is available for all equipment supplied,
- ♦ Ensure contract compliance of all equipment.

Subcontractors

Sub-contractors are managed under their respective contracts.

All sub-contractors involved in the work programmes and within associated activities are required to comply with the HSE requirements as identified within the contract with their employer and with the requirements as outlined in this HSE-MS Bridging Document. Specialist activities may be performed under the sub-contractors own procedures. In this respect it is understood that the sub-contractor is the 'specialist' or 'expert' e.g. explosives use. Where a sub-contractor company will be acting under its own procedures these will be communicated and agreed to by the OIM/MIC and DSV, in advance of the work.