



# **Australia Offshore Oil and Gas Title Holder Self-audit Checklist**

Management System Audit  
Bridge between Title Holder and Facility Operator  
Bridge between Title Holder and Service Provider  
Facility Safety Case Revision(s) & Well Operations Management Plan



## **Background:**

Following the Montara and Macondo incidents, APPEA formed a Montara Response Taskforce and Australian Drilling Steering Committee to focus and coordinate the Australian industry response. Several working groups were formed under the Drilling Steering Committee, including one tasked with creating a voluntary self-audit tool.

The following self-audit document was assembled as a tool for use by participants in the offshore drilling industry within Australian waters. The intent is that this self-audit tool will be used by the title holder (licence/permit holder) and facility operator (drilling contractor), in the planning, preparation and execution of well activities.

The self-audit tool highlights areas of critical bridging between organisations, which also makes it useful for auditing internal management systems and processes within the respective organisations. This document does not replace or supersede any formally required documentation and has not been written with the intention of fulfilling binding regulatory requirements. While not explicitly proposed for title holder and service provider interface management, many aspects of this self-audit tool can be readily adapted to bridge between their respective systems as well.

This document was developed by a working group comprising individuals with various backgrounds, experience levels and operating company affiliations; and was subsequently reviewed by the Australian Drilling steering Committee.

Rather than seeking unanimous agreement on every line item in the checklist, and bearing in mind that this is intended as a voluntary checklist, items have been incorporated on a consensus basis.

From 2012, the Self-audit tool became the responsibility of the Australian Well Integrity Sub-Committee set up as a permanent APPEA sub-committee. The document will be regularly reviewed.

## **Montara & Macondo:**

In August 2009 a blowout from the Montara platform in the Timor Sea resulted in loss of containment and asset damage. No one was injured during the event and all personnel on board were evacuated safely.

In April 2010 an explosion on the drilling rig *Deepwater Horizon* occurred, killing 11 workers, at the Macondo Prospect in the Gulf of Mexico. Significant loss of containment and asset damage resulted.

These events highlight the critical nature of interactions between facility operator (rig contractor) and title holder (oil and gas company), and the inter-relationship between both parties in discharging their individual obligations under legislation to safeguard people and the environment.



### **Application under Legislation:**

Offshore petroleum operations beyond designated state and territory coastal waters are governed by the Commonwealth Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGSA) and associated regulations. Ultimate responsibility for Australia's offshore areas, beyond three nautical miles from the territorial sea baseline, rests with the Australian Government, whereas in 'coastal waters', onshore and as far as three nautical miles seaward of the baseline, petroleum operations are the responsibility of the individual state and territory governments. At the time of publishing Version 3 of this Self-Audit Tool, some state and territory governments have conferred powers for regulating their offshore coastal waters to the Australian Government and the national regulator – the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 took effect from 29 April 2011. Under these Regulations NOPSEMA is responsible for the administration of Part 5 – Well operations management plans and approval of well activities.

### **Application of the self-audit tool:**

The following checklist is a guideline only. It may be used when assessing or auditing a title holder's management system or when developing formal bridging documentation between the title holder and the facility operator. All elements are recommendations rather than mandatory requirements.

Representatives from both organisations should jointly plan and develop bridging documentation. The depth of representation from each organisation may vary depending on the risk profile of the activity, but operational, planning and site personnel should be involved. This list is not exhaustive.

### **Acknowledgement of IADC – WCID:**

The International Association of Drilling Contractors supports active bridging by applying the Well Construction Interface Document (WCID). The WCID also complements existing documentation, acting as a bridge between the title holder's Well Operations Management Plan (WOMP) and the facility operator's management system. The WCID advocates that planning and preparation of revisions to the facility operator's Safety Case addressing well-related activities be conducted at the facility. An IADC representative participated in the early framing of this self-audit tool.

### **Monitoring, Auditing, and Reviewing:**

The effective control and assurance of activities requires monitoring the obligations and commitments within the title holder's WOMP, facility operator's safety case, and associated bridging documentation. Establishing an effective assurance plan should be part of planning, preparing and executing well activities. Audits and reviews should include monitoring of risk mitigation and response mechanisms. Formal plans, schedules and outcomes should be agreed between both parties.

## **1. Operational and safety management systems**

- Description and exchange of each organisation's safety management systems (including but not limited to HSE management, delivery processes and technical validation of safety critical elements) has occurred to ensure all parties understand the systems in place and how they are intended to operate.
- Organisation description (including decision hierarchy, decision escalation, nominated person in charge of well activities and change management and accountability/ responsibility descriptions) has been formally agreed.
- Organisations have systems in place for reviewing performance and capturing learnings to ensure continuous improvement.
- Training and induction processes promote openness in reporting.
- Job descriptions for HSE-critical positions have been exchanged between the organisations to ensure all parties understand the various positions.
- The validation process (technical authorisation) for critical decisions has been agreed and communicated. This does not imply that the facility operator has approval over or liability for all well design, construction and integrity issues. But it means a process is in place for resolving any contentious issues.
- Appropriate representatives from both organisations have been engaged to manage the operations.
- If possible the person in charge of well-related activity on the facility should lead the review sessions carried out as part of the validation process (technical authorisation) for critical decisions.
- Specific systems are in place to identify and manage (maintain and test) safety-critical equipment.
- Specific systems are in place to audit, review and confirm that each organisation's safety management systems are operating effectively.

## **2. Managing change**

- Organisations have a process for reassessing the level of risk and required mitigations if clear indicators exist that the operating environment has changed (the occurrence of an unplanned event).
- Formal responsibilities and an interface mechanism between respective organisation MOC processes has been detailed and distributed. The impact of any change is detailed and each party signs off as having agreed to the change and understanding the impact.
- Visibility and sign-off requirements of representatives in the MOC process have been documented and distributed.
- Formal control mechanisms and documentation processes for MOC exists. For example material changes to the drilling program require sign-off to the same level as the original program.

## **3. Exchanging information related to scope**

- Information has been exchanged on activity scope, including contingencies and optional scope.
- Communication has occurred on design basis, maximum anticipated temperatures and pressures to ensure all parties understand key aspects of the planned operating environment.
- Communication of geological scenarios and impact on the facility, including any 'stop or hold points' has occurred. Stop or hold points may include achieving a specific LOT or FIT value or a valid verification of a barrier.
- Mutual events such as pre-spud meeting and inductions have been conducted to share information related to the activity.
- Well control equipment design and suitability has been agreed and signed off.

- Where applicable, inclusion of third parties has occurred in consultation with the title holder and facility operator. (For example, with regards to the description of safety critical barriers.)

#### **4. Risk-management processes**

- The assessment and management of risk throughout the scope has been described and is mutually understood.
- Mutual participation in relevant HAZIDs/HAZOPs sessions to evaluate the effective identification of mitigations and controls associated with key risk events has occurred.
- A scope-specific risk register is in place and actively used during the activity.
- A plan to monitor effectiveness of risk management during execution of scope exists.
- Assurance activities associated with risk management have been agreed. These should focus on leading indicators rather than lagging indicators, i.e. monitoring the effectiveness of risk controls and recovery routines.

#### **5. Competency and training requirements**

- Each organisation has described its competence validation process.
- Identify and list all personnel/ positions that should hold valid well control certificate for the duration of the activity scope. Recognised certificates are either IWCF or WellCap.
- Emergency Response Training and regularly participated in emergency response training events are verified as having been completed.
- A deviation process is in place to manage any positions without agreed competencies.
- Audit, review and compliance reviews are in place.

#### **6. Barrier definition and integrity**

- A barrier philosophy is in place, agreed and tested.
- At least two verified, tested barriers are in place for each phase of the activity.
- The activities that can be conducted with reduced barrier status have been agreed. Generally the only activity that can be conducted with just one barrier is to re-instate a second barrier.
- Relevant barrier diagrams/representations are in place for each phase of the activity including contingency suspension barriers. These representations should include barrier verification confirmation and acceptance criteria.
- A system is in place to formally document the verification/ acceptance of barrier tests by each organisation.
- The definition of an accepted and tested barrier is in place and agreed. This includes pressure test criteria.
- The deviation process and validation of barrier risk assessment has been agreed before an activity begins. Any deviations against either party's standards should be reviewed and signed off in accordance with the respective organisations' MOC process and the agreed mitigation steps are in place and communicated to the site representatives.
- Changes of barrier status and associated verification processes are clearly reported in the daily reports of each organisation.

#### **7. Process for well control contingency planning requirements**

- A Well Control Plan has been prepared for the specific scope. This should contain information on prognosed pore pressure and fracture strength gradients, locations of possible over pressures and weak zones.

- An agreed audit/drill schedule is in place to test the effectiveness of well control plans, including but not limited to choke, shut-in and weight-up drills. The crew training/drills records and participation records should be recorded in daily reports and in competency records on location. The drill frequency is such that the crews are adequately trained and responsive in line with the activity's risk profile.
- Any differences in the approach/protocols between the title holder and facility operator have been resolved and included in a bridging document that has been mutually prepared and signed off.
- An audit/verification plan has been agreed to monitor mitigation measures and how these have been implemented and communicated to the site personnel.

## **8. Emergency response**

- Description of emergency response plans, and bridging documents is in place.
- A gap analysis between each organisation's Emergency Response Plans has been carried out to identify any shortcomings. Response exercises are conducted to ensure individuals are aware of roles and actions and that the plans are fit for purpose.
- Emergency Response Plans address all credible Major Accident Events identified in the Facility Safety Case.
- There is a formal duty process to assure 24/7 coverage of both license holder and facility operator. Handovers are included in the duty process and documented.
- Personnel from license holder and facility operator have confirmed requirements for emergency response training and regularly participate in emergency response training events.
- Consideration has been given to drills and exercise schedules that include representatives from each organisation.
- A well control contingency plan is in place to provide guidance on the process to be implemented in the event of a credible loss of well control event for the well to be worked on. This plan links to the Emergency Response, Environment Management and Oil Spill Response Plans for the Facilities at risk and provides guidance on the actions to be taken relative to the level (tier) of incident. Guidance includes:
  - response team composition and callout process;
  - list of well control equipment on the rig and technical details of the wellheads.
  - equipment to be mobilised for each level of incident;
  - location of the equipment and provisional logistical plans for mobilisation;
  - capabilities of local airports facilities for handling aircraft size and customs clearance;
  - details of potential relief well rigs. Shut in methodology and well control flow charts are in place and agreed by both organisations;
  - data transfer forms to streamline the transfer and process of information; and
  - triggers for providing notification to Government bodies and any other internal corporate requirements.
  - Ideally the plan should also include an offset review of relevant wells and a high-level relief well design, including surface location seabed survey, to aid relief well planning.

- The Facility Oil Spill Contingency Plan provides guidance to ensure that adequate allowance is made for monitoring the volume and spread of oil (both surface and sub-surface dispersed oil) in the event of an uncontrolled release.
- The Facility Oil Spill Contingency Plan provides guidance to ensure that adequate allowance is made in spill models to cater for long-term uncontrolled release. Consideration should be given to including guidance on scientific monitoring requirements for the impacted areas in the event of an oil spill.

## **9. Simultaneous operations**

- A site-specific SIMOPS plan has been prepared and signed off.
- The complexity and uniqueness of SIMOPS activities involving multiple facility safety cases (e.g. jack-up drilling installation in the vicinity of production jacket) has been specifically considered with detailed assessments, SIMOPS matrices and a manual of permitted operations.
- Dedicated HAZID/HAZOP events have taken place and have specifically considered the operational status of all wells and subsea infrastructure in a field when reviewing the hazards associated with SIMOPS activities.
- A single focal point for SIMOPS activities has been identified in a chain of command, coordinating all SIMOPS-related activities and interfaces.
- Exercises and drills with field personnel have been conducted to evaluate the effectiveness of risk mitigations and control mechanisms.

## **10. Mutual aid and relief well capability**

- Agreements or other arrangements are in place internally to link the license holder with other operators in the area for emergency provision of a rig and if applicable stimulation vessels, MSVs, etc in case these are not available on short notice from within their own operations.
- Critical equipment is needed in the event of a blowout (BOPs, wellhead, pumps, tanks, ROVs, pump/frac boats, fire hydrants, capping equipment etc) has been identified. It is clear whether and how this can be made available on short notice, and necessary contractual arrangements are in place.

## **11. Well design requirements**

- Organisations use independent internal or external peer review to confirm well designs and operational plans meet the requirements of each organisation's managements systems and that processes are in place to ensure known HSE risks are adequately managed.
- Organisations have an equipment selection process in place which also provides guidance on applicable standards.
- Operators have a process in place which considers OOE recommended practices when developing operations plans.
- For every well section requiring BOP protection, kick tolerances have been calculated. The license holder and facility operator have agreed on kick tolerance thresholds and limitations, and the operating envelope of facility equipment (detection thresholds) and risk profile of the activity have been considered during the planning process.
- A method of communicating well control risk is in place for each shift. Consideration has been given to the risk of casing wear, drill pipe hard-banding, planned and actual overbalance with margins for swab, riser margin, and the maximum allowable annulus pressure.
- Survey procedures and frequency and anti-collision risks have been described.

- To ensure the integrity of cement barriers, organisations should:
  - Have a system to guide the decision-making process around selection of cement volumes.
  - Isolate hydrocarbon-bearing zones in order to prevent gas flow after cementing and sustained annulus pressures.
  - Check casing/liner cement programs on hydrostatic static/dynamic overbalance throughout the cement job with special attention to (unweighted) spacers in the open hole.
  - Select the cement setting times for the entire cement column.
  - Test secondary pressure test if the float equipment fails.
  - Assess the integrity of the casing(s) in case of a sidetrack well.
  - Evaluate cement sheath integrity and annulus pressures.

**12. BOP and diverter system, choke manifold, LP and HP mud systems.**

- License holders and facility operators have a written and agreed status on well control equipment that should comply at a minimum with industry codes (i.e., API RP 53). The organisations should have in place an agreement on the systems' configuration, redundancy levels and operability.
- Consideration has been given to the rated hang-off weights for fixed PR and VBR (for relevant pipe sizes), pipe-shearing procedure, and shearing force sufficient to cut the pipe in use.
- Capacity and certification of all pipe work, fittings and pressure vessels, including temporary pipe work is available for facility operator, title holder, and third-party supplied equipment.