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Rig Intake for Mobile Offshore Drilling Units (MODU)

API RECOMMENDED PRACTICE XXX
FIRST EDITION, XXXX 202X

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The verbal forms used to express the provisions in this document are as follows.

— Shall: As used in a standard, “shall” denotes a minimum requirement to conform to the standard.

— Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required to conform to the standard.

— May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

— Can: As used in a standard, “can” denotes a statement of possibility or capability.

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Introduction

Most oil and gas companies have a process for bringing a new rig into operation. This is commonly managed by a central team, using in-house experts or outside contractors. The goal is to make sure the rig operates safely, efficiently, and follows all rules and standards.

Effective Rig Intake depends on identifying and engaging key stakeholders from the operator, rig contractor, and relevant third parties early in the process.

Companies handle Rig Intake and inspection in different ways. Some manage the entire process from setting rig requirements and signing contracts to testing and starting up the rig. Others focus only on testing before the rig begins work. Even though the methods vary, the goal is the same: a safe, timely, and reliable rig start-up.

Because rig contracts are often short, companies go through this intake process more frequently. That means more inspections and testing in a short time. Many of these inspections overlap between companies and third-party services, this can place additional burden on rig crews, operators, contractors, and third-party inspection providers.

1 Scope

This Recommended Practice applies to Rig Intake activities for Mobile Offshore Drilling Units (MODUs) engaged in drilling, completion, and workover operations. It addresses the activities needed to confirm rig readiness and support safe commencement of operations. It is intended to reduce duplication, improve alignment between operators, rig contractors, and inspection providers, and support safe, efficient, and timely rig start-up.

This Recommended Practice covers the planning, execution, documentation, and handover of Rig Intake assurance activities. It includes guidance for initial intake and periodic or recurrent inspections during long-term contracts to support continued conformance, performance assurance, and integrity.

1.1 Applicability

This recommended practice applies to:

a) New builds.
b) Active rigs moving between operators.
c) Rigs returning to operation after a period of inactivity, including warm-stacked or cold-stacked rigs.
d) Rigs that have undergone modifications, upgrades or replacement of components in safety-critical equipment systems as determined by the operator or contractor. Equipment may include but not limited to the following systems: include Managed Pressure Drilling (MPD), Blowout Preventer (BOP) control systems, drilling control systems, and Dynamic Positioning (DP) systems.

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1.2 Exclusions

This recommended practice does not cover:

a) Rig selection or procurement activities, including the identification of rig options, bidding, and initial contracting.
b) Active rigs that are currently working for or have been working for the operator within the last 12 months.
c) Intake of land-based drilling and workover units.
d) Intake of well intervention vessels.
e) Intake of hydraulic workover units.
f) Intake of lift boats, including jack-up barges and self-elevating supply vessels (SESVs).

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

American Petroleum Institute (API)

API Standard 53 Blowout Prevention Equipment Systems for Drilling Wells

Civil Aviation Authority (CAP)

CAP 437 Standards for Offshore Helicopter Landing Areas

International Association of Oil & Gas Producers (IOGP)

IOGP Report 697 Offshore Helidecks and Facilities

3 Terms, Definitions, and Abbreviations

3.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
Cold-Stacked Rig
Rig preserved for greater than a six month period, with its power supplies and services isolated and with no or minimal routine maintenance performed.

NOTE Equipment can be removed for storage ashore, and periodic visits can be made to replenish preservation materials.

3.1.2
Open Findings

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Result of a previous rig intake assurance activity for which one or more associated actions have not been closed, whether or not the applicable due date has passed.

3.1.3
Rigs
Operator-owned or operator-contracted unit used in wells operations, including Mobile Offshore Drilling Units (MODUs) and mobile offshore units and/or tender assisted drilling units undertaking drilling, completion, and workover.

3.1.4
Rig Contractor.
Organization responsible for operating a rig or vessel under contract with the operator.

3.1.5
Rig Intake Process
The assurance, readiness, and verification activities performed between contract award and commencement of operations to confirm that the rig contractor can operate in accordance with contractual, regulatory, and operational requirements while reducing risk to as low as reasonably practicable.

3.1.6
Test Program
Documented plan defining the scope, preparation, activities, deliverables, and acceptance criteria for a pre-start-up rig intake assurance activity.

3.1.7
Warm-Stacked Rig
Rig preserved during a period of inactivity while reduced routine maintenance continues to support its return to operational readiness.

Note: The extent of preservation and maintenance can depend on the anticipated period of inactivity.

3.2 Abbreviations

BOP	Blowout Preventer
DP	Dynamic Positioning
HSSE	Health, Safety, Security, and Environment
IT&S	Information Technology and Services
LWIV	Light Well Intervention Vessel
MAR	Major Accident Risk
MODU	Mobile Offshore Drilling Unit
MPD	Managed Pressure Drilling
PCE	Pressure Control Equipment

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RC	Rig Contractor
RIRA	Rig Intake Risk Assessment
RIP	Rig Intake Plan
SOER	Statement of Equipment Requirements
SME	Subject Matter Expert
SMS	Safety Management System
ToR	Terms of Reference
WCBD	Well Control Bridging Document

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4 Rig Intake Risk Assurance Levels

The Rig Intake risk assurance level shall be determined and recorded through a documented, structured assessment. The figure below illustrates a simplified approach for determining the Rig Intake assurance level that should be used during the Rig Intake process. The assurance level is dependent on operational assumptions and the status of the rig. Considerations should include:

1) The type, complexity, and duration of the planned wells.
2) The rig's recent activity and performance history.
3) The rig's inspection/maintenance status.
4) Prior experience with the Rig contractor.
5) Prior experience with the specific rig.

The operator's intake team may review available rig intake documentation and inspection reports from previous operators. The assessment shall account for applicable regional regulatory requirements.

An example breakdown of the Rig Intake assurance levels is provided in Annex A.

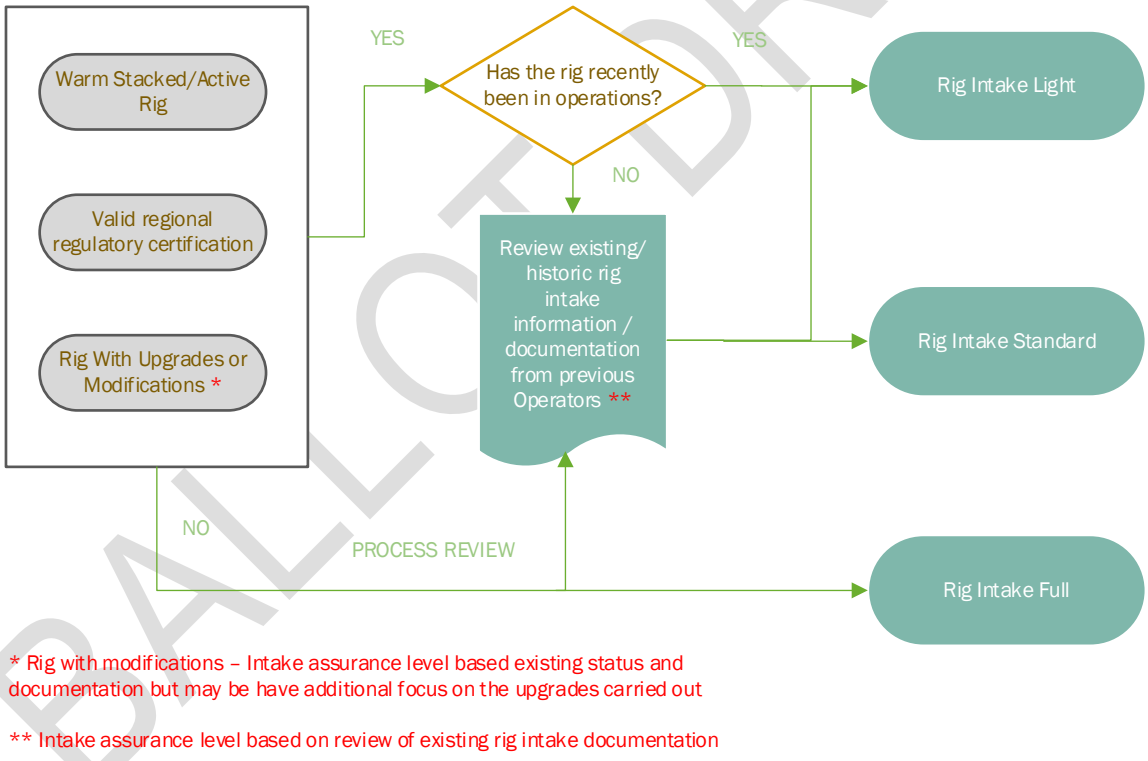

Figure 1 Flow chart for risk assessment to assist with determining required Rig Intake assurance level

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5 Rig Intake Recommended Workflows (Operator Specific)

After the Rig Intake assurance level is determined, the Rig Intake Plan (RIP) should be developed and executed using the following recommended workflow activities:

1) Rig contractor intake kick-off meeting.
2) Rig Intake risk profile, developed through:
    a. A detailed review of the strategic major accident risks associated with the planned operations.
    b. Development of a Rig Intake risk assessment.
    c. Execution of Rig Intake assurance activities to address risks.
3) Operator/contractor bridging activity and assurance.
4) BOP and well control equipment assurance.
5) Aviation assurance.
6) Marine assurance.
7) Cyber security assessment.
8) Lifting assurance.
9) Local regulatory requirements.
10) Operator-specific start-up activities.
11) Pre-rig acceptance testing readiness review.
12) Rig acceptance testing and rectification.
13) Rig start-up approval.
14) Post start-up learning.

Annex B provides an example workflow that operators may adapt to their specific intake plan.

5.1 Rig/Vessel Contractor Kick-Off Meeting

The operator and rig contractor should hold a kick-off meeting with assigned representatives from the operator (Rig Intake Team), rig contractor, and relevant third-party service providers. The meeting should establish a clear understanding of the current rig status and intake objectives, and identify and agree on the following deliverables:

1) Responsible parties
2) Critical path work
3) Planned Rig Intake schedule.

The full team should also map and review the intake process in detail.

5.2 Rig Intake Risk Profile

The rig intake team shall complete a review of the strategic intake associated with the rig intake process and the first 12 months of operations.

The risk review is based on the proposed operations, and the outcomes identify applicable Major Accident Risk (MAR) for notification and endorsement through the operator's risk notification process prior to the

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start of operations. The rig intake team shall develop and execute an assurance plan to address the applicable risks identified by the review.

Participants in the review shall include the rig intake team, assigned risk owner, HSE manager and applicable Subject Matter Experts (SMEs) for each risk being reviewed. Major accident risk events can include the following:

1) Loss of well control during drilling, flowback, testing, or production operations
2) Loss of control of a suspended load, including a dropped or dragged subsea object
3) Dropped object from rig structure.
4) Collision of a marine vessel with MODU.
5) Loss of stability of an offshore floating installation.
6) Loss of structural integrity.

5.3 Operator/Contractor Bridging Documents and Assurance

The Rig Intake Team can work with the rig contractor to develop a Safety Management System Bridging Document (SMSBD), a Well Control Bridging Document (WCBD) or both.

If national / regional, or the authorized body requirements apply to the SMSBD or WCBD, those requirements shall take precedence. The bridging documents should be adapted to meet local requirements, including required submission or approval timeframes.

5.3.1 Safety Management System Bridging Document

The SMSBD is a structured approach to bridging the operator and rig contractor's Safety Management Systems (SMSs) with the following objectives:

1) Promote safety and environmental protection by documenting the interfaces between the operator's HSSE contract requirements and the rig contractor's SMSs.
2) Provide a process to demonstrate agreement in relation to the rig contractor's SMS procedures and practices proposed for the work site.
3) Resolve identified differences between the contractors HSSE contract requirements and rig contractor's SMSs prior to commencing work.
4) Establish a systematic SMS bridging document development process that consists of the following:
    a) Reviewing contractor documents and agreeing on policies and practices that shall be followed at each interface.
    b) Completing operator specific SMS bridging templates.
    c) Developing a bridging document that forms part of the contract, incorporates the completed HSSE Bridging template, and:
        i) Details the operational principles applicable at work interfaces stating whether rig contractor or operator procedures shall be followed at each interface.

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ii) Defines the parties' agreement on organizational interfaces for safety management and supervision covering roles, accountabilities, responsibilities, and communication channels between rig contractor and operator personnel.
iii) Provides additional actions to bridge gaps between the operator HSSE requirements and rig contractor's SMSs including any of the safety management minimum requirements not addressed

5.3.2 Well Control Bridging Document

The WCBD is a structured approach to bridging the operator and rig contractor's well control documents by:

1) Identifying gaps between the operator requirements related to well control and the rig contractor's well control policy. These gaps can arise due to differences between operator requirements and the rig contractor's well control policy, or where one party's requirements or policy does not address a requirement addressed by the other party.
2) Enabling both parties to mutually develop an agreed path forward and to specify and document how the gaps will be bridged.

5.4 API STD 53 Gap Assessment

The rig contractor shall conduct and document a gap assessment against the applicable requirements of API Standard 53 and provide the completed assessment to the operator during the rig selection process. The purpose of the gap assessment is to:

1) Provide information for evaluating rig capability and selection;
2) Identify modifications or upgrades required during rig intake; and
3) Establish the basis for assessing BOP-system readiness against the applicable requirements of API Standard 53 and the contract.

The API Standard 53 conformance gap assessment shall be documented and retained as part of the Rig Intake handover documentation for use by subsequent operators in future rig intake assessments.

5.5 Aviation Assurance

The rig contractor shall conduct a helideck facilities assessment during the rig intake process in accordance with CAP 437, and IOGP Report 697, or the applicable requirements of the authority having jurisdiction, as specified by the operator.

The purpose of the helideck facilities assessment is to verify and document conformance with the applicable aviation requirements before operations commence. The assessment shall verify and document the aviation-management arrangements, assigned accountabilities, supporting documentation, and personnel competencies applicable to helideck operations

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The helideck facilities assessment shall be documented and retained as part of the Rig Intake handover documentation for use by subsequent operators in future rig intake assessments.

5.6 Marine Assurance

The operator shall develop and implement a process to manage marine assurance for the planned upcoming operations. As part of this process, the operator should, at a minimum:

1) Conduct marine inspection, approval, and acceptance, including:
    a. Class and Flag state review
    b. Offshore Vessel Inspection Database (OVID)
    c. Marine related assurance checklists.
2) Verify MODU and or Vessel conformance with the operator's operations management system**,** for the following and other applicable activities:
    a. 500m zone operations.
    b. Vessel collision risks (attendant and passing).
    c. Planned DP/mooring operations and position/station keeping.
3) Review and witness DP Trials and DP FMEA Proving Trials (as applicable**),** and review and approve the DP capability analysis.
4) Complete Marine Approvals in the operator's Marine Assurance System**.**
5) Verify the implementation of the 500 m zone operating procedures and collision-monitoring procedures identified in item 2.
6) Perform mooring analysis, including independent analysis for harsh environments and mooring risk assessment**.**
7) Plan, prepare, approve, coordinate, and obtain approval for rig moves; participate in the applicable rig-move activities; and complete the MODU move reports.

Marine assurance documentation shall be retained as part of the Rig Intake handover documentation for use by subsequent operators in future rig intake assessments.

5.7 Cyber Security Assessment

The rig intake team and rig contractor should conduct and document a cyber security assessment of Automation Systems security and IT security. The assessment should address the following elements of cyber security, as applicable:

1) Documented cybersecurity roles, responsibilities, and accountabilities.
2) Documented Cyber Security risk assessment.
3) Business Continuity Plans (BCPs) and Incident Management Plans (IMPs).
4) Network architecture.
5) Inventory and system classification.
6) Remote user access.

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7) Anti-malware protection procedures.
8) System security updates.
9) Firewall (FW) management.
10) System and Universal Serial Bus (USB) protection.
11) Security monitoring.
12) Backup and restoration of software.
13) Cyber security training.

Cyber Assessment assurance documentation should be retained as part of the Rig Intake handover documentation for use by subsequent operators in future rig intake assessments.

5.8 Lifting Assurance

The operator should include lifting assurance in the rig intake plan to verify conformance with the lifting requirements applicable to the planned operations. The lifting assurance review should address:

1) Lifting appliances,
2) Mechanical handling equipment,
3) Loose lifting equipment,
4) Tubular handling systems,
5) Derrick and dropped-object controls

The operator should determine the scope and level of lifting assurance based on the risks associated with the planned operations**.** The assurance can range from focused verification to full verification of lifting-related management systems, technical systems or both.

If a lifting assurance is conducted, assurance documentation should be retained as part of the Rig Intake handover documentation for use by subsequent operators in future rig intake assessments.

5.9 Local Regulatory Requirements

The operator and rig contractor shall identify and document the legal and regulatory requirements applicable to their respective rig intake activities.

5.10 Operator Specific Start-Up Activities

Individual operators can have additional requirements based on their internal processes and planned operations. Each operator should customize the Rig Intake Plan to meet their own operational objectives. The operator may include one or more of the following operator-specific activities in the Rig Intake Plan.

1) Development of an intake resource plan;
2) Third-party service contracts and associated equipment;
3) Development of an integrated rig intake schedule addressing:
    a) Modifications and upgrades;
    b) The rig intake scope;
    c) Third party installation activities; and

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   d) Crew training
4) Process safety studies; and
5) IT&S installation and assurance activities.

The documentation for each selected activity should identify the applicable industry standards and contractual requirements agreed upon by the operator and rig contractor.

5.11 Pre-Rig Acceptance Testing Readiness Review

The operator should develop and implement a process to:

1) Review the Rig Intake Plan activities and deliverables.
2) Verify by reviewing the status of the barriers for each identified major accident risk
3) Make a documented recommendation on readiness to proceed to rig acceptance testing
4) Identify and document actions required to manage residual risks after operations commence.

5.12 Rig Acceptance Testing and Rectification

The operator shall conduct and document pre-startup rig acceptance testing before the contract commencement date. The operator shall develop a test program to facilitate execution of the rig assurance plan and shall contain a detailed test plan for the planned assurance activities. This test program shall be reviewed and agreed by the operator and contractor at least two weeks prior to the planned test commencement date. Upon completion of the test program the operator shall provide a report that documents all gaps identified during the acceptance testing. The report shall include:

1) The gaps identified during acceptance testing;
2) The classification of the gap identified;
3) The corrective actions associated with each gap;
4) Target completion date for each action;

Pre-startup rig acceptance testing and assurance shall be conducted in accordance with Annex C.

The rig acceptance testing report and action closure plan should be retained as part of the Rig Intake handover documentation for use by subsequent operators in future rig intake assessments.

5.13 Rig Intake/Statement of Fitness Approval

The operator shall document the process used to approve the commencement of rig operations. The approval process shall address:

1) Completion of rig acceptance testing;
2) Completion or disposition of corrective actions;
3) Completion status of the applicable Rig Intake Process activities; and
4) Acceptance of any residual risks and open actions.

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5.14 Post Start-up Learning

On completion of the Rig Intake the rig contractor should develop and implement a procedure to facilitate a rig post-start-up workshop to identify and document improvement actions, responsible parties, and target completion dates.

6 Rig Intake Handover Documents

On completion of the rig intake, the following documentation should be retained by the rig contractor and forms the framework for handover to other operators:

1) Rig Intake Risk Assessment.
2) Rig Intake Assurance Plan.
3) BOP assurance assessment (API Standard 53).
4) Industry and regional helideck assessment documentation.
5) Marine assurance documentation, including audit reports and completed checklists.
6) Cyber security assurance reports and gap assessment documentation, if conducted.
7) Rig acceptance testing report and remedial action documentation, including action status and closure evidence.

This common framework can facilitate structured engagement and information sharing between operators and rig contractors. It can also support the documented handover of previous rig intake assurance activities, lessons learned, ongoing issues, identified gaps, and open actions.

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Annex A
(informative)

Rig Intake Assurance Levels

A.1 An Example of Rig Intake Assurance Levels

Table A.1 shows an example of rig intake assurance levels

Table A.1 An Example of Rig Intake Assurance Levels

Activity description	Verification of Compliance		
	Rig Intake Full - Scope (9-12 months)	Rig Intake Standard - Scope (6-9 months)	Rig Intake Light- Scope (3-6 months)

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General Description of the overall activities, regional regulations, Operator and rig contractor specified requirements and activities for verification of compliance.	**Full verification scope onshore and offshore:** a. Regional compliance requirements (HSE Safety Case) b. Safety and Maintenance Management systems c. Emergency Preparedness d. Technical systems and lifting appliances e. Rig Systems (Drilling/Safety etc.) f. Previous operator/internal audits and incident investigations **Rig Acceptance Test Program:** Covering all main systems and functions (based on Operators Rig Intake assurance requirements), examples include: a. DROPS/Derrick Inspections b. Drill Floor Safety Systems c. Mechanical Handling and Loose Lifting Equipment and Systems d. Marine Systems e. Environmental Systems and Containment f. LP/HP Mud Systems g. Power Management Systems h. Hazardous Areas i. Bulk Systems and Mud Mixing Systems j. Fire and Gas and ESD Systems k. Tubular Handling Systems l. Well control equipment and BOP Systems	**Focused verification scope onshore and offshore:** a. Regional compliance requirements (HSE Safety Case) b. Verification of selected part of the rig contractors' management system c. Verification of selected part of technical systems with focus on safety critical systems d. Previous operator/internal audits and incident investigations **Rig Acceptance Test Program:** The offshore inspection may be selected main systems and functions (based on rig contractors equipment status and planned operations)	**Rig Intake document sharing:** Familiarization with previous operator's Rig Intake documentation, review action trackers, prepare check list items for spot checks onshore/ offshore and adopt any open actions. **Onshore verifications:** Onshore verification of selected/ prioritized topics/barriers. **Offshore verifications:** Offshore inspection of selected/ prioritized topics/barriers.

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A.2 Example Rig Acceptance Test Plan

The Test Plan in Table A.2 is an example of a format and the type of equipment testing and documentation review to be carried out before or during the rig acceptance testing.

Note. Table A.2 is not exhaustive and does not include all elements of the intake process to be tested.

Table A.2 Example of a Rig Acceptance Test Plan

Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
	Day 1	Rig Verification Team induction and familiarization of rig with visual inspection of all areas.	Review of outstanding verification actions and/or commissioning punch list items.	Kick off meeting with rig crew and Operator Company Men
1. Derrick	Day 1-2	a. Derrick and crane inspection for potential dropped objects. b. Review of DROPS documentation and inspection records.	a. Last 3rd party DROPS inspection. b. Review derrick and derrick bolts inspection reports. c. Fall protection - provision and use. d. Rig-specific procedures for derrick access. e. Rig-specific procedures for rescue at height from derrick.	a. Review of SPS/major maintenance documentation and update of maintenance system history. b. Review maintenance history. c. Crew competency and training records. d. Conformance with Safety Management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
2. Safety System – Drill Floor	Day 1-2	a. Rig floor safety equipment. b. Red zone management. c. Function test crown/floor saver and block height system functionality. d. Rig floor alarms and shutdowns, including E-stops. e. Drawworks emergency brake and lowering systems. f. Function test active heave drawworks without load g. Drilling UPS functionality and test battery supplies. h. Brake efficiency/ performance test. i. Crown mounted compensator functionality.	a. Review Cat III & IV drilling load path certification and documentation. b. Engine protection and shutdown systems tests c. Sample drilling motor permissive start interlock testing. d. TDS blower, lube oil pressure, oil temperature, winding temperature. e. Mud pump blowers, lube oil, pre-charge pump and liner wash. f. Drawworks blower. g. CCTV system. h. Rig based communication systems, PA, telephones, radios and talkback systems. i. DP alarms	a. Review of SPS/major maintenance documentation and update of maintenance system history. b. Drilling equipment maintenance. c. Alarm management process. d. Crew competency and training records. e. Conformance with safety management system

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
3. Mechanical Handling and Loose Lifting	Days 2-7	a. Sample function testing of safety systems on mechanical handling equipment: b. All cranes c. BOP handling system d. Forklift truck e. Utility winches f. Man-riding winches g. Maintenance baskets h. Xmas tree skidding system i. Mobile elevating work platform j. Stabbing board	a. Verify effective implementation of lift planning process b. Review system for control of loose lifting equipment c. Software upgrades	a. Review of commissioning documentation and maintenance system history b. Load test certification c. Crane inspection d. Modifications/ Upgrades and repair records e. Planned maintenance system for lifting equipment f. Crew competency and training records in lifting operations g. Rig-specific procedures h. Conformance with safety management system

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4. Marine	Day 1-6	a. Watertight integrity: operational testing of doors, dampers and openings. b. Operational tests of bilge and ballast/preload systems. c. Fire protection systems; testing including fire dampers, fire pumps, deluge systems (all areas). d. Inspection/review of passive fire protection. Fire door and bulkhead integrity. e. Lifesaving apparatus; operational testing/inspection of lifeboats, davits, FRC, marine evacuation systems and life rafts. f. Sample engine protection and shutdown system tests, including rig saver activation via overspeed test feature or local e-stop. g. Fuel oil system including operation of QCV's.	a. Watertight integrity status of indication systems b. Bilge alarm and leak detection system checks c. Emergency operation of actuated watertight doors (if applicable). d. Functional tests of emergency bilge systems and crossovers. Testing from all operating locations and flow back checks on emergency bilge suction check valves (if applicable). e. Demonstration of emergency operation of ballast/preload control systems. f. Functional check of OWS. g. Loose firefighting and LSA equipment. h. Emergency escape/evacuation arrangements (including helideck and marine evacuation systems). i. Communications equipment.	a. Preparation of Marine Assurance Document. b. Class and Flag state status. c. Emergency and operational preparedness, including emergency drill matrix review. d. Review of stability management. e. Certification and maintenance for lifesaving and fire-fighting equipment. f. Emergency bilge system operating and maintenance procedures. g. Maintenance of critical equipment. h. Crew STCW certification, competency and training records. i. Marine crew competency. j. Preload and bilge system procedures.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
				k. Conformance with safety management system.
5. Environmental and Containment	Days 3-4	a. Environmental and containment inspection, all areas	a. Hazardous drains system b. Review environmental management system	a. SDS review b. Conformance with safety management system
6. LP Mud System	Days 3-4	a. Transfer water from pit to pit (including reserve pits) to test pit level sensors, pit volume totaliser system, pit level alarms and tank tables; using all combinations of transfer pumps and lines. b. Transfer water to process pits and function test process pumps and lines. Transfer water back to mud pits. c. Operation of agitators and or mud guns. d. Fill and empty trip tank to verify volume and instrumentation. e. Fill and empty stripping tank.	a. Trip tank level alarms & overflow. b. Stripping tank level sensor/gauge and overflow. c. Transfer and mix pumps. d. Well monitoring instrumentation installed in mud pits (temperature, density etc.).	a. Maintenance system and on-board spares. b. Crew competency. c. Rig-specific procedures for fluid handling and transfer. d. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
7. Power Management	Days 3-7	a. Load-test power generation system at 90% full load for four hours per engine and 100% for 15 minutes. b. Load-test thrusters at 90% full load for four hours per thruster (run thrusters in combination)	a. Use thrusters to load engines. b. Main switchboards and power distribution. c. Thruster VFDs. d. Power limitation/ phase back. e. Fuel oil system including operation of QCV's. f. Cooling water systems. g. Machinery space ventilation. h. Rig saver activation via overspeed test feature or local e-stop.	a. VFD switchboard systems - stability and spikes. b. Inspection reports and service engineer report review. c. Maintenance system & on-board spares review. d. Marine and technical crew competency. e. Conformance with safety management system.
8. Hazardous Areas	Day 8	a. Hazardous area and equipment inspection. b. Review hazardous area drawings. c. Testing of space pressurization and associated alarms.	a. Maintenance of electrical equipment in hazardous areas. b. Reviews of hazardous area equipment and documentation, including Ex register.	a. Planned Maintenance System. b. Crew competency. c. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
9. Dynamic Positioning Tests	Day 8-9	a. DP tests including repeating some of the FMEA tests. b. Automated black-out recovery & thruster re-start. c. Power management tests – Stability and phase back philosophy	a. Marine operations and DP station keeping procedures. b. DP alarms. c. DP system UPS. d. VFD switchboard stability	a. Marine and technical crew competency.
10. Bulk System	Day 5-6	a. Transfer bulk between all bulk silos and to surge tanks and demonstrate the ability to transfer across all bulk tank silos and assess accuracy of volume measuring system, for the following separate systems: 1. Bulk mud (barite and bentonite). 2. Bulk cement. b. Establish status of any cross-over provision between cement and barite bulk systems and check for potential cross-contamination issues. c. Establish provision for supply of barite to cement unit and check for potential cross-contamination issues.	a. Bulk air system, incl. bulk air pressure reducing station(s). b. Bulk silo and surge tank load cells and instrumentation. c. Air dryers. d. Bulk transfer system operability. e. Dust collectors – cement and barite/ bentonite system. f. Bulk loading stations.	a. Maintenance system and on-board spares b. Crew competency. c. Rig-specific procedures for bulk handling and transfer. d. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
11. Mud Mixing	Day 6-7	a. Mix an agreed volume of water-based mud (WBM) at an agreed initial density; increase the density to a second agreed value, and then weight an agreed volume to a final agreed density in the slug pit, using all modes of all mixing equipment provided. Volumes and densities to be agreed with the wells team. b. Function test mud pit cleaning system (if provided). c. Function test brine system (if provided and if possible).	a. Drillwater. b. Agitators. c. Mixing hoppers. d. Automated mud mix system (if provided): e. Sack slitting machine f. Pallet lifter g. Automated bulk additive system h. Big bag mixer. i. Caustic mixer. j. Mud mix liquid additive system. k. Barite high-rate mixer. l. Shearing devices. (if provided). m. Provision of facilities and connection points for brine filtration unit. (where required).	a. Maintenance system and on-board spares. b. Crew competency. c. Rig-specific procedures for mud mixing. d. Conformance with safety management system.

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12. HP Mud System	Day 4-5	a. Test each mud pump individually for one hour at an agreed SPM, and agreed pressure (pump rate & liner size to be agreed with wells team) and in combinations for about thirty minutes while circulating with seawater. Circulation through rental choke or through a drill bit. b. Pump through top drive while rotating for 4 hours to produce a "target" torque of 45,000 - 55,000ft-lb. (Contractor to provide paddle with jetted sub for top-drive torque tests where appropriate). c. Run mud pumps at high flowrate to prove circulating system capacity (pump rate & liner size to be agreed with wells team). d. Low pressure high flow through choke manifold and mud gas separator with seawater (flow rate to be agreed with wells team). (Approx. 30 mins). e. Function test solids control system, including: 1. Shale Shakers. 2. Vacuum degassers. 3. Mud centrifuges. 4. Desilter/desander.	a. HP & LP mud systems. b. Solids control equipment. c. For pneumatic screen clamping systems, check that shale shaker screens remain in place when air supply is shut-off. d. Flow line and mud ditch gates. e. Overboard lines. f. Vacuum degassers. g. Charge pumps. h. Trip tank fill and discharge piping, overflows and pumps. i. Return flow indicator. j. Top drive. k. Mud gas separator. l. Standpipe manifold pressure test. m. VFD switchboard systems – stability and spikes.	a. VFD stability. b. VFD cooling and HVAC c. Power limit. d. Maintenance of solids control equipment (including shale shakers). e. Crew competency. f. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
		f. Function test drill cuttings handling equipment. g. Pressure up against the IBOP (3000 psi). Reciprocate pipe to verify that there are no collision points between HP hose and derrick structure.		
13. Fire and Gas Detection and ESD	Day 8-9	a. Live sample testing of F&G detection systems through to executive actions. b. Live sample testing of ESD systems through to executive actions. c. Emergency generator black start. Test in conjunction with ESD for shutdown of main power. d. Manual blackout recovery Test in conjunction with ESD Level 0. e. Test fire and gas UPS.	a. F&G + ESD design philosophy. b. F&G + ESD cause and effect matrix. c. F&G + ESD maintenance and test records. d. Alarm management process. e. HVAC operation. f. Main/Emergency switchboard consumers. g. Black start compressor. h. Rig air system. i. Fuel oil pump. j. Emergency battery lighting. k. Rig UPS and 3rd Party UPS Shutdown on ESD Level 0.	a. Blackout recovery procedures. b. Maintenance of critical equipment. c. Crew competency. d. Rig-specific procedures. e. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
14. Pipe Handling	Day 9-11	a. Function test drill floor ZMS/ ACS and system interlocks against test procedures. b. Top drive rotation, make up & break out torque (drilling connections). c. Make up and rack back 10 stands of drill pipe. d. Trip in and out of hole with 5 stands (dependent on clearance). e. Break down and laydown drill pipe. f. Verify operation of hydraulic catheads. g. Red zone management. h. For dual derrick operations: i. Make-up and rack-back 10 stands of drill pipe; use of well centre, aux well centre and mousehole. j. Transfer stands between forward and aft fingerboards.	a. Fingerboard. b. Hoisting system. c. Slips/elevators. d. Rotary table. e. Spinning wrench (where fitted) f. Manual tongs. g. Mud bucket. h. Iron roughneck. i. Pipe handling equipment (provision varies; list equipment provided here). j. CCTV. k. Drilling instrumentation. l. Anti-collision system (where applicable). m. Pipe Interlock Management (PIM) system (where applicable). n. Crown saver and block height warning system. o. Drilling switchboards. p. Well control drills. q. Pipe handling procedures.	a. Review of all drill floor equipment certification / recertification. b. Software management system review. c. Alarm Management Process. d. Control of defeats and bypasses process. e. Crew competency. f. Drill floor procedures. g. Conformance with the safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
15. Software Control	Day 9-11	a. Power down drilling control system using drill floor ESD and reboot. b. Power down drilling control system PLCs and reboot. Stand of heavyweight to be gripped in racking arm and raised 100mm above drill floor (if pipe racking system is installed).	a. UPS functionality and test battery supplies. b. Drilling equipment indexing and calibration. c. VFD switchboard systems. d. Drilling control system shutdown and start-up process.	a. Automation digital security and software management review. b. Crew competency. c. Rig-specific procedures.
16. BHA Handling	Day 12	a. Make up and rack back stands of drill collars of various sizes b. Run in and pull out of hole with BHA (dependent on clearance). Break down and lay down BHA from well centre and offline mouse hole (if applicable). c. Red zone management.	a. Fingerboard. b. Hoisting system. c. Slips/elevators. d. Iron roughneck. e. Pipe handling equipment f. CCTV. g. Drilling instrumentation. h. Anti-collision system i. Pipe Interlock Management (PIM) system j. Crown saver and block height warning system. k. Drilling switchboards. l. Well control drills. m. BHA handling procedures	a. Crew competency. b. Drill floor procedures. c. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
17. Casing Handling	Day 13	a. Rig up to make-up casing b. Make-up and run / rack back casing c. Run in hole with two further sizes of casing d. Break down and lay down casing. e. Red zone management.	a. Casing tongs. b. Pipe handling equipment c. Hoisting system. d. CCTV. e. Drilling instrumentation. f. 3rd party casing contractor tong. g. Anti-collision system. h. Pipe Interlock Management (PIM) system.	a. CCTV coverage for casing operations. b. Crew competency. c. Rig-specific procedures. d. Conformance with safety management system.
18. Cement Mixing	Day 14	a. Mix cement slurry; density and mix rate to be agreed b. Function test cement liquid additive system. c. Transfer water from mud pit to cement unit and/or batch mixer and then back to mud pits.	a. Drillwater supply. b. Bulk air system. c. Air dryers. d. Bulk transfer system. e. Bulk handling. f. Cement unit g. Batch mixer system. h. Cement system LAS system. i. Cement unit dust collector.	a. Cement unit calibration records. b. Cement unit maintenance records. c. Crew competency. d. Rig-specific procedures. e. Conformance with safety management system.

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19. BOP Pre-Deployment Testing	Day 1-10	a. Review BOP operating chamber pressure tests (API Std 53 Table C.14). b. BOP pre-deployment function testing in accordance with API Std 53 Table C.7: 1. BOP function test. 2. Main accumulator drawdown test. 3. Acoustic system test. 4. ROV intervention test. Note: All functions if exceed 12-months (API Std 53 Table C.10) 5. Deadman & Autoshear circuit tests. 6. EDS (dry & wet) tests. 7. Drift test. 8. Soak tests. c. BOP pre-deployment pressure testing in accordance with API Std 53 Table C.11: 1. Annular BOPs and valves above ram BOPs – RWP. 2. Ram BOPs and valves below ram BOPs – RWP.	a. BOP and HPU accumulator pre-charge pressures verified with respect to surface testing. b. BOP scheduled function testing in accordance with API Std 53 Table C.10: c. HPU pumps, mixing operation and alarms. d. UPS 2-hour test. e. Adjustable choke and drill pipe safety valve operation f. Well control equipment critical gauge calibration. g. BOP lifting and handling equipment.	a. Well control equipment system commissioning documentation. b. Well control equipment system certification and manufacturers record books. c. Planned Maintenance System. d. BOP and diverter control system software management. e. Crew competency and training records. f. Rig-specific procedures. g. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
		3. LMRP and wellhead connectors – RWP. d. Choke and kill manifold and drill pipe safety valves		
20. Running BOP and Riser Handling	Day 15-17	a. Rig up and run BOP and riser. b. Check bullseyes against ERA output c. Pressure test choke, kill, mud boost and conduit lines to agreed values and intervals. d. Install telescopic joint, load ring and goosenecks. e. Pressure test choke, kill, mud boost and conduit lines to agreed values once goosenecks are installed.	a. BOP pre-deployment procedure and checklist. b. All subsea main and pilot accumulator pre-charge pressures verified with respect to water depth. c. MUX and hotline reels. d. Riser tensioner system. e. Riser running tool, spider and gimbal. f. Hoisting systems. g. Anti-collision system.	a. Crew competency. b. Rig-specific procedures. c. Conformance with safety management system.
21. Install BOP on Wellhead	Day 17-18	a. Land BOP on wellhead and perform slump test. b. Latch BOP and perform overpull. c. Pressure test wellhead connector and BSRs to casing pressure. d. Rig positional moves to confirm ERA sign convention.	a. Riser tensioner system. b. ROV intervention. c. Marine operations and station keeping.	a. Crew competency. b. Rig-specific procedures. c. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
22. Install Diverter and Rotation Test	Day 18-19	a. Install diverter and perform overpull. b. Diverter testing c. Review operating chamber pressure test. d. Function test from all control stations. e. Accumulator drawdown test. f. Flow test. g. Integrity test to 250 psi / 5 minutes. h. Rig Rotation test.	a. Diverter lifting and handling.	a. Diverter system commissioning documentation. b. Planned Maintenance System. c. Crew competency. d. Rig-specific procedures. e. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
23. Well Control Equipment System Testing	Day 19-21	a. BOP initial function testing in accordance with API Std 53 Table C.8: 1. Deadman circuit test and dedicated emergency accumulators. 2. Acoustic system (close one ram BOP). 3. ROV intervention (close one ram BOP). 4. BOP function test including HP CSR and BSR. 5. Main accumulator drawdown test (only required on systems that rely on LMRP accumulators to meet sizing requirements). 6. Drift test. b. BOP EDS test if exceeds 5-years (API Std 53 Table C.10). Note: Not to be conducted during operations.	a. Well control equipment initial function testing in accordance with API Std 53 Table C.8: 1. Drill pipe safety valve operation. 2. Adjustable choke operation.	a. Crew competency. b. Rig-specific procedures. c. Conformance with safety management system.

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Test Number	Expected Duration	Primary Function Under Test	Secondary Functions Under Tests or Review	Parallel Activities and Management Systems
24. Rig Jacking and Skidding	N/A	a. Inspect the jacking and skidding system. b. Witness jacking and skidding operations during rig move (to be completed and recorded by Operator Company Man/marine rep)	a. Jacking control room/panel condition and indication systems. b. Rig skidding power-pack. c. Review jacking and skidding procedures.	a. Skidding and jacking maintenance. b. Crew competency. c. Review punch-through procedures. d. Conformance with rig contractors safety management system.

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Annex B
(informative)

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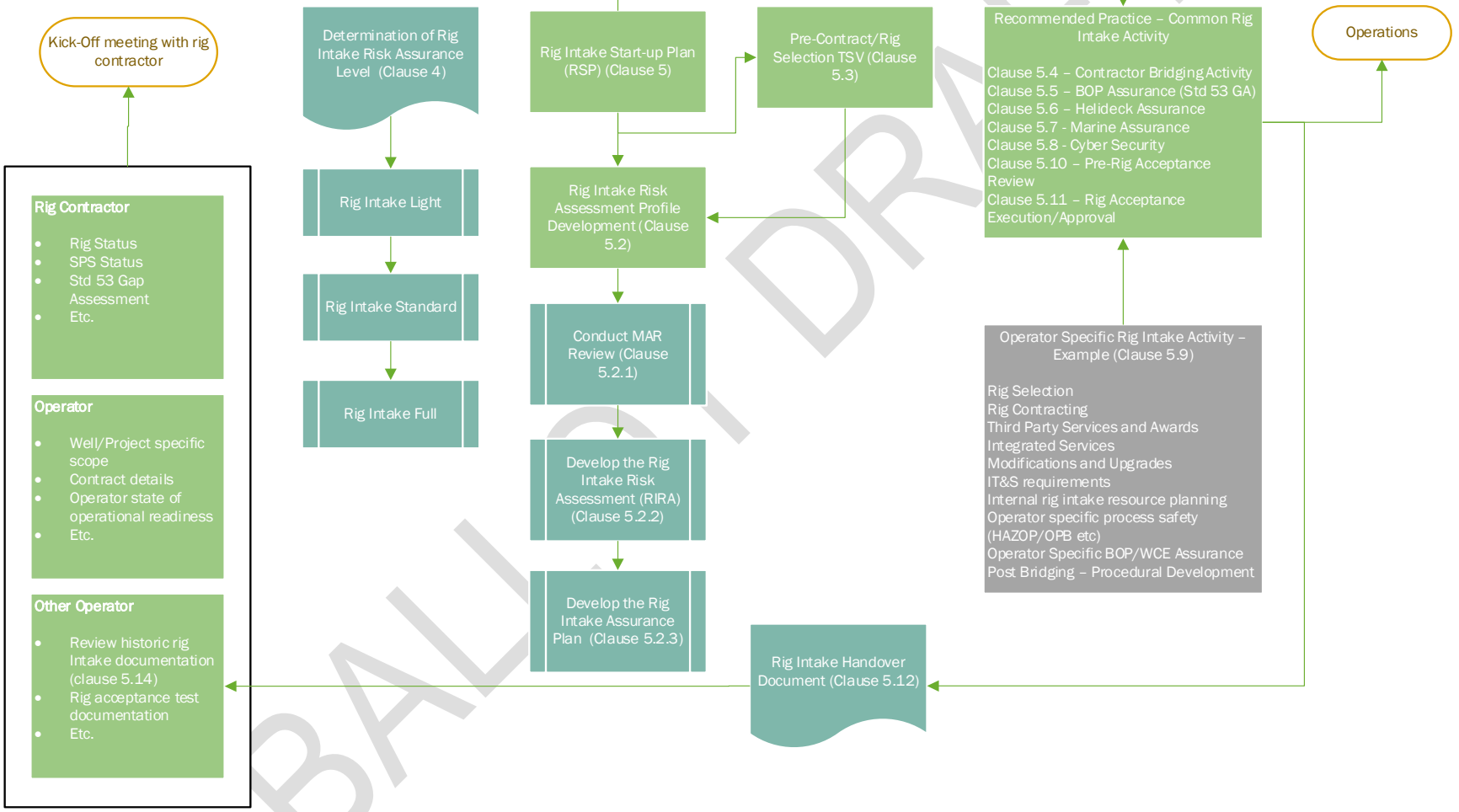
Example of a Rig Intake Recommended Workflow



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Annex C
(normative)

Rig Intake Acceptance Testing and Assurance

C.1 Principles

The following principles apply to all types of verification/assurance activities except for rig selection vetting inspections.

The verification/assurance program focuses on the selected criteria/barrier effectiveness, prioritized by the operator. New risks or risks informed by input from the operator's internal assurance team, Environmental (Health, Safety, and Environment [HSE]), and operational data are included as part of this prioritization.

1) Verification/assurance shall focus on company-operated or contracted drilling packages, completion and intervention packages, and supporting systems.
2) All verification/assurance activities shall be conducted to an agreed Terms of Reference (ToR), including:

For each verification/assurance activity, the terms of reference (ToR) are typically developed and agreed ahead of time with input from the operator and the contractor.

a. Applicable inspection criteria/barriers.

For each applicable barrier, a set of related barrier component checklists with lines of inquiry have been developed.

b. Statutory and regulatory requirements.
c. Contractually agreed operator and industry standards.
d. All verification/assurance activity shall be conducted against operator or third-party intake company checklists

The intent is for these checklists to be shared with the rig contractor ahead of the verification/assurance activity.

C.2 Establishing and Determining Inspection Criteria/Barriers

The operator shall develop and detail the inspection criteria/barriers to verify and test during the verification/assurance activity. This criterion shall be based on the operator's strategic level risks (Major Accident Risks (MAR)).

C.3 Types of Verification/Assurance

C.3.1 Pre-Contract Verification

Refer to Clause 5.2

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C.3.2 Rig Vetting Inspection

Refer to Clause 5.2

C.3.3 Pre-startup

C.3.3.1 Pre-startup verification/assurance

Pre-startup verification/assurance shall be conducted prior to the contract commencement date (or operations) on rigs that:

1) Are new builds.
2) Are upgraded or have undergone changes to rig equipment.

Note: (Examples of equipment applicable in this clause includes the drilling control system, installation of a major piece of equipment (e.g., Drawworks, Top Drive, Blowout Preventer [BOP]), Pipe Handling, or modifications or replacement of well test and intervention equipment.

3) Have undergone changes to crew or procedures.

Typically, this is when a rig mobilizes to a different region and/or takes a crew to a different region that has more stringent requirements.

4) Are being reactivated following a period of warm or cold stacking.

C.3.3.2 Hot Rig Startup

The decision to conduct, and scope of, a pre-startup verification/assurance inspection for hot rigs is dependent on the level of Rig Intake assurance assessment, detailed in section 4 of this Recommended Practice.

C.3.3.3 Multiple Short Term Contracts

Pre-startup assurance requirements for rigs that are undertaking multiple short-term contracts shall be agreed between the operator's, including return visits based on the program.

C.3.3.4 Operator Owned Rigs

Pre-startup verification/assurance shall also be conducted on operator-owned rigs returning to operation after a period of more than 12 months.

C.3.3.5 Individual Test Plans

An individual test program shall be developed to facilitate execution of the rig acceptance verification/assurance and shall contain a detailed test plan for the assurance activity planned. This test program shall be provided to the rig contractor to enable preparation for testing.

C.4 Verification/Assurance Preparation

C.4.1 Verification/Assurance Activity Test Program

A Test Program shall be developed for the rig acceptance verification/assurance activity and as a minimum shall include:

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1) Introduction.
2) Scope of work.
3) Deliverables.
4) Safety expectations.
5) Pre-requisite expectations.
6) Rig pre-commencement readiness status.
7) Pre-startup testing rules and acceptance criteria.

Elements to be tested – see Appendix 1 to this Annex for an example Rig Acceptance Test Plan.

C.4.2 Team Formation

Teams for verification/assurance testing can be either an internal resource or contracted 3rd party. Individual operators are responsible for ensuring teams are competent to deliver the Rig Intake assurance required.

C.4.3 Pre-Read Documentation

Following the issue of the Test Program the operator shall request and the rig contractor provide, applicable documents and information to assist with team planning and preparation. The information requested may include, but is not limited to:

1) Rig-specific contracts referring to standards that are applicable to the rig.
2) Well control bridging documents.
3) Safety Management Systems (SMSs) bridging documents.
4) Class status reports.
5) Rig performance data, Non-Productive Time (NPT), and HSE data.
6) Rig equipment lists.

C.5 Verification/Assurance Reporting

C.5.1 General Requirements

Operators shall develop a process for verification/assurance findings and their associated actions to be documented as a report and to be retained as part of the Rig Intake handover documentation for future operator Rig Intake assessments. Reports shall include as a minimum:

1) The findings.
2) Actions to resolve the findings. These actions should be defined and categorized by severity based on the potential risks to operations. (see section C.5.3 for an example of finding/action categorization).
3) All actions shall be given action classes (milestones/timeframes) to resolve the actions. The operator shall establish the action class and associated milestone or due date for each action after considering input from the rig contractor. (See section C.5.3 for example action classes).

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C.5.2 Assurance Activity Finding Categories

Findings shall be categorized according to impairment of barrier effectiveness. Table C.1 provides an example of the categorization and example guidance.

Table C.1 Assurance activity finding catagoriazation

FINDING CATEGORIES				
Categories	**Definition**	**Possible Contract Language**	**Example Operators Assurance Authority Rating**	**Example Guidance**
Category 1 (Critical)	Essential equipment / processes / systems inappropriately used, exceeding operational limits or out of service / obsolete with potential for loss of life, serious injury or environmental damage	Findings needing immediate management attention due to a potential for major impact.	A gap requiring immediate attention.	a. Complete failure of a barrier. b. Critical Impairment(1) of a barrier included in multiple preventive or mitigative lines. c. Multiple critical impairments(1) of barriers in a preventive or mitigative line.
Category 2A (Major)	Essential equipment, processes and systems that are being ineffectively used, approaching operational limits or experiences some downtime to a point that may lead to damage to essential equipment or have a detrimental effect on the drilling operation.	Findings that have higher severity than Category 2B that requires higher prioritization by the operator and with adverse potential impact.	A major gap.	a. Major impairment(2) of a barrier.
Category 2B (Minor)	Equipment, processes and systems that may have minor deficiencies observed that may lead to a situation that contributes to an	Findings of significance.	A minor gap.	a. Minor impairment of a barrier.

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	incident or to circumstances in which the required standards of operation are not met.			
Category 3 (Observation)	Observations highlight equipment condition, processes or systems that, although not considered non-conformances during the audit, are noteworthy to the client.	Findings where the most plausible outcome is small.	An efficiency observation.	a. An opportunity for further strengthening of a barrier.
Note 1. A critical impairment is the deterioration and failure of the barrier that could lead to loss of life, significant environmental damage, or loss of the asset. Note 2. A major impairment is the deterioration of the barrier that could lead to serious injury, environmental damage, or a compromised asset.				

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C.5.3 Assurance Activity Action Classes

Findings can have one or more actions to strengthen a barrier's effectiveness. A finding can have one or more associated actions intended to strengthen barrier effectiveness. Action priority reflects the finding category, action class, and assigned milestone or due date. Action classes are outlined in the example shown in Table C.2.

1) Actions may be assigned an operational milestone or a calendar-based due date. The operator shall establish each milestone or due date based on the risk associated with the finding and the planned operations.
2) The operator verification/assurance team (with input from the rig contractor) shall:
   a) Provide input to the milestone and date setting process within the assurance report.
   b) Agree the final due dates and milestones in accordance with the example in Table C.2.
3) For actions associated with Category 1 findings, immediate discussion may take place between the operator and rig contractor regarding whether operations continue or are stopped until such time that these actions are closed.
4) For actions associated with Category 2 or 3 findings, the operator and rig contractor shall collaborate and agree on provisional milestone or due date for each action during the close-out meeting.

Table C.2 Example Action Classes

Action Class	Completion Milestone	Completion Criterion
Class A	Pre-Start-up	Actions are completed before start-up commences.
Class B	Start-up Decision	Actions are completed before the start-up decision is made.
Class C	Pre-Sail	Actions are completed before the MODU transits to the nominated location.
Class D	Pre-spud	Actions are completed before spudding the well.
Class E	Pre- BOP	Actions are completed before running the BOP.
Class F	Pre-Hydrocarbon Zone	Actions are completed before entering the zone bearing hydrocarbons.
Class O	Pre-Other Milestone	Actions are completed before an operational milestone not identified as Class A to F (e.g., depending on planned operations, "other" milestones can include pre-wireline operations, pre-intervention operations).
Class T	Time Frame	Actions are completed within the agreed time frame.

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C.5.4 Management of Findings and Actions

The operator should develop and implement a process to manage actions and their associated risks. The process should be agreed between the operator and the rig contractor at the contracting phase of the Rig Intake process

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Bibliography

American Petroleum Institute (API)

API RP 2I	In-service Inspection of Mooring Hardware for Floating Structures
API RP 7HU1	Safe Use of 2-inch Hammer Unions for Oilfield Applications
API RP 8B	Inspections, Maintenance, Repair and Remanufacture of Hoisting Equipment
API RP 4G	Recommended Practice for Operation, Inspection, Maintenance, and Repair of Drilling and Well Servicing Structures
API RP 14F	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Division 1 and Division 2 Locations
API RP 14FZ	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1 and Zone 2 Locations
API RP 54	Recommended Practice for Occupational Safety for Oil and Gas Well Drilling and Servicing Operations.
API RP 505	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2
API Standard 64	Diverter Equipment Systems
API Spec 16D	Specification for Control Systems for Drilling Well Control Equipment and Control Systems for Diverter Equipment.
API Spec Q1	Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry

Det Norske Veritas (DNV)

DNV-OS-E-301	Position Mooring

International Marine Contractors Association (IMCA)

IMCA M 103	Guidelines for the design and operation of dynamically positioned vessels
IMCA M 166	Guidance on failure modes and effects analyses (FMEAs)
IMCA M 190	Guidance for developing and conducting DP annual trials programs
IMCA M 191	Code of practice for DP annual trials for mobile offshore drilling units

International Maritime Organization (IMO)

MODU Code	Code for the Construction and Equipment of Mobile Offshore Drilling Units

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