Well Construction Interface Document Guidelines

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Suggested revisions are invited and should be submitted to the Standards Department, API, 1220 L Street, NW, Washington, DC 20005, standards@api.org.

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Well Construction Interface Document Guidelines

1 Scope

1.1 This bulletin provides guidance on information that is to be shared regarding well construction and rig-specific operating guidelines. It is intended to align the lease operator's safety and environmental management system (SEMS) with drilling contractor's safe work practices (CSWP).

1.2 The well construction interface document (WCID) is used to formalize the exchange of information as shown in Figure 1.

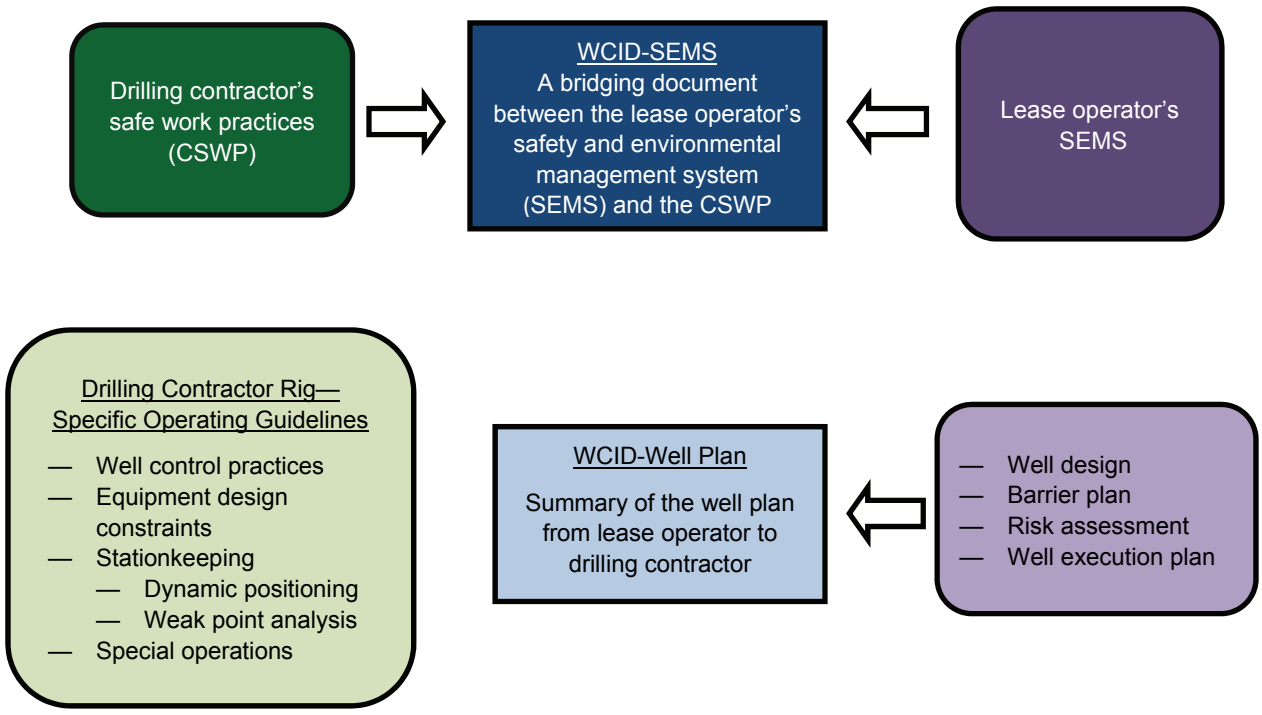

Figure 1—Well Construction Interface Document (WCID) Information

NOTE The WCID is not intended to duplicate the health, safety, and environment (HSE) information addressed by the lease operator's HSE bridging document with the drilling contractor.

1.3 The WCID-SEMS is a bridging document that includes the elements identified in API 75 within the context of well construction activities. It is understood that work processes vary between operators and contractors, which should be honored in the development of the WCID document.

1.4 The intent of the bridging document between the lease operator's SEMS and the CSWP is to provide:

a) an outline of responsibilities for the lease operator's and drilling contractor's personnel;

b) acknowledgement that management of change (MOC) and risk assessment processes should be used:

- during well construction activities,
- to address personnel or organizational changes to ensure personnel skill level is sufficient for the applicable position;

c) a vehicle for the drilling contractor to be involved when operational changes and/or conditions are identified that could require a well activity risk assessment;

d) a method to align all parties with regard to drilling HSE standards and applicable regulatory requirements;

e) a method of communicating stop work authority.

1.5 The WCID-well plan contains the following elements (shown in Figure 1):

a) well design:

— location and environment,

— geological and geophysical;

b) well barrier plan risk identification;

c) well execution plan.

1.6 To enhance safe operations, the well plan provides a basis for discussion of well construction equipment, barriers, risks, and the mitigations for those risks.

EXAMPLE Drilling contractor rig-specific operating guideline examples:

a) well control practices:

— shut-in procedures,

— blowout preventer (BOP) configuration;

b) equipment constraints:

— rig capacity;

c) well-specific operating guidelines:

— watch circle.

2 Normative References

The following referenced document is 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.

API Recommended Practice 75, *Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities*

3 Terms, Definitions, Acronyms, and Abbreviations

3.1 Terms and Definitions

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

3.1.1
barrier
Component or practice that contributes to total system reliability by preventing formation fluid or gas flow.

3.1.2
combined operations
An operation carried out from one facility with another facility or facilities that materially affects safety of persons or the protection of the environment on any or all of the affected facilities [e.g. a lift boat or self-elevating mobile offshore drilling unit (MODU) working over a fixed platform].

3.1.3
drilling contractor
The company under contract with the lease operator to provide a rig, and associated rig personnel, needed to perform the well construction activities.

NOTE In some instances the rig may be provided by the lease operator; however, it is normally operated by a drilling contractor.

3.1.4
drilling contractor's safe work practices
CSWP
Drilling contractor's rig practices (as part of their management system) intended to minimize the risks associated with operational, maintenance, and modification activities.

3.1.5
hazard
A source of potential harm.

NOTE Harm includes ill health and injury; damage to property, equipment, products or the environment; production losses, or increased liabilities.

3.1.6
hazard analysis
The application of one or more methodologies that aid in identifying and evaluating hazards.

3.1.7
lease operator
The individual, partnership, firm, or corporation having control or management of operations on the leased area or a portion thereof. The lease operator may be a lessee, designated agent of the lessee(s), or holder of operating rights under an approved operating agreement.

3.1.8
management of change
MOC
A change control process that is implemented to safely manage variation in people, organization, practices, procedure, equipment, or materials in the approved plan or guideline.

NOTE A MOC process ensures that changes (and the resulting risks, if any) are reviewed, evaluated, approved, and documented by the responsible and accountable parties (prior to initiating or continuing the operation).

3.1.9
mitigation
To establish measures that limit the negative impact of undesirable events.

3.1.10
office-based personnel
Personnel who are organized and responsible to support rig operations but whose primary job location is not at the wellsite.

3.1.11
prevention
To establish measures that eliminate/reduce the probability of occurrence of undesired events.

3.1.12
rig-specific operating guidelines
Drilling contractor guidelines, operating manuals, and procedures that taken together establish the CSWP for a specific rig.

NOTE This can include equipment constraints (e.g. hook load), operating limits (e.g. deck capacity), stationkeeping, and well control practices.

3.1.13
risk
Effect of uncertainty on objectives.

<ISO 31000>

NOTE 1 An effect is a deviation from the expected—positive and/or negative.

NOTE 2 Objectives can have different aspects (such as health, safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, and process).

NOTE 3 Risk is often characterized by reference to potential events and consequences, or a combination.

NOTE 4 Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.

3.1.14
risk management
Coordinated activities to direct and control an organization with regard to risk.

3.1.15
safety and environmental management system
SEMS
Structured set of interdependent doctrines, documents, and principles that are intended to ensure that the activities of an organization are directed, planned, and conducted safely as described in API 75.

3.1.16
simultaneous operations
SIMOPS
Two or more independent operations (such as drilling, workover, wireline, facilities construction, etc.) conducted under common operational control in which the activities of any one operation may impact the safety of personnel, equipment and/or the environment of the other(s).

NOTE Failure to coordinate can result in the potential clash of activities that can cause an undesired event or set of circumstances.

3.1.17
stop work authority
SWA
A program that provides all operator and contractor/service personnel, directly or indirectly involved with the operation, the responsibility and authority to cease work until a review of the activity can be concluded, and it has been found safe to resume such activity.

3.1.18
third-party services
Essential services other than those provided by the lease operator or drilling contractor that are required to execute well construction.

3.2.19
ultimate work authority
The person or position located on the facility, or MODU, with the responsibility for making final decisions relating to well construction operations.

3.1.20
well construction
A set of operations to be directed by the lease operator employing the drilling contractor and third-party services equipment and personnel.

3.1.21
well construction interface document–safety and environmental management system
WCID-SEMS
Bridging document between the lease operator's SEMS and the CSWP.

3.1.22
well construction interface document–well plan
WCID-well plan
Summary of the well plan from lease operator to drilling contractor.

3.1.23
well plan
Lease operator's documentation of the planned well construction activities.

3.1.24
wellsite-based personnel
Personnel who are organized and responsible for supporting well construction activities at the wellsite.

3.2 Acronyms and Abbreviations

BOP	blowout preventer
CSWP	drilling contractor's safe work practices
DP	dynamic positioning
FIT	formation integrity test
HSE	health, safety, and environment
JSA	job safety analysis
LOT	leak-off test
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978
MASP	maximum anticipated surface pressure
MAWHP	maximum anticipated wellhead pressure
MOC	management of change
MODU	mobile offshore drilling unit
P&A	plug and abandon
PVT	pit volume totalizer
ROV	remotely operated vehicle
SEMS	safety and environmental management system
SIMOPS	simultaneous operations
SWA	stop work authority
UWA	ultimate work authority
WCID	well construction interface document

4 Drilling Contractor CSWP and Lease Operator SEMS Interface

4.1 General

The following sections identify key elements to be addressed in order to develop alignment between the lease operator and drilling contractor programs. This should be done by demonstrating agreement or by resolving differences in their respective programs.

4.2 Management Principles and Organizational Structures

4.2.1 Objective

Agree on the interfaces between the drilling contractor's CSWP and the lease operator's SEMS. Define the roles and responsibilities of the supervisory personnel at the wellsite and appropriate personnel as agreed between the lease operator and drilling contractor. For combined operations, this should include all involved facilities, and an individual with the authority to oversee and coordinate activities on all involved facilities shall be identified.

4.2.2 Description

The interface of lease operator and drilling contractor principles and organizational structures should be developed in accordance with API 75 to promote safety and environmental protection. Specific management expectations are defined. A WCID-SEMS document is not a republication of the SEMS or CSWP; instead, it is the interface between the two safety management systems intended to address well-specific issues. The intention of this document is to provide a mechanism for the lease operator and the drilling contractor to demonstrate agreement or resolve differences between the CSWP and SEMS.

Consideration should be given to the drilling contractor's rig-specific operating guidelines and its site-specific assessment of critical well activities (e.g. stationkeeping, BOP operations, etc.).

The drilling contractor and lease operator should specify the position(s) responsible for the safe and efficient operation of the rig in accordance with applicable regulations, including emergency situations. This includes the establishment of procedures for both internal and external communications of safety and environmental information. The description or link should include the following:

a) drilling contractor's and lease operator's key office-based personnel,

b) drilling contractor's and lease operator's key wellsite-based personnel.

Completion of the WCID-SEMS establishes the exchange and alignment of safety and environmental management information prior to commencing work. Refer to Section 5.

4.3 Safety and Environmental Information

4.3.1 Objective

Establish all required safety and environmental information for the rig, and third-party equipment, has been identified and meets the requirements for the well to be drilled.

4.3.2 Description

The rig-specific operating guidelines and CWSP provide a basis for implementing SEMS elements. Rig description and supporting information can include mudflow management equipment (i.e. mud gas separators, diverter system, etc.). Equipment required to maintain and monitor barriers can include alarm systems [gas detectors, pit volume totalizer (PVT), flow meters, stationkeeping] and well control systems. Third-party equipment interfaces with the rig's systems that may need to be addressed include water, rig air,

and electrical power. This equipment can include, but is not limited to, remotely operated vehicles (ROVs), cementing units, wireline units, and mud logging units.

For combined operations, the possibility that the functionality or operability of critical equipment or systems may be compromised should be considered. For example, a helideck may be obstructed, or it may be necessary to provide the means to distinguish between alarm systems on the facilities.

4.4 Hazards Analyses

4.4.1 Objective

Establish areas of responsibility between the lease operator and drilling contractor for hazards analyses (risk management processes) for well construction and the verification of rig capacity and capability. The hazard analyses should include third-party equipment and procedures.

4.4.2 Description

The lease operator and the drilling contractor should each have defined risk management processes. The following examples typically govern the processes.

a) For hazards analysis associated with the well plan or well construction, the lease operator's risk management process applies. The drilling contractor is included in the process.

b) For hazards analyses associated with the rig operation and capability of the rig, the drilling contractor's risk management process applies. The lease operator is included in the process.

d) For hazards analysis associated with the interaction of two or more facilities during combined operations, the lease operator's risk management process applies. The drilling contractor is included in the process.

e) For job safety analysis (JSA) at the operations/task level, the drilling contractor's process applies. As an example, this process may include the following:

   — review of steps involved in performing the job;

   — identification of existing and/or potential hazards for each step;

   — development of actions/procedures to eliminate or reduce these hazards;

   — approval of JSA by supervisor in charge of the task, prior to commencing work;

   — retention of JSA per applicable regulations.

4.5 Management of Change (MOC)

4.5.1 Objective

Establish the responsibilities for initiating and leading MOC processes in common situations. The level of approvals required should be appropriate for the changes.

4.5.2 Description

The responsibilities for the MOC process regarding changes to well design, equipment (including third party), procedures, personnel, materials, operating conditions, etc. are shown in the following examples.

a) Lease operator notifies drilling contractor of a significant change in well design/well plan. The lease operator MOC process applies, and the drilling contractor is consulted in the process and may participate in the associated hazard analysis.

   — Lease operator should involve the drilling contractor for changes to the well plan that require regulatory approval or internal lease operator approval.

   — The well plan may be amended and reissued, or alternatively, a MOC completed and issued.

   — Lease operator's representative is authorized at all times to take immediate actions necessary to make the well safe.

   However, the lease operator's representative is not authorized to continue subsequent operations until a MOC is approved.

b) Drilling contractor notifies lease operator for changes associated with the operation and capability of the rig that affect execution of the well plan or have potential HSE consequences. Drilling contractor's MOC process applies. The lease operator is consulted in the process and may participate in any associated hazard analysis.

c) Drilling contractor notifies lease operator and conversely, lease operator notifies drilling contractor, of change of material, organization, products, equipment, procedures, maintenance, or personnel that affect execution of the well plan or have potential HSE consequences.

d) For changes associated with the well plan that involve third-party services, the drilling contractor or lease operator may initiate a MOC. Service providers may be included in the MOC process as applicable.

e) MOC procedures for combined operations require special consideration and should be coordinated by the individual appointed by the lease holder to oversee and coordinate the combined operation.

4.6 Operating Procedures

4.6.1 General

The purpose of this section is to identify, address, and resolve differences or gaps in operational philosophies and instructions between the lease operator and drilling contractor (and third parties, as applicable) such that operating instructions provided to the workforce are clear. Operating procedures for combined operations require special consideration to account for the possible interaction of the facilities and their operations.

4.6.2 Well Control Procedures

4.6.2.1 Objective

Establish how differences between lease operator and drilling contractor's well control procedures and practices are to be managed.

4.6.2.2 Description

Identify the well control procedures to be used during well operations. Any procedural modifications should be implemented prior to commencing operations. All agreed changes to existing procedures should be documented in a well control procedure bridging document.

EXAMPLE 1 During normal well operations, the drilling contractor's well control procedures apply. The lease operator is included in the process.

EXAMPLE 2 In the event of emergency well control situations where people, rig, or the environment are at risk from an uncontrolled flow, the drilling contractor's processes apply, and the lease operator is included in the process once personnel safety is assured.

EXAMPLE 3 When the well is shut-in, recovery procedures are to be mutually agreed on by the lease operator and drilling contractor.

4.6.3 Simultaneous Operations (SIMOPS)

4.6.3.1 Objective

Establish cohesive SIMOPS procedures between drilling contractor's rig and lease operator's facility.

4.6.3.2 Description

SIMOPS procedures that apply in the operations.

4.6.4 Environmental and Occupational Safety and Health Considerations

4.6.4.1 Objective

Establish processes intended to prevent environmental damage and personnel exposure.

4.6.4.2 Description

Review and agree upon control measures, special hazards, housekeeping, and precautions to be taken.

Items to be addressed may include, but are not limited to the following:

a) lease operator and drilling contractor environmental management systems:

   — lease operator's environmental management systems;

   — drilling contractor's environmental management systems;

   — lease operator and drilling contractor's emissions, waste, water, and effluent management practices;

b) environmental monitoring:

   — environmental monitoring includes regulatory processes [e.g. International Convention for the Prevention of Pollution from Ships (MARPOL), regulations, and performance indicators];

c) spill preparedness and response plans;

d) communicating areas of environmental concern;

e) regulatory requirements and reporting noncompliance:

   — information should be exchanged to allow the parties involved to understand their individual and collective responsibilities under the conditions of the lease, permits, and regulations that are applicable to the operation.

4.7 Safe Work Practices

4.7.1 Objective

Establish the safe work practices within the WCID-SEMS to be implemented by the lease operator and the drilling contractor.

4.7.2 Description

The WCID-SEMS identifies the safe work practices as agreed upon between the lease operator and the drilling contractor.

Examples of safe work practices include:

a) permit to work system;

b) third-party equipment acceptance procedures;

c) site-specific safety induction:

— all personnel arriving should complete a worksite safety induction;

— examples of the induction may include the following:

1) main hazards associated with ongoing and planned operations;

2) procedure for reporting safety, security and personal concerns;

3) procedure for reporting accidents and incidents;

4) safety orientation, including alarms and station-bill assignments;

5) site-specific orientation including restrictions on access to operational areas;

NOTE Different orientations may apply to first time arrivals, short-term visitors, and persons remaining overnight.

d) personnel basket/boat transfers;

e) interaction with support vessels and aircraft.

4.8 Training

4.8.1 Objective

Ensure all personnel are trained to perform their specific job function, to work safely, and are aware of process safety and environmental considerations. Additionally, establish any specific training or qualifications required for the operating area or well program.

4.8.2 Description

Review and agree that key personnel for the drilling contractor, the lease operator, and their respective third-party services have the knowledge and expertise to meet the requirements of their position.

NOTE Training may include operating procedures (i.e. well control training), safe work practices, MOC procedures, and emergency response measures.

4.9 Assurance of Quality and Integrity of Critical Equipment

4.9.1 Objective

The lease operator and drilling contractors confirm that operating and maintenance procedures are in place on assets under their control to ensure integrity and peformance of equipment used to prevent or mitigate uncontrolled release of materials that may cause environmental or safety consequences.

4.9.2 Description

Preventative maintenance and quality control programs are established by the drilling contractor to ensure the integrity of rig's critical equipment and systems. Inspection findings concerning the integrity or performance of critical equipment should be communicated to all relevant parties prior to commencing operations.

This equipment can include pit volume and flow monitoring devices, surface and subsea BOP equipment, BOP control systems, and the mud-gas separator. Other critical components can include dynamic positioning (DP) system (software, propulsion system, sensors, etc.), mud pumps, cementing unit, and the choke manifold.

For combined operations, preventative maintenance and quality control programs are established by the lease operator to maintain the integrity and performance of critical equipment and systems managed by the lease operators (e.g. including any pipelines crossing such facilities).

4.10 Pre-startup Review

4.10.1 Objective

Discuss planned rig operations in connection with the drilling, completion, construction, or intervention program prior to commencing operations.

NOTE For a drilling, completion, construction, or intervention project the pre-startup review is analogous to a pre-spud meeting.

4.10.2 Description

Potential hazards/risks and other operational uncertainties should be discussed prior to execution of the operation.

Provide a description of the pre-startup review for new or significantly modified (overhauled) facilities agreed on between the lease operator and the drilling contractor. Lease operator should assess the severity of any outstanding issues and review potential hazard prevention and mitigation measures with drilling contractor before commencing operations.

4.11 Emergency Response

4.11.1 Objective

Alignment between the lease operator and drilling contractor for roles, responsibilities, and procedures in emergency situations.

4.11.2 Description

Provide a description of or reference to the emergency response plans and procedures agreed to by the lease operator and the drilling contractor. These procedures should clearly identify specific roles and responsibilities, define the control center, set training and drill schedules, include necessary contact

information, and be readily accessed by all personnel. Procedures should also include lines of communication and appropriate notifications per applicable regulations.

For hazards analysis associated with the interaction of two or more facilities during combined operations, special consideration is required. For example, consideration may need to be given to movement of personnel between facilities, harmonization, and interconnection of alarms, etc.

Examples for emergency response may include the following:

a) emergency evacuation plan:

   — medical evacuation, and

   — fire response;

b) station bill/muster list;

c) security threat;

d) collisions;

e) stationkeeping/emergency disconnect.

4.12 Investigation of Incidents

4.12.1 Objective

Ensure the incident investigation and analysis process to be used by the lease operator and the drilling contractor is in place and can be implemented with clearly identified roles and responsibilities.

4.12.2 Description

This process should be used for the investigation of an incident that put personnel safety at risk or caused environmental damage. Identify the process by which incident investigations are to be conducted, documented, and findings distributed to appropriate personnel. For incidents that can impact other rigs, consider how to communicate the information/lessons learned to other operators, contractors, and third parties.

4.13 Audit of Safety and Environmental Management Program

4.13.1 Objective

Establish and maintain audit programs (in accordance with API 75). Determine if the program elements have been properly implemented and maintained.

4.13.2 Description

The audit shall comply with API 75 requirements.

4.14 Records and Documentation

4.14.1 Objective

Establish a document control system to maintain records and documents in a manner sufficient to implement the management system and satisfy applicable regulations.

4.14.2 Description

Provide a description of the document control system as agreed between the lease operator and the drilling contractor.

4.15 Stop Work Authority (SWA)

4.15.1 Objective

Establish a SWA program that shall be used by all personnel directly or indirectly involved with the operation.

4.15.2 Description

It is a “nonreprisal” program to empower personnel to freely express their concerns and interrupt operations perceived to be at risk. If both the lease operator and drilling contractor have a SWA program, provide clear direction on which program is to be used.

A SWA shall provide all lease operator and drilling contractor/service personnel directly or indirectly involved with the operation the responsibility and authority to pause operations until the activity can be reviewed appropriately. This may include a decision from the individual with ultimate work authority (UWA) to resume activities after determination that the imminent risk or danger does not exist or no longer exists.

5 Well Plan Interface (WCID-Well Plan)

5.1 General

5.1.1 Objective

Ensure that all well construction work is carried out in a manner that protects the safety and health of all workers as well as the environment. It should emphasize barrier plans and well control practices by integrating the drilling contractor’s rig-specific operating guidelines with the lease operator’s well plan. The drilling contractor, and other affected parties, can comment on the well plan.

5.1.2 Description

The WCID-well plan contains information about the location and environment, geological and geophysical data, well design, well barriers, well plan, and well activity risks. Risk prevention and mitigation plans should be aligned with drilling contractor’s CSWP.

The WCID is developed by the lease operator with input from the drilling contractor with respect to the rig’s operational capabilities and constraints that could affect the well plan. The intent is alignment, not duplication.

NOTE Well plans may include drilling, completions, workovers, and plugging and abandonments (P&As).

5.2 Location and Operating Environment

5.2.1 Objective

Communicate the proposed well location and expected range of environmental or metocean operating conditions in which the rig is required to stay on location to maintain well barriers and well control.

5.2.2 Geographical Location Description

Information should include, but is not limited to, the following:

a) proposed well's surface and bottomhole location with respect to lease lines and adjacent wells,

b) water depth of the proposed well,

c) topography.

5.2.3 Metocean Conditions

Lease operator provides wind, wave, current data (including loop currents), bathymetry and surface temperature, and surface and subsea infrastructure (including shipping lanes) for the proposed drilling location during normal and maximum conditions. The lease operator should provide detailed information as necessary and/or requested to assess the operability of the rig at the proposed drilling location. Additional information can include load forces applied to the well head/riser, and the MODUs stationkeeping capability as a basis for establishing site-specific guidelines in suspending operations and maintaining well control and well barriers.

5.2.4 Location Hazards and Conditions

The lease operator should provide navigation, infrastructure, and subsea topography information relative to the proposed well in regard to maintaining well control, well barriers, personnel safety, and reducing environmental impact.

5.3 Geologic and Geophysical

5.3.1 Objective

Present a high-level geologic overview, communicate hazards/uncertainties, pore pressure, fracture gradient, and overburden gradients for the well, in regard to maintaining well control and well barriers.

5.3.2 Geologic and Geophysical Overview

A relevant geologic description including stratigraphic column, depths of major faults, depths of sand tops, and any geologic uncertainties should be communicated.

5.3.3 Shallow Hazards

The shallow hazard assessment survey addresses, but is not limited to, shallow gas or water flow, hydrates, seafloor slopes, and major faults. Induced hazards from injection wells (i.e. water floods, steam floods, CO_2) should be evaluated.

5.3.4 Well Pore Pressure, Fracture, and Temperature Gradient Prediction

Provide the predictions, assumptions, and uncertainties as well as a plot containing the formation pore pressure, fracture gradient, proposed drilling fluid weights, overburden gradients, and temperature gradients.

5.4 Well Design

5.4.1 Objective

In regard to maintaining well barriers and well control, communicate well design details (i.e. riserless drilling plan, fluids program, cementing program, casing depth selection, casing design criteria, wellhead system, and all tubulars utilized).

5.4.2 Wellbore Schematic

The relevant wellbore schematic drawing displays key elements of the well design in a single diagram. These elements can include water depth, wellbore geometry, wellhead details, geological horizons, casing specifications and setting depths, rat hole depths, leak-off test (LOT), formation integrity test (FIT), mud and cementing details, and geological evaluation.

The wellbore schematic provides an effective means to communicate the well plan to the drilling contractor, by providing an illustrative point of reference and a MOC performed to ensure revisions to the schematic requiring professional engineer certification should be communicated to the drilling contractor. Complete a MOC to ensure well barriers are maintained.

5.4.3 Fluids

The proposed drilling and completion fluid types, volumes, and properties for the well are described by hole section. The fluids program should describe how the fluids are to be used as a physical barrier to control the formation pressure in the well. Operations that are planned to be conducted with fluid densities less than that required to kill the well should be identified.

5.4.4 Cement

Cement properties, cement volumes, and placement methods for each cement job should be designed in accordance with API 65, API 65-2, API 10F, and applicable regulations to assure proper establishment of well barriers.

5.4.5 Well Directional Plan

In the well directional plan, a plot showing the proposed well's vertical section, plan view, and survey coordinates are included as appropriate. Separation plots with closest proximity and depths should be identified in order to provide anticollision assurance as appropriate for the area.

5.4.6 Drilling and Production Casing Loads

Casing specifications and load designs for selected tubulars are included for the planned well operations. Emphasis should be on design limits such as maximum allowable pressures, maximum overpull and slackoff, maximum rotating torques (if rotation planned or possible), etc. Material limits with regard to exposure to corrosive fluids and/or environments should be noted. Consideration should be given for updating these design limits in the event there are significant differences between the original design basis and the as-installed configurations.

5.4.7 Drill String, Tubing String, and Landing String Design

Drillstring, work string, and landing string specifications/design information (including verified shearability) should be provided for each hole section. These plans should describe the properties of each string and the intended use (i.e. landing strings not across stack). Inspection and mill certificate documentation should be available to provide assurance that these strings have appropriate mechanical, dimensional, and metallurgical properties.

5.4.8 Tubular Running Requirements

Requirements for tubular running should be documented for each string. Additionally, any nonshearable considerations (size, weight, handling procedures, space out considerations) should be noted. Sufficient information should be provided to assure that tubular running loads are within rig and running equipment limits.

For running of corrosion resistant materials, which may be susceptible to strain hardening damage, consideration should be given to special handling equipment such as low or nonmarking dies. Additional precautions should be considered to avoid high impacts when handling such materials.

5.4.9 Wellhead System

Describe the limitations of the planned wellhead system and tubulars in regard to their capacity as well barriers.

The wellhead review should include bending moment analysis for anchored or DP rigs.

5.5 Well Barriers

5.5.1 Objective

Communicate the lease operator's well barrier plan for each well construction operation (i.e. drilling, completion, workover, tubular running, cementing, well abandonment/suspension, and special operations such as fishing, wireline, and well testing).

5.5.2 Description

The barrier plan includes the number, type, installation, and verification criteria of each well barrier.

a) Well operations (drilling/completion/workover).

b) Tubular running.

c) Casing or liner cementing.

d) Well control equipment requirements.

1) Pressure rating of the BOP system necessary to contain the maximum anticipated surface pressure (MASP) or maximum anticipated wellhead pressure (MAWHP) for wells with subsea BOPs (in accordance with API 53).

— Number and types of rams required.

— Diverter system function test interval during drilling operations.

— BOP's shearing and sealing requirement.

2) Well abandonment or suspension.

— A verification plan and environmental constraints should be provided to ensure the barrier plan is achieved and to allow safe removal of the BOP system.

— Fluid displacement procedures should be identified.

3) Well completion other operations (fishing, wireline, well testing, etc.)

5.6 Well Plan

5.6.1 Objective

Communicate the well plan for the proposed well design, in regard to maintaining well control and well barriers.

5.6.2 Drilling Phase

The drilling execution plan is included as an integral part of the well plan.

5.6.3 Completion Phase

The completion execution plan, inclusive of transitioning from drilling to completion fluid, is identified and communicated in the well plan.

5.7 Well Activity Risk Management

5.7.1 Objective

Identify the risks associated with implementation of the planned well construction activities. Establish prevention and mitigation plans for identified risks to reduce the possibility as low as reasonably practical.

5.7.2 Description

It is a thorough review of well construction risks and prevention/mitigation plans. These risks and prevention/mitigations should be communicated to all affected personnel for both drilling contractor and lease operator.

6 WCID Acknowledgement

Upon completion of a WCID, both the lease operator and drilling contractor sign and retain documentation acknowledging the exchange of information.

Bibliography

[1] API Recommended Practice 65, *Cementing Shallow Water Flow Zones in Deepwater Wells*

[2] API Standard 65-2, *Isolating Potential Flow Zones During Well Construction*

[3] API Recommend Practice 96, *Deepwater Well Design and Construction*

[4] API Standard 53, *Blowout Prevention Equipment Systems for Drilling Wells*

[5] API Recommended Practice 10F, *Recommended Practice for Performance Testing of Cementing Float Equipment*

[6] ISO 31000, *Risk Management*

Introduction

The purpose of the well construction interface document (WCID) is to enhance the health and safety of the workers and protect the environment by facilitating communication between the lease operator and drilling contractor regarding well construction work (drilling, suspension, completion, testing, workover, and/or abandonment). The WCID should emphasize barrier plans and well control practices by integrating the drilling contractor's operating guidelines with the lease operator's well plan.

The WCID is intended to align the well construction processes by:

a) tying the safety critical well construction components/processes in the well plan documents to the drilling contractor's safe work practices;

b) identifying risks associated with the proposed well work;

c) identifying roles/responsibilities and communication protocols between the operator and contractor to facilitate the safe execution of proposed well work;

d) communicating essential information about the lease operator's well construction execution plans to the drilling contractor;

e) addressing areas of the safety management process that may include management of change, well control, lifting equipment, dropped objects, permit to work, helicopter operations, and incident database guidelines;

f) addressing the well construction process within the context of the proposed well work—drilling, suspension, completion, testing, workover, and/or abandonment.

Specific focus areas include:

— supplements of traditional drilling contractor bridging information that aligns safety systems and ensures personal safety during the well execution;

— the design basis to characterize the specific well construction environment;

— barrier and casing design, including:

  1) identification of barrier requirements,

  2) establishment of barriers,

  3) testing and verification of barriers,

  4) operational measures taken to maintain barrier integrity (e.g. casing wear monitoring);

— overview of drilling and/or completions plan;

— management of change practices;

— use of stop work authority.

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