International Well Control Forum

Well Control Training Syllabus

Drilling
Levels 3 and 4

1st January 2014
Version 6.0

Drilling Well Control
Practical Assessment & Written Test Syllabus Levels 3 and 4

Surface & Subsea BOP Stack Standards and Performance Criteria

Syllabus Structure

This syllabus is divided into two sections;

1. Practical Assessment.
2. Written Testing.

Section.1 Practical Assessment Syllabus

Not included in review document.

Section.2 Written Test Syllabus

The written test syllabus is divided into 2 sections;

- Principles and Procedures
- Equipment

Subsea requirements are prefixed by SS.

Old syllabus categories are listed in the second column. Where this is blank it indicates a new category.

	Surface Principles & Procedures	Subsea Principles & Procedures
Overview.	A.	SSA.
Introduction to Well Control.	B.	SSB.
Barrier Concept.	C.	SSC.
Risk Management.	D.	SSD.
Causes of kicks.	E.	SSE.
Kill Warning Signs and Indicators.	F.	SSK.
Circulating Systems.	G.	SSL.
Fracture Pressure and Maximum Surface pressure.	H.	SSM.
Influx Characteristics and Behaviour.	I.	SSI.
Shut In Procedures.	J.	SSJ.
Well Control Methods.	K.	SSK.
Well Control during Casing and Cementing Operations.	L.	SSL.
Well Control Management.	M.	SSM.
Contingency Planning.	N.	SSN.

	Surface Equipment	Subsea Equipment
Blowout Preventers.	EQA.	SSEQA.
Associated Well Control Equipment.	EQB.	SSEQB.
Choke Manifold and Chokes.	EQC.	SSEQC.
Auxiliary Equipment.	EQD.	SSEQD.
Barriers.	EQE.	SSEQE.
Testing.	EQF.	SSEQF.
BOP Control Systems.	EQG.	SSEQG.

Standards

The standards in the syllabus are based on the practical skills and knowledge required for each level.

Performance Criteria

Performance criteria have been developed for each of the standards contained in the syllabus. The criteria indicate how each standard is to be tested, and is the basis on which practical assessment exercises and written test questions are developed.

Levels

The importance of each standard is indicated on a scale of 1 – 5 in each level. Where the standard does not apply to that level it is indicated with a letter N.

Critical standards in either level are given a 10.

IWCF WRITTEN DRILLING SYLLABUS LEVEL 3 AND 4

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
PRINCIPLES AND PROCEDURES							
OVERVIEW							
WELL CONTROL EVENT							
A01.01		Understand the negative impact and effects of a well control event.	Identify the impact of a well control event on: - Personal wellbeing - Life and limb - Employment - Environment - Reputation - Society List some of the effects of a well control incident; - Capital loss - Over regulation - Moratorium on drilling - Limiting areas of operations e.g. Arctic	Y	Y	10	10
WELL CONTROL TRAINING AND ASSESSMENT							
A01.02		Understand the need for well control training and assessment.	Be able to discuss "why are we here?" including; - Trust of stakeholders - Avoiding over regulation - Recruitment of new personnel - Responsibility to colleagues - Competence	Y	Y	10	10

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INTRODUCTION TO WELL CONTROL							
HYDROSTATIC PRESSURE							
B01.01		To understand what hydrostatic pressure is.	Be able to define hydrostatic pressure.	Y	Y	10	10
B01.02		To understand what parameters affect hydrostatic pressure and how it is calculated.	Be able to identify the parameters that affect hydrostatic pressure and perform calculations.	Y	Y	10	10
FORMATION PRESSURE							
B02.01		To understand what formation pressure is.	Be able to define formation pressure.	Y	Y	5	5
B02.02		To understand what abnormal formation pressure is.	Be able to define abnormal formation pressure.	Y	Y	5	5
FRACTURE PRESSURE							
B03.01		To understand what fracture pressure is.	Be able to define fracture pressure.	Y	Y	5	5
PRIMARY WELL CONTROL							
B04.01		To know what primary well control is.	Be able to define primary well control pressure.	Y	Y	5	5
B04.02		To know what an influx is.	Be able to define an influx.	Y	Y	5	5
B04.03		To understand the uncertainty around initial pore and fracture pressure estimation and the potential impact on well control.	Recognise the potential impact of uncertain pore and fracture pressures on well control.	N	Y	N/A	3
SECONDARY WELL CONTROL							
B05.01		To know what secondary well control is.	Be able to define secondary well control pressure.	y	y	5	5
BOP EQUIPMENT							
B06.01		To know what BOP equipment is used for.	Be able to identify the uses of BOP equipment.	y	y	5	5

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BARRIER CONCEPT							
C01.01		To understand well barrier philosophy in drilling and workover operations.	Identify examples of primary and secondary barriers in given well situations.	Y	Y	5	10
C01.02		To understand the function of a well barrier envelope and the requirements for a minimum of two barriers at any time for any given flow path.	From a given list select the correct definition of a barrier envelope.	Y	Y	5	10

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RISK MANAGEMENT							
D01.01		To understand the main concept of systematic risk management.	Identify the principles of risk management. Identify, analyse (impact, probability), mitigate and control.	Y	Y	3	5
D01.02		To understand the requirements for of Management of Change process.	List the essential rewuirements for a Management of Change procedure.				
D02.01	N01.01	To understand the importance of well control and emergency drills and how to conduct them.	List the purpose, and the steps and generic procedures for well control and emergency drills and the time they should take: - - Pit drill. - Trip drill. - Strip drill. - Choke drill. - Diverter drill.	Y	Y	5	5
SURFACE PROBLEMS							
D03.01		To understand the importance of checklists for any operation with well control implications.	Given a scenario indicate which factors should be included in a check list.	Y	Y	5	5

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CAUSES OF KICKS							
GENERAL							
E01.01		To know the causes of kicks.	List situations which may cause a kick.	y	y	5	5
ABNORMAL FORMATION PRESSURES							
E02.01	F01.01	To know the main geological conditions that can result in abnormal formation pressures.	Distinguish between 'Normal' and 'Abnormal' pressures and list the main geological conditions that lead to abnormal formation pressures.	Y	Y	2	3
LOSS OF HYDROSTATIC PRESSURE							
E03.01	F06.01	To know how to calculate the reduction in hydrostatic pressure due to failure to fill the hole.	From well data and fluid density, calculate hydrostatic head.	Y	Y	3	5
E03.02	F06.02	To know how to recognise the causes of fluid density reduction in the drilling fluid processing and storage systems, e.g. centrifuge removing barite, water dilution.	List the possible causes of fluid density reduction and the checks to be carried out.	Y	Y	4	4
E03.03		To know how to calculate the effect on hydrostatic pressure when fluids of different densities are pumped into a hole of known geometry.	From well data and fluid density, calculate hydrostatic head.	Y	Y	2	5
E03.04		To know the causes of reduced hydrostatic pressure, e.g. - Cement setting - Temperature effects on liquid - Settling of weighting material	List causes of possible reduction of hydrostatic head.	Y	Y	2	4
HYDROSTATIC EFFECT							
SSE03.05	*SF04.01*	*To understand the effect of fluids of different properties in the choke and kill lines.*	*From well data, describe the effect on well control operations and the necessary action(s) to take.*	*Y*	*Y*	*2*	*5*
SSE03.06		*To understand the possible consequences of actions to be taken in the event of a total loss of returns.*	*From an example of losses, determine the correct initial action to take, including;* *- riser collapse* *- filling riser from top* *- riser fill up valve* *- use of annular to isolate riser.*	*Y*	*Y*	*5*	*5*
SSE03.07		*To understand the effect of riser margin on the maintenance of bottom hole pressure.*	*Describe the reasons for having a riser margin and how it can affect bottom hole pressure.*	*Y*	*Y*	*3*	*5*
SSE03.08		*To know how to calculate riser margin.*	*From well data calculate riser margin and determine if it is possible to increase mud weight sufficiently.*	*N*	*Y*	*N/A*	*5*
SSE03.09	*SF06.02*	*To understand the problems that can occur and know the procedure to be used during riser disconnect operations.*	*From specific well data, describe the process of safe disconnect and re-connect of the riser.*	*Y*	*Y*	*2*	*5*

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CAUSES OF KICKS							
GAS CUTTING							
E03.10	F03.01	To understand the potential effects on hydrostatic pressure when drilling through gas bearing formations.	Describe the effects of gas cut mud on hydrostatic pressure.	Y	Y	4	4
SSE03.11	*SF02.01*	*To understand the effects of gas expansion in the riser.*	*Describe the effects of gas expansion in a subsea riser, the potential problems at surface, the potential impact on bottom hole pressure (BHP) and the appropriate actions to take .*	*Y*	*Y*	*5*	*5*
LOST CIRCULATION							
E04.01	F04.01	To understand the possible effects of a drop in the level of drilling fluid in the annulus on the hydrostatic pressure and its potential consequences.	From details of the well condition and drilling fluid density, calculate hydrostatic head at a specific depth and its impact.	Y	Y	4	4
E04.02	F04.02	To understand the actions to be taken in the event of a total loss of returns.	From an example of losses, determine the correct initial action to take.	Y	Y	5	5
E04.03		To know the potential causes of lost circulation, in terms of both geology and drilling practices	From a given list be able to recognise potential causes of lost circulation.	Y	Y	3	5
SWAB AND SURGE EFFECTS							
E05.01	F05.01	To understand the causes of swabbing and surging in a well.	List the causes of surging and swabbing.	Y	Y	5	5
E05.02	F05.02	To understand the effect of the following parameters on the magnitude of swab and surge pressures and how to minimise them: - Well and pipe geometry - Well depth - Fluid characteristics - Hole conditions and formation properties - Tool pulling and running speeds - Bottom Hole Assembly (BHA) configuration (stabilisers, packers etc.) - Length of horizontal reservoir sections	Recognise the parameters and describe the consequences of surging and swabbing on Bottom Hole Pressure (BHP).	Y	Y	5	5
SSE05.03	*SF03.01*	*To understand the causes of down-hole swabbing resulting from the heave effect on floating rigs.*	*Describe the consequences of surging and swabbing due to heave effects.*	*Y*	*Y*	*4*	*4*

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CAUSES OF KICKS							
TRIPPING							
E06.01		To understand the need for a trip margin.	Describe the reasons for having a trip margin and the procedures to mitigate if not possible to maintain.	Y	Y	3	5
E06.02		To understand the alternatives to determine trip margin to maintain bottom hole pressure while tripping e.g.: - Pressure while drilling tools	Describe some alternative methods to determine appropriate trip margin for given situations such as: - tight pore pressure / fracture margins	Y	Y	2	5
E06.03		Understand the correct use of a trip sheet.	From given trip sheets recognise if there is any discrepancy that might indicate a well control event.	Y	Y	10	5
E06.04		To understand the requirements and contents of a trip sheet and their correct use	With given data in the form of a trip sheet, interpret what is happening and the appropriate actions to take.	Y	Y	5	5
E06.05	G04.01	To understand incorrect fill or return volumes and diagnose if an influx may have occurred.	Given well data, calculate the correct fill up, calculate impact of not filling hole and describe possible remedial steps.	Y	Y	10	10
E06.06		Understand factors which might result in influx in the drill pipe.	From given information identify factors that might cause influx in the drill pipe.	Y	Y	4	4
E06.07	G04.02	To understand the difference between swabbed kicks in horizontal and vertical sections and the appropriate action to take.	Identify the impact in bottom hole pressure and flow given well geometry and swabbing conditions.	Y	Y	3	3
E06.08		To understand the appropriate actions to take for swabbed kicks in horizontal and vertical sections	identify the best practice to mitigate the risk of swabbing e.g.: - pumping out of hole	Y	Y	3	3
E06.09		To understand the need for precaution checks and any contingency planning prior to pulling non-shearable tubulars through the BOP.	List the checks to be made and what contingencies are appropriate; - flow check	Y	Y	5	5

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KICK WARNING SIGNS AND KICK INDICATORS							
DEFINITIONS							
F01.01		To know what is meant by the term kick warning sign.	Be able to define the term kick warning sign.	Y	Y	3	3
F01.02		To know what is meant by the term kick indicator.	Be able to define the term kick indicator.	Y	Y	3	3
KICKS WHILE DRILLING							
Kick warning signs and first actions							
F02.01	G01.01	To know the possible warning signs that a well MIGHT be going under-balance, respond correctly and the importance of early detection.	Be able to identify and recognise the parameters that might indicate that a well is going under-balance and the importance of early detection. i.e. - Rate of penetration changes - Cuttings size, density and shape - Drilling fluid property changes, e.g. Chlorides - Drilling fluid temperature changes - Connection and background gas - Trip Gas - "Pumps off" Gas - Connection gas	Y	Y	5	6
Kick indicators and first actions							
F03.01	G02.01	To know the positive indications of a kick: - - Finger printing connections - Flow from well (pumps off). - Increase in flow from well (pumps on). - Pit volume gain.	Recognise positive kick indicators from rig and well data.	Y	Y	10	5
SSF03.02	*SG01.01*	*To understand the effect of heave, roll, pitch and deck operations on pit level, flow rate and flow check monitoring.*	*List the problems associated with monitoring the well on a floating rig and the means to minimise them*	*Y*	*Y*	*4*	*4*
KICKS WHILE TRIPPING							
Kick warning signs and first actions							
F04.01		To know the possible kick warning signs when tripping.	List possible kick warning signs and state the correct first actions and the importance of early detection.	Y	Y	5	5
Kick indicators and first actions							
F05.01		To know the positive indicators of a kick while tripping.	List possible kick indicators and state the correct first actions and the importance of early detection.	Y	Y	5	5

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TOP HOLE DRILLING							
SHALLOW GAS							
Definition							
F10.01		To know what is meant by the term shallow gas.	Define what shallow gas is.	Y	Y	5	5
PROCEDURES							
F10.02	F02.01	To understand the means required to control critical drilling parameters when drilling top hole, to prevent a shallow gas influx.	Define the critical parameters when drilling top hole. e.g.: - penetration rate, - drilling fluid density, - trip speed - pump rate - hole diameter - kill mud	Y	Y	5	5
F10.03		To understand the advantages and disadvantages of rig types in shallow gas areas.	For a given scenario identify the advantages and disadvantages of a given rig type in shallow gas areas.	N	Y	N/A	3
F10.04	K07.01	To know the step-by-step procedure to be followed in order to secure the safety of the personnel and rig when a shallow gas kick is in progress.	List the step-by-step procedure to be followed by rig personnel when a shallow gas kick is in progress.	Y	Y	5	5
TOP HOLE DRILLING							
SSF10.05	*SF01.01*	*To understand the advantages and disadvantages of drilling top hole with or without a riser.*	*Analyse the basic principles only;* *- move off quickly* *- no gas directly to the rig* *- avoid collapse of riser*	*N*	*Y*	*2*	*4*
SSF10.06		*To understand the methods to limit the potential for shallow gas kicks and the means to detect them.*	*Identify the method to limit the potential for shallow gas kicks;* *- heavy mud - available* *- pilot hole* *- anchors* *- rig move* *- control rate of penetration* *- pump rate/AV* *- pump out hole* *- monitor* *- visual (ROV) and sonar* *- surface visual*	*Y*	*Y*	*5*	*5*
SSF10.07		*To understand the implications of gas reaching the riser (or coming out of solution) above the BOP and on the appropriate actions to take.* *To understand the consequences and risks involved in having the diverter system tied into the MGS.*	*In a given situation identify the appropriate course of action.*	*Y*	*Y*	*5*	*5*

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CIRCULATING SYSTEM							
DEFINITION AND PRINCIPLES							
G01.01		To understand what the circulating system is.	Be able to describe sections of a circulating system.	Y	N	5	N/A
G01.02		To understand pressure losses around a circulating system.	Identify the causes of pressure losses in a circulating system.	Y	Y	3	5
G01.03		Understand the effects of pressure losses in a circulating system.	Describe the effects of pressure losses on; - surface gauge pressures - bottom hole pressures	Y	Y	3	5
G01.04		Understand bottom hole circulating pressure and equivalent circulating density.	Given well data, calculate bottom hole circulating pressure and equivalent circulating density.	Y	Y	1	5
G01.05		Understand the relationship between pump pressure and pump speed.	Describe and calculate how changes in pump speed affect pressures.	Y	Y	1	5
G01.06		Understand the relationship between pump pressure and mud density.	Describe and calculate how changes in mud density affect pressures.	Y	Y	1	5
SLOW CIRCULATION RATES							
G02.01	E01.01	To understand how well bore and pump parameters influence the choice of slow circulation rates.	Select the equipment and well-bore conditions that can determine the choice of a specific slow circulation rate.	N	Y	N/A	4
G02.02		To understand the reasons for needing to measure and record slow circulating rates.	From a given list be able to identify the reasons for using slow circulating rates for well control operations.	Y	Y	2	5
G02.03	E01.02	To know how to accurately record slow circulating pressures, and when and how often this should be performed during drilling operations.	Demonstrate ability to record system pressure losses at different pump rates and fluid densities and identify appropriate line ups for slow circulating rates.	Y	Y	3	3
G02.04	E01.04	To know how to calculate the approximate pressure changes resulting from changes in pump speed and/or drilling fluid density.	Given pump speed, drilling fluid density and pressure calculate the new pump pressure when changing the pump speed and/or drilling fluid density.	Y	Y	2	5
SSG02.05	*SE01.01*	*To know how to record pressure losses in the choke and kill lines at slow circulating rates when drilling with a subsea BOP stack.*	*Demonstrate ability to record or analyse pressure losses in the choke and kill lines and determine the effect on bottom hole pressure.*	*Y*	*Y*	*3*	*5*

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FRACTURE PRESSURE AND MAXIMUM SURFACE PRESSURES							
H01.01		To understand what fracture pressure is.	Be able to define fracture pressure.	Y	Y	5	5
H01.02	E02.02	To understand why leak off tests are undertaken and the difference between a leak off test and a formation integrity test.	Be able to say what a leak off test measures and identify instances when a leak off test result is unacceptable. From a list indicate the critical well control parameters affected in a higher risk direction by not achieving the target Formation Integrity Test (FIT)/Leak Off Test (LOT) value (Kick tolerance, MAASP).	Y	Y	2	4
H01.03	E02.01	To know how to line up for a leak-off test, how to instruct the pump operator, and how to apply the correct procedure with respect to pump speed, volume pumped and method (intermittent and/or continuous) of pumping.	Given rig information and well data, indicate specific requirements to perform an acceptable leak-off test (hook-up, instructions and method of pumping).	N	Y	N/A	3
H01.04	E02.03	To know how to record and interpret the pressure versus volume graph from the leak-off test, and identify the leak-off point and its impact.	From a leak-off test plot, indicate at which point on the graph leak-off takes place and interpret the results.	N	Y	N/A	4
H01.05	E03.01	To know how to obtain MAASP from leak-off test results.	From a set of well data, calculate the MAASP.	Y	Y	1	10
H01.06	E03.02	To understand how often and why MAASP must be recalculated.	From a list of parameter changes, indicate which ones will necessitate a new MAASP calculation, e.g. drilling fluid density, leak-off test etc.	N	Y	N/A	4
H01.07	E03.03	To understand how MAASP changes during well control operations and when initial MAASP is no longer applicable.	From a given list indicate the factors that influence MAASP during well control operations.	Y	Y	2	4
H01.08		To understand the importance and principles of kick margin/tolerance and how it is applied to well operations.	Identify the factors affecting kick tolerance and their impact on well operations for a given scenario. Be able to define acceptable limits.	Y	Y	4	10
NORMAL AND ABNORMAL PRESSURES							
SSH01.09		*To understand the effect of water depth on formation strength.*	*Describe how increasing water depth affects formation strength.* *List possible solutions to mitigate this.*	*N*	*Y*	*N/A*	*2*

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INFLUX CHARACTERISTICS AND BEHAVIOUR							
PRINCIPLES							
I01.01		To know the different types of influx and the hazards they present.	Identify the different types of influx fluids and the related hazards; - gas (hydrocarbon, H_2S, CO_2) - oil - water	Y	Y	5	5
I01.02		Understand how an influx may change as it is circulated up a well.	Describe the changes which may take place as different types of influx are circulated.	Y	Y	5	10
I01.03		Understand basic gas law and why it is important. Gas Laws P1V1 = P2V2	Calculate pressure and volume at surface from given data.	Y	Y	5	10
I02.04		Understand influx migration.	Describe what may happen when the well is shut in if an influx migrates; - in an open well - in a shut in well.	Y	Y	5	10
INFLUX BEHAVIOUR							
I02.01		To understand the behaviour of a hydrocarbon gas influx in water based drilling fluid.	Describe how a hydrocarbon influx will behave as it is circulated in a well and state the effects on; - volumes - pressures	Y	Y	5	5
I02.02	G03.01	To understand the solubility of hydrocarbon, carbon dioxide and hydrogen sulphide gases when mixed under down hole conditions with water based or (pseudo) oil based drilling fluid.	Recognise the downhole conditions under which hydrocarbon, carbon dioxide, or hydrogen sulphide gases are likely to go into solution, and come out of solution (bubble point) with water based and/or oil based drilling fluid.	Y	Y	3	3
I02.03	G03.03	To understand the behaviour of dissolved gas in different drilling fluid types when circulating the influx to surface including the effects of temperature and pressure.	For different drilling fluid types describe how dissolved gas will behave under specific downhole conditions, how and when dissolved gas will evolve out of the drilling fluid if the influx is circulated to surface and list the possible subsequent consequences.	Y	Y	5	5
I02.04	G03.02	To understand the impact of hydrocarbon gas compressibility under downhole conditions on its state (gas or liquid) and migration rate.	List the possible effects of gas compressibility under downhole conditions.	Y	Y	2	3
I02.05		To understand the actions required to mitigate the effects of gas break out e.g.: - Shut in Well - circulate bottom up through chokes	Describe the different actions required to mitigate the potential impacts of gas break out.	Y	Y	5	5
I02.06	G03.04	To understand the behaviour of gas in relation to horizontal and vertical sections.	Describe the differences likely to occur in different kick situations and understand that gas will not normally behaviour according to "ideal" gas law predictions.	N	Y	N/A	5

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SHUT IN PRODECURES							
GENERAL PRINCIPLES							
J01.01		To understand is meant by the term shut in procedure.	Be able to define what a shut in procedure is.	Y	Y	10	10
PROCEDURE							
J02.01	H02.01	To understand the steps taken to shut a well in using the hard shut-in method (as described in API Recommended Practice No. 59), in different operational situations.	List the steps taken to shut a well in, in accordance with the hard shut-in method, for the following situations:- - Drilling on bottom. - Tripping in/out of the hole. - Running casing. - Cementing. - Wireline operations. - Running completion.	Y	Y	10	5
J02.02		To understand how to interpret and respond to whether the shut in has worked.	List the steps taken to ensure the well is shut in and the appropriate action to take if not; - Monitor on trip tank. - Verify line up. - Flow meter. - Pressures.	Y	Y	5	10
SSJ02.03	*SH01.01*	*To understand the steps taken to shut a well in from a floating vessel using the hard shut in method (as described in API Recommended Practice No. 59), in different operational situations and understand the advantages and disadvantages of hanging off the drill string on the pipe rams for moored and dynamically positioned rigs.*	*List the steps taken to shut a well in, in accordance with the hard shut-in method, for the following situations:-* *- drilling on bottom,* *- tripping in/out of the hole,* *- running casing,* *- cementing,* *- wireline operations,* *and identify advantages and disadvantages of hanging off the pipe.*	*Y*	*Y*	*5*	*5*
WIRELINE OPERATIONS							
J03.01		To know the effect of wireline and tool movement has on the bottom hole pressure in an open reservoir.	Identify the potential effect of wireline movement on bottom hole pressure.	Y	Y	3	3
J03.02		To know how to shut in the well during wireline operations.	Identify the correct steps to shut in the well.	Y	Y	5	5
J03.03		To understand the limitations of BOP (annular and shear rams) during wireline operations.	Identify limitations of BOP (annular and shear rams) during wireline operations.	Y	Y	3	5

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INTERPRETATION							
J04.01		To know why pressures must be recorded once the well is shut in.	Be able to describe why pressures are recorded after the well has been shut in.	Y	Y	5	5
J04.02	J02.01	To understand the possible reasons for differences between Shut In Drill Pipe (or String) Pressure and Shut In Casing (or Annulus) Pressure.	Given well and/or kick data, provide interpretation of the difference between Shut In Drill Pipe Pressure and Shut In Casing Pressure. - Influx density - Cuttings loading - Density of influx greater than drilling fluid - Position of bit and or pipe - Flow through the drill string - Blockage in the annulus - Inaccuracy of the gauges - Well deviation - Mud properties	Y	Y	1	5
J04.03		To understand instances when shut in pressures may indicate non-kick events and the appropriate actions to take.	From given data interpret potential causes and appropriate actions; - supercharging - trapped pressure	N	Y	N/A	3
OBSERVATIONS							
J05.01		To know how to determine the Shut in Drill Pipe Pressure with a float valve present in the drill string.	Given a kick situation with well data, demonstrate how to determine the Shut in Drill Pipe Pressure with a float valve installed.	Y	Y	2	4
J05.02	J01.01	To understand the limitations of a pressure gauge and know how they should be read.	To identify the limitation of pressure gauges in the given circumstances.	Y	Y	2	4
J05.03	J01.02	To understand the possible difference in pressure readings which can result from taking Shut in Drill Pipe Pressure and Shut in Casing Pressure at different gauges on the rig and the importance of accurate calibration.	From a schematic drawing of a standpipe and choke line systems with pressure gauges at different locations, explain the reason for different pressure readings (e.g. attach different values to certain gauges in the system).	Y	Y	2	4
INFLUX MIGRATION							
J06.01		To know what is meant by the term gas migration.	Be able to define gas migration.	Y	Y	2	5
J06.02	J01.03	To understand the possible causes for a pressure increase with time in a shut-in well.	Describe the causes of pressure changes in a shut in well.	Y	Y	2	5
J06.03	J01.04	To know the actions to take when there are indications of influx migration in a closed well.	Given a kick situation with well data, describe the appropriate actions to take when influx migration takes place in a closed well.	N	Y	N/A	5
J06.04		To understand how to control pressure when an influx is migrating.	Calculate the volume to be bled off, corresponding to pressure increase.	N	Y	N/A	4

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
WELL CONTROL METHODS							
PRINCIPLES							
K01.01		To know what is meant by the term kill methods.	Be able to define and list kill methods.	Y	Y	5	5
K01.02		To know the difference between kill and control	Be able to define and list well control methods.	Y	Y	5	5
KILL METHOD PRINCIPLES							
K02.01	K01.01	To know how to select kill pump rate.	Describe the effects of different kill pump rates with regard to formation strength, annular friction loss, choke operator reaction time, barite delivery time and pump pressure limitations.	N	Y	N/A	4
K02.02	K01.02	To know how to select the most appropriate kill method with the bit on bottom.	Given a set of well bore conditions, but with the bit on bottom, select a kill method and explain the choice.	N	Y	N/A	3
K02.03	K01.03	To be able to select the most appropriate course of action when tripping or not on bottom.	Given a set of well bore conditions, and while tripping or not on bottom, select and reason the safest course of action to be followed.	N	Y	N/A	3
K02.04	K01.04	To know how to bring the pump up to kill speed while maintaining bottom hole pressure constant.	Given well and kick data, demonstrate how to bring the pump up to kill speed while maintaining bottom hole pressure constant.	N	Y	2	10
K02.05		To understand the possible actions which can be taken to reduce pressure at the weak zone.	List the possible actions that can be taken to reduce pressure at the weak zone, e.g. during start up of pumps. Driller to communicate and be aware of their influence when bringing pumps up to speed e.g. holding casing pressure constant with appropriate margin.	N	Y	N/A	4
K02.06	K01.06	To know how to change pump speeds and shut down a kill operation while maintaining bottom hole pressure constant.	Given well and kick data, shut down the kill operation while maintaining bottom hole pressure constant.	N	Y	2	10
CHOKE LINE FRICTION							
SSK02.07	*SK03.01*	*To understand how to start the kill operations taking into account the effect of Choke Line Friction.*	*Given well and kick data, demonstrate how to bring the pumps up to kill speed while maintaining bottom hole pressure constant, by taking into account the effect of Choke Line Friction on the (Dynamic) Casing Pressure Gauge or by using the (Static) Kill Line Pressure Gauge*	*N*	*Y*	*3*	*5*
SSK02.08	*SK03.02*	*To know how to change pump speed and shut down a kill operation taking into account the effect of Choke Line Friction, and maintaining bottom hole pressure constant.*	*Given well and kick data, demonstrate how to change pump speed or shut down a kill operation while maintaining bottom hole pressure constant, by taking into account the effect of Choke Line Friction the (Dynamic) Casing Pressure Gauge or by using the (Static) Kill Line Pressure Gauge*	*N*	*Y*	*3*	*5*
SSK02.09		*To know the additional measures which can be taken to mitigate for the effects of choke line friction.*	*List the advantages of having additional sensors on ther BOP.*	*Y*	*Y*	*3*	*5*

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
WELL CONTROL METHODS							
WAIT & WEIGHT AND DRILLERS METHODS							
K03.01	K02.01	To know the step by step procedure required to carry out the Wait and Weight method and the Driller's Method.	Identify the steps of the Driller's and Wait and Weight methods.	Y	Y	2	5
K03.02		To know the advantages and disadvantages of the Driller's and Wait and Weight methods.	Given well data analyse the advantages and disadvantages relating to the use of the Wait and Weight Method or Driller's Method to remove an influx from the well. (N.B. Driller acting under direction of the Supervisor.)	N	Y	N/A	3
SSK03.03	*SK01.01*	*To know the step by step procedure required to carry out the Driller's Method and the Wait and Weight method, and demonstrate the capability to perform them when drilling with a subsea BOP installed with reference to the length of kill and choke lines.*	*Given well and kick data, demonstrate how to bring the pumps up to kill speed while maintaining bottom hole pressure constant. Take into account the effect of choke line friction on the (Dynamic) Casing Pressure Gauge or by using the (Static) Kill Line Pressure Gauge.*	*Y*	*Y*	*3*	*5*
SSK03.04		*To recognise the potential effect of gas trapped beneath a BOP if not removed.*	*List the potential consequences of not removing trapped gas.*	*Y*	*Y*	*3*	*5*
SSK03.05	*SK04.01*	*To know the procedure for removing gas trapped in a subsea BOP.*	*Describe and demonstrate the procedure for removing trapped gas from beneath a BOP or in a riser.*	*Y*	*Y*	*2*	*5*

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
WELL CONTROL METHODS							
KILL SHEETS							
Perform kill sheet calculations							
K04.01		To know what a kill sheet is.	Describe the key elements on a kill sheet and why it is required.	Y	N	5	N/A
K04.02	L01.00	To know how to complete a Surface BOP kill sheet from well data.	Complete a kill sheet based on vertical, deviated or horizontal well data and answer calculation questions based on Standards K04.04 through K04.19.	Y	Y		
SSK04.03	*SL01.00*	*To know how to complete a Subsea BOP kill sheet from well data.*	*Complete a kill sheet based on vertical, deviated or horizontal well data and answer calculation questions based on Standards K04.04 through K04.19 plus Standards SSK04.20 through SSK04.22.*	*Y*	*Y*	*4*	*4*
Perform calculations							
K04.04	L01.02	Formation pressure.		Y	Y	2	2
K04.05	L01.07	Hydrostatic and Bottom Hole pressure.		Y	Y	4	4
K04.06	L01.08	Fracture and Leak-off pressure.		Y	Y	2	4
K04.07	L01.10	Kill fluid density.		Y	Y	5	10
K04.08	L01.12	Bottoms up time for normal drilling.		Y	Y	2	2
K04.09	L01.13	Total circulating time, including surface equipment.		Y	Y	2	2
K04.10	L01.14	Surface to bit time.		Y	Y	5	5
K04.11	L01.15	Bit to shoe time.		Y	Y	5	5
K04.12	L01.16	Bottom up strokes		Y	Y	4	4
K04.13	L01.17	Surface to bit strokes		Y	Y	5	5
K04.14	L01.18	Bit to shoe strokes		Y	Y	5	5
K04.15	L01.19	Total circulating strokes, including surface equipment.		Y	Y	2	2
K04.16	L01.24	MAASP.		Y	Y	3	5
K04.17	L01.29	Initial circulating pressure.		Y	Y	2	5
K04.18	L01.30	Final circulating pressure.		Y	Y	2	5
K04.19	L01.31	Pressure drop per step.		Y	Y	2	5
SSK04.20	*SL01.02*	*Volume and fluid required to displace the Riser.*		*Y*	*Y*	*4*	*4*
SSK04.21	*SL01.06*	*Dynamic casing pressure*		*Y*	*Y*	*3*	*5*
SSK04.22		*Dynamic MAASP*		*Y*	*Y*	*3*	*5*

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
WELL CONTROL METHODS							
VOLUMETRIC METHOD							
K05.01		To know what is meant by the term volumetric method.	Be able to describe the volumetric method.	Y	Y	2	5
K05.02	K04.01	To know the step-by-step procedure required for controlling a well according to the volumetric principle.	Describe how the volumetric method can be applied.	N	Y	N/A	5
K05.03	K04.02	To understand when the volumetric method is the appropriate well control technique.	List some situations when the volumetric method should be applied.	N	Y	N/A	3
K05.04		To know the step-by-step procedure required for controlling a well according to the lubricate and bleed principle.	Describe how the lubricate and bleed method can be applied.	N	Y	N/A	5
K05.05		To understand when the lubricate and bleed method is the appropriate well control technique.	List some situations when the lubricate and bleed method should be applied.	N	Y	N/A	3
STRIPPING							
K06.01		To know what is meant by stripping.	Be able to define stripping.	Y	Y	5	5
K06.02	K05.01	To know the step-by-step procedure for a stripping operation.	List the step-by-step procedure of a stripping operation.	Y	Y	2	5
K06.03		To know the factors that limit or complicate the ability strip in the hole.	Identify the limitations or complications that affect the ability to strip in the hole.	N	Y	N/A	3

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WELL CONTROL DURING CASING AND CEMENTING OPERATIONS							
RUNNING AND PULLING CASING							
L01.01		To know the factors that increase the risk of kicks occurring when running and pulling casing.	Select the factors that increase the risk of kicks occurring when running and pulling casing.	Y	Y	4	4
L01.02		To understand the actions that will mitigate swab and surge pressure when running and pulling casing.	Select what actions will mitigate surge and swab pressures.	Y	Y	4	4
L01.03		To understand the advantages of a self filling float system.	Select the advantages and disadvantages of a self filling float system.	Y	Y	2	4
L01.04		Recognise when a self filling float fails to convert and to know the consequences.	Identify the consequences of a self filling float failing to convert.	Y	Y	3	4
L01.05		To understand how returns should be monitored when running and pulling casing.	Describe how to monitor returns.	Y	Y	5	5
L01.06		To know how to calculate displacements when running casing.	From given information calculate open and closed end displacements.	Y	Y	5	5
L01.07		To know what actions should be carried out if minor, major or total losses occur when running casing.	Describe the appropriate actions required if minor, major or total losses occur when running casing.	Y	Y	4	4
CEMENTING CASING AND LINER							
L02.01		To know the effect on the bottom hole pressure during a cementing operation.	Identify changes that occur in bottom hole pressure during a cementing operation.	Y	Y	3	5
L02.02		To understand the importance of getting a successful cementing job and the potential consequences of failure.	Select the correct statements that affect the quality of cement placement and indications of success. List the indicators for a successful cement job: - Correct pressure profile - Correct returns - Plugs bump at right time - No back flow - Right weight and quantity - Successful pressure test	Y	Y	2	5
L02.03		To understand the possible sequence of events that could allow formation fluids to enter the casing or open hole casing annulus.	Select events that could result in formation fluid entering the casing or open hole casing after a cementing operation.	N	Y	N/A	5
L02.04		To understand the steps to take if a well starts to flow during a cementing operation.	Select the procedures required to shut in a well for the following situations:- - while cementing is being displaced. - while waiting on cement.	Y	Y	5	5
SHUT IN PROCEDURES WHEN RUNNING CASING							
L03.01		To understand the steps taken to shut in a well.	List the steps taken to shut a well in for the following situations:- - Running casing. - While rigging up cementing equipment.	Y	Y	5	5

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WELL CONTROL MANAGEMENT							
PRIOR TO COMMENCING							
M01.01		To understand the importance of checklists for any operation with well control implications.	Given a scenario indicate which factors should be included in a check list.	Y	Y	5	5
DURING THE KILL							
M02.01	N01.02	To know how to instruct and conduct the practice of performing different well control operations.	Demonstrate the method and steps required to strip drill pipe in or out of the hole, e.g.:- - Lining up - BOP operation. - Preparation and lubrication of tooljoint. - Volumetric calculation versus choke pressures. - Compensation for closed end displacement. - Fluid management - Record keeping - Choke operation - Pump operations - Strip/trip tank control - MCS monitors - Emergency preparedness - Gas monitoring - Control of work - Communication - Assignment of roles	Y	Y	4	5
M02.02		To understand the implications and potential of indications that MAASP has been exceeded during a well control operation; - Minor losses - Major losses - Total losses	List the procedures to mitigate in the event of losses; - stop, monitor, try to slow kill rate - slow down/normal well control - volumetric method if losses continue - until influx is above shoe - volumetric	Y	Y	5	5

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CONTINGENCY PLANNING							
RECOGNITION OF PROBLEMS AND FIRST ACTIONS							
N01.01	M01.00	To be able to analyse the downhole or surface problems that might arise during well control operations.	Given a completed kick sheet with pressure and instrument readings, analyse what may be happening during a well kill and identify the appropriate action; - plugged nozzles - string washout - blockage downhole - plugged or washed out choke - surface equipment failure - pump, hose washout - failure to maintain critical parameters	N	Y	N/A	5
PRESSURE GAUGE FAILURE							
N02.01	M07.01	To know how to detect when gauges are malfunctioning and what actions to take.	Recognise gauge malfunctions and the appropriate actions to take.	N	Y	N/A	3
MUD/GAS SEPARATORS							
N03.01	M08.02	To know what corrective action to take when operating limits are being reached or have been reached.	Describe the corrective action that should be taken before and when the mud-seal is lost.	Y	Y	2	3
BOP FAILURE							
N04.01	M09.01	To know how to identify and respond to BOP failures (such as leakage's at/of a flange connection, weep-hole, ram packer, annular preventer element, hydraulic leakage).	Given equipment, well and kick data, list the possible BOP failures and demonstrate or indicate the ability to respond adequately and rapidly, e.g. by closing a preventer below the failing BOP in question.	Y	Y	5	5
HYDRATE FORMATION							
N05.01	M11.01	To understand what hydrates are, the conditions likely to lead to their formation, and the main methods of hydrate prevention and removal.	Define hydrates. List the conditions likely to lead to their formation. List the main methods of hydrate prevention. List the main methods of removal.	N	Y	N/A	3
LOST CIRCULATION							
N06.01		To understand the actions to be taken in the event of a loss of returns during a well control event and their operational limitations.	From examples of minor to major losses, determine the correct initial action to take in the case of a given event.	N	Y	N/A	5

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CONTINGENCY PLANNING							
MAXIMUM PRESSURES							
N07.01	J01.06	To know how to assess the well bore conditions if MAASP is approached and understand the consequences and appropriate actions.	Identify the hazards when annulus pressures are approaching MAASP and describe possible actions.	Y	Y	1	10
KILL OR CHOKE LINE PROBLEMS							
SSN08.01	*SM02.01*	*To know how to identify a problem in the choke line or kill line according to observed changes in drill pipe and casing pressure on a subsea BOP stack installation.*	*Given well and kick data, identify problems in the choke line or kill line according to observed changes in drill pipe and casing pressure.*	*N*	*Y*	*N/A*	*5*

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WELL CONTROL EQUIPMENT							
BLOWOUT PREVENTERS							
BOP STACK CONFIGURATION							
EQA01.01	A01.01	To understand BOP configuration and the well control operations can be carried out.	Given a stack and choke manifold configuration together with a list of possible operations, recognise which can, or cannot, be carried out.	Y	Y	4	4
EQA01.02	A01.03	To understand the overall pressure rating of a BOP stack.	Analyse the BOP stack rating according to the different components and their rated working pressures.	Y	Y	4	4
MARINE RISER							
SSEQA01.03	*SA01.01*	*To understand the function and configuration of the Marine Riser, Lower Marine Riser Package (LMRP) and subsea BOP.*	*From a diagram, identify the function of the main components of the Marine Riser, LMRP and subsea BOP and to understand which well control operations for given configurations.*	*Y*	*Y*	*3*	*4*
RAM TYPE REVENTERS							
EQA02.01	A02.03	To know the operating principles of BOP ram type equipment.	Given data, analyse or describe operating principles of BOP ram type equipment , including: - locking, - sealing, - hang off, - closing ratio, - direction of pressure, - wellbore assist, - different types, sizes, size of pipe, - stripping, inverted rams, - space out, - testing.	Y	Y	4	5
EQA02.02	A02.04	To know when the ram equipment must be changed for specific operation.	From a given BOP configuration, a description of the ongoing operations and a description of the next operation, analyse which ram equipment has to be changed and why.	Y	Y	2	5

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BLOWOUT PREVENTERS							
BLIND/SHEAR RAM PERVENTERS							
EQA02.01	A03.02	To understand the operating principles of BOP blind/shear equipment.	Describe the operating principles under the following areas; - forces, - effect of pipe types, - limitations (capabilities of shear rams, pipe, tool joint, wireline, low force shear rams, casing shear rams, shear test, pipe tension), - posting of instructions API STD 53 6.5.10.2.3	Y	Y	5	5
SSEQA02.02	*SA02.01*	*To know the functions and operating principles of ram locks*	*Describe the operating principles of ram locks and indicate when and how ram locks are used.*	*Y*	*Y*	*3*	*4*
ANNULAR PREVENTERS							
EQA03.01		To understand the operating principles of annular preventers.	Describe the capabilities and limitations with regards to operating performance for different applications based on size of pipe, casing, no pipe, wireline, type of element etc.	Y	Y	**5**	**5**
EQA03.02	A 04.02	To understand how annular preventers may fail.	Describe the indications of failure and list the corrective actions to be taken when it has failed.	N	Y	10	10
EQA03.03	A04.04	To be able to use manufacturer's data and well bore pressure data to select and adjust the correct closing pressure for a particular annular BOP.	From a given manufacturer's data and well-bore pressure, select the correct closing pressure and indicate how to proceed for adjustment.	Y	Y	2	4
SSEQA03.04		*To understand how hydrostatic pressure affects annular preventers.*	*Describe how the following affect annular capabilities and the measures to mitigate;* *- seawater hydrostatic* *- hydrostatic of the mud in the riser*	*N*	*Y*	*N/A*	*5*
SIDE OUTLET VALVES							
EQA04.01		To know the correct locations for remotely operated side outlet valves, check valves and other valves, and be able to state the pressure rating and correct hydraulic fluid operating pressures for a given hydraulically operated side outlet valve.	From a piping layout diagram, indicate the position of the manual and hydraulically operated side outlet valves and state why they are positioned that way.	N	Y	N/A	4

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BLOWOUT PREVENTERS							
CONNECTIONS							
EQA05.01	A00.01	Understand the importance of correct gasket selection and make up procedures.	From diagrams and descriptions identify the correct and incorrect make up of gaskets for specific types of connections.	Y	Y	2	3
DIVERTERS							
EQA06.1		To be able to describe the principles of operation of diverters.	List when diverters should and should not be used. Identify key components and how they should be used and when e.g. large bore pipe, wind direction, purpose of locking mechanisms, top hole etc.	Y	Y	5	**5**
EQA06.02		To understand the implications of gas reaching the riser (or coming out of solution) above the BOP and on the appropriate actions to take. Understand the consequences and risks involved in having the diverter system tied into the MGS.	State the correct course of action in a given situation.	Y	Y	5	5
SSEQA06.03	*SA03.01*	*To understand the operating mechanisms of common types of diverters used on floating operations.*	*From a specific layout, list the sequence of opening and closing the different elements and operating principles and how they should be effectively used;* *- shallow gas* *- potential gas in riser.*	*Y*	*Y*	*2*	*4*

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ASSOCIATED WELL CONTROL EQUIPMENT							
INSIDE BOP'S AND KELLY COCKS							
EQB01.01		To understand the different types of safety valves and their function.	Identify the different types of valves available and their function.	Y	N	5	N/A
EQB01.02	A06.01	To be able to check that Full Open Drill Pipe Safety Valves (DPSV's) and inside BOPs have compatible thread connections with the tubulars in use.	Given specific information of tubular thread connections in use, identify compatibility with the Full Opening Drill Pipe Safety Valves (DPSV's) and inside BOPs and possible crossovers required to make up a connection.	Y	Y	5	5
EQB01.03	A06.03	To understand the operating principles and application of the inside BOP in use on the rig.	From a schematic drawing or equipment information, describe operating principles and analyse use and installation. What they do, what they don't do and how they can fail.	Y	Y	2	4
EQB01.04	A06.04	To understand the advantages and disadvantages of using a float valve in the string and consequences of failure.	Explain the advantages and disadvantages of using a float valve in the string and their impact on well control practices.	Y	Y	4	4
EQB01.05	A06.05	To understand the various types of Drill Pipe Safety Valve (DPSV) (also called Kelly Cock and Lower Kelly Valve) as well as lower and upper full opening safety valves on Top Drive Systems and their limitations when shutting the well in off bottom.	Describe why they are needed, the sequence of shut in and the impact of DPSV on the top drive.	Y	Y	3	4

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CHOKE MANIFOLDS AND CHOKES							
ROUTING OF LINES							
EQC01.01	C01.01	To know what alternative circulating paths exist from the pump through the choke manifold to the disposal system.	From a simple diagram of the piping system for the choke and standpipe manifold with valves, indicate possible valve status for a specific circulating path.	Y	N	4	N/A
ADJUSTABLE AND FIXED CHOKES							
EQC02.01	C02.01	To understand the mechanical operating principles of the adjustable chokes.	Describe operating principles and use.	Y	Y	1	2

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AUXILIARY EQUIPMENT							
MUD/GAS SEPARATORS							
EQD01.01	D01.02	To know the pressure and flow operating limitations of a Mud/Gas Separator.	From operational data, calculate at which pressure gas 'blow-through' occurs. Recognise the critical operating requirements.	N	Y	N/A	4
VACUUM DEGASSER							
EQD02.01	D02.01	To understand the purpose of a Vacuum Degasser.	Describe the purpose of Vacuum Degassers and where they are used.	Y	Y	1	2

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BARRIERS							
BARRIER CONCEPT							
EQE01.01		To know what is meant by the term barrier.	Define what a barrier is.	Y	Y	5	5
EQE01.02		To understand the well barrier elements in drilling operations.	Identify what elements will form a well barrier envelope during drilling.	Y	Y	5	5
EQE01.03		To know when well barrier elements become active.	From a diagram of a well, select the elements that form a barrier envelope.	Y	Y	3	5
EQE01.04		To understand the criteria for acceptable pressure testings of mechanical barriers.	List the correct requirements of mechanical barrier testings.	Y	Y	3	5
EQE01.05		To understand barrier test documentation.	Select the main requirements of a test document.	N	Y	N/A	3
EQE01.06		To understand what has to be done when a well barrier/element test fails.	Select the correct action(s) to take on the test failure of a well barrier/element.	Y	Y	3	5

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TESTING							
BOP AND EQUIPMENT TESTING							
EQF01.01	A08.01	For a given BOP stack, choke and kill manifold configuration, to be able to recognise correct and incorrect test procedures, and frequencies. In particular to know the correct actions to pressure test a valve or BOP function consistent with the direction of the well bore.	From a schematic of a BOP, Choke Manifold and Standpipe Manifold hook-up, indicate the valves to be opened or closed to perform a specific test, e.g. test of Blind/Shear Rams. To answer questions related to test frequency. Understand and identify the criteria for a successful pressure test.	N	Y	3	5
EQF01.02		For a given BOP pressure test configuration to be enable to ensure that there is an appropriate vent to atmosphere on the back side of the barrier to be tested. Be able to determine the correct amount of fluid volume required for a given pressure test.	From given schematics of a pressure test configuration identify if there is an appropriate vent on the back side of the barrier being tested and determine the appropriate test volumes.	N	Y	N/A	5
EQF01.03		Understand the application of an inverted test ram, advantages and limitations (when used you do not test the WH connector).	From given schematics of a pressure test configuration identify which stack functions can be tested when using an inverted test ram.	N	Y	N/A	3
EQF01.04	A08.02	To understand the pressure test requirements for drill pipe safety valves, kelly cocks and inside BOP's.	Describe the pressure test requirements for drill pipe safety valves, kelly-cocks and inside BOPs.	Y	Y	3	5
EQF01.05	A08.03	To know the recommended BOP closing pressures and closing times.	From manufacturers BOP equipment data identify correct closing pressures and times.	Y	Y	2	4
EQF01.06	A08.04	To understand pressure ratings for equipment used to test blowout prevention equipment.	From data provided calculate the rating of the equipment to be used in the test process and identify leak paths for both plugs and cup testers, and keep track of the volumes used.	Y	Y	2	4
EQF01.07		To understand the function test and frequency requirements for a given BOP and manifold arrangement.	From a given schematic/BOP arrangement identify the function test requirements for a given list.	Y	Y	2	4
INFLOW TESTING							
EQF02.01		To understand what an inflow test is.	Be able to define an inflow test.				
EQF02.02		To understand the importance on an inflow test	Select the important reasons why an inflow test is carried out.	Y	Y	2	5
EQF02.03		To know how to determine the volume and pressure changes that take place during the test.	Create a dynamic and static graph / step up chart for the test.	N	Y	N/A	5
EQF02.04		To know the additional actions that are taken to mitigate the kick size if the test should fail.	Recognise the indications that a negative pressure test has failed and explain the immediate course of action to be taken.	Y	Y	2	10
EQF02.05		Understand the procedures required to undertake an effective negative pressure test and the barriers tested.	Identify the appropriate steps for a negative pressure test and the line up required.	N	Y	N/A	5
EQF02.06		Understand how the different fluid densities in the well will affect interpretation of a negative pressure test.	Be able to map the different densities of fluids in the well and their impact.	N	Y	N/A	5
EQF02.07		Understand the specific roles required when conducting negative pressure tests.	Identify the roles required when conducting negative pressure tests.	N	Y	N/A	3
EQF02.08		Understand the potential leak path that could occur during a negative pressure test.	From given data identify potential leak paths and appropriate actions.	N	Y	N/A	3

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
BOP CONTROL SYSTEMS							
EQG01.01	B01.02	To understand the general operating principles of the BOP Control System.	Describe the operating principles of a BOP Control System.	Y	Y	3	5
EQG01.02	B02.01	To understand the general operating principles of the remote control panel when drilling with a surface installed BOP.	From a diagram or description, identify and describe the operating principles of the remote control panel.	Y	Y	5	5
EQG01.03	B03.01	To know the normal operating pressures and/or volumes in the system	Describe the normal operating pressures and/or volumes for all circuits in the control system.	Y	Y	5	5
EQG01.04		To understand the purpose and criteria for an accumulator draw down test.	From a full set of data describe pass and fail criteria for an accumulator draw down test.	N	Y	N/A	4
EQG01.05	B03.03	To understand the sequence of events that take place between operating the Driller's Panel and a BOP opening or closing.	Be able to analyse the sequence of events and processes occurring when the stack is operated.	N	Y	N/A	4
EQG01.06		To understand the criteria and information available to confirm whether or not a specific function has successfully operated.	From a given list, identify the indications that show that a given function has successfully occurred or not.	Y	Y	10	10
EQG01.07	B03.04	To be able to diagnose simple functional problems during Stack operation	Given a set of symptoms, identify the likely cause of a malfunction and state the possible remedial or alternative actions that can be carried out.	Y	Y	4	4

New syllabus category	Original Syllabus Category	Standard	Performance Criteria	OGP Level 3	OGP Level 4	Level 3 Importance	Level 4 Theory
SUBSEA BOP CONTROL SYSTEMS							
SSEQG01.08	*SB01.01*	*To know the general operating principles of the BOP hydraulic control system when drilling with a subsea BOP installed.*	*From a diagram or description, identify and describe the operating principles.*	*Y*	*Y*	*1*	*4*
SSEQG01.09	*SB01.03*	*To know the general operating principles of the subsea pods and the basic differences and requirements for hydraulic and MUX systems.*	*From a diagram or description, identify and describe the operating principles of a BOP control system;* *- Pods,* *- SPM's,* *- shuttle valves*	*Y*	*Y*	*1*	*3*
SSEQG01.10	*SB01.06*	*To understand the principle of redundancy relating to subsea control systems (e.g. pods).*	*Describe the principle of redundancy and identify back-up equipment for subsea control systems.*	*Y*	*Y*	*1*	*3*
SSEQG01.11		*To understand the general operating principles of the remote control panel when drilling with a subsea installed BOP.*	*From a diagram or description, identify and describe the operating principles of the remote control panel.* *How to operate, how to ensure it has worked and the actions to take if failure occurs.*	*Y*	*Y*	*5*	*5*
SSEQG01.12		*Understand the purpose of having subsea mounted accumulator bottles and the reason for increasing precharge pressure for a subsea bottle.*	*Explain the purpose and advantages of having the bottles at the BOP.*	*Y*	*Y*	*1*	*3*
SSEQG01.13	*SB01.07*	*To know and understand the emergency devices installed on the BOP stack, both acoustic systems and ROV.*	*Explain the capabilities of the emergency devices and when they would be used.*	*Y*	*Y*	*1*	*2*
SSEQG01.14		*To understand the general purpose and sequence of emergency disconnect procedures (shearables and non shearables) including general identification of colour convention for traffic light on dynamically positioned (DP) rigs.*	*Describe the purpose and functionality of the auto shear system and dead man system and when they should be used.*	*Y*	*y*	*2*	*5*