International Well Control Forum

Well Control Training Syllabus

Drilling Level 2

1st January 2014
Version 3.1

Drilling Well Control
Written Test Syllabus Level 2 – Guidance Notes

Section 1 Overview

1.1 Introduction

This course syllabus aims to meet of the Recommendations for enhancements to well control training, examination and certification (OGP Report No. 476) produced by the International Association of Oil and Gas Producers (OGP) in October 2012.

1.2 Changes and revisions to previous versions

Thanks to your feedback on the draft Level 2 syllabus proposed by IWCF, we have made revisions to the guidance notes and the syllabus. The language and layout has also been reviewed by an educationalist/English language consultant and, therefore, you will see some changes to the wording and terminology. For example:

- Learning objective has replaced "Standard"
- Learning outcome has replaced "Performance Criteria"

1.3 Who takes the Level 2 course?

The Level 2 Drilling and Well Personnel Basic Well Control Training is "*recommended by OGP as a basic well control training module. It is to be taken by all members of the wellsite Operations team working in roles which may directly contribute to the creation, detection or control of a well influx*" (page 9, OGP Report 476).

See section "Level 2 – Drilling and Wells Personnel Basic Well Control Training" in OGP Report 476.

See Appendix 1 and 2 In OGP Report 476 for specific job categories.

1.4 How long is the course?

The Level 2 course should be a minimum of 20 hours.

See section "Level 2 – Drilling and Wells Personnel Basic Well Control Training" in OGP Report 476.

1.5 How many candidates can a Centre have on a course?

IWCF recommends a maximum of eight candidates per course for maximum interaction.

1.6 When can a candidate move on to Levels 3 and 4?

IWCF recommends a minimum three month period to build further industry experience before the candidate moves on to Levels 3 and 4. It is unacceptable for a Level 2 candidate to be enrolled on a Level 3 course at the same time.

Section 2 The Level 2 syllabus explained

2.1 Testing understanding

IWCF expects candidates' knowledge and understanding of basic drilling well control to be developed so that they can "*competently perform their assigned well control duties*". **It is insufficient for candidates on any level of course to be simply coached to pass an exam.**

> *"The quality of teaching must evolve to ensure learning objectives are met. Training must be taught in line with the stipulated syllabus and it shall not be sufficient to base training in "test-similar" or "test-identical" exam questions to help personnel pass the written exam".* (OGP Report 476, October 2012)

2.2 Structure of the written test syllabus

2.2.1 Learning objectives (formerly "standards")

The learning objectives in the syllabus are based on the practical skills and knowledge required for this level. The use of the wording "learning objective" is in line with the OGP Report 476. It is a broad overview statement of what the student will be taught during the course.

Example:

During the course students will gain an understanding of …… how to drive a car.

2.2.2 Learning outcome (formerly "performance criteria")

Learning outcomes have been developed for each of the learning objectives contained in the syllabus. The outcome indicate how each learning objective will be fulfilled with a detailed description of what a student will be able to do at the end of the course. These learning outcomes are the basis on which written test questions are developed.

Example:

By the end of the course students will be able to ……drive a car including:

- Reversing round a corner
- Parking

2.2.3 Syllabus division

The written test syllabus is divided into two sections:

- Principles and Procedures
- Equipment.

2.2.4 Coding

Subsea requirements are prefixed by SS and are shaded in grey in the syllabus to differentiate them.

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

	Surface Principles and Procedures	**Subsea Principles and Procedures**
Overview.	IA	ISA.
Introduction to well control.	IB	ISB.
Barrier concept.	IC	ISC.
Risk management.	ID	ISD.
Causes of kicks.	IE	ISE.
Kick warning signs and indicators.	IF	ISF.
Circulating systems.	IG	ISG.
Fracture pressure and maximum surface pressure.	IH	ISH.
Influx characteristics and behaviour.	II	ISI.
Shut in procedures.	IJ	ISJ.
Well control methods.	IK	ISK.

	Surface Equipment	**Subsea Equipment**
Blow Out Preventers.	IEQA.	ISEQA.
Associated well control equipment.	IEQB.	ISEQB.
Choke manifold and chokes.	IEQC.	ISEQC.
Auxiliary equipment.	IEQD.	ISEQD.
Barriers.	IEQE.	ISEQE.
Testing.	IEQF.	ISEQF.
BOP control systems.	IEQG.	ISEQG.

2.2.5 Levels

All learning outcomes have been given a “weighting”, in other words, a number of points. This is shown in the right hand column on the syllabus. The weighting is based on their importance or level of “criticality” in the syllabus.

The levels shown below are based on the potential risk of the candidate not having the knowledge:

Weighting	Level of risk	Explanation
10	Critical	Could lead to catastrophic damage to life, limb, environment, industry.
5	Major	Major risk factor
4	Serious	Key knowledge – could lead to risk to life, limb, and environment.
3	Moderate	Necessary knowledge
2	Minor	Underpinning knowledge
1	Insignificant	Foundation knowledge

2.2.6 Assessment method

The Level 2 course is based on written assessment only.

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New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
PRINCIPLES AND PROCEDURES				
OVERVIEW				
Well Control Incidents				
IA01.01		The negative impact and effects of a well control incident.	Identify the impact of a well control incident on: - Personal wellbeing - Personal injury - Employment - Environment - Reputation - Society. List the main effects of a well control incident on: - Capital loss - Over regulation - Suspension of drilling - Limiting areas of operations, for example, in the Arctic.	10
Well Control Training and Assessment				
IA02.01		The need for well control training and assessment.	Explain "why are we here" including: - Trust of stakeholders - Avoiding over regulation - Recruitment of new personnel - Responsibility to colleagues - Competence.	10

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
INTRODUCTION TO WELL CONTROL				
Hydrostatic Pressure				
IB01.01	F01.01	Hydrostatic pressure.	Explain hydrostatic pressure.	10
IB01.03	F01.02 and F01.03	Parameters that affect hydrostatic pressure and how to calculate it.	Identify the parameters that affect hydrostatic pressure and perform simple calculations.	10
Formation Pressure				
IB02.01	F02.02	Formation pressure.	Explain formation pressure.	5
IB02.02	F04.01	Abnormal formation pressure.	Explain abnormal formation pressure.	5
IB02.03		The need to monitor mud parameters.	Explain which parameters are important to monitor and why, including mud density, flow and pit levels.	5
Fracture Pressure				
IB03.01		Fracture pressure.	Explain fracture pressure in simple terms. For example, what may happen if too much pressure is put on a formation.	5
Primary Well Control				
IB04.01	F02.01	Primary well control.	Explain primary well control, in other words, maintaining hydrostatic pressure greater than formation pressure	5
IB04.02	F02.03	An influx.	Describe an influx.	5
Secondary Well Control				
IB05.01	F02.01	Secondary well control.	Explain secondary well control pressure such as closing in a well.	5
BOP Equipment				
IB06.01		The uses of BOP equipment.	Explain the uses of the main components of BOP equipment.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
INTRODUCTION TO WELL CONTROL CONTINUED				
Subsea Factors and Complications for Surface Candidates				
IB07.01		The differences between subsea and surface drilling operations and their implications.	Describe the following aspects of subsea operations. Explain why they complicate well control practices and that the same basic principles apply: - Vessel movement and weather (emergency disconnect) - BOP on sea bed, redundancy and configuration - Water depth - Riser above BOP (gas expansion) - Choke and kill line lengths and contents.	2
Calculations				
IB08.01		Basic rig mathematics and principles and how to apply them to basic well control calculations	Follow the basic principles of equations. Follow the basic mathematical principles to show that they can use a calculator for basic mathematical functions.	10
IB08.02		Basic oilfield calculations.	Perform basic oilfield calculations including: - tank volumes - pipe and hole volumes - pump strokes.	10

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
BARRIER CONCEPT				
IC01.01		Well barrier philosophy in drilling and work over operations.	Identify examples of primary and secondary barriers in given well situations. For example, describe different kinds of barriers and give some examples: - Procedural (monitoring), mud weight, BOP testing - Mud, cement, casing, pack-offs, BOPs, packers.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
RISK MANAGEMENT				
ID01.01		The basic concepts of systematic risk management and that risk is a factor of probability and severity.	Identify the main principles of risk and risk management.	3
ID02.01	N01.01	The importance of well control and emergency drills.	Discuss the main well control and emergency drills and explain why they are important in managing risk: - Pit drill - Trip drill - Strip drill - Choke drill - Diverter drill.	3

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
CAUSES OF KICKS				
General				
IE01.01	F03.01	The causes of kicks.	Explain situations which can cause a kick.	5
Abnormal Formation Pressures				
IE02.01	F04.01	When abnormal and sub-normal formation pressures can happen .	Distinguish between 'normal', 'abnormal' and 'sub-normal' pressures .	2
Loss of Hydrostatic Pressure				
IE03.01		The consequences of not filling the hole and how this loss can happen.	Describe what happens when the pipe is pulled and the hole has not been filled. Describe what happens when circulation is lost because drilling is into sub normal pressure or the formation has been fractured.	3
IE03.02	F08.02	The importance of maintaining fluid density, how it is measured and what can reduce it.	Explain the possible causes of fluid density reduction, the impact on primary well control and the checks that must be carried out: - Water addition, centrifuges, gas cut mud - Use of the mud balance.	4
ISE03.03	SF01.01	The potential effect of a disconnected riser.	Describe the effect on Bottom Hole Pressure (BHP) when the riser is disconnected. Explain 'Riser Margin'.	3
Gas Cutting				
IE04.01	F05.01	The potential effects on hydrostatic pressure when drilling through gas bearing formations.	Describe the effects of gas cut mud on hydrostatic pressure. Explain when and how you use a vacuum degasser.	4
ISE04.02		The additional complications that can happen with a subsea BOP.	Describe the potential effects of gas in the marine riser.	4

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
CAUSES OF KICKS CONTINUED				
Swab and Surge Effects				
IE05.01	F07.01	The causes of swabbing and surging in a well and the impact on BHP.	Explain the causes of surging and swabbing and the impact on the BHP, for example: Losses, formation breakdown, influx.	5
IE05.02		The effect of wireline and tool movement on the BHP in an open reservoir.	Explain the potential effect of wireline movement on BHP.	3
ISE05.03		~~T~~he causes of down-hole swabbing resulting from the heave effect on floating rigs.	Describe the consequences of surging and swabbing due to heave.	3
Tripping				
IE06.01		The correct use of a trip sheet.	Explain when and how a kick sheet should be used.	10
IE06.02		What is in a trip sheet and why plus how to use it correctly.	Interpret what is happening from the data in a trip sheet and explain the correct actions to take.	5
IE06.03	G02.01	Incorrect fill or return volumes and influx diagnosis.	Calculate the correct fill up and the impact of not filling the hole, using given well data. Describe possible corrective steps.	10
IE06.04		Why you pump a slug.	Explain why you pump a slug and its effect on: - pit level - BHP.	3

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
KICK WARNING SIGNS AND KICK INDICATORS				
Definitions				
IF01.01	G01.01	The term "kick warning sign".	Explain a "kick warning sign" and give examples such as: - Increased penetration rate and background gas.	3
IF01.02	G01.02	The term "kick indicator".	Explain a "kick indicator" and give examples such as: - increased flow rate, pit level increase.	3
Kick warning signs and first actions				
IF02.01	G01.01	The possible warning signs that a well MIGHT be going under-balance, respond correctly and the importance of early detection.	Identify and recognise the parameters that might indicate that a well is going under-balance and the importance of early detection, lag time and reporting including: - Rate of penetration changes - Cuttings size, density and shape - Drilling fluid property changes, for example, chlorides - Drilling fluid temperature changes - Connection and background gas - Trip gas - "Pumps off" gas - Connection gas.	5
IF02.02		The purpose, reasons and procedure for doing a flow check.	Discuss the reasons for a flow check and the basic steps.	5
Kick indicators and first actions				
IF03.01	G01.02	The positive indications of a kick: - - Flow from well (pumps off). - Increase in flow from well (pumps on). - Pit volume gain.	Recognise positive kick-indicators from rig and well data and explain what to do first.	10
ISF03.02	SG01.01	The effect of heave, roll, pitch and deck operations on pit level, flow rate and flow check monitoring.	Describe the problems that can happen when you are monitoring the well on a floating rig and how you can lessen them.	10
TOP HOLE DRILLING				
Shallow Gas				
IF05.01		The term "shallow gas".	Explain what shallow gas is and the hazards it represents.	5
ISF05.02		The advantages and disadvantages of drilling top hole with or without a riser.	Explain the basic principles to: - move off quickly - if there is no gas directly to the rig - avoid collapse of riser.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
CIRCULATING SYSTEM				
Basic Principles				
IG01.01		The circulating system.	Describe the sections of a circulating system.	5
IG01.02		Pressure losses around a circulating system and how they affect pump pressure and BHP.	Identify the causes of pressure losses in a circulating system and how increased pressure is put on the system and well. - pump pressure - Bottom Hole Pressure (BHP) - Bottom Hole Circulating Pressure (BHCP).	3
IG01.03		What the various types of mud cleaning equipment do.	Describe the function of: - shakers - mud cleaners - desanders/desilters - centrifuges.	3
IG01.04		The effects of switching pumps on and off or changing speed.	Describe the effect on: - flow - pit levels - pressures.	4
IG01.05		The effect of mud properties and pump speed on pressures.	Calculate the effect on pressure of: - mud density changes - pump speed changes.	4
SLOW CIRCULATION RATES				
IG02.01		The need to do well control operations in a slow and controlled manner.	Explain why well control needs to be done in a slow and controlled manner: - to control BHP - choke control.	5
ISG02.02	SE01.01	The differences in the circulating system when using a subsea BOP.	Describe how the system changes once the BOP is closed.	3

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FRACTURE PRESSURE AND MAXIMUM SURFACE PRESSURES				
IH01.01		Fracture pressure.	Explain fracture pressure.	5
IH01.02		Why you do a Leak Off Test (LOT), why it is important and the difference between a LOT and a FIT (Formation Integrity Test).	Explain what a Leak Off Test (LOT) or Formation Integrity Test (FIT) measures and identify when a LOT result is unacceptable.	2

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
INFLUX CHARACTERISTICS AND BEHAVIOUR				
Principles				
II01.01		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.	5
II01.02		How an influx can change as it circulates up a well.	Describe the changes which can take place as different types of influx are circulated.	5
II01.03		Basic gas law and why it is important. Gas Laws P1V1 = P2V2	Describe how gas behaves as it is circulated up the well. Ignore temperature and compressibility.	5
II01.04		Influx migration.	Describe what cab happen when an influx migrates: - in an open well - in a shut in well.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
SHUT IN PRODECURES				
General Principles				
IJ01.01	H01.01	The "shut in procedure" and why it is important to do it quickly.	Explain what a shut in procedure is and understand the responsibility of the Driller in taking the right action.	10
IJ01.02	H01.02	The importance of proper equipment line up and purpose before drilling or tripping.	Identify from a diagram correct simple line ups of standpipe and choke manifolds before a) drilling and b) tripping.	5
IJ01.03	H01.03	How to shut in the well during drilling, tripping and wireline operations.	Explain the correct steps to shut in the well.	5
IJ01.04		Monitoring the well after shut in.	Explain the checks made to ensure the well is secure.	10
ISJ01.05	SH01.01	The differences between shut in procedures on a surface BOP and a subsea BOP.	Explain the additional measures when shutting in a well on a subsea BOP.	5
Interpretation				
IJ02.01		Why pressures must be recorded once the well is shut in.	Explain why pressures are recorded after the well has been shut in.	5
IJ02.02		How shut in pressures relate to formation pressure.	Explain the reason for differences between Shut In Drill Pipe Pressure (SIDPP) and Shut In Casing Pressure (SICP).	5
Influx Migration				
IJ03.01		The term "gas migration".	Explain gas migration.	2
IJ03.02		The possible causes for a pressure increase over time in a shut-in well.	Describe the causes of pressure changes in a shut-in well.	2

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
WELL CONTROL METHODS				
Principles				
IK01.01	K01.01	The term "well control method".	Describe the essential elements of killing a well: a) Removing the influx b) Controlling BHP to avoid another influx or breaking down formation c) Regaining primary control (fill well with right mud weight to overbalance formation pressure).	5
IK01.02	K02.01	The basic principles of different well control methods.	Explain the steps to perform the following: - the Drillers' Method - the Wait and Weight Method - the Volumetric Method.	5
IK01.03		The advantages and disadvantages of each method.	Explain the advantages and disadvantages of each method.	5
ISK01.04		The additional procedures when using a subsea BOP.	Explain the differences and describe the procedures to reduce the effect of: - choke line friction - gas trapped in BOP - riser displacement.	5
KILL SHEETS				
Kill sheets				
IK02.01		A kill sheet.	Recognise the basic elements of a kill sheet and how to use it.	5
Perform kill sheet calculations				
IK03.01	L01.01 to L01.05	The basic principles and how to perform basic calculations for the key areas of the well and pressure environment and how they are applied to well control (surface BOP).	Fill out a kill sheet from given data to obtain the following information: a) Drill string volume b) Annular volumes c) Surface to bit strokes and times d) Bit to shoe strokes and times e) Bit to surface strokes an times.	10
ISK03.02	SL01.01 to SL01.05	The basic principles and how to perform basic calculations for the key areas of the well and pressure environment and how they are applied to well control (subsea BOP).	Fill out a kill sheet from given data to obtain the following information: a) Drill string volume b) Choke and kill line volume c) Surface to bit strokes and times d) Bit to shoe strokes and times e) Bit to surface strokes an times f) Kill mud density g) Riser volume and strokes to displace.	10

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
WELL CONTROL DURING CASING AND CEMENTING OPERATIONS				
Running and Pulling Casing				
IL01.01		The factors that increase the risk of kicks happening when running and pulling casing.	Describe the factors that increase the risk of kicks happening when running and pulling casing and explain how the principles are the same as those for drill pipe.	4
Cementing Casing and Liner				
IL02.01		The effects on BHP during a cementing operation.	Identify changes that happen in BHP during a cementing operation.	3
IL02.02		The importance of getting a successful cementing job and the potential consequences of failure.	Describe the key features that show the quality of cement placement and signs that the cement has been successfully installed as a confirmed barrier List the key indicators for a successful cement job: - No flow or losses - Right weight and quantity - Successful pressure test.	2

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
WELL CONTROL EQUIPMENT				
BLOWOUT PREVENTERS				
BOP Stack Configuration				
IEQA01.01		BOP configuration	Describe the main-parts that provide flexibility and redundancy of BOP equipment.	4
IEQA01.02		The overall pressure rating of a BOP stack.	Analyse the BOP stack rating according to the different parts and their rated working pressures.	4
ISEQA01.03	SA01.01	The function and configuration of a subsea BOP and marine riser system.	Identify the functions of the main parts of the marine riser, LMRP and subsea BOP.	4
Ram Type Preventers				
IEQA02.01	A04.01	The operating principles of BOP ram type equipment.	Describe operating principles of BOP ram type equipment using given data, including: - sealing - direction of pressure - different types, sizes, size of pipe - space out - testing.	4
ISEQA02.02	SA02.01	The requirement for ram locks on a subsea BOP.	Explain why ram locks are necessary.	3
Blind/Shear Ram Preventers				
IEQA03.01	A05.02	The operating principles of BOP blind/shear equipment.	Explain why blind/shear rams are used as the last option: a) Cuts the pipe in the hole (inside the BOP) b) Closes in the well.	5
Annular Preventers				
IEQA04.01	A07.02	The operating principles of annular preventers.	Explain the simple principles of annular preventers and how they work: a) Bag principle and one size fits all b) Pressure limitations compared to rams.	**5**

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
BLOWOUT PREVENTERS CONTINUED				
Side Outlet Valves				
IEQA05.01	A08.01	The correct locations for remotely operated side outlet valves and be able to state their basic function	Indicate from a piping layout diagram the position of the manual and hydraulically operated side outlet valves. State why they are positioned that way and their basic purpose: a) To pump in the well (kill Line) b) To circulate out of well (choke line).	2
Diverters				
IEQA06.01		The principles of operating diverters.	Explain when you can and cannot use diverters such as for shallow gas, when drilling without a BOP and when unable to shut in a well.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
ASSOCIATED WELL CONTROL EQUIPMENT				
Inside BOPs and Kelly Cocks				
IEQB01.01	A11.01	The correct use of different drill pipe safety valves and factors affecting successful usage.	Explain the different types of valves available, their function, principles of use and compatibility. Identify crossovers required in a given situation. Describe a sequence of operations.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
CHOKE MANIFOLDS AND CHOKES				
Routing of Lines				
IEQC01.01	C01.01	Alternative circulating paths that exist from the pump through the choke manifold to the disposal system.	Summarise the options for fluid disposal in a given circumstance.	4
Adjustable and Fixed Chokes				
IEQC02.01	C02.01	What a choke does.	Explain why a choke is closed.	1

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
AUXILIARY EQUIPMENT				
Mud/Gas Separators				
IEQD01.01	D01.01	The operating principles and limitations of a mud gas separator.	Summarise the principle requirements for mud gas separators and their limitations.	3
Vacuum Degasser				
IEQD02.01	D02.01	What a vacuum degasser does.	Describe what a vacuum degasser does and where you use them.	1

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
BARRIERS				
Barrier Concept				
IEQE01.01		How the various equipment works as barriers.	Explain: - barrier envelope - active barrier - passive barrier.	5

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
TESTING				
BOP and Equipment Testing				
IEQF01.01		The importance of certification for maintaining and testing well control equipment.	Recognise the right certification, function and pressure testing requirements for well control equipment.	3
Inflow Testing				
IEQF02.01		An inflow test.	Explain an inflow test.	2
IEQF02.02		The importance of an inflow test	Explain why you carry out an inflow test.	2

New syllabus category	Original Syllabus Category	Learning objective. The student will gain an understanding of:	Learning outcome. The student will be able to:	Importance
BOP CONTROL SYSTEMS				
IEQG01.01	B01.02 and B02.01	The general operating principles of the BOP control system and the remote control panels (surface BOP).	Describe the operating principles of a BOP control system. For example: panels, hydraulics, accumulator bottles, collection of valves, pods.	3
ISEQG01.02	SB01.01	The general operating principles of the BOP control system and the remote control panels (subsea BOP)	Describe the operating principles of a BOP control system. For example: panels, hydraulics, accumulator bottles, collection of valves and pods	3