SLICKLINE OPERATOR WORKBOOK

IMPORTANT NOTE:

1. Your point of reference to complete this workbook may be obtained from the following
   - Training Manual and any other training materials provided together with this workbook
   - Your Trainer, Assessor (Slickline Operator), Verifier (FSM) or senior colleagues
   - SOP / Quality Procedures & Processors
2. The completion of this Workbook is a joint effort and responsibility between you and your assessor therefore you have the obligation to request from your assessor to be assessed upon your completion of each topic
3. The completion of this Workbook is part of the MANDATORY requirements which you must fulfill to qualify for a promotion
4. Your training program is mostly self-driven, including this Workbook. It requires individual initiatives, dedication and commitment to complete the process.

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RECEIVED DATE	**6TH MARCH 2023**
DATE COMPLETED	**10th July 2024**

B.1 OPERATIONS

Exposure

Legend: **C**-Competent, **NME**-Need More

Document No.	EXECUTE THE WELL SERVICES OPERATIONS	Assessment / Verification	Competency		Assessment Date
			C	NME	
Form B 2.1	**ENTER THE WELL BORE**				
	1. What do you understand by the term 'SSV' and 'SC-SSV'? Explain what do you do with the SSV and SC-SSV hydraulic system when you have to work on a well? Explain why you have to do so? SSV = Surface safety valve SCSSV = Surface Control Sub-Surface Safety Valve. • Before carry out work on well the SSV and SCSSV must be isolated from platform ESD system and hook up to wireline Single Well Control Panel. • The safety of the well-being control and operate by wireline Operator by the action on SWCP.				
	2. Why do you have to carry out pre-checks on the service tools prior to well entry? List down the possible consequences if the pre-checks are not done. The service tool must be checked prior to well entry • Correct tool, type and size. • Tool can latch on. • Tool can be sheared and be free. • Correct pin type and core reach. • The fishing neck and tool thread connection is good. The possible consequences if tool pre-check not done. • Miss run, tool get stuck in hole and operation delay.				

	3. Why do you have to 'zero' your toolstring every time you make a well entry? Where is your 'zero' reference point when you are working on: i. The rig floor = Tool string lower end must be level on rig floor with link jar fully open. Rotary Table ii. A remote installation = Tool string lower end must be level with tubing hanger				
	4. How do you prepare your daily operation report? Give a copy of your daily report as a sample of your reporting format. Who should scrutinize your report and who is the final person to endorse your report when you are: i. on a production platform ii. on a drilling rig • The daily operation report must be done after operation. • In gas field we make a report using window program format and sent via E- mail or printed on format and fax to base. The report must include. • well name, location and operation type. • Crew names. • Equipment. Condition, units, wire, swab valve condition. • Wireline run, miss run and any fish created. • Well status before and after operation. Flowing or close in. THP, CITHP, CHP. • Detailed of work done. • Report well condition/finding after operation. Like wax, scale chemical deposit. • Job plan for tomorrow.				
Form B.2.2	**RUN AND MANIPULATE SURVEY AND NON-SETTING TOOL STRING**				

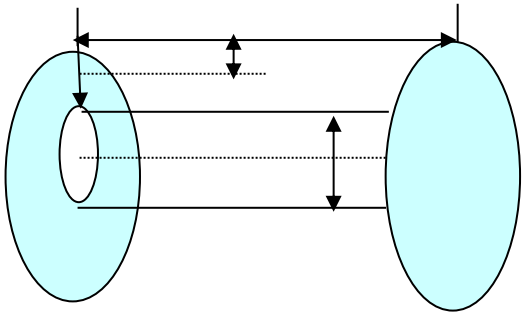
	1 How do you prepare a well for wireline entry, with respect to the platform Shutdown system? *(Answer in description form & bullet points)* • Obtain PTW, carry out gas test, and isolate SCSSV /SSV lines from Platform control panel. And hook up lines to SWCP. This is to control SCSSV/ SSV independently by wireline operator.				
	2 Why is it important to do that? • In case of station shutdown the SCSSV / SSV will not be affected because it will be operated by wireline operator during emergency.				
	3 For all wireline well entry work it is mandatory for the control of the SSV to be transferred to the Well Services SWCP. Besides the above, what other essential precaution should be taken when running sinkers and non-setting surveys? Explain why? *(Answer in bullet points)* • Ensure the w/line SCSSV should also be hooked up to the SWCP. In case, if there is a platform shutdown caused not by the well services operation, this will override the platform shutdown system. No unnecessary problem will be caused; as a result of the SCSSV will shut in during the SGS or FGS when the air supply is bled off. Wireline's SWCP has sufficient air accumulated in the storage tank and give us sufficient time to solve problems arise.				

	• When carry out a sand bailing operation using a pump bailer, describe the precautions to be taken, and the application of correct pumping technique to ensure that the bailer does not get stuck in the sand or buried by a potential sand bridge? • Pre-operational checks *(Answer in bullet points)* • Ensure that the size of the bailer is compatible with the tubing size and down hole accessories. • Ensure that the piston rod can make its full stroke freely. • Ensure that all components are made up tight. **Sand bailing *(Answer in bullet points)*** • Prior to commencement of bailing, take note of pulling weight. • Lower the bailer slowly to top of the sand and record the hold-up depth. Pull back the sand bailer above the sand to ensure it does not get stuck, in case the sand is soft, or mud is encountered. Repeat few times to confirm the sand bailer is free (no overpull). • Commence bailing sand by operating the plunger up fast and lowering down slowly to suck in and fill up the bailer tube with sand. • Always pull the toolstring away from the sand after every stroke to check that the sand bailer is not stuck in the sand. Then set the bailer back down to make another stroke. • Do not jar down in an attempt to get more sand into the bailer. This is a misconception, and if practiced, will more often result in a stuck toolstring. • Do not allow the bailer to sit down on the sand for more that 1 minute. Sitting down for any extended period of time may result in getting stuck, as a crater created by the bailer could cause the surrounding wall of sand to fall back on the bailer and hold it fast, or if the sand is soft, the bailer will just sink into the sand and stay stuck. • Take note of the depth while bailing. Sometimes a short sand bridge may be encountered and after bailing for a while the bailer might fall through. If this happens, pull back immediately and POOH toolstring and make an appropriate size wire scratcher run to clear away the remainder of the sand where the bridge was first encountered. Do not stay longer that required.				

	• Sand is prone to become packed tight on top when pressure has been applied to the tubing above, which is very often done to keep the pressure equalized above and below the sand bridge. This makes it difficult to pick up with the sand pump. In this case, it might be necessary to run a tool to loosen it.				
	5. Explain why the integrity of the flowline valve is important during a wireline well entry work. The integrity of the flowline valve is important during a wireline well entry work because: - *(Answer in bullets points)* -The survey result is not accurate due to lose of pressure in the well through the leaking flowline valve. If the leak is too great and the well is flow surging the tool string unable to go down smoothly and blown up of the tool string will occur. How will a badly passing flowing valve jeopardize: **A non-setting survey job** • The gauges may not be able to pass through the SCSSV. A blown up may occur **A setting survey job** • Survey result will be affected and cannot record correctly when well is closed in • *Preparatory work for the job like drift run and retrieval of SCSSV would be hampered by the badly leaking flowline valve.* **c. A non-setting toolstring well entry work** • Tool string cannot go down freely and may cause tool string blow out.				

	• When would it be appropriate to run a hydrostatic bailer? State the conditions under which it could be effectively used to accomplish a work Objective. **(Answer in bullets points)** • A hydrostatic bailer is run to recover sand/debris from inside a plug and around the fishing neck which normal bailing cannot recover • A solid base is available for the shearing of the shear disc. • Ensure that the shear disc available for the bailer is of a rating higher that the bottom hole pressure in the well to be work on. • Check and ensure all O-rings are in good condition. • Ensure the bottom housing is made up tight to the barrel after installing the correct rating of shear disc				
	6. When pulling a 16 feet tool-string back into the tubing tail how do you estimate the whereabouts of the rope socket with respect to the wireline re-entry guide? *(Answer in description form)* • The rope socket can be detected on the first kick on martin decker when in contact with tubing tail upon tool string re-entering tubing tail.				

7. Describe the mathematical steps to estimate the length of the wire left or available on a wire-line reel skid.



Legends:-
A = Flange to core distance (cm) B = Drum core distance (cm)
C = Flange to Flange (cm) D = Flange to top of wire (cm)
d = diameter of wire (cm) Pi of a circle + 3.1416

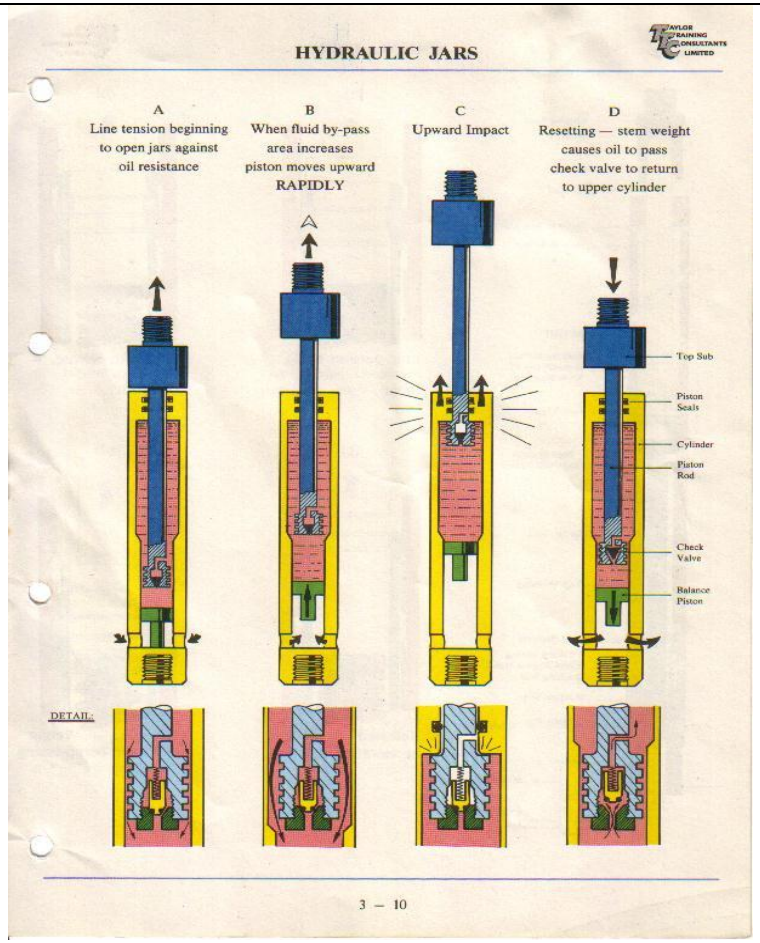
Formula for length of Wire in the Drum when neatly spooled is

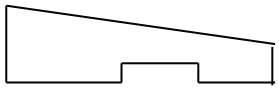
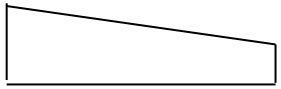
$$\frac{A-D}{d} \times \frac{C}{d} \times Pi\,((A-D)+B)$$

8. Why is it important to establish correlation of tubing accessories depth with well diagram depth during well entry work?
   - To confirm the whereabouts the accessories of the well.
   - Acts as a basic reference for wire operation.
   - To prevent from working at the wrong tubing accessories.
   - To record any abnormality in well pressure during survey.

Form B.2.3	INSTALL AND RETRIEVE DOWNHOLE ASSEMBLIES				
	1. What are the checks that should be carried out prior to running an 'XX' or 'PR' (XN or RN) lock mandrel? Name five. *(Answer in bullets points)* • Check all threaded connections on the "XX" or "PR" lock mandrel are tight. • Ensure all locking keys in the lock mandrel are the same and in good condition. • Fully extend the fishing neck of the lock mandrel to collapse the locking keys. Hold the lock mandrel horizontally and check that none of the keys will drop out towards the locked position. • Place the lock mandrel in the "control" position and check that all the locking keys are expanded outwards fully, but can be collapsed fully inwards when pressed against by hand. If any one key does not expand out properly, the key spring on the key must be replaced. • Ensure the lock mandrels v-packing, equalizing valve o-rings are in good condition.				

	2. Describe, with the aid of a diagram, how a hydraulic jar works. Please see the attachment on the next page. Answer: • The basic principles of the operation of the hydraulic jar is that has two different diameters machined on it length. • The larger diameter being machined as a main body. • The jar works slow action caused by the flow of the hydraulic oil from the restricted by-pass area, thus allowing the piston mandrel of accelerate and produce the required jarring impacts. • Due the delay action, the first upward jarring to be accomplished by mechanical link jar and followed by a short waiting time of hydraulic jar to activate. • The hydraulic jar is close by lowering the tool string weight on the jar to activate. • The hydraulic jar oil is displaced via a check valve at the bottom of the piston.				

	 HYDRAULIC JARS TAYLOR TRAINING CONSULTANTS LIMITED A Line tension beginning to open jars against oil resistance B When fluid by-pass area increases piston moves upward RAPIDLY C Upward Impact D Resetting — stem weight causes oil to pass check valve to return to upper cylinder Top Sub Piston Seals Cylinder Piston Rod Check Valve Balance Piston DETAIL: 3 — 10				

	3. What is the difference between the overloaded type (A) and the plain type (B) slips used in conjunction with the 3/16" slip type braided line rope socket? Overloaded type (A) slip  • It has a slot in the middle and is designed with an overload release feature Plain type (B) slip  • It has no slot and does not have the overload release feature. How many types of breaking strength slips are available and what are they? • Five breaking strength slips are available, for 50%, 60%, 70%, 80%, and 90% of the breaking strength.				

	4. What are the essential checks that should be carried out before assembling a wireline toolstring? Name six. (Answer in bullets points) • Inspect the rope socket for burrs around the wire hole which could damage the wire. • Inspect all box and pin threads for damage and loose connections. • Inspect fishing neck profiles for burrs and wrench damage. • Inspect mechanical jar for buckling, bending, bowing and check for smooth operation. • Check integrity of roll pins in knuckle joints, flexibility of movements of ball in socket. • Check for gas lock in the hydraulic jar and replace with new hydraulic fluid if necessary.				

	5. Describe how to make up, run, set and test a WR SCSSV. You can choose the type and either oil well or gas well. Also highlight the telltale signs in terms of tool, wireline and pressure indications to confirm that the valve has been properly set and installed. Type of WR SCSSV: CAMCO B7 to install in an oil well Pre-operational B7 valve checks *(Answer in bullets points)* • Check No-Go ring on the lock mandrel is not less than 2.852". • Checks all the connection is tight. • Check that V-packing is in good condition. • Check the housing for damage or deformation. • Record the valve number. Preparation for running the B7 valve (Answer in bullets points) • *Pin the No-Go ring in the lower (running) position with aluminum shear pins.* • *Make up the running equalizing prong to the 3" D-1T running tool and tighten all connections.* • *Pin the tell-tale ring in the lower position with a new ¼" brass shear pin.* • *Insert the running tool with prong into the B-7 valve until the skirt of the running tool sits against the top shoulder on the No-Go retainer of the lock mandrel of the valve. Check and ensure the flapper is held open by the equalizing prong.* • *Pin the D-1T running tool to the B7 valve with 2 pieces of ready-cut to length brass pin through the holes in the bottom of the skirt and the matching grooves on the No-Go retainer.* • *Lightly grease the V-packings on the B7 valve with an all purpose light grease.*				

	• *Record the valve identification number for the daily report.* Setting the B7 valve *(Answer in bullets points)* • *While running in hole the B7 valve, commence flushing the control line using the SWCP.* • *When the B7 valve is about to reach the landing nipple, stop flushing and bleed off any pressure in the control line.* • *Lower down the B7 valve until it stands up. Lightly tap the valve into the landing nipple until you feel that the B7 valve has enter the seals bores of the landing nipple. Thereafter continue tapping down on the valve until a solid sound is heard. Further downward jarring will shear the pins in the No-Go ring and lock the valve in place.* • *Pressurize the control line to 4000 psig using the SWCP and observe for no pressure drop for 5 minutes.* • *Jar up to shear and release the running tool from the valve, while closely observing the control line pressure for any sudden drop. If no decrease is observed, pooh toolstring.* • *Check condition of the tell-tale pin in the D-1T running tool. A sheared tell-tale pin confirms the valve has been properly locked in the landing nipple.* • *An unsheared tell-tale pin confirms the valve has not been locked in the landing nipple.* • *If the tell-tale pin is not sheared, re-install the tell-tale pin and run in the same D-1T running again to the B7 valve. Bleed off the control line pressure and jar down for another 10 times, and then pressurize the control line again to 4000 psig. Pull out the running tool and examine the condition of the shear pin. Unless the pin is sheared, this step must be repeated until the tell-tale pin is sheared.* • *Once the B7 valve is confirmed locked in place, bleed –off the control line pressure and re-pressurize again to 4000 psig. Repeat this cycle at least twice to check the integrity of the V-packings and internal seals of the B7 valve*				

	6. Differential pressure test on B7 valve(Answer in bullets points) • *Record CITHP.* • *Bleed off control line pressure to zero to close B7 valve.* • *Bleed tubing pressure above valve 50% below CITHP via flowline valve.* • *Close flowline valve and observed for any pressure buildup for 15 mins.* • *If no buildup and no returns from the control line, B7 valve integrity is good.* • *Pressurize control line to open back B7 valve.*				
	7. Slam test on B7 valve (Answer in bullets points) • *Bleed off control line pressure to zero while well is still flowing.* • *Tubing pressure will drop to flowline pressure.* • *Close flowline valve and observe for any pressure buildup for 15 mins.* • *If no buildup confirm B7 valve integrity is good.* • *Pressurize control line to open back B7 valve.*				

	8. Describe how to make up, set and test a downhole plug. You can choose the type and either an oil well or gas well. Also highlight the telltale signs in terms of tool, wireline and pressure indications to confirm that the plug has been properly set and installed. Type of downhole plug: "XX" plug to install in an oil well a) Preparation for the Lock Mandrels*(Answer in bullets points)* • Ensure all threads and connections on the tool are good and tight. • All retaining pins in the running tool are intact. • When the tool is in running position, the core can slide freely in the mandrel sub-assembly. • Tighten the connection between the equalizing prong and the bottom of the running tool. • When the fishing neck of the lock mandrel is extended, the locking keys should be collapsed. • Hold the lock mandrel horizontal and check that non of the keys will drop out towards the locked position. • When the lock mandrel is in the "control position" the locking keys are expanded outwards fully. But this can be collapse fully inwards when pressed against by hand. If one of the keys does not expand out properly, the key spring on that key must be replaced. b) Assembling the lock Mandrel to the "X" running tool (Answer in bullets points) • Insert the "X" running tool core end into the fishing neck (top) of the lock mandrel until the boss shoulder on the core of the running tool seats against the top shoulder of the packing mandrel in the lock. • Rotate the running tool as necessary until the releasing shear-pin hole in the core is aligned with the releasing shear-pin hole in the packing mandrel. • Insert a 5/16" brass pin into this set of releasing shear-pin holes until the end of the pin is about half way in. Tap on the side of the pin until it is				

slightly bent. Continue to drive the pin through the holes until the end is just flush with the O.D of the packing mandrel on the opposite side.

- Cut of the shear pin at the side of the shear-pin hole such that it will be flushed with the O.D of the packing mandrel. Flare the ends of the shear pin with a center punch.
- Insert a ¼" pin punch into the other shear-pin hole in the packing-mandrel. Punch on the releasing shear pin through the hole in the core to bend the pin such that the remains of the shear pin will not drop out from the running tool core when the pin is sheared and the running tool is being pulled out from the well.Extend the fishing neck of the lock mandrel until the retainer pin at the top of the running tool mandrel sub-assembly shoulders up on the bottom of the slot. The running tool and lock-mandrel are now in the "control" (non-selective) position.Ensure the proper operation of both the running tool and lock mandrel assembly as follows:-
- The locating/tripping dogs of the running tool should be able to retract when pushed upwards, and expand fully when released.The keys on the lock mandrel are fully retracted.
- All shear pins are cut and filed flush with the outside diameter of the whole assembly

c) *Setting the 3" Otis XX plug*
(Answer in 14 steps)

- Set tool-string "zero" reference depth. Make up the X-running tool with the plug onto the wire-line tool-string and pull it into the lubricator and make up the quick union.
- Close in the well. Pressurize the lubricator to full CITHP slowly and open Christmas tree swab valve fully.
- RIH the 3" "XX" plug at moderate speed and stop at 100ft above the uppermost "X" profile accessory (an Otis "X" landing nipple or SSD). Check pulling weight of the tool-string assembly.
- Continue to lower the "XX" plug until hold-up at the "X" profile seal bore. Note the wire-line depth of this accessory for depth correction and control later on. Hold-up is caused by friction of the V-Packing against the seal bore of the accessory.

	• Tap the "XX" plug through the seal bores until the depth of the accessory where the plug is to be set. ○ Caution:Pull back slowly to open the mechanical link jars. Never open the linkjars fully at any time to prevent premature tripping of the tool when tapping the "XX" plug through selective seal bores. Premature tripping will result in the inability of lowering the plug to desired accessory higher up in the tubing string. • Check pulling weight of the tool-string just above the depth of the "X" nipple profile where the plug is to be set. Then, lower down and tap the plug through this "X" nipple profile (in the case of an SSD, it will be the top seal bore only). • Pull back the plug slowly until the tripping dogs locate the bottom of the seal bore in the nipple. An over pull, as well as the depth reading corresponding to the depth of the accessory indicate this. • Apply an over-pull of 200 to 300 lbs. to trip the running tool and bring the "XX" plug lock mandrel into the "Control" position. Alternatively, the plug may be lowered to some 10 ft below the nipple (in case of an SSD, lower the plug until hold-up at the bottom seal bore) and then run up fast into the nipple seal bore. Thereby creating a jarring action which has the same effect as an over-pull to trip the running tool. Continue to pull the plug until it just pass the "X" profile accessory and note the pulling weight. • Lower the plug slowly into the landing nipple. Tap down on the plug slowly to get the V-Packing into the seal bore, and the lock mandrel keys locate into the landing nipple recess. Tap down at least 30 times to be sure. • Apply downward jarring to shear the setting pin in the running tool and move the lock mandrel expander sleeve behind the keys to lock them in the expanded position. When this done, the plug is set in the nipple. Make at least 50 downward jars. • Pull back slowly to open the link jar. Never open the link jar fully at any time to prevent premature shearing of the releasing pin. Premature shearing of the releasing pin will result in the inability to set the plug in the nipple. Moreover, the plug will retrieve with the running tool when it is pulled out of hole. • Check to confirm the plug is fully locked in the nipple by applying a 200 to 350 lbs. over-pull. When confirmation is positive, jar up to shear the releasing pin attaching the running core to the plug and free the running tool.				

	9. In a vertical well, you are to equalise and pull a 3" plug at 7656 ft. Reservoir pressure = 2800 psig. Liquid level is detected at 1867 ft. Liquid gradient of well = 0.28 ppf. CITHP = 980 psig. Ignoring pressure exerted by gas column and assuming that the liquid level remains unchanged, calculates the final CITHP after you have RIH and have properly equalised the plug. Show the mathematical steps on how you arrived at your answer. Data: Fluid level: 1867 ft. Plug to be pulled: 7656 ft. Expected reservoir pressure: 2800 psig *Surface THP: 980 psig*				
	10. What is the most appropriate instrument you can use to monitor pressures during a plug equalization process, and state the advantages over a conventionnel pressure gauge? (Answer in bullets points) • *Pressure recorder is the most appropriate instrument to monitor pressure changes during a plug equalization process. The advantages over a pressure gauge are: -* • Any slight or sudden changes in pressure can show up more noticeably on a pressure recorder. • Pressure recorder provides the mean to record the event accurately with respect to pressure and time. • Pressure recorder gives a more sustain confirmation of pressure stabilization.				

11. How do you confirm that a WR SCSSV is proper set or installed in its landing nipple with respect to tool, wire line and pressure indication?

No	Tool indications	Wireline indications	Pressure indications
01	The tell-tale brass pin of the D1-T running tools sheared	A solid sound is heard	No returns from control line
02		A solid blow can be felt through the wire-line.	Control line is holding 4000 psig
03		A feel of both valve packing stacks entering the seal bores.	Differential pressure across valve is tested ok
04		The reading on the odometer indicates the correct depth the SCSSV is installed.	Slam test on the valve is ok.

10 How do you confirm that a downhole plug is properly set or installed in its landing nipple with respect to tool, wire line and pressures indication?

No	Tool indications	Wireline indications	Pressure indications
01	The two shear pins on the X-running tool are sheared	Reading on the odometer indicates the correct depth the down hole plug is installed	Inflow test – good.
02		Positive confirmation of plug is fully locked in nipple by the application of a 200 to 350 lbs overpull.	

Form B.2.4	**INSTALL RETRIEVE AND MANIPULATE CIRCULATING AND COMMUNICATION DEVICES.**				
	1. What are the checks should be carried out on a 142BO positioning tool prior to running it into the well? Pre-operational checks *(Answer in bullets points)* • Ensure the correct size of the positioning tool was used. • The thread and fishing necks are not damaged. • All threaded connection within the tool are tightened. • Ensure the shifting keys, shifting shoulders are not worn out and the key spring are good and strong. • The tripping dogs are free to move up and down when the tool is in a selective position. • Ensure both locating keys are assembled in the same direction • When the tool is in the control position, ensure the locating key isable to rotate free and be able to compress against the key springs. • Carried out function test the tool on surface.				

	2. What features and components on the 42XO positioning tool allows it to reciprocate between selective and none selective position? Explain how is this achieve? *(Answer in bullets points)* • This is achieved by moving the dogs up and down along its flat section of its locator key, the slip rings weldment rotates and indexes along the teeth of J slot arrangement. • This indexing feature of the 42XO shifting tool alternate the tools into the engaging and none engaging mode if the dogs is happened to pass through in the restricted area such as the polish bore in the SSD.				
	3. When opening a SSD why it is not recommended to open the link jar fully? • During opening the SSD, it is not recommended to open the link jar fully when shifting the sleeve. • Due to the possibility of the tool string being blown up when the shifting tool being pulled up above the flow ports of the sleeve by the differential pressure across the tool during the equalized period.				
	4. When installing a GLV, are the two sets of tangential shear pins installed on the Camco "GA-2" running tool jar up to shear or vice versa? • The GA-2 running tool is a jar down to shear and release the running tool from gas lift.				
	5. After installing/setting a GLV in the SPM is it necessary to shear off the locating finger's pin on KOT to enable release from the particular SPM and also passing through other while POOH. Explain. • It is necessary to shear of the locating finger pin , the tool will not then orientate in higher SPM. • Activate the hydraulic jar to shear the pin in the kick over tool plunger and collapse the locating finger . • The tool will came free from the side pocket mandrel.				

	6 Describe how to install/set a BKR-5 in the first SPM. You are to include tool-string configuration, services tools selection, type/size of shear pins, pressures checking, running & pulling speed and confirmation of proper installation. 1) To install a BKR-5 in the first SPM a) Tool-string configuration from top to bottom (Answer in bullets points) • 1.7/8" rope socket • 1 ½ "5ft stem • 1 ½ "knuckle joint • 1 ½ "hydraulic jar • 1 ½ "link jar b) Serviced Tools selection (Answer in bullets points) • 1 pc 3" OK-6 KOT • 1 pc 1.25" GA-2 running tool *c) Type & Size of Shear pins* (Answer in bullets points) • ¼" brass pin for locating finger housing. • 3/16" brass pin for the release plunger and finger housing. • 1/8" aluminium shear pin for GA-2 running tool. d) Pressure checking • In order to install a valve or dummy in a SPM, the pocket of the particular mandrel must be empty. The valve or dummy originally in that pocket has been retrieved. There will be no pressure differential between the tubing and the annulus since there is communication through the empty pocket of the mandrel. Pressure balancing is therefore not required. e) Running and Pulling speed				

	• When handling installation or retrieval of gas lift, we have to pull or run in hole with moderate speed preferable 50ft per minutes until 20ft above the 1st SPM to be pulled or set.				
	f) Confirmation of proper installation • Both the releasing and tell-tale pins the GA2 running tool are sheared. • Bleed down CHP to observe for no leak and integrity of the gas lift valve packing. g) To install BKR-5 in the first SPM • Prior to any installation and retrieval of gas-lift valve operation, a gas lift valve catcher should be installed below the deepest SPM where the gas lift valve change is performed. The gas-lift valve catcher will be installed in the top of X-profile in the tubing string, either in an Otis X-landing nipple or in an SSD.				

	8 Describe how to open a 2.7/8" SSD using a 142BO positioning tool. You are to include Tool-string configuration, function testing of tool, pressure differential issue, manipulation of the tool-string, precautions during jarring operations and proper monitoring of tubing pressure. To open a 2.7/8" SSD using a 142BO positioning tool. a) Tool-string Configuration from top to bottom. • 1.1/2" rope socket • 1.1/2" x 5 ft normal stem • 1.1/2" knuckle joint • 1.1/2" HYD. jar • 1.1/2" link jar 20 stroke b) Serviced Tools selection • 2.302" drift • 2 ½" 142BO positioning tool c) Pressure differential issues • Record CITHP and check the latest formation pressure expected in the SSD to be opened. Calculate the hydrostatic pressure. • Fuild level can be obtained by run drift into the tubing. (vertical depth of the fluid column x gradient of the fluid + surface gas pressure x gas correction factor). • Inject pressure into the tubing to equalise pressure if the formation pressure at the SSD depth is greater than the hydrostatic pressure at SSD depth. d) Pre-check and Function test of the tool • Ensure the correct size of the tool are used. • Confirm the shifting tool keys are in good condition, that is shifting shoulder are not worn out and the key springs are strong. • Check and ensure the tripping dogs are in good condition and will retract easily when push upwards when the tool is in selective position.				

	• Make sure the fishing neck is not worn out/good condition. All thread and connection must be tightened.				
Form B.2.5	**PERFORM FISHING OPERATIONS**				
	1. For a wireline fish which already been established to have clear fishing neck, what initial pulling tool would you use for: Note: Disregard the size of the fishing neck and the tool to be run for this question. Give your reasons. a. a fish with an external fishing neck. • Use pulling tools that are capable to engage an external fishing neck such as JDC, JDU, JDS, SM, the Otis S and R series (SB, SS, SSJ, RS, RJ, RB). b. a fish with an internal fishing neck. • Use pulling tool that are capable to engage an internal fishing neck such as: GS, GSL, GR				

2. What is the important factor you have to consider prior to the selection of lubricator / BOP configuration for a wireline fishing operation, and what are the consequences of not using the correct length?

- The total length and numbers of lubricators and BOP that made up a safe working range to accommodate the total length of the fishing tool and possible fish recovered.
- The consequences of not using the correct length can create an unsafe condition where the total tool strings fail to be isolated from the well pressure. Thus we are unable to secure the well for safety.

3. What should the minimum recommended diameter be for the measuring wheel, hay pulley and stuffing box sheave used in conjunction with:

No	Wireline	Measuring Wheel	Hay Pulley	Stuffing Box sheave
A	0.092" slick line	7"	7"	7"
B	0.108" slick line	16"	15"	15"
C	0.125" slick line	16"	17"	16"
D	3/16" braided line	16"	14"	14"

	4. After rigging up and prior to running in hole, to what pressure should the lubricator / BOP assembly be tested to and for what duration? • The lubricator assembly shall be subjected to pressure test with the maximum CITHP available in the site whereas the wire-line BOP is tested to its full differential pressure test. • The test duration shall not be less than 15 minutes.				
	5 How and where is the pressure normally introduced into the lubricator/BOP assembly? • The pressure is normally introduced into the lubricator/BOP assembly after the rope socket is butted against bottom of the stuffing box to prevent the tool string from being blow-up if a sudden admission of pressure into the lubricator. This is done by the following methods. • Crack open the x-mas tree swab valve and continue opening slowly until pressure is heard to escape from the open bleed-off valve on the lubricator. Stop cracking the swab valve. • Close the bleed-off valve and observe the pressure gauge on the lubricator for pressure to build up until there is no further increase. Compare the final pressure in the lubricator with the CITHP recorded. • When pressure in the lubricator is equal to the CITHP record and no further increase is observed. Only then the swab valve may be opened fully.				
	6. A tubular jar is normally used in place of a mechanical jar (link jar) when fishing for wire. Explain the reason behind this philosophy • A tubular jar is preference than a mechanical jar in fishing operation because the tubular jar is an enclose jar and has less chance of wire becoming entangled and jamming jar.				

	7. How and when do we record the weight reference of the fishing toolstring prior to latching onto the fish? • We record the weight reference of the fishing too string 10ft prior to latch onto the fish by noting down the hanging weight and puling weight. (pulling very slow on a slow gear)				
	8. In checking the static weight of the tool-string state whether any difference would be encountered when checking the weight during the upward pull and downward run. Can both weight references be used and explain under what condition are each applicable? • Yes. There is difference encountered in checking the static weight of the tool string, its upwards and downwards run. • Static weight is the weight of the tool-string when it is not moving at a defined depth. • Pulling weight is the pulling force exerted by the tool string moving upwards against gravitational force and fluid displacement at a defined depth. • Running weight is the downwards force created by the weight of the tool string due to gravitational pull and a loss weight in fluid a result of Archimedes principle at a define depth. • Running weight is lighter than static weight. The pulling weight is the highest among all. • Yes. Both weight references can be employed provided that we compared them at the same depth.				

9 What is the maximum line pull allowable for the following wires used in SSB/SSPC, and state their minimum-breaking load

Answer:

No	Wireline	Max. Line Pull	Min. Breaking Load
A	**0.092" Bridon U.H.T Bright**	**990 lbs (50% to 70%)**	**1980 lbs**
B	**0.108" Bridon U.H.T Bright**	**1360 lbs (50% to 70%)**	**2720 lbs**
C	**0.108" Bridon Supa 70**	**1050 lbs (50% to 70%)**	**2100 lbs**
D	**0.108" Bridon Supa 75**	**1015 lbs (50% to 70%)**	**2030 lbs**
E	**0.125" Bridon U.H.T.3**	**1820 lbs (50% to 70%)**	**3640 lbs**
f	**3/16" Bridon Dyform 1 x 19 (9x9x1)**	**3150 lbs (50% to 70%)**	**6300 lbs**

	10 Give five circumstances under which it becomes necessary to employ a wire cutter for the purpose of cutting the wire-line in the well? • A blow-up tool string. • To cut lost wire in hole using a side-wall cutter. • A stuck tool-string in hole. • Tool-string falls to re-entry into tubing end. • To use a blind box as a wire cutter to cut off the wire when tool string is blown up.				
	9. List out three conditions whereby it is necessary to use an overshot to grip down-hole tools in a fishing situation. • When the fishing neck of the fish is worn out or damaged. • When slippage of pulling is experienced • When the fish has no fishing neck.				
	10. With respect to safety and procedure what type of pulling tool should be used in conjunction with the non-releasable overshot when running it into the well? • A rope socket should be installed onto the non-releasable overshot and it is run on a SB or RS pulling tool for releasing the overshot when falling to pull out the fish.				

Assessed By:		Verified By	

Name		Name	
Position		Position	
Date		Date	