From: Breazeale, Martin A
Sent: Mon Dec 07 17:32:29 2009
To: Daigle, Keith G
Subject: RE: Modules?
Importance: Normal
Attachments: Module 4 Well Startup WSLf deepwater BLANK.doc; Module 5 Deepwater BOP and Riser Systems_BLANK.doc

Remember to send him the BLANK ones only.
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martin

From: Daigle, Keith G
Sent: Monday, December 07, 2009 9:44 AM
To: Breazeale, Martin A
Subject: Modules?
Can you send the modules we want Phillip to work on? Then, I tell him what we expect of him with regard to these as we talked before.

Best Regards,

Keith Daigle
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Module_4__: Deepwater Well Startup

LOCATION:_____

Rig:_____

DATES OF OBSERVATION:_____

CANDIDATE:_____

MENTOR OR WSL:_____
(if applicable)

COACH:_____

Much like conductor casing that is run on land rigs; structural casing in the Deepwater environment provides a 'base' for subsequent casing strings to be run in the well. The biggest difference is how the two are set.

1. What are the four basic objectives when installing structural casing?

Preparation

2. What is the size, weight/ft, grade and connection on the structural casing being run on your well? How is this verified? What is the planned and actual casing setting depths? Why would these two numbers be different?

3. List the equipment requirements for running/jetting in a string of structural casing. Also list contingency or back-up equipment required and where this inventory is maintained (on rig, at dock, other).

4. What inspections of this equipment are performed in advance to ensure that it is fit-for-purpose and ready to go? Who performs the inspections?

5. Will there be an opportunity to make-up and rack back any tools that may be needed for this operation 'off line' or out of critical path (remember, time is money)?

6. Are there any 'special' bulk goods requirements for jetting in structural casing? If so, what are they and what is their use? Who ensures the bulk goods are on location and ready when called for?

7. You will hear the term 'pad mud' referred to when preparing to install the structural casing. What type of drilling fluid is this and what is the weight of the fluid being used on this well? What is the purpose of 'pad mud'? How much will be required for your well?

8. Will a 'pump & dump' be required below this structural casing (explain)? In the event of a 'pump & dump', what other material or equipment is required?

Running structural casing

9. Are there any weather considerations that should be taken into account prior to picking up the structural casing? What are they?

10. When running and jetting in structural casing, there are two basic components involved. What are these components?

11. Which of these components are picked up first? Why?

12. What is used to determine the length of the inner (or jetting) string to be run for jetting in the structural casing? How precise must this measurement be?

13. Are there any 'special' operations performed when picking up and racking back the jetting string components?

14. You will notice several markings on the outside and inside of the structural casing. List the markings observed and explain the purpose of each.

15. The structural casing has been measured prior to picking it up during the preparation phase discussed above. These joints are run in a specific order and typically there are four different types of joints of casing. From 1st-in-hole to last-in-hole, what is the description of each joint?

16. Casing tongs are not typically used to make up structural casing. Why would you think this is the case? If no tongs are used, how is the casing made up? To what torque is the casing made up? What other special equipment is required for making up the 36" casing?

17. What equipment is installed to the top joint of 36" casing? What purpose does it serve?

18. Once the LPWHH is made up to the casing, how is it supported on the rig floor while running the jet string?

Running a Jet String

19. Who is responsible for ensuring that the correct components are being run in the jet string?

20. What size and type of bit is used when jetting in the structural casing?

21. List each component of the 'jet' assembly with lengths, OD's, ID's, fishing neck's, connections and make-up torque.

22. Are there any components of the jetting assembly that will be marked? If so, what purpose does this serve?

23. Is there a plan at this point to visually inspect the relationship between the 36" casing shoe and the bit? How is this done?

24. What tool is used to secure the jetting assembly to the 36" casing? How is this tool made up?

25. Once the running tool has been made up, the LPWHH is lowered to the moonpool area where other jewelry is installed. Once in the moonpool area, what equipment is installed on the LPWHH and for what purpose?

26. List at least 4 things to look for when installing the 4" ball valves on the LPWHH.

27. What surface readings need to be taken prior to 'splashing' the casing / jetting assembly?

28. Is the casing / jetting assembly self-filling or will it have to be filled from the surface while running?

29. What observations are being made while running the structural casing? How is this done?

30. Prior to tagging the seafloor with the casing / jetting assembly, what readings need to be recorded? Why are weight indicator readings important at this time?

31. There will be an effort to minimize the number of connections that will be made once jetting operations begin. How will this be accomplished?

32. Once the 36" casing has tagged the mudline, what checks need to be made prior to proceeding?

33. There is a multitude of data and information that must be monitored and recorded during a jetting operation. What data is monitored? Who is responsible for recording this data? Give an example of how this data is used during the jetting operation.

34. Reciprocation of the casing will be required at some point during this operation. Why is this done and at what point during the operation?

35. Excessive overpull may have to be exerted on the drill string during the reciprocation process. What is the Maximum Allowable Overpull (MAOP) that will be used during reciprocating the 36" casing? Show the calculations for determining the MAOP.

36. There are two 'methods' that are used to jet in structural casing. Name them and give a brief description of each.

37. What is the desired 'stick-up' of the 36" casing once it is in place? What is the maximum allowed inclination reading once the casing is at depth?

38. What are your options if the desired stick-up or inclination is not observed once the jetting operations are complete?

39. Once all of the objectives for the 36" jet-in job are satisfied, what is the plan forward on your rig (will you drill ahead or trip BHA)? How is this decision made?

40. List the steps for releasing the WH running tool (or CADA tool).

Surface Casing

Don't let the name mislead you. The casing to be run in the next hole section will not be run all the way to the rig floor or surface but instead will be hung off at the mudline in the LPWHH on the 36" casing.

Drilling Operations

41. Are there any offline possibilities that would save time to drill or run casing for this hole section? Even if the rig has dual activity capabilities, what weather issues should be addressed to make them feasible?

42. Are there any pre-job preparations that will be made prior to drilling the next hole section? Are there minimum quantities of materials to be maintained on board the rig through this section? What are they and who is responsible for tracking their availability?

43. As discussed in the previous section, once the 36" casing has been successfully jetted in there are two options to either drill ahead or trip to the BHA. These options will be determined prior to tripping in with the jet string. What considerations are taken into account to make this decision?

44. Which tool in the drillstring will determine whether or not you drill ahead or trip to the BHA?

45. If the decision is made to trip to the BHA, what tool must be laid down prior to drilling ahead?

46. Will the entire BHA be tripped to the surface or is there a means to inspect the BHA while it is hanging in the water? How is it inspected? Explain.

47. Is there any operation that needs to be conducted while tripping in through the 36" casing?

48. There are three methods used to drill the Riserless hole section based upon the well's ability to flow water/gas/oil. List the three methods and describe the process.

49. How are these monitored for flow while drilling? Who makes the determination of whether or not a well is flowing?

50. This hole section can be drilled to fit the 22" casing tally with certain limitations. What are these limitations and what governmental body sets them? Who makes the decision to do this within BP?

51. Are there any directional or deviation constraints while drilling this hole section? If so, what are they and how is this maintained?

52. What are the planned and actual flow rates used to drill this hole section? Are there any tools in the BHA which will dictate how fast you can pump? List these tools and their flowrate capabilities.

53. What surface read-out from the BHA components is critical for maintaining bottom hole pressure to keep the well from flowing?

54. Different teams have different philosophies about cleaning the hole at TD and how much pad mud is to be pumped prior to tripping. Describe the process used on your rig. What can be done to estimate hole size once TD is reached?

55. What are the criteria used to determine if a wiper trip is necessary prior to running surface casing?

56. Shallow gas or saltwater flows could possibly occur in this interval. What 'could' be the results of shallow flows? What steps are taken to prevent shallow flows?

57. List any special operations that take place once the bit is inside the structural casing and prior to it being pulled above the LPWHH.

Casing/Cementing Preparation

58. What type of cement will be used for cementing the surface casing? Briefly describe why this blend was chosen and how it was tested prior to use. Who is responsible for making sure the proper blend is on the rig?

59. What is the size, weight/ft, wall thickness and grade of the surface casing to be run in this well? What connection has been installed on this casing string? What is the minimum, maximum and recommended make-up torque?

60. What preparation should have been preformed to the casing prior to shipment?

61. What preparation will be performed on the rig to the casing and tools required for running casing?

62. What tools that will be made-up and racked prior to rigging up casing tools for surface casing? What QA/QC is performed while picking up these tools?

63. List the tools identified in the previous question and give an explanation of their purpose. Draw detailed pictures to illustrate.

Running, landing and cementing 22" casing

64. List what equipment must rigged down prior to running casing and what equipment must be rigged up.

65. From bottom-to-top, list all of the components to be run in the casing string along with OD's, ID's, weights, grades and connections. Be sure to include any special 'jewelry' to be run either inside or outside the casing.

66. There will typically be two adapter joints run in the surface casing string. What is the reason for running them and should any special consideration be given for them? At what depth will these adapters be located once the casing is landed in the LPWHH and where can you get this information?

67. As always when running casing, the proper make-up torque will be monitored on each joint. What other steps will be taken to ensure proper make-up and to prevent accidental backing

out of the casing while running? Why is this especially important when running surface casing in open water?

68. Once the last joint of surface casing (hanger joint) has been made up, it will be landed on the rig floor for running the inner string for cementing. What equipment is required to perform this act and what is the load rating of the equipment?

69. Why is this equipment used?

70. After the casing has been landed on the rig floor, equipment is rigged up for running the inner string of drill pipe for cementing. List the equipment required.

71. What is the purpose of the inner string and to what depth above the casing shoe is it run?

72. List the size, weights and grade of drill pipe used for the inner string. Also list any additional equipment that is run in the inner string. Draw a rough sketch to illustrate.

73. Once the last stand of inner string has been landed in the bowl and slips, what tool is picked up or retrieved from the derrick next? What is the purpose of this tool string component?

74. What surface checks are performed on MRLD/WRT prior to lowering tools through the rotary?

75. One final step must be performed prior to placing the MLRD/WRT below the water line to displace the air from the 22" casing and inner string. How is this accomplished on your rig?

76. The casing will continue being run to LPWHH while pumping landing string capacity every 10 stands. What operation takes place once 22" shoe has been stabbed into LPWHH? How is this operation monitored?

77. What parameters are closely monitored while running and prior to landing 22" casing? Why is this critical?

78. What is the last piece of the 22" landing string that is picked up and used to wash the casing down to land out point? Why is this important?

79. Described the procedure used to verify that the 18-3/4" HPWHH is properly located in the 36" LPWHH.

80. Cementing procedures for the 22" casing string will vary from rig to rig. List the steps involved in the cement job on your rig.

81. There are two basic requirements for cement the 22" casing. What are they? How is this monitored and what devices are used to confirm?

82. After the cement has been pumped in place, the annular shut-off valves must be closed by the ROV. Why is it important to close these valves as soon as possible? What is a contingency in the even the annular shut-off valves can't be closed?

83. What is an alternative to using the annular shut-off valves? . Why is it not used?

84. Once the 36" x 22" annulus has been isolated, the HPWHH must be locked into the LPWHH. What is this step called and, in your own words, explain why it is important?

85. List the steps used for locking the two wellhead housings together.

86. List the steps involved for releasing the MRLD prior to pulling out of the hole.

Mentor or WSL Assessment of Candidate – Module ____: Deepwater Well Startup

WSLf d:_____

Mentor or WSL:_____

Rig:_____ Block:_____Date:_____

Well:_____ Module #:_____

Please complete the following and rate as Low, Medium, or High. Note: Rate the WSL as he would be expected to perform in his present position and present level of expertise. IE, we would not expect him to be rated or compared against a 20 year veteran.

1. Technical Ability

What was the technical competence of the employee? Keys: Catches on quickly to technical detail; ability to solve problems; asks questions; seeks detail about tools-equipment-procedures.
Describe:_____

_____[ ]L [ ]M [ ]H

2. Management

How does the employee manage his work the rig? Keys: On time for meetings; interest in cost control; accurate in work; good with logistics; understanding of DIMs; well organized.
Describe:_____

_____[ ]L [ ]M [ ]H

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Describe:_____

_____[ ]L [ ]M [ ]H

In your opinion, work with this module was: [ ] Poor [ ] Fair [ ] Good [ ] Excellent

I have discussed this assessment with the WSL: [ ] Yes [ ] No

The WSL training in deepwater will present this assessment form to the mentor WSL at the end of each hitch or period on a rig. Please complete and return to the WSL. Discussion of detail concerning this assessment with the WSL in training is requested.

Module 5: Deepwater BOP and Riser Systems

LOCATION:_____

Rig:_____

DATES OF OBSERVATION:_____

CANDIDATE:_____

MENTOR OR WSL:_____
(if applicable)

COACH:_____

Module 5: Deepwater BOP and Riser Systems

Components of a BOP and Riser System

1. Provide a sketch or drawing of the BOP on your rig. Identify the rams, annulars, choke & kill outlet locations. Give pressure ratings of components and sizes of pipe that BOP can be closed in on for each element. Be sure to include the location of the pods that control the stack functions. Include any other pertinent information such as what parts comprise the Lower Marine Riser Package (LMRP).

2. Does the stack on your rig have a "bleed" line outlet? What is the function of a "bleed" line?

3. Does the stack have a ram cavity with casing shear rams installed? When would casing shear rams be needed?

4. Provide a sketch or drawing of a joint of riser complete with all dimensions and jewelry (choke, kill and boost lines, flotation, rigid conduit lines, etc.)

5. You will notice that there a two basic types of riser joints, those with flotation installed and those without (commonly referred to as 'slick' joints). Where are the slick joints run in the string and where are the flotation joints run? Why are the slick joints run in this position?

6. Riser joints with flotation installed are colored coded to ease identification while running. What is the significance of the color codes used and list the dimensional and operational parameters for each type on your rig.

7. While the choke and kill lines are self-explanatory, what is the purpose of the boost line and the rigid conduit line?

8. The riser joints must handled with some type of equipment to move it from the riser bay on deck to the rig floor. What is the equipment used on you rig (also list any contingencies)?

9. The Riser Handling Skate is an important piece of equipment during the riser running operation. Is there any special equipment used on the skate during the running operation?

10. The BOP Transporter is used for storing and moving the BOP's around in the moonpool. What are some of the other uses for the transporter?

11. Where is the BOP stored when not in use on your rig (port side, starboard side, forward or aft)? In which direction(s) can the BOP be moved with this piece of equipment?

12. What is the safe working load (or rating) of this piece of equipment?

13. This transporter is also used to place the BOP over a certain piece of equipment for stump testing purposes. What is this piece of equipment called?

14. Some MODU's have a guide system installed in the moonpool to prevent swaying of the BOP while it is suspended. Name this system and give a brief description of how it works.

15. Rigs must have a means for individuals to work at heights and over the water. Name the devices and give a brief description of each.

16. There is a combination of two tools used to provide a hang-off platform on the rig floor to support the BOP and riser string while making riser joint connections. Identify these two tools and in your own words give a description of their purpose.

17. List the maximum operating parameters of this tool combination.

18. A riser running tool is used to handle joints of riser and each locks into place either hydraulically or manually. Provide a drawing of each and describe how these tools 'lock' into place.

19. How is the running tool 'attached' to the block for hoisting and lowering the riser? What is the load rating of this equipment?

20. These running tools also serve another purpose while running riser. What is that purpose and how is it accomplished?

21. A series of reels are located in the moonpool with lines installed on them that will be run with the BOP / riser. Identify each 'line' and describe what they are used for.

22. How are these lines paid out and reeled in during running or pulling of BOP / Riser?

23. Is there any specialized monitoring equipment used on the BOP / riser for your rig? If so, list and describe this equipment.

24. The top joint of riser is referred to as the telescopic or 'slip' joint. Provide a detailed drawing of the telescopic joint on your rig along with a list of the various functions it provides.

25. There is a system on the rig referred to as the tensioner system that supports the weight of the riser. How does it attach to the riser? Give a description of the tensioner system and how it works. Why is it important to keep the riser in tension? Will this riser tension change throughout the well? If so, why?

26. While the tensioning system suspends most of the weight of the riser, it is tied back to the rig floor via the diverter. In addition to tying the riser system back to the rig floor, what other functions does it provide?

27. The above is a basic list of BOP / riser components used. While observing the riser running operations, keep a list of additional tools used along with a brief description of these tools.

Preparations and Considerations Prior to Running BOP / Riser

28. As with any job, the proper amount of HSE planning must take place prior to commencing. Are there any Control of Work issues involved in running riser? If so, what are they?

29. Is it necessary to review or write and JSEA's (or equivalent) prior to commencing the riser running operations? Lists hazards identified and mitigations in place for each of the JSEA's.

30. Where is the rig positioned during riser / BOP running operations? What is the reasoning for this?

31. As with any operation, the most critical part of a successful riser running operation is clear and effective communication. How is this accomplished with personnel working on the deck, in the moonpool and on the rig floor?

32. Just like when running other tubulars in a well, a tally must be generated to calculate how many and which joints of riser will be run. Who is responsible for generating this tally? Who is responsible for approving or 'signing-off' on this tally? List the data included on a riser tally. Also list what parameters are monitored and recorded while running the riser. Another consideration that should be made is the present and forecasted current/weather conditions for the area in which you are working. What are the current/weather limitations for running riser on the rig to which you are working?

33. Although the BOP is thoroughly maintained prior to running, it must be stump tested prior to running. To what pressure will the stack be pressure tested? On what OD sizes is the stump test performed? Which pod is used for testing? When is this tested performed and who is responsible for properly conducting the test?

Running BOP and Riser

34. As you will observe, things get pretty busy when it is time to start rigging up the equipment necessary for running the BOP and riser. What are the three areas where rigging up of equipment takes place and what is the major task performed in each area? Does this rigging up happen simultaneously or is some of it done offline?

35. The Subsea Engineers typically have a 'pre-splash' checklist prior to actually getting the BOP 'wet'. List the steps involved in this checklist.

36. Each of the three areas where riser operations are conducted will require a specific number of people. List the people involved in each area (job title and function they will perform during the operation).

37. Although the WSL and the OIM/Supt are accountable for successfully running the riser, who is the responsible individual on your rig for this operation (PIC)?

38. To minimize the amount of time the BOP spends in the 'slash zone', how many joints of riser are made up together prior to engaging the BOP?

39. The bolts that connect the joints of riser have a recommended make-up torque that coincides with a specific thread lubricant. What is the recommended make-up torque and thread lubricant used on your rig?

40. How are these bolts made up on your rig and how is the torque verified?

41. There is usually a specified sequence of making up these riser bolts. Describe the sequence when a) 2 wrenches are used and b) 1 wrench is used (use a drawing to help explain if necessary).

42. Once the BOP has been moved to well center, the initial joint(s) are made up to the top of the BOP in the moonpool. Some rigs identify the joint immediately above the BOP with a specific name. What is it called on your rig?

43. The MUX cables and Hot Line must be attached to the riser joints in the moonpool area below the rig floor. How are the attached and how often?

44. List any special considerations to be taken on start up, especially when lowering the BOP into the water (referred to as 'splash' zone). Why is this critical?

45. In what position are the different valves on the BOP, choke, kill, boost and RCL left in while running riser? Why?

46. What equipment will require filling while running the riser and what equipment will fill automatically?

47. As discussed above, some lines will be tested during the riser running operations. Which lines will be tested, to what pressure will they be tested and how often will they be tested?

48. What final checks are made to the riser joints once on rig floor just prior to making them up is string?

49. After the BOP is a sufficient depth below the water level the ROV will dive and monitor the BOP while running riser. What function does the ROV play while running the riser?

50. What data is monitored and recorded from the time the BOP is picked up off the transporter until just prior to latching up to the wellhead?

51. At what depth above the mudline is the BOP repositioned back over the well?

52. Once the BOP is landed and latched to the wellhead, what steps are taken to insure that the wellhead connector is properly latched?

Module 5: Deepwater BOP and Riser Systems

Mentor or WSL Assessment of Candidate

WSLfd_____

Mentor or
WSL:_____

Rig:_____ Date: _____

Well:_____

Please complete the following and rate as Low, Medium, or High. Note: Rate the WSLfd as he/she would be expected to perform in their present position and present level of expertise. IE, we would not expect the WSLfd to be rated or compared against a 20 year veteran.

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In your opinion, work this hitch was: [ ] Poor [ ] Fair [ ] Good [ ] Excellent

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Please return to WSLfd who will turn into the coach.