Industrial Drilling Products Workshop - Water Well Applications

COURSE REVIEW

The following is designed to reinforce the subject matter presented to you in this course.

1. Samples for sand content should be taken:
   _____ a. from the tank
   _____ b. at the pump suction
   _____ c. from the flow line
   _____ d. b & c

2. The correct order of addition for mixing drilling fluid additives is:
   _____ a. bentonite, surfactants, polymers
   _____ b. soda ash, polymers, bentonite, surfactants
   _____ c. surfactants, bentonite, soda ash, polymers
   _____ d. soda ash, bentonite, polymers, surfactants

3. The primary function of EZ-MUD® GOLD is:
   _____ a. shale & clay stabilization
   _____ b. thinner/dispersant
   _____ c. filtration control
   _____ d. viscosifier

4. Increase in drilled solids causes:
   _____ a. smoother looking mud
   _____ b. faster drilling rate
   _____ c. thicker filter cake
   _____ d. extended equipment life

5. The primary function of QUIK-TROL® GOLD LV is:
   _____ a. thinner/dispersant
   _____ b. viscosifier
   _____ c. filtration control
   _____ d. shale/clay stabilizer

6. The density of fresh water is:
   _____ a. 6.7 lb/gal
   _____ b. 8.34 lb/gal
   _____ c. 8.0 lb/gal

7. When testing drilling fluids, the Marsh Funnel is used to:
   _____ a. determine the filtration rate
   _____ b. determine solids content
   _____ c. determine viscosity
   _____ d. determine gel strengths

8. The Marsh Funnel viscosity of fresh water is:
   _____ a. 24 sec/qt
   _____ b. 26 sec/qt
   _____ c. 32 sec/qt

9. The desired pH of drilling muds is normally:
   _____ a. acidic
   _____ b. slightly alkaline, 8.5 – 9.5
   _____ c. neutral
   _____ d. about the same as Coca-Cola®

10. The mud balance is used to:
   _____ a. determine the carrying capacity of a drilling fluid
   _____ b. measure the mud density
   _____ c. determine thick or thin fluids
   _____ d. hammer small nails

11. Hard make-up water can be treated to increase the yield (viscosity building property) of clay by:
   _____ a. pre-treating the water with soda ash
   _____ b. pre-treating the water with lime
   _____ c. pre-treating the water with salt
   _____ d. pre-treating the water with vinegar

12. Key factor(s) in the control of drilling fluid properties for water well applications during the drilling phase and the efficiency of the completion phase is the:
   _____ a. thinner used in the mud
   _____ b. degree and consistency of filtration control during the drilling phase
   _____ c. non-reactive solids content in the mud
   _____ d. b & c

13. QUIK-GEL® is added to drilling fluids to:
   _____ a. increase viscosity and establish a thin, low permeable filtercake
   _____ b. reduce filtration rate and increase the carrying capacity of the fluid
   _____ c. control seepage/loss of circulation to formation
   _____ d. all of the above

14. When placing an annular seal in the vadose zone (unsaturated section of the geology) the bentonite sealing material that is best suited for this environment is:
   _____ a. inhibited pumpable grouts
   _____ b. dispersed pumpable grouts
   _____ c. pumpable grouts with a solids content of 30% by weight
   _____ d. HOLEPLUG® bentonite chips

15. High water loss/filtration rate from a drilling fluid:
    _____ a. is of no major importance
    _____ b. can result in more difficult well completion and extended development time
    _____ c. results in a thick filtercake developed on exposed permeable formations
    _____ d. b & c

16. Under ideal conditions, drilling rate will be greater with:
    _____ a. high mud weight
    _____ b. low mud weight
    _____ c. medium mud weight

17. Contamination of a bentonite based drilling fluid with gypsum (calcium) results in:
    _____ a. reduced viscosity and pump pressure
    _____ b. increased viscosity, increased pump pressure and flocculation of the bentonite present in the fluid
    _____ c. hard mud
    _____ d. lowered filtration rate

18. To minimize chances of lost circulation one should:
    _____ a. use maximum mud weight and viscosity and run and pull pipe at high speeds
    _____ b. use minimum mud weight and viscosity and run and pull pipe at slow speeds
    _____ c. begin rotating the drillstring only after bringing pump online
    _____ d. crank up the pump rate to out pump the losses

19. To reduce the funnel viscosity of a mud, one could:
    _____ a. add EZ-MUD®
    _____ b. add QUIK-TROL® GOLD
    _____ c. add a thinner/dispersant such as AQUA-CLEAR® PFD
    _____ d. add QUIK-GEL®

20. If no weighting material has been added, which of the following muds would be expected to deposit the thicker wall cake?

Fluid Properties	Mud A	Mud B	Mud C
Density, lb/gal	8.6	9.8	8.5
Marsh Funnel Viscosity, sec/qt	35	30	40
Filtrate, ml/30 min	18	18	18

    _____ a. Mud A
    _____ b. Mud B
    _____ c. Mud C