**Evaluation of Centrifuge**

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a. Underflow mud volume :

b. Fraction of old mud in underflow :

c. Mass rate of clay :

d. Mass rate of additives :

e. Water flow rate into mixing pit :

f. Mass rate for API barite :

Where, MW = mud density into centrifuge (ppg)  
 QM = mud volume into centrifuge (gal/min)  
 PW = dilution water density (ppg)  
 QW = dilution water volume (gal/min)  
 PU = underflow mud density (ppg)  
 PO = overflow mud density (ppg)  
 CC = clay content in mud (lb/bbl)

CD = additive content in mud (lb/bbl)  
 QU = underflow mud volume (gal/min)  
 FU = fraction of old mud in underflow  
 QC = mass rate of clay (lb/min)  
 QD = mass rate of additives (lb/min)  
 QP = water flow rate into mixing pit (gal/min)  
 QB = mass rate of API barite (lb/min)

Sample Case : Mud density into centrifuge (MW) = 16.2 ppg  
 Mud volume into centrifuge (QM) = 16.5 gal/min  
 Dilution water density (PW) = 8.34 ppg  
 Dilution water volume (QW) = 10.5 gal/min  
 Underflow mud density (PU) = 23.4 ppg  
 Overflow mud density (PO) = 9.3 ppg  
 Clay content of mud (CC) = 22.5 lb/bbl  
 Additive content of mud (CD) = 6 lb/bbl

Determine : Flow rate of underflow  
 Volume fraction of old mud in the underflow  
 Mass rate of day into mixing pit  
 Mass rate of additives into mixing pit  
 Water flow rate into mixing pit  
 Mass rate of API barite into mixing pit

a. Underflow mud volume (gal/min)

b. Volume fraction of old mud in the underflow ;

c. Mass rate of clay into mixing pit (lb/min):

d. Mass rate of additives into mixing pit (lb/min):

e. Water flow into mixing pit (gal/min):

f. Mass rate of API barite into mixing pit (lb/min):