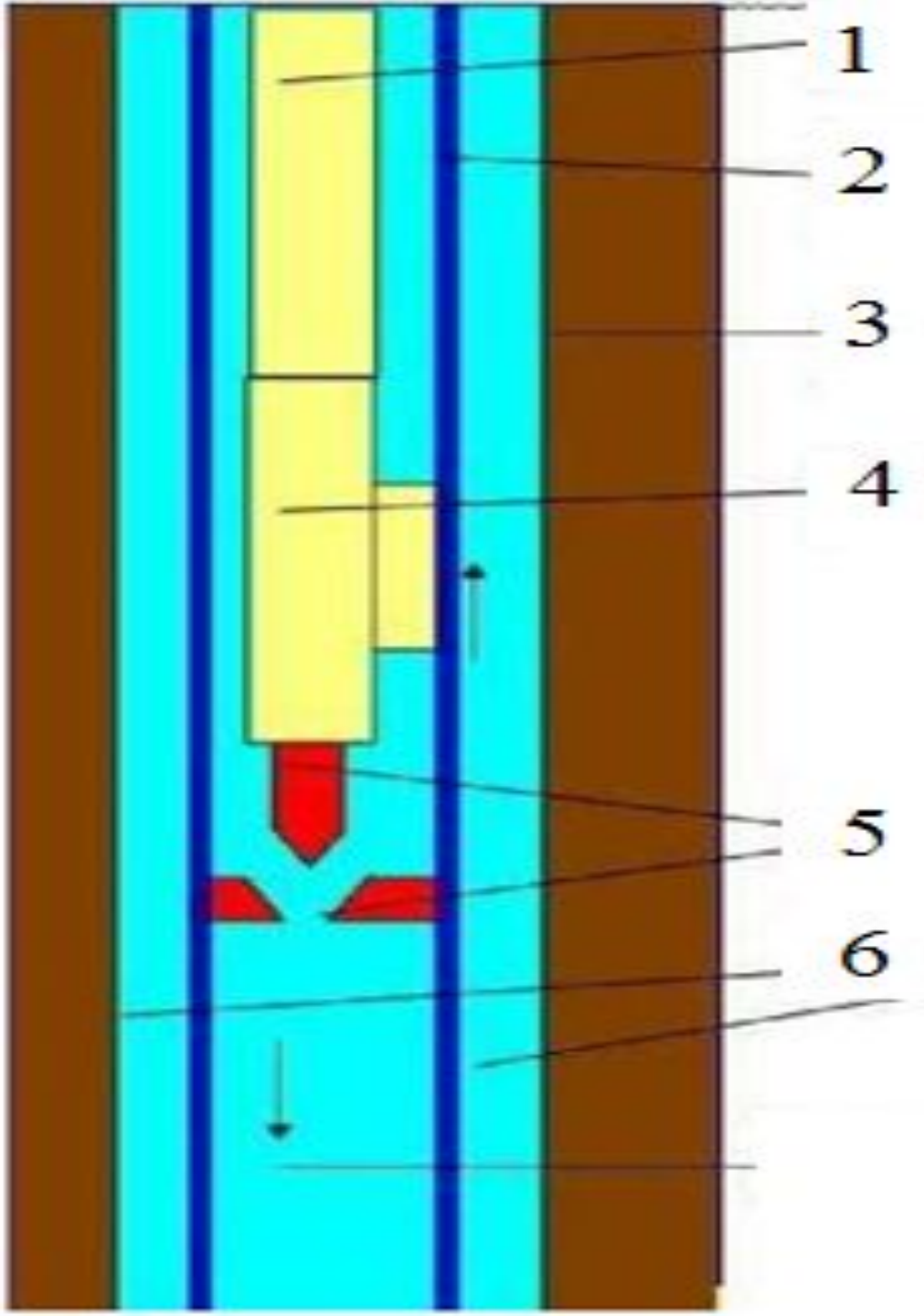


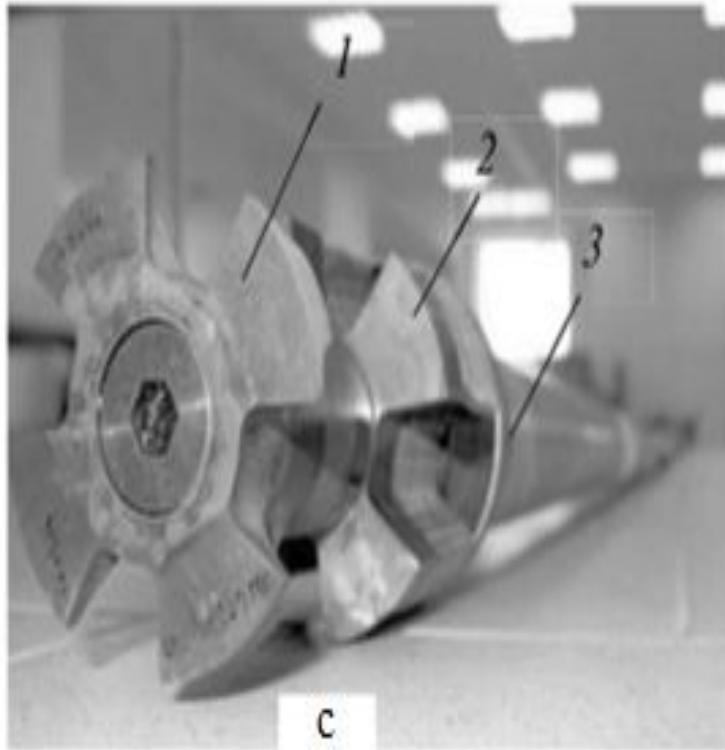
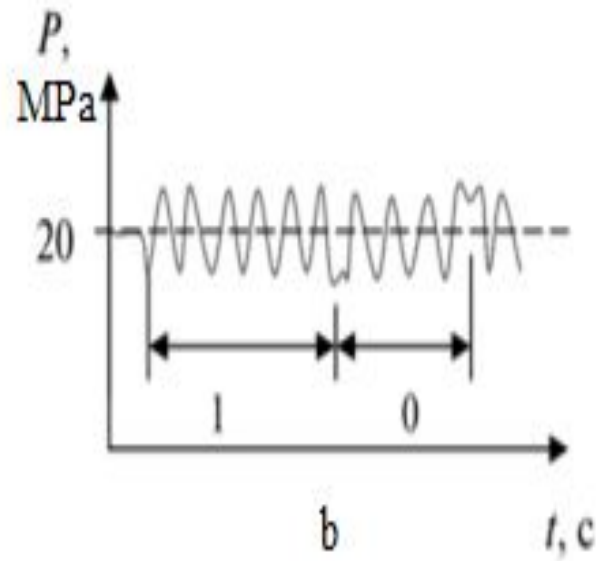
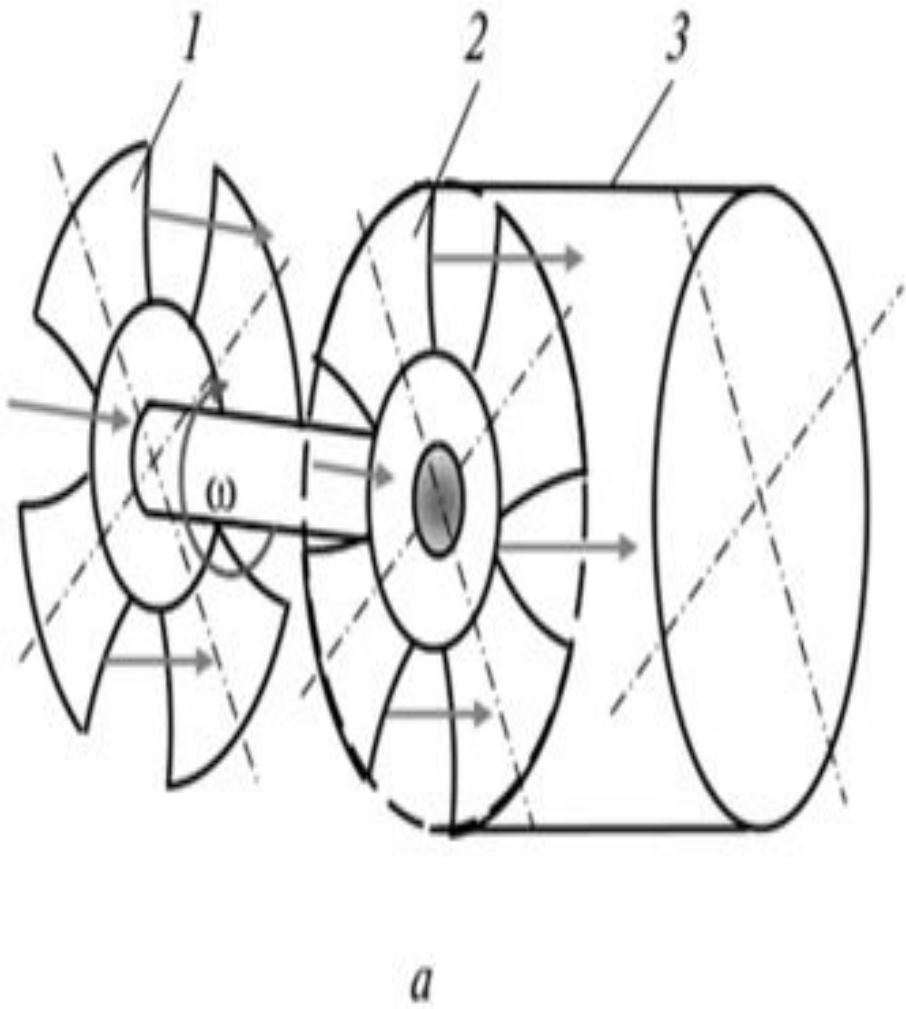


*Method improvements polymer mud  
to improve data transmission quality  
on hydraulic communication channel*



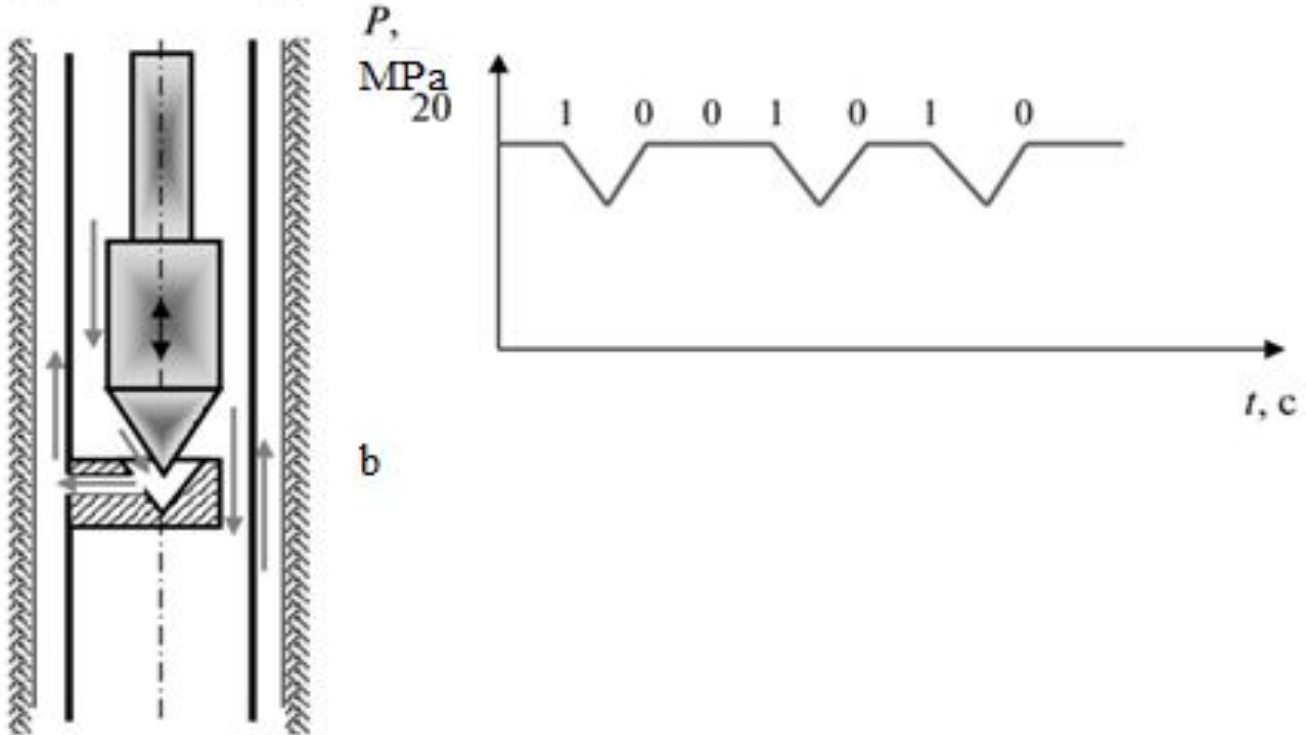
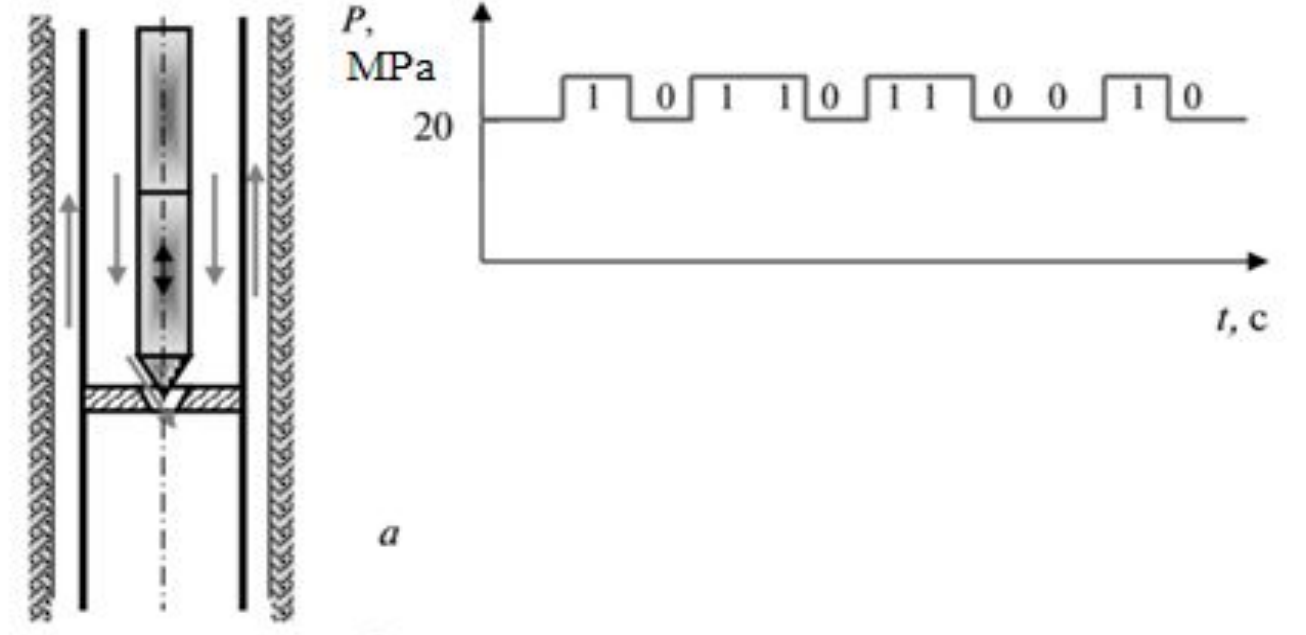
*Figure 1*

*The principle of operation of the hydraulic communication channel.  
1-internal part of the device,  
2-external part of the device, 3-wall of the well, 4-electromagnet,  
5-locking valve, 6-internal space.*



*Figure 2*

*Diagram of a rotary type pulsator: a - work diagram; b - graph of the pulse signal; in - the appearance of the pulsator; 1 - rotating impeller; 2 - impeller phase manipulation, installed with the possibility of rotation around the axis to the left - right; 3 - system housing.*



*Figure 3*  
*Coding signals in the hydraulic communication channel*

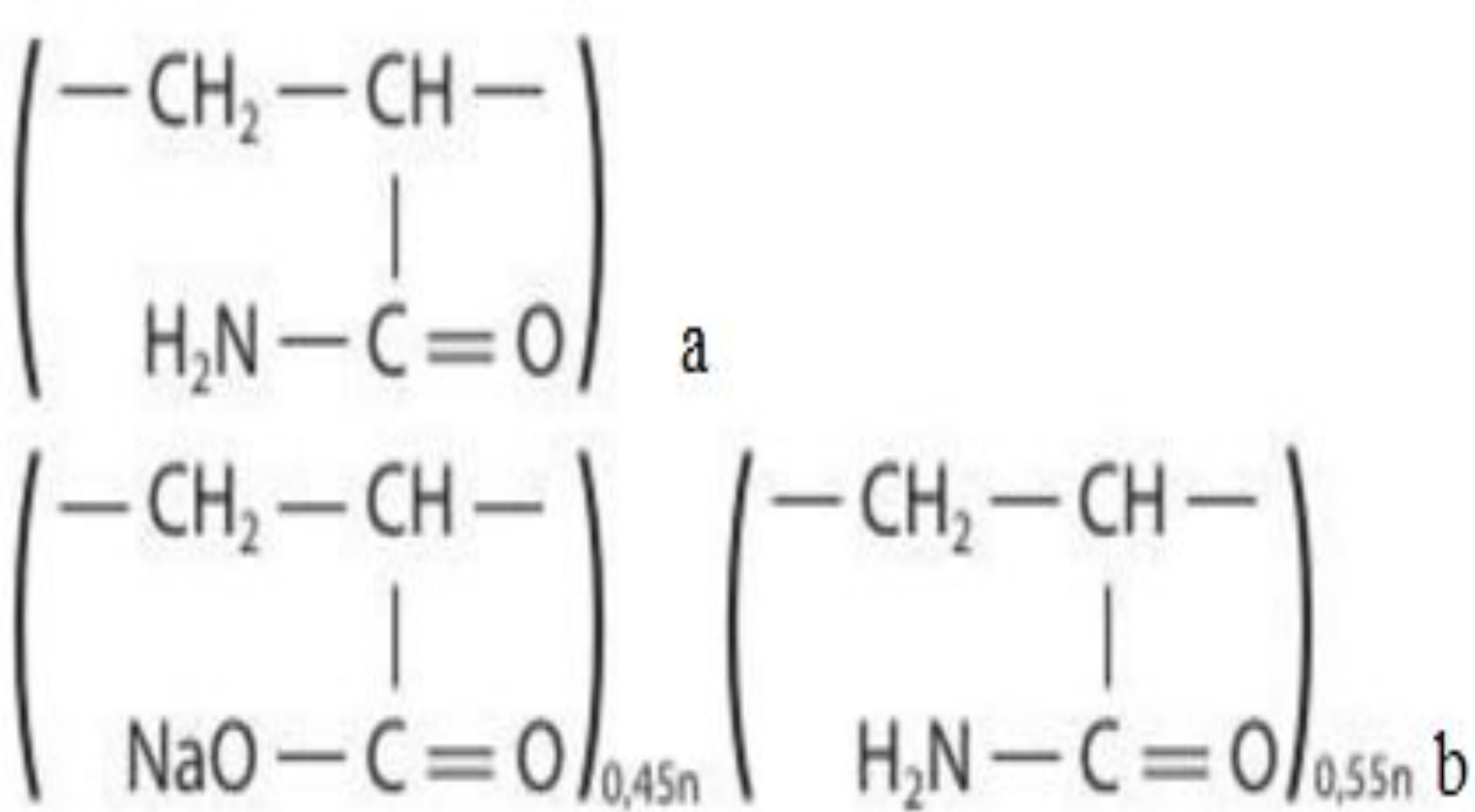


Figure 4. Scheme of the structures of the molecules of PAA (a) and hypan (b)

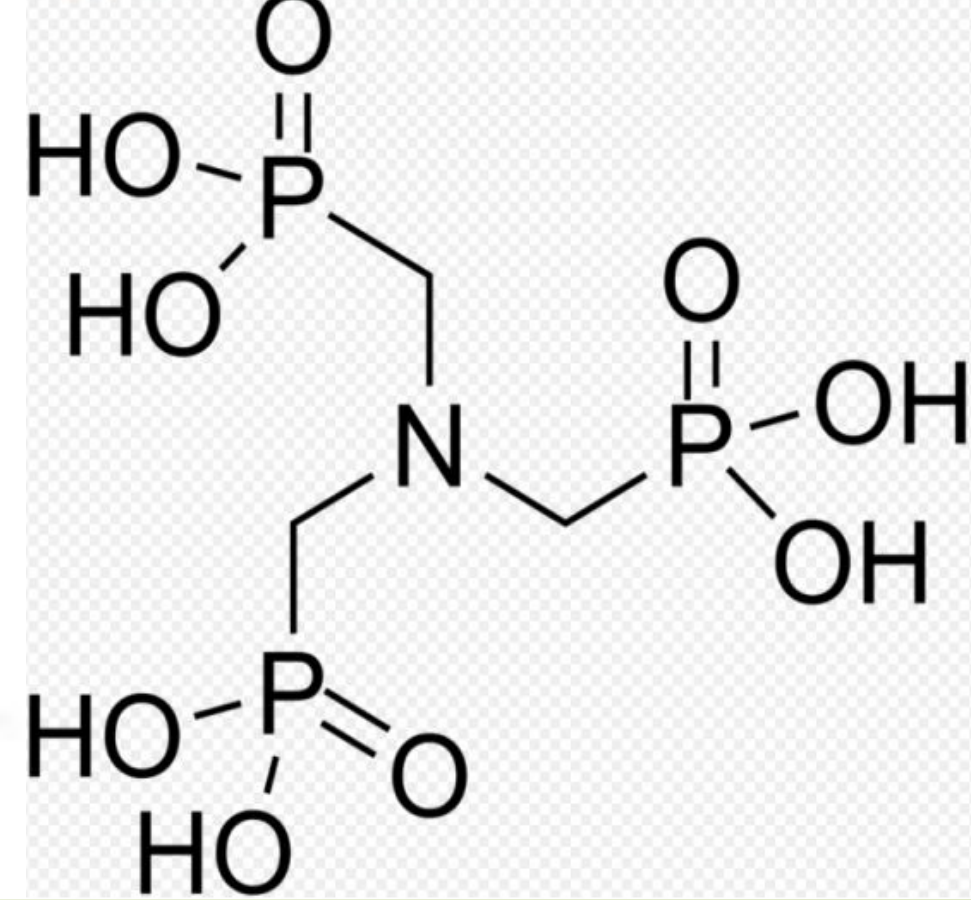
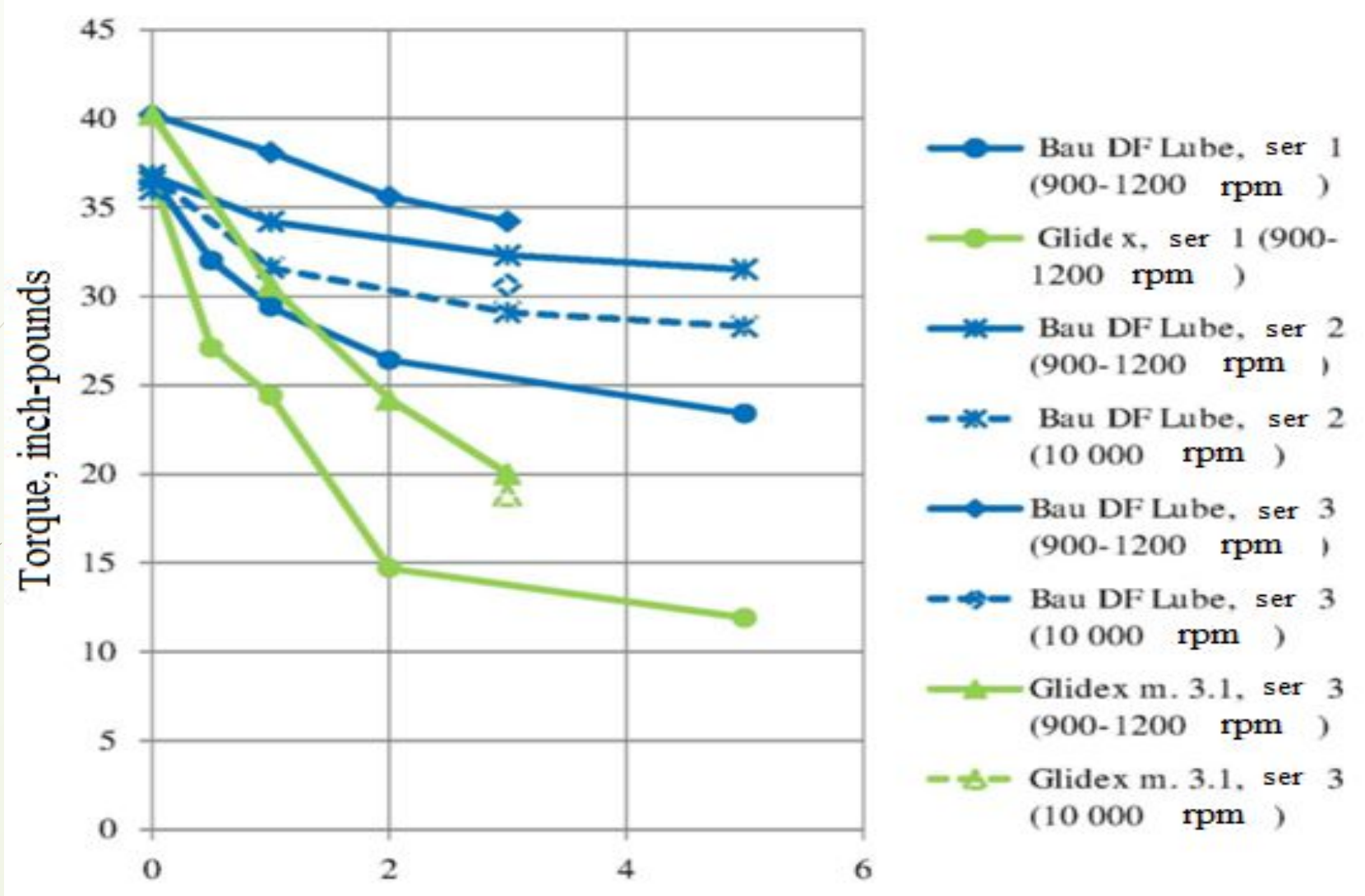
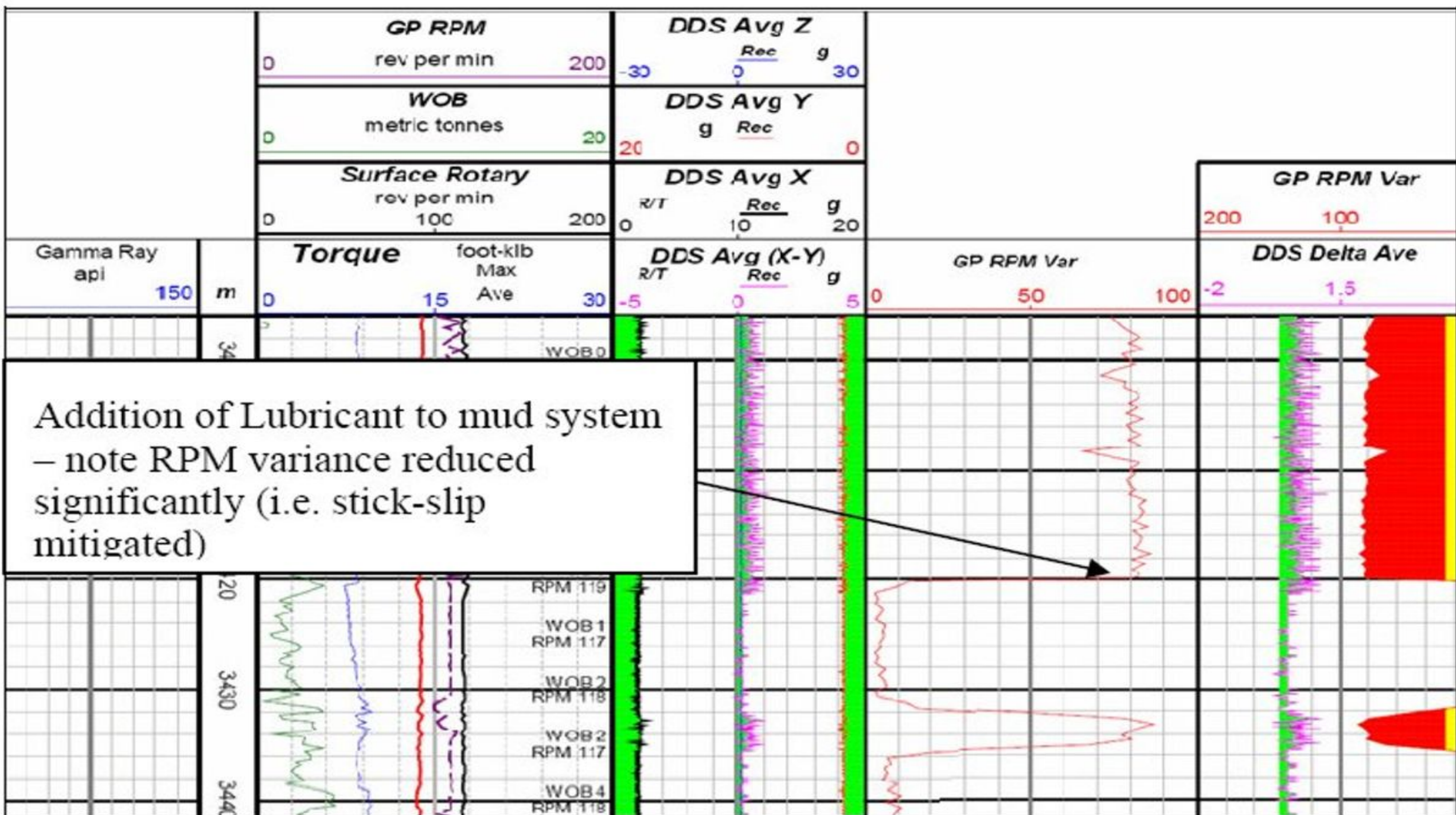


Figure 5. Diagram of the structure of nitrilotrimethylphosphonic acid



*Figure 6. Combined graph of the effect of lubricants on the torque readings in polymer-bentonite solutions*

Lubricant additive	Concentration, %	Torque, inch-pounds		Plastic viscosity, centipoise		Yield point, lb/100lb <sup>2</sup>		gel strength in 10 second, lb/100lb <sup>2</sup>		gel strength in 10 minutes, lb/100lb <sup>2</sup>		F in 30 min, ml	Friction factor, grad
		900-1200	10 ths	900-1200	10 000	900-1200	10 000	900-1200	10 ths	900-1200	10 ths		
Polymer bentonite with a marble crumb													
Without lubrication	0	36,0		25		23		4		21		6,0	2,25
	0	36,5											
	0	36,8											
Bau DF Lube	1	34,2	31,6	29	22	22	29	6	7	22	27		
	3	32,3	29,1	32	14	21	42	4	10	22	30		
	5	31,5	28,3	27	21	30	31	5	10	24	28	4,2	2,75
Polymer bentonite without a marble crumb													
Without lub.	0	40,2		19		17		3		16			
Bau DF Lube	1	38,1		19		17		4		21			
	2	35,6		19		18		4		21			
	3	34,2	30,6	20		19		5		23		5,6	1,50
Glidex m. 3.1	1	30,6		18		19		3		21			
	2	24,2		17		19		2		18			
	3	20,0	18,8	20	21	16	20	2	4	18	22	5,4	2,00





*Thanks for attention*

