

**WORKOVER CREW TYPICAL LIST OF EQUIPMENT
WELL 60/80MT**

##	Item	Unit	Standard number for 1 crew	Notice
1. Workover crew mobile equipment				
1.1.	Workover unit (WU) with a complex of equipment	piece	1	
1.2.	V-door	piece.	1	
1.3.	Pipe rack for the pipes allocation no less than 6000 m for two sides.	set	1	
1.4.	Concrete foundation stab for WU mounting	set.	1	According to installation layout
1.5.	Working site (with ladders, hand rails and canopy, protective cover), adjusting by height from the ground level.	set.	1	
1.6.	Accessory hoisting winch with load capacity no less than 2 tones.	piece.	1	
1.7.	Mobile carriage, combined (instrumental for the overall drying)	set.	1	
1.8.	Residential carriage (accommodation)	set.	1	
1.9.	Mobile carriage for office – Tool Pusher carriage (combined)	set.	1	
1.10.	Household mobile carriage with equipment	set.	1	
1.11.	Trip tank 20m3	piece	1	
1.12.	Tank for fuel and lubricants materials 10m3	piece.	1	
1.13.	Working tank (mud tank) volume 40m3, circulating tank with possibility of mechanical cleaning of the technological fluids from mechanical additives до КЗЧ less than 50 mg/l	piece.	1	
1.14.	Test tank 2,5-4,0m3	piece.	1	
1.15.	Approach ramp for the WU	piece.	1	
1.16.	Diesel-electrical power plant (should supply power of the WU, supplementary equipment and crew members camp (absence to the grid access).	piece.	1	back up ДЕС should be considered
1.17.	Anchors of the WU	piece.	1	
2. Technological tool, equipment				
2.1.	Hydraulic tong for making up and breaking up pipes connections (60, 73, 89 mm.)	piece.	1	
2.2.	Hydraulic rotor with a slip hangers set or mechanical with slips	set.	1	According to operation plan.
2.3.	Wellhead stripper for operation by the rotary assembly and back flushing	piece.	1	
2.4.	Spider with a wedge pipe grip (60, 73, 89 mm.)	set.	1	
2.5.	Pipe elevator in set	piece.	2	
	Tubing insertion 60 mm.	piece.	2	
	Tubing insertion piece 73 mm, 73B mm	piece.	2	
	Tubing insertion 89 mm, 89B mm	piece.	2	
2.6.	Pipe elevator supplemental			
	for tubing 60 mm.	piece.	2	
	for tubing 73 mm, 73B mm.	piece.	2	
	for tubing 89 mm, 89B mm.	piece.	2	
2.7.	Pipe tongs			
	for tubing 60 mm.	piece.	2	
	for tubing 73 mm.	piece.	2	
	for tubing 89 mm.	piece.	2	
	for tubing 102 mm.	piece.	2	
	for diameter .49*89 mm	piece.	3	
	For diameter.89*132 mm	piece.	1	
	chain tong	piece.	3	
2.8.	Universal iron roughneck (mechanical tubing tong)	piece.	1	
2.9.	Washover swivel	piece.	1	
2.10.	Flushing complex			
	Flushing coil	piece.	1	
	Sealing ring flushing	piece.	2	
	Sleeve for high pressure flushing, no less than 5 MPa	piece.	1	
2.11.	Drilling head flushing sealer	piece.	1	
2.12.	Device for flushing fluid splashing prevention («Spray arrester»)	piece.	1	

2.13.	Choke manifold block BM-35	piece.	1	
2.14.	BOP with a remote control panel, with operation pressure from 35 to 70 MPa and more	piece.	1	
2.15.	Stabbing valve "KIII" for pressure of 35-70 MPa, with crossover for every tubing size (CBT/DP)	piece.	1	
2.16.	BOP adaptor spool	piece.	2	
2.17.	High pressure valve "KBT" 3 with appropriate flanges	piece.	1	
2.18.	Sling for nipple up	piece.	1	
2.19.	Auxiliary sling 3 m	piece.	1	
2.20.	Drift for tubing 60 mm	piece.	1	
2.21.	Drift for tubing 73 mm	piece.	1	
2.22.	Drift for tubing 89 mm	piece.	1	
2.23.	Tool making table 400*400*600	piece.	1	
2.24.	Scraper for casing, for production string Ø 114, 140, 146, 168 mm	piece.	1	According operation plan
2.25.	Tubing 73 mm applied for wellbores with maximum depth (6000m)	м	3,000 або 6,000	According operation plan
2.26.	Crossovers for tubing of all dimensions	piece.	1	According operation plan
2.27.	Flow line Ø 73 or 89 mm, with length 200m and passport + anchors with clamps	piece.	1	According the wellhead piping layout
2.28.	High pressure line on "IIP3" with section length 4-8 m, total length is 40 m, for pressure 35-70 MPA	piece.	1	
2.29.	Rubber cleaners for tubing	piece.	1	
3. Auxiliary tool and equipment				
3.1.	Bench-work tool			
	wrenches 14*17	piece.	2	
	wrenches 17*19	piece.	2	
	wrenches 19*22	piece.	2	
	wrenches 22*24	piece.	2	
	wrenches 24*27	piece.	2	
	wrenches 27*32	piece.	2	
	wrenches 32*36	piece.	2	
	wrenches 36*41	piece.	2	
	wrenches 41*55	piece.	2	
	wrenches 14*26	piece.	2	
	Rasp -files different	piece.	2	
	Chisel	piece.	1	
	Pliers	piece.	1	
	hammer 0,4 kg.	piece.	1	
	Breaker bar	piece.	3	
3.2.	Non-sparking tool			
	Wrenches 27*30	piece.	1	
	Wrenches 30*32	piece.	1	
	Wrenches 32*36	piece.	1	
	Wrenches 36*41	piece.	1	
	chisel	piece.	1	
	hammer 0,4 kg.	piece.	1	
	Non-sparking sledge hammer	piece.	1	
4. Instrumental devices				
4.1.	Electronic indicator of the weigh with indication the following parameters: - Weight on the hook; - Weight on a bit (WOB); - Torque on a pipe tong (iron roughneck); - Rotary table torque; - Rotary table speed (rpm); - Tripping operations speed with data online transmission mode; - Data storage at the well site no less than 365 days	piece.	1	back up set should be considered
4.2.	Specific gravity hydrometer (aerometer)	piece.	1	
4.3.	Pressure gauge	piece.	1	
4.4.	Thermometer	piece.	1	
4.5.	Tape measure 20 m	piece.	1	
4.6.	Gas analyzer	piece.	1	

4.7.	Caliper gage	шт.	1	
5. Auxiliary materials and equipment				
5.1.	Dies for the pipe tong	piece.	Based on standard spending	
5.2.	Dies for the pipe tong	piece.	Based on standard spending	
5.3.	Rams for hydraulic make up and breaking up tong for tubing use.	piece.	Based on standard spending	
5.4.	Spider insertion piece	piece.	Based on standard spending	
5.5.	Oil for the tools and equipment	piece.	Based on standard spending	
5.6.	Oil type P-402, analogue	piece.	Based on standard spending	
6. Housekeeping equipment and utensils				
6.1.	Refrigerator	piece	1	
6.2.	Microwave oven	piece	1	
6.3.	Electrical kettle	piece	1	
6.4.	Bathroom sink basin	piece	1	
6.5.	Potable water flask, volume 300l	piece	2	
6.6.	Electrical oven	piece	1	
6.7.	Container for household waste disposal	piece	1	
7. Electrotechnical equipment				
7.1.	Projectors	piece	5	
7.2.	Mobile phone	piece	1	
7.3.	Distribution box for equipment control	piece	1	
7.4.	Earthing cable (rope) for earthing. For each piece of equipment	m.	150	
7.5.	Safety glows+carpet dielectric	set	1	
8. PPE items, fire fighting equipment, informative tool				
8.1.	Protective helmet with liner	piece	16	
8.2.	Safety belt of the derrick man	piece	2	
8.3.	Protective goggles	piece	4	
8.4.	Duty overalls	piece.	2	
8.5.	Medical kit	piece	1	
8.6.	Fire fighting tool: fire blanket; shovel, spade; crowbar; fire extinguisher; bucket, box wit sand.	set.	1	
8.7.	Emergency lightening (battery lighters)	piece	2	
8.8.	Red flags for warning	piece	1	
8.9.	Warning signs of electrical safety	set.	1	
8.10.	Warning information boards at the entrance and exit places of the rig site	set.	1	
9. Special purpose machines				
9.1.	Mobile or stationary small size pumping unit with capacity of no less than 16 l/sec cover / mobile pumping unit. If required - ЦА-320 (or similar) – 2 pieces.	piece.	1	
9.2.	Drilling fluids tanks park (total capacity is not less than one well's volume. One tank should have a degassing system (separator of СБП-2 type or similar, degasser: type "Каскад" - 40), receiving chute of the cascade construction for solid particles catching, possibility of the drilling fluid making with various SG, including polymer clay. <i>Notice: Circulation system should have a complex purification system of the flush liquid cleaning designed with not less than two steps.</i>	set.	1	
9.3.	АЦН V=20м3	piece.	1	
9.5.	Crane truck 25t	piece.	1	
9.6.	Drive truck (site)	piece.	1	
9.7.	Bulldozer	piece.	1	
9.8.	Duty vehicle	piece.	1	