



LLC "ZAO AMT"

Automation of
Oil and Gas

Industry
Technologies

Monitoring

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AMT-411

WORKOVER TRAINING SIMULATOR

Multifunctional and complete workover training simulator AMT-411 is designed for training the operating and engineering staff of the W/O units of oil and gas production enterprises and students with a specialization in: Well drilling, development and operation of oil and gas fields.



The simulator allows the trainees to see (on the monitor screen) processes occurring in the well and hidden from direct observation, as well as processes of appearance and development of complications and emergencies. It allows the trainees to check and compare different solutions to technological problems. The simulator is the latest effective technical

means of training and skill improvement of employees from workover enterprises. It allows the trainees to gain and improve skills in performance, control and optimization of main technological workover processes, detection and prevention of complications and emergencies, elimination of oil and gas shows and blowouts.

Simulations in real-time and accelerated

- Drilling process, drilling out of cement plugs
- Tripping
- Well killing by means of direct and indirect flushing
- Remedial cementing under pressure through perforations
- Reservoir acidizing
- Well development using swab
- Reservoir hydrofracturing
- Abrasive jet perforation
- Elimination of gas, oil and water shows
- Well development using compressor



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Simulator components

1. Equipment control panels and stations:

- Driller's panel
- Circulation system control panel
- Reservoir hydrofracturing control panel
- Compressor station control panel
- Preventer control panel
- Indicator panel
- Manifold station
- Christmas tree station
- Flow head equipment station

- Wellhead station

- Choke manifold station

2. Instructor workplace:

- Personal computer
- Printer
- Software for technological process simulation, process control, training task performance and training process methodological support.

3. Sound support equipment

4. Uninterruptible power supply.

Main characteristics of the simulator

Number of panels and stations	11
Number of simulated technological tasks	10
Number of simulated parameters of the technological process, condition of the well, drilling tools, drilling equipment and well log	more than 100
Number of messages of complications, emergencies and trainees' errors	more than 100
Number of time charts of parameters simultaneously displayed on the screen:	not less than
• Drilling out of cement plugs	29
• Tripping	30
• Remedial cementing	16
• Elimination of oil and gas shows	29
• Well killing by means of direct and indirect flushing	11
• Reservoir acidizing	14
• Well development using swab	18
• Reservoir hydrofracturing	14
• Abrasive jet perforation	17
• Well development using compressor	30
Simulated condition sampling rate	adjustable
AC power supply	220 V/50 Hz
Maximum power consumption	up to 800 W
Footprint	not less than 40 m ²
Complex weight	max. 900 rg
Ambient temperature	from +5° to +35° C
Ambient humidity	max. 90%
Continuous operation time	not limited
Service life	not less than 6 years



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Engineering Staff Training

Multiuser versions of the AMT-411UK is designed for training of engineering staff of manufacturing enterprises, university and technical college students of oil and gas specialties in computer classroom format with 15 operation stations and more.

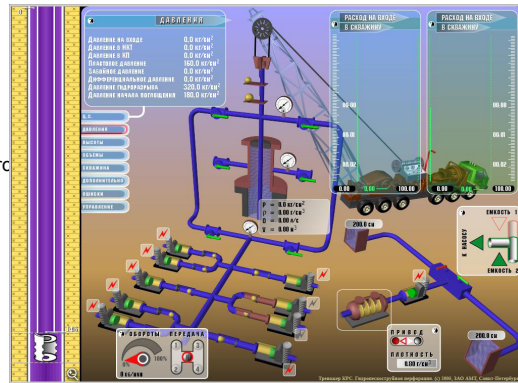
It provides:

- A full computer simulation of the well and equipment control panels and the same training tasks as a hardware simulator;
- Displaying numeric and graphical information about simulated process;
- Animation the work of the well

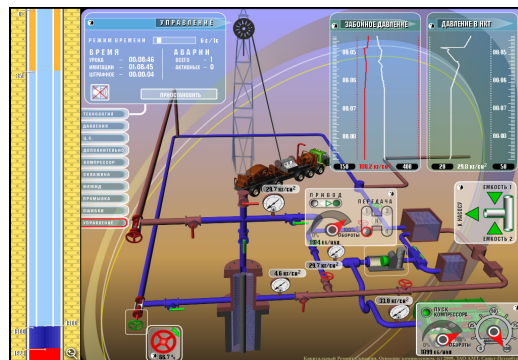
equipment;

- Individual and team approach of training;
- Combination of a several computers to perform an one training task (teamwork);
- Simultaneous control of performance of various training tasks from instructor's workplace;
- Simulation of a different situations and complications, their faultless detection and proper elimination;
- Ability to stop and restart the simulation in any time.

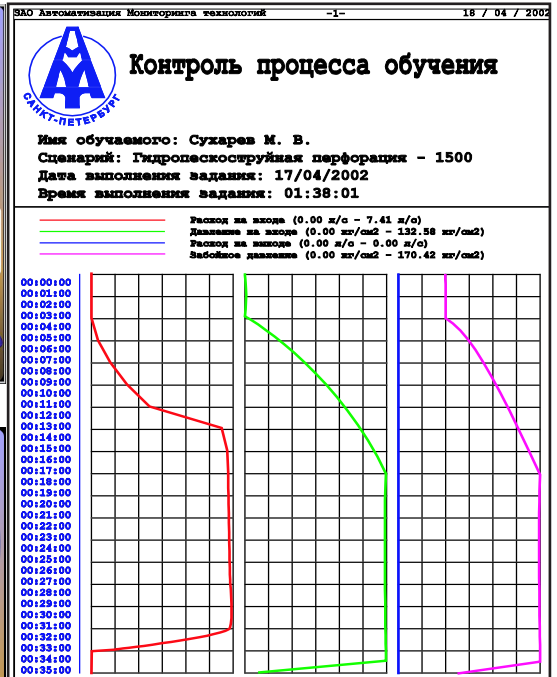
classroom



Display of the "Perforation" task



Display of the "Development Using Compressor" task



Training report



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№	Designation of simulator components	Quantity, pcs
Simulator		
1	Complex of panels and stations for control of well workover equipment	
1.1	Repair team's operation station <ul style="list-style-type: none"> • Driller's panel • Circulation system control panel • Manifold station • Indicator panel • Wellhead station • Choke manifold station • Preventer control panel • Reservoir hydrofracturing control panel • Flow head equipment station • Christmas tree station • Compressor control panel 	1 1 1 1 1 1 1 1 1 1 1
1.2	19" LCD-monitor (connected)	2
1.3	Industrial embedded computer (built into the driller's panel)	1
1.4	Set of audio speakers	1
1.5	Licensed software of MS Windows 7 multitasking operating system	set
2	Instructor workplace <ul style="list-style-type: none"> • Personal computer • Software of simulation and training tasks for AMT-411 simulator • Licensed software of eComstation 2+ or compatible 	set set set
4	Data and power cables, self-adhesive cable ducts	set
5	Operational documentation	set
Classroom		
1	Instructor workplace <ul style="list-style-type: none"> • Personal computer • Software of simulation and training tasks for AMT-411 simulator • Licensed software of eComstation 2+ or compatible 	set set set
2	Operational documentation	set

We supply our equipment, provide training and warranty support.
We support software during entire service life.
We continuously improve our products.
Thousands of oil & gas specialists in Russia and CIS were trained on our simulators.