



«HORIZONTAL AND MULTILATERAL WELLS. WELL COMPLETION. SMART WELLS», 5 days

COURSE OBJECTIVE:

improvement of professional competencies in sphere of completion of wells with complicated structure and geometry as well as knowledge of world and Russian experience of smart and fractured wells construction, technics of horizontal and multihole wells management while new fields development, infill drilling and return to back stock for improving of economic efficiency of conventional and unconventional reserves production.

ACQUIRED ABILITIES:

- Selection of completion jewelry according to field development and operation conditions;
- Choice of sand recovery control method and inflow control devices for various reservoirs;
- Fitting of research technology and horizontal wells management systems with reference to its advantages, disadvantages and restrictions while field design, development and operation in different geological-physical conditions;
- Forecast horizontal wells productivity;
- Calculation of completion jewelry landing;
- Choice of MSHF configuration and procedures, engineering support and following well completion;
- Use of software for horizontal well design and simulation.

COURSE CONTENT:

Module Name	Content
Options and advantages of horizontal and multihole wells with respect to different geological conditions and development methods	Fields with oil rims. Gas fields. Gas condensate fields. High-viscosity oil and bitumen fields. Carbonate fields.
Methodology of horizontal an multihole wells productivity forecast in the context of flow into well and wellbore flow	Analytical equation of horizontal wells productivity for steady and pseudo stationary flow regime. Impact analysis of anisotropy, formation thickness, well shifting, etc. Calculation of horizontal well flowrate. Review of special software for estimation of horizontal well productivity

	(PipeSim, Netool, ICDAviser, Eclipse, etc.)
Conventional methods of horizontal wells completion and sand production control	Perforation. Sand filters review (slotted, ware-gage, screen, MeshRite, FacsRite, prepacked). Construction features, advantages and disadvantages. Gravel pack.
Casing packer for horizontal wells	Swell packer. Selection and placing features. Mechanical-hydraulic packer.
Horizontal well stimulation by means of HF, MSHF and acid treatment	MSHF technologies: with use of bridge plug, frac sleeve, burst port collar, hydraulic jet perforating, etc.
Inflow control devices. Key issues of equipment design and fitting	Choke, tube-channel, adaptive for gas and water escape prevention devices. Russian and world case studies.
Features of production logging, permanent monitoring and analysis of horizontal and multihole wells operation	Field geophysical tests, apparatus and delivery vehicles requirements. Use of Millennium Fibre temperature sensing systems. Tracer technologies.
Smart completion	Equipment specifications and utilization examples in Russian and abroad.
Multihole and multilateral wells	TAML classification. Drilling and well completion features. Review of Russian and foreign projects.
Methods of engineering support of run-in-hole operation. Features of RIH operations for extended reach wells	Features of run-in-hole operations for extended reach wells: key engineering design moments, software for RIH modeling, method of build-up column, running with spinning, float-type technic. Examples of shanks landing calculations in Russia.