

## **Construction of an integrated model of the Yuzhno-Yagunskoye field at Kogalymneftegaz of LUKOIL-Western Siberia LLC**

- Sector:** Oil and Gas
- Region:** Russia
- Year:** 2019
- Client:** Kogalymneftegaz at LUKOIL-Western Siberia LLC
- Task:**
1. Development and implementation of a comprehensive integrated model (IM) for the production at Yuzhno-Yagunskoye oil and gas field within the framework of the LUKOIL “Intelligent Field” project.
  2. Creation of a single transparent information environment for efficient and flexible management of key parameters in order to optimize production, save resources and reduce operating costs.
  3. Preparing a detailed solution for use as a digital tool to solve a number of production problems and conducting pilot operations.
  4. Formation of the regulatory and methodological framework governing the work of the IM as part of the management processes of the Southern Yagun Central Research Institute at LUKOIL-Western Siberia LLC.
- Result:**
- The largest integrated production model was built in Russia (by both the number of wells and technological facilities), covering 12 development sites and 1,711 wells of the Yuzhno-Yagunskoye, Tevlinsko-Russkinskoye, Kustovoye, Vostochno-Ikilorskoye and Zapadno-Ikilorskoye fields. The specialized domestic solution AVIST Oil&Gas was used as an integration platform for managing integrated modelling processes and the choke model.
  - A number of critical production processes have been automated: management of operating practices of production and injection wells, taking into account interference, determination
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of the maximum throughput of the well production system, taking into account the operating practices modifications at production wells, selection of the optimal downhole pumping equipment, taking into account the forecast of its operation at overhaul time and energy efficiency conditions.

- It is possible to calculate optimization options for production, in order to select the most efficient ones.
- Automated processes for the bottlenecks' identification in the infrastructure and assessing the operational potential of the field's production system.
- Efficiency of the reservoir pressure maintenance system was improved.
- The quality of the development and justification of the operating practices at production and injection wells was improved.
- All production information is accumulated in a single transparent information environment, which allows performing quick analysis and flexible management of the key parameters in order to optimize production, save resources and reduce operating costs.
- Timely work with data ensures vast opportunities for monitoring the state of infrastructure, timely assessment and management of risks.
- Unique automation tools can significantly reduce labour costs during routine operations, improve the quality of development and justification of operating practices at production and injection wells.

**Line of activity:**

Intelligent Oilfield

**Review:**

“Digitalization of oil companies is one of the main topics from an industry development perspective as well as that of the Russian economy in general. The introduction of advanced technology has become mandatory. Without the competent implementation and use of digital systems, today it is simply impossible to reach target production indicators. The development of integrated modelling unleashes huge opportunities for Russian companies, striking examples of which can be found at the sites of some of the largest global deposits where this technology is being effectively applied. However, projects of this scale are few and far between, even on an international level. Certainly, we

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are proud of the work done. The experience gained is of great value for the further development of the entire oil and gas industry,” stated **Vadim Voevodkin**, General Director of LUKOIL-Engineering LLC.