Naftamatika
Smart oilfield

Lukoil

ЛУКОЙЛ
НЕФТЯНАЯ КОМПАНИЯ

WellSim® control stations with VFD were installed at Lukoil Komi facilities. The operational analysis was conducted by specialists from "Lukoil-Engineering" and "PechoraNIPIneft."

Achieved results:

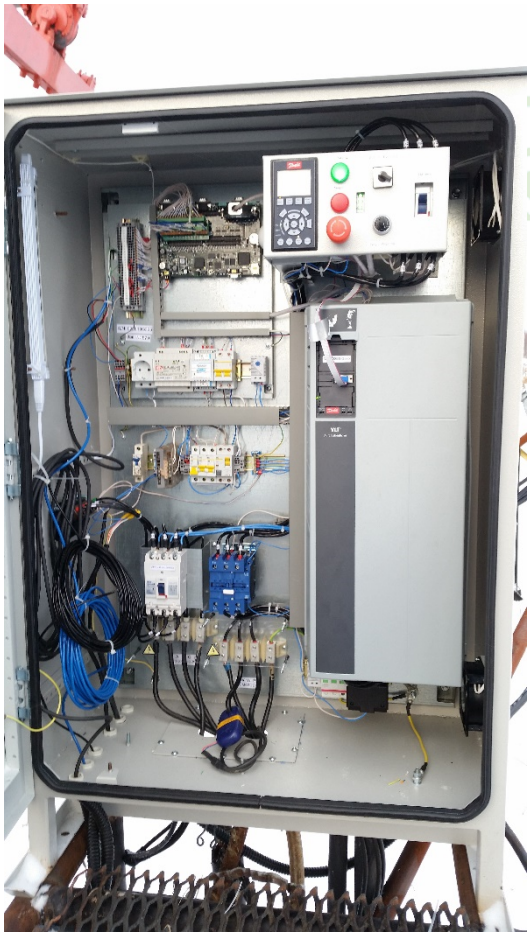
- Reduced energy consumption: 20-67%

- Increase in production 0.8 m3 / day for 1 well

- The accuracy of the calculated flow rate to the actual (according to the readings of the meters and flow meters GZU-SKZH and TOR) within 5%, subject to preliminary calibration

- Profit of 1.8 million rubles (~20 000 USD) per year per well

* data provided by specialists of "Lukoil-Engineering" "PechoraNIPIneft"



Energy efficiency:

Well. No. 4 and 6, an increase in electricity consumption was recorded after the introduction of the control system, which was associated with a significant increase in the continuous operation time of the sucker rod pumping unit as a result of the optimization of the operating mode - in fact, these wells switched to a constant operating mode. At the same time, the increase in electricity consumption was offset by additional oil production from wells.

SRP Units working mode optimization:

The operating mode of the sucker rod pumping unit was optimized for three wells of the field, which worked before the introduction of the control system in a periodic mode, the additional oil production was 2.2 tons / day. Well. No. 1, 2 and 3, the operation of the sucker rod pumping unit did not change, since the wells before the introduction worked in a constant mode with parameters close to optimal (filling the pump by 85-95%).

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№	Ql after, m^3/day	Specific energy consumption, kW*h/m^3		Change in electricity consumption, %	Success criterion
		Before	After		
1	16.8	20.41	16.16	-20.8	Yes
2	33.8	8.69	6.62	-23.8	Yes
3	9.2	37.25	28.63	-23.1	Yes
4	2.7	8.57	26.5	+67.7	No
5	2.8	42.38	13.75	-67.6	Yes
6	7.5	7.94	8.12	+2.26	No

№	Mode		Optimisation	Ql, m^3/day		Change in production m^3/day	Kf		Success criterion
	Before	After		Before	After		Before	After	
1	Continuous	Continuous	No changes	19.8	16.8	-3.0	0.61	0.52	No (the decrease in production occurred due to decreasing of reservoir productivity after independent full well overhaul)
2	Continuous	Continuous	No changes	33.3	33.8	+0.5	0.73	0.74	No (production identic)
3	Continuous	Continuous	No changes	9.3	9.2	-0.1	0.90	0.90	No (production identic)
4	1/23	8/16	+7 h/day	0.7	2.7	+2.0	0.3	0.36	Yes (production increase)
5	12/12	Continuous	+12 h/day	1.2	2.8	+1.6	0.06	0.15	Yes (production increase)
6	12/12	Continuous	+12 h/day	5.5	7.5	+2.0	0.35	0.47	Yes (production increase)