

SGK Rigs upgrade Gaining Values

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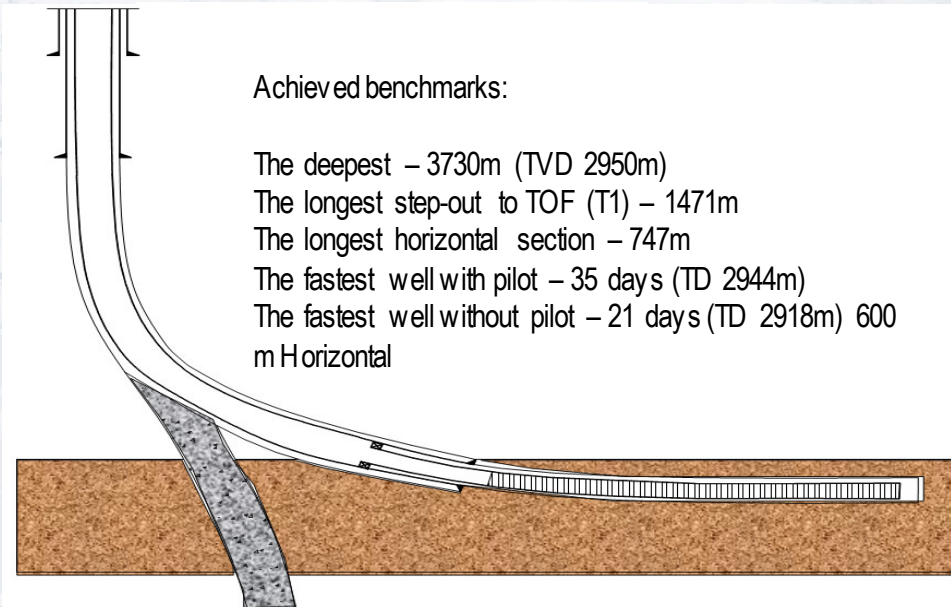
IPM SWE

SGK-Drilling

Moscow, January 19th, 2010

SGK-Drilling Overview

- Owned by Slb in 2004
- General drilling contractor
- Two affiliates:
 - Nefteyugansk (NF)
 - Strezhevoy (SF)
- S-shape and horizontal wells
- 17 rigs fleet



Why Doing Rigs Modernization....



- Create safe working environment for Rig Crew
- Improve SGK Service Quality
- Recognized as leader on Integrated Drilling Services Provider in Russia
- Optimize Well construction cycle (Time)
- Build long term client Business relations

Strategy to improve SGK Service Quality

Drilling department

- Modernization of existing rig fleet
- Buy new rigs
- Preventive maintenance program for rig equipment
- Buy new western Solid Control Equipment ,Top Drive Systems and cementing units.

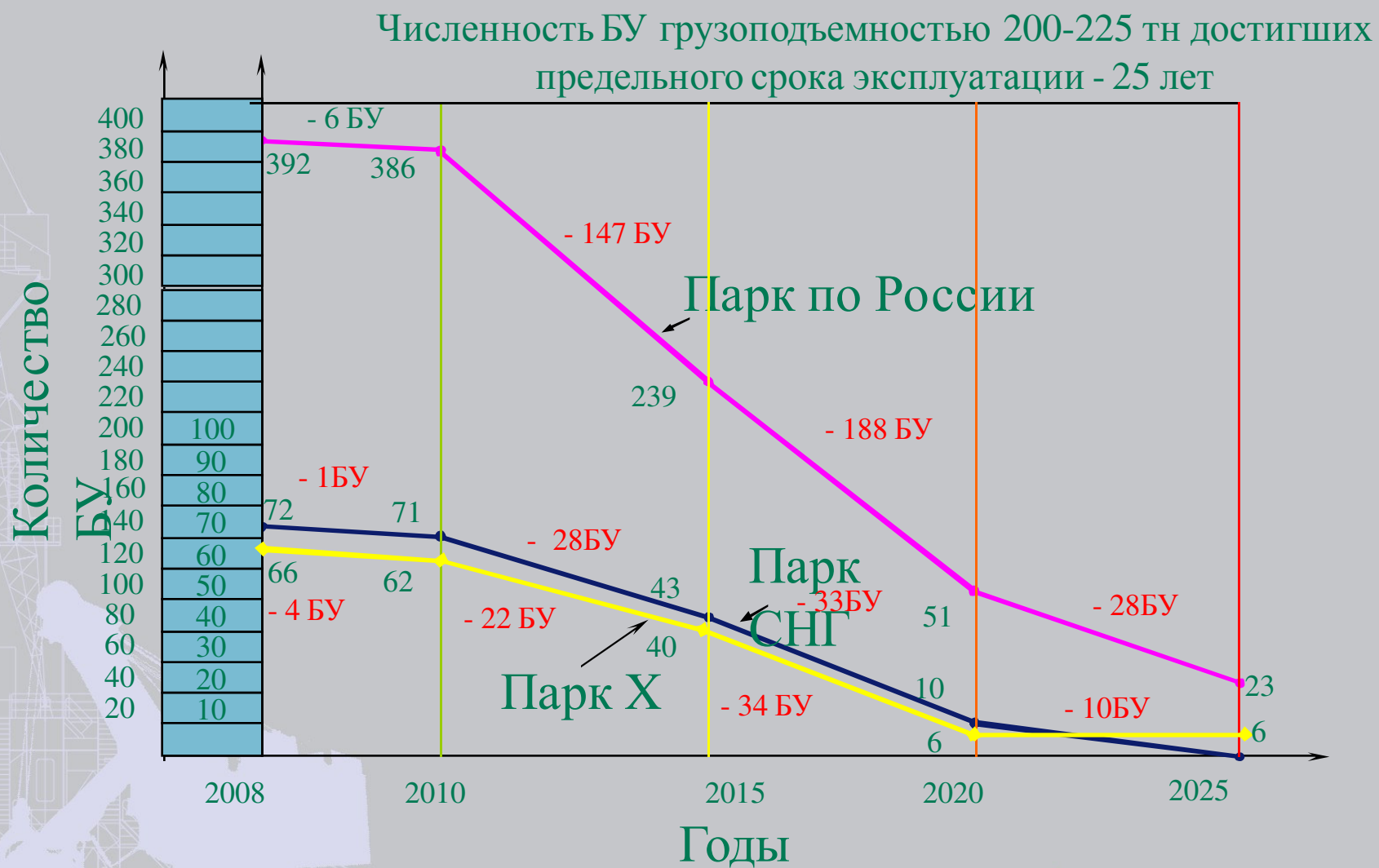
Drilling / WCI department

- Train Rig crew / personnel
- Arrange periodical WSS & TP assessment / Audit
- Use Oilfield standards practice to improve the personnel knowledge.
- Arrange yearly training course.

WCI department (Technology optimization)

- Implement standards and procedure for drilling operations
- Real time monitoring Data center (RTDC).
- DHT Design optimization
- Reduce numbers of control survey
- Improve the skidding time
- Optimize the bits design and selection

General Rigs life time in RUSSIA



SGK Modernization Options

1- New BU 3900 (BU 3000 is no longer produced)

2- Rig modernization with new mast and substructure is approx.

3- Using the old mast, mud tanks and substructure we spent approx.

The Second option was chosen after technical assessment and Cost Analysis....

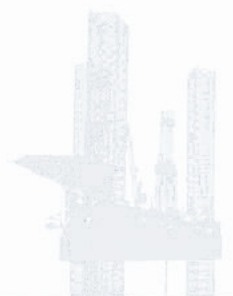
Picture of SGK rig Before Modernization



Picture of SGK rig After Modernization



What was done for Rigs Modernization



- ❖ Both mud tanks and skidding systems were extensively changed and upgraded.
- ❖ All solids control and mixing equipments are new. Properly sized centrifugal pumps.
- ❖ BOP related piping replaced by high pressure flexible hosing (reduced rig up time)
- ❖ Triplex pump with variable speed (better flow rates and control)
- ❖ Tesco Top drive.(Reduced risk of stuck pipe and faster ROP's)
- ❖ Drillers cabin with monitoring screens and cameras
- ❖ New hydraulic casing tongs.
- ❖ Double stand pipe and kelly hose for redundancy on rigs for horizontal wells.
- ❖ New atmospheric (poor boy) and vacuum degassers.
- ❖ Trip tank inside mud room . Flow meters and tank levels measured (well control)
- ❖ Real Time Data Center (on line monitoring and data gathering of all wells being drilled)
- ❖ Plastic liners for all waste pits were waste pits are allowed. (reduced ecological foot print)
- ❖ Improved office and living accommodation . (morale and well being of rig crews)

Mud System in SGK Rig before modernization



Mud System in SGK Rig After modernization



Drillers cabin before and after.



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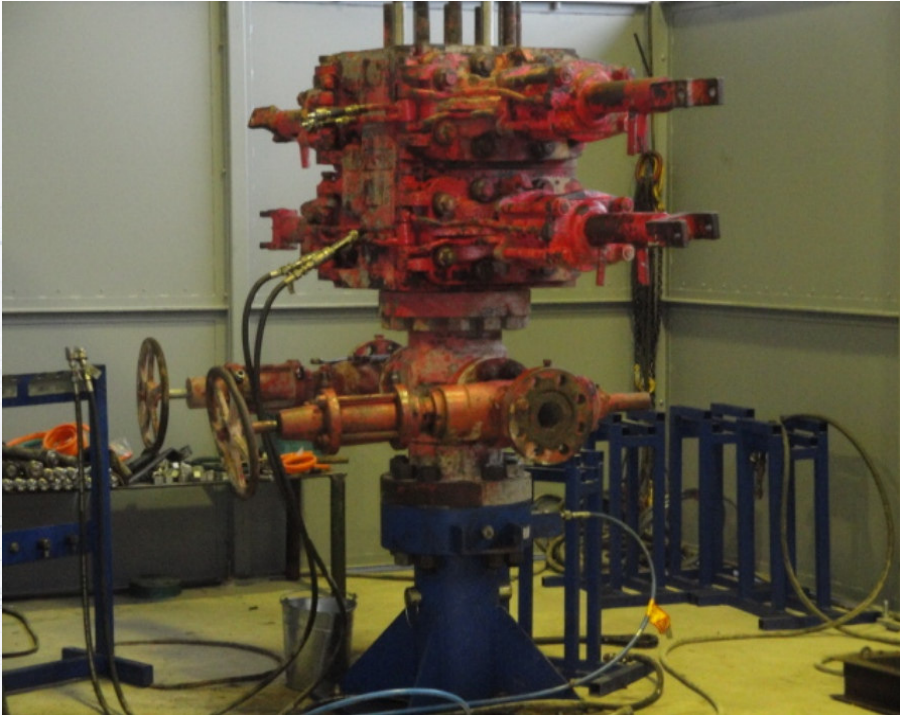
Shale shakers and Vacuum degasser

Mud cleaner →



Poor boy degasser

High pressure testing bay



Rig Modernization... Benefits & Results for SGK (01)

Solids Control Upgrading



New solids equipment ensures less surface losses, less chemicals used (Cost control)

Less casing and tripping problems due to mud quality improvement.

Improved hole stability.

Better quality of mud & cement slurries through rig laboratory tests and advanced laboratory equipments

Rig Modernization... Benefits & Results for SGK (02)

New cementing Units

New cementing units CPS-361 include water , blending and storage tanks.

Can be used in autonomous mode which removes the need for large vehicle fleets for one cement job

Constant monitoring of cement slurry ensures better quality of cementing job.

No need to mobilize and demobilize after each cement job and less man power to operate.



Rig Modernization... Benefits & Results for SGK (03)



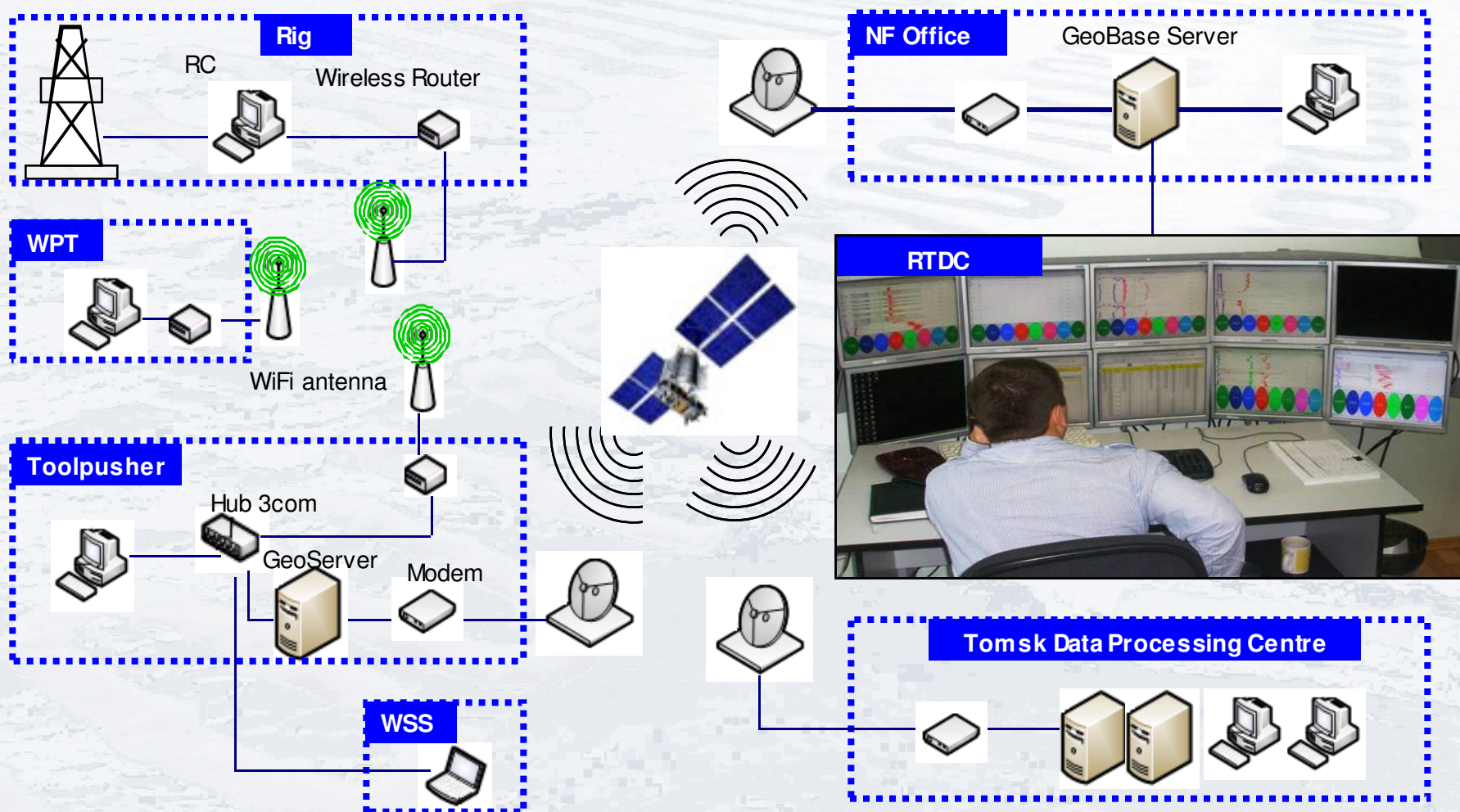
New TOP DRIVE

Improved ROP through better hole cleaning. Reduced risk of stuck pipe. Back reaming and pump out capability.

Faster remedial action due to fast connection at any time during tripping.

Rig Modernization... Benefits & Results for SGK (04)

RTDC (Real Time Data Center)



Rig Modernization... Benefits & Results for SGK (05)

RTDC (Real Time Data Center)

SQ Investigations and lessons learned (Camera installed on the rig floor & crown block).

Hole Cleaning Optimization based on Real Time Data Analysis

Prevention – Pro-Active Detection of Events & Decision making

24/7 Operations Support

Higher level of service quality which lead to significant value for client and SGK

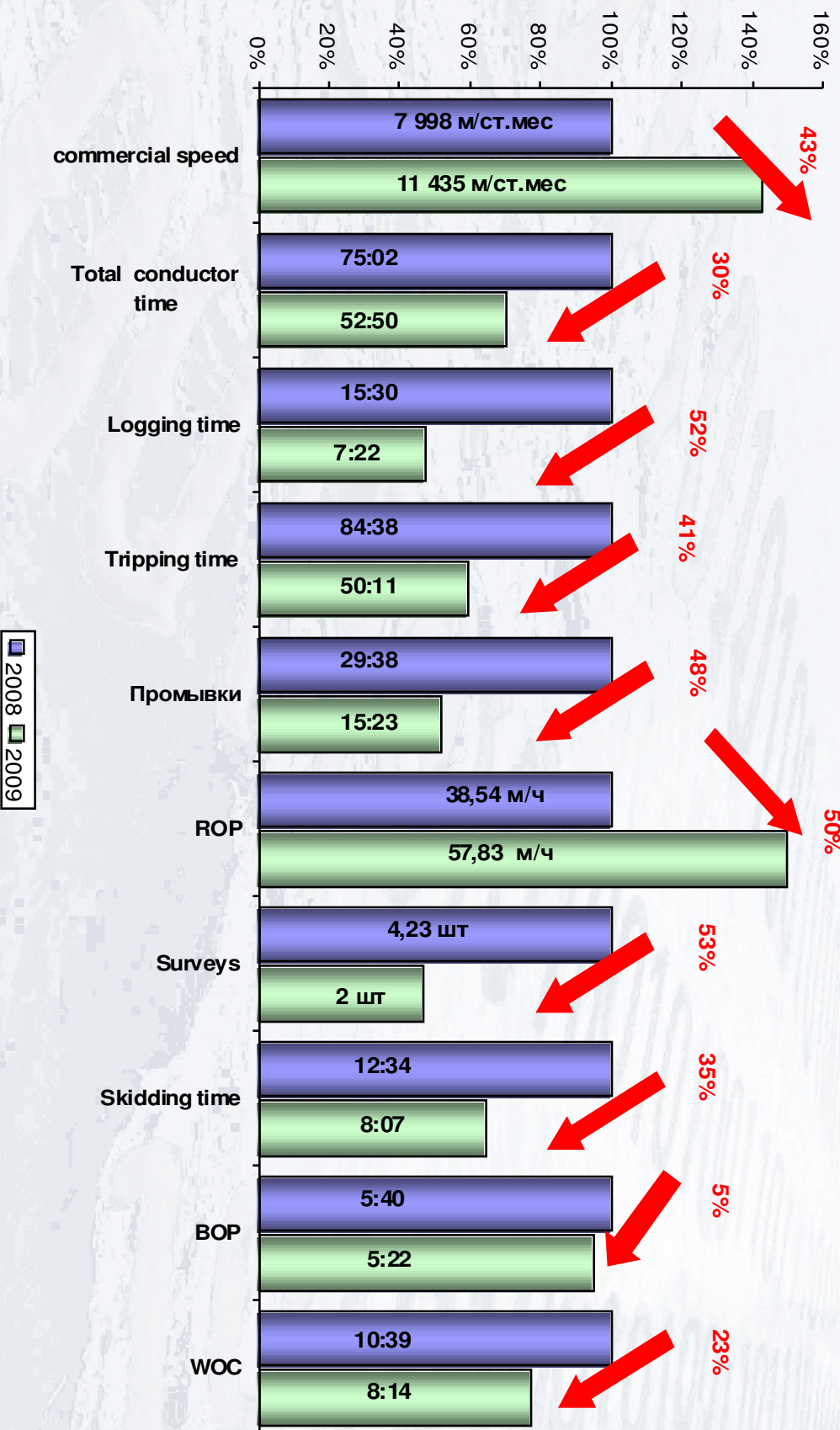
Number of NPT hours / 1000 m drilled reduced by 40 % in 2009 vs 2008

Cumulative Well cycle reduced by 33% in 2009 vs 2008

Wells are delivered ahead of clients plan

Total 35.3 days earlier production = early income for client

Drilling operation improvement 2009 vs 2008 Results



THANK YOU

