Neftegaztekhnologiya

Creation of vertically oriented small diameter lateral channels BV_02 in horizontal open hole wells

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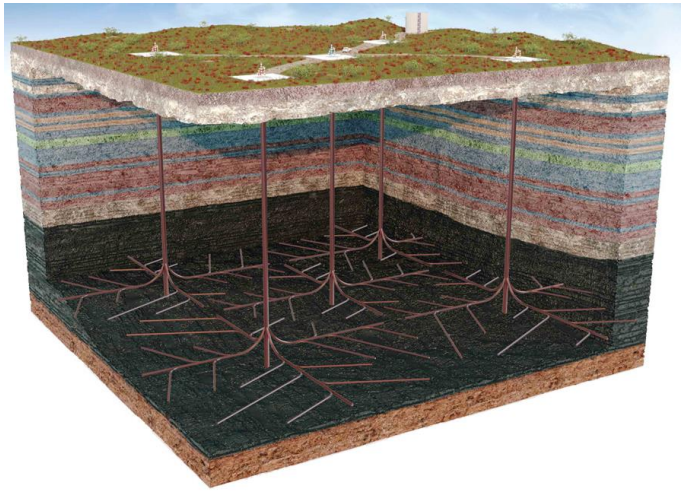
ver. 2

О развитии технологий Blood Vessels (BV)

BV technology goal – creating network of channels, controlled by power and distribution, which provides for maximum achievable coverage and area of well drainage, decreases formation anisotropy, involves in development hydrocarbons reserves which previously could not be recovered.



Currently we have equipment and actively introducing **technology BV_01 for operations in vertical and deviated wells with 146 / 168 mm casing.** The product is controlled water jet creation of multiple long radial TAML2 filtration channels in producing formation.

Trajectory control is realized by means of autonomy inclination angle module, stepped drilling of wellbore and correcting of bottomhole assembly as needed.

Concept of BV_02 technology for operations in horizontal openhole wells is created. The goal is to create vertically oriented small diameter lateral channels.

For the BV_02 introducing the rest is needed:

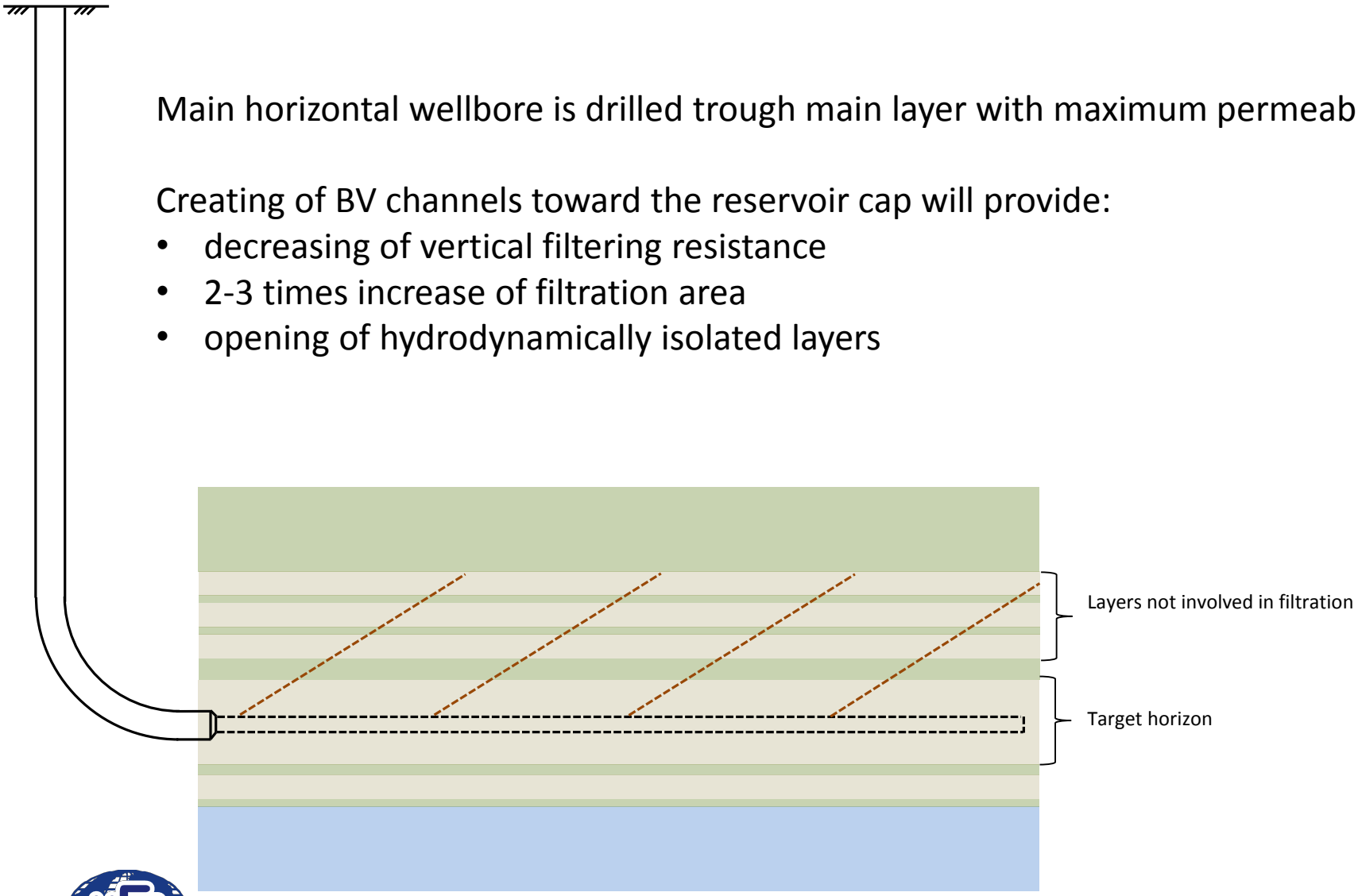
- Designing, manufacturing and yard tests of set of additional pieces of equipment for operating in horizontal sections;
- Testing part of the new equipment for BV_02 during BV_01 job at vertical 146mm cased well;
- Trial BV_02 job at horizontal open hole well.

BV usage in horizontal wellbore

Main horizontal wellbore is drilled trough main layer with maximum permeability.

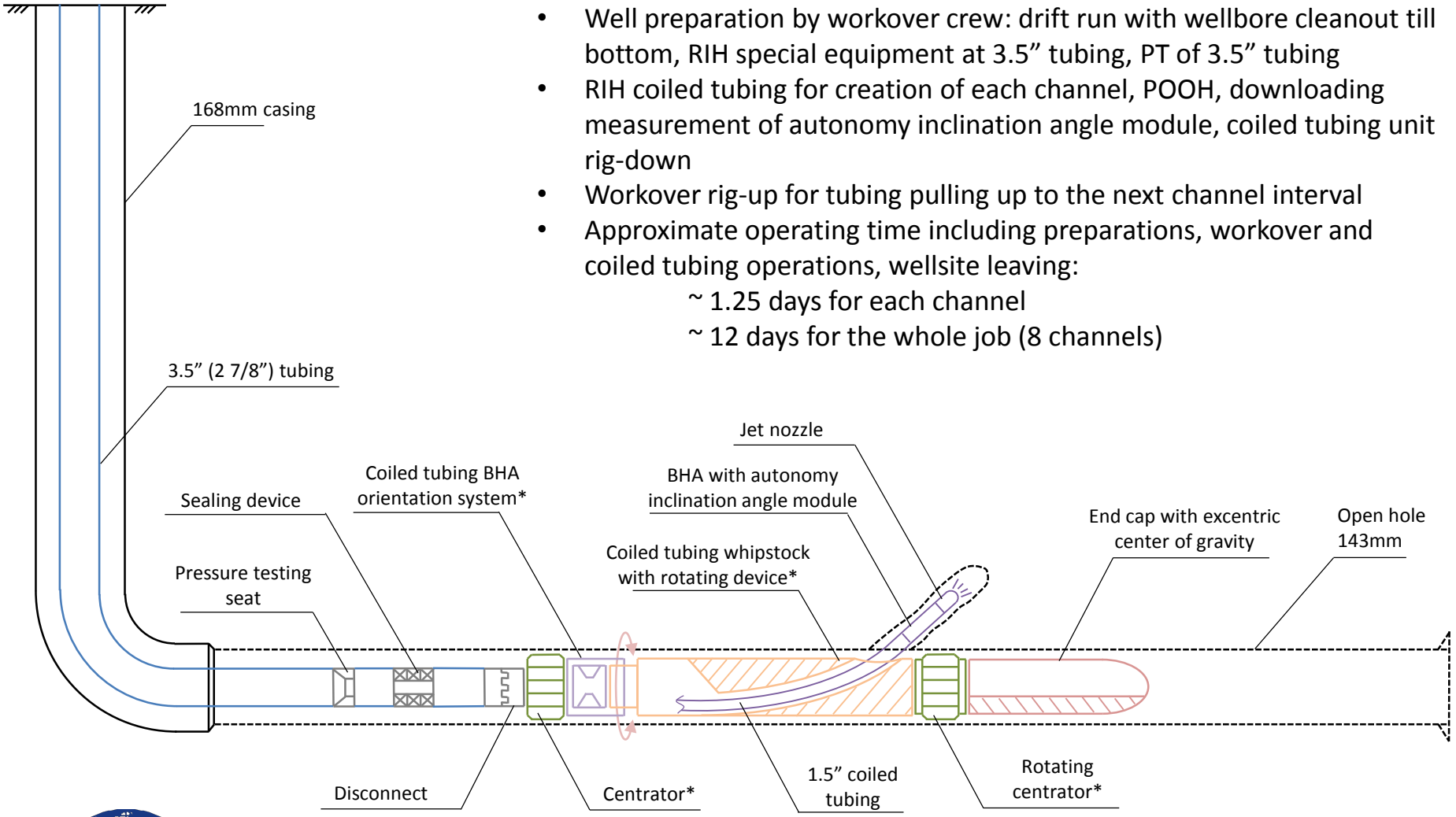
Creating of BV channels toward the reservoir cap will provide:

- decreasing of vertical filtering resistance
- 2-3 times increase of filtration area
- opening of hydrodynamically isolated layers



BV channels creation in horizontal open hole

- Well preparation by workover crew: drift run with wellbore cleanout till bottom, RIH special equipment at 3.5” tubing, PT of 3.5” tubing
- RIH coiled tubing for creation of each channel, POOH, downloading measurement of autonomy inclination angle module, coiled tubing unit rig-down
- Workover rig-up for tubing pulling up to the next channel interval
- Approximate operating time including preparations, workover and coiled tubing operations, wellsite leaving:
  - ~ 1.25 days for each channel
  - ~ 12 days for the whole job (8 channels)



* - devices needed to be designed and manufactured for BV_02 equipping

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Thank you for attention!

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