

High quality signals came over night

Extensive survey of the subsurface: using 3D seismic, the Wolgodeminoil team hopes to be able to identify small, oil-filled reefs at a depth of 3000 metres.

Wolgodeminoil, a 50/50 joint venture between Wintershall and Lukoil, has been successfully producing oil for 15 years. The company's concession area covers 13,642 square kilometres and is situated in the Volgograd region (Russian Federation), where several thousand wells have been drilled over 60 years of exploration history.

"The chances of finding another elephant field in this region has become increasingly smaller", says Michael Herzog, Exploration Mana-



Three vibrator trucks produced the seismic energy to penetrate the rock. Foto: Wintershall

ger at Wolgodeminoil. The company's latest discovery, the "Nemirovskoye" field, has however encouraged them to search for similar, small reefs using state-of-the-art, high resolution 3D seismic technology.

"Now is the perfect time to apply this technology", explains Herzog enthusiastically.

"Firstly, the current oil price situation enables the economic development of smaller reservoirs and secondly, the local seismic contractors now have up-to-date technical equipment at

their disposal. Furthermore, they have managed to gain much experience in this particular area." He continues: "We expect to be able to identify tiny reef structures less than 30 metres in height at a depth of around

3000 metres. These reservoirs contain between 100,000 and one million tonnes of light crude oil. Last but not least, the infrastructure required at the surface is, on the whole, already existent."

In view of the experience that Wintershall gathered in 2003 using 3D acquisition in Southern Germany, the Wolgodeminoil team chose a similar method for the 3D survey in the licence area.

"We actually prefer to gather our seismic data in the winter when the ground is completely frozen and the farmers are not growing any crop. The last winter was, however, unusually warm and the surface remained muddy. We therefore had to postpone our survey until the summer and acquire data within the short time frame between the harvest and agricul-

tural preparations for the winter", explains Herzog. "We had to work around the clock collecting data in order to meet the deadline set by the farmers and the local authorities."

Thanks to the outstanding cooperation between Wolgodeminoil, the seismic contractor (VolgogradNefte-Geophysika/VNG), the authorities and an independent HSE and technical advisor (Geophysics IGS), the programme was successfully completed.

The wind turned out to be a permanent problem, blowing strongly across the wide fields and disturbing the geophone signals. Herzog: "Luckily, the wind died down towards the end of the day which meant we could record high quality signals over night. We are now waiting for the data from our survey to be analysed."

(mh)