



Exploration and Beyond

WGP's containerised Portable Seismic Source shooting a 4D monitor survey at the Valhall Field, North Sea.

Exploration and beyond is the philosophy behind WGP, a small independent geophysical company dedicated to developing solutions and services towards the next generation of energy supplies

PAUL WOOD

In these days of giant seismic vessels towing 20 or more streamers, the seismic acquisition market is more or less dominated by a few large service companies. So it comes as quite a surprise to find a flourishing independent geophysical services organisation operating from a quiet back street in a small village near Bude in North Cornwall, UK.

WGP'S EARLY DAYS

The WGP Group was started by the present Chairman, John Duncan. John was previously a marine engineer in the Marine branch of the Royal Air Force, and later worked for Horizon Exploration before setting up his own company, Westland GeoProjects, in 1994. Initially a family concern, the company offered geophysical consultancy and then seismic acquisition management services and crewing for the vessel 'Geomariner'. They

developed contacts with Russian seismic operators such as Sakhalin-based DMNG who were trying to improve their quality and HSE standards and develop global markets. WGP was contracted to provide services for these global operations that grew further as DMNG took a second vessel into non-Russian markets.

It was important to be flexible to meet increasing demands. Mark Burnett, now WGP's Chief Executive Officer, said, "I ini-

tially joined WGP to work on the Geomarer, which was then converting to a shallow water vessel in the Gulf of Mexico. But I was called back to the office to help coordinate operations, which ranged from Poole Bay in the UK to the Caspian Sea, and included work for bodies like the Spanish Oceanographic Institute”.

CHALLENGING 2D SEISMIC

In the early part of the last decade WGP was asked to take over running the second DMNG vessel, the ‘Geolog Dmitriy Nalivkin’. Having worked with PGS in Norway, Fugro in the Barents Sea and secured projects in Libya, the company was next awarded a three season contract with TGS-Nopec to acquire 15,000 km of 6 km offset 2D seismic offshore Greenland, commencing in 2007. This challenging project included the most northerly commercial marine seismic recorded at the time, and hazards such as adverse weather, airguns freezing up and icebergs with erratic movements that had to be plotted and monitored by chase boats.

“The experience gained in mitigating HSE risks in difficult circumstances stood us in good stead when, in 2008, we continued our relationship with TGS with a 2D project offshore Somaliland,” explains Mark. “The survey, although away from the main areas of piracy, required a risk review exercise and mitigation plan that developed good contacts with local leaders. It included security vessels and an update of the inadequate old charts using a chase boat. We successfully completed the project in four months, without a safety or security incident”.

With these and other projects, WGP has built a niche position operating in challenging areas. It has worked with a number of companies, including Fugro, PGS and CGGVeritas, who may not have had the immediate resources for such tasks. However, towards the end of 2008 the company saw a drop in the demand for 2D and relinquished the Nalivkin, though the equipment has been stored ready for when the market exhibits significant recovery. As Mark Burnett says “we need to be not only cost-effective, but on par or technically superior to other service providers”.

LIFE OF FIELD SEISMIC

WGP’s main work now involves time-lapse 3D, or 4D, seismic. More specifically, in fact, Life of Field Seismic (LoFS), where 3D surveys are repeated at intervals across the production life of an oil or gas field to monitor the behaviour of reservoirs and fluids. This



Re-deployable OBC LoFS system in operation near a platform in the Caspian Sea

work fits the group’s philosophy ‘Exploration and Beyond’. What does this mean? Mark Burnett explains: “Our geophysical data acquisition services are aimed at exploring for new hydrocarbon reserves but also move well beyond exploration, into the production sector, providing services expected to increasing the value and output of active reservoirs. But more than that, this phrase describes the whole culture of the company - going the extra mile, creating a meaningful workplace, putting something back into the local and international community and developing solutions and services towards the next generation of energy supplies”.

WGP has been pursuing these goals since 2003 when the company became involved in BP’s Valhall LoFS project (see

also *GeoExpro* Vol 6 No 5). BP had installed trenched ocean-bottom cable (OBC) systems and wanted a modularised and containerised seismic source with which to carry out repeat surveys. It contracted WGP to design the system which included a compressor system, gun frame and winch for deployment, 2,000 cu.in. air gun array and an instrument room. BP purchased the system and conducted 11 repeat surveys but in 2010 put the work up for tender, awarding WGP the contract to conduct the next 7 surveys. It completed survey 12 in 2010 and will record two more in 2011, with equipment that can be installed or offloaded onto an oilfield supply vessel within 12 hours.

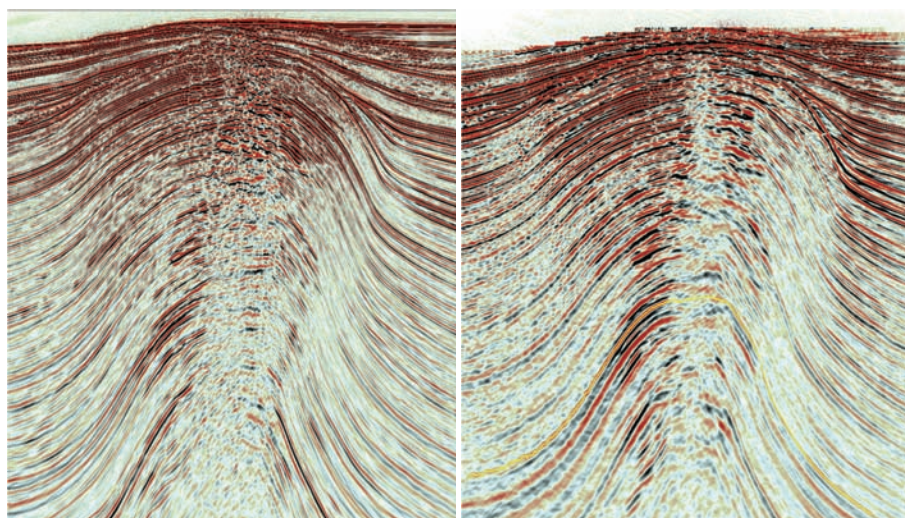
Based on its experience with the portable seismic source, WGP has upgraded the design ▶

and, together with Thalassa Energy Services, offer the Portable Modular Source System (PMSS) - a containerised source with a 2,900 cu.in. airgun array. As the need to extract the maximum amount of hydrocarbons from reservoirs increases, it is likely that more ocean bottom cable or ocean bottom node (OBN) LoFS systems will be installed. They offer better repeatability and signal-to-noise when compared to towed systems and the PMSS provides a portable source that can be deployed quickly onto existing work boats to minimise any down time associated with the repeat surveys. The PMSS is also ideal for other work needing a portable source such as shallow water surveys, undershooting, or VSPs.

CHIRAG AZERI RESERVOIR SEISMIC PROJECT

A development of the LoFS concept has now provided WGP with what is probably their most exciting project yet. BP, operator of the AIOC (Azerbaijan International Operating Company) partnership, decided to install an LoFS system on the giant Azeri-Chirag-Guneshli oil field complex, which is in 400-500m water depth in the Caspian Sea. The system was to cover the Chirag and Azeri sectors and became known as the CARSP (Chirag Azeri Reservoir Seismic Project). Because of the size of the fields and also the considerable in-field activity, BP decided to have a re-deployable OBC system rather than a trenched one.

WGP was contracted as the Lead Service Provider to design, install and operate a modularised system that could be deployed from a single multi-purpose vessel. It treated this as a project management exercise and came up with a system that will deploy and retrieve some 140 km of cables (132 km of 4C receivers plus connecting cables) and shoot from the same vessel. A key component of this system is the remotely operated vehicle (ROV) that ensures receiver touchdown to



Comparison of surface (streamer) vs. OBC data from CARSP: (left) AGC towed streamer (right) AGC OBC.

Images courtesy BP Exploration (Caspian Sea) Ltd

an accuracy of 2m and also makes cable connections underwater.

A UNIQUE ETHOS

WGP's operation in Azerbaijan is the world's largest redeployable ocean bottom cable seismic project using an ROV. Unique skills are required and many of the on-board staff have a background in telecommunications cable laying. Between 2007 and 2008 the company completed three baseline surveys over separate areas of the fields and also conducted two repeat (4D) surveys, and in 2010 commenced Phase 2, with three new baseline surveys and one repeat. For 2010 it has a larger vessel, giving more flexibility such as an ROV that can also perform wellsite interventions, as well as having improved onboard facilities. This cutting-edge operation has presented safety challenges and it has implemented several innovations to solve problems and improve safety.

"There's a positive and proactive culture of HSSE onboard and throughout corporate facilities", says Mark. "As a company we have

a unique ethos and philosophy". That ethos is reflected in the company's premises in the village of Kilkhampton. The site hosts a gym and bowling alley, available to staff and their families, and they have allotments in the grounds where staff can grow vegetables. James Pryor, WGP Sales & Business Development Executive, says "we have an extremely close knit team with a desire to succeed in an extremely tough market, and we're proving that it can be achieved".

FUTURE PLANS

And the future? There are hints that there may be movement in the specialist 2D market. WGP has been contracted by Surestream Petroleum to convert an ex-UN vessel 'Tangyanika Explorer' to acquire 2D seismic in the Burundi sector of Lake Tangyanika. The vessel will be widened to improve stability and a 3km streamer and 500 cu.in. source installed. Operations are expected to start in 2011. "But we see the biggest potential in LoFS, says Mark. "We have concepts for future investment that include purpose-built vessels for a deployable cable or node LoFS system. We acknowledge that the main focus of 4D surveys to date is with steerable streamers. Pilot projects may be required to demonstrate the improvements that can be obtained with OBC or OBN, so our business plan includes such pilots."

"We're looking towards the downward curve from peak oil", Mark continues. "That's what Exploration and Beyond is all about. Our roots have been and remain in geophysical project management. We have the skill sets that can be used for interesting and challenging projects that maximise remaining oil recovery".



James Pryor (left) WGP Sales and Business Development Executive and Mark Burnett (right) WGP Chief Executive Officer

photo: Paul Wood