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Q&A with Bill Kikendall
& Harry Maxfield

The Scientific Drilling Vessel Chikyu will Drill to new Depths in a

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Offshore: A Growing Demand for

Floating Production Systems

Cable Laying

Tyco Telecommunications Geared for Growth



Around the World, ROVs in Action

by Maggie L. Merrill

The effects of Hurricanes Katrina, Rita and Wilma are still gripping much of the Southern United States, as the devastation so vast that it will take a decade to rebuild ashore. Offshore, however, the scene is a bit different, as there are fewer politics and fewer people to relocate. The web of underwater pipelines, shut in wells, damaged drilling and production rigs are slowly coming back on line. There are U.S. Energy Department estimates that six percent of the nation's total refinery capacity is still shut off because of all the destruction ashore and at sea.

While the memories of the hurricanes and the devastation has naturally faded a bit, more than half a year later there is still vast amounts of work ongoing in the Gulf of Mexico. Cleaning up after the hurricanes' aftermath is still sucking support ships, ROVs and all manner of underwa-

ter equipment out of circulation for other work in other parts of the globe. Consequently, there is a scramble in the ROV business to service other areas where there is significant offshore work underway, including the North Sea, West Africa, and China. There is also new deepwater oil exploration and infrastructure installation work to be done in the Gulf of Mexico, once again, resources are all geared toward clean up and repair.

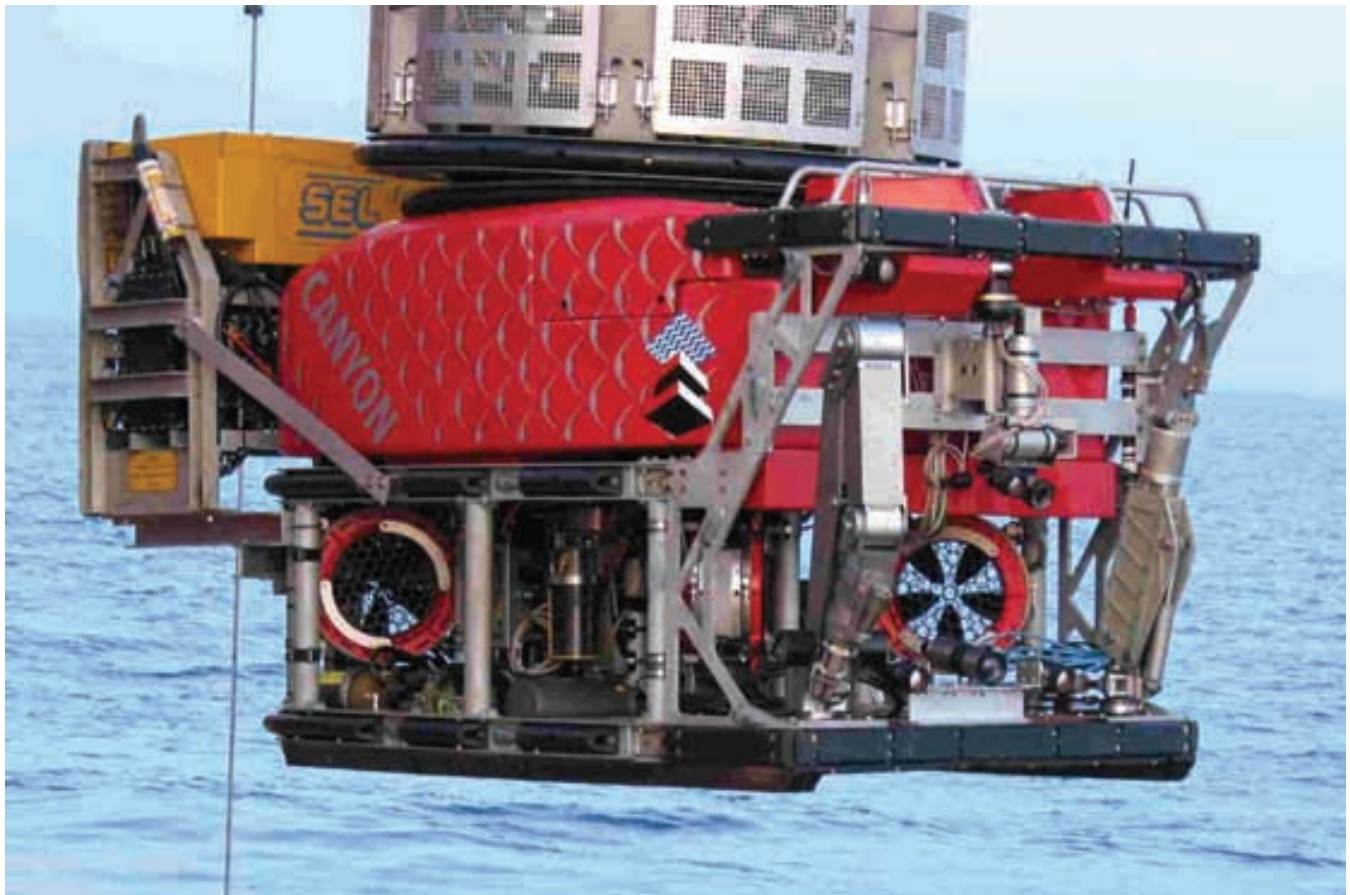
Large ROV with Lots of Coms

While there are many in the business; several stand out as long-term players with major investments in people and technology. Schilling Sub-Atlantic Alliance, director of Remote Systems Applications, Norm Robertson spoke to MTR recently on the matter. Schilling builds the highest specification heavy work load ROVs for use in offshore oil, gas and pipeline and cable laying operations. The Ultra Heavy Duty (UHD) ROV is the company's biggest and brightest machine to date, rated to operate at 4000 m. It incorporates the Schilling Digital Telemetry System (DTS), which easily quadruples the number of sensors that can send a signal up the cable to the control unit. This is important because until the DTS, adding sensors has been a trade off between weight, bandwidth and cable size and ultimately performance.



Remote Systems Application Director, Norm Robertson of Schilling Sub-Atlantic shows off the Digital Telemetry System they now install on all their ROVs.

(Photo Credit: Maggie L. Merrill)



The **QUEST electric work-class ROV** (shown here with a tool deployment unit) can perform a wide range of tasks, from offshore construction support to salvage, mapping, remote tool deployment, and object recovery. (Photo credit: Schilling Sub-Atlantic)

According to Roberston, one of the most important innovations in the ROV operations business has been the DTS. It is amazing how many more sensors can be added and to what was usually fairly limited at depth. Fully loaded vehicles with multiple sensors can operate and feed data easily to the control station. The unlimited bandwidth using fiber optic transmission on gigahertz ethernet back bone system really revolutionizes capabilities at depth in a harsh environment with a heavy work vehicle. The DTS will drive bathymetric sensors, Doppler velocity logs, forward seeking sonar systems such as the Blue View and/or the Didson, which take super high resolution sonar images. It's great to finally have a connection system that virtually any piece of equipment can simply be plugged in and it will be recognized much the way a computer senses when a new device has been connected.

The Schilling DTS signal box measures about 12 x 12 x 6-in. It operates on a fiber optic cable using Ethernet technology to enable multiple instrument plug and play capabilities. It was developed specifically for the needs of

several clients who had signal heavy data to send up the cable. The Schilling DTS connection enables the operator transmit super high definition video to the surface for undersea inspection, broadcast and research purposes.

In May Schilling Robotics expects to deliver its sixth ultra heavy duty ROV UHD to Phoenix International for use in the Gulf of Mexico. This vehicle will offer 200-shp power (generating 1.4 tons of thrust) to a 3,500 m depth. The system will include Schilling's XE extended TMS tether management system with 600 m of tether. "We are pleased to be taking delivery of two of the UHDs. They will go right into service in the Gulf of Mexico supporting subsea oil infrastructure replacement and repair. There is so much work to be done in the Gulf that we are making a huge investment in tools and ships to provide solutions," said Tim Janaitis, Phoenix International. Phoenix has been providing salvage, diving and submarine rescue support to the U.S. Navy for years and they are well known in the Gulf of Mexico for their expertise in technical welding and advanced dive support operations.

Phoenix will place the two Schilling UHDs in service in the Gulf aboard one of their three support vessels by mid-July.

Electric ROVs

"Electric ROVs can be very handy, if you give them a chance," said Chris Tarmey of Seaeeye Marine Limited. There is no doubt that the beefy, very heavy duty ROVs, such as the Hydrovision are the best tools to do certain tasks that require a lot of torque. But, there are plenty of tasks that the lighter, less cumbersome and less expensive ROVs can do. In some cases the electric versions of heavy work vehicles can cost up to half. It makes sense, the electric vehicles are lighter, they require smaller tether management systems and they take up less space on deck, which means they can go on smaller support ships that run on less fuel with fewer personnel.

ROVTECH is a full service ROVs for offshore oil and gas work all over the globe. Based in Aberdeen and Singapore, ROVTECH owns and operate more than 40 ROVS of varying size and specifications. ROVTECH's vehicles and services are comprehensive, and they provide trained and certified personnel to offshore operations. They operate several different types of ROVs, Seaeeye being their largest inventory item. The type of work that they do includes rig inspection, high pressure jet washing, large valve tightening, cable cutting, pipeline tracking, drill completions, and more. ROVTECH reports they have 22 ROVs stationed in the North Sea; four in

Azerbaijan, one in China, two in Malaysia; two in Angola and one in Tunisia.

The ROVTECH team is expert with any sort of tool, in fact their tool guy, Ian Harvey has created a battery of clever tools that are attached to the bottom, sides and manipulators on all their vehicles.

ROVTECH requested that Seaeeye develop an all-electric vehicle for heavy work underwater. That vehicle is the Panther 2, which has a high thrust to weight ratio. The Panther 2 has been fitted with a special valve twisting mechanism that enables it to sit on top of the spot that has to be closed or opened and use its thrusters to turn the lid. It's sort of like a space ship with a screw driver coming out of the bottom and twirling around to tighten or loosen the screw. With all these improvements the electric ROVS can accomplish much of what their larger, more beefy counterparts can in less time for a lot less money.

The Majors

Global subsea contractor, Subsea 7 is a major force in subsea completions and pipeline installations all over the globe. The company owns and operates several purpose built ships for surveying, pipeline installation, and cable laying (including a recently ordered pipelay vessel, featured on page 16). Subsea 7 also owns and operates 100 ROVs worldwide. With a workforce in excess of 3,000, it is one of the world's leading subsea engineering contractors. The company's global offshore operations are supported out of Asia Pacific, Brazil, Gulf of Mexico,



Ian Harvey, Tooling Manager for ROVTECH stands behind their SeaEye Panther Plus Electric Work Class ROV.
(Photo Credit: Maggie L. Merrill)



The UH ROV being readied for GeoConsult at the Schilling shop in California. (Photo credit: Schilling Robotics)

Norway, U.K. and West Africa.

To provide an example of the magnitude of the underwater construction work that is available; Subsea7 announced that it was awarded a contract with a value of approximately \$25 million from Talisman Expro Limited for a subsea installation contract in the North Sea. The contract is for the fabrication, installation and commissioning of 10-in. production pipeline tie-in spool pieces, eight-in. water injection pipeline tie-in spool pieces and four-in. gas lift pipeline tie-in spool pieces at both the Ula platform and the Blane drill center which are located in the Norwegian Continental Shelf and on the U.K. Continental Shelf respectively. Operations will take place in water depths of between 70 and 75 m using both divers and ROVs.

A year ago, Subsea 7 was awarded a subsea installation contract for approximately \$28 million from Chevron North America Exploration and Production Company, a Division of Chevron U.S.A. for work related to the Blind Faith Project in the eastern Gulf of Mexico. The contract is for the installation of the Blind Faith in-field flow lines including the associated pipeline end terminations and pre-laid steel risers.

In order for Subsea 7's Integrated Remote Technologies division to actually do the work they have been contracted for, they have to build, buy or acquire the tools. Last year, Subsea 7 contracted with Hydrovision to build 5 Hercules heavy construction ROVs capable of operating at 3,000 m. Around the same time, Subsea 7 was awarded four ROV contracts in West Africa. These include drill rig contracts for Peak Petroleum Industries Nigeria Ltd. and Equator Energy offshore Nigeria, for Foxtrot International for work offshore the Ivory Coast, and for Devon Energy Corporation offshore Angola. Additionally, Subsea 7 is to provide Amerada Hess with ROV services offshore Equatorial Guinea over the next two to three years.

It appears that with the likes of Subsea 7, ROVTECH, Schilling to name a tiny fragment of the major players in the offshore oil undersea construction support industry, all is in good and very strong hands (manipulators). There is a noted upswing in the use of ROVs now that most of them and their support vessels and personnel are still working 24/7 in the Gulf of Mexico. There are some that say they have not yet completed the damage done by Hurricane Ivan that ravaged the Gulf in the fall of 2004.