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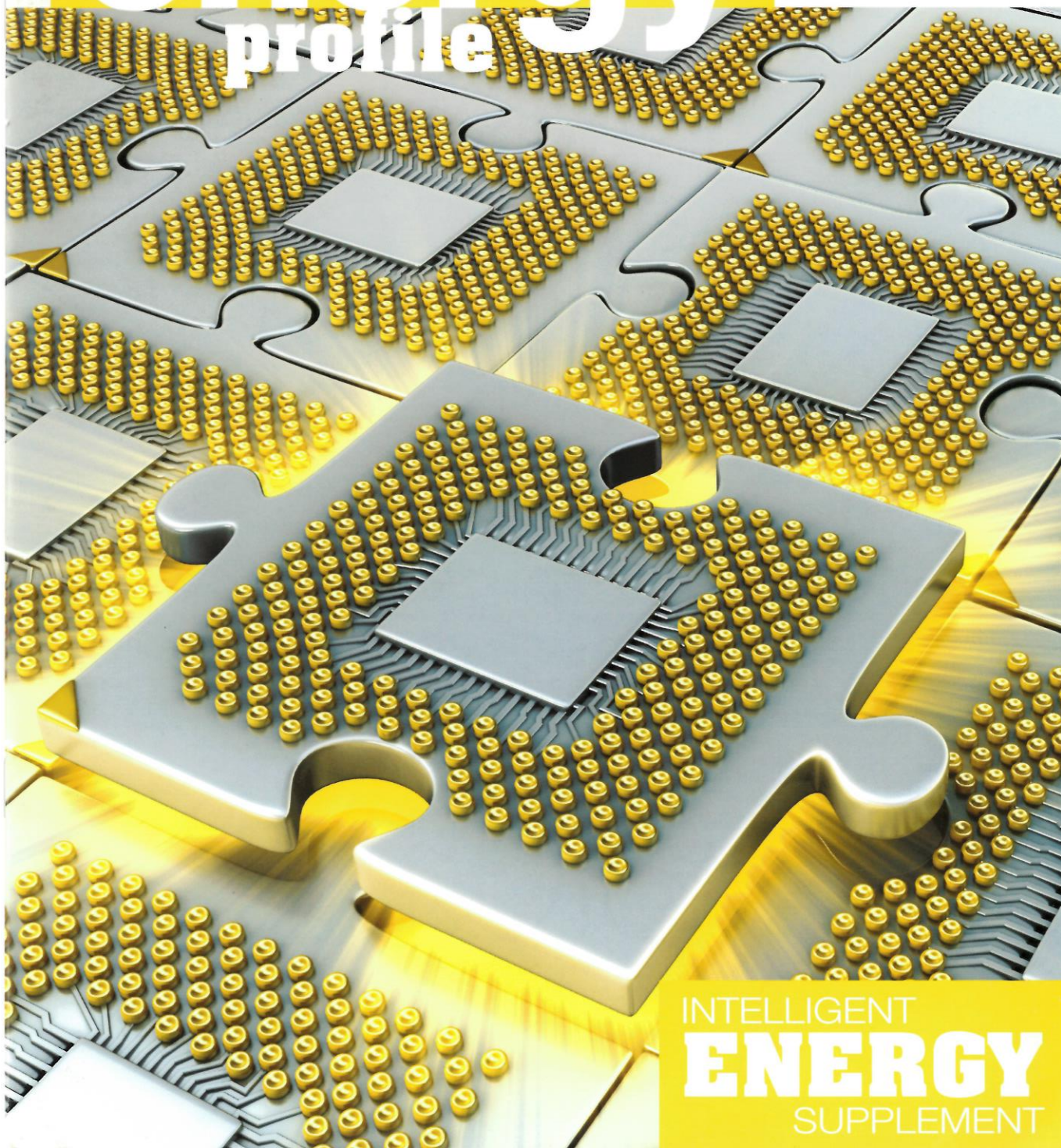
AT THE WELLSITE: Collecting data on time by Geologix's Samit Sengupta

WITSML & GEOLOG: Surface logging at the core of well data management. A report by Gionata Ferroni

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Geolog's core business is acquiring geological and drilling data in real time and transforming the numbers in readily usable information. Over 25 years in the business have taught Geolog a lot about how to manage the data produced, always aware of client needs, setting out to achieve them by means of ingenuity and technology advance.

In the past the well information was managed directly by Geolog's field personnel and that of other real-time logging companies such as LWD-MWD (Logging While Drilling/Measurement While Drilling) services. The field team would provide the first and sometimes last line of interpretation. The data collected, filtered and analysed, were transmitted ashore in the form of daily reports, well reports and logs.

With time the drilling and geology datasets acquired have become more complex. More data are recorded and calculated, and with higher accuracy and resolution.

More complex is also the surface logging system, and a lot of the field engineer time is taken by keeping the system ticking. Technological advances have in time been utilised to do more rather than to simplify the task of field operators.

Oil companies have recognised this and became interested in receiving the mass of raw data in a more intelligible form, so that they can use and interpret them.

In order to facilitate the transmission and flow of data from service teams to operators and within service teams, the industry has found the determination to agree on a standard inter-company transmission protocol: WITS was born.

When I mention WITS (Wellsite Information Transfer Standard) I refer particularly to the Level 0 protocol, by far the most utilised protocol. Level 0 is known by most logging field engineers, (very few of them with an electronic engineering or information technology background), and it enables to exchange real-time data easily. It has liberated data from their sources.

The WITS protocol has enabled to

almost seamlessly provide or receive data streams, which are the backbone of data transmission services.

The diffusion of real-time data transmission services was another big step. These have enabled client's engineers and management far away from the field to access more directly the information generated at rigsite. Thus informed, they can take decisions based on a clearer framework. They can see in

companies have often become the centre for this transmission. Other service companies (LWD for one) have engaged in data transmission, since they provide what is often perceived as the most sensitive real-time data while drilling a well. Data management companies have got involved too, and some of these have developed high-end products which make the well data available to operators. Still, surface logging companies, and Geolog amongst

WITSML and Geolog: surface logging at the core of well data management

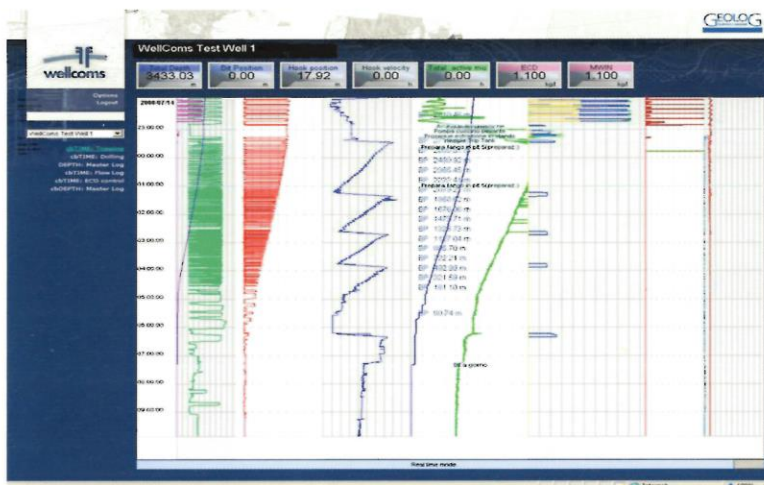
A report by GIONATA FERRONI, Geolog
technical manager

real time on their screens the same things their field crews are observing on theirs, on the rig.

Access to this first-hand data from remote supervisors has been seen suspiciously by field-based personnel, at the beginning, fearing some kind of 'Big Brother' control system. However these fears have soon vanished, once the field teams have realised that no one in their shore-based organisation was interested in constantly peeking over their shoulders to check if they were doing a good job. On the other hand, in moments of important or time-sensitive decisions, the industry have found that it was very useful to have everyone involved with the needed background information in his hands at the right time.

It is no surprise that surface logging

the main ones, have always remained at centre-stage for what data gathering and transmission is concerned. This descends from what mudloggers do for a living and how they've done it for decades. Surface logging companies were amongst the first to introduce PCs on rigs, and among the first to digitise its databases, to start acquiring data from electronic sensors, to develop dedicated software. As the permanent well-centre for real-time monitoring, the mudloggers know what to display to their clients. They know how to do it and when. This expertise, honed at rig level, has in recent years been made available remotely thanks to the improved communication systems on rigs, particularly offshore. Mudloggers were ready to transmit their data years before it became practical to do it. They had to wait.



PICTURE CAPTION Remote transmission systems, like Geolog's WellComs, enable the remote user to query the well directly about a wide variety of data, if coupled with WITSML technology geolog

WITS has contributed to make connectivity possible but it has its limits. WITS is like a freight train. It knows when to start sending numbers. It can either run or stop, it carries its load in just one direction, and it only understands raw numbers. For many operators, this is good enough.

Driven by some of the main operators and service companies in the world, the development of WITSML (Wellsite Information Transfer Standard Markup Language) has brought well connectivity to another level.

WITSML is the result of the marriage between the industry effort to standardise data formats and the strength of XML (eXtensible Markup Language), which utilizes self-describing data in ASCII (American Standard Code for Information Interchange) format and enables message transport via web services standard.

In simple terms, WITSML enables the transmission and handling of not only sequential data, like WITS, but also

contextual data. It means it can send objects which are not simply numbers. For surface logging this makes a big difference because it enables the sending of crucial lithology and geological description anywhere, regardless of what software, proprietary or third party, is used to view them. Another issue solved is the ancient one regarding units, in the sense that the user can very easily choose in which units he wants to see the parameters sent.

Unlike the freight train, WITSML can understand more complex commands than 'go' and 'stop'. The user can query the server about a particular data set, or a combination of data, and receive them. Automatic reporting systems can be generated in this way. And missing data can be sent when ready.

Furthermore, it enables the transfer of data from one proprietary format to another, unlike the binary format, which is platform-dependent, completing the 'liberation' of data started by WITS. A number of partners can receive the data in a form that is compatible with their diverse reporting and analysis formats and software without having to modify them or adapt to the one used by the operating partner.

Geolog has joined the Energistics WITSML SIG (Special Interest Group) because it wants to be part of the process of defining standards and promoting their use and development. Having developed its fully scalable data transmission services, in 2008 Geolog has become capable of transferring its more crucial data sets in WITSML format.

Further developments of WITSML will depend on the industry capability of utilise the WITSML instrument's full potential and to push it down the line within the organisations and into the smaller oil and service companies.

As for Geolog, it continues staying involved in new technology, knowing that the industry is still short of finding a clever way of utilising the terabytes of data that surface logging companies are recording, day in day out, in every corner of the world. **ep**