

**SPE Digital Energy, Houston ‘bytes to barrels’.
Houston, February 2006**



Control room display from Clarity Systems

The Society of Petroleum Engineers Gulf Coast Section’s ‘Digital Energy – from bytes to barrels’ conference was very well attended with around 600 signed up. The first theme to emerge from the keynote sessions was the inexorable rise of National Oil Companies (NOC). These state-owned companies are leveraging their enviable position regarding access to resources to go forth and compete on the international scene. Another more prosaic theme should be familiar to readers of our reports. The petroleum engineering community has woken up to data management as an ‘issue.’ This is because asset optimization mandates a ‘single source of the truth’ and ubiquitous data access. Creating such a situation is proving hard across the complex work processes and cultures of Excel-wielding engineers, planners on PowerPoint and the data streaming in from SCADA systems. Another familiar theme was the need for ‘standards.’ But for most, this means standardizing on application or workflows within an organization, rather than seeking cross-industry approval for a POSC or PPDM type initiative. Another topic is the degree to which technologies from outside oil and gas can be brought in to ‘solve’ such problems. This question is often associated with the allegation that oil and gas is a technology laggard. Are oil and gas data problems really different to other industries? Some say they are not, but this opinion often comes from consultants and cross-industry solution vendors, who would say that anyhow! Others, oil industry CIOs who have looked into the question are not so sure. One company reported that consultants brought in to study this question left behind them a lot of ‘consultant-ese’. Another reported that ‘lessons learned from other industries and the downstream have proved hard to transfer to the oilfield’.

Highlights

- [Hinchman’s keynote and discussion](#)
- [Chevron’s asset optimization](#)
- [BHP Billiton’s global geotechnical deployment](#)
- [Data management ‘lunch and learn’](#)

Contents

| | | |
|----------|--|---|
| TW0604_1 | Keynote – Steve Hinchman, Marathon Oil Co. | 2 |
| TW0604_2 | Forget ‘advanced search’ – Michael Lock, Google. | 3 |
| TW0604_3 | A prototype well data federator – Marc Sofia, Baker Hughes | 4 |
| TW0604_4 | Asset optimization – Jim Crompton, Chevron..... | 4 |
| TW0604_5 | Wellsite data and reports – Bill Chmela, Sense Intellifield | 4 |

| | | |
|-----------|---|----|
| TW0604_6 | Optimizing the drilling order – Kameron Mitchell, ChevronTengzoil | 4 |
| TW0604_7 | The next trillion barrels – Don Paul, Chevron | 5 |
| TW0604_8 | Data ‘righteous’ – Jerome Baudoin, Devon Energy | 5 |
| TW0604_9 | GeoModeling session..... | 5 |
| 0604_9.1 | Global geotechnical initiatives – Katya Casey, BHPBilliton | 5 |
| 0604_9.2 | Appraisal of ‘Cactus’ gas prospect – Tom Evans and Kay Kamlich, Marathon..... | 6 |
| 0604_9.3 | Shared earth modeling – John Nieto, Anadarko..... | 6 |
| TW0604_10 | Data management ‘lunch and learn’ session | 6 |
| 0604_10.1 | Data management in Shell - Linda Dodge, Shell..... | 6 |
| 0604_10.2 | Oil and gas a poor performer re other verticals – Mike Brulé, Microsoft | 6 |
| TW0604_11 | Executive Panel Session..... | 7 |
| 0604_11.1 | Discussion – is upstream ready for automation? | 7 |
| 0604_11.2 | Standards-based collaboration..... | 7 |
| TW0604_12 | Exhibitors | 7 |
| 0604_12.1 | Megabit Ethernet radio – Microwave Data Systems | 7 |
| 0604_12.2 | Oilfield multi-mesh wireless network – DataHorizon | 8 |
| 0604_12.3 | High-end display systems – Clarity Systems..... | 8 |
| 0604_12.4 | Data mining and neural net modeler – Informateks..... | 8 |
| 0604_12.5 | Reservoir engineers’ integrated asset modeler – Serafim..... | 9 |
| 0604_12.6 | LiquidFrameworks – Field ticket management solutions..... | 9 |
| 0604_12.7 | Web-based portfolio management - PartnerMetrics | 10 |
| 0604_12.8 | Business process management – K2.net/SourceCode..... | 10 |
| 0604_12.9 | Oil & gas business intelligence – Knightsbridge Solutions..... | 10 |
| TW0604_13 | Technology Watch subscription information | 10 |

TW0604_1 Keynote – Steve Hinchman, Marathon Oil Co.

Oil and especially gas will continue to be critical with supply and demand in fine balance. When you plot current production with a 4%/year decline against forecast demand you have a 125 mm barrel shortfall by 2020. The shortfall equals all of today’s production capacity. Meeting this demand is achievable, but ‘represents a long term problem’. A major component of the problem is access to resources. Most reserves are held by National Oil Companies, (NOCs), themselves now emerging as global players. Historically, NOCs required investment from the International Oil Companies (IOCs), but now have they have both capital and technology. They are also expanding beyond their borders. So IOCs need to adapt, to ‘differentiate and partner with NOCs’. Value add relationships become critical, and need to be ‘more open and transparent’.

Refining capacity is near the limit – more investment is needed. 48% of the workforce is to retire in 10 years. Oil and gas graduates’ tally is around 600 per year – to be set against a demand of around 1,300 – hence the move to a global workforce. New work practices mandate a ‘single source of the truth,’ hence the focus on IT-enabled knowledge sharing. Although Hinchman described petrotechnical and IT professionals ‘like ships passing in the night,’ he believes this is an ‘exciting time for the industry’. Both petrotechnical and IT professionals will contribute to better decision making even if the ‘transition will not be easy’. IT has ‘over promised and under delivered’. The competitive advantage goes beyond the digital oilfield of the future (DOFF) to leverage combined talents, standardized workflows and industry standards. Connectivity is the tissue that pulls it all together.

Q&A

[Oil IT Journal] You mention standards, are you referring to standards like POSC or PPDM, or to commercial applications that your company ‘standardizes’ on?

Coming up with agreed industry standards is hard because of the competitive nature of our business. I was referring to internal standardization on vendor applications, throughout our international operations. We need standard ways of communicating workflows and industry process to enable our global workforce to be connected and ‘on the same page.’ Marathon is not there yet. We need standard workflows and processes. I’m not sure that the data standards problem can be solved across the industry. But middleware may play a role.

How do you get petrotechnical staff and IT to talk the same language?

We swap people from IT to petrotechnical.

There seems to be a shift to a new base oil price. How is this affecting investment in IT?

IT investment levels target sustainable growth and are independent of commodity price. We need to avoid the ‘flavor of the month’ new technology and look at the big picture of how we work. I am willing to take on the big investment needed to sustain competitive advantage. I can’t tell you how, many production data systems are in the draw. Our focus is not so much on IT investment but on workflows. IT invest will come later.

[Strathman] – Folks are not necessarily going to spend money – investment in a platform is the easy bit.

[SIS] – What exactly is Marathon’s position on the ‘people’ problem.

Our strategy revolves around unconventional recruiting – i.e. outside of the US. Managing the retiring workforce – actually we are treading water in workforce management. Today, the average age of retirement is in the 50s. This is to an extent a self-inflicted problem. Many of our retirees go to work for other companies like Mike Strathman here did (laughter). We need to move to a virtual environment so people can stay on – and work from a sailboat with a wireless link! We need to recruit a different type of workforce with centers of excellence around the world.

[Microsoft] – What analogs from other industries are you looking at?

No real answer to that. We are biased by fact that oil and gas is very competitive¹. The attitude is, ‘Go it alone – be the hero’. We need to do better at seeking best practices. Tom Sneed, CIO, any answers?

[Sneed] – Have you talked to your downstream group, or retail organizations like Walmart to see what they do with their ‘deluge of data’ and what technologies are used?

We are asked this quite a lot. We have talked to an army of consultants and heard a lot of ‘consultantese.’ We’ve not seen the benchmarks we need – this is ‘work in progress.’

[Marketing Associates] – It’s a challenge for the industry to collaborate and at the same time to ‘differentiate’. How do you reconcile the two?

We don’t want our folks to spend 70% of their time mining their data.

[U Texas] – What is the role of University research?

Universities need to be more collaborative and to move away from pure research. On the other hand we have probably under invested in research and Universities could provide more of a forum.

[Corelab] – How do we get young people to see us in a better light, as a high tech industry?

Would you recommend the oil industry to your children? This is a real problem, but industry is full of good people and public perception is wrong. High starting salaries for petrotechs are one reason – but we need to do better PR.

[Microsoft] How are we going to do things differently?

We have not always had the discipline or courage to adopt new process – people don’t like change. We cannot allow opting out. Most failures are due to management losing the desire to stay the course. There have been successes. SAP has been successfully integrated – SAP is very disciplined around implementation. It’s not easy though! You need discipline, courage and you have to ‘smash opting out.’

[Landmark] – What about sharing data workflows around seismic data as practiced in Norway? Would Marathon give its data away to a shared database that could manage proprietary entitlements?

Sure, we don’t have to own data management inside the company. We just need data delivered at the right time and to the right place.

[TW0604_2](#) Forget ‘advanced search’ – Michael Lock, Google.

Nobody either cares about or uses ‘advanced search.’ People want simple search. When in doubt, do not restrict access to information. A cross functional world means access restrictions should be removed. Google’s experience with one large global energy customer was that content was distributed across geoscience, HR, seismic etc. Archival involved ‘cumbersome’ manual tagging to enable search tools. There was no provision for cross silo search and on retrieval, relevance was ‘spotty’. Following implementation of

¹ This is probably the point that the SIS questioner was making – the service sector suffers during every upturn as their personnel are ‘poached’ by their clients.

Google's Enterprise Search (aka Google Search Appliance), the client uses collections to segment content by geography, job function, organization – searches are up and complaints down.

Q&A

[Oil IT Journal] – Do you really mean to deprecate tagging information so strongly? Search replaces indexing?

Yes.

[TW0604_3 A prototype well data federator – Marc Sofia, Baker Hughes](#)

Baker Hughes has built a prototype enterprise data integration solution to address the problem of finding well data in multiple legacy data stores. A 'search brokerage' captures metadata and allows for 'requirements-driven data synchronization'. The metadata 'superset' obtained from individual databases provided a more complete picture of data availability than was previously possible, for instance, to map data from systems lacking specific location information. The project used existing off-the-shelf software from commercial providers which provided an '80%' solution to the data federation challenge.

[TW0604_4 Asset optimization – Jim Crompton, Chevron](#)

Crompton asks 'what is an asset?' and offers an asset classification – from level 1 (pumps, compressors...) through higher levels – level 3 is the field, level 5 'the full upstream value chain.' Crompton suggests that we have created 'yet another silo boundary' between the modeler builders and operations that 'deal with reality'. This is reflected in the tools the different communities use which range from the sophisticated (for the modeler) to the spreadsheets of the operator. The I in Chevron's i-field stands for 'integration' – not 'intelligent'.

I-Field projects may address new workflows, automation, process optimization or data management. It is 'hard to describe a typical i-field project'. The assumption is that the 'data has landed,' that there is adequate bandwidth. While this may be generally true, IM challenges remain. Not the least is the fact that conventional engineering projects are dominated by Microsoft Office technology. Project documentation may be in Power Point, collaboration via Outlook and 'faxes still work,' a 'proxy for lack of connectivity'. All of which leads to unstructured data issues as email grows, data hides on 'O:\ drives' leading to multiple versions of documents. It's not that 'IT didn't do it right,' rather, 'IT didn't do it at all!' Many digital technologies, such as SCADA, don't even belong to IT.

Crompton warned that models are often not trusted by operators – because modelers 'may and do deny the data!' While major capital projects may look like 'green field opportunities' the reality is that they are very risk averse. Another bleak truth is that 'data management is worse than you think.' 'It's amazing we do business at all. We are too tolerant of very average performance from our knowledge workers.' Our technical capability far exceeds deployed technologies. Lessons learned from refineries and process industries are hard to transfer. Industry is 'too busy' and very resistant to change. Crompton advocates 'adopting, not just sharing, best practices!'

[TW0604_5 Wellsite data and reports – Bill Chmela, Sense Intellifield](#)

Sense Intellifield (SI) works on real time data management and decision making environments a.k.a. control rooms. SI built a real time drilling operations center for ConocoPhillips which cost \$3 million. This saved \$14 million in a year by bringing people onshore. The project involved business process analysis to optimize the center's design. SI provides a converter for any data sources. If the mud company uses WITS level 0, its data gets converted to WITSML. All can be built and deployed on company servers in house. Everything runs on XML/SOAP – the same robust and secure technology as used by credit card ATM transactions, medical records. Data, typically in a geosteering context, flows from third parties to PCs running [Intellifield's Discovery](#) application. This offers real time monitoring, 3D visualization, alerts by email, SMS etc. Discovery shows a map or 3D view showing the source of an alert, users can click on this and drill down further. Data aggregation is performed by Sense Intellifield's [SiteCom](#) server.

[TW0604_6 Optimizing the drilling order – Kameron Mitchell, ChevronTengzoi](#)

Chevron breaks down a well proposal into component operations such as coring, VSP etc. Each operation is ascribed a 'value of information added' metric. These can be plotted to show the value of data obtained in terms of resolving issues like the uncertainty of flank recovery, well productivity etc. Data collection activities are ranked by subject matter experts who add scores for each piece of data acquired. All this is packaged rolled into a 'well priority index'. Mitchell claims this approach 'replaces hand waving with a semi automated ranking of drilling order.'

Q&A

Invensys – This looks like a good candidate for [kriging](#) did you try it?

No.

What software tools are used?

Excel and Visual Basic. It takes about ten minutes to run on the entire field.

[TW0604_7](#) [The next trillion barrels – Don Paul, Chevron](#)

Paul's title refers to the notion that the world's oil equivalent 'endowment' is around 3 trillion barrels. So far, 1 trillion barrels have been consumed and another trillion will be used in the next 30 years². It's been said before, but this time, 'we are in a different environment'. E&P is facing the challenge of finding new resources. Energy R&D is making a comeback – with significant increase in expenditures from a historic minimum three years ago. We can now 'see things in places we can't get to – yet'. Oil and gas is leveraging technology such as 'universal digitization', sensing and connectivity, value chain and info integration, automation and robotics and 'advanced human digital relationships'. 'People are maxed out on data – but we've only just started!'

[TW0604_8](#) [Data 'righteous' – Jerome Baudoin, Devon Energy](#)

Data management is 'more and more of a problem in our environment,' a 'complex, ill defined activity.' Despite the best efforts of PPDM, PIDX and POSC, 'we go over and over again spinning our wheels!' As an independent oil company, 'we want to spend energy on what is critical to our organization'. In Devon, a 'well bore' is it a well? Digital oilfield, not just technology – process is key. A balance needs to be struck between data overload and data 'righteous' (sic).

Discussion

[Paul] – Noted the rise of large sophisticated NOCs impacting the traditional role of majors as bringing technology to the game. Some of this can be done by NOCs today. But the game is not over. IOCs can focus on the entire chain of events. Upstream is adopting supply chain management as downstream has already done.

[Fusion] – The 21st century will be the century of the NOC. These companies are aggressively hiring US engineers and IT people today.

[Shell] – Schlumberger and the World Bank are going to replace IOCs? If that were true then ExxonMobil would buy Schlumberger!

[Paul] – There is a different slant on R&D today. No industry does R&D like it did 20 years ago. The decline was due to international access to resources - we didn't need technology. Now that access is challenged, we will have to go back to technology.

[Oil IT Journal] – The digital oilfield is arguably the bailiwick of process control. Are petroleum engineers uninvited guests at the digital oil feast?

[Paul] – We are beginning to see interactions. The SPE is talking to chemical engineering. But silos need to be constantly fought.

[Baudoin] – The age issue forces us to talk more to other verticals.

[BHP Billiton] – A lot of people have raised the data management issue. But how many here actually go to data management conferences³? Who is responsible for data? In my opinion, everyone should be. Unfortunately, we do not put enough value on data. Nobody adds metadata. The discipline grew out of secretarial and drafting departments, there has been no education, no training and no support for data management.

[TW0604_9](#) [GeoModeling session](#)

[0604_9.1](#) [Global geotechnical initiatives – Katya Casey, BHPBilliton](#)

When companies moved from paper to digital data, the folder with original data and observations often got lost. Digital data has cut the umbilical cord between data and a report. BHP Billiton's Technical Information Architecture Program is aiming for a 'common information platform to solve business problems'. Core application selection is to be 'workflow-driven' and delivered on a single technical hardware platform.

² Not sure about the tally here.

³ A show of hands confirmed that few did.

Components include OpenWorks, Foster Findlay & Associates, Paradigm and Petrel. Seabed and OpenSpirit also ran. BHPB's Portal, the Petroleum Professional Web Workspace is under construction. BHPB is looking at ProSource with SeaBed as a taxonomy-driven metadata repository. The well GUID is a done deal but other data types are more problematic. DecisionPoint, and in-house developed knowledge management – system, Geoprobe and VoxelGeo also ran. But a major workflow analysis is underway prior to consolidation into 'true' 3D environment circa 2008. BHPB is 'coming to terms with a multi-dimensional integration process – talk to us in 2008!'

Q&A

[ExxonMobil] – What visualization technology is used?

GoCad, Petrel is now established as mainstream for engineers and appraisal teams. Geoprobe, SeisWorks and OpenWorks are used but we plan to converge on a single tool.

0604_9.2 *Appraisal of 'Cactus' gas prospect – Tom Evans and Kay Kamlich, Marathon*

The case history detailed Marathon's in-house seismic time migration⁴ that discovered growth fault velocity anomalies and shadows. Kirchoff and Wave Equation Migration were both used for different problems with Marathon's 1000 CPU cluster. Re-running processing tests even one year later show significant image enhancements due to code improvements. Moving and loading data from location to location is vital and mandates 'specialized disk and high capacity cartridge systems'. 'As geophysicists, we shouldn't be worrying about the hardware but the reality is that this is a highly compute-intensive, interactive process. Structural models serve as input to multiple simulator runs. Stochastic simulation is used with around 100 runs per evaluation. Fault capture into the reservoir model is critical. All is done on an SGI 256 node Itanium. The engineers liked it so much that 'we kicked the geoscientists off it and made them buy another one'. An enthusiastic Q&A ensued.

0604_9.3 *Shared earth modeling – John Nieto, Anadarko*

Nieto contrasts the 'linear' approach to problem solving with the 'shared earth' modeling (SEM) concept. This integrates static, in place reserves with dynamic, fluid flow modeling. A facies-based approach is used to populate the geological model. Facies are derived from logs and the interwell space is populated stochastically. If the history match doesn't work, 'there are many things you can alter'. The SEM is driven by new software like GoCad, Roxar and Petrel. These tools let interpreters see seismic, logs, facies maps all together in one environment.

TW0604_10 *Data management 'lunch and learn' session*

0604_10.1 *Data management in Shell - Linda Dodge, Shell*

Poor data management was at the root of the Piper Alpha disaster and the loss of one of Shell's oilfields – killed by water injection. Dodge traced the move from the well maintained, central datastores of the 1980s – with their 'costly bureaucracy'. In 1995, Shell decentralized and allowed for local tailoring – but this caused 'data loss and confusion'. From 2002 to the present, Shell has put together a central portfolio management team to coordinate global standards. In 2003, Shell built a data management community. In 2004, it instigated virtual teams and in 2005, data quality metrics, global standards and a 'higher profile for data management'. Virtual teams are led by 'passionate evangelists' from Shell's community of experts. Shell is involved with POSC – seeing standards as an enabler but not giving a competitive edge. Current active projects include the Global UWI project and PRODML.

Q&A

[Oil IT Journal] Do you regret the Shell standards and central repositories of the 1980s?

No. We even 'farmed out' the Shell standard legend to industry?

0604_10.2 *Oil and gas a poor performer re other verticals – Mike Brulé, Microsoft*

Oil and gas fares poorly in comparison with other industries. It is notorious for its disparate systems that lead to cumbersome navigation in the data environment. Brulé suggests that the [DAMA International](#) organization offers ideas as to how enterprise business intelligence impacts business performance. Our complex, highly engineered industry lags others in data management and enterprise BI analytics. Some propose services-oriented architecture (SOA) as the new silver bullet. But for Brulé, SOA 'is orthogonal, it says nothing about data management, quality and system performance.' Some argue that our data is very

⁴ Described as 'a migration methodology with no sense of Snell!'

different from other industries. Brulé disagrees – ‘Data use is axiomatic across all industries’. Brulé referred to Brobst’s work on data warehousing. Intel can now close its worldwide books in 4 hours. Elsewhere, we live with an application ‘tug of war’ – between Maximo, DIMS, SAP etc. ‘It’s real problematic.’

TW0604_11 Executive Panel Session

Bertrand du Castel [Schlumberger] – We are at the confluence of two trends – political changes in oil industry and the fact that humans can now ‘externalize’ their computing power. These trends will cause a process of de- and re- construction of the oil industry. The question is, should this be left to natural selection or should we introduce a degree of intelligent design!

John Gibson [Paradigm] – There is a tension between innovation and standardization. Sometimes putting data together that doesn’t ‘belong’ leads to insight. If we work entirely toward commoditization we may miss s’thing and we don’t want to turn over everything to automation. Industry needs stronger math skills to do data mining.

Ron Mobed [IHS Energy] – We have established that some things don’t work. The question is, can new technology help? Standards should allow for better information sharing – but getting consensus is hard. XML provides an improved method for applications to communicate. Web-based GIS transcends language barriers. RSS allows aggregation – makes info more useful. New technologies like web services will help.

Zhanna Golodryga – [BHP Billiton] This morning we had lots of questions. I am looking for answers! Today, drillers talk to IT – this is new and it’s data driven.

0604_11.1 Discussion – is upstream ready for automation?

Du Castel – The technology is ready – witness the DARPA Challenge. Also – note that web services are not a fad! They are based on two fundamental advances. 1) XML which is readable, self descriptive and networked. 2) information payload/ontologies – derived from work done in the 1990 on descriptive logic – the ability to describe information in such a way as to support computer reasoning. You can now describe a process or action and add logic that makes computational sense. Then underlying systems can leverage pattern recognition etc. So today, automation is now ready for oilfield – if not vice versa!

Gibson – R&D managers currently work with new dual core processors, the latest versions of operating systems etc. This contrasts with the ‘manage and control’ side of the business. ERP automation is a given for financial roll-up etc. On the technical side, we need standards for data access to support creativity. To help find a trace ‘signal’ in terabyte data haystack.

0604_11.2 Standards-based collaboration

Du Castel – Standards-based collaboration in IT is a game of cat and mouse. The question today is, ‘Is our industry under enough constraints to force genuine collaboration?’ The answer relates to the time it takes to introduce new technology. Benefits should accrue; we should not leave it to chance.

Golodryga – CIOs live and breathe standards, but there is no incentive for a single industry standard.

Gibson – We are very interested in open standards and we will see more from these. Simple standards create complex systems. Complex standards create chaos. Today, we have standards that are far, far too complex and a lot of chaos.

Tom Halbouty [Pioneer] - Standards have to be simple and relevant. How can we get our many standards bodies to create a forum for common standards?

Gibson – The point is we don’t have standards because we have a dozen standards bodies! We need a breakthrough in participation. Du Castel and myself tried to unify the standards movement – passionately! But there was no interest from other participants.

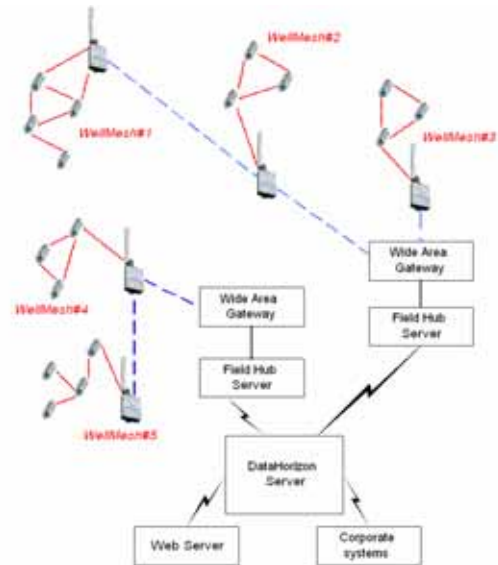
[Oil IT Journal] We just got back from a data management conference in Kuwait. It seems like the NOCs have been busy populating their databases. In the west, we tend to rely on new technologies like business objects or web services to come to the rescue.

TW0604_12 Exhibitors

0604_12.1 Megabit Ethernet radio – Microwave Data Systems

MDS iNET-II Megabit Ethernet wireless claims longer range than traditional wireless LAN. iNET-II targets high bandwidth applications like video surveillance cameras. Security comes from AES-128 bit encryption, Radius authentication and a 900 MHz radio link.

0604_12.2 Oilfield multi-mesh wireless network – DataHorizon



DataHorizon's Oilfield Multi-mesh.

[DataHorizon](#) offers web-based data management solutions for reservoir monitoring. DataHorizon has teamed with [Wireless Measurement](#) to offer [Oil Field MultiMesh](#) – a wireless solution that delivers real time pressure and temperature data to the engineer's desktop. DataHorizon has also partnered with [MARIN](#) (Maritime Research Institute Netherlands) to provide solutions for real time environmental and structural integrity monitoring – with special relevance to structures at risk from hurricanes.

0604_12.3 High-end display systems – Clarity Systems

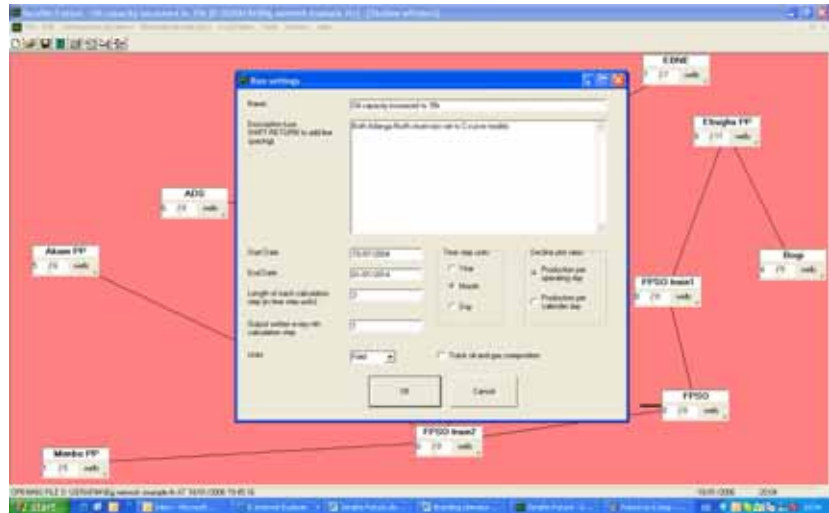


Clarity multi-panel display at utility control center.

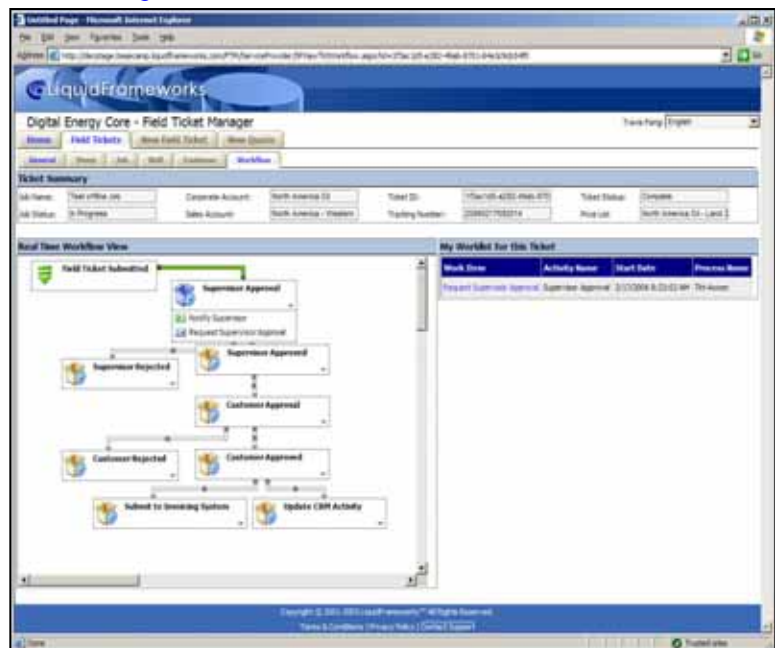
Petroleos Mexicanos (Pemex), has deployed a digital display system from Clarity Visual Systems in its Ciudad del Carmen Campeche, on the Yucatan Peninsula to manage its 180 oil platforms in the Gulf of Mexico. A curved wall consisting of 14 Clarity Lion displays provides a 20 sq. m. viewing area. In an emergency, engineers can pull up engineering drawings and other platform documents. More from sales@clarityvisual.com.

0604_12.4 Data mining and neural net modeler – Informatiks

Informatiks, an [Advantek](#) spin-off, uses self-organizing maps and neural nets to derive relationships from large production datasets. Results are refined and verified with reference to physical processes including geomechanics (Advantek's speciality).

[0604_12.5 Reservoir engineers' integrated asset modeler – Serafim](#)*Serafim Future asset modeler.*

[SERAFIM Future](#) (a joint development with [ADDAX/Orxy](#)) is an asset modeler that integrates simulation results, historic production data and surface network constraints to forecast production. Serafim uses a simplex optimizer, 'innovative' database design and simplified material balance. UK-based Talisman is a user. Future output can be further manipulated in @Risk or CrystalBall. The company also provides a range of asset management services under the Serafim Perimeter 'brand'. More from [Ahmed Khamassi](#).

[0604_12.6 LiquidFrameworks – Field ticket management solutions](#)*LiquidFrameworks' Field Pro*

LiquidFrameworks' Field Pro field ticket management system uses browser-based 'smart client' technology on a conventional laptop or ruggedized tablet PC⁵. FieldPro integrates with ERP from SAP and JD Edwards as well as third party environments such as Digital Oilfield and OFS Portal (via API/PIDX standards) to speed the procure to pay (P2P) process. LiquidFrameworks embeds workflow technology from [SourceCode/K2](#). More from [Quinn Kroll](#).

⁵ K2.net was showing a ruggedized [Xplore PC](#).

[0604_12.7 Web-based portfolio management - PartnerMetrics](#)

PartnerMetrics is a performance and portfolio management package offering production, economics and AFE/ROI tracking across multiple assets and deals. Used by GE Capital and PartnerMetrics parent, the Strickland Group⁶ to manage oil and gas partnerships.

[0604_12.8 Business process management – K2.net/SourceCode](#)

K2.net is a generic workflow, or ‘business process management’ (BPM) package that can be embedded in third party software. K2.net oil and gas clients include Schlumberger, Hunt Oil and Citgo. K2.net is currently leveraging the new Office 12/2007 windows workflow foundation in its next generation ‘BlackPearl’ release due out next year. More from [Joe Bocardo](#).

[0604_12.9 Oil & gas business intelligence – Knightsbridge Solutions](#)

Business intelligence and data warehousing specialist Knightsbridge Solutions’ Energy Practice clients include BP, Devon Energy Corporation, and Williams. ‘Integrating data from SCADA systems requires solid data management and architecture. The true value of the digital oilfield lies in integrating oilfield data with ERP/SAP with flexible reporting and analytical capabilities.’ [Shannon Tassin](#)

[TW0604_13 Technology Watch subscription information](#)

This report has been produced as part of The Data Room’s Technology Watch reporting service. For more on this subscription-based service please visit the [Technology Watch home page](#) or email tw@oilit.com.



© March 2006
 The Data Room
 7 rue des Verrieres
 F-92310 Sevres
 France

| | |
|--------------|--|
| Tel (USA) | 281 968 0752 |
| Tel (UK) | 020 7193 1489 |
| Tel (France) | +33 1 4623 9596 |
| Fax | +33 1 4623 0652 |
| | info@oilit.com |

⁶ See also [SPE paper 95164-PP](#).