

How DEAL aims to put UK oil and gas data on the Web map

In the name of efficiency, cost savings and future competitiveness, the UK government and oil industry have finally found a formula for putting oil and gas data on line. Andrew McBarnet describes the latest DEAL initiative and how it became possible

Amid the general uproar at the rising price of oil, scarcely a ripple of recognition greeted this summer's contract to set up a Digital Energy Atlas Library (DEAL) for the UK oil and gas industry. Yet the initiative deserved more attention because it marked a significant phase of a major reform in the way the UK government, the oil industry and the public can access key information about oil and gas operations.

It probably also counts as a success story for the government's Oil and Gas Industry Task Force (OGITF) set up in November 1998. Ironically this was a joint initiative sparked by fears over the low oil price environment of the time. The idea was to spearhead the change needed to encourage continued international oil company investment in the UK Continental Shelf and to ensure the long term viability of the UK service and supply industry.

The tender for the DEAL contract, worth around £1 million over three years, was won by the British Geological Survey (BGS) in partnership with geographical information systems (GIS) specialist ESRI. It was awarded by PILOT, the government/industry body now overseeing various projects recommended by OGITF covering issues such as competitiveness and supply chain efficiency (LOGIC), new technology (ITF), licence trading (LIFT), and national training (NTO).

a single virtual repository for UK data

Helen Liddell, UK Minister of Energy and chair of PILOT, welcomed DEAL, saying that it would 'exploit the internet and e-commerce to provide, for the first time, a single virtual repository for UK data.' She claimed that it would 'promote competitiveness and encourage activity on the UK Continental Shelf at maximum competitiveness.'

DEAL is being managed and funded by Common Data Access (CDA), the organization recently acquired by the UK

Offshore Operators Association. CDA operates, through a contractor, the repository for a single, centrally maintained well log and seismic navigation database for the UK offshore oil and gas activity. It has close links with the UK Department of Trade and Industry (DTI) and last year formalized its relationship with a 'Deed' agreement that means that its data services can be used by CDA stakeholders (UK offshore oil and gas licence holders) to meet their licence obligations. In effect, data supplied to the CDA store rather than the DTI is deemed sufficient. In return the DTI has been granted direct on-line access to all participants' licence data and this understanding has been extended to the DEAL internet-based E&P data service. At the time of the Deed, CDA was made up of 26 oil companies and eight non-oil companies with an interest in data issues.

CDA's managing director Malcolm Fleming says that everyone has been impressed at how effectively BGS has gone about developing the DEAL site. BGS came to the project armed with its experience of setting up Fieldbank, the project initiated four years ago with UK company ARK Geophysics to provide an on-line gravity and magnetic data management and delivery service to enable companies to make the most of their potential field assets and to access public, domain and speculative datasets. This year FieldBank was enhanced with a web-enabled front-end based on ESRI's ArcIMS Map Server. Said to be easy to use, the interface allows various layers of information to be switched on and off and supplementary information (metadata) to be viewed. Behind the interface is a POSC-compatible Oracle database, accessed by Cold Fusion queries. Participants in FieldBank, which has the blessing of the UK Department of Trade and Industry, can browse and download their own data, browse tradable, multi-client and public domain data, download public domain data and initiate trades or licence purchases of other data.

Elements of FieldBank including the latest ESRI interface can be seen in DEAL, which is an altogether more ambitious project. DEAL is scheduled to provide three distinct but related services – *iDEAL*, *uDEAL* and *eDEAL*. The first to be



Pictured (left to right): James May, director general of the UK Offshore Operators Association (UKOOA); Phil Challis of Lasmo North Sea and chairman of CDA Council; and Malcolm Fleming, chief executive of Common Data Access (CDA).

launched was *iDEAL* which was designed to take account of the fact that little spatial and attribute information of quality is publicly available covering the UK Continental Shelf. The plan is for the map interface provided by *iDEAL* to become the definitive source for information such as seismic, well, pipeline, and platform location. In Malcolm Fleming's words, 'if you were a fishing boat or a university, for example, there was no one place you could go for all the data you needed, until now. With UKOOA members' support, we are well placed to provide that one place.' Fleming says it's a public service, paid for by the oil companies.

uDEAL, which has also been up and running since September, is designed as a data market place. It is intended to be a 'one stop shop' providing a comprehensive catalogue of all available UKCS geotechnical data products. The reasoning behind *uDEAL* is that it has in the past been something of a trial to find all the relevant products over a given area of interest on the UKCS. Users have had to explore their own data sets, other oil companies and the DTI or its approved agencies, and even then they can rarely have been confident that all the relevant products had been unearthed.

With *uDEAL*, vendors can publish – free – the details of well, seismic and other data products on *DEAL* by associating them with an existing spatial object, such as a well, or by creating objects on an existing map layer. A vendor might create an outline polygon showing the areal extent of, say, a regional geological report. In some cases, CDA says that new map lay-

ers may be created to allow new data product groups to be shown. Those looking for particular data products can now see what is on offer and contact the vendor via email or website link. Some 30 000 products have already been posted and Fleming says that there's still a way to go.

uDEAL offers considerable scope for development. An expansion of the system to allow B2B e-commerce including electronic procurement is an obvious way forward, and there is talk of including other geographical areas and seamless interfacing of data vendors' databases with *DEAL*. However, the future working of *uDEAL* will be determined as much as anything by its user community. To this end CDA has planned workshops for vendors and users in Aberdeen and London to get the requisite feedback.

It is hoped that *eDEAL* will be running before the end of the year. The 'e' stands for entitlement, so unlike the other two services, *eDEAL* will be subscription only. In this case *DEAL* will act as a portal or gateway to a network of distributed data repositories. Fleming likens the system to a net being thrown across relevant repositories so that *eDEAL* becomes the unified, virtual system. From one source oil companies will be able to store, access, distribute and trade geoscientific data on an entitlement basis.

Among the repositories will of course be the original one operated by CDA covering digital well data, hardcopy well data and navigation seismic data for the UKCS. Importantly the agreement already in place with the DTI is being extended

so that companies can fulfil their UKCS licence obligations by granting the DTI access to data via *eDEAL*. Alluding to this at the time of the DEAL launch last June, Malcolm Brinded, managing director of Shell UK Expro and co-chair of PILOT, pointed out that the unified data network will allow just a single copy of data to be stored, to which all entitled companies – and the DTI – will have easy access. This, he said, would not only be efficient but cost-effective data management which will offer the industry ‘significant economies’.

eDEAL’s early evolution will be focused heavily on bringing post-stack seismic trace data into the repository network. On cost grounds, let alone possible monopoly and other concerns, Fleming says that there is no intention to emulate the DISCOS model in Norway. There, all the data for the Norwegian offshore oil and gas sector is stored in and accessed from one repository using the PetroBank system originally conceived by IBM and now operated by Petroleum Geo-Services (PGS). ‘We will leave seismic trace repositories where they are and allow companies like Schlumberger and PGS to offer data management services to oil companies. We’ll just throw a net across the top of it, so there is no need to bring them physically together.’

Ideally *eDEAL* would make it possible for seismic data to be delivered electronically via DEAL on the simple click of a button, but the cost of setting up such a system and lack of bandwidth for such transfers of large data files make this an aspiration for the medium term. In Norway, Fleming says a little enviously, a dedicated optical fibre network was established as part of DISCOS so that a whole 3D seismic survey can be sent overnight. ‘Our ambition is certainly to have all data sorted out and connected affordably to a wide bandwidth so that, for example, companies responding to licence rounds could have all the relevant data in hours.’ To this end BGS, as developer of DEAL, has as a subcontractor the Aberdeen-based company Data Marine Services, which specializes in high volume secure data transfers from frontier locations for the oil and gas industry and two months ago was subject of a takeover by Schlumberger Network Solutions.

For Fleming himself, the DEAL initiative comes at a watershed moment in the development of the operations under his charge, because the CDA is about to decide on who will continue to run its own repository and the direction it will take. The current five year contract with Canadian company QC

Data officially comes to an end in December, with the new contract due to be in operation by the end of March. QC Data has pre-qualified to tender for contract renewal but faces some heavyweight opposition. Also qualified for managing both the well and seismic data aspects of the repository are PGS Data Management, Schlumberger GeoQuest and BGS in partnership with Ilex Technologies and Concept Systems. To be considered by the CDA Tender Board ‘separately and on equal terms’ are Baker Atlas, IEDS (trading as IHS Energy Group), Robertson Research International and Offshore Design (ODL), who have tendered only for the well data.

Fleming makes no secret of the fact that competitors for the contract will be asked to be a little imaginative, possibly introducing an element of commercialization to any new projects. He believes that a well deviation database may be set up in the near future as ‘a lot of energy has been spent by oil companies to bring the data together’. Such a project is important for offshore operators in terms of well collision avoidance and simply knowing where deviated wells are from a geological mapping point of view, but it is probably not commercially viable for a vendor.

UK-based oil operators, the ultimate owners of CDA through UKOOA, are also said to be keen to see the current CDA data model extended to include non-UKCS data on a regional basis beyond the median line. ‘We have no plans to share data with the Norwegian Petroleum Directorate, but it makes sense to stay in dialogue, and there are also areas such as the Faroes and Ireland where UKCS companies have operations,’ is how Fleming describes the current thinking.

Fleming himself was not in post when CDA was conceived. Around that time he was managing director of the Kestrel Group, an international data management services company which he served for 20 years in various countries including Libya, Australia, Cyprus and Canada. CDA began in 1993 when Amoco hosted a meeting which gave birth to the Common Industry Data Access Initiative (CIDAI), subsequently rechristened CDA (Common Data Access). Before it became a separate not-for-profit organization, it was managed by Amerada Hess on behalf of the membership which consisted principally of the UK offshore oil and gas operators along with a handful of service companies with an expertise in data management.

‘...seismic data to be delivered...on the simple click of a button...’

The motivation behind CDA was clear. It was realized that the central storage of geotechnical data would save substantial costs in creating, exchanging and storing many duplicate sets of the same data to satisfy partner and government obligations. The promise of savings was attractive at a time when the CRINE industry campaign to reduce costs was in overdrive. There was also the issue of poor quality data management and security as a result of the frequent re-indexing and storing of data, exacerbated by licence trading and the need to produce more data copies. Equally worrying in the mid-1990s was the recognition that new logging tools and 3D seismic surveys were adding a significant order of magnitude to the data volumes being handled.

According to Fleming, CDA has succeeded in its early objectives in that some oil companies have admitted to savings of between £100 000 and £500 000 and there is no question that the original centralization of data has been accomplished. These days, CDA has a board of four comprised of Malcolm Fleming, James May, director general of UKOOA, Rosemary Johnson-Sabine, exploration manager, Texaco, and Philip Challis, chairman of the CDA Council from Lasmo. Running CDA costs something in excess of £2 million a year, which is less than when the major data repositories were being set up. Oil companies pay according to a formula based on the amount of their data in the repository plus usage of the services, non-oil companies get a discounted rate.

The first project, begun in 1996 with QC Data as prime contractor operating twinned facilities in London and Aberdeen, was a relatively low risk project to create a common digital well log database using the Axxxxses entitlements database from QC Data coupled with LogDB, a log database from Schlumberger GeoQuest. Initial data came from the DTI and several CDA members. Today some 7975 wells are on the sys-

tem with digital well log data held for 6975. The number of curves stored in the system amounts to over 7 million.

The digital well logs phase appears to have met most of its objectives. The majority of CDA participants are connected to the system, data no longer has to be sent to the DTI, new 'raw' data is being loaded routinely, the legacy loading exercise is almost complete and the digital well log data is generally not physically distributed to co-venturers or trade

partners any more. The only concern which applies to all CDA data is the final quality and completeness checking of data. It is felt that as contractor there is only so much that QC Data can do and the this is an issue for each member company.

The CDA hardcopy well logs and reports project begun early 1998 and due for completion by the end of this year adds to the digital well log data project and creates a basic set of hard copy well data (logs and reports) by complementing the DTI's data store collection in Edinburgh with missing data.

The first seismic phase, awarded in April 1997, involved the establishment of a central database of final 2D and 3D navigation data along with an ownership/entitlements index for the UKCS. This was set up by PECC (now part of CGG) using its PetroVision data management repository product and consulting company Stephenson Associates under subcontract to QC Data. Since January 1999 new 2D and 3D navigation data has been loaded to the system and, subject to consent from the owner companies, is available to CDA members.

Fleming says that CDA will not be 'signing off' on any major new departure with only a few months to run of the present contract. No big deal given how much is currently at stake with the new DEAL initiative.

'CDA has
succeeded in its
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