

# Rock and Roll and all that ... Seismic!

Photo: Ingvid Rygggen Caretens



## Hank Hamilton is doing a job he loves, helping steadily grow the successful seismic company, TGS-NOPEC. And he still has time for the occasional outing as bass player with the TGS rock and roll band!

Jane Whaley

**T**GS always had, and still has, a very different philosophy from most seismic companies, with a distinct business model," Hank explains. "In effect, TGS is primarily a marketing organisation, close to its customers, and generating ideas through them. It does not own or operate vessels and, until recently, did not undertake much in-house processing or interpretation, preferring to subcontract these tasks and thereby lower risk."

Having worked in the seismic industry for a number of years, Hank admired this TGS business model, so he was very happy when he was invited to join the company as Chief Executive Officer in 1995.

"Instead of running vessels," he continues, "TGS concentrates on generating project ideas with clients, then contracting the most suitable vessel for data acquisition, while ensuring that the seismic obtained is of the highest possible quality. We achieve this by employing highly skilled quality control personnel and as a result we have acquired a reputation as a very high end provider, first in 2D and now in 3D as well."

With Hank in charge, TGS has maintained this effective business model and still works closely with clients, with a certain number of them 'signing up' to each project before commencement, which also helps spread the risk.

### Technological knowledge and business sense combined

Hank was brought up in the beautiful town of Charlotte, North Carolina and on graduation in 1981 was employed by Shell in New Orleans as an interpreter. "Large oil companies used to perform all exploration functions in-house, including owning their own seismic boats and undertaking all processing – very different from now!" Hank explains. He worked on advanced data processing, "pre-stack depth migration – very advanced for those days."

Although he enjoyed the technical work, Hank had a strong interest in the business side of the industry and after taking two years of MBA coursework at Tulane University he moved to GECO in

Houston, working first in technical marketing and sales and then as Manager of the multi-client business unit in the Gulf of Mexico. As Hank points out, "in these roles you have to have a good knowledge of the technology, and I still find it incredibly interesting, but I found I like the 'score card!'"

### Blossoming of 3D seismic

In 1991 Hank moved with his young family to Stavanger as GECO Manager of Marine Acquisition for Europe, Africa and the Middle East. When he arrived in Norway, GECO were operating a fleet of six 3D seismic vessels, but his arrival coincided with the blossoming of the 3D industry, as oil companies realised the value of the new technology. "It was very exciting," Hank remembers. "We built or commissioned a number of new 3D seismic boats and at the same time GECO purchased seismic companies Prakla and SSL. By the time I left Norway after two years, we were operating 18 vessels in that region."

Hank enjoyed living in Norway. "We loved the lifestyle. It is very friendly and family orientated." He adds "I wasn't so keen on the long, dark, cold winters – but the summers were wonderful!"

In 1993 Hank Hamilton returned to Houston, in charge of all GECO product lines for North and South America. "At about that time we realised that although GECO's core market was contract work, the Gulf of Mexico was ideal for the multi-client, speculative survey market, which TGS was dealing with, so we linked with them for projects of this nature." This led inevitably to his move to TGS, which was then quite a small company, with only 80 employees.

### Offering the complete package

TGS had traditionally concentrated on the Gulf of Mexico and Africa, while a rival seismic company, Nopec, had a similar multi-client seismic business centred on the North Sea. In 1998 TGS and Nopec merged, making TGS a public company, as Nopec had floated on the Norwegian stock exchange a few months earlier.

1998 was the memorable year when oil prices dropped to \$10 a barrel, but TGS-

NOPEC continued to thrive. As Hank puts it "the low oil price effectively played into our hands. There was an overcapacity of seismic vessels all over the world and prices consequently dropped dramatically. As we don't own boats, this didn't hurt us, but instead we started aggressively putting our profits into seismic acquisition. Our products have a long shelf life of up to 10 years, so the more data we acquire in the down cycles, the more future profits we see in the up cycles."

In 2002 TGS-NOPEC expanded into the field of well logs with the acquisition of A2D. "It had the same business model as TGS," explains Hank. "A2D take simple analogue well data, scan and digitise it and then sell the digital data on a multi-client basis. With the addition of A2D, we can offer a far more complete package; not just seismic, but well data with, for example, synthetics, AVO packages, interpreted regional studies. Maybe at a later date we will be able to add in core descriptions, paleontological studies and similar well-based information. This can be packaged together and delivered to the client in a format which can be read directly into a work station.

TGS did not have a large-scale in-house 3D processing capacity until June 2004, when it purchased NuTec Energy, a company specialising in high end data processing and pre-stack depth migration imaging. Hank explains "We had used NuTec on a contract basis and were impressed by the technology. Buying the company gives us the capacity to successfully reprocess and rejuvenate older data."

### Innovations for the future

Hank has plenty of ideas for maintaining TGS in the forefront of the business. "The technology is constantly evolving. The best recent innovations have all involved imaging deeper targets – advances such as longer offsets and improved processing algorithms. Through NuTec we are undertaking research into seismic imaging and are building up a 'top notch' research department.

"There are many excellent new techniques and developments that have been introduced in the last couple of years,

which we need to follow in order to keep ourselves ahead. I think there is a lot of potential in 4C (4 component geophysics) although the industry has yet to accept it fully". Hank explains the concept of 4C. "Traditional seismic records only the pressure or P-wave emitted by a sonic source, ignoring the shear (S-wave) component, which does not travel through water. However, by placing gimbal-mounted geophones on the seafloor, we can measure not only in the horizontal in-line and cross-line components of the S-wave, but also the vertical component, as well as the traditional P-wave. At the moment oil companies think that it is an expensive and specialised process, but the results can help us to see areas obscured by gas, and tell us about subsurface lithology and fluid movement. These developments gradually become accepted, in much the way that AVO analysis has now become an established tool for the analysis of vp/vs and fluid detection."

The use of digital sensors is another development which Hank feels will drive the industry forward. "Conventional sensors are analogue and signals from discrete sensors are summed prior to the results being digitised in modules within the cable. Digital sensors are now being introduced, leading to an explosion in the volume of data available. This allows the use of more advanced processing algorithms for intelligent noise cancellation."

**Moving into frontier areas**

The multi-client business model means that TGS tend to work in areas with favourable terms for the industry, as a number of clients need to be interested in order to make a survey viable. "We like to work in this way because pre-funding through clients both validates the initial idea and reduces the financial risk," Hank explains. "The world's major offshore oil and gas basins have been good to us for a long time and are now mature areas, but the industry believes that there is still plenty more to be found there, so we expect to be returning to these places with the new tools."

Recently, however, TGS has been working in new areas such as Sakhalin and the Barents Sea. "These areas have interesting geology," he says "but with a seasonal working regime and a difficult production environment, our work there is a long term investment. East Africa is another area where we have begun to find increasing



Photo: Jane Whaley

Hank Hamilton performing with the TGS band "The Attenuators" during the SEG Conference in November 2005.

interest. It's a very frontier area where little work has been done. We have acquired a number of coarse grid 2D surveys there, and plan to go back and resurvey selected areas in denser 2D and finally 3D where there is enough industry interest.

**The company oil companies think of first**

Hank is positive about the future of the seismic industry. "The oil companies are starting to spend more money, and we have had a good uptake for our surveys in these frontier areas." He adds that the amalgamation of seismic companies which occurred a few years ago was good for the industry. "We had an unhealthy industry then, with too many players. Now that we have only 5 or 6 major companies the business is more organised, although it is interesting to see the arrival of a number of new companies on the seismic scene. However, our business model using multi-client projects has allowed us to generate superior returns and we are confident we can weather any potential future downturn in the industry."

As would be expected with such a high profile job and the associated travel to TGS

worldwide offices, Hank does not find himself with very much free time. He does, however, enjoy a round of golf whenever he has the chance, playing off a very respectable handicap of 6. He also gets together with 3 other guys from TGS, playing bass in their aptly named group 'The Attenuators'! They have been playing together for about 3 years and perform classic rock and roll and blues, frequently entertaining the attendees at TGS parties. Hank is characteristically modest about his music. "The other guys are really good musicians, and they are so patient with me. I've learnt a lot from them and they are always prepared to take the time to explain to me the best way to play each piece."

Hank admits that he cannot imagine doing anything other than his present job. "This is what I like doing best," he says. "I have a wonderful team and supportive board of directors, who understand the business model and company vision. It's quite a simple model, so we haven't got the problem of multiple groups vying for resources – we are all pulling in the same direction."

"We intend to grow steadily with one simple ambition: to be the company that oil companies think of first!"