Step change in safety is a top North Sea priority

SINCE THE PIPER ALPHA disaster of 1988 that killed 167 offshore workers, North Sea safety has been dramatically improved.

But in the mid-to-late 1990s, the downward trend in incidents and injuries began to flatten—even start upward again—and evidence that a new approach was needed to bring a step change in safety began to mount.

More and more, two themes tie today's North Sea safety efforts together: Building safety leadership into the corporate culture, and focusing on leading—rather than lagging—indicators to guide that safety leadership.

The importance of safety to the future success and financial health of drilling contractors is evident from the emphasis on these issues at IADC World Drilling 2000 in Paris, 5-6 June.

Chris Rhodes, Technology Vice President, **BP Amoco**, described the situation very frankly. He told attendees, "We need to get back on track on terms of improving safety performance. Despite excellent safety management systems, highly qualified and committed people, and first class equipment, we still injure too many people and this is unacceptable."

Mr Rhodes told the assembled contractors and service company representatives, "We are concerned that safety performance in the UKCS has 'plateaued.' We are concerned that the drilling sector has been one of the poorer performing parts of the industry in recent years."

All parties have to work together to turn the trend around, said Mr Rhodes. "We will give the same priority to safety performance as we do to business performance in the companies we choose to work with in the UKCS.

"So the safety challenge is just as important as the technology challenge for our North Sea business."

THE LESSONS OF PIPER ALPHA

David Bainbridge, Acting Head of the Offshore Division of the Hazardous Installations Directorate, **UK Health and Safety Executive**, told the IADC World Drilling 2000 conference that Piper Alpha "shattered the illusion that a disaster of that scale was impossible."

The disaster's root cause, said Mr Bainbridge, was "a lack of recognition of accident prevention and control as a primary management duty."

Mr Bainbridge said senior management failed to understand the scale of the hazards; the interactions between different sources of hazards; the inadequacy of risk control measures; and the inadequacy of management control measures.

Figure 1: Safety leadership is key to success

Managing safety	Safety leadership
Push	Pull
Copy	Create and innovate
Control	Encourage
Enhance own authority	Encourage empowerment
Critical of mistakes	Learn from mistakes
Value individual effort	Value teamwork
Reward and punish	Acknowledge and recognize
Mixed messages	Talk simply, clearly, directly
Take on a lot	Share the load
Reactive	Proactive
Delegate	Can't be delegated

This was complicated by a prescriptive regulatory regime for the UK Continental Shelf at that time, said Mr Bainbridge.

"There was insufficient onus on the senior management of companies to establish adequate systems for the identification of potential major accident risks and the exercise of sufficient controls through appropriate design, robust engineering and effective management.

"Safety was not the number one priority…. Some of these negative pressures remain as a live issue today and must be guarded against."

Preparing, submitting, and assessing safety cases taught valuable lessons, said Mr Bainbridge. They helped target the regulatory effort, tackle particular issues as well as generic issues, identify R&D needs and develop appropriate guidance.

But much more work needs to be done, he said, especially to reduce slips, trips, falls from height, manual handling injuries, dropped objects, and lifting operations.

"Overall structural integrity must remain high on the list of priorities."

The key challenge for the future, said Mr Bainbridge, is to measure performance "on a broader basis than that of purely lagging indicators," and to develop effective leadership at all levels of management.

Dr **George Watkins**, Chairman and Managing Director, **Conoco (UK) Ltd**, put the challenges in another context. He said the industry must first maintain the current downward trend in the overall injury rate; and second, reverse the trend in dangerous occurrences.

Citing UK Health and Safety Executive statistics, Mr Watkins said in 1993 and 1994, the frequency rate for all injuries to people in the work force improved by 40% over eight consecutive quarters. "Probably because we were putting enormous effort into establishing the

safety case system for offshore installations. There was a lot of focus on safety management, procedures, and implementation."

After that, industry struggled to consolidate the gain; in fact, from mid 1995 through late 1997, almost half that gain was lost as the injury rate increased.

That trend led to the Step Change in Safety initiative aimed at reversing this upward trend and making a 50% improvement in overall industry safety performance.

It has had an effect, said Mr Watkins. Recent figures show the performance level has almost returned to that of late 1994.

"There is a 'but,' however," said Mr Watkins.

HSE statistics for the same decade show the number of dangerous occurrences has doubled. Part of the increased is likely due to better reporting, said Mr Watkins.

"But the scale of this increase indicates something more than just increased reporting is responsible."

It's critically important that the Step Change in Safety initiative be continued, said Mr Watkins.

Citing HSE statistics, he said that if there is no improvement in current performance between now and 2010, it can be projected that one in ten members of the offshore work force—3,000 individuals—will sustain injuries requiring more than 3 days off work during the decade. An estimated 700 serious injuries will occur and there will be 20 fatalities.

And that is just in the UK. But those are only predictions, Mr Watkins stressed. "The reality, therefore, is that (predicted injuries) can be prevented."

Mr Watkins recognized the "huge contribution that the drilling sector has made to the step change program since it began. Drilling safety groups have led campaigns to reduce the risk of dropped objects, to provide guidance on tong and tubular handling and to develop a syllabus for safety leadership training."

FOCUS ON LEADERSHIP

In almost any context, there is a clear difference between management and leadership. That difference has become marked in today's approach to safety during drilling operations.

From this point on, major advances in safety will result from a culture built around safety leadership, rather than safety management.

Simon Richards, Head of Deliver the Limit, **Shell UK Exploration & Production**, in a presentation to IADC World Drilling 2000, pointed out that attitudes, behavior, and values are the most important root causes of poor safety performance.

Some causes involve inadequate processes, a relative few involve structures.

But action targets are just the reverse: Structures get the most attention, attitudes/behavior/values the least.

"We have rules in effect for structures and processes," said Mr Richards, "but not for attitudes."

Mr Richards summarized the difference between managing safety and safety leadership by comparing actions and responses related to each approach as shown in Figure 1.

He also suggested questions that managers can ask themselves to determine if they are leading the safety effort or just managing it.

The questions posed were these:

- Do I truly believe an accident-free workplace is an achievable goal?
- Does everyone know my safety expectations?
- Are my actions principle centered?
- What is my role in the safety process?
- Do I care about the workers? If so, how do I show it?
- Am I willing to spend my time and take some personal risk to make this a safer work place?
- Can my associates shut down the work due to concerns about safety?

Having the authority to shut down work

when safety is a concern indicates that safety is a top priority.

A rig floor safety group recently analyzed incidents from Shell and another operator and focused on two types of incidents: dropped objects and manual handling (tongs and tubulars).

Dropped objects can have serious consequences, he said, but the potential for improving this risk is also very high. Tubular handling incidents are not well understood, said Mr Richards. To help, a questionnaire was sent to crews asking for suggestions on how to solve problems.

Mr Richards said simple acts—like painting danger areas on tongs and equipping them with soft handles—can pay big safety dividends. The group has produced a booklet from these results and put together a video on tongs and manual handling activities.

WATCH LEADING INDICATORS

The ideal way to improve safety is for safety leadership to be guided by leading, or active, indicators, rather than lagging (reactive) indicators.

The problem in many cases is that leading safety indicators are much more difficult to devise and interpret than are the known incidents that make up a lagging indicator.

"Additional process indicators are needed" for contractors and operators in the North Sea, said **Shelte Rozendal**, HSE & QA Manager, **Deutag Europe GmbH** at IADC World Drilling 2000.

Mr Rozendal cited several safety indicators, including Lost Time Injury Frequency (LTIF), Total Recordable Case Frequency (TRCF), accident free days, structure of incident pyramid (reporting frequency, shape, and STOP cards).

He also included a periodic review of annual HSE plans.

"The first three suffer from the fact that they are reactive," said Mr Rozendal.

Good companies have such small numbers of accidents that no reliable trends can be discerned.

Deutag is approaching that zone.

Mr Rozendal described active (leading) systems as those which monitor the achievement of plans and the extent of compliance with standards.

Reactive monitoring systems are triggered after an event and include identifying and reporting injuries and cases of ill health and losses to assets or the environment.

Active monitoring systems provide feedback to the organization before an accident, incident or ill health has occurred. Active monitoring systems measure and reinforce progress by rewarding the work force.

This reinforcement can increase motivation to achieve continuous improvements, said Rozendal.

The key to an effective monitoring system is the quality of its plans and performance standards.

"The drilling industry lacks sufficient active monitoring indicators," said Rozendal.