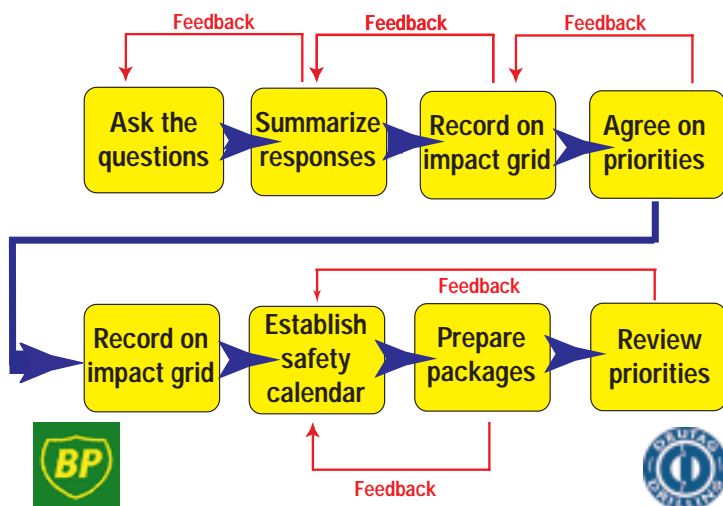


BP/Deutag Harding drilling team develops successful employee-led safety initiative

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Figure 1: Employee Led Safety Initiative (ELSI)



Employees lead the way to safety (Figures 1-2): Once BP and Deutag (then Smedvig) decided to implement the ELSI system, a process of continual feedback between workforce and management was established (Figure 1). The drill crew proposed an ELSI logo be designed. The logo, chosen through a competition and shown above, now appears on all ELSI materials.

IN EARLY 1997, BP Exploration and Smedvig Offshore UK (now Deutag) agreed to improve safety on BP's Harding Platform and to set a new industry standard for drilling safety. It was recognized that a step change in safety performance could only be realized through the positive and direct engagement of the workforce. To this end, an Employee Led Safety Initiative (ELSI) was implemented on Harding. This article details the implementation and results of the ELSI.

The key elements of the Employee Led Safety Initiative are:

- Conducting a safety climate survey to involve all employees;
- Identifying areas for improvement from the survey;
- Communicating the need for change in an effective manner and creating the environment in which this can occur.

The level of workforce engagement in the process has been very high indeed. This is without doubt the main contributory element to the positive impact that ELSI has had, particularly in bringing about a cultural change towards health and safety. The impact is apparent in the reduced accident rate (currently standing at 540 days since last LTA) as well as in the much improved attitudes of personnel towards health and safety in their workplace.

BACKGROUND

The Harding platform was installed in early 1996 with development drilling operations beginning shortly after this. The platform is operated by BP Exploration and the drilling contractor is Deutag, who provide a drill crew of about 61.

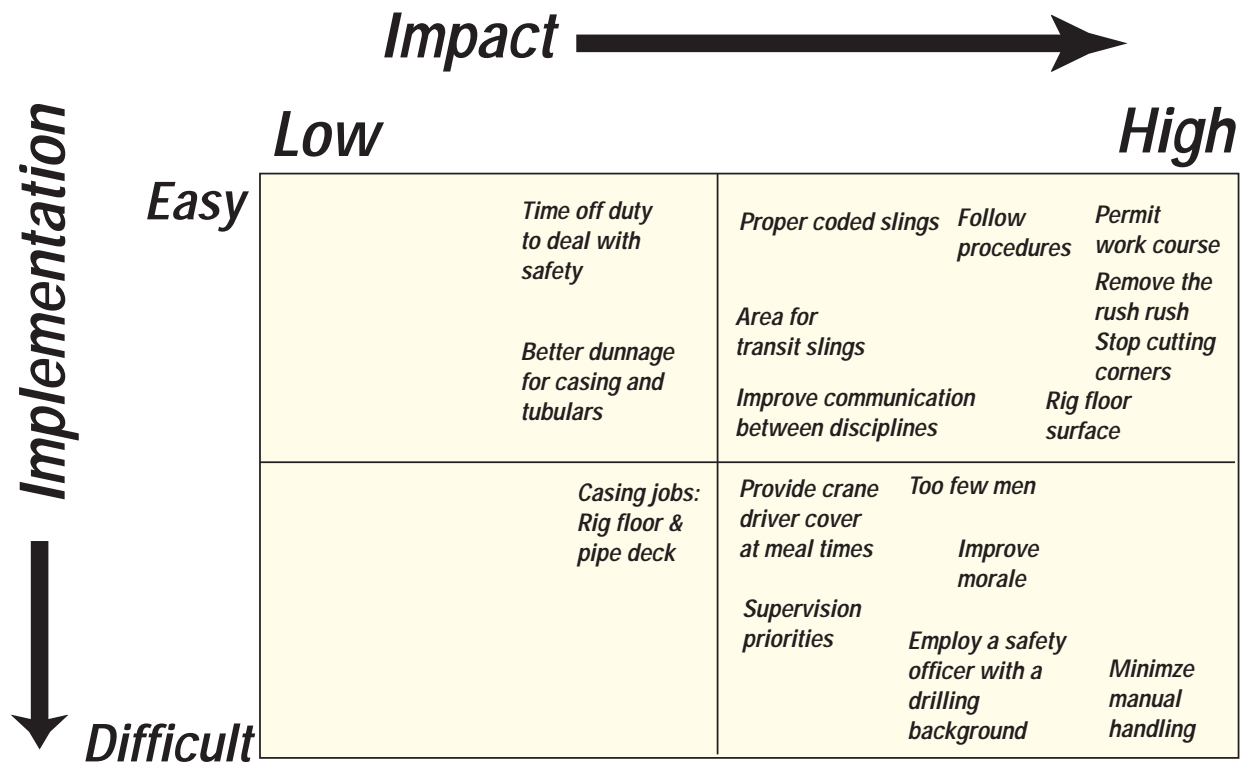
Prior to 1997, safety performance within Harding's drilling operation was comparable with the industry average. The Harding Drilling Team sought to bring about a significant improvement in this position but recognized that this could only be achieved with the full commitment and participation of the drill crew. This in itself would require that they become far more proactive in the management and running of the safety program than previously.

Table 1: Accident causes in the offshore drilling industry

Accident Type	Contribution (%)
Struck by/against	32.6
Caught between/in	30.4
Slip/fall	19.8
Strain/overexertion	11.6
Contact with chemicals	1.4
Electric shock	0.6
Flame/heat/steam	1.2
Cut	2.3
Exposure to weather	0.1
TOTAL	100.0

Source: IADC Summary of Occupational Injuries

Figure 3: Example impact grid



Assessment of the causes of serious accidents in the offshore drilling industry [1] reveals that occupational type accidents, such as slips, trips and falls, predominate over higher profile accident categories such as fire (see Table 1).

It is argued that occupational accidents, being those in which drillcrew are most likely to be involved, are of the type which they themselves are best able to prevent or avoid.

It was against this background that the Harding Drilling Team opted for a safety initiative based upon continuous improvement in safety performance through the application of behavior based safety techniques. These techniques would seek to alter the entire safety culture throughout the drilling team. Further research and investigation by the team resulted in the development of the Employee Led Safety Initiative (ELSI) as a means to meeting these ambitious goals.

THE ELSI PROCESS ON HARDING

Having identified that ELSI was the way forward, the Drilling Team set about its development in April 1997. At the outset, the following key steps were identified, although it was recognized that other steps would ultimately be added if the initiative was to be sustained:

- Carry out a safety climate survey involving the drillcrew ;
- Prioritize suggested improvements;
- Agree safety improvements to be implemented with the workforce;
- Implement safety improvement measures;

Table 2: Harding Questionnaire

- | | |
|---|--|
| 1. How would you describe the Harding Platform in terms of a <i>safe place of work</i> ? | 5. Where would you concentrate efforts to improve safety and reduce risk of injury? |
| 2. What factors on Harding affect safety and should be taken into account? | 6. What aspects of communication could be improved and how? |
| 3. What kind of support from on-shore do you think could help make your environment/operations safer? | 7. What immediate steps should be taken to improve safety on Harding? |
| 4. Give an example of where efficiency in operations could jeopardize safety. | 8. Who should be responsible for safety? |
| | 9. How could the Safety Rep role be enhanced to improve safety? |
| | 10. What actions should BP take to demonstrate that they are genuinely concerned about the safety of individuals on Harding? |

- Establish program for educating and raising awareness of significant safety issues (poster campaigns, monthly “theme” packages, etc);

A process of continual feedback between the workforce and management was established within each of the above steps as shown in Figure 1. Feedback and openness were recognized as being key to the credibility of the initiative.

The key steps of the process are outlined below.

SAFETY CLIMATE SURVEY

The safety climate survey took the form of a 10 point safety questionnaire, as shown in Table 2, which was issued to each of the drillcrews in April 97. As can be seen, the questions were phrased so as to:

- Encourage a frank and comprehensive response;
- Solicit worthwhile suggestions for improving safety on the platform for immediate implementation;
- Reassure the workforce of management’s sincerity in working with them to make the platform a safer and healthier place to work.

It is also worth noting that questions were phrased so as to discourage yes/no only responses, with the emphasis being placed on encouraging some degree of contribution, including constructive criticism.

There was a 100% response from the drillcrew to the ELSI questionnaire. This degree of feedback and willingness to contribute was an early indication of ELSI’s potential for success.

The responses to the questionnaires were reviewed promptly and a summary prepared for dissemination back to the workforce shortly after in May 97. The need to maintain the momen-

tum of the safety climate survey and to avoid dithering on the part of management was seen as key to the credibility and hence future success of the initiative.

It was apparent from the survey that the drillcrew's perceptions of what presented the greatest risk to them was closely aligned with statistical accident data for drilling operations, as shown in Table 1.

It is significant that the UK Health and Safety Executive now actively encourage Safety Climate Surveys as a way of actively involving employees in promoting safety in the workplace and in occupational accident and ill-health prevention [2].

PRIORITIZING IMPROVEMENTS

The survey generated many suggestions for improvement and these were prioritized through their imposition on an impact grid, such as in Figure 3. The impact grids enabled suggestions to be viewed in the context of ease of implementation against potential benefit in terms of workforce safety.

The priorities, which were agreed between management and drillcrew in May 97, could be considered as being either:

- Issues or actions which would require direct drillcrew participation;
- Issues or actions which would require action by the drilling contractor and or BP Exploration.

COMMUNICATION

Having identified safety related issues which required a direct change in drill crew behaviors, the next challenge was to determine how this could be brought about.

In June 97, several means were identified to enable the drillcrew to target those hazardous areas of work and safe working practices as follows:

- Monthly or calendar safety themes covering hazardous areas of work and safe working practices;
- Posters;
- Theme presentations and workshops.

The monthly or calendar safety themes are selected by the drill crew. Initially, all of the safety theme material used, including posters, were proprietary safety packages sourced externally from safety training organizations. By October 97, the drill crew were themselves preparing the monthly posters covering the safety themes and supplementing these with other posters also supporting these themes. Involving the drill crew at this level was seen as critical to the future success of ELSI.

Monthly themes are normally selected. Resources and material concerning that particular topic can be drafted by the drill crew themselves and published or sourced externally by the onshore team. This might include reading materials, videos, and the like. However, the system is not so rigid that a monthly theme cannot be changed at short notice to take account of particularly topical issues. An example of this might be an incident or accident that may have recently occurred on another rig or a new piece of health and safety legislation which has been introduced.

Figure 4: ELSI safety calendar for 1998



The monthly theme and supplemental posters are now primarily the work of the drill crew who compose and print them on desktop publishing facilities on the platform. Whilst safety theme posters published by other companies and organizations can be effective at getting a message across, it is believed that such materials prepared in-house by the drill crew are considerably more effective for the following reasons:

- The members of the drill crew who have prepared them will themselves have given the safety theme some thought and what it means more specifically to them on Harding;

Permit to Work
**YOU DON'T NEED THE MOB
 FOR PROTECTION**



USE A PERMIT!



**E.L.S.I.
 NOISE**

**BOB THE HEID SAYS
 "WHEN NOISE ANNOYS"
 "PLUG THOSE LUGS!"**



COSHH

**IT'S MUD JIM
 BUT NOT AS WE KNOW IT!**



READ YOUR COSHH SHEETS



ENVIRONMENT

**THERE'S ONLY
 ONE WAY TO
 DISPOSE OF
 WASTE OIL**



THE RIGHT WAY



The posters themselves are strategically located around the installation, both in work and recreation areas. Figure 4 shows the calendar for 1998, which embraced not only safety, but the overall HSE theme. A similar calendar was prepared in 1997, though it was entirely safety focused.

These themes were driven entirely by the drill crews and demonstrated their awareness and knowledge of broader but important issues which also concern the offshore industry.

Examples of supplemental posters are given in Figure 5.

Theme presentations and workshops are held throughout the month. Presentations are often given by supervisors, although any crew member with a particular knowledge and interest in the theme is encouraged to take a leading role.

REVIEW PROCESS

A formal review process, involving closely the drill crews themselves, has been established to monitor the effectiveness of ELSI and how it might evolve. At the end of 1997, the onshore management team set up a series of platform visits to get first hand feedback from the drill crews on how they perceived the initiative to be working, what its main achievements were and what adjustments might be made. The universal view was that the ELSI approach to communicating safety issues and raising awareness is successful, a conclusion which is supported by a significant downturn in the accident rate.

ONSHORE SUPPORT

Although establishing ELSI required some significant input from onshore, the input required now that it is up and running and well established is primarily of a supportive nature. Onshore office staff do assist with the acquisition of resources and materials together with responding to any specific requirements or

queries resulting from a particular safety theme. Quarterly reviews also require input from the shore base.

The supportive but limited involvement of the shore based personnel in ELSI on a day to day basis is viewed as a positive aspect of the initiative. It reinforces the drill crews perception of ELSI as being their responsibility, for their benefit and for them to make the most of. As would be expected, shore based staff are still actively engaged in promoting and ensuring safety on the platform, but this is primarily pursued through other means which run in parallel with ELSI.

INCENTIVES AND REWARDS

Whilst it was not initially viewed as a key part of the ELSI

Figure 5: Monthly safety posters were identified in June 1997 as one way for the drill crew to target hazardous areas of work and safe working practices. Initially, themes were taken from commercial safety firms. However, by that October, the drill crew were themselves preparing the posters.

- Having been prepared by the drill crew, the posters are very much in their language and use images that are meaningful to them;
- The safety themes are often humorous, reflecting events or personnel connected with the platform, which again encourages personnel to look at the posters and grasp the underlying message. Indeed, the drill crew have developed a character, loosely based on a well known employee, who features on many of the posters prepared;
- Posters are also frequently topical in the sense that they often refer to persons or events which have recently been prominent in the outside world, including politics, sport, entertainment and the like.

process, it has been accepted that outstanding contributions and commitment to the initiative should be recognized. A process of making quarterly awards to recognize specific contributions on an ongoing basis has therefore been established.

Care is taken to ensure that the incentive aspect of the initiative does not detract from the quality and credibility of ELSI; in other words, only genuine participation and contributions are recognized for the value they add to the initiative.

The drill crew themselves proposed that a logo should be designed that could be associated with ELSI and this logo could be included on all relevant correspondence, posters, etc. A competition was therefore run within the drill crew with the intention of coming up with a logo which everyone could readily associate with ELSI on the Harding platform. Following a good response, the logo shown in Figure 2 was selected which now appears on all materials developed specifically through and for ELSI.

THE BENEFITS OF THE ELSI ROUTE

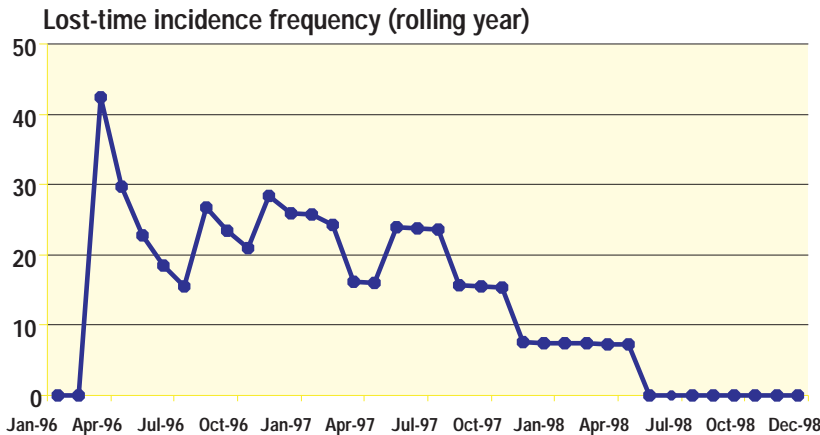
In electing to go down the ELSI route, the Harding Drilling Team recognized their departure from other tried and tested initiatives used elsewhere to a behavioral based approach. Having gained experience in application of ELSI it is appropriate to review the reasons for choosing ELSI in the first place and in view of its successful application, the reasons for remaining committed to it:

- It harnesses the crews intellect, as well as their knowledge and awareness of their own worksite and associated hazards, to good effect;

- The crew are actively involved from a very early stage, helping to shape the process and hence more likely to take ownership of it;
- The theme work group discussions promotes teamwork and fosters frank and open discussion within the drill crew of safety issues affecting their safety;
- It is recognized by the drill crew as theirs, for their benefit and so encourages them to take ownership and work it to their best advantage;
- It relies upon the ongoing engagement, involvement and participation of the drill crew. This maintains the initiatives momentum and its credibility among the workforce;
- The safety climate survey can be repeated to gauge its efficacy, as well as referring to accident and near miss returns.

Additionally, and very importantly, the Drilling Team wanted to bring about a continual improvement in safety culture. Some safety initiatives which are implemented reactively to an upsurge in accident rate have a tendency to be wound down or abandoned when the accident rate reaches a tolerable level. Because it is essentially run by the crew who themselves are not necessarily influenced by accident statistics, ELSI is self sustaining so long as the crew themselves are sufficiently motivated. If the initiative is maintained and can engage a sizeable proportion of the workforce, it is very likely to influence their behavior towards safety and hence bring about the sought after improvement in safety culture.

Figure 6: Deutag safety statistics for BP/Harding platform, 1996-98



ELSI'S SUCCESSES SO FAR

The key to any successful initiative of this type is ultimately however in measurable and visible improvement.

Although ELSI has only been running for about 18 months on Harding, as Figure 6 shows, it has brought about a significant improvement in safety performance within the drilling operation. Current LTI and reportable incident rates are down considerably and have remained so since April 97 when ELSI commenced. Current trends also compare very favorably with offshore drilling industry averages, see Figure 7 at the end of the paper. However, whilst the improved performance is very welcome and is believed to reflect a general improvement in safety culture, everyone involved in ELSI realizes there is no room for complacency and that a few careless mistakes could set the initiative back some way.

Equally important to the statistics is the very visible improvement in the drill crew's awareness of health and safety issues and their positive attitude to further improving safety performance. It is intended that the Climate Survey be repeated shortly to gain a better understanding of where things have changed for the better and, moreover, where there is still room for improvement.

Specific achievements of ELSI in this respect include:

Bringing about an all round improvement in first aid skills and better awareness of what help might be available in the event of an injury. This was achieved through the presentations and workshops held during the First Aid theme month.

Raising the drill crew's awareness of health and environmental issues, such as personal hygiene and the impact of drilling operations on the environment. This is apparent in the change in emphasis from safety only to Health Safety & Environment in monthly themes nominated by the drill crews.

Re-affirmed to the drill crew that Harding management are sincere in their determination to improve their health and safety and acknowledge the critical role they have in the successful running of the drilling operation.

THE WAY AHEAD FOR ELSI ON HARDING

Deutag and BP believe ELSI to have been very successful on

Harding. Consequently they are enthusiastic about its future development, both on Harding and within their wider organizations. The intention is that through ELSI's continued application on Harding, platform personnel will benefit from a safer and healthier working environment and that this in turn will contribute to making it a good place to work. In particular, the following goals have now been set for ELSI on Harding:

- Further improve personnel's awareness of health and environmental issues;
- Ensure that personnel new to the Harding well engineering arena participate in ELSI;
- Develop skills within the drill crew which will help them and others work more safely (e.g. first aiding and pre-

job risk assessment).

The drill crews are in the process of firming up on the monthly topics for 1999. The Harding Drilling Team await with interest to see how the drill crews will further develop ELSI and what new initiatives and areas of interest may come from it.

CONCLUSIONS

ELSI has proved very successful on a number of fronts within drilling operations on Harding. This is borne out by a sustained downturn in accident and reportable incident statistics and a visible improvement in awareness of health and safety issues among the drill crew.

The Safety Climate survey has been a key part of ELSI and will be repeated to further gauge the impact of ELSI.

ELSI will continue to be applied on Harding with several new initiatives being planned to further improve safety performance and awareness of health, safety and environmental issues.

The general concept behind ELSI could work on any other installations to bring about an improvement in safety performance and culture. The initiative has potential for application to production, maintenance and construction operations as well as to drilling.

Those behind the initiative on Harding are enthusiastic about enabling other Drilling and Wells Contractors to benefit from their experiences with ELSI and how it might be adapted to meet their needs.

REFERENCES

1. 1996 Summary of Occupational Injuries. IADC Accident Statistics Program.
2. Health and Safety Climate Survey Tool. UK Health and Safety Executive. HSE Books, October 1997.

NOTE

Deutag Overseas (Curacao) NV has managed the Harding Drilling Team for BP Exploration since 18 Nov, 1998. ■