

**Learning the Lessons of History**  
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Major oil spills have thankfully reduced in frequency over the past few years, largely as a result of better ship operation and management, introduction of new tonnage and more rigorous control of shipping quality.

For most people, one the measure of a successful career in the oil and shipping industry is never to have, or be involved with a major oil spill. In the main, most people achieve this worthy goal. One of the consequences of this success story is that when oil spills do occur, albeit infrequently, on a global basis and with a diverse range of oil types and environments, is that we do not benefit from the past lessons learned and subsequently make the same mistakes over again. Responders say that every spill is different, and this is true in a physical sense, but the problems that arise tend to be the same.

To improve our response to oil spills we must remember to ‘learn the lessons of history’ and not forget the points for improvement that always arise from every incident. There are some fundamental points that must be considered when responding to a spill and most of the problems we face have invariably been encountered before. Whether we can recollect it or not, or decide to use the knowledge, the lesson has been learned.

The technical aspects of oil spill response have sadly not changed that much over the past thirty years. There have been improvements in the technology available but no quantum leaps in respect of the strategies available. Similarly the problems have not changed that much either, responders still have to deal with the same oil types and marine environments as they did thirty years ago. Given these observations, if we continue to find dealing with oil spills difficult, are there other factors that confuse the technical response? Over the years we have learned some hard lessons about the effectiveness of response strategies, some examples follow.

**Response time! Response time!**

When a spill occurs in open water conditions, the response time must be as short as possible if we are considering the use of offshore containment and recovery systems. Very rapidly the oil will spread over a wide area under the effect of wind and tide, which makes any amount of offshore containment boom look very insignificant and not appear to represent a credible response. This makes offshore containment and recovery operations a very challenging activity when in response to an instantaneous release of oil, where the oil is spreading whilst the mobilisation is taking place. Even when the operation is well resourced and undertaken by trained crews, the weather has a significant part to play in its success. There is however, more chance of success when this response is mounted against a gradual or continuous release from a casualty as there is more time for the mobilisation of equipment and the establishment of suitable logistics chain to support the transfer of recovered product. But the equipment must be placed as close to the release as is safely practicable to maximise its effectiveness. The ocean is great..... Our booms are so small!

**Weather or not!**

The weather plays a significant part in any spill response. It has the ability to either solve the problem as it did during the Braer incident in the Shetland Isles, where the oil was naturally dispersed. Alternatively it can be an enemy, as in the case of the Erika incident, where the severe weather caused the emulsification of 16,000 tons of heavy fuel oil into 90,000 tons of viscous oil emulsion. Regardless of its

effect upon the oil, the weather has a profound effect on the effectiveness and applicability of certain response strategies. The efficiency of offshore containment and recovery operation can be reduced to zero if the sea states are in excess of Beaufort 4-5.

### **To boom is not enough!**

Containment booms can provide a means of protecting environments but they do suffer limitations of current speed, wave height and capacity. Many grand plans have been hatched to defend entire coastlines from the onslaught of the Black Tide, and most have been defeated. Extensive booming plans take time to execute, a commodity which is usually in short supply during a spill, they also require extensive manpower and logistics arrangements that are equally difficult to resource. Lastly the operations are dependant on the weather remaining consistently good. When oil collects in booms it must be quickly collected and removed, to temporarily halt its progress is not enough, as ultimately it will escape and continue its relentless path to the coastline. It is better to be more conservative with booming plans, aiming for small successes rather than to rely on grand scale operations. The price of success and failure do not come in equal measure.

### **The burning question.**

The strategy of in situ burning oil has been considered since the earliest days of oil spill response when it was used in the Torrey Canyon. Some success was achieved in the trade off between short term air pollution and long term oil pollution. The fact remains that the process is never 100% efficient and the resultant residues can present more problem than the original oil. A similar result was achieved in both the Haven and the New Carissa incidents which both left residues which were extremely persistent and created some difficult post spill problems.

### **Heavy oil.....Do you remember?**

Over the past five years we have seen a change in the type of spills we are facing. The crude oil spills have been diminishing possibly as a result of some of the factors mentioned previously and a small measure of good fortune. What has been seen is a different type of problem, with fuel oil spills becoming more prevalent. The product, either carried as cargo or fuel for ships, is extremely persistent and creates many clean up problems. The fuel oils in use around the world are becoming more and more difficult products to handle. As we become more expert in refining, taking more and more usable petroleum product out of the crude, we leave residues that are more and more noxious. When they spill, fuel oils tend to cloy together, often making them easier to contain. This is only the start of the problem, once we have contained the oil we then have to recover it. There are only certain skimmers that are capable of handling these types of oil; the difficulty is not in the collection but the subsequent pumping of the oil. Pumping heavy oils has been a problem since the time of the first heavy oil spills. Recently work has been done to improve the pumping ability of fuel oil by injecting water or steam into the pump inlet. It is surprising to note that this solution was first documented in the early 80's and has been reinvented again!.

### **Why do these things keep happening?**

So why do we continue to ignore the lessons we have learned, the experience is hard won and we know the results. What is it that drives the decision making process and why do we not retain the knowledge we have gained. The answer to question one may be that oil spills are not just technical problems; they are also politically and emotionally charged events. The technical solution may not be a politically acceptable option. This may drive the response in a direction that may be doomed to failure given the specific conditions that may prevail. The second question may be a result of the transient nature of the business, people have experiences, but the lessons are not captured or recorded in any information repository for future reference. It may be fair to say that the lessons have been learned but perhaps we have not yet found a way to put them into practice in a satisfactory manner.

