



## Ryder Marsh

### The Psychology of Industrial Safety

**David Harrison -**

**AWE**

BEHAVIOURAL SAFETY USER CONFERENCE 2005

#### **Chair**

The final speaker of the day is David Harrison, from AWE. David originally worked at the military vehicle establishment on explosives in a variety of departments. That's what it says here but it kind of undersells him really as I am told that he actually knows more about explosives than Q from James Bond. David now works in Central Assurance with a remit to implement behavioural safety across two large AWE sites.

David Harrison.

#### **David Harrison**

Thank you very much Tim.

Well AWE is a very big place as you can probably see two sites, the main site on the right hand side is based on an old World War II airfield, so there is a very old infrastructure underlying our buildings. Some of the buildings were put there over 50 years ago and we have a long-term ongoing maintenance problem with legacy issues. The fence around the outside is 7 miles so that gives you some sort of an idea of the physical size of the place.

We have a lot of small business units effectively operating in there, so maybe 50 people in a building and they are quite isolated from their colleagues and may only be sort of 10 yards away and that causes us a few problems.

Our business is to meet the delivery and maintenance requirements for the UK Nuclear Warheads safely and securely so if you are wondering where those weapons of mass destruction are – we have them! (laughter). CND has known for year but you know.

Our aim is to be recognised as maintaining world class systems and operations by our peers and our stakeholders. Getting to world class assurance is a long journey and we are by no means there.

To give you some sort of an idea of some of the processes, here is some of our research work, it is the target end of a high power laser, so we are working with scientists and that in itself poses a challenge, you may find people who think it is perfectly normal to go around with a scalpel in their top pocket of their lab coat and if you say to them what is in this flask they will have a sniff to tell you it is chloroform, but these are people with several degrees, they are very, very bright people, if you can get them on board the ideas just come flooding out.

Manufacturing operations – some of our materials are highly toxic, they are in glove boxes and require remote handling and special techniques and a lot of patience. On the patience side you notice there are a few ladies here and I am pleased to note that there are a lot more ladies in the audience today than there were when I came in 2003, I think it is very, very important to get ladies involved in behavioural safety, I think they introduce a balance which is otherwise lacking if you have a room of testosterone, you know ladies can provide that vital calming influence on us.

Another one of our activities is decommissioning weapons and there is a freefall bomb there on its way to a distant grave.

We also assemble devices, we take them apart for analysis and we also decommission work, on the right hand side you can see people in these suits, pressurised suits, this is a somewhat sanitised use in the training area, in reality this would be decommissioning a lathe or some glove box in a very cramped very, very unpleasant environment, and the only way you can actually observe these people is through camera or through a small porthole and it is highly skilled work and as you can imagine the managers are not in there with them doing this.

So the challenges for us – we have got lots of lots of challenges, all the challenges you have been discussing today and telling us about, we have all those. We are about to get our teeth into some new facilities, where is the point of just getting on and just making a copy of what you have got? The overall safety can tell us about the defects in our existing buildings so we create as we go ahead and just make a replica of what we already have, so we want to avoid that and I will tackle that in a moment.

Some managers could provide better support with the overall safety process something we have been discussing all day today.

Subcultures – we don't have the problems of British Gas of lots of languages on one site but there are sometimes regional dialects which I sometimes struggle with but mostly from the fact that we have a double fence round the outside we have armed police with dogs and then when you get inside other areas have got further fencing, there are more police and more dogs. People within one small unit do not necessarily know what goes on in the next building even and so once you get into those type of areas sometimes people might work in there for 10 or 15 years and never work anywhere else and I am sort of starting to experience some of that myself.

So onto the not designing in floors, this is just across from my office this particular picture and down here is a stairwell, so you can imagine there is a very short distance between that ladder and the guard and I saw a chap using the ladder one day and this operation has probably gone on hundreds of times and one day the penny clicked that this was not a very good idea and you start asking the questions. Well he has got to use it he has no choice really because that is his job, why is it unguarded, and if you actually do the measurements it doesn't quite fall into the requirements as a fixed ladder as requiring a guard even though the fall is quite high if you go over the edge of that thing. Why is the ladder there? Well there is a tank up in the roof, which feeds the rest of the water system. So we can't get rid of the tank today or tomorrow but when we replace this building it would be silly to put another tank up on the roof when you can have a high-pressure system operated by a pump and an accumulator down on the ground floor. So no need to have a ladder, no need to go up on the roof, the problem has gone away you have engineered it out. You may have to live with it for a while and you may have to put in some mitigation. In this case they have there is actually another access at the other end of the building and this has now been locked off and it is not used.

Behavioural safety we traditionally regard it as – we look at what the guy is doing, look at the environment and you make your decision. It's about you know the chap is doing it that way because of the environment but it is not just the physical environment, there is the organisational factors, there is the managerial side of it as well and I think that is particularly important for us, we have had difficulty with behavioural safety and I thought to myself is it that behavioural safety is an inherently bad process? I looked at other continuous improvement activities that we had things like partnership, lean manufacturing and when you start talking to their co-ordinators and facilitators you discover that they have been having the same sort of difficulties that you do and you have to ask yourself why is that and you need to start working your way back along the chain. We looked at our supervisors, what sort of support have been given them and Tim came in and we took a pilot group of 80 supervisors and we gave them some extra training which gave them some insight into behavioural safety, we started giving the supervisors some skills, and that is when we discovered that out of this 80, quite a few of them had real difficulty doing the tool box talk, just a very simple talk, we hadn't really given them the skills to do that, they had somehow fallen through the net. Most alarmingly of all one of them couldn't read, now how could that individual give a briefing, how could they look through a safe system of working and tell their colleagues about it? How could that have happened?

So we need to keep looking back and asking ourselves why and don't just look at the physical environment.

Our board want behavioural safety, they want it faster and they want it now but we need to convince them to put the brakes on, we need quality not quantity and they need to understand that if you put people in a room to train them about behavioural safety, it is not hypnotism, it is not some sort of safety viagra, that once they have had the training they go out of the room and behave safely, they have to put their hands in their pockets, they have to change the environment and they have to support the supervisors when they have to go back and say we cannot do this at the pace you are asking, they may have to accept the fact that there is going to be change. It is a big challenge.

We need to train those managers in between the board to deliver the process that is complimentary to behavioural safety because what behavioural safety has told us is that some

of our other processes aren't working as well as they might do. We have had a recent example of a senior manager – we have a housekeeping index which goes up to 10, he went into a place which was like a tip and gave it a score of 9. Clearly that's no use and we need something far more sensitive and consistent than that.

We need to communicate standards and get them known and accepted by everyone. And once they have been accepted it is then OK.

For some groups we have tried having a half day shutdown, closed the facility, taken them off to a nice big room and break them up into groups and talk about behavioural safety. One senior manager was up at Tesco's at 6 in the morning filling the boot of his car with doughnuts, 200 doughnuts he turned up with and people remembered that!!!! They also remembered some of the safety stuff as well and that helps to get a better buy in.

We have also got a problem – somebody has been saying how do you get the managers involved and is it top down or bottom up? – Well we have been going along the bottom up route and if you say to some groups at the beginning – let us train your managers, let us have you all in the room together, the managers say you can't tell the difference between us and the workers, we have our sleeves rolled up we are in there with them, when you ask the shop floor staff they say we don't see the managers from one week to the next, they don't come in here they go round the shiny new parts of the building and we don't see them here and we don't want them doing this anyway and if you bring them in we will stop it!!

So your process can be held hostage to all sorts of things but with behavioural safety in some areas has now been running two years they are saying to us – why don't you get the managers in? They can come round and do observations with us. This is a group that were completely opposed to this two years ago but the trust has now built up to the point where we are going to be training those managers and they are going to come alongside them.

Initially you are going to say OK, we are not going to take any names and we won't know who is doing it but if the manager is there when you are doing an observation then of course they are going to know. To get that trust takes time and although we are trying to work towards more inclusive arrangements, trust is not instant it has to be earned. The managers need to understand how behavioural safety can benefit them, it is long term process, you have all told us this, it is not a quick fix and it can take some years to build.

Some of our decommissioning programmes run for 15 years or more, in that time you can imagine if you avoid a couple of shut downs due to accidents then the process has paid for itself, it is not difficult. There are other savings you can make as well. They are not difficult quite often some of them are environmental ones, so you know you can sell it that way.

We said about the local cultures and a particular group at one of our pilot groups things had been going well initially, they had had several internal awards and when you go down there now it is visibly different, standards have improved especially of a housekeeping nature, but things have changed in there and you might wonder why that is. Some of the committee members have moved on just as a natural marriage, promotion and just a general change and these were the prime movers of that.

A large part of this workforce were contractors and some of them had the feeling that their performance is fixed regardless of how well or badly they do, that is what they are paid and they feel 'why should we do this? We are not paid extra where is the benefit for me?' and management by stealth. Of course those that weren't involved – someone mentioned a secret society – I was told it was like a Masonic society.

Again we want to try and have a more inclusive approach. We went through the volunteer arrangements and we had some very good results from those volunteers but they moved on and we need to get new volunteers into the process. Everyone got involved they went through the measures, they renamed some of the things, simplification, one of you was saying today how important it is to simplify things, you can only keep three things in your head.

They voted for a chairman themselves and most importantly a champion to drive it along and most importantly be that link between themselves and management.

Behavioural safety is part of the induction for new starters so that when someone comes into the facility they understand and quite a few probably pair up to do A & C checks they decide they are going to pair up as a permanent thing.

It is a very big building, this where they are working and quite often nothing will actually happen in an area from one week to the next, they will avoid those and concentrate on where the activity is because otherwise they are just monitoring staff and getting flat graphs. There is little interest and no enthusiasm and you can't make an improvement if there is no work.

Be aware of your own behaviour, it is very important that the observers everyone needs to recognise that they are human and might make mistakes, their colleagues still expect them to be whiter than white.

It is successful and everyone has contributed to the new way of doing behavioural safety they have all been involved in setting this up and I think very importantly from now on they are all going to be involved.

So what have we learned from that? When you are starting up you have got the toy out of the box but you can't use it straight away, that is because it needs a jump start and also you have got to publicise what you are doing, you do need some quick wins and quite often staff will have very firm ideas about what needs fixing, they won't have done any cause analysis at all but they know there is something that they want done and it can be a long standing issue, the spray booth we have had that sorted out and it had been like it for 15 years and it took about 9 months and it has now been done and that is seen as a major improvement. Large gloves again that caused us a lot of difficulties and that has now been done or it is in the process of being done. It does what it says on the tin and more behavioural safety has got so many benefits for your business, environmental and why wait until you actually see an unsafe act, sometimes you can look at something and deal with it straight away.

It may contain nuts! Traditional roles may be challenged and some may feel excluded – particularly supervisors we had a very extreme example of a supervisor who came very close to assaulting a trainer, we regarded that as very, very serious how could we have got this person into that position? He felt so threatened that he decided to have a go at somebody, but if you have an inclusive approach it should reduce the effect of that sort of thing if everybody knows what is going on.

Some assembly required! Take the best parts of behavioural safety but keep within the 6 pillars of behavioural safety and things will work for you. It is not easy but it is worthwhile, you must stick with it!

### **Chair**

We are right on time so we are going to go straight past the questions. I know people have got flights to catch and trains I believe Roger is coming back on stage