

The intersection of hazardous industries



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My own lengthy and varied professional life has been mainly focused in the property construction and built environment sector over a fair few decades both internationally and in the UK. For me personally the end of 2019 marked another new and exciting waypoint on my journey I would like to share with you

Along the way over a few decades I've won a number of awards – Constructing Excellence in 2007 for authoring online training that equipped over 4,500 local authority in-house property officers plus over 1,500 in-house officers across the 33 Highway Authorities across London all with tested knowledge of their various statutory duties to comply with the Construction

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(Design and Management) Regulations and other statutory instruments that competent construction teams need to know.

After that heady start, in 2008 I proudly received one of only three HSE nominations across the UK as a Health & Safety Champion of the year and, unexpectedly, last year the Institute of Construction Management award me Manager of The Year.

So as we start off 2020, I thought I would use this article to build on my previous article that appeared in Rail Professional about the important industrial progression of mass passenger transport and the greater integration of light rail systems of urban rail transportation into our communities roads networks and highways systems.

Shortly after that first article appeared in Rail Professional (February 2019 edition) a ‘near miss’ event occurred when a passenger train travelling from London to Southend narrowly missed colliding with a concrete mixer on a level crossing in Essex that had become trapped in the crossing in Mucking near East Tilbury after site workers had waved the driver onto the crossing even after red stop lights had begun flashing.

In this article I will concentrate upon that interface between urban construction and rail operation; at the crossing point of two hazardous industries!

Although none were injured this extremely close call event was within a whisker of being a major catastrophic rail disaster – the inertia of a passenger train travelling at 57mph impacting into a static

fully loaded concrete lorry illustrates the vital importance of understanding the interface in my earlier article.

As the lorry was beckoned forward under the control of a banksman and out onto the tracks as part of a manoeuvre to reverse back into the nearby Network Rail construction site where there was a signalling power supply upgrade project, the lorry stopped to shift into reverse at the point the barrier came down behind the driver's cab and became stuck behind the water tank and revolving mixer – trapping the driver in his cab side on to the approaching train! The lorry driver in his cab was stuck for eight seconds until the site staff manually lifted the barrier to allow the lorry to reverse clear of the crossing with only six seconds to spare before the train passed at 57mph. But then, immediately after the train had passed, the lorry driver again drove forward still guided by the banksman to again stop on the crossing before reversing clear of the railway and into the compound – all totally unaware that another train was going to arrive at the crossing less than three minutes later!

The interface between railway companies and contractors can create significant risks if it is not properly managed. It is important that railway staff, who should know how to do the job safely, take the lead in making contractors aware of the hazards that go with working near the track. No matter how small the job or the site, it only takes one concrete mixer to create the conditions for a catastrophic accident. Although the road

vehicle driver had a legal duty to stop at the red flashing lights, in this case he should not have been put in such a position by taking his lead from a railway worker waving him on. Proper planning prevents poor performance. It does concern me when I think on the under-reporting of near misses – we have no way of knowing how often such events might be occurring?

Fortunately, in this case, because of the presence of CCTV systems both mounted in a static monitoring situation on the level crossing itself and another recording from the train driver's cab, the whole train of events (no pun intended!) the captured evidence triggered a formal Rail Accident Investigation Branch (RAIB) investigation and the report was published in December 2019. The RAIB Report is extremely detailed in its findings and, I realise its useful importance as learning for those involved in construction – as I explained in my article last year, the Construction (Design and Management) Regulations are applicable to both construction and rail which is defined for the purpose of those regulations as a structure but the enforcement agency in each sector is administered by different agencies. I will be referring to the detail from RAIB to support this article and my views.

When considering any post-event report, it is worth holding the thought that in the report into the 1988 Clapham Junction rail disaster wherein the Judge who chaired the Inquiry, Anthony Hidden QC said: 'There is almost no human action or decision that cannot be made to look flawed in the misleading light of hindsight. It is essential that the critic should keep himself constantly aware of that fact.' In that sad event a crowded passenger train crashed into the rear of another train that had stopped at a signal just south of Clapham Junction railway station in London, and subsequently sideswiped an empty train travelling in the opposite direction. A total of 35 people were killed in the collision, while 484 were injured.

The legacy of that 1988 Inquiry was that testing was mandated on British Rail signalling work and the hours of work of employees involved in safety critical work was limited. Although British Rail was fined £250,000 for breach of the Health and Safety at Work etc. Act 1974, there was no prosecution for manslaughter but, eventually in 1996 that 1988 collision was one of the events cited by the Law Commission as reason for new law on manslaughter, resulting in the Corporate Manslaughter and Corporate Homicide Act 2007 and sentencing guidelines could start at +£3 million in 2020!

This article forms part one of a two-part series, in this first article I initially will look at incompetence and its consequences using principally the excellent RAIB investigation report and will use other examples that explain. Later in the second part I will

explore to understand attaining levels of competence; the journey from unconsciously incompetent through to consciously incompetent, then to consciously competent and on to unconsciously competent!

The purpose of a Rail Accident Investigation Branch (RAIB) investigation is to improve railway safety by preventing future railway accidents or by mitigating their consequences. It is not the purpose of such an investigation to establish blame or liability. Accordingly, it is inappropriate that RAIB reports should be used to assign fault or blame, or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

The RAIB's findings are based on its own evaluation of the evidence that was available at the time of the investigation and are intended to explain what happened, and why, in a fair and unbiased manner.

Before looking at the detail of the event, it's worth understanding the terminology around the descriptions of factors linked to cause.

Where a factor is described as being linked to cause and the term is unqualified, this means that the RAIB has satisfied itself that the evidence supports both the presence of the factor and its direct relevance to the causation of the accident or incident that is being investigated.

Where the RAIB is less confident about the existence of a factor, or its role in the causation of the accident or incident, the RAIB will qualify its findings by use of words such as 'probable' or 'possible', as appropriate.

Where there is more than one potential explanation the RAIB may describe one factor as being 'more' or 'less' likely than the other.

In some cases factors are described as 'underlying'. Such factors are also relevant to the causation of the accident or incident but are associated with the underlying management arrangements or organisational issues (such as working culture). Where necessary, words such as 'probable' or 'possible' can also be used to qualify 'underlying factor'.

Use of the word 'probable' means that, although it is considered highly likely that the factor applied, some small element of uncertainty remains.

Use of the word 'possible' means that, although there is some evidence that supports this factor, there remains a more significant degree of uncertainty.

An 'observation' is a safety issue discovered as part of the investigation that is not considered to be causal or underlying to the accident or incident being investigated, but does deserve scrutiny because of a perceived potential for safety learning.

It is vital to ensure clear understanding that the terms used in any part of the documented information flows are intended

to assist others' interpretation to provide suitable explanations where uncertainty remains. The RAIB protocol produces clarity across the important interfaces when information flows effectively and appropriately through the project procurement process.

Consideration to personal privacy is important to be aware of and may mean that not all of the actual effects of any event are recorded in a report. It is important to recognise that sudden unexpected events can have both short and long-term consequences for the physical and/or mental health of individuals involved, both directly and indirectly, in what actually happened.

The RAIB's investigation (including its scope, methods, conclusions and recommendations) is uniquely independent of any inquest or fatal accident inquiry, and all other investigations, including those carried out by the safety authority, police or railway industry – this unbiased detail provides excellent insight. The RAIB found the incident occurred due to a combination of two causal factors; the lorry driver drove onto, stopped and reversed on the level crossing and site staff did not recognise the need to take account of the level crossing when managing the large road vehicle at the site entrance.

The RAIB reported many incompetent finding e.g. although the concrete lorry fleet operator provided drivers with an induction including banksman signals; every truck carried a pack which includes the Highway Code, company safety handbook, and banksman signals; and the employer expects its professional drivers to be familiar with the Highway the driver breached the law!

Highway Code (rule 293) refers to level crossings and states: You MUST always obey the flashing red stop lights. You MUST stop behind the white line across the road. Keep going if you have already crossed the white line when the amber light comes on. Do not reverse onto or over a controlled crossing.

The lorry driver had not delivered to the site before, but knew the road and had been informed that the site was near a level crossing before he left the depot but was not given any specific instructions about the level crossing.

Video evidence shows that the lorry slowed to walking pace as it approached the site entrance. The lorry driver was waved forwards and given a 'thumbs up' by the banksman who was standing on the left-hand side of the road and was dressed in orange reflective clothing (as worn by many railway staff).

This first part indicates what can only be described politely as a complete incompetent mess where only six seconds separated a near-miss event from a catastrophic loss of life! In part two that will be published next month I will explore and explain about safe systems and competence.