



INCIDENT INVESTIGATIONS

An incident in industry is not generally caused by one failing, but by several. It could be many different errors or failings are required before an incident manifests itself and most of those errors may already have been present for some time. This means that one particular effect or person may be blamed for the incident, when in fact, it is the entire system that has allowed many errors to build up over time.

Accidents by their very nature tend to attract the attention of a whole host of interested third parties some of whom will have a right to conduct an investigation and recommend improvements. Such investigations are of undoubted value but may be limited in scope. Two of the more common investigations are for insurance and regulatory purposes respectively.

THE 'INSURANCE LOSS ADJUSTER' APPROACH

Insurers are interested in ascertaining their liability in the event of loss. Their focus will be to determine whether the loss was the result of an insured event, and if so, to quantify the indemnity payable. Many different insurers may be involved in a major incident, all focussing on their respective insurance policies and then only to the extent of their coverage and liability.

THE 'REGULATORY AUTHORITY' APPROACH

The responsibility of the public authorities is to determine whether an incident has resulted from an infraction of a legal duty and if so, who is culpable. Once the Regulatory Authority has determined that there is a case to answer then the investigation will include amassing information to support a prosecution.

Incidents may not involve either of these two parties, or may concern one or both. Often recommendations will also be made to effect improvements. Both parties also have the power to enforce such improvements either by virtue of potentially higher insurance premiums or via a legal prohibition notice.

A DIFFERENT SLANT WITH CHILWORTH'S DETAILED REVIEW

It is important to conduct a thorough review of all incidents to learn the lessons needed to avoid reoccurrence. It is advisable to look beyond simply determining liability and responsibility for the actual events and identify what other possible effects could have led to the same or similar losses, and to use this information in the rebuilding programme. This then not only prevents 'what did happen' from reoccurring, but also takes into account 'what could have happened' as well, demonstrating a far more proactive response to the incident.

In the following examples a detailed review was used to identify all materials that could have been ignited and all sources of ignition that could have been present. Once

completed, scenarios were identified and if shown to be impossible, eliminated. Any remaining deficiencies that could have caused the incident were then designed out of the rebuild.



Photograph 1: Remains of a caustic water scrubber. Fires can destroy even wet systems.

Case 1. A fire upstream was drawn into ductwork and caused the plastic duct to burn, passing through the system and destroying all ductwork and the scrubbers. Photograph 1. shows one scrubber out of a series of three and what can happen in those circumstances.

In this case it was relatively easy to determine the cause of the fire, and even though foresight would not have said that plastic scrubbers could burn, hindsight said different. Thus, a simple recommendation was made – to make the scrubbers and ductwork out of non-combustible material if the potential for fire cannot be totally eliminated.

Case 2. A detailed review was also used in assessing the incident shown in Photograph 2. It was only by undertaking a structured assessment, combined with testing at Chilworth Technology's laboratories, that the cause could be determined. It was eventually established that a very unusual electrostatic phenomenon had ignited powder in a hopper and caused an explosion. The air was drawn into the hopper on the left of the picture horizontally. The powder built up in the hopper and obstructed the inlet lines causing the speed of flow to increase and resulting in a high charging mechanism. The powder 'glassified' on the filter body and a Propagating Brush Discharge occurred igniting the dust cloud present.



Photograph 2: Filter after explosion caused by electrostatic ignition.

Once an incident investigation has taken place, it is necessary to know if any actions are to be taken by the Regulatory Authority. Authorities have their own criteria for judging whether to undertake actions (notices or prosecutions), but one requirement is that the incident must have been 'foreseeable' and therefore could have been prevented in advance.

Chilworth Technology has considerable experience in the judgement of foreseeability. Being an independent company we are well placed to provide a fair summary of our findings occasionally removing the need for the Regulatory Authority to undertake their own separate investigations. Our findings and recommendations are

acceptable to most Regulatory bodies and reduce the downtime between incident and a return to production.

HOW CHILWORTH TECHNOLOGY CAN HELP

The best way to deal with incidents is to ensure they never happen. Chilworth Technology can work with you and undertake a full process safety audit to identify potential losses and provide the necessary advice to avoid or mitigate the anticipated effects. This will be carried out in line with current best practice and any regulatory requirements e.g. DSEAR.

Finally, if it all goes wrong.

- We will undertake a detailed investigation to determine what went wrong, and review how an incident can be prevented in the future, whether from the actual cause of the incident, or from any other potential causes identified during the investigation. If necessary, this investigation will also assess foreseeability.
- We can also provide expert witness services should the Regulatory Authorities decide to prosecute. We will determine whether there is a case to answer on technical grounds. Chilworth Technology have experience in providing evidence in Magistrate's, Crown and Coroner's Courts.

For further information on our range of services, please complete the fackback form below.

faxback

Please faxback to Marketing on +44 (0)23 8076 7866

Name:..... Job Title.....

Company Name.....

Address

..... Postcode Country.....

Telephone: Fax:.....

Email

My particular interests are:-

Incident Investigation / Expert Witness Hazardous Area Classification.....

Electrostatic Hazards / Problems ATEX / DSEAR audits

Chemical Reaction Hazards..... Dust/Gas/Vapour Explosion Hazards.....

Training

I would like to talk to a consultant about a process safety matter

I would like a visit from a consultant next time one is in my area.....

(We regret that this offer can only be extended to residents of the UK, Ireland, France and Benelux.)

For further information phone Chilworth Technology on +44 (0)23 8076 0722

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