

Who's afraid of ATEX?

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This paper is a sister to that on IEC 61508/61511¹, and highlights some key issues for owner/operators in respect of DSEAR/ATEX that may help maintain the right perspective on the requirements.

It seems that with many regulatory and standard developments, UK industry often overshoots in its response with all that implies in terms of unnecessary expense and misdirected resources.

One manifestation of this is in respect of the DSEAR regulations through which the ATEX directives are implemented in the UK. Now clearly there is a need to act responsibly in respect of these regulations; the ostrich approach won't wash. But you need to be wary of the expert/enthusiast who will gallop unreservedly down the full 'Brass & Mahogany' route, or the cover-my-backside merchant who will effectively abdicate responsibility and pay others to gallop down that road for them. It is easy to expend a great deal of money or resources to no good purpose, when it could be directed to areas where there is a better safety return.

DSEAR does not represent a revolution in the management of explosive atmospheres. It is largely a consolidation exercise. For the most part, any operation that has observed previous good practice will be in pretty good shape, so there will be no need for a complete revamp.

With all such developments, it is prudent to get a definitive understanding of requirements; I am often surprised by how the game of 'Chinese whispers' will lead to interpretations that can subtly but significantly distort the requirements.

For example, there is no mandatory requirement to produce an 'Explosion Protection Document'.

Similarly there is no mandatory requirement to install an 'Ex' sign at every entry point to a hazardous area.

However, there is an obligation to do these things where this would be the prudent, responsible approach. You need to consider what is sensible in the specific context of your operation.

So let's consider some potential 'overshoot' issues.

Hazardous area classification

The standards are understandably built on a conservative basis, so be wary of compounding conservatism with the application of the standards.

For example, kerosene/paraffin has a flash point of >38°C, so under UK ambient temperatures it will not form an explosive vapour; so think hard before zoning a kerosene (or equivalent) installation 'just to be safe'. (However, be aware that kerosene below 38°C that is atomised under pressure may form a flammable mist.)

Be wary of indiscriminately imposing 'blanket' zones 'just to be safe'. This may cause unwarranted headaches with operational/maintenance manoeuvres or plant revamps (particularly with the need to include non-electrical sources of ignition in your assessments).

There is a very real danger in undue conservatism in that it undermines the credibility of the provisions. If personnel cannot see a link between hazard and safety measures, they may end up paying lip service to the stipulations and making independent judgements about the compliance/diligence required. 'Just to be safe' provisions that appear to be nonsensical may promote inappropriate behaviours and actually weaken safety measures.²

Do not be afraid to revisit area classification if you believe it to have been unduly conservative. Zones may well have been extended beyond what was required to simplify the zone definition in terms of boundary geometry and convenient boundary markers. What previously seemed a practical designation may no longer be so with the need to include non-electrical sources of ignition. If there is truly no reason to believe there to be an explosive atmosphere hazard, it would be entirely legitimate and prudent to redefine an area classification to avoid non-electrical equipment that would not be suitable for a hazardous area.

Just to clarify the point about 'Ex' signs, the requirement is to place these 'where necessary', i.e. where they will contribute to management of risk. If they would be essentially redundant or superfluous, they are not required. If a whole site has a regime for control of sources of ignition and hot work, the signing at every entry point to individual hazardous areas might well be 'over the top'. In such circumstances, such signs are more likely to have significance in hazardous areas that are 'off the beaten track' where personnel might otherwise overlook the potential hazard.

Documentation

Yes, you will use certified equipment, but that is not to say you have to hold the certificate; as long as you are satisfied that the equipment is certified and is fit for purpose. (Retrospectively trying to compile a file of certificates for all apparatus might well be an unduly onerous exercise that would add little value.) Note, however, that if an item is marked with a suffix -X then you must review the certificate (or other definitive document) to check the 'Special Conditions of Use' that the suffix indicates.

You do not necessarily have to have a drawing identifying the location of every item. Maps and grid references are all very well, but represent a significant amount of

work that may be of marginal benefit, and add to the change control burden.

You do not necessarily have to compile an 'Explosion Protection Document', but you do have to perform and document a risk assessment. It may be that your existing safety case documentation will fulfil the requirements or can be modified to do so.

Inspection

Inspection schedules are often unduly onerous because the inspection requirements are confused with maintenance management database provisions. The two are related of course, but there is not a direct correspondence in data requirements. The inspection requirement is simply to establish that the equipment is suitable for its zone of use and that it is correctly installed and has not suffered deterioration that might compromise its integrity. For example, in a zone 1, group IIA, class T1 application, you need to be satisfied that the equipment meets or exceeds these requirements; in this respect it does not matter, for example, whether it is certified IIA, IIB, or IIC.

The inspection schedule should identify the zone/class/group requirement against which the equipment can be checked, rather than the marking of the equipment as installed (which might well be recorded in the maintenance asset database). This is better inspection practice; if you cite the database record there is the possibility that the inspector will 'see' what he expects or simply looks for a match rather than evaluating compliance with the requirement.

Note that sample inspections are not intended to identify random faults; they are intended rather to identify systematic deterioration and allow appropriate intervention. As long as your sample is representative, you do not need to widen the sample population.

Periodic inspection is not intended to provide an absolute guarantee that every piece of equipment meets all the requirements. Practical considerations of access and legibility will not allow completely exhaustive confirmation. This is why the detailed initial inspection before first putting into service is important; it is often only then that a comprehensive inspection is viable. Providing that you have no reason to doubt the integrity or suitability of equipment, it is not unreasonable to record 'not accessible/not legible' for some aspects of a periodic inspection. Introduction of new equipment will usually be self-evident and its 'newness' will provide for legibility. If the equipment is long established and inspection of similar aged and accessible items operating in the same environment do not give rise to concern, then simple visual inspection confirming that there is no evident damage/deterioration would not be unreasonable.

Competency

Yes, your people need to be competent, but that does not necessarily mean that every last man jack of them has to go on a week's excursion with all that entails in terms of cost and disruption. (A week-long training course may be appropriate for some, it is a question, as always, of what is fit for purpose). Training is often inflated beyond the immediate needs of the trainees. There is little point in providing craftsmen with the details of the legislative

framework of the regulations – they need to know where the legal line is in the sand, not which statutory instrument it is defined by. A lot of training courses provide a level of peripheral detail that will be forgotten by the following week.

Above all trainees need to understand the first rule of competency: Don't Guess - Don't Assume. Very often the required knowledge or skills will be exercised only intermittently and the first requirement is to understand the need to check instruction/installation manuals or refer to a responsible authority the moment that unfamiliar territory is reached.

Good training is focussed on understanding rather than learning by rote. Given competency in the fundamentals; basic circuit theory, maintenance practice, permits-to-work, use of hand tools, etc. I would suggest the following as objectives for general craftsmen ATEX training:

- Understanding of personal responsibilities;
- Understanding of the nature of hazards associated with potentially explosive atmospheres and associated equipment;
- Understanding of the operational constraints on hazardous area equipment;
- Understanding of the basic equipment/installation requirements;
- Understanding of the constraints on maintenance/repair if installation integrity is to be maintained;
- The ability to recognise clearly compromised installation integrity or operational/maintenance malpractice;
- An understanding of the need, and a knowledge of where, to get further information/support as required.

In terms of inspection, true competency calls for something beyond an understanding of the physical requirements; it requires a particular intelligent diligence that does not fall within everyman's capability, whether 'Ex trained' or not. It requires a willingness to look beyond immediate assurances (even when given in all good faith) from those in authority; it requires a degree of discrimination in identifying where safety has been significantly compromised and where a technical breach does not deviate from the 'spirit of the law'; it requires a painstaking thoroughness that does not simply 'pass' when information is not immediately to hand or there is some other inconvenience. (All of this is, of course, true of most inspection roles)

Simply 'going through the motions' is likely to generate a long, but unhelpful list of not particularly significant non-compliances and may well miss the opportunity to add real value to the operation.

Conclusions

A relatively straightforward approach may be perfectly viable for many process operations. It is easy in a flush of enthusiasm to include refinements that add little value but make change control and maintenance of up to date records all the more difficult. Keep it simple – keep it safe.

References

1. Who's Afraid of IEC 61508/61511, by H.T.Deardean, *Measurement + Control Journal*, November 2005.
2. Safety Management; Beware the Reality Gap, by H.T.Deardean, *IEE Management Magazine*, Nov/Dec 2003.