

BASEEFA – Past, Present and Future

The Rebirth of a World-renowned Certification Body

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Figure 1: Relief venting rapidly developing dust explosion of a 250 m³ vessel

History

The Safety in Mines Research Establishment moved to a site on the outskirts of Buxton in 1926. Some of the reasons for choosing the site remain valid, while others are no longer appropriate. Buxton, 50 km southeast of Manchester, is the highest market town in England, some 300 metres above sea level, surrounded by what is now the Peak District National Park. The laboratory site is even higher, at nearly 400 metres, and is remote from habitation. It was possible to indulge in noisy explosion testing without worrying about the neighbours.

With an emphasis on serving the coal mining industry, Buxton was in the geographical centre of the UK coalfields and had also had some small-scale mining on the moors around the town.

Certification of Electrical Equipment for use in mines developed in the 1930s and such equipment became known as "Buxton Certified". Flameproof testing was always carried out at Buxton, though Intrinsically Safe equipment was tested, for much of the time, at a newer laboratory just 50 km away in the centre of the industrial city of Sheffield.

In the 1960s, the focus of effort moved away from supporting the mining industry to dealing with the growing hazards, which were developing in the petrochemical and allied industries. In 1967, the UK Government

decided to create a special organisation, based at Buxton, to deal specifically with non-mining electrical equipment. The British Approvals Service for Electrical Equipment in Flammable Atmospheres (BASEEFA) was created with the ex-Chief Electrical Inspector of Mines, Donald Fox, as its director.

Although now a separate organisation (even in a separate government department), it relied heavily on the research laboratories for the physical testing of the equipment. However, when most of the safety related work in the UK was brought together in 1975, into the Health and Safety Executive (HSE), the two separate parts at least had a common master.

Over the years, more and more of the physical activity was transferred into the new organisation, culminating in the incorporation of all the mining certification activity in 1985 and the adoption of a new name, the Electrical Equipment Certification Service (EECS). The name "BASEEFA" was now used officially only as a certification brand, applicable to Group II equipment. Nonetheless, BASEEFA was often used colloquially as the name of the organisation and, internationally, the names BASEEFA and EECS became interchangeable.

During this period, the reputation for high quality certification (as well as for research and standards development) grew. The name BASEEFA became known throughout most of the world and had total acceptance in many

areas, particularly where there was a history of British engineering input.

Certification was seen as a "national" activity with most countries having just one dedicated, usually government-sponsored, test house (or one mining plus one non-mining). With the advent of the original EG EX-Directives from 1977 onwards, there was some cross-border certification within Europe, but most manufacturers shopped at home.

Under the original EG EX-Directives, the European laboratories met together as "Heads of the Laboratories" (HOTL) to discuss and resolve technical matters and ensure equal interpretation of the growing standards throughout Europe. The laboratories met as equals and, because there was not significant commercial competition between them, they could have honest discussions, without fear of putting themselves at a commercial disadvantage.

The recent past

From 1990 onwards, the environment for the existing certification bodies began to change as other, newer, bodies began to take an interest in the commercial possibilities.

In 1991, HSE decided in principle that, because certification could be done outside government, it was not appropriate for EECS to remain as part of HSE. There was also a political motivation to reduce the number of civil servants.

HSE therefore started the process to put EECS into the private sector by means of a trade sale. The existing senior staff began to look at the possibility of raising the funds to finance a management buyout. But it all came to a shuddering halt. HSE's solicitors said a trade sale was not possible because HSE did not have the legal authority to sell part of itself. Things were put on hold until such time as the government passed a new act of parliament that would give HSE powers to sell EECS.

The buy-out plans gathered dust as the

staff concluded that HSE was not, after all, that serious and the political necessity of reducing the number of civil servants gradually receded.

From 1996 onwards, there was a move towards the practical adoption of the new ATEX Directive (94/9/EC). Owing to a miscalculation of the market place, EECS allowed itself to become a Notified Body under that name, and from that day forward, the EECS branding began to replace the BASEEFA branding on the certificates.

At the same time, the number of certification bodies seeing a possible commercial interest in this activity increased. It was not at all clear what criteria were being used in each country as the basis for notification.

Because of the structure of EECS, as an integral part of HSE, it was not in charge of its own costing structure. HSE imposed central overhead charges which bore little relationship to the actual services that EECS received from the central organisation. HSE had a budget structure that was geared to minimising the spending of UK taxpayers' money, rather than on ensuring the best use of funds within a pseudo-commercial business. Consequently, the only way that HSE knew how to handle rising costs was to keep on reducing the size of the organisation. Costs went down, but income went down faster. Each time the organisation reduced in size, it lost some further efficiency and it was slowly being driven into a downward spiral. Attempts to branch out and gain income from other sources were generally rejected by HSE as this was not part of its overall policy.

Eventually, HSE persuaded the government to take the privatisation option forward and a short clause was added to a general safety bill that was starting its way through parliament. The management buyout plans were taken off the shelf, dusted, and revised for the new trading situation. But it all stopped again when the prime minister, Tony Blair, called a general election in June 2001 and the legislation in progress was lost. The new government decided that it had more urgent

measures to fit into its legislative programme and that it would not re-introduce the bill to allow privatisation of EECS. The buyout plans were put back on the shelf.

That seemed to be that, until Monday, 24 September 2001 at three o'clock in the afternoon. At that time, all staff received a brown envelope containing a short note from senior HSE management saying simply: Because we can't privatise EECS, we will close it down. Furthermore, the note said that the same information was being released simultaneously to all customers. There had been no consultation with EECS staff or with anyone outside HSE.

Shock and reality

Staff were stunned. There had not been any clue that closure was a possibility. It was seen as flying in the face of all reason. EECS was overloaded with work as customers were in the middle of taking existing products through the process of getting their new documentation for the ATEX Directive.

Customers were also stunned. Apart from a loyalty to the staff that they had known for many years and who were helping them to get their essential ATEX documentation, they could not understand how HSE had, unilaterally, decided to shut the major UK resource in this area. They could not see how UK industry would cope without EECS.

The HSE response was that it was not their problem. Certification was a commercial activity. The market place would respond to the need, if it existed.

The glimmer of light

After a few days to recover and start thinking positively, discussions started between staff and a few key customers. It became clear that there were many customers who would remain loyal to the existing staff, provided that a way could be found to create a new →



Figure 2: BASEEFA (2001) logo

→ organisation in the private sector which would carry the ethos forward.

Initial discussions with HSE managers also gave a clue that HSE would not be obstructive to the idea, although they would not, in any way, provide direct assistance.

All EECS technical staff were to get the best available severance terms, either through compulsory early retirement (if over 50) or enforced redundancy. Non-technical staff would be offered other work within HSE. The previous management buyout problems had reversed. Instead of having to raise finance to buy a going concern, the staff now had promises of plenty of money, but nothing to buy.

As well as a smooth transfer of staff, if EECS had been sold, the most important assets of the business would have been sold with it: The work in progress; the forward order book, and (most importantly) the various accreditations, notifications and agreements with other bodies. None of these would come automatically to the new private company.

The problem was how to ensure the new start would appear just as seamless to the customers as a management buyout would have been.

The new company would have to be up and running, with at least ATEX Notified Body status in place, before EECS really started to wind down. It would be necessary to have the two organisations running in parallel for some considerable time in order to achieve this. But the question remained: how?

This is where HSE's "inactive" help came in.

First of all, they let it be known that they

would not object to the new company adopting a name which would be familiar to customers, provided that it could not be interpreted as a direct continuation of EECS. Hence "Baseefa (2001)" was adopted and a limited company set up with that name.

Second, they accepted that, as the work of EECS began to taper off, it would be logical to give some staff earlier termination than others and they would not be averse to selecting staff who would be most useful for starting the new company, provided that it was not to the detriment of EECS.

There was, though, the added complication that, as civil servants, existing staff remaining with EECS in the short term could not have a formal role in the new company (for example as directors), if the new company were to start trading. There would have been a clear conflict of interest between service with EECS and acting as a director of a private company working in the same line of business.

Although much preparatory work was done by many people in their own time, it was not until myself, Ron Sinclair (then sole director) and Mike Corfield (company secretary) obtained severance from EECS in March and April 2002 that BASEEFA (2001) Ltd. was able to start trading with a total staff of three. (We had also engaged Phil Coogan who had done some temporary contract work for EECS to join us to develop our computer and financial systems).

Progress

Although it was possible to issue ATEX Category 3 Type Examination Certificates from the very start, it was necessary to become a Notified Body before issuing certificates mandated by the ATEX Directive. In Great Britain, the United Kingdom Accreditation Service (UKAS) act on behalf of the Department of Trade and Industry (DTI) to recommend (or not) that a certification body should be notified.

Because we were not strangers to UKAS

or their processes, we were able to organise ourselves such that by the time we had two more staff transferred from EECS we could demonstrate the nucleus of a competent organisation right across the range of Explosion Protection techniques. They came to assess us in May. By the time the necessary letters had passed between UKAS and DTI and between DTI and the European Commission it was June before we received our Notified Body status, but by then we already had a queue of certification documents ready to be issued, so it was "all systems go".

We had initially operated from a room at my home in Buxton, but were very pleased to take up an offer from HSE to rent some premises back at the EECS offices in Harpur Hill, Buxton. Thus we continued with the same postcode and with the same telephone system as our erstwhile colleagues in EECS.

By the end of July 2002, we had grown to a total of seven staff.

During this period, EECS began transferring its archive of certificates and technical files. All its customers had been offered the free option of where the documents were to be transferred, provided that they went to an ATEX Notified Body. Any documents not transferred would be "deep archived" by HSE and would not be accessible to the original customer.

Unfortunately for the new company, EECS had invited its customers to make their choice before BASEEFA (2001) Ltd. actually had the formal Notified Body status. For this reason, a number of customers obviously felt a little unsure of the new company and elected to have files transferred elsewhere. However, it is a tribute to the high regard of customers for the existing staff that the vast majority asked for the transfer to be delayed until such time as EECS could formally pass the documents to Baseefa (2001) Ltd. Much of the administration work in the first few months surrounded the logging and handling of all this archive information. Many customers had heeded the advice from EECS to transfer only those documents which were relevant to products in cur-

rent or recent past production, but others took the easy option (for them) of saying "transfer the lot". The archive documents for some customers were enough to fill a four drawer filing cabinet or more by themselves.

Consolidation

BASEEFA (2001) Ltd. moved from the start-up phase to being a fully effective certification body on October 1, 2002, when the remainder of the technical staff were given their severance from EECS. The number of employees then exceeded 25, including two new certification engineers joining us from elsewhere. Although the number of employees was about two thirds that of EECS, the practical working capacity was similar as nearly all the technical staff had transferred and we had redesigned our working practices to need far fewer administration staff. We now rented over half the space previously occupied by EECS

Although the technical capability of EECS effectively ceased in October 2002, the organisation continued to work on the transfer of files and the process of archiving the remaining records for all the certificates issued since the 1930s. This was a mammoth task and at one time necessitated the employment of at least six additional temporary staff. These records are now squirreled away in the HSE archive store and will only be unearthed if HSE (as the responsible organisation) has to defend a challenge concerning one of the EECS certificates.

At one time, it looked as though the DTI expected the Notified Body receiving the file on transfer from EECS to accept legal liability for its contents. Since we were, in effect, the natural technical successors to EECS, it is something that we might have been willing to look at but, as no one suggested they were prepared to pay the necessary professional indemnity insurance (which might have cost between £100,000 and £250,000 as a single payment), this idea was quickly dropped.

Over the summer of 2002, the staff still

with EECS tried hard to complete as many existing projects as possible. No new major project work had been accepted since April and requests for simple supplementary certification could not be handled in the last months either. Nonetheless, there remained a number of projects as yet uncompleted at the end of September. EECS arranged for the part completed projects to be transferred, together with any unused financial resources. For this reason, we were able to provide a form of virtual continuity. Where possible, a project being worked on by a member of EECS staff in September, continued with the same certification engineer (now a member of BASEEFA (2001) Ltd. staff) in October.

The remaining hurdle over this period was the acquisition of the laboratory equipment, which was the only physical asset owned by EECS. HSE decided this would be sold by tender in twelve lots. The bids had to be made at a time before we could be sure how well we would retain the EECS customer base. We therefore played it cautiously and bid a realistically high price for the ten lots that we regarded as "mission critical" for the new company, with a much lower price for the remaining two lots which mainly consisted of some older or duplicated instrumentation, which was not needed to keep the laboratories functioning. Our bids were accepted for the ten lots, and the remaining two lots went elsewhere.

We had staff. We had customers. We had a laboratory and offices. We were in business.

Development

The next few months were hectic. The workload continued to grow and many of the customers, who had felt it necessary to send projects to other Notified Bodies whilst we were still putting ourselves in place, suddenly found that we were offering a better service than they could get elsewhere. We have responded to this need, increased our resources, and now have thirty staff and a



→ fully operational laboratory. In addition to the ever present work on electrical equipment, the volume of non-electrical and protective systems work has increased.

Although ATEX had to form the initial core of our activities, it was always clear that we would have to develop other aspects to grow the business. Far and away the most important of these is the IECEx Scheme for international certification of explosion protected equipment. EECs had been one of the founding members of the scheme and an "Accepted Certification Body" for some time. The status could not transfer automatically, so we had to apply afresh. We were the first body to undergo an assessment to the revamped rules of the scheme, which were introduced in the summer of 2003, and the overall process has gone very smoothly. By the time this appears in print, we will have started issuing "internet" certificates, which can be read and downloaded anywhere in the world. The IECEx Scheme has embraced new technology and the master for each certificate resides as an html file on the IEC server in Geneva. A purchaser of equipment can access the database and find immediately, if a certificate is marked "current", "suspended" or "withdrawn". Any printed copy, with or without a signature is subordinate to the electronic master.

IECEx is an excellent scheme and is likely to become dominant some time in the future, particularly as Cenelec moves to universal adoption of the IEC standards in this area.

Another area that is beginning to develop involves the certification of products for use with safety systems to the new standard IEC 61508. There is much in common with examining intrinsically safe circuits from an ignition capability point of view and calculating their potential performance in a safety system. We have already had some experience with work in this area, responding to enquiries from our existing customers, but we do have UKAS accreditation for the hardware aspects and we are looking at the commercial possibilities of further developing

this service.

We are also beginning to respond to enquiries from users of explosion protected equipment, to help them with the assessments required for the ATEX Worker Protection Directive (1999/92/EC) where they are having problems re-evaluating the status of older equipment.

The future

The biggest single change within the next year will be a move from the rented HSE premises to our own brand new purpose designed offices and laboratory. Anticipated completion of the building work is August this year, with a month to transfer the test equipment before all staff move in September.

The new site is still within Buxton, though slightly lower, and (unlike the Harpur Hill site) it has level access from a main road. This can be important in winter when snow clearance becomes an issue. However, we will retain our links with the research laboratory at Harpur Hill so that we can use their extensive field test facilities when it is necessary to perform tests, which need a lot of space. For example, we operate a 50m exclusion zone around the area where we do practical explosion tests with venting panels.

With the new building come new furniture, new IT systems, telephones etc. and some improvements in the test equipment. The challenge is to complete the move with a minimum of downtime and minimum disruption to our customers. We have already started the detailed planning in the hope that we can make the move happen in a way such that customers only see a change in the address and telephone number.

Inevitably, some of the test equipment will take longer to install, so some new equipment will be bought to give us a sensible overlap. A major expense for Ex laboratories is the maintenance of the humidity chambers. The test condition of 90% RH at 95 °C represents a powerfully destructive force on the

equipment, never mind the test samples. The oldest humidity chambers will be pensioned off and new chambers installed and running in our new laboratory before the remainder are shut down for transfer.

Although we have designed the building to fit our present needs, there is scope to fit out a mezzanine floor for more offices, which will provide space for expansion.

So how will we develop in the future? As far as we are aware, we are the only private certification body in the world operating in the Ex field, which is wholly owned by its staff. We are not driven to make profits for owners, who have no understanding of the real business we are in. Our motivation is to be able to continue to serve our customers, performing work that we enjoy and that we believe is of benefit to society at large. We believe we have the capability to expand in related fields to provide additional services.

So we look forward to a profitable future, in which we will be able to provide our customers with the service they demand at a reasonable price.

Credits: Figure 1 taken from Dr. R. J. Ott, SUVA, ISSA-Series 2033 (G) (1998)