

Complexity with Confidentiality - LIMS at LSM



Clive Collier

London & Scandinavian Metallurgical Company (LSM) manufactures specialist products for the metals industries including aluminium, steel, welding, and superalloys. Part of the American based Metallurg Group they are also involved in a range of other activities including abrasives, hard facing materials and polishes for glass.

The very comprehensive laboratory facility at LSM has evolved with their business but when Jim Wright, previously Manufacturing Allocation Supervisor at the company, was appointed Laboratory Business Manager in 1992 he quickly realised the potential to develop the lab's external business. Further investments were made in staff and equipment but not surprisingly there was some strain on the information management and 'Certificate of Analysis' (COA) operations. This was managed by a mainframe computer augmented by a paper based system.

"We had looked at various LIMS years ago but were not particularly impressed by any of them," began Paul Hurditch (Laboratory Administrator at LSM) "this time it quickly became apparent that they had evolved into very powerful, sophisticated systems". They began to compile a specification to suit both the internal and external nature of their work. At the same time they talked to a wide sweep of companies that they knew had installed LIMS.

On the manufacturing side LSM has a wide purchasing operation which is constantly sourcing materials from around the world. Their R&D department is similarly active so fast test results are imperative. Their external customers add an almost infinite variety of materials and type variations which require innovative analytical methods. Many methods of analysis are therefore employed which need to be tracked by the LIMS. "First off however, we wanted a 32 bit system that could communicate with our manufacturing system and the rest of our company's database" said Hurditch "it had to operate the same database for both external and internal customers whilst at the same time offering totally guaranteed confidentiality, going well beyond a basic password system. It also, of course, had to be guaranteed Y2K compliant". Both Hurditch and Wright further stressed the requirement for confidentiality and clearly it would have taken a great deal to satisfy them on that criteria. The specification study and research of vendors and

available systems lasted around eighteen months.

"The leading LIMS vendors are fairly well known. We invited an initial response from nine competitors and selected four for demonstrations" said Wright "this quickly came down to two during our evaluation study". This judgement was made less on technical criteria than quality of communication, level of enthusiasm and the commitment of the companies involved: "We knew that support and commitment to make our system work was going to be of paramount importance so we had to see that from day one in the people we spoke to", said Wright.

At the end of a fairly lengthy selection process the chosen system was WinLIMS™ 4 from QSI. Initially LSM ordered a 12 screen system with a User Group of around 20 highly qualified chemists. "Right from the start the system seemed to be very logical in the way it operated and most of our evaluation team found it easy to use and had confidence in its safety and reliability" stated Hurditch "we could see a clear upgrade path through Oracle once there was 32 bit compatibility with the rest of our corporate systems".

On the important question of confidentiality LSM installed another field of security into the system which effectively splits the database in two; internal accounts and external accounts. Entry into the latter, outside of the designated user group, is a complex and heavily validated procedure requiring written permission from the cus-

tomers in most instances. QSI were also able to quickly demonstrate Y2K compliance and full standby support to everyone's satisfaction.

There was no transfer of existing data, which was kept live on the old system, and the company decided to go 'big bang' with the new LIMS: "I couldn't have faced telling the staff that they had to keep parallel records for six months," said Jim Wright with only half a smile.

After a two or three week implementation study, during which time QSI spent a week on the premises LSM began beta-testing WinLIMS™ before going live on the big day. It was decided to customise the batch sample booking out screens, the filing system and the way that information was extracted for invoicing. This was a relatively small amount of deviation from the basic system said QSI.

The weeks after 'big bang' were almost an anti-climax: "We were prepared for anything but nothing untoward happened at all, not even the odd corrupted result or a system crash or two". So the new LIMS worked perfectly? "not necessarily" said Hurditch "but the skill and adaptability of our user group was superb. They really wanted to make it work and they did".

One of the major concerns was that the system for producing COAs was so radically different from before, with all the inputs taken from various sectors of the LIMS, that this very basic and vital capability could have been compromised: "It just never happened" stated Hurditch. Indeed LSM have just one person producing the vast number of certificates now required. Interim result faxes are generated through the

LIMS and many customers are happy with that as working certification (though an actual COA must be provided for NAMAS certification).

In the first year of such a major system change it is the basic operational capability that is usually of most concern: "We like the stability of WinLIMS™, we don't turn the computer off at night or shut the LIMS down. It runs seven days and seven nights a week without any glitches or problems". The new LIMS is already a keystone of all activity within the lab.

Invoices can be quickly tailored to customer requirements and all inputs are taken automatically off the LIMS which also produces the COA to go into the same envelope as the invoice. This not only saves lab time, it also saves time for customers.

The company is also pleased with the automatic filing system now in place. Now using the barcode facility in WinLIMS™ all samples are barcoded and assigned to a barcoded bin. The system works so well that plans to make it more sophisticated still have been shelved.

LSM have synchronised the booking in of samples to the point where they now generate the request back out from LIMS (which prints out the request) and everything is documented from there: who booked the sample in, who performed the analysis and what method etc.

One of the major marketing messages about WinLIMS™ 4 is its graphics and Internet/Intranet capability but, with more concern for basic functionality at the moment, enthusiasm for these is lim-

ited to future use at LSM: "We are considering the E-Mail capability and finding the extra speed of response useful in certain instances but with the type and format of information required off the LIMS the automatic fax facility is more useful at the moment". The graphics capability is being used to add descriptions and interpretations to non-standard control data; an increasing requirement with the many disparate and unusual tests now carried out in the labs at LSM. Graphical presentation is expected to become more extensive over the next year. They are also 'keeping a close eye' on Intranet developments. "Its good to have that capability there for future development", noted Hurditch.

Many of LSM's customers are already trading on a three day basis where samples are taken on Monday and shipped into the lab on Tuesday. On Wednesday the customer needs to make a decision on whether to bid for the material or not. E-Mail or fax? Even a ten minute advantage is becoming critical. The major advantage of LIMS E-Mail is perhaps that personnel from other locations, customers or suppliers are now able to log onto parts of the system and obtain status updates and reports without interrupting key lab staff. LSM may build in this facility as the user base evolves.

Accurate analytical interface was another of LSM's primary objectives. Whilst it is a NAMAS requirement that instrument result printouts, indeed any form of QA accreditation results, must be kept (a LIMS only record is not sufficient) they wanted a comprehensive record of computerised results to assist with a wide range of other tasks such as invoic-

ing, cost distribution, sample programming, etc. QSI has developed a single generic interface program for WinLIMS™ which enables users to create an unlimited number of instrument interfaces without custom programming. Data can therefore be transmitted into the LIMS database by a wide range of analytical instruments including pH meters, ICP, elemental analysers, laser particle size analysers and the full range of modern instrumentation. LSM have XRF and ICP hooked into the system though soon all relevant instrumentation will be on line.

Clive Collier, MD of QSI UK said of the LSM System: "Confidentiality was necessarily a major issue with this LIMS and we were able to develop an extra layer of security on top of what we believe is already an extremely secure system. LSM entered with what was a new 32 bit system, which they helped beta test, so we also gained valuable input from them." Some of the confidentiality issues encountered with this LIMS were also addressed in the development of QSI's Multi-Lab module which has been introduced to allow different laboratories within a corporate structure to share the

same LIMS database whilst maintaining individual modes of operation and autonomous, secure operation.

As for the future QSI see further enhanced Internet and particularly Intranet communications functionality within WinLIMS™. They will also further develop remote access through CE Windows and hand held computers/organisers, (they introduced their first CE LIMS earlier this year) through networks and radio transceivers.