

IMPROVING SAFETY PERFORMANCE AND CULTURE WHILST UNDERTAKING BUSINESS RE-ENGINEERING

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Octel Corporation manufactures and markets transport fuel additives and specialty chemicals. The Company is growing mainly by acquisition in these markets. This activity is being funded in part by earnings from the Company's traditional Lead Additive business but this is a declining market. In view of this Company background, the Lead Additive business at the Cheshire Manufacturing Park site has been significantly re-engineered since early 2000. It has become a Business Unit in its own right. Its management team is now stewarding more site assets, has lost experienced operators through voluntary severance schemes, has taken operators from other (redundant) plant areas and has changed the way its operating teams are organised. The Business Unit handles and stores hazardous materials requiring it to produce a Safety Report under the COMAH Regulations.
All the above organisational change activity has been carried out with the express objective of requiring an improved safety performance and safety culture. Since early 2000, the lost time accident frequency rate for the Operations team of the Lead Additive Business Unit at the Cheshire Manufacturing Park has reduced from 1.29 to zero. Similarly, the minor accident frequency rate for this work group has reduced from 17.4 to 2.6. These figures are for an operational workforce reduced from about 150 to about 100 employees. Other Safety, Health and Environment (SHE) performance indicators are also showing positive trends. This paper will give a brief summary of Octel's recent business history to provide a context for the rest of the paper. It will then describe the Business Unit's organisational change from a SHE culture and performance improvement viewpoint. The rebuilding of the Lead Additive Business Unit's Safety Management System (SMS) will then be described.

KEYWORDS: operational change, management standards, performance indicators

BUSINESS AND ORGANISATIONAL BACKGROUND

Octel Corporation was created as an independent company on the New York Stock Exchange in mid 1998. At the time of the "spin" from its parent company, Octel was a major world supplier of transport fuel additives and specialty chemicals. As part of the "spin" Octel acquired a significant debt burden of about $350 m. The Corporation's vision was to create a world class company by organic growth and acquisition in the petroleum additives and specialty chemicals market areas. The company's Lead Additive business is a major contributor to the company's earnings and yet is in a world market declining at a rate of about 15% per annum. The Company objective was to ensure that as the world demand for Lead Additive reduced Octel would be the last manufacturer of this product. In order to achieve this the production cost base needed to be minimised to overcome competition.

Octel's Ellesmere Port site has been a manufacturing site for Lead Additives for transport fuels for over 50 years. The site was an integrated chemical site with plants producing products which were the raw materials for the Lead Additive manufacturing plant. In addition the Lead Additive plant operated the Site Effluent treatment facilities. Other plants were built on the site

over the 50 years to make other petroleum fuel additives, such as detergents, and specialty chemical additives, such as a biodegradable chelator. After the "spin" a review of all site facilities was undertaken to seek minimum cost operations. It was decided that plant assets should be regrouped into Business Units, with each Unit having its own operational organisation focussed on that business' needs. As a result certain plants were shutdown and their products bought in from lower cost producers whilst in other cases operational assets were retained but transferred to more appropriate Business or Service Units.

The closure of some operational assets created land, offices, laboratories and warehousing that would no longer be required by Octel. The 85 acre Octel Ellesmere Port site was launched as Cheshire Manufacturing Park in June 2000 to attract independent companies to rent, lease or build on the site. It was anticipated that in order to attract tenants the site would need to have a good safety record. The prime objective of the site reorganisation was therefore to create minimum cost operations with a "safe operation" culture. Whilst similarly significant organisational changes have been made in the various Octel Business and Service Units on Cheshire Manufacturing Park, this paper focuses on the changes made by the formation and subsequent operation of the Lead Additive Business Unit as they have impacted on this Business Unit's Safety, Health and Environment (SHE) performance.

LEAD ADDITIVE BUSINESS RE-ENGINEERING

The re-engineering of the Lead Additive Business Unit will be described in two parts, asset re-organisation and organisational change.

ASSET RE-ORGANISATION

The review of operational assets following the floatation of Octel in 1998 identified that two raw materials used by the Lead Additive plants and manufactured on site could be provided by lower cost suppliers. As a result the plant manufacturing one of the raw materials was closed in 1999 and road tanker offloading bays were constructed for imports onto site. The plant manufacturing the other raw material was closed in 2000 and road offloading facilities constructed in addition to the already available ship offloading facility. Both closed manufacturing facilities had storage tankage which was to be retained and these plus the new assets were to be transferred to the ownership of the operational team of the Lead Additive Business Unit which was formed in early 2000. The redundant assets were not previously operated by the Lead Additive team. The controlrooms for the closed assets were to be de-manned so that consideration needed to be given to the retention of instrumentation required for the retained storage assets and this instrumentation relocated to existing control points where the new operational teams were based.

Both of the above asset changes were treated as "off-line" projects using the company's normal projects procedures. These include hazard studies appropriate to the stage of development of the project. Both projects involved plant personnel on the project teams. The formal hand-over of the projects included the outcome of training and competency assessments made on personnel who were to operate the facilities.

The Lead Additive Business Unit (LABU) was created at the same time as the other Business and Service Units on the site. The Lead Additive business operational team had

previously managed the Site Effluent plant but clearly this was not an asset solely for the benefit of this Business Unit. This asset, and its operational personnel, were transferred out of the Lead Additive Business Unit as one entity.

ORGANISATIONAL CHANGE

Some organisational change had occurred in Octel across the 1990s as the company strove to maintain profitability in the Lead Additive business as the market for this product declined. Until the mid 1990s little of this change was formally assessed for its impact on safety. With the need for more radical asset and organisational management becoming evident in the mid 1990s a more involving management style was encouraged. Higher operational standards with regular open communications with all employees were demanded. Emphasis was to be placed on teamworking and flexibility with greater individual responsibility. A joint management union group (Review Group) was set up in 1995 and new terms and conditions agreements were drawn up with employee representation. In 1996 Ellesmere Port site moved from an 8 hour to a 12 hour shift working pattern. Again in 1996, with plant closures looking more likely, the Review Group reached agreement that enforced redundancies would be avoided wherever practicable. A voluntary severance scheme was opened that year and throughout the restructuring to date voluntary severance has been maintained. Lessons have been learned moving from one severance scheme to the next including that leavers needed to clearly understand that the business would come first and their departure, if agreed, would depend upon fully trained replacements being available.

The Review Group was involved during the formation of LABU in 2000. That group assisted in the formulation of the re-organisation arrangements and arranged the regular briefing of the changes to employees. Union, management and employee representation worked together to arrive at an organisational structure which would allow reduced manning by using four operating teams led by Leading Operators with all teams reporting to a Shift Team Leader. The number of teams was determined by process plant area boundaries.

Octel had developed its own risk assessment methodology for organisational changes. All the proposed changes relating to the Lead Additive Business Unit were then assessed using this methodology. The assessment process centres on a meeting of those persons affected by the change and those individuals work through a set of change related questions. In most cases, Union representation attended such meetings. The assessment starts by defining the objective and scope of the proposal and then considers its impact on relevant individuals' workload. The criticality of the change with respect to safety procedures and good practice is then considered. The second issue covered by the assessment is whether there will be an effect on a critical activity. Typically these activities are defined as key roles within company procedures (e.g. emergency procedure role, permit to work role, etc). The assessment then questions whether the proposal will impact on a company procedure. Finally the assessment seeks to question whether the person or persons who are to take up the new duties are competent to do so. The conclusion of the assessment is the acceptance or rejection of the proposal by the senior manager of the business unit along with any action plan arising from the assessment. The involvement of those affected by the proposed changes has the benefit of "buy in" to the changes with any issues aired and the ability to influence the outcome.

The current LABU organisational structure is given below. The re-engineering reduced the LABU headcount from approximately 150 to 100. The voluntary severance scheme meant that some more experienced personnel took advantage of the access to an early retirement pension. Also, some of the personnel who had worked in plant areas which were to be closed down decided to stay with the company and some became LABU employees. The organisational change action plans took account of individual's additional training needs but the general re-engineering process was provided with a separate "off line" training support project. The re-engineering process looked at the balance of skills across the shift teams and some individuals were moved across shifts in order to redress imbalances caused by those who wished to leave the company via the severance scheme and those brought into the Business Unit from closed plants.

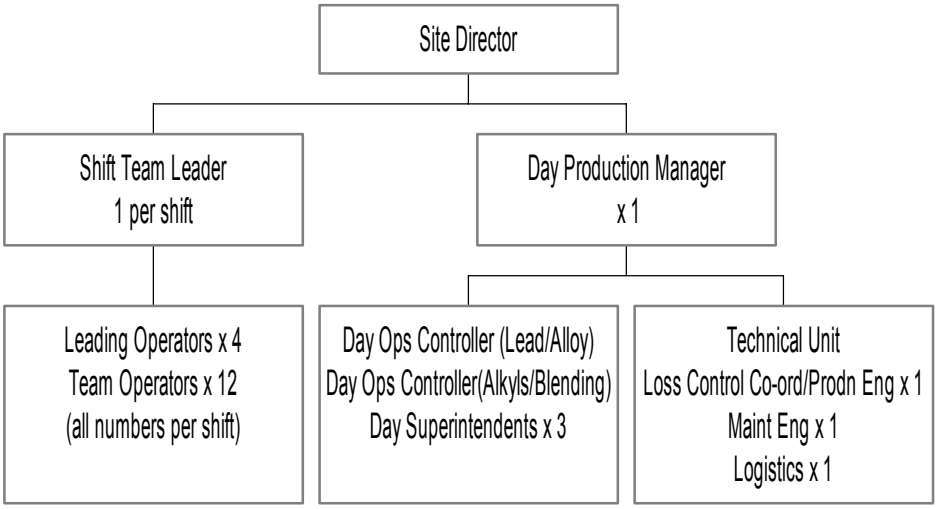

Figure 1. Current LABU operations organisational structure

My personal experience of this organisational change assessment process has been good. The original proposal for the organisation was that there would not have been a mechanical engineering support person in the Technical Unit. This would have meant that the Business Unit would have had to bring in such a person from the central maintenance team when required. The identification as to when such a person would be needed was a concern. The likelihood that such an individual would not be sufficiently familiar with the detail of the Business Unit to contribute effectively was also a concern. Both concerns contributed to the inclusion of the Maintenance Engineer skill in this Unit. I have also been able to influence my role as Loss Control Co-ordinator/Production Engineer in that I have justified the need within our Business Unit for me to carry out Loss Control work for 50% of my time and Production Engineering work for the other 50%. This allows me to demonstrate the implementation of the SHE standards I am promoting using leadership by example. I also deputise for the Day Production Manager, which allows us to share values and gives a similar opportunity. My role is seen as part of the day to day asset management team.

RE-ENGINEERING TRAINING

The approach to training during LABU re-engineering followed work that had previously been tested out on another plant area on site by using the NVQ standard. This was seen to have the benefits of using a Nationally recognised standard which would fit with our operations and for our employees would give them transferable skills if they should leave the company at a later date. Training for the shift operating teams started from a team matrix of operational tasks and who needed to do what. This led to individual training plans. Training was then arranged to suit team and individual needs. All LABU operating personnel, whether they had been in LABU for some time or had transferred into LABU as part of re-engineering, were given general awareness safety training courses covering the more important SHE issues (accident/incident reporting, permit system, change control, risk assessment, COSHH assessments and IPC). Personnel who had recently transferred into LABU were given an Induction Course to familiarise them with LABU activities and then made top priority for assessment of their training needs for their particular roles within LABU. Specific training then followed using plant information and task books presented at the Induction Course. This approach allowed formal assessment of each individual on plant orientation, emergency response, safety equipment function and application along with the knowledge imparted from the general awareness course. Training to highlight how common plant and equipment used in LABU works, common problems with it and the safe way to operate it was delivered by craftsmen. Personnel who had worked in LABU for some time went through the same process after "new" personnel to LABU had been trained.

"Leading Operator" was a new role in the LABU organisation. Individuals placed in these roles were experienced LABU operators. This new position is in effect a first line supervisor role as they operate plant, lead their team and carry out company safety system roles such as permit to work process authoriser and emergency response forward control point leader. The previous LABU organisation included "supervisors"; these roles were removed in the re-engineering and their activities split between the "Leading Operators" and "Shift Team Leaders". "Leading Operators" have more responsibilities than operators and so were given more extensive training in the key site safety and operational systems for their role. This included hands on emergency simulation training. Their initial competency in what they had been taught was then checked by use of practice examples for each activity in which they had been trained. Their performance was observed and recorded and if satisfactory the individual was then "passed out" in that particular activity. "Shift Team Leader" is also a new role, though it is very similar to the previous Shift Manager role. "Shift Team Leaders" have experienced a training plan similar to that followed by the "Leading Operators" though their assessments are based on their particular responsibilities and duties (e.g. "Shift Team Leader" is the Site Controller in an emergency).

Formal revalidation of initial competency is now under review.

LABU SHE PERFORMANCE AND SAFETY MANAGEMENT SYSTEM STATUS AT TIME OF RE-ENGINEERING

At the time re-engineering started in early 2000, the LABU Operations lost time accident frequency rate was 1.29 per hundred thousand hours worked. The LABU minor accident frequency rate was 17.35 on the same basis. LABU operations had a head count of over 150

people. Octel had started to use propriety audit systems in the early 1990s and had established formal safety procedures to comply with the chosen system. The central safety function at that time had generated many safety procedures to formalise the way the site safety systems were to operate. Works areas had then translated those centrally generated procedures into local procedures and instructions. These, for the plant area which is now called LABU, had been assembled in the early to mid 1990s but since that time there had been a re-deployment of resources, particularly at management level, without updating the safety management system procedures. In effect whilst the safety systems had not changed the local procedures had not been updated to be consistent with the personnel in post, and, their needs to operate to the procedures. An audit of the status of the application of safety systems within LABU was therefore carried out in early 2000.

The audit of LABU safety systems looked at what we considered should be in place in order for us to be convinced that our people were competent for the activities they were to perform and that our plant, equipment and working environment were "fit for purpose". In relation to plant and equipment there was a further subdivision by considering equipment that was deemed "critical" separately to "non critical" equipment. "Critical" equipment was that which had been identified by previous plant studies as critical to prevent a "major accident hazard". The audit indicated that as far as the "people" element was concerned the re-engineering training project would deliver initial competence in a way which would have an audit trail. The need for ongoing training needs analysis, once training responsibility was handed over to line management, was not adequately clear at the time of the audit. This element also indicated that there was limited supervisory observation of plant conditions and little structured contact between supervisors and operators on a day to day basis and had led to a lack of adequate leadership. The "plant and equipment" element of the audit indicated that there were inadequate routine checks of certain equipment and overall that there was informal ownership of key documents for the safe operation of the plant. The latter had led to certain documents (e.g. safety management system) not being driven so as to be kept up to date. Similarly, the company as a whole has a SHE Policy and at the time of the audit all business units were working to that Policy. By its nature the Policy could not detail responsibilities of individuals within each Business Unit nor the local arrangements for implementation of the Policy. There was no formal ownership of local implementation of the SHE Policy.

The results of the audit were presented to LABU shift and day management personnel and circulated for all LABU operating personnel to see.

STRATEGY TO REBUILD LABU SAFETY MANAGEMENT SYSTEM

Corporately, Octel was starting to produce instructions on what was expected to be included in a Business Unit's safety management system. These supported the company SHE Policy. In the re-engineering, Octel had retained a small central operational safety function which reported into the Site Director. That group started to produce safety procedures which all Business Units on the site were expected to implement. Locally, LABU's audit had indicated what was needed for LABU. The key elements of good health and safety management have been well publicised (e.g. HSG 65). The previous safety management system had obviously struggled to be implemented and its effectiveness, as measured by the lost accident frequency rate, was not considered adequate for a re-engineered LABU. The

previous safety management system procedures were extensive and it was considered that this probably contributed to the difficulty of implementation.

We decided to produce what we thought we needed primarily from observations in LABU in a format that made responsibilities and ownership very clear and which was flexible enough for easy of future modification. The system would need to provide a clear audit trail and would as far as possible be computer based. It would meet the needs of Octel SHE Policy and in due course would incorporate Corporate and Site safety procedure demands. It would follow the key elements for good health and safety management, and any relevant guidance notes as produced by the HSE. The development of the system would be led by the Loss Control Co-ordinator but all LABU personnel would get the opportunity to input into what was being developed and in due course the continuing development would pass into line management. It was seen to be key to the activity that LABU employees would have involvement in the improvement activities consistent with the day to day role of each individual. Documentation was viewed differently to the way it had been seen in the past. The system was the seen as the "activity process" and documentation was seen as aiding clarification of the process and providing evidence of the activity. Documentation would be created providing it added value to the process and not to "fill a shelf". The arrangement chosen is depicted in Figure 2 below.

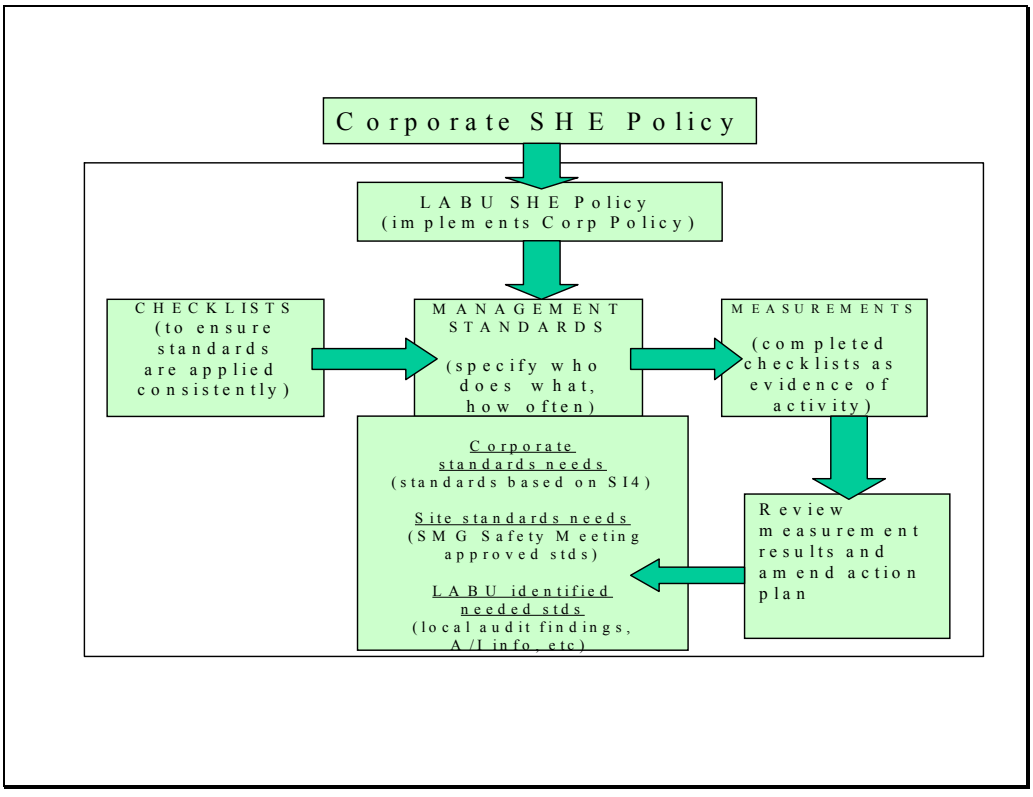

Figure 2. LABU safety management system structure

The first action was to set up a "safety improvement meeting". This meeting was initially set up informally chaired by the Director responsible for Operations with representation from Day Operations personnel, the Shift Team Leader and a safety representative from the shift that was on duty that day. This meeting has now been set up for a monthly frequency and its timing is scheduled such that each of our five shifts can attend the meeting twice per year. Each shift has set up its own monthly meeting called "safety forum". The Shift Team Leader, Leading Operators and safety representatives of that shift attend these meetings. The minutes of the "safety forum" are circulated to all shifts and to day line management. The "safety improvement meeting" minutes are circulated to Day and Shift line managers and all safety representatives. This first action was to allow a communication path to be set up prior to development of any policies, standards or other safety improvement activity.

The next action was to draw up a LABU SHE Policy. This states that LABU is committed to implementing the Corporate SHE Policy. It then shows the LABU organisational structure and lists the SHE responsibilities of all persons within LABU commensurate with their role. The arrangement for implementation of the Policy (as shown in Figure 2 above) and a brief description of how this works is provided in the Policy. In summary ; a management standard is written for each SHE system activity we have in place (e.g. loss control inspections). The standard lists the tasks to be done, who is to do the tasks and when they are to be done. Where a number of persons in the Business Unit may be required to carry out actions listed in the standard, the activity may be open to interpretation and so a checklist is supplied to ensure consistency of application. Completed checklists act as evidence of activity and are a basis for review of what has been found for any future improvements. The LABU Policy requires that LABU has an annual action plan for continuous improvement. The site Director responsible for Operations signs the Policy.

Our site is required to produce a Safety Report under the COMAH Regulations and the site has a Major Accident Prevention Policy (M.A.P.P.). The next task was to produce a LABU M.A.P.P. to give a similar level of detail as in the LABU SHE Policy as to how LABU would implement the site M.A.P.P. The structure of the LABU M.A.P.P. is similar to the LABU SHE Policy.

Both of the above Policies were briefed out to all LABU Operations personnel by the relevant line supervisor, and each person was given a summary card of the Policies to keep in their personal copy of the company handbook. Copies of the Policies are on LABU notice boards and retained by Shift Team Leaders and safety representatives. The Policies are updated annually (or potentially at shorter intervals in the event of significant organisational change). Having produced these Policies, work then started on assembling an "annual action plan" ; one part focussing on "general safety improvements" and the other part focussing on "major hazard safety improvements". These plans support, and are the immediate focus of, the SHE Policy and M.A.P.P. respectively.

Initially the communication of the new safety management system approach gave rise to concerns that this would be a new initiative that would create more work for individuals and then fade away as just another initiative. There was essentially a lack of trust between operators and line management that what was being said would become reality. This showed itself as lack of interest in the development and implementation of the system. This

was not an easy issue to overcome and has required considerable attention over last three years. Over this time we have built relationships between operators and line managers and Day support personnel in order to develop trust and earn respect. We deliberately encouraged a "hands on" approach initially in order to develop relationships and earn respect. This has led to unsolicited comments of management approachability. My role in the Business Unit (50% split between Production Engineering and Loss Control Co-ordination) has allowed me to build relationships across the Business Unit in carrying out my day to day tasks so that safety management is seen as being grown from within the Business Unit and is an integral part of Business Unit operations. There is a realisation by operators that not all problems will be solved immediately, and an appreciation of the need to tackle the highest risks first.

THE ANNUAL SAFETY IMPROVEMENT ACTION PLAN

There is an annual action plan which lists the activities for continuous safety improvement. This plan is generated towards the end of each year and is discussed with and approved by the Site Director for implementation. The Site Director in effect commits that resources will be made available to carry through the plan. Activities within the plan are included after consideration of recommendations by external auditors and internal review of accident, incident and near miss basic causes (i.e. lessons learned over previous year of a systematic nature rather than related to an individual event).

The LABU annual action plan for year 2000 was constructed with a mix of activities to comply with some of the demands of corporate and site safety procedures (see previous section) but was primarily based on issues identified in the audit of LABU activities. In the main these were actions to write "SHE management standards". Principal topics covered were around communications, document control and leadership activities. The Director responsible for Operations approved the plan for implementation. Developments in the Safety Management System are an agenda item on the monthly "safety improvement meeting". Recognising that not all the corporate demands could be met in year 2000, draft plans for years 2001 and 2002 were made. These subsequent annual plans have included actions from audits of LABU, and the site, by others during year 2001. I was the actionee for all items on the year 2000 plan but, with the explicit intention of promoting safety as a line management responsibility, subsequent annual plans increased the activities of line managers as the plans' actionees. In the year 2002 plan line managers have approximately 50% of the actions assigned to them, the 2003 plan is intended to raise this value to 80%.

SHE SYSTEM MANAGEMENT STANDARDS

The previous safety management system was based upon a number of safety procedures which were extensive in nature and more of a reference style than something which gave the flow process of a system. Our new SHE management standards aim to be short, typically two to three pages long, and take the reader through the system flow process. The first page describes the intent of that standard. The subsequent page(s) take the reader through the activities to be carried out to achieve the intent. The person(s) responsible for carrying out each activity is identified in the tabular layout of the standard. The draft version of such a

standard is circulated via the monthly "safety improvement meeting" for comments from Day and Shift personnel and after a suitable comment time is approved by the person who has control of the resources to be used in the standard.

Where more than one person may be assigned to carry out a task in a standard (e.g. inspect plant areas in our Loss Control Inspection standard) we have developed simple checklists so that each individual who inspects a plant area looks at the same process or safety critical items. The checklists have been drawn up for plant areas which are the responsibility of specific operator(s) rather than operator teams. The standard requires that the person conducting the inspection has a discussion with that area operator(s). The means by which the implementation of the standard is to be monitored is also identified as an activity within the standard along with the person who is to carry out that task. Completed checklists are retained as evidence that the activity has been performed and so that quality checks on the activity can be made.

The underlying causes of accidents were one element of the original internal audit in year 2000. The predominant basic causes of the accidents were improper motivation, lack of knowledge/skill and use of inadequate work standards. This was consistent with other findings from the audit which showed the need to improve leadership, motivation and ownership of plant activities and key process documentation. The rebuilding of the safety management system focussed on devising management standards (with the purpose of simply and clearly defining whose responsibility it is to carry out specific tasks) to overcome these issues. The management standards devised and implemented in LABU to date include;

- Monthly Safety Improvement Meeting. This meeting bring together shift teams' safety representatives and Day and Shift line managers. It is used for communication of LABUs previous month safety Performance Indicators and Site wide Performance Indicators, to receive and discuss Safety Representatives feedback on safety issues arising from shift teams activities, and to discuss activity progress on the safety management system development.
- Loss Control Inspections (line managers view specific aspects of plant areas and discuss findings with area operators). This encourages line managers to view the state of plant equipment and gives opportunity to motivate area operators towards work standard improvement.
- Management standard for defining who should carry out what tasks to implement key Site Safety Procedures. Topics covered include Basis of Safety studies, Fork Lift Truck operations, health surveillance/Lead hygiene Rules, control of ignition sources, minimum personal protective equipment to be worn on non specific tasks, shift hand-over documentation, safety monitoring activity, control of plant changes, accident/incident and near miss reporting, employee selection and placement)

It is my belief that the clarification of who is expected to do what to implement these standards, the communication of this information and the monitoring that such implementation is taking place has had the effect of changing attitudes of, and the Safety Culture within, the LABU team membership. We aim to positively promote safety communications, near miss reporting, operator involvement in topics relating to their normal work activities (e.g. general

risk assessments and alarm priority reviews) and line management appreciation of plant condition and people behaviours. We have management commitment. We are aware of the importance of involving **all** business unit personnel and have identified their personal responsibilities. All business unit personnel are asked to participate in SHE improvement activity relevant to their individual jobs. The result has been greater motivation of LABU personnel towards identifying SHE issues and assisting in their solution.

As well as a monitoring exercise to check that a standard is operating as intended, certain standards also have a pro-active Performance Indicator assigned to them. For example, the Loss Control Inspection standard it states who is to carry out an inspection and at a what frequency. LABU as a Business Unit has a pro-active Performance Indicator that we will carry out a minimum number of such inspections per month. A wall chart is provided in the Shift Team Leaders' office to aid checking who has inspected which plant area over the month. Our Performance Indicators in general are discussed in the next section.

An example LABU management standard is given above in Figure 3. The LABU standard is based on a Site Safety Procedure and identifies who in LABU is to do what to comply with the site procedure. We extend the site requirements by compiling a summary of all accidents, incidents and near misses within LABU over the previous week. The summary is to include the root causes of each event. The briefing in LABU includes this detail.

PERFORMANCE INDICATORS

LABU works to a suite of Performance Indicators each year. Three years ago the Indicators were predominantly "reactive" type indicators (e.g. lost time accident frequency rates, the number of minor accidents, very serious and serious incidents, quantities of volatile organic carbons emitted, etc). We have since aimed to change the balance of "reactive" and "pro-active" Indicators such that by the start of 2002 we were operating with 35% of our Indicators as "reactive" type and 65% "pro-active". The Indicators are assembled and communicated monthly both to the Octel Board and to all LABU Operations personnel – the latter through the monthly "safety improvement meeting". Our "reactive" Indicators cover safety, health and environment issues (e.g. accident frequency rates, numbers of incidents, medical surveillance results, organic carbon emissions). Our "pro-active" Indicators include items such as number of near-miss reports, number of overdue actions from serious and very serious incidents, number of Loss Control Inspections and permit-to-work checks completed, number of safety procedures/standards briefed, number of environmental improvement actions completed, etc.

LABU SHE MANAGEMENT STANDARD

Subject: **Weekly Safety Review**

Procedure: 1 Issue: **REV 1**

PURPOSE AND METHOD

A meeting is held weekly to review key incidents and accidents across the Cheshire Manufacturing Park site. The meeting is chaired by the Site Director and attended by Business and Service Unit management and Site Operational Safety personnel (who act as secretariat). The purpose of the meeting is to discuss the key incidents from the last seven days of site operations to identify site learning points from those incidents. A Weekly Review Sheet is produced by Site Operational Safety personnel to include site accident statistics. Each Business/Service Unit then adds its own Unit statistics and the completed Sheet is briefed to all Unit personnel as soon as practicable (normally next working day/next shift cycle)

LEAD BUSINESS UNIT PERSONNEL RESPONSIBILITIES

R = Primary Responsibility r = Secondary Responsibility	PRODUCTION MANAGER	LOSS CONTROL CO-ORDINATOR	SHIFT TEAM LEADERS
1) Shift Team Leaders are to compile a LABU A/I investigation status sheet every week for use at the Weekly Safety Review meeting and for the subsequent Review briefings.			R
2) Production Manager and Shift Team Leader attend Weekly Safety Review meeting (normally Friday 0800 hrs) and contribute to learning point discussion	R		R
3) Site Safety Manager issues the Weekly Safety Review sheet and Shift Team Leader adds LABU A/I investigation information same day as meeting.			R
4) Production Manager cascade briefs the Review sheet information to Day personnel at the Friday staff meeting or at another scheduled meeting time. A record is made of those briefed each week (using toolbox talk record sheet). This is retained in Production Manager's office.	R		
5) Shift Team Leaders brief the Review sheet to their operator teams and keep a record of those briefed using the toolbox talk record sheet. This is retained by the Shift Team Leader.			R
6) Understanding of briefs will be checked by 3 monthly personnel monitoring surveys for each day group and shift team that is briefed.		R	

Figure 3. Example LABU safety management system standard

ACTIVITY ACTION TRACKING

The annual "safety improvement" and "major hazard" action plans and a number of the "pro-active" Performance Indicators generate activity which obviously needs to be measured in order that we can monitor our performance towards managing the improvements which the activity is intended to bring. Initially our activity was progressed by minutes of various meetings which were stewarding the activity. We found that once we had sparked interest in particular actions and activity through our "safety improvement" meeting, etc, there was a great desire from the operational teams for feedback on the outcome of the activity. We needed a better way of checking action progress. In 2002 we collected actions together from the various stewarding type meetings and created a simple Microsoft Access® database for "action tracking". The database links with our e-mail system and allows us to run reports of outstanding actions – from the various sources – which can then be e-mailed to actionees and their managers. The database is updated with completed actions (as advised by the actionees) and re-issued monthly. Actionee responses are archived to create an audit trail for closed actions. Actions are categorised by source of action (for easy of stewarding through actionee groups) and can be assigned priorities (e.g. to distinguish very serious incident actions from minor incident actions).

CURRENT SHE IMPROVEMENT STATUS IN LEAD ADDITIVE BUSINESS UNIT

The LABU lost time accident frequency rate was 1.29 in January 2000. By July 2001 this had dropped to zero. That situation has continued to the time of writing this paper (August 2002). The minor accident frequency rate for LABU has also shown a consistent downward trend over the last two and a half years. Figure 4 below gives a plot of the minor accident frequency rate since January 2000 to the time of writing.

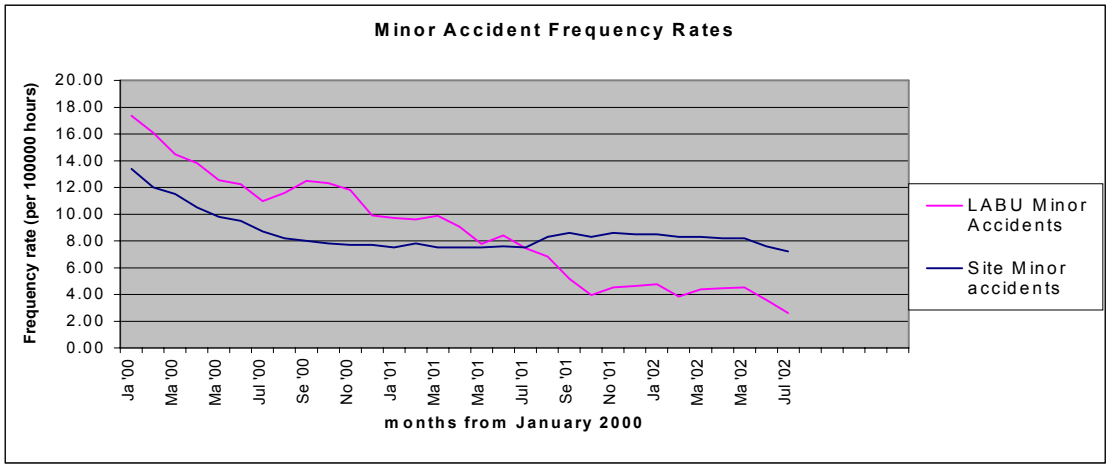

Figure 4. Minor accident rates for LABU and Cheshire manufacturing park

The number of minor accidents attributed to the business unit has fallen over the last three years from 58 in 1999, to 29 in year 2000, to 10 in year 2001 and is expected to be no

more than 6 in year 2002 (80% reduction in three years). Minor incident reporting has fallen slightly from 276 in year 2000 to an anticipated 200 by end of year 2002 (28% reduction in same three years). Additionally near miss reporting has increased by 60% over the last three years. We positively promote incident reporting as we use accident/incident (A/I) basic cause analysis at year end (looking for systematic causes) to develop activities for the subsequent year improvement plan. It is therefore considered that the changes have not discouraged reporting of minor incidents and that the benefits seen are genuine.

To date we have created management standards with the specific aim of promoting communications of SHE issues, improved leadership, clear ownership of key documentation, control of change and clarity on a range of site safety procedures. The format of the management standards has allowed individual responsibilities to be listed across all the management standards to clarify what is expected of each role. Below is a brief summary of those activities we have implemented or are implementing;

- Competency; general awareness training for all LABU employees completed, specific training for Leading Operators, Shift Team Leaders completed, now embarking on safety system training for these groups, "basis of safety" training completed for operators working on "major hazard" plant, starting similar training for maintenance personnel
- Control; Policies and standards approved by owner of the resources named in these documents, management standard for loss control tours implemented over last 18 months, lists for individual role responsibilities being generated from SHE Policy, M.A.P.P. and the range of management standards on various SHE topics, monthly stewarding meeting to implement SHE and M.A.P.P. action plans, pro-active safety Performance Indicators measured and monitored monthly, operators reviewing previously completed general risk assessments
- Co-operation; LABU employees involved in the business re-engineering, human factor assessment completed with operators working on LABU "major accident hazard" potential plant, Director chairs monthly Safety Improvement meeting, all employees can see the monthly Performance Indicator results, new Contractor Induction course notes produced
- Communication; monthly Shift (Safety Forum) and Day (Safety Improvement) meetings held involving supervisory, operating personnel and safety representatives, weekly review meetings with same personnel for previous week's accident and incident reports

The introduction of the formal Safety Improvement Meeting revamped a "Safety Committee" activity for Safety Representatives to meet face to face with Day and Shift team line managers and Operations Director to air any safety concerns with formal recording of those concerns. In addition this meeting brought focus to communicating SHE performance information and SHE safety management system development. The establishment of the "safety forum" (the shift safety meeting) and accident/incident weekly briefing meetings on each shift gave a similar communication link within each shift. The Loss Control Inspection standard requires line managers to spend a defined length of time on plant looking at the state of the plant, equipment and local environment with the need then to discuss the activity

with the relevant plant operator. All of our management standards drive home the ownership and responsibilities for SHE for each individual member of the Business Unit appropriate to their normal role in the Unit.

We have come a long way in a relatively short time period but have done so with belief and support in what we were doing throughout from our Director responsible for Operations. We have clarified roles and responsibilities and made access to such information as simple as possible with regular meetings and briefings to communicate the various facets of activity. We started from a position of giving everyone a chance to see the overview of where we were heading and reinforced this as we progressed. We have aimed throughout to try to ensure that all LABU personnel have been encouraged to get involved with the SHE management system or elements within its development – and how it impacts on each persons individual role - as it has progressed. Safety representatives now come forward and not only make suggestions for improvements but are actively encouraged to chase actions and actionees to ensure suggestions become reality.

We have obviously improved our safety performance over the last two and a half years and there is evidence of improved safety culture within LABU as described earlier. For me this has been achieved by a combination of issues, none of which are particularly new or unique. We have had belief and support from Director level, a reasonable resource allocation, a simple and concise approach to clarify who is responsible for what, an efficient means of chasing actions, feedback on what we are doing and involvement of all relative to each individual's day to day job.