



I am pleased to welcome all our readers to this edition of the MEETA newsletter our third this year.

Industry in general continues to show positive signs and while many are not looking to the future with any over confidence, it is good to see the positive steps. Your business persevered through the toughest of the economic downturn. Now is an ideal time to scrutinize operational efficiency and best practices so that you can confidently welcome the increased orders and new business just around the corner. From a meeta point of view planning is well underway for the events leading to the Conference at Engineers Ireland, 22 Clyde Road, Ballsbridge, Dublin on Friday 19 November 2010. The theme for this year is "Getting BetterMaintaining Improvement". This probably summarises what all industry is striving to achieve. Many improvements have been made in all sectors and the challenge now is to maintain and consolidate those improvements while taking the next step on the road. Also many people are busy preparing for the award submissions in the Safety, Industry and Student Categories. The award winners will be presented with their prizes at an event at EI headquarters on Thursday 18th.

John Coleman (Chairman)

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Communication is the key to Excellence in Maintenance

Communicating effectively on maintenance strategy is a key element to delivering maintenance excellence. Without this people will become disillusioned as to what is happening and try to fit their own logic to the scenario. This communication effort is particularly important in the current economic climate where businesses are working on minimising expenditure.

Decisions that affect the business are often made quickly for reasons of business strategy, particularly in global companies. Every effort should be made to deliver the information to those affected by the decisions as quickly as possible after the decision is made. Without this key ingredient, the maintenance excellence effort will not be sustained. An important part of this task is to effectively communicate the "opportunity" generated by the change and how it will contribute to the survival of the business. It is also important to explain what changes will result from the decisions.

To obtain buy-in for the change by all parties, they all need to be involved. Effective communication will help bring the parties together. In many cases this is a complete culture change. Some maintenance people will not want to be part of this activity because they are comfortable with things the way they are now. Operations personnel may feel this process is just for maintenance personnel. All these people must be involved in defining this process.

Simple flowcharts can facilitate these discussions. The charts must show how communication between maintenance, planning, and operations cements the work management process. This process must be treated with the same importance as every other business process in the organisation.

Successful Site Visit

A very successful site visit was held at the Bristol Myers-Squibb facility in Cruiserath Mulhuddart, Dublin recently. In the region of 20 visitors enjoyed an interesting view on how others carry out Maintenance



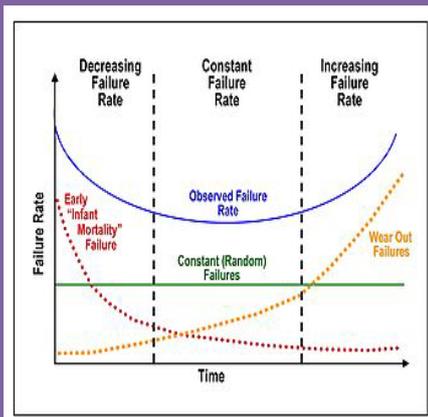
The Cruiserath facility is one of two bulk pharmaceutical plants owned and operated by Bristol-Myers Squibb (BMS) in Ireland. The Cruiserath facility is a multifunctional, highly automated bulk pharmaceutical facility. Bristol-Myers Squibb identified the necessity to add additional manufacturing capacity to its global network and selected the Cruiserath facility to supplement the company's capacity for a number of products.

27th National Maintenance Conference

This year's conference will deal with Maintenance in the current economic climate. The Conference sessions are designed to provide maintenance engineering professionals with a working knowledge of the technologies and issues they will be facing everyday on the plant floor of the future. Industry leaders, national and international experts in the field will present sessions addressing a variety of topics. This is the annual conference of MEETA, The Irish Maintenance Society.

Date: Friday, 19th November 2010

Venue: Engineers Ireland,
22, Clyde Road,
Dublin 4





The National Maintenance and Asset Management Project Awards 2010

The awards agenda is an annual programme to recognise and honour Irish organisations and individuals that excel in performing the maintenance and asset management process to enable operational excellence. The objectives are to:

- Increase the awareness of maintenance as a competitive edge in cost, quality, service and equipment performance.
- Identify industry leaders, along with potential or future leaders, and highlight “best” practice in maintenance management.
- Share successful maintenance strategies and the benefits derived from implementation.
- Understand the need for managing change and the stages of development to achieve maintenance excellence.

Any maintenance or asset management project involving any of the following features: planning, designing, specifying, installing, modifying, operating, managing and maintenance of plant facilities, systems and equipment is eligible.

Benefits of participating:

- **Maintenance process assessment.** Applicants find that completing the application facilitates an internal audit of strengths and opportunities for improvement in maintenance and equipment reliability.
- **Competitive awareness.** Applicants find that entering the award programme increases awareness of their maintenance process and reflects favourably on their commitment to utilise maintenance as a competitive advantage for their business.
- **Goal setting.** Applying for the award helps companies establish priorities and competitive performance goals because the application is based on standards of maintenance excellence.
- **Feedback for continuous improvement,** By applying for the award, companies are provided valuable comparisons to support their continuous improvement effort.
- **Increased cooperation.** Applying for the awards builds a sense of company teamwork and emphasises the value of inter-functional cooperation.

Bearing Cleanliness tips

Contamination can adversely affect bearing service life. It also can have a negative influence on the service life of the lubricant. Therefore, it is important that rolling bearings are lubricated with clean grease or oil and that the lubricant is fully protected from contaminants by an effective sealing system. Cleanliness should be observed during all maintenance activities from mounting and re-lubrication to inspection and dismounting. Some general guidelines are:

- Keep bearings in their original package, where they are well protected, until immediately before mounting.
- Mount bearings in an area that is free from dirt, dust and moisture.
- Use professional tools for all maintenance activities.
- Clean up grease and oil spills immediately.
- Clean grease fittings prior to re-lubrication and close them properly with a suitable cap.
- Use properly identified and clean containers to transport and supply lubricant.
- The use of a separate container for each type of lubricant is a good practice.

Note: It is better to prevent bearings from becoming dirty than to clean them. Many bearing types cannot be separated and are therefore difficult to clean.

The Future of Asset Management!!

Asset Management in the overall sense is an integrated set of processes that systematically derive the highest value from plant assets, through a consistent philosophy, plans and objectives, and cooperative involvement by everyone involved in the business. However in the future a higher level of performance than is currently practiced or even identified by business will be required if maximum value is to be obtained from the assets. The events of the last 2 years have brought about a different philosophy in maintenance and capital investment. Assets will be required to perform to a higher standard for longer. It does not matter whether the asset is a car park, a hotel, or a manufacturing line in a factory, the same philosophy will apply; deliver to a high standard for longer. This will put a greater focus on maintenance professionals who have to maintain the standards with aging assets and most likely reduced funding. To set about achieving this will require a carefully formulated strategy that takes a long-term view on the assets requirements.

To make things last longer we need to maintain them better. This will require a strategy that is better formulated and supported by the best predictive tools possible. It will be necessary to review current service levels to evaluate if the benefits are worth the expenditure and challenge ourselves to develop better and less expensive methods of providing the services.

Any management model will have several characteristics some which will be unique to the asset base; however the basic underlying strategy should be in my opinion fall under the following;

Simple, Intuitive, Consistent & Complete

- **Simplicity.** All of the greatest ideas are simple in concept. If the overall strategy is not kept simple, they are not fully understood or remembered, and fail as guiding principles.
- **Intuitive.** Readers should be able to understand the underlying principles without guidance.
- **Utility.** The model should work consistently in application.
- **Completeness.** All necessary elements of success should be contained.

Asset management will take on a much bigger role in business thinking in a very short time. As asset managers we need to be ready for the challenge

Are you wasting money on oil analysis?

Following on from an article on Lubrication in our previous newsletter one of our readers took the opportunity to further expand on the information that can be gleaned from good oil analysis

By Jan Foged, C.C.JENSEN A/S Ireland

In the last edition of MEETA 's Newsletter, the article "Good Lubrication Management provides inside view of machines", gave you some information about why oil analysis are very important, and what could cause harm to your machine.

As it so rightly was written an oil analysis can tell you a lot about your machine. Some even compare oil with blood in the human body. It can tell if you are sick or not. But do you know how to read the oil analysis report?

Are you reacting on it, solving the cause of the oil problem, or are you just changing the oil, which is really not a solution?

A lot of oils are being changed because the lab report says so. The recommendation is usually due to change in viscosity, acidity (TAN), high level of dirt, water, oxidation/varnish or ppm of metal particles.

Quite often the oil you change is in chemical good condition, and could therefore have lasted much longer. The properties are still intact, but maybe it is too dirty, the water level is too high, or the oxidation/varnish level is increasing.

All of these contaminants can actually be removed from the perfectly good oil. It is very important to note, that when you drain an oil tank, a lot of dirt is still in the tank and the system, because oil degradation products (varnish) act as glue on all internal surfaces.

When you refill with new oil, which however isn't clean at all, you dissolve the dirt and varnish and will end up with dirty oil in a very short time.

If you do spend 5 minutes on reading the oil analysis report, you will see what the problem is. So instead of just replacing the oil, and thereby killing the messenger boy, you might be able to solve the problem without having to stop the machine and your production.

And most importantly, find out what the reason for the contamination is, and solve it, so it will not cause similar problems in the future

If the problem is moisture from the surroundings, then you need a good desiccant breather on the oil tank. Wear on machine components - go for a good filter to reduce the particle numbers. Or water from leaking seals or coolers - find a good filter separator (purifier).

Most failures on machines are due to contaminated oil causing wear & tear on valves, pumps, gears, cylinders etc. Contaminants will always be present in oil, but proper predictive maintenance can reduce them to a minimum.

Machines are quite often operating in dirty environments, which will result in damage to components, if the contaminants are not kept out and removed from the oil.

Reducing contaminants from the oil is most effectively done by offline depth filtration.

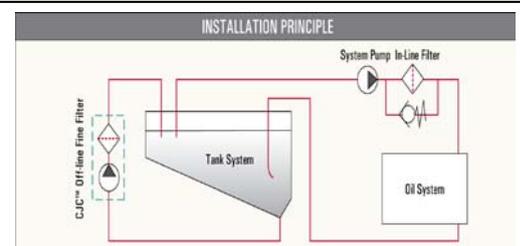
Offline depth filters cannot be compared with your typical inline pressure filter chart, since their purposes are different. A good offline depth filter is designed to remove both particles, water and oil degradation products (oxidation/varnish) from the oil system in the cheapest possible way.

Since offline filters are not interfered by the operating oil system, these filters can work under optimum conditions with constant flow and pressure and without disturbing fluctuations, which are so lethal to effective filtration. Numerous Return On Investment calculations show that a well designed offline depth filter will outperform even the best of inline pressure filters and will ensure excellent lubrication and low machine operation cost many years to come.

In most systems you would want to have oil app. 2 - 4 times cleaner than new oil, typically a cleanliness called ISO Code 16/14/11 (NAS 7) or better, which will both prolong the oil life and reduce the costs for maintenance, unscheduled downtime and lost production. To learn more contact your local supplier of CJC offline filters today. See www.cjc.dk.



Drained oil tank without offline filtration



Offline filter principle

Hydraulic Systems

Routines must be followed in order to minimise the chances of your hydraulic equipment suffering costly, premature component failures and unscheduled downtime:

1. **Maintain fluid cleanliness;**
2. **Maintain fluid temperature and viscosity within optimum limits;**
3. **Maintain hydraulic system settings to manufacturers' specifications;**
4. **Schedule component change-outs before they fail;**
5. **Follow correct commissioning procedures; and**
6. **Conduct failure analysis.**

An effective, proactive maintenance program requires time, effort and some expense to implement. But it is cost-effective. The investment is quickly recovered through savings as a result of improved machine performance, increased component life, increased fluid life, reduced downtime and fewer repairs.

Safety Tips for Mobile Elevated Working Platforms (MEWP's)

Mobile elevating work platforms (MEWPs) can provide a safe way of working at height. MEWPs include cherry pickers, scissor lifts and vehicle-mounted booms.

They:

- Allow the worker to reach the task quickly and easily
- Have guard rails and toe boards which prevent a person falling
- Can be used indoors or out

Choose the right MEWP for the job

Identify and manage the risks involved in working from MEWPs

Things to consider

If you are thinking of using a MEWP look at the following questions.

How high is the job from the ground?

Do you have the appropriate MEWP for the job? (If you are not sure, check with the hirer or manufacturer.)

What are the ground conditions like - is there a risk of the MEWP becoming unstable or overturning?

Are the people using the MEWP trained, competent and fit to do so?

Could the MEWP be caught on any protruding features or overhead hazards, e.g. steelwork, tree branches or power lines?

Is there passing traffic, and if so, what do you need to do to prevent collisions?

Do you need to use either work restraint (to prevent people climbing out of the MEWP) or a fall arrest system (which will stop a person hitting the ground if they fall out)?

Has the MEWP been examined, inspected and maintained as required by the manufacturer's instructions and daily checks carried out?



Student Award Time - Time to prepare applications

Student Maintenance Project Awards 2010

In 2004 MEETA initiated the Student Maintenance Project Awards sponsored by ESS Ltd It is open to students of third level colleges to present a final-year project.



Striving for an award can be an important educational and motivational tool. By using an award as a carrot, many students will be motivated to offer just a little more effort than they might otherwise.

The project can cover any aspect of maintenance technology and its management and typically address the issues of:

- The current state-of-the-art
- The need for the project
- Project objectives
- Work plan
- Project results

There are two categories of award: at Ordinary Degree Level and at Honours Degree Level. A panel of judges drawn from industry and nominated by MEETA will evaluate each application.

Further information is provided on the MEETA web site at: <http://www.meeta.ie/news/>

Refractory

Is anybody interested in Refractory Maintenance? If you are e-mail meetainfo@gmail.com and we will include some refractory articles



SAFETY

The European Survey of Enterprises on New and Emerging Risks (ESENER)

79% of European managers are concerned by work-related stress, but less than a third of companies have set procedures to deal with it.

Concern about psychosocial risks such as stress, violence and harassment is increasing in European organisations, the first findings of the biggest workplace health and safety survey in Europe show. The new data was released on 3 June 2010 by the European Agency for Safety and Health at Work (EU-OSHA) at the mid-term review conference of the Community Strategy for Health and Safety at Work (2007 - 2012).

The European Survey of Enterprises on New and Emerging Risks (ESENER) asks managers and workers' health and safety representatives about how health and safety risks are managed at their workplace, with a particular focus on the newer 'psychosocial risks', such as work-related stress, violence and harassment. This report presents an overview of the results from a first analysis of the data, which is drawn from 36,000 interviews carried out in 31 countries.

Full Report is available at

http://osha.europa.eu/en/en/publications/reports/esener1_osh_management

Take Care of that seal

Seals are used to primarily keep lubricant in and contaminants out of the bearings. In doing so, seals also protect the lubricant from contaminants, which ultimately helps the bearing achieve maximum service life.

Seal life cannot be calculated. Seal service life is even harder to predict because it is almost entirely dependent on the operating conditions, as well as the level of contamination within the environment, shaft alignment, installation procedures and exposure to harsh chemicals Such as cleaning agents.

"O" Ring Seals Advantages

- They seal over a wide range of pressure, temperature and tolerance.
- Ease of service, no smearing or retightening.
- No critical torque on tightening, therefore unlikely to cause structural damage.
- O-rings normally require very little room and are light in weight.
- In many cases an O-ring can be reused, an advantage over non-elastic fl at seals and crush-type gaskets.
- The duration of life in the correct application corresponds to the normal aging period of the O-ring material.
- O-ring failure is normally gradual and easily identified.
- Where differing amounts of compression effect the seal function (as with fl at gaskets), an O-ring is not affected because metal to metal contact is generally allowed for.
- They are cost-effective.

PM PdM and Reliability

Many companies have implemented reliability initiatives geared toward optimising the maintenance function at their plants. Some are successful; however, most will admit they did not realise the expected benefits. Many of the pieces of the reliability plan exist in most companies, but improved cost and reliability results have not been realised because integration of the separate systems has not been considered, leaving each system to operate independently

Frequently, improvement programs like those mentioned are viewed by organisations as "stand-alone" programs. Yet if there is a concerted effort to refine and integrate the entire programs already in place, it is inevitable that increases in overall equipment effectiveness (OEE) can be achieved with a significant reduction in maintenance spending. Success is typically measured by the improvement to the company's bottom line. To achieve the financial success of any project, the key cost drivers addressed by the project have to be understood. For example, a plant may measure types of work such as preventive, predictive, emergency, unplanned, planned, and labour and materials.

Plants can spend many years building PM programs, and they are encouraged to create PM's because they are rewarded for reduced failure when a PM process is implemented. Over time, these PM systems will grow to include inspections for all manner of failures. There can be a negative experience related to a failure, requiring the addition of a PM. The frequency will be set and the PM applied to every piece of equipment that is similar to the one that failed. The consequences or the nature of the failure are usually ignored because they have no bearing on meetings with superiors explaining the failure. The machine failed, the boss is unhappy, and PM makes the boss less unhappy. Over time, the number of PM's increase to the point that many aren't being completed. Usually no realistic assessment is carried out on how many "man-hours" are required to carry out the PM programme.

A similar situation can occur with predictive maintenance (PdM). As with the PM programme, maintenance managers should determine what and how many assets to monitor based on good risk assessment, then determine how many man-hours and what equipment it will take to support the programme. The whole cost of the programme should be evaluated and if the Cost Benefit Analysis is not giving enough of a return the programme should be revised.

Some of the guiding principals when formulating a programme should be:

- All maintenance tasks must address a specific failure mode
- Use the least expensive and most effective task to maintain the asset
- The maintenance task interval will be such that it addresses the failure at the optimal point in that asset's failure cycle
- The total cost of the failure must exceed the cost of the tasks to maintain the asset
- PM should ultimately be a time-based refurbishment, not an inspection
- Repeat failures created by operating an asset outside of capability cannot be maintained. The asset must be redesigned

Take care of that coupling

When it comes to coupling maintenance attention to detail is the key. Depending on the style of coupling, putting in the extra time is crucial to getting maximum life and performance. Insert and elastomeric style couplings can be viewed with a strobe and require little maintenance, if any. However, grid and gear in addition to spool types may need a little extra attention.

If a coupling is only lubricated through the lube point and not split, things may get worse. When carrying out coupling maintenance it is necessary to partially disassemble in order to remove as much of the old lubricant as possible. Inspect the components for signs of wear, looking for indications of improperly aligned equipment.

Pre-lube the sliding surfaces of the coupling ensure that components have the required freedom of movement prior to reassembly. Proceed with manufacture's recommendations on lubrication of a new coupling. By following this routine you may extend the life of your couplings and increase reliability.



Shaft Alignment

What is shaft alignment?

Shaft alignment is the positioning of the rotational centers of two or more shafts such that they are co-linear when the machines are under normal operating conditions. Proper shaft alignment is not dictated by the total indicator reading (TIR) of the coupling hubs or the shafts, but rather by the proper centers of rotation of the shaft supporting bearings.

There are two components of misalignment—angular and offset.

Offset misalignment, sometimes referred to as parallel misalignment, is the distance between the shaft centers of rotation measured at the plane of power transmission. This is typically measured at the coupling centre. The units for this measurement are mils (where 1 mil = 0.001 in.) When shafts are misaligned, forces are generated. These forces can produce great stresses on the rotating and stationary components. While it is probably true that the coupling will not fail when exposed to the large stresses as a result of this gross misalignment, the bearings and seals on the machines that are misaligned will most certainly fail under these conditions.

Excessive shaft misalignment, say greater than 2 mils for a 3600 rpm machine under normal operating conditions, can generate large forces that are applied directly to the machine bearings and cause excessive fatigue and wear of the shaft seals. In extreme cases of shaft misalignment, the bending stresses applied to the shaft will cause the shaft to fracture and break

Typical Alignment Tolerances

RPM	Angular Misalignment Mils per in. .001/1 in.		Offset Misalignment Mils .001 in.	
	Excellent	Acceptable	Excellent	Acceptable
3600	0.3/1 in.	0.5/1 in.	1.0	2.0
1800	0.5/1 in.	0.7/1 in.	2.0	4.0
1200	0.7/1 in.	1.0/1 in.	3.0	6.0
900	1.0/1 in.	1.5/1 in.	4.0	8.0

The route to safe maintenance

MEETA are planning a series of technical meetings in conjunction with the HSA on the subject of Safe Maintenance. These technical meetings are scheduled around Week 43 (25th – 29th October) which has been chosen as European week for Maintenance Safety and Health. The programmes will take on the following format and anyone who is interested should contact Ken O'Reilly at kennethoreilly3@eircom.net

Objective: This technical meeting will provide attendees with the line of attack to make certain a safe maintenance culture is developed in their workplace. Items to be covered comprise; consideration of the potential for harm, appropriate accident preventive measures and methods to guarantee that maintenance operations have not created further risks to workers and others, the implications for maintenance personnel of legislation... Ample opportunities will be available for questions, answers and clarification.

The European Agency for Health and Safety at Work Safe Maintenance Campaign 2010-11 will be presented including; raising awareness of the risks associated with maintenance activities, and that these risks have to be – and can be – managed.

Programme

15 mins	Introduction: Hazards and risks associated with maintenance, management of change, placing on the market, safe systems of work, confined spaces, periodic inspection of plant...
30 mins	Developing a safe maintenance strategy; drawing up a health and safety policy, identifying the hazards, assessing the risks, deciding on needed precautions, recording the findings, reviewing the programme and updating as necessary.
45 mins	Risk Assessments and Safety Statements; their importance, managing workplace safety, why carry out risk assessments and prepare a safety statement? Key elements of their preparation and operation...
30 mins	Tea/Coffee
45 mins	What does the law say? Key elements of the Health, Safety and Welfare at Work Act 2005 as they directly affect maintenance management.
15 mins	Conclusions and details of the Safe Maintenance Campaign 2010-11. The objectives of the campaign and its structure including implications for all maintenance.

National Award for Safety in Maintenance

(The new Value of Maintenance “To be more Safe and Competitive”)

Call for nominations

MEETA, the Irish Maintenance and Asset Management Society with the support of the Health and Safety Authority invite nominations for the National Maintenance and Safety Award. This award scheme will recognise companies or organisations that have made outstanding and innovative contributions to promoting an integrated management approach to safe maintenance.

Maintenance can be defined as working on something to keep it in a working and safe state and preserving it from failure or decline. The “something” could be a workplace, work equipment or means of transport (e.g. trucks). Two main types of maintenance can be distinguished as follows:

- Preventive/proactive maintenance; carried out to keep something functional. This type of maintenance is usually planned and scheduled.
- Corrective/reactive maintenance; repairing something to get it working again. This is an unscheduled, unplanned task, usually associated with more hazards and higher risk levels.

The Award aims to demonstrate, by example, the benefits of following good safety and health practices.

Examples of good practice

Good practice examples are implemented solutions – not theoretical or hypothetical – to promote effective management of occupational safety and health risks related to maintenance activities at the workplace. Applicants should therefore provide clear evidence of what has been done in practice to develop and implement structured and safe maintenance practices.

The example should show good management practice to:

- Improve working conditions in general.
- Promote a structured, risk management based approach to maintenance.
- Be effective in promoting health, safety and efficiency.
- Focus on eliminating or preventing risks at source.
- Achieve an identifiable and permanent benefit.
- Meet the legislative requirements and preferably go beyond those minimum standards.
- Have the full support of senior management.
- Be clearly identifiable as the action that caused the reduction in risk.

What should the examples demonstrate?

The good practice should demonstrate:

- Relevance to the theme of safe maintenance
- Risks eliminated or tackled at source.
- An effective, pragmatic, structured approach to safe maintenance.
- Successful implementation
- Effective participation and involvement of the workforce
- Sustainability over time
- Going beyond simple compliance with all relevant legislative requirements

Evaluation

A panel of maintenance experts including a representative of the Health and Safety Authority will, at the outset, evaluate all entries. Based on this initial evaluation, successful applicants will be invited to make a full presentation of their submission to the panel. After this, the winner will be chosen.

Recognition

The winner will be honoured at a special presentation on Thursday 18th November, 2010, the day before the National Maintenance Conference.

Closing date for entries: Friday, 15th October, 2010.

Further information

info@meeta.ie

