

Investment in RBI pays dividend

As part of the inspection and corrosion management contract for BP's UK oil and gas terminals, ABB Engineering Services has undertaken Risk Based Inspection (RBI) reviews of equipment and pipework.



Working in conjunction with BP, ABB led and managed the RBI reviews to optimise the inspection regime, focusing inspection on areas of predicted deterioration. The reviews were led by an experienced ABB RBI team leader supported by BP and ABB personnel with a collective knowledge of operations, process, mechanical, inspections, NDT, corrosion and materials. Using the ABB RBI+© database and the BP RBI procedure the team reviewed the operational and inspection history of each item of equipment in order to determine the consequences of failure and the appropriate inspection intervals. Individual Written Schemes of Examination (WSE) were then developed based on the outcome of the RBI review.

At BP's Dimlington gas terminal on the East Yorkshire coast the joint RBI team reviewed 60 items of equipment ahead of the major 2008 turnaround. By reviewing each item of equipment in detail the team were able to establish credible deterioration mechanisms and focus inspection and non-invasive NDT in key areas. In the majority of cases man entry into equipment was avoided and the inspection interval increased from 8 years to 12 years.

When undertaking inspection of equipment, the preparation costs to facilitate the inspection (e.g. scaffolding, craneage, cleaning equipment, fitting resource, stand-by men, etc) are significantly higher than the actual inspection and any associated NDT costs.

As the RBI reviews at Dimlington demonstrated that it was no longer necessary for inspectors to enter equipment, it has been conservatively estimated that this has saved BP £0.5m on the 2008 turnaround.



BP Dimlington Gas Terminal

Scottish office grows

Two years ago the East Kilbride office increased the promotion of ABB Engineering Services' new consultancy offerings across a wider range of sectors in the mid Scotland region. Grangemouth has been a particular area of focus with many of our seminars and training events now running in the area on a regular basis.

The strategy has been very successful and ABB's ever increasing number of clients are delighted with the wide range of services, consultancy and operational benefits now being provided.

Some of the companies who have engaged support are:

- DSM Nutritional Products
- Carron Phoenix
- Chemring UK
- BP
- Diageo
- INEOS Scotland
- GlaxoSmithKline,
- Macfarlan Smith
- Syngenta
- Chivas Brothers
- Rohm & Haas
- O-I Glass
- Total
- Kemfine



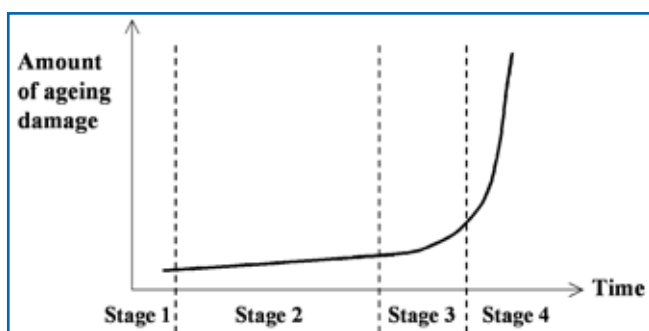
ABB East Kilbride team with clients from DSM Nutritional Products on a cycling trip to Arran

"Workload continues to grow and the East Kilbride office is continuing to recruit additional personnel to meet the high demand for our services in Scotland," says Bob Martin, manager of ABB's East Kilbride office. ■

Understanding the ageing process

The UK Health & Safety Executive produced their Research Report RR 509 on Plant Ageing in 2006. The document was prompted by a concern about the potential risks of continuing service of equipment beyond 'design life', typically 20 or 25 years service.

There is a great deal of process equipment in service in a wide range of industries, designed and built in the 1960's to 1980's. Apart from chronological age, old design codes and fabrication technology can influence service for another 10 or 20 years. All equipment will deteriorate over time; it is important for owners to be aware of it's current condition and factors that affect the integrity of the asset. The following chart from the report shows stages of life. Business needs to be aware of ageing, to plan and manage the process.



Ageing damage

In many case studies there is limited data on physical condition, change of operating conditions, repair or modification from which to assess the stage of equipment life. A 25 year old vessel (columns, heat exchangers etc), storage tank or rotating machine may have little recorded history. By identifying deterioration mechanisms it has been possible to show rates of damage and develop management strategies including monitoring, maintenance and repair or process control. This allows a high standard of reliability and containment to be sustained.



Ageing plant

"The challenge is to show that these assets offer safe, reliable future production. This challenge is the same for businesses operating within the

UK, Europe and the USA," says Neil Henry, ABB integrity management consultant. The Integrity of process equipment has many facets; it involves having systems and people to manage effectively the activities of maintenance, spares and inspection. It is also important to consider the impact of operations and obsolescence on future service. The development of optimised strategies for operating and maintaining ageing equipment should not be seen as a burden. It can also bring significant benefits of demonstrating regulatory compliance and financial management. Some of our studies have shown that it may cost 40% more to react to failure if the true condition of assets is not recognised.

ABB Engineering Services was a co-author of the research report and a copy can be found at <http://www.hse.gov.uk/research/rrpdf/rr509.pdf>

GlaxoSmithKline utilise ABB's practical approach to BAT

As part of a project to develop an innovative new process at their Barnard Castle site, GSK identified a requirement to assess the environmental impact of emissions. Our proven expertise in the application of a 'practical approach' to the assessment of Best Available Technique(s) (BAT) derived from across the process industries provided GSK with confidence in ABB as a leader in the application of practical BAT.



GlaxoSmithKline - Barnard Castle

ABB utilised a phased BAT assessment methodology which was developed to identify the best available technique for managing environmental impact. By establishing the existing environmental impact, drawing on the extensive experience of our consultants and the application of a structured methodology, the available techniques for emission control were assessed and ranked. The output of the assessment provided the GSK team with the justification and confidence to proceed with the optimised solution for the project. ■

Bayer's safety culture and commitment to improvement



Bayer CropScience Norwich site is a top tier COMAH site with considerable electrical infrastructure within its boundaries. The safe ownership and operation of the Bayer electrical systems is paramount in order to comply with The Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999 and the Electricity at Work Regulations 1989 (EAW Regs).

As part of Bayer's ongoing commitment to making incremental safety improvements they engaged ABB Engineering Services to perform an audit of their existing management of electrical safety.



Bayer CropScience, Norwich

ABB carried out a thorough audit and found that whilst Bayer had very good management procedures in place which demonstrated their existing compliance with the EAW Regs, there were improvements which could be made to aid clarification and reduce some overlaps. As a result Bayer worked with ABB to produce revised working procedures to introduce improvements in a number of areas.

A procedure was produced which clarified how Bayer were to comply with the EAW Regs. The procedure outlined the various roles and responsibilities of Bayer personnel and the high level principles of electrical safety in areas such as operation, documentation, change control and systems maintenance.

Electrical equipment is required to be maintained in such a manner as to avoid danger and to permit continued use of the equipment in service. Bayer and ABB produced an electrical maintenance procedure to provide guidelines for the ongoing examination and routine inspection of electrical equipment. The level and frequency of electrical maintenance must be subject to ongoing review as the condition of equipment is affected by both the environment and its duty.

An ongoing management system along with thorough records will enable Bayer to tailor their maintenance ensuring both the highest levels of safety and the most efficient use of resources. Bayer is committed to ensuring that persons are not placed at risk due

to lack of skills on the part of themselves or others in dealing with electrical equipment.

Included with the set of procedures were arrangements for dealing with the various levels of authorisation across the site. Each level of authorisation is now tailored to the individual and details the tasks which that individual is competent to undertake along with a thorough programme of ongoing validation.

New Organisation Workshop launched by ABB Engineering Services

The Organisation Workshop is a unique event that helps delegates address topics around lack of empowerment, cultures where the same issues keep happening no matter what is done and how middle managers often fail to be the organisational powerhouse they ought to be.

Through a mix of theory and practical sessions, delegates truly 'experience' the world of an organisation – not unlike their own? As one previous delegate put it, "The event was a dynamic and energizing experience: the simulation of an organisation with Tops, Middles and Bottoms reminded me of the 'real world'. When I came back to my workplace I looked at our organisation from different angles and could better understand the motivation and values of different individuals."

Obtaining the very best value from this open workshop requires three delegates from different levels within the business so they can begin to experience and understand each others' worlds as illustrated by this quote, "I had forgotten just how frustrating it can be to be a 'middle' and feeling unloved by both 'tops' and 'bottoms', and uncomfortably recognised that as a 'top' some of this was due to my behaviour - I promised myself I would change."

To really derive business benefit some organisations use the Organisation Workshop as part of their culture change programmes.

For further information please see dates for this programme on page 7. ■



David Dyer of ABB presenting at the New Organisation Workshop

Manufacturing and Process Excellence

ABB Engineering Services and the UK Chemical Industries Association (CIA) held the 2008 'Manufacturing and Process Excellence' conference in Leeds. It included speakers who were winner and runners-up at the CIA 2007 Awards - Syngenta, Pentagon Chemicals and Basell. There were over 60 attendees from a wide range of UK chemical companies.



Speakers at the Manufacturing and Process Excellence conference

IMechE President, visit to the North East of England

John Baxter, IMechE President & Group Engineering Director for BP, visited North East England recently. John and Jeremy Lewis of ABB (NE Regional Chairman) took part in two major debates, one on energy and the other on the skills shortage engineering.



John Baxter, IMechE President

Operational Excellence in Pharmaceuticals

The Operational Excellence in Pharmaceuticals & Medical Devices Conference was attended by delegates from companies such as Genzyme, Pfizer and Steifel Laboratories. ABB opened the conference with an interactive practical seminar on 'How to Establish Rapid Pharmaceutical Changeover Excellence' which was extremely well received and feedback was very positive. As a result of this feedback a Changeover Excellence training course has been developed, see page 7.

GPA Conference

Graeme Ellis of ABB presented a paper on the identification of major accident hazards at the Gas Processors Association (GPA) conference in London.



(From left) Adrian Finn, Michael Broadribb - BP, Graeme Ellis - ABB, Mike Considine - BP

Offshore Europe

ABB exhibited at Offshore Europe 07 Aberdeen. This biannual oil and gas exhibition is the largest in Europe and was visited by approximately 35,000 people throughout the week.

"The exhibition provided an excellent opportunity to meet our existing and potential future clients and discuss our consulting services," said Alan D'Ambrogio ABB.



ABB stand at Offshore Europe, Aberdeen

Learning from incidents

ABB has hosted a series of conferences on 'Learning from Incidents'. The conference included a review by Centrica on the Rough Field incident, complete with a reconstruction DVD showing the major incident offshore in February 2006.

BP also made a presentation on 'Learning lessons from incidents'. Finally the HSE presented on the Buncefield explosion and fire which was the largest ever peacetime fire in Europe.

The conferences have been held in Teesside, Manchester and Aberdeen attracting over 200 senior engineering attendees from industry sectors including chemicals, oil & gas, pharmaceuticals and petrochemicals. ■



Don Reid, Asset Performance Manager, Centrica (left), Peter Hunt, ABB and Peter Elliot, Global Integrity Manager, BP (right)

Tees Valley Business Awards



Paul Everard of ABB presents the winners award to F Jones Cleveland

ABB Engineering Services sponsored the manufacturing award at the Tees Valley Business Awards Dinner.

Energy Institute Awards

The annual Energy Institute Awards dinner was held in London. ABB sponsored the event and hosted guests from BP, Centrica and NGT. We were also part of the judging panel for the awards.

IChemE Awards dinner

ABB sponsored and hosted a table at the Annual IChemE Awards dinner in London. The event had over 400 attendees with Neil Blackhall presenting the ABB Environment award to this year's winner, Johnson Matthey.



Neil Blackhall, ABB (left) presenting the ABB Environmental award at the IChemE Awards dinner.

Developing relationship with Loughborough University

Chemical engineering students from Loughborough University now have the opportunity to work for ABB during their placement year. In addition ABB also sponsor the prize for the best third year student.

Technical training in demand

Technical training continues to be in demand and ABB has seen a continued rise in attendance at its open course programme with over 600 attendees in 2007. The demand for on site training is also increasing. Recent courses delivered have included Hazard Study Awareness, Pressure Relief, SIL Awareness, LOLER, CDM etc... to name but a few.

A new training course catalogue has been produced which details the 80 courses that are offered. Several of these courses are approved by the IChemE and can be used as part of an engineer's continued professional development programme.

The advantage of on-site courses is that they can be bespoke to clients' needs and also allow discussion on issues relevant to the specific operation.

The catalogue is available on an interactive CD. For a copy, please contact Gillian Form 01642 372064 or email: gillian.form@gb.abb.com



Technical Training Course Catalogue

E-learning training modules

As part of BP's programme to raise awareness of key process safety related issues, they are developing a series of e-learning modules. These are run over the internet as interactive training modules including background to the topic, what the issues are, what can go wrong, animation, tests and examples. The modules are aimed at a wide internal audience from site based personnel up to BP senior management. One focus area for BP is pressure relief and BP commissioned ABB to work with them to develop this module.



Safety awareness training at Centrica

Centrica Storage Limited recently asked ABB to provide a series of technical training awareness sessions on a number of safety related topics including DSEAR, vessel integrity, alarm management, pipework integrity, human factors in control rooms, human error in design, reliability and area classification.



These sessions have been driven by the senior management team of Centrica Storage and were delivered as interactive presentations at the Easington terminal. The presentations have also been video linked to other Centrica offices and recorded for future use on the Rough Field offshore platforms.

"This training from ABB forms a key part of our process safety awareness training in Centrica Storage Ltd and the training has been extremely well received" said Glenn Sibbick, Operations Director. ■



Centrica Rough Field platform

Seminars are focused on industry 'hot topics' and include inputs from external speakers.

Seminars - September 2008 to November 2008

9th Sept 2008	Integrity Management in Practice	Edinburgh
11th Sept 2008	Human Factors Breakfast Briefing	Aberdeen
24th Sept 2008	Maintenance and Reliability	Edinburgh
23rd Oct 2008	IEC 61508 / 61511 Breakfast Briefing	Warrington
28th Oct 2008	Alarm Management in Practice	Leeds
4th Nov 2008	Site Based Projects and Modifications	Cardiff
6th Nov 2008	Complying with ATEX Offshore	Aberdeen
19th Nov 2008	Occupied Buildings	Edinburgh
25th Nov 2008	Human Factors Breakfast Briefing	Warrington



Technical training

Training courses provide in-depth knowledge on key subjects as part of an engineer's professional development.

Technical training courses - September 2008 to December 2008

3rd Sept 2008	ATEX for Mechanical Technicians	Aberdeen
4th Sept 2008	Organisation Workshop	London
10th Sept 2008	SIL Awareness Training for Control / Electrical Technicians	Billingham
10th - 11th Sept 2008	IEC 61508 / 61511 & SIL Determination *	Garforth
16th - 18th Sept 2008	Pressure Relief *	York
17th Sept 2008	Working with CDM Regulations	Cardiff
30th - 1st Oct	Essentials of Pressure Systems	Edinburgh
2nd Oct 2008	Electrostatic Ignition Hazards *	Leeds
6th - 10th Oct 2008	Hazard Study Leaders	Daresbury
8th Oct 2008	Legislation Awareness Training - PSSR/PED	Warrington
7th - 8th Oct 2008	Design & Operation of Piping Systems	Leeds
9th Oct 2008	Changeover Excellence	Dublin
13th - 17th Oct 2008	SIL Determination & Hazard Assessment *	Edinburgh
15th - 16th Oct 2008	Area Classification *	Sedgefield
21st & 22nd Oct 2008	Alarm Management *	Edinburgh
2nd Sept 2008	Demolition & Remediation	Billingham
29th Oct 2008	ATEX for Mechanical Technicians	Grimsby
4th - 5th Nov 2008	Managing Deterioration of Plant Equipment	Edinburgh
11th - 13th Nov 2008	Pressure Relief *	Edinburgh
18th Nov 2008	SIL Awareness Training for Control / Electrical Technicians	Grangemouth
18th - 19th Nov 2008	Delivering Energy Savings *	Cardiff
19th Nov 2008	Root Cause Analysis	Sedgefield
20th Nov 2008	Criticality Analysis & FMECA	Sedgefield
20th Nov 2008	Hazard Study Awareness *	Grimsby
27th Nov 2008	Demolition & Remediation	Grangemouth
2nd Dec 2008	Legislation Awareness Training - LOLER	Warrington
4th Dec 2008	Working with CDM Regulations	Grimsby
4th Dec 2008	Changeover Excellence	Chester



* IChemE approved course. All training courses are also in association with the Energy Institute (excl. Changeover Excellence)

For more information on: Seminars please telephone: +44 (0)1642 372029 or e-mail: seminars@gb.abb.com
 Training courses please telephone: +44 (0)1642 372064 or e-mail: courses@gb.abb.com

Corus drive forward with process safety improvement

Steel company Corus have mapped out their strategy for improving process safety. Within their 3-year plan for safety improvement Corus have set an objective to prevent process safety incidents occurring. This will principally be delivered via a programme which aims to develop and implement a suite of process safety standards and to conduct a company-wide programme of hazard identification and risk assessment, targeted initially at high hazard facilities.

ABB continues to support Corus in this important improvement area and is active in providing expert advice on relevant good process safety management practices that should be included in the standards and the supporting codes of practice. Building on the support already given to its COMAH top tier installations in the UK, we are also providing expert advice to Corus on the hazard identification and risk assessment programme that should be undertaken across their European site.

ABB is leading a number of the hazard identification and risk assessment studies using its Process Hazard Review (PHR) technique. The aim is to equip Corus personnel to be able to undertake these studies internally in the future.

We are also providing expert advice to Corus on the means of assessing and monitoring the implementation of improved arrangements for managing process safety. ■



Corus steel works



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