In this issue:

- International Symposium on Corrosion & Protection
- History of the Institute
- CED day and Anodic Protection

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I'm currently taking part in an excellent corrosion seminar in Johannesburg. Now, you're probably wondering why I'm typing this rather than paying attention to the current speaker. Simple answer. Power cut plus netbook equals chance to get some writing done. Apparently, someone cut through the main cable while fixing the road.

While here I've had the opportunity to talk with the movers and shakers in the Corrosion Institute of Southern Africa and it perhaps comes as no surprise that they have many of the same problems, concerns and opportunities as we do. There are a lot of potential synergies between our two organisations. It’s only a few weeks ago since I was having similar discussions with corrosion professionals in South Korea and there is an article giving more details elsewhere in this edition. The photograph this time is taken in Busan, South Korea (thanks to Bob Cottis) and shows what a tough time I've been having on your behalf.

My hotel room here has the interesting feature of a translucent wall to the bathroom so, presumably, when sharing the room you are treated to an impromptu erotic cabaret as your partner (hopefully life, not business) takes a shower. Of course, I’m on my own and had hung up a shirt in the shower cubicle for the creases to fall out in the humid air. Between the glass wall and the back lighting it looked like my bathroom was haunted. Gave me a bit of a turn – but not as much as someone else would have got had they encountered me showering. Less erotic than emetic, I suspect.

While I have your attention (if no longer your respect) I would like to impart some news relating to our next President. As you will no doubt recall, Dave Worsley was lined up as our next President and due to take over towards the end of the year. Unfortunately, Dave isn’t going be able to take on this role at the moment so we have deferred his Presidency for the time being. Fortunately, we are anything but limited in the qualities of our membership and I am delighted to inform you, with the overwhelming support of Council, that Bob Crundwell has agreed to step in. Bob has a long association with the Institute and brings a powerful blend of technical and commercial competence to the task. About time, I hear some of you say – I have broad shoulders, I can take it. I look forward to his formal election at this year’s AGM.

Finally, I’d just like to remind you about the technical forum on our website where you have the opportunity to ask questions and start discussions about any aspect of corrosion, the Institute or virtually anything else you can think of. Remember, we need answers too so don’t be coy.

Hurrah, the power is back and I should direct my attention to the nice gentleman talking about remote monitoring in the process industry. It’s a hard life.

A delegation from the Institute of Corrosion, consisting of Dave Griffiths of ARL, Bob Cottis of Manchester University and ICorr President Paul Lambert, travelled to Busan, South Korea to take part in an international corrosion event jointly organised and funded by the Leading Industry Development Foundation for Dongnam Economic Region and the Pusan National University.

The event was organised following an earlier visit to the UK by representatives of a number of South Korean academic organisations from the Dongnam region where they met with Stuart Lyons of Manchester University, along with Dave and Paul to discuss opportunities for co-operation and, in particular, training opportunities in South Korea.

The four day event, held at the Haeundae Grand Hotel adjacent to the popular Haeundae Beach, included technical presentations from the three ICorr representatives plus contributions from Tohoku University in Japan and several South Korean academic and research organisations.

During the symposium meetings were held with representatives of several local organisations including Pusan National University, Dong-Eui University, the Korean Maritime University, the Korean Research Institute of Standards and Science and the Korean Gas Corporation. There was also high level representation of the Corrosion Science Society of Korea.

A visit was also organised to KIMS, the Korean Institute of Materials Science in Gyeongam, where their advanced research facilities were toured. Special thanks must go to Yeong-Do Park of Dong-Eui University who was a most effective liaison and thoughtful host. Further discussions are planned regarding the possible introduction of ICorr Training courses to the region and there are plans for future co-operation between ICorr and its Korean counterpart, CSSK.
Those of you who have any interest in reading about the historical roots of our Institute will recall that a year ago, at the beginning of 2009 (issue number 87), I started our 50th year by looking at the earliest roots from 1958 – 1966 and beyond.

In that same issue I set out the six sections that I was going to cover, in the six issues of 2009/2010 the ongoing history of our Institute and the developments over the 50 years, but regret that I have failed!

In issue number 88, March/April, I covered the second part of the history from BACE to ICorrTech to ICorrST, over the period from 1967 to 1978. I included a copy of the oil painting held in the Leighton Buzzard office, of Dr U R Evans, so that the many people over the 50 years who have received a U R Evans Award would be able to see the image of the gentleman who set this all up so very many years ago.

In that same issue number 88, full details of the celebration of our 50 years, which controversially was held at the Thames Barrier, but turned out to be a great success and I am grateful for all of the kind comments that we received at the Leighton Buzzard office, from those members who were able to attend. Regrettably and surprisingly we had to cut off the numbers of members and guests at 125 and I am sorry that some of you were disappointed.

The good news is that we still have left a small number of the special souvenir memory sticks, with all of the presentations given at the event. In addition we also have some copies of the special souvenir programme (pictured above), with a tribute from the Rt Honourable Tony Benn and if any member who was unable to attend the event would like a memory stick and copy of the programme, please let us know at the Leighton Buzzard office and we will forward these to you on a “first come first serve” basis, (you never know, they could become collectors items over the next 50 years!)

In that same issue I reproduced the third section of our history which covered the period from 1979 to 1989, with all of the internal disputes between some members and the subsequent setting up of the Corrosion Control Engineering Joint Venture (CCEJV), with NACE. The change to the Corrosion Engineering Association, (CEA) and the way in which the Institute developed and thrived during that period, working with like minded, “corrosionists” from all over the world, was a great success.

After that third section, I had just spent the first part of the summer helping to organise the 50th Anniversary event and immediately then got into the organising, in conjunction with our contractors, Hill Media, the re-launch of Correx 2009, in conjunction with Surface World at the NEC Birmingham Exhibition Centre. Regrettably, this took a considerable amount of my volunteer time and so my continued submissions to Corrosion Management of our history tended to take a back seat, as I was constantly reminded that I had to work to earn my living and not do excessive, unpaid voluntary work for our Institute!

With those lengthy apologies out of the way I am now getting back to the final sections of our history, covering the period from 1990 to 2009. I promised to cover briefly the links across the decades, with our magazines, our offices and our conference and exhibition events.

**OUR OFFICES**

Our offices initially started in 1959 in the London area where we had three different offices at that time, initially in old Brompton Road, we started at the offices of the publishers of Corrosion Prevention and Control, whose initiative in launching, “BACE” was started with their magazine inserted as the Corrosion Engineer. Within two years it was decided by the then, Council of BACE, that a move away from the publishers offices should be made and this was then temporarily located in Ovington Place, the offices of Jack Cardy of Allweather Evode Paints, whose Secretary Margaret Terry, provided a back-up service to the increasing number of BACE members. In 1965 it was decided that working from the offices of a paint manufacturer was not in the best interests of a professional membership body, so the Council moved the offices to 14 Belgrave Square and appointed Kathleen Bloomfield as a full time Secretary and she worked closely with the, then Hon. Secretary Charles Booker, from that address.

In 1980 the Council of the Institute felt that a move away to work in conjunction with a “sister organisation”, the Institute of Metal Finishing, would be in the best interests of our organisation, so when all the paperwork was detailed and signed up, the move to IMF Birmingham office in Holloway Head took place in 1982 and one of the IMF staff, Mary Whetnall, was made responsible for...
the Institute of Corrosion’s administration, assisted by her IMF administration team, all promising to keep ICorr and IMF separate!

As many of you will remember although the facilities, the Council meeting room, the services and the support was satisfactory the independence of our Institute was progressively being lost and so some four years later Council, under the Presidency of the first Chairman/Executive President of our Institute, Jim Bown took steps to remove our organisation from the IMF building and they found the first of our premises in Leighton Buzzard, located at 17 Market Square.

Coupled with this move the success of the conferences and exhibitions from a financial aspect had enabled us to appoint our own full time Executive Secretary, Keith Vincent, who organised the move from Birmingham to Leighton Buzzard in 1987. However, following the departure of Keith Vincent and his team of ICorr staff which, at its peak numbered six, all had to leave for financial reasons and I was asked to take over on a part time basis, the running of the Institute, between 1992 and 1994. When we had turned things around with new contracts with IBC and three successful conferences and exhibitions, I was able to hand back over the Institute and get back to my proper job with the arrival of Brian Weston to manage the offices on a part time basis.

Following that change we then had our second move within Leighton Buzzard to Leck House, which was organised by Brian Weston in conjunction with Gill Inwood and we remained at Leck House until the initiative of Presidents John O’Shea and Robert Edyvean resulted in purchasing our own building, a major first in the history of our Institute and we then relocated our offices to Corrosion House at Vimy Court.

At the same time the cost of the acquisition of our property, coupled with the financial losses on the two conferences held in 2001 and 2002, at Edinburgh and Cardiff respectively, meant that the Institute could not continue to employ their own staff, so the Institute contracted out the administration, on a temporary basis, with Gill Inwood, assisted by her IMF administration team, all promising to keep ICorr and IMF separate!

Gill Inwood continued to manage the office admin on a contracted out basis, together with Cerri Sweet and since moving to our latest rented property, (members can be reassured that the money that was acquired from the sale of Corrosion House has been put in a ring fenced account)! We still continue to operate from this latest Leighton Buzzard office and although Cerri has left temporarily on maternity leave and congratulations, she has now her first child, we have taken on Denise Aldous from Sigma Coatings to assist Gill in running the ICorr admin, still on a contractual basis.

CONFERENCES AND EXHIBITIONS

The second section I was to cover was the history of the corrosion conference and exhibitions. The development of the Institute’s Technical Committee during the 1970’s resulted in a number of one day conferences with table top exhibitions being held in conjunction with different Branches throughout the UK. At the end of the 70’s the technical committee decided that they would hold a two-day National UK Corrosion Conference in London. At the same time an attempt was made to start a separate NACE UK Section, all of which was covered in my previous May/June issue, number 89. It is with great personal regret that our working arrangement with NACE fell apart, in the way it did, but it was inevitable once we became competitors rather than partners, for this excellent 10 year working arrangement to cease. I only hope that all those who have learned the lessons of our past history can revive this relationship, in the future.

The formation of the CCEJV coincided with the first National UK Conference, which meant that the event that had been organised for the Imperial Hotel in Russell Square in 1980 was joined by the newly formed CCEJV. There were 16 technical presentations and 12 work group meetings at this event with over 200 delegates attending for the two days, with a £3,000 surplus, which in those days was like winning the lottery! We then progressed with further events being held in the Cairn Hotel in Harrogate in 1981, the Cunard International Hotel in London in 1982 and the Metropole in Birmingham in 1983.

The 1983 event was the first of the break away from the Morgan Grampian Group and although we were not permitted to use the name of Correx, since this had been acquired by Morgan Grampian, we flagged it up, with the catchy title, “UK Corrosion 83, the National Conference and Exhibition of the Institution of Corrosion Science and Technology and joint venture with NACE”, some mouthful, but it took off.

As set out in the previous May-June 2009 issue number 89 history section, the 83 event with the Exhibition and Conference organised by our Institute resulted in over 100 exhibitors and 800 conference delegates attending the three day event and this remains our best ever attendance to this day.

After our success of UK Corrosion 83, in 1984 we took on the major Wembley Conference Centre, with our own Conference and Exhibition delegate numbers remained in excess of 500, after Wembley in 85 we move to Harrogate and in 86 back to Birmingham, still organising our own exhibitions, but with a different exhibition contractor. In 1987 we moved to Brighton for two successive years, since the 87 event was successful and we decided to organise and hire the same venue for our combined event with EuroCorr 1988 and although our conferences traditionally had been held in November or the very end of October, this second event with EuroCorr was held in the first week of October from the 3rd to 5th in 1988.

With the arrival of Keith Vincent and the move from Birmingham to Leighton Buzzard, our 1989 event was held in Blackpool, and was administered by the Leighton Buzzard Office, with the timing changed to the middle of November and this was the last event where we were working (only just) with the newly
formed CEA. Following the split with NACE the 1990 conference was held at Sandown Park Racecourse and was organised by the Institute of Corrosion in conjunction with the European Federation of Corrosion during the last week of October. In 1991 the event reverted back to Manchester, where it was administered by IBC and again in 1992.

There was a break in 1993 and the conference reverted to the South Coast in 1994 at Bournemouth International Centre, with the exhibition being organised by the Turret Group, the former company of Hill Media, our current Correx organisers. There was then again another break and in 1999 attempts were made to organise a joint conference with BINDT and although this went ahead, entitled NDT 99 and UK Corrosion 2000 there were over 100 papers over 24 sessions, but only 19 were corrosion related and when the repeat of this exercise was discussed for Torquay in 2000, our Institute declined to proceed, in view of the BINDT domination of the previous event.

Two very successful conferences were held in 2001, an ICorr/NACE project entitled Corrosion Odyssey 2001, incorporating UK Corrosion 2001, this event although a financial liability was technically successful.

The 2002 event was held in Cardiff and again this was similar to Edinburgh, in that it was a financial liability, but a great technical success. The Institute then reverted to the original venue in Harrogate at the Cairn Hotel where UK Corrosion 2003 was held with table-top exhibitions also organised by the Institute.

Similar small events have been held at Manchester and also at Sheffield, but much of the original databases and exhibitor details had been lost and so these events organised by Manchester University and OCCA showed that the event organising was on a decline and the exhibition virtually non-existent.

The formation of Correx Limited, a wholly owned subsidiary of the Institute of Corrosion, which we were able to get as soon as the name had been dispensed with by the Morgan Grampian Group and its successors, was used to revive the exhibition and conference at the NEC building in Birmingham along side Surface World, organised successfully in the past by Hill Media. A report on this event was covered in issue 92 – Nov/Dec issue recently circulated.

THE MAGAZINES OVER THE YEARS

Finally, in this section I would like to cover the development of the member’s magazines as it has progressed over the years. Initially the BACE Newsletter was produced by an automatic copying process, purely in black and white and it was dealt with in-house by Dr Tiratsoo’s publishing company. Following the name change to the Institution of Corrosion Technology, the bulletin continued in a similar format, but two colours were used at great expense! At the time of the third change of name to the Institution of Corrosion Science and Technology, the magazine was still entitled ‘Bulletin’, but had increased to 8 or 10 pages and some issues had at least four colour present in the illustrations.

These bulletins continued right up until October 1982, but it was at that time that a major change was decided upon by the Council and the new magazine was entitled “Industrial Corrosion”. It was interesting to look at the list of members included in that very last October bulletin, which sadly included the obituary for Tim French-Mullen, but eminent names such as M D Allen, D W Harvey, M D Foskitt and I C Sellars were all included in the membership list. The Editor of the new Industrial Corrosion journal was Colin Bryer and Colin is till involved with certain aspects of the ICorr and Correx publicity.

It was good to see that Brian Tunnard was still the Honorary Editor of the publication and remained so on the transfer to Industrial
Corrosion, right the way through until the final change to Corrosion Management and the publishers to our current publishing company, Square One, when Brian Tunnard stood down, a position he held for over 30 years and will be remembered by many of our existing members and it was for that reason that he was included in our special group of ten VIP’s for our 50th Anniversary celebrations at the Thames Barrier.

The name Industrial Corrosion was felt that this did not cover the general corrosion subject matter and a number of alternative names were considered, with Council finally deciding on the current title, ‘Corrosion Management’. Corrosion Management was launched in 1994 and continued to be edited by Colin Bryer with Brian Tunnard as the Chairman of the Editorial Team. This continued until the publishing contract was transferred from Impact Limited, Colin Bryer’s company, to Deeson Publicatons in Kent during early 2000. In view of some difficulties with the new publishers, the contract was again transferred from Deesons to our current publishers at Square One in 2002, where it has remained ever since, with Brian Tunnard standing down and Bob Akid taking over as Technical Editor.

In our first issue of 2010, the Jan/Feb issue, number 93, a report was produced for this issue of the magazine entitled ‘A New Year Presentation’. I was invited to give this first lecture of the new year by the London Branch, which gave me the opportunity to pay a tribute to Harry Hatley, whose funeral I attended on the first working day of 2010, (another VIP at our 50th Anniversary and a founder member of BACE).

The second part of my New Year presentation, which was delivered in three parts, gave me an opportunity to review the six parts of the history of the Institute, which I briefly summarised for the benefit of London Branch Members and also to be able to refresh my own memory on what I had said earlier in the year. I took the opportunity of selecting from my historical research of our Institute, three President’s actions that had occurred of great merit during the 50 years. In third place I selected, Redvers Parkins (President 1982/83) for his involvement with NACE, the CCEJV and CEA. In second place was Dr T P Hoar, President 1969/70 for his involvement with the DTI Committee on the cost of corrosion.

In first place as being the most significant achievement for the Institute, in my personal view over 50 years, I placed John O’Shea, President 2000/2002, for the acquisition of Corrosion House. Something, which had been attempted by the Institute on many occasions in the past, but never previously achieved. This was indeed coupled with the two major conferences and exhibitions in Edinburgh, Scotland and Cardiff, Wales, as well as conferences in Dublin and Cork, Ireland. He was also responsible for introducing recognition by the Science Council for our members Chartered Scientist status.

As some of you may have read in our issue number 89 last May, there was a short article entitled, - “Inter Institute liaison”, this brief article described discussions ongoing between ICorr and BINDT, which started in 2007/2008 on a “President to President” basis, the Trustees and Council have been progressing these discussions and in my final article on our history, entitled, - “The New Millennium and where are we going, 2000-2009 and Beyond”, I hope to update the membership on the outcome of these discussions and how they will affect the future of our Institute.

If any member has any comments or corrections I would be very pleased to hear from them at our Leighton Buzzard office.

David H Deacon

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TREVOR PARRY
LONG TERM MEMBER TRIES TO RETIRE!

Trevor Parry who has been a member of the Institute for over 30 years and was previously Director and owner of Scientific and Technical Services (STS) Ltd., has informed us that he has now closed the company at the end of last year and will be working on individual contracts as a freelance consultant.

Trevor is a well known, coatings chemist, who has represented our Institute on both ISO and BSI Committees and more recently he has chaired Work Groups on water jetting of steel surfaces as part of the revived CED initiative.

Trevor has had numerous contracts as an expert witness, in both arbitration and mediation cases on coating matters for ship owners, paint manufacturers, ship yards and contractors on a world wide basis.

Trevor informs us that he will continue to be active in this specialist role and can be contacted on his home phone number:

01661 820794 or
e-mail trevor.parry@tiscali.co.uk
The Corrosion Engineering Division recently held its third Working Day since its relaunch under the chairmanship of Nick Smart a couple of years ago (the previous two were in Birmingham (October 2008) and in Buxton (April 2009) and both were reported in CM). In my view these meetings are getting better and better!

This one took place in Birchwood Park in Warrington (where Serco are based and where this author worked for a couple of years back in the 70’s so visiting the site was quite nostalgic although a lot had changed, mostly for the better). It was attended by well over 50 people including a contingent of students from The University of Manchester. The working party meetings (Coatings, CP, Monitoring, Nuclear, Oil field chemicals, Concrete, Water treatment) were given a little more time to conduct their business (although they probably still claim they did not have enough time!)

The main theme was Corrosion Monitoring and three very good lectures were delivered. I say that even though one of them (on monitoring coated substrates) was given by me! The others were by Gareth Hinds on Oil and Gas and by Colin Britton. The latter was a nice overview by the doyen in the field (Colin contributed to the Hoar Report back in 1971!). Anyway we hope to put all three lectures up on the CED website. There was also a good lunch and a fascinating tour of the Serco labs.

It is to be hoped that these CED meetings will become an annual event (similar to the EFC working party meetings) equivalent to the old Spring work week (these days people can give up one day - in the 80s they could give up a week!). Anyway at this “Spring work day” I met someone who works for a company that specialises in providing equipment to apply Anodic protection. So that catalysed me into thinking this area could be the subject of my next TT. It actually took me back to an early corrosion lecture given by John Chilton in the Dept at Cambridge in about 1969 that struck me forcibly. He told us about how by driving the potential positive (in an environment which was oxidizing!) one could passivate the metal. This was particularly applicable to plain carbon or low alloys steels in sulphuric acid. When concentrated this is sufficiently

Corrosion Engineering Division’s third Working Day
oxidising to passivate iron without any applied potential. But by connecting the vessel to the positive terminal of a battery it can be made to anodically protect even when more dilute. Recent information received from my CED workday contact demonstrated to me that successful application of AP is quite subtle and relies strongly on good controlling equipment. It works in several solutions eg alkali (found in paper industries where sulfide is also common). However with too much chloride around (or other depassivating agents) it will not work. If it goes wrong (power cut or whatever) the consequences can be catastrophic (curve flips from passive to active -- corrosion rate much higher than it would be without the application of the AP in the first place). So not a method for the faint hearted! Also if the structures are big the currents that might be needed could be very large (100s of amps). Nonetheless it is worth it if you can cut the corrosion rate down e.g. from 50 thou per year to just a few thou (this example came from a paper by Ian Munro where AP had been applied to vessels being used for processing in the paper industry).

This leads on to a hobby horse of mine relating to my interest in the mechanism of protection by organic coatings. Can passivation occur naturally (under fairly specific conditions) by connecting to a high potential surface? In Cathodic Protection you can connect to another active metal which will drive the potential of the structure DOWN into the regime where the metal you are trying to protect is relatively immune. Can you do the same with AP? i.e. drive the potential of the metal UP by connecting to another metal. The received wisdom is it doesn’t work too well e.g. connecting copper to iron even in an oxidizing environment without supplying an independent source of positive current would quite likely lead to increased attack on the iron. But supposing one connected some passive steel to a bit of active steel via a large resistance as might occur under a paint coating. Assuming an oxidizing agent was present (eg from inhibitive pigment in the film or even just oxygen itself) maybe the potential of the active part would be driven up and it WOULD anodically passivate.

It does appear that something like this can happen because if you apply a coating to steel, expose it to solution and measure the potential then, assuming it is a decent coating, the potential tends to be in the passive region. If you then remove the coating and expose the metal to a mildly corrosive environment it takes longer to break down. These ideas may be a bit controversial. But they do seem to relate to the general concept of anodic protection i.e. the bringing of the metal into the regime where it is passive rather than active. The SKP is the technique that could help us move this forward.

If you have any thoughts on this or other matters as usual the e-mail address is Douglas@hanbridge.freeserve.co.uk

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**NEWS FROM LONDON BRANCH**

**ELEPHANT PARADE**

The colourful elephant parade in London is part of the campaign to save the Asian elephant and pictured here in Berkeley Square with the blue jumbo are members and friends of London Branch during their social walkabout on May 6th. The theme being spy activity in Mayfair, our Blue Badge guide Ingrid Wallenborg revealed some dark secrets about the area involving an unexpected death from polonium, and such names as Blunt and Philby – among others – with references to marks on benches and lamp posts which were used to indicate clues to the whereabouts and availability of secret information. The involvement of MIS and the CIA were an inherent part of the stories and our informative tour ended at the Naval Club where we enjoyed a chilli and rice supper.

At the London Branch evening on 8th April, Chris Todd of Winn and Coales International Ltd. gave an illustrated talk on external weld coatings for pipe in warm climates. He mentioned the difficulties of applying coatings in the Middle East, difficulties which include wide temperature variations, wind, chlorides and humidity, all of which can cause havoc for operatives. He emphasised that in such a challenging environment, inspection is paramount.
Inspection intervals for equipment have in the past been defined in a prescriptive manner. However, industry is now embracing the Risk Based Inspection (RBI) approach which in contrast prioritises inspections based on an assessment of the risk to each individual item.

The key outcome of any RBI scheme is a prioritised and focused inspection schedule. This ensures high-risk items get correct scrutiny and produces a safety-focused and cost-effective inspection scheme. RBI is now recognised as a key tool in meeting legislative requirements, as detailed in the HSE’s best practice guidelines.

There are many RBI schemes in use, but they have a number of common elements:

- Assessment of the credible threats to an item of equipment
- Potential failure modes and mitigation measures
- Resulting consequences
- Associating a measure of risk with each item
- Combining risk with inspection history to determine future inspection intervals and methodologies.

Economic approach to RBI — increasing the value of information

The RBI process is adequate for initial assessment and to control initial risk, but must be continuously updated and revisited to ensure it remains a ‘live’ system. Assessments often include more detail related to safety and environmental risk, and while business risk is normally included, the consequences are not always evaluated in great detail. An overview of the RBI process is shown in Figure 1, including the qualitative process used when updating takes place during a noted substantial change in process.

The obvious limitation of the RBI process is the lack of a clear link between cost/business information (notably, detailed analysis of historical and financial data) and RBI activities. However, significant value can be added by analysing information that has already been captured. This is detailed in Figure 2 (see page 12).

The following potential sources of information for review would normally already exist:

- Production records: records relating to shutdowns are generally good, and when used in conjunction with high-level accounting information can provide actual and hidden shutdown and production activities costs. Again there is a compromise between the detail of the analysis and the associated economic gain.
- Accounting information: this information may generally be accurate with respect to cost, but less accurate with respect to descriptions and understanding the nature of the expense without detailed analysis of each item. A high-level analysis will give:
  - Overall production cost per asset
  - Overall income per asset
  - Evaluation of the cost associated with an unplanned shutdown, specifically with respect to the direct cost of repairs and indirect costs arising from the loss of production while operating costs are still incurred.
  - Evaluation of the cost associated with a planned shutdown, again specifically with respect to the direct cost of shutdown and indirect cost related to loss of production.
- Inspection history: large amounts of data stored but not fully analysed after inspection is completed and alarm levels checked. Further analysis is normally possible in the form of corrosion rate trending, extreme value analysis to assess degradation outwith the inspection regions, refinement of inspection intervals and locations, and reduction in the risk of unplanned failure if updated regularly.

By Craig Emslie BSc, Integrity Services Specialist, Sonomatic and Karen Gibson CEng CMarEng MIMarEst, Principal Integrity Engineer, Sonomatic

<table>
<thead>
<tr>
<th>Divide system into components (vessels, pipework, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess safety consequence</td>
</tr>
<tr>
<td>Analysis based on theoretical safety risk assessment</td>
</tr>
<tr>
<td>Asses environmental consequence</td>
</tr>
<tr>
<td>Analysis based on theoretical environment risk assessment</td>
</tr>
<tr>
<td>Assess business consequence</td>
</tr>
<tr>
<td>Analysis based on potential loss to production critical equipment</td>
</tr>
<tr>
<td>Assess likelihood of failure</td>
</tr>
<tr>
<td>Analysis is largely based on theoretical corrosion/ degradation threats</td>
</tr>
<tr>
<td>Assign a criticality and grade of the item</td>
</tr>
<tr>
<td>Set inspection frequency</td>
</tr>
<tr>
<td>Conduct inspection</td>
</tr>
</tbody>
</table>

Figure 1 - Summary of RBI analysis process
Trade-off between cost and benefit

The inherent costs of reducing business risk include:

- An increase in inspection expenditure as some inspection is required from a safety standpoint
- An increase in analysis of the inspection data
- An increase in fabric maintenance via ‘pro-active’ replacement of equipment prior to failure — rather than ‘reactive’ replacement on plant failure — which can incur minimal extra cost.

With pressure on short-term cost, some operators have chosen to reduce inspection expenditure by, for example, substituting prescribed advanced technologies with conventional NDT approaches, utilising conventional service contractors to provide specialist technologies at reduced rates, and using an inappropriate Non-Intrusive Inspection (NII) process to defer Internal Visual Inspection (IVI).

Ultimately the above ‘cost-savings’ approach often fails. Experience shows that the costs (lost production, unplanned repair etc) far outweigh any short-term savings.

Optimising level of detail

The total cost of production is the sum of operating cost and cost associated with reducing operating cost as depicted in Figure 3. This can be optimised but an understanding of associated costs and benefits is required. If the systems are in place to make this evaluation possible then a better decision can be made with regard to the level of inspection/maintenance required.

Often the cost incurred is much less than the potential saving but as expenditure is required before savings are made, commitment from all parties (Production, Integrity etc) is needed. Prior analysis allows a rigorous demonstration of cost/benefit prior to incurring cost in order to motivate ‘extra’ expenditure, an example of which is shown in Figure 4.

Setting up a system to effectively evaluate cost/benefit usually requires initial set-up costs which require long-term commitment to realise gains, and it is often difficult to see gains in the short term when costs are associated with events (e.g. leakage from a pipe).

When revisiting data, the following issues should be taken into account:

- If components are not deteriorating rapidly and have a long remaining life, then...
over-analysis will not yield significant value
• Conversely, if the component is deteriorating rapidly, or the integrity is unknown, there could be significant value in conducting further analysis.
• Clearly, it would in the above cases be an advantage to be able to optimise the level of intervention. This can be achieved by a phased approach:
  – Initial phase: Broad analysis and system setup
  – Analysis of planned and unplanned events
  – Analysis of cost associated with events and general operating costs
  – Development of simplified but realistic methodologies to facilitate cost benefit of future events.
• Subsequent phases should focus on:
  – Identification of regions of maximum cost benefit
  – Evaluation of individual cases
  – Refinement of the initial analysis.

Statistical analysis of inspection data

Taking pipework integrity as an example, standard management usually includes measurement of wall thickness, taken at specified intervals at a large number of locations, resulting in large data sets being built up over time. Some trending may be carried out, but typically the main value of the inspection is taken as indicating the condition at the time it is made. Generally, anomaly criteria based upon original code criteria, material choice, operating conditions and wall thickness have been pre-determined and this results in a ‘pass/fail’ assessment carried out by the inspection technician.

Statistical analysis can be used to extract additional information from the established data set and this can give substantial value to the integrity management process. Corrosion processes can appear to be random and unpredictable but there is often some underlying order and this is demonstrated by the following diagrams.

Figure 5 depicts the output from a corrosion mapping process, which in this instance is a predetermined grid on a pressure vessel. The colour graphic shows the grid being split down into inspection grids of a pre-agreed size and the reported minimum recorded remaining wall thickness in millimetres for each grid is represented by a colour scale. Figure 6 then represents this output in a graphic format of recorded remaining wall thickness versus the proportion of area over which this is representative, the proportion of area is dimensionless.

Analysis carried out, using the distribution plotting method as illustrated above, of a wide range of data for vessels and pipework has shown that there is typically some underlying order in corrosion processes. Orderly behaviour means there is a basis for using statistical methods in which the known condition of the parts of a system are harnessed to estimate the condition of the remainder of the system. Typically for topside pipework inspections, the data set has thickness measurements over specific pre-determined regions/features. Measurements do not have 100% coverage for a complete system. At this point the use of statistical methods can provide additional confidence in the condition of the unmeasured portion of the system, therein providing confidence in the entire integrity management process, without the requirement to carry out extensive, time-consuming and costly additional NDT.

The analysis can be applied in a number of ways.
Figure 7 - Implementation process

- Understanding the distribution of damage through a system
- Estimating corrosion rates
- Estimating minimum remaining thickness of lines
- Possible integration to form an essential part of pipework integrity management.

The use of Extreme Value Analysis (EVA) allows estimates to be made for large areas based on the inspection of small areas. Upon completion of data collection for selected areas, or from original data sets, the susceptibility is then ranked.

The objective is to use additional information from analysis as input to defining ongoing inspection requirements. It can be used to define a risk-based approach where a combination of estimated minimum and average corrosion rate defines the probability — i.e., is typically the main driver for the inspection interval. Coverage — that is, the extent of straights or number of features — is driven by corrosion susceptibility and by results of extreme value analysis. (Additional coverage can improve the estimate of minimum and allow re-ranking.)

The implementation process is shown below in Figure 7. It should be noted that this approach is not an alternative to existing methods for planning the inspection of pipework but provides supporting information for decision making. It uses existing available information on the actual condition as an input to planning decisions. The input is made at the integrity review stage of the RBI process. The items for inspection are selected according to the recommended coverage but corrosion/inspection engineering input should also be taken on board as per good practice.

The benefit of using a statistical method is that the process makes best use of the measured condition of pipework as planning input. There is value in the inspection data beyond ‘condition acceptable’ and the approach uses this to enhance decision making. The added advantage is that the inspection process does not need revisiting to gain the data required. However, the more accurate and the larger the data set, the greater the potential benefit given. The result of the process is improved classification of corrosion/failure susceptibility and increased confidence that future inspection is appropriately applied according to risk. The redefined inspection requirements give a structured approach to inspection planning, ensuring that the resulting value of future inspections is maximised. Ultimately, the process assists in achieving a cost-effective inspection programme without compromising integrity.

**Summary**

RBI is a valuable tool and key to Integrity Management systems. Ultimately, RBI requires to be treated as a live system and continuously revisited through the lifecycle of the asset. Innovative technical methods must be embraced and incorporated to ensure continuous enhancement of the RBI Analysis and to ensure that it does not become a design-only exercise but truly representative of the live system.

**Craig Emslie – Integrity Services Specialist**

Craig is responsible for conducting fitness for service investigations, evaluating the feasibility for conducting non-intrusive inspection, developing inspection work scopes and developing integrity management plans. He is also involved in analysing inspection data from an integrity perspective. His experience includes consulting in the fields of design, stress analysis, failure analysis, fitness for service, fatigue and fracture mechanics, dynamic and residual stress measurement, as well as system evaluation and optimisation.

**Karen Gibson – Principal Integrity Engineer**

Karen has worked in support of the North Sea oil and gas exploitation industry for in excess of 12 years. She initially entered the industry as a safety engineer working within compliance assurance contracts and was involved in brownfield and greenfield work as well as various projects. She has a strong background in legislative requirements and code compliance, has a strong focus on cost and quality delivery and is extremely customer focused.

She then transitioned to a technical role supporting both the oil and gas industry and the marine industry. This included time spent as an onsite inspector/surveyor both on and offshore and working as a design and compliance engineer on behalf of IIA and IVBs. This role encompassed pressure systems, dive systems, lifting equipment, subsea systems and rotating machinery. She then progressed to centre her experience on process and pressure systems for both topsides and wellhead equipment, which in turn led to a role within the inspection and integrity sector. She has been ideally positioned as a Pressure Systems Competent Person and as a Senior Inspection Engineer in order to consolidate her experience. She is also a fully qualified Chartered Engineer and Chartered Marine Engineer.
DENSO’S LONG-LIFE PROTECTION FOR ELECTRICITY PYLONS

Northern Divers Engineers Ltd of Hull has recently completed a contract for protecting the leg bases of electricity pylons in a Midlands Area of Special Scientific Interest (SSI). The consultants for the project, Intertek Ltd, recommended a Winn & Coales Denso Tape system.

Denso Tape had been applied 25 years ago to protect the pylon leg bases and when it was removed by northern Divers, using hand tools, the surfaces were found to be still free from corrosion.

The new Denso Tape system was applied partially immersed from the concrete base up to 2 metres of the pylon legs. It comprised application of Denso paste, Denso Profiling Mastic to give smooth contours for the two following tapes. These were Denso Marine Piling Tape followed by Denso Glass Outerwrap. This is expected to give full protection for at least another 25 years.

Queen’s Award for Enterprise for International Trade Recognises Winn & Coales International for Growth in World Sales

London based specialist anti-corrosion, waterpounding and sealing products manufacturer Winn & Coales International Ltd, was today honoured with a Queen’s Award for Enterprise for International Trade recognising its growth in world sales over the past few years.

The award announced on the Queen’s birthday is the result of the combined efforts of the company’s UK, based staff, subsidiary companies and global network of agents offering proven and cost-effective solutions for its customers corrosion and sealing related problems.

Winn & Coales International, established in 1883 remains an independent company and celebrated its 125th Anniversary in 2008. The company’s Denso anti-corrosion and sealing systems have been used to protect buried and sub-sea pipeline, exposed steel work and storage tanks in highly corrosive environments worldwide for over 80 years.

Chairman David Winn OBE said "Winning this award recognises the amazing success we have achieved in establishing our products reliability and quality across the world despite recessionary times. It is a also a reward for all of the effort and finance we have continually invested in developing new innovative products to solve our customers ever changing needs".

Winn & Coales International, Chapel Road, London SE27 0TR  Tel: 020 8670 7511  Fax: 020 8761 2456  e-mail: mail@denso.net  www.denso.net
PYEROY WINS THIRD HUNTSMAN MAINTENANCE SERVICES CONTRACT

Pyeroy Ltd, a leading supplier of industrial services to the chemical, petrochemical, energy, marine, infrastructure and construction services sector, has won a new £2.5 million contract with a major global client.

The contract, with Huntsman, a worldwide manufacturer of commodity and differentiated chemicals, sees the Gateshead-based firm extending further its fabric maintenance services work.

Pyeroy is integrating its fabric maintenance services into its management organisation within the Industrial Services division located in the North East.

This latest contract is for an initial three year period with a two year option and is with Huntsman’s Polyurethanes manufacturing plant at the Wilton Integrated Chemical Park on Teesside.

The plant produces Aniline and Mononitrobenzene and is the largest of its type in the world.

Pyeroy is responsible for the delivery of multi discipline services, including access provision, thermal insulation, industrial coatings, fire protection and standby at Huntsman Polyurethanes.

The contract builds on previous contracts awarded to Pyeroy by Huntsman in the North East at Huntsman’s titanium dioxide pigment manufacturing facility at Greatham.

Duncan Peel, Huntsman Polyurethanes engineering manager, said: “We are delighted at the prospect of working with Pyeroy and developing a good teamwork philosophy between them and ourselves.”

Hugh Pelham, managing director of Pyeroy, said: “We are delighted to have secured a third contract with Huntsman, reflecting our expertise in providing an integrated bundled services’ proposition which was compelling for Huntsman.”

The Pyeroy Group is based in Gateshead and employs 1000 people working on industrial, construction and marine projects throughout the UK and Ireland.

The company provides a range of industrial services, which comprise contract scaffolding and equipment hire, surface preparation and application of marine/industrial protective coatings, insulation, civil engineering/building works and environmental management services such as asbestos removal.

PYEROY LIMITED, Group Head Office, Kirkstone House, St Omers Road, Western Riverside Route, Gateshead, Tyne and Wear, NE11 9EZ. Tel: 0191 493 2600 Fax: 0191 493 2601 Email: mail@pyeroy.co.uk

HYDRO POWER APPLICATION, SOLVING CORROSION OF RELIEF PRESSURE VALVE by Barry Nisill

Festiniog Power Station, the UK’s first major pumped storage power facility, was experiencing corrosion of their pressure relief valves. The valves were constantly under immersion and attached to the turbine spiral casing which is a safety device to release pressure from the spiral envelope during an emergency shutdown of the turbine which could ultimately lead to catastrophic failure of the pressure envelope (spiral casing).

In addition to the corrosion needing to be repaired, the customer also required a coating to prevent further corrosion to ensure that if the equipment was needed it would work without any problems. Belzona 1111 (Super Metal) a machinable repair composite was selected to rebuild the heavily pitted areas of the valve, this product was selected due to its resistance to a wide range of chemicals.

Noel Roberts and Derfel Hugh’s, both Mechanical Engineers at Festiniog Power Station both commented, “Belzona was specified over a competitive epoxy based coating in a number of plant and equipment areas during our 2008 and 2009 outages. So far we have had no issues and are more than happy with the performance given by the metallic, elastomeric and environmental polymer fillers and coatings. The long term performance will be assessed within the next 12 – 24 months during routine inspections.

Our confidence in the performance of the Belzona materials means we are happy to specify and apply in the upcoming 2010 outages at both of our stations.”

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We are now part of a select few companies that have achieved the NHSS sector 19a; the National Highways Sector Scheme for quality management of corrosion protection by industrial coatings accreditation. A standard that is mandatory for painting contractors to achieve before working as a Highways Agency Supplier.

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TRIMITE ON TRACK WITH TURKISH TRUCKS

Trimite Global Coatings has helped Faun TRACKWAY to fulfil its order to supply 40 vehicles fitted with their Heavy Ground Mobility System to the Turkish MoD by developing a liquid coating customised to meet the special colour specifications.

Trimite was asked by Faun TRACKWAY to supply a Chemical Agent Resistant Coating (CARC) to match the particular RAL colour specified by the Turkish MoD. Due to the infrequent requirement of this colour within the UK, Trimite had to formulate a bespoke liquid coating.

Gareth Williams, lead engineer on the project at Faun TRACKWAY said: “As a supplier of vehicles to the defence industry, we have to ensure complete compliance with the Defence Standards. Not only was Trimite able to provide us with this guarantee, but they formulated a coating specifically to meet our customer’s requirements.”

Fully compliant with Defence Standard 80-208, Trimite’s CARC coatings are designed to withstand the harsh chemicals that are used to clean military vehicles and equipment that has been exposed to chemical warfare agents. The supplied coating also meets the Infra-Red Reflecting (IRR) camouflage requirements, ensuring the vehicles cannot be detected by infrared night vision.

For a free information pack on liquid coatings or details of other Trimite products, please call 0121 554 700 or fill out the form at www.trimite.com/contacts/enquiry-form

NEW LIFE FOR HISTORIC BUOYS AT PRESTON DOCKS

Lancashire based painting and decorating contractor, T Harrison Limited has recently completed work on the refurbishment of two historic ‘bell-boat’ buoys that once marked the safe approach to Preston Docks.

The two ‘Nelson’ safe-water landfall buoys were originally moored eight miles out to sea, off the coast of Lytham, where the Ribble Estuary meets the Irish Sea. Today, however, they stand at two of the main entrances to Riversway – a modern development comprising a marina and a range of industrial, commercial and residential buildings.

In the first phase of the project, T Harrison staff cleaned and pre-treated the 50 tonne steel structures, which had become corroded when their protective coatings started to fail. Their maritime history, combined with their present location close to the marina meant that they had been continuously subjected to chloride attack for well over half a century, so it was important to reinstate cover as soon as possible.

Over a period of 10 days, the team prepared the substrate by hand, removing any friable material using wire brushes and chipping hammers, before applying Protegashield SPF primer and Protegathane PLV polyurethane finish.

“The marker buoys are well known city landmarks with a long and interesting history,” said T Harrison’s Contracts Director Bob Roberts. “Preston City Council commissioned us to repair and protect them in order to prevent any further deterioration and that’s exactly what we have achieved. We’re proud to have played a part in preserving them for many more years to come.”

T Harrison operates throughout the North West and across a wide range of industries. With a track record spanning nearly 50 years, the company is experienced in applying specialist paints and coatings of all kinds, from anti-corrosion treatments and anti-carbonation coatings to floor surfacing, decorative paints and hygiene control finishes.

More information about the company’s work and projects can be found by visiting its website – www.t-harrison.co.uk – or by calling 0800 043 2501.

METALLISATION MD FACES 3 LAKES CHALLENGE

Metallisation’s Managing Director, Dr Terry Lester, is to complete the 3 Lakes Challenge in July in aid of Cancer Research. The challenge is to dive the three highest altitude lakes on the British mainland in the fastest time possible. The aim of the challenge is ideally to complete all three dives within 24 hours.

The three lakes involved are Loch Coire an Lochan in the Cairngorms at an altitude of 996 metres, Red Tarn in the Lake District at 718 metres and Ffynnon Lloer in North Wales at 650 metres. The clock starts ticking the moment Terry leaves the car park for the difficult walk to the first lake. This adds to the challenge, as he has to carry all of his diving equipment with him. Each dive must be a complete, fully immersed dive, which lasts for a minimum of 10 minutes. The car journey between each lake is a total of 436 miles.

Terry is completing the challenge in aid of Cancer Research and has set up a just giving page, to donate please visit www.justgiving.com/Reservoir-Dogs, which he hopes will help him raise his target of £1,000.

Metallisation is synonymous with metal spraying to a diverse range of industries around the world. Metal spraying is a technology, which protects and greatly extends the life of a wide variety of structures, equipment and vessels, in the most hostile environments and in situations where protective surface coatings are vital for longevity.
METAL SPRAYING IS HUGE SUCCESS WITH ELECTRO METAL DEPOSITORS

Metallisation customer, Electro Metal Depositors, is a huge fan of metal spraying and says its clients are thrilled with the results.

Electro Metal Depositors, based in Oldham, Lancashire, provides anti corrosion and surface protection for all manner of equipment and structures including turnstiles, playground equipment, security barriers, entrance gates, roadblocks and decorative balustrades. The company prides itself on providing surface coatings that offer corrosion protection, durability and longevity.

Metallisation supplies Electro Metal Depositors with Arc spray equipment, wires and supporting sundries for use in all of its metal spraying projects. The Metallisation Arc140 system offers a lightweight, medium capacity solution for both anti-corrosion and engineering coating applications. At the heart of the system is the patented ‘Synchrodrive’, which reliably and positively drives the wire at the dispenser and the pistol, allowing the pistol to be up to 20m from the wire. The flexible drive system means that there is no motor in the pistol, resulting in a lightweight, manoeuvrable pistol, increasing the flexibility of the system and reducing operator fatigue.

Although Electro Metal Depositors provides metal spray solutions to many industries and clients around the UK, the company has recently completed two exciting major projects with its client, Broughton Controls Ltd. The first was to protect the entrance turnstiles of an Irish rugby stadium. With a capacity of 50,000 the turnstiles at the rugby ground will be well used, which means they need to be hardwearing and protected from corrosion. To achieve this the turnstiles were metal sprayed with zinc and finished with a powder coating. The metal spraying provides an excellent key for the powder coat to adhere to, assisting in the long term durability of the outer coating. Should the powder coat be damaged, by jeans rivets or belt buckles for example, the zinc metal spray comes into its own and protects the base steelwork from rusting. Rusting of turnstiles and handrails can cause sharp areas, obviously undesirable given the amount of people passing as well, as the aesthetic issues. The combination of metal sprayed zinc and powder coat has provided a hard wearing, anti corrosion coating guaranteed for at least ten years.

The second project was to protect the entrance turnstiles at a defence site in the UK. Again strong, robust, hardwearing surface protection was required, which has been delivered by metal spraying the turnstiles with zinc. This time Electro Metal Depositors has provided a 20 year guarantee to its client.

In the metal spraying process surface preparation is very important to the success of the final coating. All of the surfaces are therefore prepared by grit blasting with steel grit to SA 2.5, which ensures the surface area is ready to accept the metal sprayed particles. Electro Metal Depositors aims for around 70 – 100 microns of zinc spray and between 70 – 100 microns of powder coat, which gives a total of 140 – 200 microns of protective coating on all projects.

One of the major advantages of metal spraying, as opposed to a process such as galvanising, is that there is no heat distortion of the structures being coated. This is vitally important in the protection of decorative balustrades the company manages on a regular basis. These balustrades can be intricate and delicate mouldings in metal that will be easily distorted by the heat generated in the galvanising process.

A second key advantage of metal spraying over galvanising is the ability to protect large structures. Galvanising is limited to the size of the galvanising tanks and therefore cannot accommodate large structures. Whereas metal spraying has no limitation on the size of the structure it can protect. This was a key factor in the company’s decision to metal spray large roadblocks, which are huge steel structures used in war zones. The roadblocks needed to be protected from corrosion, but also robust enough to withstand an explosion.

Richard McPartland, Chief Executive, Electro Metal Depositors, says: “Metal spraying is fantastic. Its strength, durability and long term protection is ideal for the work we are asked to do by our clients. The security companies love metal sprayed surfaces because it is just so strong. It not only provides corrosion protection but it creates a hard wearing, strong surface that lasts for years. We recently used it to protect the security barriers at the site of one of the large banking groups and it has been a huge success. Metallisation is a great company to work with. They are always on hand to offer support and to discuss new developments with us. I am a big fan of metal spraying.”

Metallisation Ltd, based in the UK, provides anti corrosion solutions to industries around the world and has done since 1922.

For more information on metal spraying solutions, please contact Stuart Milton on 01384 252 464 or visit www.metallisation.com
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<tr>
<td>P C Richardson &amp; Co</td>
<td>Unit L1, Chadwell Heath Industrial, Kemp Road, Dagenham, RM8 1SL</td>
<td>01642 714791</td>
</tr>
<tr>
<td>Standish Metal</td>
<td>Potter Place, West Pimbo, Skelmersdale, Lancs, WN8 9PW, UK</td>
<td>01695 455977</td>
</tr>
<tr>
<td>T&amp;T Coatings Ltd</td>
<td>Snowdon House, Snowdon Road, Middlesbrough, TS2 1DY, UK</td>
<td>01642 247972</td>
</tr>
<tr>
<td>W G Beaumont &amp; Son</td>
<td>Unit L1, Chadwell Heath Industrial, Kemp Road, Dagenham, RM8 1SL</td>
<td>0208 590 8523</td>
</tr>
<tr>
<td>Company Name</td>
<td>Address</td>
<td>Telephone</td>
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<tr>
<td>Abbey Gritblasting Services</td>
<td>Unit 13, Clopton Commercial Park, Clopton, Woodbridge, Suffolk, IP12 3TP</td>
<td>0191 262 0510</td>
</tr>
<tr>
<td>Barrier Ltd</td>
<td>Stephenson Street, Wallsend, Tyne &amp; Wear, NE28 6UE, UK</td>
<td>0191 262 0510</td>
</tr>
<tr>
<td>Carrodus Contractors Limited</td>
<td>Unit 134, Medway Enterprise Centre, Enterprise Close, Strood, Kent, M62 4SY</td>
<td>01634 271786</td>
</tr>
<tr>
<td>Coastground Ltd</td>
<td>Morton Peto Road, Capton Hall Industrial, Great Yarmouth, Norfolk, NR3 1 0LT</td>
<td>01493 650455</td>
</tr>
<tr>
<td>Celtic Painting Consultancy Ltd</td>
<td>Rosedale, Carelicken Lane, Langstone Newport, Gwent, NP18 2JZ</td>
<td>01633 40019</td>
</tr>
<tr>
<td>Coastline Preservation Ltd</td>
<td>Tredegrar Wharf, Marine Parade Southampton, Hants, SO14 5JF</td>
<td>02380 221480</td>
</tr>
<tr>
<td>E &amp; P Painting Contractors</td>
<td>Rosffield Road, Rossmore Trading Estate, Ellesmere Port, Cheshire, CH65 3AW</td>
<td>0151 9558141</td>
</tr>
<tr>
<td>Forward Protective</td>
<td>Vernon Street, Shirebrook, Mansfield Notts, NG20 8SS</td>
<td>01623 748323</td>
</tr>
<tr>
<td>GABRE (UK) LTD</td>
<td>9 Holme Road, Dromore, Omagh Co Tyrone, BT78 3BX</td>
<td>02882 897950</td>
</tr>
<tr>
<td>G W Burton Ltd</td>
<td>New Court, Wooddalling, Norwich, Norfolk, NR11 6SA</td>
<td>01263 584203</td>
</tr>
<tr>
<td>GPS Services &amp; Distribution Ltd</td>
<td>Alexandra Business Park, Riverside South, Pallion, Sunderland, Tyne &amp; Wear, SR4 6UG</td>
<td>T: 01753 654123</td>
</tr>
<tr>
<td>GCS Painting Contractors Ltd</td>
<td>61 Portland Road, Selston, Nottingham, NG16 6AS</td>
<td>T: 01773 860983</td>
</tr>
<tr>
<td>H &amp; S Decorating</td>
<td>Amministration Building, Forth Road bridge, South Queensferry, Edinburgh, EH30 9SF</td>
<td>T: 01753 654123</td>
</tr>
<tr>
<td>Hempel UK Ltd</td>
<td>Llantarnam Park, Cwmbran, Gwent, NP44 3XF</td>
<td>T: 01633 874024</td>
</tr>
<tr>
<td>Hill Price Associates Ltd</td>
<td>Hill Price Associates Ltd, 3 Prospect Place The Maritime Quarter, Swansea, SA1 1QP</td>
<td>T: 01792 544255</td>
</tr>
<tr>
<td>Leights Paints</td>
<td>Tower Works, Kestor Street, Bolton, lancs. BL2 2AL</td>
<td>T: 01698 264271</td>
</tr>
<tr>
<td>Malakoff Limited</td>
<td>North Ness, Lerwick, Shetland, ZE1 0LZ, UK</td>
<td>T: 01595 695544</td>
</tr>
<tr>
<td>Matthew James Services</td>
<td>Unit 4, Shibdon Business, Cowen Road Blaydon, Newcastle-Upon-Tyne, NE21 5TX</td>
<td>T: 0191 414 5700</td>
</tr>
<tr>
<td>Metal Cleaning UK Ltd</td>
<td>Randles Road, Knowsley Business Park, Knowsley, Merseyside, L34 9HX</td>
<td>T: 0151 5492449</td>
</tr>
<tr>
<td>MIS Services Ltd</td>
<td>Unit 12 Laurence Industrial, Eastwoodbury Lane, Southend-On-Sea, Essex, SS2 6RH</td>
<td>T: 01702 520400</td>
</tr>
<tr>
<td>Offshore Marine Services Ltd</td>
<td>Brumby House, Jalan Bahasa, PO Box 80148, 87011 Lubuan F.T. Malaysia</td>
<td>T: +356214244410</td>
</tr>
<tr>
<td>Opus Industrial Services</td>
<td>Ethan House, Royce Avenue, Cowpen Industrial, Estate, Billingham, TS23 4BX, UK</td>
<td>T: 01642 371850</td>
</tr>
<tr>
<td>Orrmac Coatings Ltd</td>
<td>Newton Chambers Road, Thorncliffe Park Estate, Chapeltown, Sheffield, S35 2PH</td>
<td>T: 0114 246 1237</td>
</tr>
<tr>
<td>Prize Spraying</td>
<td>Eadsdale, Carlton Colville, Lowestoft Suffolk, NR33 8WL</td>
<td>T: 01502 564437</td>
</tr>
<tr>
<td>R A Materials &amp; Foundries</td>
<td>Unit 19, Heysham Business Park, Middleton Road, Heysham, Lancs, LA3 3PP</td>
<td>T: 01606 723426</td>
</tr>
<tr>
<td>R.L.P. Painting</td>
<td>Heathfield House, Old Bawtry Road, Finningley, Doncaster, DN9 3DD, UK</td>
<td>T: 01302 772222</td>
</tr>
<tr>
<td>Steel Protection Consultancy Ltd</td>
<td>7a High Street Mews, High Street, Leighton Buzzard, Beds, LU7 1EA, UK</td>
<td>T: 01525 852500</td>
</tr>
<tr>
<td>Sussex Blast Cleaning</td>
<td>Unit 35-37 Station Road, Hailsham, East Sussex, BN27 2ER</td>
<td>T: 01323 849229</td>
</tr>
<tr>
<td>TEMA Engineering Ltd</td>
<td>5-6 Curran Road, Cardiff, CF10 5DF, UK</td>
<td>T: 020920 344556</td>
</tr>
<tr>
<td>Tees Valley Coatings</td>
<td>Riverside Park Road, Middlesborough, Cleveland TS2 1UT</td>
<td>T: 01642 228141</td>
</tr>
<tr>
<td>The Renovate Services Co.</td>
<td>Amlwch Industrial Estate, Anglesey, LL68 9BQ</td>
<td>T: 01407 831331</td>
</tr>
<tr>
<td>Watson Steel Structures</td>
<td>Lostock Lane, Lostock, Bolton, BL6 4BL</td>
<td>T: 01204 699999</td>
</tr>
</tbody>
</table>
1st–3rd September 2010
51st Corrosion Science Symposium
Venue: University of Southampton
One page abstracts should be submitted via email to: J.A.Wahrton@soton.ac.uk
Deadline for receipt of abstracts: Friday 25th June 2010

29th September 2010
Visit to Wedge Group Galvanising Plant
Venue: Saviyry, Cambridgeshire
You are invited to take a guided tour of the new £6m state-of-the-art galvanizing plant. There will also be presentations, lunch and networking opportunities.
To book please contact Tracy Messer
Tel: 01902 600704
Email: corrosion@wedgegalv.co.uk

27th November - 1st December 2011
Fray International Symposium
Venue: Hilton Cancun, Cancun, Mexico
Honoring the distinguished work and lifetime achievements of Prof. Derek Fray. The symposium will be based in the equally important three topical areas: principles, technologies and industrial practice with special emphasis to a globally sought clean environment of 21 century.
For further details contact Dr. Florian Kongoli
Email: fkongoli@flogen.com
www.flogen.com/FraySymposium

4th December 2011
Fray International Symposium
Venue: Hilton Cancun, Golf and Spa Resort, Cancun, Mexico.
For further details contact Dr. Florian Kongoli, Email: fkongoli@flogen.com

Thursday 14th October 2010
London Branch Joint Meeting with LMS
Speaker: Richard Holt of Subpection Ltd on corrosion monitoring in the marine environment.
Venue: Naval Club, 38 Hill Street London W1 17.30 for 18.15 start

Thursday 11th November 2010
London Branch Golf Day
London Branch Joint Meeting with J&WS
Speaker to be announced.
Venue: Naval Club, 38 Hill Street, London W1 17.30 for 18.15 start

2nd December 2010
Annual London Branch Luncheon
Royal Overseas League Club
Co-ordinator – Mike Allen
For further details contact
mike.allen9@btinternet.com

28 June - 2 July 2010
Designing for Corrosion Control
(Route to NACE Certification)
The course reviews the principles of corrosion and corrosion control and applies the technology of corrosion prevention to the design process.
London - Further details contact Paulette Sidky, Tel: +44 (0)207 469 9408
Email: psidky@cmcltd.co.uk or website at www.nacegb.org

5 –10 July 2010
NACE, CP-3
(route to NACE certification)
An intensive 6-day course that prepares students for the NACE Cathodic Protection Technologist Certification Examination.
Further details contact Paulette Sidky, Tel: +44 (0)207 469 9408
Email: psidky@cmcltd.co.uk or website at www.nacegb.org

9th-12th November
Corrosion Control in the Oil and Gas Industry
Amsterdam: - Further details contact Colin Britton, Tel: +44 (0)1480-860943 Email: cbrit79727@aol.com or website at www.cfpa.com

SHORT COURSES
29-30 November 2010
New Energy Institute workshop on Corrosion Management
The workshop will describe the model process of Corrosion Management for the upstream oil and gas sector and is based on the EI publication ‘Guidance for corrosion management in oil and gas production and processing’.
Contact: Will Sadler
Email: wsadler@energyinst.org
Tel: 020 7467 7135

London Branch publish a monthly Newsletter
Details of all Branch activities, dates and venues can be found at www.icorr.org