Approved Courses

- Painting Inspector Levels 1, 2 & 3
- Pipeline Coatings Inspector Level 2
- Cathodic protection of re-inforced concrete structures Levels 1 & 2
- Insulation Inspector Level 2
- Hot Dip Galvanising Inspector
- Fire Proofing Inspector Level 2
- Cathodic protection of buried and submerged structures Levels 1 & 2

For further information or administrative details, costs and bookings for courses and examinations or detailed information packages free of charge, please contact:

Martin Dawson or David Betts on:
Tel: +44 (0)1709 560459 Fax: +44 (0)1709 557705
Email: enquiries@ruanetpo.com
Internet: www.argyllruane.com

Technical and eligibility enquiries can be made direct to Dave Griffiths the ICorr Scheme Manager on:
Tel: +44 (0)1709 550999

Reader Enquiry Service

For further information on any of the products and services featured in this issue simply fill in the Reader Enquiry Service slip opposite and return to us FREEPOST (no stamp required):

Corrosion Management
FREEPOST
RSRB-JLHR-HYHX
SHEFFIELD
S1 4EL
UK

READER ENQUIRY SERVICE

For further information on any of the items featured in this edition of Corrosion Management, please write the appropriate Reader Enquiry Service number(s) in the spaces below.

Name: ____________________________ Position: ____________________________

Company: ____________________________

Address: ____________________________

Postcode: ____________________________

Tel: ____________________________ Fax: ____________________________

Email: ____________________________

Ruane & T P O’Neill Argyll-Ruane Ltd.
Meadowbank Road, Rotherham S61 2NF, United Kingdom
CONTENTS

Institute News
The President Writes 4
Aberdeen Branch Meeting May 2012 5
London Branch News 6
Technical Topic No. 38 7
Interviewing Corrosion Professionals 8-9
Focus On Coating Applicators 10-13

Technical Article
Multi-skip inspection to detect corrosion at pipe support locations of slug catcher at shell UK’s St Fergus Gas Plant 14-17

Company News
Industrial Coating Services Ltd 18
Winn & Coales (Denso Ltd) 18-19

Recruitment News 20

Sustaining Members 21-28
ICATS Registered Companies 29-31

Diary and Branch Contacts 32
The President Writes

As I sat down to write this edition of ‘The President Writes’ I heard the sad news that Professor David Scantlebury had lost his battle with cancer and passed away on 13th July. David will be remembered by many especially all those members whose careers touched Manchester, first as UMIST and now merged with The University of Manchester where he was course director for the MSc in Corrosion Engineering amongst other things. A fuller appreciation of David’s life will appear in the next issue of Corrosion Management but having known him since the 1970’s when, my then employer, Impalloy Ltd., sponsored a number of research students supervised by David I have many happy memories of time spent with him. We would meet regularly to discuss things and invariably end up in an Indian Restaurant with David’s bicycle in the boot of my car. The last time this happened, after the 2009 ICorr AGM, I remember proudly telling David that I had replaced my front door of my house and after considerable research decided that the best long term preservative for oak was tung oil or china wood oil (a drying oil obtained by pressing the seed from the nut of the tung tree Vernicia fordii). David replied that he was pleased that the findings of his PhD research at Cambridge had stood the test of time! He will be sorely missed.

In June I went on holiday to China. I did not come across any historical metallurgical items to report here other than a set of 2000 year old bronze bells together weighing over 2 tonnes excavated in near perfect condition from a tomb near Wuhan and each producing a different tone depending on where they are struck. I was however impressed by the scale of other projects I saw not the least of which were the Three Gorges Dam a controversial undertaking that will have installed hydro electric capacity of 22,500 MW and prevent the flooding of the Yangtze which has killed over one million people in the last 100 years. The Terracotta Army and the Great Wall were both breathtaking.

Since returning from China I have had some relatively minor but essential vascular surgery to my left leg and whilst waiting to go into the operating theatre I saw a crate of surgical implants ready to go for sterilization. They were, I surmised, ball joints to be used in hip replacements but I could not tell if they were stainless steel, titanium or an alloy and by the time I could ask I was unconscious. This would make an interesting topic for a paper in this journal if any of our readers are expert in this field. Metallic implants have to survive in a corrosive saline medium not unlike warm sea water for many years, retain strength and not develop increased friction due to build up of corrosion products. Simple research indicates that there are a wide variety of pairings of metals and polymers used in orthopedic implants with peculiar advantages and disadvantages to each. Few things are ever simple!

The U.R. Evans Award

The U.R. Evans Award is traditionally open to the public. However, as the venue this year is NPL, anyone wishing to attend should let Gareth Hinds (gareth.hinds@npl.co.uk) know in advance so that a visitor pass can be arranged.

U.R. Evans Award

The U.R. Evans Award presentation and lecture will take place at 3pm on Thur 6th Sept in the Main Auditorium at NPL. Prof. Michael Schutze will be presented with a commemorative sword by the President and will give a talk entitled: “The route from U.R. Evans’ original approach to today’s understanding on scale failure”.

The Galloway Award

The Galloway Award is named after J.O. (Jack) Galloway (1924-1966), an active member of the corrosion engineering community who was President of the British Association of Corrosion Engineers when he died. The award was established in his memory to encourage early awareness of corrosion and expertise in the field of corrosion prevention. The award, which consists of a certificate and a cheque for £250, is presented annually to an outstanding student in the field of corrosion science, technology or engineering. The winner will be invited to attend the Corrosion Science Symposium to receive the award and give a paper on their work, which will also be published in Corrosion Management.

Submissions for this year’s award should be made to j.a.wharton@soton.ac.uk by 31st August 2012. See www.icorr.org/events for registration information.

53rd Corrosion Science Symposium

6th–7th September 2012 - National Physical Laboratory, Teddington

The Corrosion Science Division of the Institute of Corrosion (ICorr) is pleased to invite you to London for the 53rd Corrosion Science Symposium. The 53rd CSS will take place on 6th–7th September at the National Physical Laboratory (just a 10-minute walk from Teddington Station with excellent links to the city). The CSS has been held annually since its launch in 1960 by Prof. L.L. Shreir. It is an opportunity for students and younger researchers in corrosion science to congregate, discuss their work, share ideas and, above all, enjoy themselves in a stimulating environment.

The symposium will cover the following topics:

• Localised corrosion • Corrosion modelling • Scanning probe techniques
• Coatings • Corrosion of light alloys • Structural integrity & lifetime prediction

See www.icorr.org/events for registration information.
A joint branch meeting with the National Association of Corrosion Engineers (NACE) and an annual general meeting (AGM) was held at the Palm Court Hotel on the 22nd of May 2012. Alistair Seton (the outgoing Chair of the 2011-2012 session) hosted the AGM and shared the vision and objectives of the ICorr Aberdeen branch. He outlined presentations that received excellent response over the session and summarised finances expressing the Institute’s appreciation for its sponsors. During the AGM, Frances Blackburn was elected as the next Chair for the 2012-2013 session and a call for new committee members was made.

Alistair then introduced the speaker of the night as Andrew Duncan. Andrew is a corrosion and material specialist with over thirty years experience with industry all over the world in more than twenty different countries before joining HSE six years ago. In January 2012, Andrew became manager of HSE KP4 initiative.

Andrew Duncan started his presentation by summarising corrosion problems that threatened the integrity of oil and gas offshore platform. He observed that the UK oil and gas industry had excellent processes and procedures in place, noting that the Corrosion Risk Assessments (CRAs) and Risk Based Inspections (RBIs) approaches were effective but pointed out that integrity management as a whole still needed improvement. He explained that one of the findings from the KP3 initiative was that the UK’s aging offshore platforms had major integrity issues and that safety-related elements were often ignored or less prioritised. “The oil and gas industry has had a bad last two years especially for pipeline failures and the number of hydrocarbon release has been high,” Andrew recalled.

Andrew explained that the KP4 programme was initiated to raise awareness about Aging and life extension rather than to set out regulatory requirements. He stated that the aim of the programme was to work very closely with the industry (oil and gas UK) to produce guidance emphasising that it is not only about how old an asset was but also knowing its condition and how this condition was changing. He mentioned that the HSE was sharing knowledge across the industry (i.e. maritime and nuclear industry) and other regulators across North Sea from Norway, Denmark and the Netherlands. “This programme would aim to identify gaps, identify good practices and develop knowledge, which will then be fed back to the industry,” Andrew explained.

He presented a traffic light system used in HSE: KP4 and announced the date (15 August, 2012) and venue for seminar presenting interim findings of HSE i.e. KP4 and findings on FPSOs. He informed the audience that the HSE has released the list of duty holders that were included in inspection and HSE templates noting that inspections of air receivers in skids were being ignored. Andy said that the HSE has also observed that operational risk assessment could be abused and project-planning ill managed but noted that there was progress being made.

Finally, Andrew mentioned that structural assessments for life extension of platforms, understanding and documentation of degradation by individual corrosion mechanisms and risk assessments were encouraged by HSE. He advised the audience to apply a “broken window” approach in order spot problems as early as possible observing that the industry was putting serious effort to come around issues and that change was going in right direction.

After the presentation, questions were asked related to KP4 inspection criteria, identifying problems/issues as soon as possible at design/integrity management stage, FFS assessment without inspection results, HSE point of view on competent individuals and deferments of maintenance tasks.

More information about the Aberdeen branch activities can be got from the ICorr Aberdeen branch chair Frances Blackburn at ICorrABZ@gmail.com. Alternatively, a calendar of local events of interest to corrosion professionals in the Aberdeen area and the opportunity to sign up to the branch mailing list is available at https://sites.google.com/site/icorrabz/home.
**LONDON BRANCH NEWS**

On evening of Thursday 3rd May, London Branch Members and guests enjoyed a Sustaining Members’ Evening by way of a walking tour of Soho. As usual our Blue Badge Guide was Ingrid Wallenberg, and with the elements being kind to us, Ingrid led our party of 35 away from the hubbub of Piccadilly Circus for the quieter backstreets. We owe a debt of thanks to organiser John O’Shea, and as earlier billed by him, we entered a world touching on sex, drugs, rock and roll, the story of Levi jeans, a pub which ran out of champagne, and a customary refreshment break at licensed premises. We concluded a congenial evening at The Naval Club for a hot chilli supper, after which Dawn White was given an engraved presentation glass in appreciation of her work officiating and scoring for the London Branch Golf Day at Silvermere over past years.

The London Branch meeting in April was joint with NACE (GB) with 34 members and guests present. Guest speaker, David Harvey’s subject was ‘Cathodic protection of complex structures’. ‘Complex’ in this sense refers to corrosion control arrangements including ancillary structures not usually subject to cathodic protection, e.g. earthing and instrumentation systems when it is not possible for them to be electrically isolated from the steel structure(s) under protection. David explained that because such ancillary components are almost inevitably bare metal, the current demand required for protection can be a daunting challenge, involving multiple transformer rectifiers for the power source, especially on large sites when the current demand can be huge. The problem is made more difficult because metals other than steel will almost certainly be included with their various current demands for protection – that very subject promoting a lively discussion session at the close. Ideally, the design stage of any site should include considerations required for adequate cathodic protection and insulation joints should be used between the protected structure(s) and other metal systems, although on large sites this could be a major challenge in itself.
Technical Topics No.38:
CORROSION EDUCATION, CPD AND THE SCIENCE COUNCIL
by Technical Secretary, Douglas J Mills

The main topic this month is Education. But I will at least start with a couple of technical points. I recently attended a very interesting Marine Corrosion Forum meeting in Birmingham. The Marine Corrosion Forum has company members only and they run 4 meetings a year which contain 4 or 5 talks. Also the meetings provide an opportunity to ask questions pertaining to marine corrosion of the assembled delegates. They allow you to attend one meeting free (useful to improve your CPD) before joining. At the one I attended Clive Tuck gave a talk on Aluminium for sea water service. There are dozens of aluminium alloys (I remember this from my days at BNF) and they all come in a variety of worked conditions and, in the case of heat treatable alloys, with a variety of heat treatments. In terms of alloying elements, the common ones are copper, zinc, silicon and magnesium; each added at around a few %. Now what Clive told us was that only the magnesium containing alloys are any use for sea water application. Why is this? He did show a graph where the voltage of the magnesium alloy remained the same in sea water with time (as compared with the copper alloy where it rose and the zinc alloy where it dropped). There are alloy precipitates in all these and it would appear that magnesium-aluminium precipitates have the same potential as the aluminium matrix. Hence no galvanic couple is set up. But that still does not fully answer the question. My own view as to why aluminium-magnesium alloys exhibit such good corrosion resistance, is that the thin oxide film (alumina?) that grows above the aluminium-magnesium precipitates must be VERY similar both physically as well as reactivity wise to the oxide that forms above the aluminium matrix with no mismatch. But there may be other views!

The other question relates to a question I was asked at a dinner party. The chap opposite was a lecturer at an agricultural college with an interest in preserving old cars don’t corrode as much as they used to and I replied it was the largely to do with old cars. He pressed me and I replied it was largely to do with excellent electrocoat primer. So can you retrospectively apply this primer? he asked, I said no. So what can you do to get some improved level of corrosion resistance? Well you could apply a zinc layer (cold galvanising) I replied. Improved cold galv coatings with nano-particles are being developed in Gdansk University of Technology (my friend Kasia et al) So that might be one answer! However no doubt there are others and correspondence on this is welcome.

Anyway to the main point of this TT. Many of you out there reading this are ordinary members. It would probably be advantageous both for you and for the Institute, for you to become a Professional Member. Or even a Fellow (direct entry to Fellow is possible). To do this you have to obtain (and fill in) an application form. And find two referees one of whom must be at the Grade that you are applying for. Now as well as being competent in the practise of whatever branch of corrosion control or inspection you are in, you will also need to demonstrate to these referees that you know something about Corrosion Science. So here is a “simple” test. Can you put these three alloys in order in a galvanic series and give an approximate value for their potential relative to an SCE: zinc, copper and iron? Then let us coat one of these with each of the others i.e. zinc on iron, zinc on copper, iron on zinc, iron on copper and copper on zinc and copper on iron. Now make a 1mm scribe in the coating, expose to a mildly corrosive environment e.g. a sea atmosphere where you will get rain water containing chloride ion running across or down this scribe. What will happen in each case and why? Now if you can answer this correctly, you may well have enough knowledge to become a Professional Member! If you cannot then maybe a Fundamentals of Corrosion course is what you need to improve your basic corrosion knowledge.

In relation to the latter, it is the Institute’s intention to make more of this type of course available. Probably internet based, but with a day or two days where you come and take a closed exam and do some laboratory work. A likely venue is Manchester (Bob Cottis and Stuart Lyon) although other places might also be able to offer this. If you are interested in this, you could let Denise and Gwynneth know (Admin@icorr.org). Your name will then be put on list and hopefully as soon as something “gets off the ground” you will be informed.

Now to the Science Council (SC). Good news is that, steered by Stuart Lyon, we are back in their good books i.e. we have satisfied them regarding our competence to award Chartered Scientist. However there is no room for complacency. Another review follows next year! So we need more members to become registered. As pointed out before in this column, if you are already a Fellow it is relatively easy (and cost free) to become a Chartered Scientist. But the Science Council have now opened two new registers: Registered Scientist (RSci) and Registered Scientist Technician RSciTech. Again Denise and Gwynneth know all about how to apply for any of these.

Going back to CPD if you are Chartered, the SC do like you to keep your CPD up to date and Stuart and myself are available to help with this.

I will finish with some sad news. Dr Paul McIntyre, a doyen in both the fields of corrosion science and corrosion engineering, sadly passed away a couple of weeks ago. I hope to write more about Paul in the next CM. Undoubtedly he will be much missed in the corrosion community as well as by his many friends and family. Any comments on this month’s TT as usual please write to: Douglas@harbridge.freeserve.co.uk
INTERVIEWING CORROSION PROFESSIONALS

THEME: CORROSION PROFESSIONALS AND THE INSTITUTE OF CORROSION

Bob Crundwell worked as Chief Engineer, General Manager and Managing Director for over thirty years. He developed a technical career in Materials Performance and Preservation with particular emphasis on Cathodic Protection for onshore and offshore assets. Bob is a metallurgical engineering graduate from the University of London with a PhD in Electrochemical Engineering and also holds a diploma in management studies, he is also a Chartered Engineer and Chartered Scientist. Bob has written many technical papers on cathodic protection and related topics and also gave lectures to the MSc course at the Corrosion and Protection Centre, University of Manchester. Bob helped to revitalise the Midland branch of the Institute of Corrosion and is the current National President of the Institute of Corrosion. With many years of involvement in the Institute activities, Bob has experienced first hand the progress of the Institute over the years. ICorr Aberdeen branch committee members, Alistair Seton and Eugene Ogosi met with Bob during his recent visit to Aberdeen to discuss how the activities of the Institute of Corrosion could benefit the corrosion professional.

Questions

Q. Please could you give us a summary of your professional career so far?

A. I graduated from the University of London with BSc (Eng.) and PhD in Metallurgy. My PhD was fully funded as part of the nuclear submarine programme at the time. I worked on various corrosion projects learning my trade mainly in cathodic protection. The projects ranged from onshore and offshore cathodic protection around the world to evaluation of cooling water treatment and CP of water systems in UK power stations. By the end of my career in corrosion prevention I had done a management buyout of one of the biggest non ferrous alloy operations in the UK. Leaving that Industry I got involved in management, of the local Chamber of Commerce, engaging with deprived communities. In between, I did some corrosion work in Malaysia and was a guest lecturer at the University of Manchester where I taught Cathodic Protection. Over my career, I have written and presented numerous technical papers especially relating to cathodic protection. I continue to be involved in materials/corrosion and currently support ICorr at conferences and I used to be on several European standard committees but not any longer.

Q. Is there any reason why you chose Corrosion as a profession?

A. Yes! I was told two things are inevitable. Death and Taxes. We know the rich can avoid taxes and with advances in medicine one can cheat death sometimes. I was also told that thermodynamics and Corrosion are inevitable but this is not true either because we know that gold does not corrode. So one must search for answers and have a curious mind. I once listened to a presentation titled “Corrosion from gold to sewage” by Professor Michael Clarke which got me excited and corrosion has interested me ever since. I will say that is it was my interest and subsequent love for materials and corrosion that made me choose it as a profession. In the end, do what you love.

Q. Can you tell us about your current role at the Institute of Corrosion? What are your responsibilities?

A. I am essentially the Chief Executive of the business (i.e. Institute of Corrosion) and the buck stops with me (the President). When I took up the position, my aim was to achieve two things. 1) Move the office to a better location 2) Introduce better Governance. At the AGM, I said I hoped to change the way the council was structured by reducing the number of members, eliminating lack of continuity and introduce longer tenure for Treasurer and Secretary. Another aspect I am keen to change is to ensure that the paper work catches up with reality and essentially utilise more electronic databases especially the institute website and our own LinkedIn site.

Q. In your inaugural address to the Institute, you mentioned how you will use your experience in corporate governance to support Institute activities. How is that going? What is your vision for the Institute going forward?

A. The institute has been through difficult times. I hope to leave it financially secure,
with strong governance, solid foundation and strong commitment to developing young professionals. I think so far we are on track to achieve these objectives.

Q. How do you think corrosion professionals and corporate organisations can benefit from the Institute membership?

A. I think there is not enough interaction and there is room for improvement. We must recognise the mutual dependence of our institutions and embrace the benefits of talking to one another. There should be more avenues such as conferences, working days etc. for members of these institutions to interact regularly. If this happens, there would be a better exchange of information, case studies, experiences and knowledge between members. Institutions can also share experiences through joint technical sessions, projects and inter-institute presentations.

Q. How can the Institute of Corrosion help members attain professional registration and maintain professional competence throughout their career?

A. The Institute of Corrosion provides a structured programme and a lot of resources online to members for continuous professional development. The Institute organises conferences and events that members can take advantage of and get involved in Institute forums on the ICorr website and other sites. The institute website gives information and schedule of events to members and non-members. Members can log on to the members section of the website were they can get access to various technical materials, read articles and submit articles for publication. ICorr also organises various other certification and training schemes including professional registration for members.

Q. What is your view on professional mentorship? Does the Institute of Corrosion currently provide this service?

A. The institute does not provide this at this time but it is something we are working on. In the meantime, members can forge mutually beneficial relationships with more experienced members and informal mentorships can develop. This is why attending the Institute meetings and getting involved in the Institute activities is very important. Professionals can use this to transfer experiences and build their professional network.

Q. Do you have any advice for the corrosion professional and engineers pursuing corrosion studies?

A. Get your hands dirty. That is how you translate what you have studied into practical applications. Within months of getting into materials/corrosion field, I went into the field and I can tell you I got an enormous wealth of experience. Experience is essential to make a well-rounded engineer. Another advice I will give is to be aware of things around you. Have a curious mind and ask questions.
As worldwide demand for energy continues to increase, oil and gas companies have been motivated to initiate a number of new pipeline construction projects. These expansion plans have caused pipeline companies to investigate new methods to reduce internal pipeline corrosion and extend the safe operating lifetime of new pipeline assets.

Several factors affect the rate of corrosion on the internal walls of a pipeline; the presence of carbon dioxide (CO₂), hydrogen sulfide (H₂S), oxygen (O₂), water (H₂O), methane (CH₄) and ethane (C₂H₆) all contribute to the breakdown of thin film internal flow line coatings resulting in the possibility of limited to extensive corrosion. Additionally, the rate of corrosion is also influenced by temperature, pressure, flow velocity and the surface condition of the steel.

Another factor is that as wells age, lower well volume causes the wellhead pressure to fall decreasing the flow velocity of crude in the transmission lines. As the flow velocity begins to fall, water molecules suspended within the oil lose suspension allowing them to settle out. This typically causes a corrosion cell at the six o’clock position on the inside of the pipeline. Once this becomes a significant issue, the economics of the well begin to depreciate, as does the transmission asset itself. Innovations such as steam injection and CO₂ injection assist in maintaining the flow velocity of the well (maintaining the economics) but inadvertently can lead to converting sweet crude into sour crude that is more costly to refine and also highly more corrosive than sweet crude and, therefore, causes escalated depreciation of the transmission asset.¹ Severely corroded pipelines represent a risk to the environment and must be either repaired or replaced at a significant cost. Examples of this are the recent pipeline ruptures in Alberta, Michigan and BP’s Prudhoe Bay, Alaska, pipeline that was shut down due to multiple sections losing 70% or more of wall thickness as a result of internal corrosion.

The U.S. Department of Transportation Office of Pipeline Safety estimates that internal corrosion causes approximately 15% of all incidents occurring in oil and gas transmission pipelines with an annual industry cost of almost 15 billion USD per year. Studies conducted in the United Kingdom and the Middle East have come to similar conclusions (see figure 1).

In the past, mitigating internal corrosion of pipelines was essentially impossible. The internal lining of pipes could be accomplished at coating mills but as the pipeline was assembled, the welding of the pipe joints typically caused significant damage to the internal coating as well as creating significant corrosion cells in the heat effected zone of the unprotected internal girth weld area (see figure 2). For obvious reasons, it was deemed uneconomical to coat the internal portions of the pipe despite knowing that corrosion would ultimately occur internally.

Innovations in liquid coating and application technologies coupled with government regulations and pipeline companies’ requirements for extended longevity of pipelines have predicated advanced internal corrosion coating of pipelines. A Tulsa based company, CRTS Inc. has developed robotic equipment that internally blasts and coats internal girthwelds in a cost effective and efficient manner (see figure 3). This company has been awarded a $48.4 million USD contract for internal coating of girthwelds for two submarine pipelines for Saudi Aramco Inc. This is the largest undertaking of internal liquid corrosion coating noted to date. While it is the largest project, it is not the first project as Spectra Energy out of Houston, Texas has also started internally coating for corrosion purposes. In both circumstances, liquid corrosion coatings (see figure 4) were selected over Fusion Bonded Epoxy (FBE).

While it is possible to internally line pipe including the internal girth weld area of the pipe with FBE, liquid coatings have made significant inroads in this area. To be considered an adequate candidate coating for use in the internal lining of a pipeline, selected liquid coatings must possess significant chemical resistance, a relatively high degree of flexibility, resist cathodic...
disbonding and provide abrasion resistance at high temperatures because crude oil typically expels from the well at a very high temperature.

One advantage that liquid coatings possess over standard FBE coatings is the ease of application. FBE requires the surface temperature of the steel to be heated to a temperature of over 218°C (425°F) in order for the material to cure. Most liquid epoxies typically only require the substrate temperature to be above 10°C (50°F) and 3°C (5°F) over the dew point temperature in order to be applied and 10°C (50°F) to cure. Another advantage is that the cure process of a liquid can also be accelerated to cure in less than two minutes if the pipe is heated to 93°C (200°F); less than half the time requirement of FBE. Further, in order for FBE to be successful, uniform heating of the pipe is required. Liquids, on the other hand, have a higher tolerance to temperature variations that may affect curing times but ultimately will not diminish the capabilities of the coating once the material has cured.

Another factor affecting the choice between liquids and FBE is availability in some regions of the world. Liquids also have a wider environmental storage range. FBE needs to be stored in a climate-controlled environment; while most liquid coatings are only required to be stored above freezing. Thus, in many circumstances, liquids prove to be a better solution than FBE. While liquids are typically more expensive per square metre coated, these costs are marginal within the overall project costs and in many circumstances, liquids are the superior internal coating choice. Liquids have been successfully applied internally on line pipe ranging from an internal diameter of 2” to greater than 60” without the addition of additional heat over the ambient temperature.

The US federal government has recently proposed a bill that will require internal corrosion coatings for all horizontal directional drill pipe (HDD) and river crossings. It is anticipated that other bills will soon follow mandating internal corrosion coatings for all pipelines that encroach densely populated areas. Henceforth, it would seem that the liquid coatings industry stands at the forefront of what will likely be the next revolutionary wave of pipeline coatings.

Sweet crude is defined as oil with a composition of less than 0.5% sulfur by weight and only trace amounts of H₂S. Sweet crude is considered to be less corrosive than its counterpart, sour crude.
Established in 1975, Corrocoat are one of the world’s leading names in anti-corrosion technology, with over 30 years of experience in development, manufacture and application of high performance corrosion resistance and repair coatings.

Corrocoat were approached by a major north sea operations company, to repair and improve the structural integrity of vent pipelines on an offshore installation, so extending the useful life of the system.

**Statement of problem:**

After conducting an inspection report on the ventilation pipework, the operator had found that the external surfaces had suffered from aggressive corrosion, resulting in the pipeline being holed and badly pitted. If this level of corrosion continued, the pipework would be so badly corroded that it would most likely have needed replacing, causing extensive costs and down time on the platform.

**The Solution offered:**

Corrocoat Corrosioneering offered to repair and improve the structural integrity of the damaged ventilation pipework, in-situ on the platform, using the following successfully proven system. The application of the Polyglass VEHA coating system incorporating quad axial glass woven matting, to effectively provide a structurally sound in-situ GRP pipe re-inforced wrap around the original pipe. This coating system created a corrosion resistant barrier that provided full protection to the external surfaces. Corrocoat’s specification covered not only corrosion protection, but also repairs to the areas where thinning of the walls or pitting had resulted in loss of strength and where reinforcement was required to provide a leak-proof, sound structure. The Corrocoat system selected offered several application benefits including the ability to fill pitting along the vent pipelines. This ensured substantial time and cost savings by eliminating a significant amount of welding work.

The success of this project ensured Corrocoat’s continued involvement with the operator.
A jetty pile protection system was recently required with a finish to match the surrounding existing timber piles in a high profile restaurant location at Dubai Yacht Club. The customer chose Winn & Coales’ new SeaShield Series 400 system which has wood grain effect jackets that can be customised to match most wood colours.

There are believed to be more wooden piles around the world than any other type. Winn & Coales (Denso) Ltd are currently leading the field in the development of wood effect jetty pile protection and their new system can be supplied world-wide via Winn & Coales International Ltd through its many subsidiary companies and stockists. Denso SeaShield systems have now been protecting marine structures around the world for over 40 years.

The SeaShield Series 400 system outer jackets used in Dubai are actually forms that are positioned around the pile on spacers leaving an annulus which is then filled with grout. The jackets remain in position permanently to give extra protection against mechanical damage and once the grout has set the whole system forms a strengthened, protective shield around the pile. The SeaShield system was applied to a total of 52 timber piles in this project.

For further information contact: Winn & Coales (Denso) Ltd., Chapel Road, London SE27 0TR
Tel: 0208 6707511 Fax: 0208 7612456 e-mail: mail@denso.net www.denso.net
MULTI-SKIP INSPECTION TO DETECT CORROSION AT PIPE SUPPORT LOCATIONS OF SLUG CATCHER AT SHELL UK’S ST FERGUS GAS PLANT

By Sonomatic, Shell UK, Shell Global Solutions International B.V.

INTRODUCTION

The Slug Catcher at Shell UK’s St Fergus Gas Plant receives wet gas from the FLAGs, FGL and Goldeneye pipelines (Figure 1). It is approaching the end of its originally intended design life, however, due to continued operation of the lines feeding into the Slug Catcher, life is required to be extended by at least an additional 12 years. Inspection is therefore required to assure the integrity of the Slug Catcher throughout this period.

A threat to the integrity of the Slug Catcher is water ingress occurring to any space between the clamped saddle supports and the pipe. This may result in corrosion causing external wall loss. Inspection of the area susceptible to corrosion under the support is not possible with conventional NDT methods as the pipe surface at the saddle location is inaccessible. Traditionally, this area would be accessible for inspection only when the Slug Catcher is lifted locally. Lifting at the supports to allow visual inspection is very costly (requires plant shutdown). This is technically difficult, a potential threat to the integrity (imposing high stresses to the construction) and an operation with high potential health and safety impact.

A non-intrusive inspection technique to enable quantitative inspection to prove the absence of corrosion was required. A novel approach was considered in order to provide inspection coverage of the pipes at saddle support locations. The technique that was proposed, evaluated and validated for the inspection was Multi-Skip.

CHALLENGES

The pipe material under 143 pipe supports required inspection using Multi-Skip. The challenges involved included:

- The Multi-Skip technique was previously validated at up to 1000 mm Probe Centre Separation (PCS), the clamp width on the Slug Catcher is 1200 mm, meaning that a PCS of 1600 mm was required in order to capture data to the edge of the supports.
- The inspection tool should be capable of accurately maintaining a constant PCS of 1600 mm during a full 360° scan, deploying the Multi-Skip technique.
- Design of an easily and rapidly deployable, accurate tool that would be safe to operate.

The Clamped Support Inspection (CSI) Scanner was designed specifically to meet the above challenges. This scanner has independently synchronised motor drives with accurate positional control (See Figure 2).

Sonomatic’s Mechanical Design and Development team produced a scanner meeting all of the above requirements.

MULTI-SKIP TIME OF FLIGHT TECHNIQUE

The Multi-Skip Time of Flight Technique was developed within the HOIS Joint Industry Project. The technique uses two shear wave transducers, one acting as a transmitter and the other as a receiver as shown in Figure 3. This depicts shear waves being produced by a transducer on one side of the obstruction, and received by a transducer on the other side of the obstruction, with the ultrasonic waves experiencing skips between the front and back of the pipe. The arrival times of the signals are measured and can be used to estimate the average thickness of the pipe wall between the probes. If any corrosion is present, this will be detected by any or all of the following: (i) loss of some of the signals, (ii) changes in signal arrival times, (iii) changed signal shape by reflection off local wall loss in the pipe wall.
In order to make accurate measurements of arrival times, the distance between the transducers located at both sides of the support should be maintained constant. For that purpose, a special Multi-Skip scanner was designed according to specified requirements outlined by Shell Global Solutions (SGSI). These were:

1. Scanner to fit the 36” pipe diameter and capable of covering the length of the saddle support (1200 mm) plus an extra 400 mm (200 mm at both sides of the clamp) to allow all areas of the pipe that are obstructed by the friction clamps on both sides to be included in the resulting scan.

2. Probe Centre Separation (PCS) had to be known accurately (maximum tolerance +/- 5 mm) and kept as constant as possible during the scan, maximum allowable variation was 1 mm over 300 mm scan distance.

3. Scan step in the circumferential direction shall preferably be 1 mm, but not to exceed 2 mm.

4. The probes at both sides of the clamp to move in a synchronized manner. The probes have to remain accurately in-line (facing each other) during the scan in order to maintain optimum amplitude levels.

**CSI SCANNER DEVELOPMENT AND TECHNIQUE VALIDATION**

Scanner development, technique development and qualification of technique took place in 2009. A full size mock up (Figures 4 and 5) was designed and manufactured for the Mechanical trials and technique validation of the CSI tool and Multi-Skip technique. Machined external flat-bottom grooves and holes were placed into selected locations on the circumference of the pipe.

The size and location of the flat-bottom grooves and holes were specified by Shell Global Solutions (SGSI), and were placed over two thirds of the circumference of the pipe. Some of the defects were situated in the region of the clamped support, others were visible externally. Trials were performed using the CSI scanner, the purpose of these trials was twofold:
a) Testing of the scanner to demonstrate that a constant PCS could be maintained over the 360° circumference.

b) Testing of the technique to demonstrate that the wall loss flaws that had been introduced in the sample could be detected and sized using the Multi-Skip technique.

The PCS was found to be accurately maintained throughout the scanning process. It was also discovered that not only could the technique detect the machined defects in the data produced (See Figures 6, 7 and 8), but also displayed disruption of signals from a shallow additional external wall defect that was unintentionally introduced during manufacturing of the mock up.

PILOT STUDY

The technique was approved for use on an initial pilot study and the site pilot inspection was completed during February 2010. Key features of the pilot activity were as follows:

- Eight supports were inspected.
- Purpose of trial was to evaluate system sensitivity, access solutions, timing of set up and data collection.
- Trial showed that CSI tool was fit for purpose with some minor modifications.
- Analysis of data performed by SGSI.
- Results showed that technique met data requirements for analysis.

Scans showed excellent repeatability.

IMPLEMENTATION

The full inspection programme was completed in June 2010. This programme is summarised in the points below:

- CSI Scanner was used on 143 supports.
- Inspection work completed with no safety incidents or delays.
- Completed ahead of schedule and under budget.

Following the success of the St Fergus Slug Catcher inspection, Shell requested that an inspection be carried out under supports on the Mossmorran Flare Line. For this inspection, due to the thin nominal thickness of the flare line (9.5 mm), Multi-Skip was used along with the CHIME technique to verify that no external wall loss corrosion was present at supports. The inspection was completed in September 2011 after a seven month inspection campaign covering 259 clamped saddle support locations. The majority of the
work was carried out using rope access support and mobile access solutions.

CONCLUSIONS

• The Multi-Skip Technique was successfully validated on a full sized mock-up with a Probe Centre Separation of 1.6 m.

• The specialised inspection tool for deployment of the Multi-Skip Technique on the 143 Slug Catcher clamped saddle support locations was successfully developed and deployed safely onsite at St Fergus.

The onsite inspection was successfully completed, with inspection data analysis being carried out by Shell Global Solutions providing assurance that the areas at the Slug Catcher clamped saddle support locations are free of any significant external wall loss corrosion.
LATEST NEWS FROM INDUSTRIAL COATING SERVICES PAINTING & DECORATING ASSOCIATION AWARD

Highly Commended

COMPANY
Industrial Coating Services Ltd, 5 Danesbury Crescent, Kingstanding, Birmingham B44 0AP

PROJECT
Andressy Bridge, Burton-on-Trent, Staffordshire.

CLIENT
Staffordshire County Council

MANUFACTURER
Leighs Paints

This grade 2 listed structure gave the contractor the opportunity to enter this competition following a successful tender period. Several meetings were held with the client and the Local History Society. The works were carried out in severe winter months, the structure being encapsulated with special consideration being given to the loadings placed on the bridge. While blast cleaning was a special issue, after washing down a special three coat application leading to a 168 polyurethane finish was applied. Worthy of special mention is treatment and picking out bossed and lettering details.

A very satisfactory job with a difficult time scale and weather conditions.

For further information contact: Industrial Coating Services Ltd, 5 Danesbury Crescent, Kingstanding, Birmingham B44 0AP  Tel: 0121 384 2266

WINN & COALES INTERNATIONAL LTD BECOME ASSOCIATE MEMBERS OF IPLOCA

Winn & Coales International Ltd, manufacturers of the well known Denso, Archco-Rigidon, Protal and SeaShield corrosion prevention and sealing product brands are proud to announce that they have just become associate members of the International Pipe Line & Offshore Contractors Association (IPLOCA).

The company, established in 1883, has over 80 Years of experience in solving corrosion and sealing problems for exposed, buried and submerged steel and concrete in most kinds of onshore and offshore environments. Their products have built an enviable reputation for long-term service life under some of the world’s most demanding conditions. Based in the UK, the global operation is supplemented by five overseas subsidiaries and a network of dedicated agents which enable their products to be available virtually anywhere in the world. In 2010 the company achieved a Queen’s Award for Enterprise: International Trade, and in 2013 they celebrate their 130th Anniversary.

IPLOCA is a highly respected organisation boasting an impressive range of members from all areas of the pipe line industry and Winn & Coales International Ltd are pleased to bring their experience and knowledge to the association for the mutual benefit of all.

For further information contact: Winn & Coales (Denso) Ltd., Chapel Road, London SE27 0TR  Tel: 0208 6707511. Fax: 0208 7612456  e-mail: mail@denso.net  Web: www.denso.net
DENSO VOID FILLER AIDS CORROSION PREVENTION AT ABERDEEN HARBOUR

Aberdeen Harbour Board has recently completed the redevelopment of shipping berths at Torry Quay to meet the requirements of larger supply ships for the North Sea oilfields. The main contractor was McLaughlin & Harvey from Belfast.

An integral part of the quay construction is formed by ten metre horizontal tie-bars which are cast into a structural concrete slab located four metres below the finished surface. The bars protrude through the main quay wall formed by sheet piles and act as a fundamental component of the structure, thus requiring protection from the harshest marine conditions. In order to deter corrosion and help elongate the structures life span it was a design requirement to conceal the exposed ends within steel cylinder caps and provide an anti-corrosion void filler compatible with the cathodic protection system.

McLaughlin & Harvey sourced Winn & Coales (Denso) Ltd’s Denso Void Filler from local stockists, SIG Construction Products of Perth, and acquired approval by the consultant designers Arch Henderson for use.

Winn & Coales Denso Void Filler is based on a microcrystalline petrolatum containing corrosion inhibitors and moisture repellents. It forms a permanently flexible medium for the encapsulation and protection of bearings, tendons, stay cables, etc. It has been used on a variety of major civil engineering projects, including both Severn Bridges.

WINN & COALES INTERNATIONAL LTD CONFERENCE - SOUTH AFRICA, MAY 2012

Anti-corrosion and sealing specialist Winn & Coales International Ltd recently held their Denso International Conference in May. This event is held at a different location every two years and this time the chosen venue was Durban, South Africa.

Delegates form the UK, USA, Canada and South Africa were involved with worldwide technical presentations, product application demonstrations, budget and subsidiary board meetings.

During the busy conference schedule, social functions and outings to wildlife game reserves were organised. At the farewell dinner there were two 25 year-long service awards presented to employees of Denso South Africa (Pty) Ltd.

It was agreed by all attendees that this was the most successful and enjoyable conference to-date and all were very much looking forward to the next one which will be held earlier than normal in London to celebrate the Company’s 130th anniversary of trading in Autumn next year.

For further information contact: Winn & Coales (Denso) Ltd, Chapel Road, London SE27 0TR Tel: 0208 6707511. Fax: 0208 7612456 e-mail: mail@denso.net Web: www.denso.net
Pipeline Maintenance Ltd (a CTS Company) has a requirement for the following staff:

- Senior CP Engineer
- CP Engineer
- Graduate/ Junior CP Engineer
- Field Engineer
- Field Technician

Prospective candidates must be able to demonstrate suitable and relevant experience in the Oil, Gas & Water industries for the position that they are applying for.

NACE and/or ICorr qualifications (or willingness to study for these qualifications) would be an advantage.

To apply for the above positions, candidates must be eligible to live and work in the UK and have a clean driver's licence.

Applications supported by current CV should be sent in the first instance to careers@pipelinemaintenance.co.uk stating availability to join and salary expectation.

---

Rose Corrosion Services Limited (RCSL), a leader in the field of internal corrosion monitoring in the oil and gas industry and a subsidiary of BAC Corrosion Control Limited has the following job opportunity.

**TECHNICAL SALES ENGINEER (INTERNAL CORROSION MONITORING)**

Based at our sites in Newbury and Telford the job holder will be required to prepare proposals both technically and commercially for enquiries and orders received and generated. The person should possess a sound and proven technical background within the corrosion monitoring industry. The successful candidate will have the responsibility for interpreting, organising, preparing, executing and coordinating all activities as they relate to RCSLs design, engineering, manufacturing and product development.

The job holder will report to the Operations Manager and also be required to supervise staff who work on projects in a technically and commercially challenging and fast-moving business environment.

Salary will be commensurate with experience and will be for a 36½ hour working week. Benefits include 27 days annual holiday, Company/Employee funded pension scheme and life assurance cover.

Written applications only are invited giving current employment terms addressed to the Managing Director and accompanied by an up to date Curriculum Vitae.

**BAC Corrosion Control Ltd, Stafford Park 11, Telford, Shropshire, TF3 3AY**

For further information visit www.bacgroup.com
Email recruitment@bacgroup.com
COATING APPLICATORS

H & H PAINTING CONTRACTORS LTD
4 Hamilton Gardens, Mutley, Plymouth, PL4 6PQ
Tel/Fax: 07837 382619

MCL COATINGS LTD
Pickerings Road, Halebank Industrial Estate
Widnes, Cheshire WA8 8XW
Tel: 0151 423 6166 Fax: 0151 495 1437
Email: info@mcl.eu.com Website: www.mcl.eu.com

JPV LTD
Over 30 years experience of Preparation & Coating
Abrasive Blasting, Specialist Coating Applications,
High Pressure Water Jetting
Tel: 01277 201515 Fax: 01277 201616 email: paul.jpv@btopenworld.com

KUE Group Limited
Birklands Street, Bradford BD3 9SU
Tel: +44 (0)1274 721188 Fax: +44 (0)1274 720088
Website: www.kuegroup.com

MABEY BRIDGE LIMITED
Station Road, Chepstow, Monmouthshire NP16 5YL
Tel: +44 (0)1291 623801 Fax: +44 (0)1291 625453
Email: mail@mabeybridge.co.uk

MARK SMITH INSPECTION SERVICES LTD
14 Seaham Close, South Shields,
Tyne & Wear NE34 7ER
Tel: 07760175446 Email: mark@marksmithinspectionservices.com

Mona Lifting Ltd
Unit 5 Parc Bryn Cefni,
Llangefni, Anglesey LL77 7XA
Tel: 01248 751300 Email: info@monalifting.co.uk Website: www.monalifting.com

MPM NORTH WEST LTD
Marine Road, Maryport, Cumbria CA15 8AY
Tel: 01900 810299 Email: mikej@mpmnw.co.uk Website: www.mpmmarine.co.uk

Northern Protective Coatings Ltd
16 High Reach, Fairfield Industrial Estate, Bill Quay, Gateshead,
Tyne & Wear NE10 0UR Tel: 0191 438 5555 Fax: 0191 438 3082 Email: jack.welsh@npcoatings.co.uk Website: www.npcoatings.co.uk

NUSTEEL STRUCTURES
Lymans, Hythe, Kent CT21 4LR
Email: simon.slinn@nusteelstructures.com Website: www.nusteelstructures.com

OPUS INDUSTRIAL SERVICES LIMITED
Ethan House, Royce Avenue,
Cowpen Lane Industrial Estate, Billingham TS23 4BX
Tel: 01642 371850 Fax: 01642 562971 Website: www.opus-services.com

ORRMAC COATINGS LTD
Newton Chambers Road, Thorncliffe Park Estate, Chapeltown
Sheffield S35 2PH Tel: 0114 2461237 Fax: 0114 2570151 Email: orrmac@aol.com Website: www.orrmac.co.uk

Pipeline Induction Heat Ltd
The Pipeline Centre
Farrington Road, Rossendale Road Industrial Estate
Burnley, Lancs BB11 5SW
Tel: 01282 415323 Fax: 01282 415326 Email: Sales@pih.co.uk Website: www.pih.co.uk

Pipercrest Ltd
T/A Halls Specialised Services
Brooklyn Farm, North Hill, Norden on the Hill, Essex SS17 8QA
Tel: 01375 361408 Fax: 01375 361448 Email: halls@btconnect.com

Port Painters Ltd
Unit 3, Ringside Business Park, Heol-Y-Rhosog, Cardiff CF3 2EW
Tel: 029 2077 7070 Fax: 029 2036 3023 Email: port.painters@talk21.com

RanDeLL INDUSTRIAL SERVICES LTD
75 Studley Avenue, Holbury, Southampton SO45 2PP
Tel: 023 8089 2749 Email: info@randellindustrial.com Website: www.randellindustrial.com
COATING APPLICATORS

REPAIR PROTECTION & MAINTENANCE LTD
Roall Lane, Kellington, Goole DN14 0NY
Tel: 01977 663111 Fax: 01977 663222
Email: info@rpm ltd.co.uk www.rpm ltd.co.uk

ROWECORD ENGINEERING LTD
Neptune Works, Usk Way, Newport, South Wales NP20 2SS
Tel: 01633 250511 Fax: 01633 253219
Email: enquiries@rowecord.com

SHUTDOWN MAINTENANCE SERVICES LIMITED
Tel: 01634 256969 Fax: 01634 256616
Email: smsltd@btconnect.com
Website: www.shutdownmaintenanceservices.co.uk

SPECIALIST BLASTING SERVICE LTD
Smith Quay, Hazel Road,
Southampton, Hampshire SO19 7GB
Tel: 023 8044 4455

STANDISH METAL TREATMENT LTD
Potter Place, West Pimbo, Skelmersdale
Lancs, WN8 9PW
Tel: 01695 455977 Fax: 01695 728835
Email: stuart.croft@standishmetal.co.uk

SURFACE TECHNIK (OLD HILL) LIMITED
Sovereign Works, Deepdale Lane, Lower Gornal,
Dudley DY3 2AF
Tel: 01384 457610 Fax: 01384 238563
Email: peter.morris@surfacetechnik.co.uk
Website: www.surfacetechnik.co.uk

TEES VALLEY COATINGS LIMITED
Unit 26, Dawson Wharf, Riverside Park Road, Middlesbrough TS2 1UT
Tel: 01642 228141
Email: sales@teesvalleycoatings.com
Website: www.teesvalleycoatings.com

WEDGE GROUP GALVANIZING LTD
Stafford Street, Willenhall, West Midlands WV13 1RZ
Tel: 0845 271 6082
Email: info@wedge-galv.co.uk
Website: www.wedge-galv.co.uk

W G BEAUMONT & SON LTD
Beaumont House, 8 Bernard Road, Romford, RM7 0HX
Tel: 01708 749202 Fax: 020 85909885
Email: tom.costello@wgbeaumont.co.uk

WILLIAM HARE LTD
Brandlesholme House, Brandlesholme Road, Bury BL8 1JJ
Tel: 0161 609 0000 Fax: 0161 609 0468
e: jeff.grundy@hare.co.uk www.williamhare.co.uk

CONSULTANTS TESTING
AND INSPECTION

ATKINS LTD
Woodcote Grove, Ashley Road, Epsom, Surrey KT18 5BW
Tel: 01372 726140 Fax: 01372 740055
Email: iain.wesley@atkinsglobal.com

• Grit Blasting/Shot Blasting
• Protective Coatings
• Full In-House Facility
• Water Jetting Services
• Dry Ice Blast Cleaning
• Car Park Refurbishment
• ICATS trained
• Nationwide Service
• Full Accreditation: ISO9001 / Linkup / UVDB/ NHSS19a

Reader Enquiry: CM135
SUSTAINING MEMBERS

CARBOLINE

Offshore and Onshore protection, Waste water treatment plants, Specialist pipeline treatments, Environmentally friendly products
Tel: 07712 768411 Fax: 01475 529893
www.carboline-europe.com

INTERNATIONAL PAINT LIMITED

Stoneygate Lane, Felling, Gateshead, Tyne & Wear NE10 0JY
Tel: 0191 469 6111 Fax: 0191 496 0676
Email: simon.daly@internationalpaint.com
Website: www.international-pc.com

CHEMCO INTERNATIONAL LTD.

INNOVATIVE RUST & WET-TOLERANT, SOLVENT-FREE COATINGS
East Shawhead Industrial Estate, Coatbridge, Scotland, UK
Tel: 01236 606060 Fax: 01236 606070
Email: sales@chemcoint.com www.chemcoint.com

JOTUN PAINTS (EUROPE) LTD.

Stather Road, Flixborough, Scunthorpe, North Lincolnshire DN15 8RR
Tel: 01724 400 125 Fax: 01724 400 100
Email: decpaints@jotun.co.uk www.jotun.co.uk

COUNTER CORROSION LTD

Formulators and Applicators of Customised Protective Coating and Lining Systems for Steel and Concrete
Tel: 01924 468559/380002 Fax: 01924 458019

LEIGHS PAINTS

NOW A PART OF THE SHERWIN-WILLIAMS COMPANY
Tower Works, Kestor Street, Bolton BL2 2AL
Tel: 01204 521771 Fax: 01204 382115
www.leighspaints.com

HEMPEL PAINTS LTD

Llantarnam Industrial Park
CWMBRAN
Gwent NP44 3XF
Tel: 01633 874024 Fax: 01633 489012
Email: sales@hempel.co.uk www.hempel.com

PPG PROTECTIVE & MARINE COATINGS

Unit 3 Maises Way, The Village, Carter Lane, South Normanton, Derbyshire DE55 2DS
Tel: +44 (0) 1773 814520 Fax: +44 (0) 1773 814521
Web: www.ppgpmc.com

SPECIALTY POLYMER COATINGS INC

64 Tudor Avenue
Worcester Park
Surrey KT4 8TX
Tel: 020 8337 4953 Fax: 020 8337 4953
Website: www.spc-net.com

STORK TECHNICAL SERVICES (RGB LTD)

Norfolk House, Pitmedden Road,
Dyce, Aberdeen AB21 0EW
Tel: 01224 722888 Fax: 01224 723406
Email: Fraser.coull@rgb.com Website: www.rgbltd.com

TINSLEY SPECIAL COATINGS

Enterprise House, Durham Lane,
Eaglescliffe TS16 0PS
Tel: 01642 784279 Fax: 01642 782891
Email: enquiries@tinsleyspecialproducts.com

CHEMCO INTERNATIONAL LTD.
## ICATS REGISTERED COMPANIES WITH QUALIFIED APPLICATORS

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alltask Limited</td>
<td>Alltask House, Commissioners Road, Stroud, Kent, ME2 4EJ</td>
<td>01634 298000</td>
</tr>
<tr>
<td>Alfred Bagnall &amp; Sons</td>
<td>6 Manor Lane, Shipley, West Yorkshire, BD18 3RD</td>
<td>01302 853259</td>
</tr>
<tr>
<td>APB Construction (UK)</td>
<td>Unit 3, Bramley Way, Hellaby Industrial Estate, Hellaby, Rotherham, S. Yorkshire, S66 8QB</td>
<td>01709 541000</td>
</tr>
<tr>
<td>APB Group Limited</td>
<td>Ryandra House, Ryandra Business Park, Brookhouse Way, Cheadle, Staffs, ST10 1SR</td>
<td>01538 755377</td>
</tr>
<tr>
<td>Armourcote Surface Technology Plc</td>
<td>15/17 Colvilles Place, Kelvin Industrial Estate, East Kilbride, Scotland, G75 0PZ</td>
<td>01355 248223</td>
</tr>
<tr>
<td>Austin Hayes Ltd</td>
<td>Carlton Works, Crematory Road, Yeadon, Leeds, LS19 7BD, UK</td>
<td>01113 250 2255</td>
</tr>
<tr>
<td>BAE Systems Surface Ships Support Ltd</td>
<td>Room 213, Naval Base Headquarters, Building 1/100, PP127, Portsmouth, PO1 3LS</td>
<td>023 92857279</td>
</tr>
<tr>
<td>Beever Limited</td>
<td>Little Coldharbour farm, Tong Lane, Lamberhurst, Kent, TN3 BAD, UK</td>
<td>01892 890045</td>
</tr>
<tr>
<td>Briton Fabricators Ltd</td>
<td>Watnall Road, Hucknall, Notts, NG15 6EP</td>
<td>0115 963 2901</td>
</tr>
<tr>
<td>Cape Industrial Services</td>
<td>Cape House, 3 Red Hall Avenue, Paragon Business Village, Wakefield, WF 1 2UL</td>
<td>01224 215800</td>
</tr>
<tr>
<td>Cleveland Bridge UK Ltd</td>
<td>Cleveland House, Yarm Road, Darlington, DL1 4DE</td>
<td>01325 502345</td>
</tr>
<tr>
<td>Coating Services Ltd</td>
<td>Partington Street, Mumps Bridge, Oldham, OL1 3RU, UK</td>
<td>0161 665 1998</td>
</tr>
<tr>
<td>Collins Engineering Railway Contracts</td>
<td>Salcombe Road, Meadow Lane Industrial Estate, Alfreton, Derbyshire, DE55 7RG</td>
<td>01773 833255</td>
</tr>
<tr>
<td>Community Clean</td>
<td>11 Old Forge Road, Ferndown Industrial Estate, Ferndown, Wimborne, Dorset, BH21 7RR, UK</td>
<td>0845 6850133</td>
</tr>
<tr>
<td>Corrocoat</td>
<td>Forster Street, Leeds, LS10 1PW</td>
<td>01113 2760760</td>
</tr>
<tr>
<td>Denholm Industrial</td>
<td>21 Boden Street, Glasgow, G40 3PU</td>
<td>0141 445 3939</td>
</tr>
<tr>
<td>Dyer &amp; Butler Ltd (Rail)</td>
<td>Mead House, Station Road, Nursling, Southamptom, SO16 0AH, UK</td>
<td>02380 667549</td>
</tr>
<tr>
<td>ENC (Yorkshire) Ltd</td>
<td>Unit 3B Rotherham Road, Dinnington Sheffield, S25 3RF</td>
<td>01909 567860</td>
</tr>
<tr>
<td>ENC (Yorkshire) Ltd</td>
<td>Unit 3B Rotherham Road, Dinnington Sheffield, S25 3RF</td>
<td>01909 567860</td>
</tr>
<tr>
<td>E P Painting Ltd</td>
<td>Rossfield Road, Rossfield Trading Estate Ellesmere Port, Cheshire CH65 3AW</td>
<td>0151 355 8141</td>
</tr>
<tr>
<td>F A Clover &amp; Son</td>
<td>Bardolph Road, Richmond Surrey, TW9 2LH</td>
<td>0208 948 6321</td>
</tr>
<tr>
<td>Finclean SKJ Ltd</td>
<td>Waterloo Industrial Estate, Pembroke Dock, Pembrokeshire, SA72 4RR</td>
<td>01646 622407</td>
</tr>
<tr>
<td>Forth Estuary Transport Authority</td>
<td>Forth Road Bridge, Administration Office South Queensferry, EH30 9SF</td>
<td>0131 319 1699</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>GPL Special Projects Ltd</td>
<td>PO Box 516, Salford, M5 0BJ</td>
<td>0161 7457888</td>
</tr>
<tr>
<td>H&amp;H Painting Contractors Ltd</td>
<td>4 Hamilton Gardens, Mutley, Plymouth, PL4 6PQ</td>
<td>07837 382619</td>
</tr>
<tr>
<td>Harisco Infrastructure Services Ltd</td>
<td>Unit 3 Manby Road, South Killingholme, Immingham, North Lincolnshire, DN40 3DX</td>
<td>01469 553800</td>
</tr>
<tr>
<td>Harrisons Engineering Lancashire Ltd</td>
<td>Judge Wilmy Mill, Longworth Road Billington, Clitheroe, Lancashire, BB7 9TP</td>
<td>01254 823993</td>
</tr>
<tr>
<td>HBS Protective Coatings Ltd</td>
<td>40 Manse Road, Belfast BT8 6SA</td>
<td>028 90708280</td>
</tr>
<tr>
<td>Herrington Industrial Services Ltd</td>
<td>Crown Works, Crown Road, Low Southwick, Sunderland SR5 2BS</td>
<td>0191 5160634</td>
</tr>
<tr>
<td>Hi-Tech Surface Treatment Ltd</td>
<td>Unit B, Deacon Trading Estate, Chickenhall Lane, Eastleigh, Hants SO50 6RP</td>
<td>023 80611789</td>
</tr>
<tr>
<td>HySpec Services Ltd</td>
<td>Unit 3 Meadowfield Industrial Estate, Cowdenbeath Road, Burntisland, Fife, KY3 0LH</td>
<td>01592 874661</td>
</tr>
<tr>
<td>Industrial Coating Services</td>
<td>5 Danesbury Crescent, Kingstanding, Birmingham, B44 DQF</td>
<td>0121 384 2266</td>
</tr>
<tr>
<td>Industrial Painting</td>
<td>48-49 RCM Business Centres, Sanders Trading Estate, Dewsbury Road, Ossett, WFS 9ND</td>
<td>01924 272606</td>
</tr>
<tr>
<td>International Energy Services Ltd</td>
<td>94 Awolowo, Ikei, Lagos State, Nigeria</td>
<td>014615636</td>
</tr>
<tr>
<td>Company Name</td>
<td>Address</td>
<td>Contact Details</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Interserve Industrial</td>
<td>Unit 2, Olympic Park, Poole Hall Road, Ellesmere Port, Cheshire, CH66 1ST</td>
<td>T: 0151 3737660</td>
</tr>
<tr>
<td>Jack Tighe Coatings</td>
<td>Sandall Lane, Kirk Sandall, Doncaster, DN2 4NW, UK</td>
<td>T: 01302 880360</td>
</tr>
<tr>
<td>Jack Tighe Ltd</td>
<td>Redbourne Mere, Kirton Lindsey, Gainsborough, Lincs, DN2 1NW, UK</td>
<td>T: 01652 640003</td>
</tr>
<tr>
<td>JPV (Painters) Ltd</td>
<td>Unit 8 Prospect Way, Hutton Industrial Estate, Brentwood, Essex, CM13 1XA, UK</td>
<td>T: 01277 201515</td>
</tr>
<tr>
<td>Lanarkshire Welding Co.</td>
<td>82 John Street, Wishaw, Lanarkshire, ML2 7TQ</td>
<td>T: 01698 264271</td>
</tr>
<tr>
<td>Mabey Bridge Ltd</td>
<td>Station Road, Chepstow, Monmouthshire NP16 5YL</td>
<td>T: 01291 623801</td>
</tr>
<tr>
<td>Maclean &amp; Speirs Blasting Ltd</td>
<td>Unit D, East Fulton Farm, Darlulth Road, Linwood, Paisley PA3 3TP</td>
<td>T: 01505 324777</td>
</tr>
<tr>
<td>MCL Coatings Ltd</td>
<td>Pickers Road, Halebank Industrial Estate, Widnes, Cheshire, WA8 8XW</td>
<td>T: 0151 423 6166</td>
</tr>
<tr>
<td>N L Williams Group Ltd</td>
<td>Westside Industrial Estate, Jackson Street, St. Helens, Merseyside WA9 3AT</td>
<td>T: 01744 26526</td>
</tr>
<tr>
<td>Northern Protective</td>
<td>16 High Reach, Fairfield Industrial Estate, Bill Quay, Gateshead, Tyne &amp; Wear, NE10 0UR</td>
<td>T: 0191 438 5555</td>
</tr>
<tr>
<td>Nusteel Structures</td>
<td>Lympne Industrial Estate, Lympne, Hythe, Kent, CT21 4LR</td>
<td>T: 01303 268112</td>
</tr>
<tr>
<td>Offshore Marine Services Ltd</td>
<td>Brumby House, Jalan Bahasa, PO Box 80148, 87011 Kuala Lumpur, Malaysia</td>
<td>T: +60321424410</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>P&amp;R Engineering Ltd</td>
<td>Unit 50/51 Cable Street, Wolverhampton, WV2 2HX</td>
<td>T: 01902 870637</td>
</tr>
<tr>
<td>Paintel Ltd</td>
<td>Trianon, Westover, Ivybridge, Devon, PL21 9JH</td>
<td>T: 01752 719 701</td>
</tr>
<tr>
<td>P&amp;M Shotblasting &amp; Spraying Services</td>
<td>43a Drumraine Road, Castlecaulfield, Dungannon, Co Tyrone, BT70 3NY</td>
<td>T: 028 8776 7722</td>
</tr>
<tr>
<td>Port Painters Limited</td>
<td>Unit 3, Ringside Business, Hoel-Y-Rhosog Cardif, CF2 3EY</td>
<td>T: 02920 777070</td>
</tr>
<tr>
<td>Pyeroy Limited</td>
<td>Kirkstone House, St Osmers Road, Western Riverside Route, Gateshead, Wear, NE1 9EA</td>
<td>T: 0191 4932600</td>
</tr>
<tr>
<td>Roy Hankinson Limited</td>
<td>Alexander House, Monks Ferry, Birkenhead Wirral, CH41 5LH</td>
<td>T: 01204 468080</td>
</tr>
<tr>
<td>Rowecord Engineering</td>
<td>Neptune Works, Usk Way, Newport, South Wales, NP20 5SZ</td>
<td>T: 01633 250511</td>
</tr>
<tr>
<td>Shutdown Maintenance Services Ltd</td>
<td>Kingsnorth Industrial, Hoo, Rochester, Kent, ME3 9ND</td>
<td>T: 01634 256969</td>
</tr>
<tr>
<td>Solent Protective Coatings Ltd</td>
<td>Tredgar Wharf, Marine Parade Southampton, Hants, SO14 5JF</td>
<td>T: 02380 221480</td>
</tr>
<tr>
<td>South Staffs Protective Coatings Ltd</td>
<td>Bloomfield Road, Tipton, West Midlands, DY4 9EE</td>
<td>T: 0121 522 2373</td>
</tr>
<tr>
<td>Standish Metal</td>
<td>Potter Place, West Pimmsend, Skelmersdale, Lincs, WN8 9PW, UK</td>
<td>T: 01695 455977</td>
</tr>
<tr>
<td>Supablast (1984) Ltd</td>
<td>Jubilee Estate, Gosney Lane, Coleshill, Birmingham, B46 1JU</td>
<td>T: 01675 464446</td>
</tr>
<tr>
<td>T I Protective Coatings</td>
<td>Unit 6, Lodge Bank, Crown Lane, Horwich, Bolton, Lincs, BL6 5HU</td>
<td>T: 01204 468080</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>Vale Protective Coatings Ltd</td>
<td>Building 152 – Langar North Industrial Estate, Harby Road, Langar, NG13 9HY</td>
<td>T: 01949 869784</td>
</tr>
<tr>
<td>Walker Construction (UK) Ltd</td>
<td>Park Farm Road, Folkstone, Kent, CT19 5DY</td>
<td>T: 01303 851111</td>
</tr>
<tr>
<td>Wardle Painters Ltd</td>
<td>Unit 5, Wimborne Building, Atlantic Way, Barry Docks, Glamorgan, CF63 3RA, UK</td>
<td>T: 01446 748620</td>
</tr>
<tr>
<td>W G Beaumont &amp; Son</td>
<td>Beaumont House, 8 Bernard Road, Romford RM7 0HX</td>
<td>T: 01708 749202</td>
</tr>
<tr>
<td>William Hare Ltd</td>
<td>Brandleholme House, Brandleholme Road, Bury, Lincs, BL8 1JJ, UK</td>
<td>T: 0161 609 0000</td>
</tr>
<tr>
<td>Xervon Palmers Ltd</td>
<td>331 Charles Street, Royston, Glasgow G21 2QA</td>
<td>T: 0141 5534040</td>
</tr>
<tr>
<td><strong>ICATS REGISTERED COMPANIES WITH APPLICATORS IN TRAINING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barrier Ltd</td>
<td>Stephenson Street, Walsend, Tyne &amp; Wear, NE28 6UE, UK</td>
<td>T: 0191 262 0510</td>
</tr>
<tr>
<td>D&amp;D Rail Ltd</td>
<td>Time House, Time Square, Basildon Essex SS14 1DJ, UK</td>
<td>T: 01268 520000</td>
</tr>
</tbody>
</table>
E G Lewis & Company Ltd
Suite 3, 5, Shawcross Industrial Estate,
Ackworth Road, Portsmouth PO3 5JP
T: 01792 323288

Gemini Corrosion Services
Brent Avenue, Forties Road, Montrose,
Angus, DD10 9PB
T: 01674 672 678

Over Rail Services Ltd
Unit 10 Millhead Way, Purdys Industrial Estate,
Rochford, Essex, SS4 1ND
T: 07976372866

Severn River Crossing Plc
Bridge Access Road, Aust, South
Gloucestershire, BS35 4BD
T: 01454 633351

Specialist Blasting Services Ltd
Smiths Quay, Hazel Road, Woolston,
SO19 7GB
T: 023 80438901

Tees Valley Coatings
Riverside Park Road, Middlesborough,
Cleveland TS2 1UT
T: 01642 228141

Abbey Gritblasting Services
Unit 13, Clopton Commercial Park, Clopton,
Woodbridge, Suffolk, IP12 3TP
T: 0191 262 0510

Advanced Construction and Eng Resources Ltd (ACER)
First Floor, Regus House, Herons Way,
Chester Business Park, Chester CH4 9QR
T: 01244 839113

BSM Consulting
11 Kingsmead, Nailsea BS48 2XH
T: 01275 854708

BAM Nuttall Ltd
St James House, Knoll Road,
Camberley GU15 3XW
T: 0782 5798440

Celtic Specialist Treatments Ltd
Rosedale, Carelicken Lane, Langstone
Newport, Gwent, NP18 2JZ
T: 01633 400194

Centregreat Engineering Ltd
11/12 Wyndham Close, Brackla, Brackla
Industrial Estate, Bridgend, CF31 2AD
T: 01656 650481

Coastground Ltd
Morton Peto Road, Capton Hall Industrial,
Great Yarmouth, Norfolk, NR31 0LT
T: 01493 650455

DRH Coatings Ltd
Suite 5, 3 Shawcross Industrial Estate, Ackworth Road,
Portsmouth PO3 5JP
T: 023 9266 6165

EMS Services Ltd
Tank Farm Road, Llandarcy,
SA10 6EN
T: 0800 8400564

Excel Contractors Ltd
11a West End Road, Bitterne,
Southampton SO18 6TE
T: 02380 444420

Ferrous Protection Ltd
Hanson House, Grains Road, Delph,
Oldham OL3 5RN
T: 01457 873419

Forward Protective
Vernon Street, Shirebrook, Mansfield
Notts, NG20 8SS
T: 01623 748323

Galldriss Construction Ltd
Galldriss House, Pavilion Business Centre, Kinetic
Crescent, Innova Science Park, Enfield EN3 7FJ
T: 01992 763000

G W Burton Ltd
New Court, Wooddalling, Norwich,
Norfolk, NR11 6SA
T: 01263 584203

Hempel UK Ltd
Llantarnam Park, Cwmbran,
Gwent, NP44 3XF
T: 01633 874024

IDL Fabrications Limited
Crabtree Lane, Clayton, Manchester,
M11 4GU
T: 0161 2306666

Interkey Services Ltd
2 Princewood Road, Corby, Northamptonshire,
n17 4AP
T: 01536 266607

Leighs Paints
Tower Works, Kentor Street,
Bolton, lancs. BL2 2AL
T: 0161 2306666

Livis Ltd
Livis House, 50 Victoria Park
Dartford, Kent, DA1 5AJ
T: 01322 220058

Malakoff Limited
North Ness, Lerwick, Shetland, ZE1 0LZ, UK
T: 01595 695544

Matthew James Services
Unit 4, Shibdon Business, Cowen Road
Blaydon, Newcastle-Upon-Tyne, NE21 STX
T: 0191 414 5700

Moore Steel Developments Ltd
Station Road, Thorney, Peterborough PE6 0QE
T: 01733 270729

NSG UK Ltd
Fourth Avenue, Deeside Industrial Park, Deeside,
Flintshire CH5 2NR
T: 01244 833138

Paint Inspection Ltd
Trafalgar House, Z23 Southampton Road,
Portchester, PO6 4PY
T: 0845 4638680

Possilpark Shotblasting Co Ltd
Dalmarnock Works, 73 Dunn Street,
Glasgow, G40 3PE
T: 0141 556 6221

Radleigh Metal Coatings Ltd
Unit 30 Central Trading Estate, Cable Street,
Wolverhampton, WV2 2HX
T: 01902 870606

R.L.P. Painting
Heathfield House, Old Bawtry Road, Finningley,
Doncaster, DN9 3DD, UK
T: 01302 772222

Stobbarts Ltd
Tarn Howe, Lakes Road, Derwent Howe
Industrial Estate, Workington,
Cumbria CA14 3YP
T: 01900 870780

Tinsley Special Products
Enterprise House, Durham Lane, Eaglescliffe,
Stockton-on-Tees TS16 0PS
T: 01642 784279
**DIARY DATES 2012/2013**

**6th - 7th September 2012**
53rd Corrosion Science Symposium
National Physical Laboratory, Teddington
www.regonline.co.uk/53CorrosionSymposium
The symposium will cover the following topics:
* Localised corrosion * Corrosion modelling * Scanning probe techniques * Coatings * Corrosion of light alloys * Structural integrity and lifetime prediction
Further information: www.icorr.org

**TBC – November 2012**
Corrosion of Infrastructure 'Present Knowledge and Future Solutions'.
Venue: Institute of Materials, Minerals and Mining 1 Carlton House Terrace, London SW1Y 5DB
Further information along with a registration form is available to download at www.icorr.org in the conferences and events section. You can also contact Prof. Robert Akiid robert.akiid@manchester.ac.uk or Prof. Paul Lambert paul.lambert@mottmac.com

**11th October 2012**
London Branch Joint Meeting with LMS
VSpeaker: Don Harrop, Independent Consultant and visiting Professor at Manchester University School of Materials on: 'Corrosion Engineering – a career with a past and future'
17.30 for 18.15 start Venue: The Naval Club, 38 Hill Street, Mayfair, London W1J

**22nd - 26th October 2012**
Basic Corrosion Course, Aberdeen
The course provides a basic but thorough review of causes of corrosion and the methods by which it can be identified, monitored, and controlled. Active participation is encouraged through hands-on experiments and case studies, as well as an open discussion format.
All enquiries to Dr Paulette Sidky, CMC Ltd. p.sidky@cmc.ltd.uk Tel 020-7460 9408

**5th - 9th November 2012**
Designing for Corrosion Control, London
Parallel Path to certification for senior corrosion Technologist – The Designing for Corrosion Control course reviews the principles of corrosion and corrosion control and provides a systematic method for applying the technology of corrosion prevention to the design process.
All enquiries to Dr Paulette Sidky, CMC Ltd. p.sidky@cmc.ltd.uk Tel 020-7460 9408

**5th - 9th November 2012**
Corrosion Control in the Refining Industry Course
Four and a half day Classroom Course including quizzes and discussion.
The purpose of Corrosion Control in the Refining Industry is to provide you with an overview of refinery process units, specific process descriptions, and the opportunity to identify and examine corrosion and metallurgical problems that may occur in process units. You will also examine techniques and practices that may be used to control corrosion in refineries. No examination
All enquiries to Dr Paulette Sidky, CMC Ltd. p.sidky@cmc.ltd.uk Tel 020-7460 9408

**24th October –3rd November 2012**
Cathodic Protection CP3
The CP 3-Cathodic Protection Technologist Course is an intensive 6-day course that prepares CP technology to prepare students for the NACE Cathodic Protection Technologist Certification Examination.
All enquiries to Dr Paulette Sidky, CMC Ltd. p.sidky@cmc.ltd.uk Tel 020-7460 9408

**8th November 2012**
London Branch Joint meeting with W&JS
Speaker: Charles Watkinson, CEO of Corrocoat Corrosionering on: 'Glassflake for material performance improvements'.
17.30 for 18.15 start
Venue: The Naval Club, 38 Hill Street, Mayfair, London, W1J

**13th December 2012**
London Branch Annual Christmas Luncheon
Venue: Royal Overseas League, Park Place, St James's Street, London SW1A
Contact: Mike Allen mike.allen9@btinternet.com

**13-14th June 2013**
London Branch Offshore Cathodic Protection Conference
At the Royal Overseas League in London there will be a two day Offshore Cathodic Protection conference, at this conference industry leaders will present papers on leading edge issues in this important area of corrosion control technology; this will be a must attended event. Please register your interest and to receive the early conference program at: admin@icorr.org

**BRANCH CONTACT DIRECTORY**

**ABERDEEN:**
Frances Blackburn (Secretary)
Tel: 01224 243360
Email: ICorrABZ@gmail.com

**DUBLIN:**
Martha Hidalgo (Secretary)
Tel: +353 01 4027945
Terry Hinds (Chairman)
Tel: 0145 066 71 Fax: 0145 662 13
Email: info@galcosteel.ie

**NORTH EAST:**
Brendan Fitzsimons
Tel: 0191 493 2600

**NORTH WEST:**
Brenda Peters, Analysis Scientific
Tel: 01706 871700
Email: brenda.peters@analysis-scientific.co.uk

**LONDON:**
Andy Taylor (Chairman)
Tel: 0771 7205406 (UK)
Email: aetaylor12@yahoo.com
Geoff White (Secretary)
Tel: 01728 602289
Email: geoff.white23@btinternet.com
Jim Preston (Chairman)
Tel: 01543 871808
Email: jim@corrosion-prevention.co.uk
Kevin Woodland (Secretary)
Tel: 01606 833805
Email: k.woodland@greystaruk.com

**YORKSHIRE:**
Nigel Peterson-White
Tel: 01422 356752
Email: nigel@specialisedcoatings.co.uk
Young ICorr Chairman:
Oliver Lewis
Email: oliver.lewis@shu.ac.uk

**CSD Division:**
Nick Stevens
Tel: 0161 3063621

**CED Division:**
Nick Smart
Tel: 01635 280385