

# BAC ENTERS FINAL PHASE OF NORTHUMBRIAN WATER CONTRACT



**NORTHUMBRIAN  
WATER**



BAC CORROSION CONTROL has begun the final phase of the Northumbrian Water Limited (NWL) refurbishment contract. This entails minor civil works, testing, commissioning, interference testing and completion of technical documentary requirements.

The contract started some 3 years ago with a desktop study of buried steel water mains from the Scottish border down to the River Tees in County Cleveland. Working closely with NWL, asset managers and utility survey teams, buried steel mains were identified and assessed for refurbishment. The mains were prioritised utilising a custom made criticality matrix: the major factors of the matrix being 3<sup>rd</sup> party interaction, SSSI (environmental considerations), leak history, soil corrosivity,

industrial/domestic use, alternative supply route, access difficulties and finally, expenditure.

Steel mains ranging in diameter from 200 mm to 1200 mm with a combined length 450 km were identified and cathodic protection (CP) requirements re-assessed, designed and implemented.

Both impressed current (ICCP) and galvanic anode CP systems have been used to provide protection to the steel mains, dependant upon factors pertinent to the specific main. Selection also involved assessment of third party owned facilities whereby interaction had to be kept to an absolute minimum.

TRANSCO have a vast array of HP gas mains in the industrial area along the River Tees so BAC has kept in close contact throughout the

construction phases to ensure intercompany harmony.

Railtrack's fears of electrical interference with signalling systems were alleviated after a full and detailed testing programme indicated that no adverse affects would occur to the train signalling systems at maximum CP system outputs.

The final test for interference is with Huntsman Chemicals and BP on the TSEP Ethylene pipeline. Judging by the early co-operation between NWL/BAC and BP, the same successful outcome is expected.

With continued monitoring and maintenance, the investment made over the last 3 years is likely to be paid back many times with diminishing costly leaks due to corrosion.

# BAC'S New Tiny Microchip Labels Retain and Manage Cathodic Protection System Test Data

*Embedded in a corrosion resistant disc that can be permanently attached to components and test equipment. Several sizes available.*

BAC CORROSION CONTROL has introduced a new identification system that can be incorporated into cathodic protection equipment and test facilities to retain and manage information and data. The heart of BAC's Smart Point® is a tiny electrical microchip based tag or label.

components and test equipment and is available in several sizes. The smallest is 3.5mm diameter and 0.8mm thick. Next comes a 5mm diameter version, 1.25mm thick and then there is a 7mm long M3 hexagon headed screw type. The largest is on the head of an 11.5mm long M5 hex screw. The

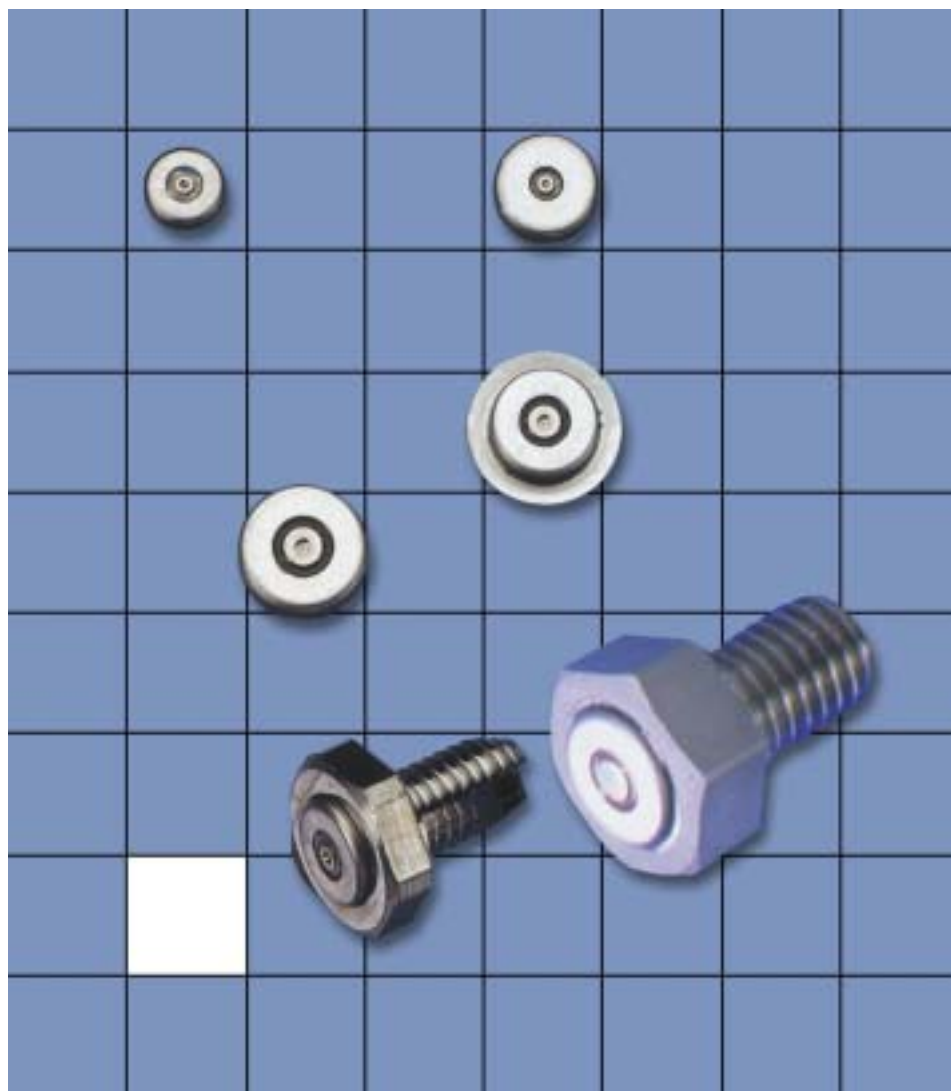
label and the M5 screw memory capacity increases to four 122-character pages. Labels will operate within the temperature range -25°C to +85°C, which means that they can be used on systems all over the world, from the Arctic Circle to the Tropics.

Reading and writing Smart Point® labels is achieved with a handheld computer, such as a Palm®, or laptop computer via a read/write pen. The handheld can also be provided with a barcode reader to convert existing data to Smart Point® format. There are also connectivity and software options for laptop or desktop PC's.

As access to the Smart Point® label memory is very secure, it can be used to save and manage data from test facilities and power supplies in cathodic protection systems. This enables the operator to compare data from previous surveys and confirm that data has been collected. Non-changing data can be retained on permanent pages of the label with changing data kept on other editable pages.

The Smart Point® label can also hold information on the origin and conformity of a product and can be used to record serial numbers and ratings of transformer rectifiers, or similar equipment. It can retain basic data, typically service information such as model type and dates of manufacture, installation, calibration and commissioning.

The information is preserved throughout the entire life of the equipment and therefore is a useful aid to traceability. Due to their small size, labels can be hidden within the equipment thus permitting access by approved personnel only, if required. From the first time of use the Smart Point® label is irreversibly dedicated to the customer's application.



*The white area is 5mm square. Smallest tag is 3.5 mm diameter and the largest, on the head of an M5 11.5 mm long hex screw, is 5mm diameter.*

The chip itself is embedded in a corrosion resistant metal disc that can be permanently attached to

two 3.5mm tags and the M3 screw version have memory capacities of two 58-character pages each. For the 5mm

## The BAC Management says.....

Here we are with the first Newsletter for 2002 and our second edition of "Protection and Connection". Since our last issue we have completed another successful year in terms of turnover and profit and we are looking forward to a similarly successful 2002.

Dates for your diary to see our new products and services and to meet with key personnel are the **Pipelines 2002** exhibition between 11th and 13th June at the NEC Birmingham, UK and **Railtex 2002**, again at the NEC, between 26th and 28th November 2002.

We look forward to meeting with you at either of these events.

We also look forward to continued business together in 2002 and beyond.

**Tony Gerrard**  
General Manager

## NEW LAMINATED ZINC TAPE CORROSION PROTECTION SYSTEM

A new laminated zinc tape to protect iron and steel pipelines and pipework has been introduced by BAC Corrosion Control, Telford, a leading specialist in corrosion protection.

ISOZIN laminated zinc tape comprises a layer of 99.99% pure zinc 80 microns (0.08mm) thick with 25 microns (0.025mm) of adhesive protected by a removable siliconised paper. It is available in 50 metre long rolls in widths ranging from 10mm up to 300mm.

Feature of the new laminated zinc tape is its electrically conductive adhesive which, as well as securing the

tape to the steel substrate ensures a positive electrical connection to the zinc so that it can act as a sacrificial galvanic anode. This is achieved by incorporating a percentage of powdered zinc into the adhesive during manufacture.

The corrosion protection system is designed to be applied to uncoated, mainly above ground iron and steel surfaces to provide protection for the lifetime of the pipe and virtually eliminate maintenance re-painting costs.

The laminated zinc tape can be applied manually or by machine for larger components.



## BAC Provides Protection for Kuwait Oil Company Gathering Centre Upgrade

A specialist sub-contract has been awarded to BAC Corrosion Control by Daelim Industrial Co. of Korea for the design, supply, testing and commissioning of a cathodic protection system for one of the Kuwait Oil Company's northern oilfield gathering centres, which Daelim is upgrading. The new system is to protect new facilities and boost the existing cathodic protection.

The project, at the GG-15 gathering centre about 50km from Kuwait City, involved a site survey of the centre comprising storage tank facilities, oil wells, flowlines, manifolds and desalinating/dehydration plant to ascertain existing conditions. From the results BAC was able to determine locations for the new cathodic protection equipment and confirm the design requirements.

Subsequently, BAC prepared a detailed design, supplied and shipped the required materials. Installation



*Kuwait Oil Company gathering centre rehabilitation.*

supervision, testing and commissioning of the cathodic protection system is to follow. The design, based on a 25/30 year life, is for an ICCP system with a vertically drilled borehole groundbed and graphite anodes. This, and other works in Kuwait are carried out in conjunction with BAC's local agent Mazidi Procurement & Project Management Co. WLL of Safat, Kuwait.

# FOCUSING TOWARDS CUSTOMERS WITH CERTIFICATION TO ISO 9001:2000

BAC CORROSION CONTROL has become one of the first companies in its industry to achieve recognition and certification to the new ISO 9001:2000 quality assurance standard, confirming that it is much more focused and in tune with its customer's needs.

The company has been registered under the old 1994 standard for a number of years but wants to assure its market that it is continually improving its business and

demonstrating pro-active customer satisfaction. The stringent 2000 standard is much more focused in these directions and although applicants have three years to meet the new specification, BAC decided to seek recognition sooner rather than later to further improve its competitive edge.

The new Certificate demonstrates that BAC conforms to the new business development, marketing and financial control elements of the standard that



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since revision is now regarded as an all-encompassing management tool.

## Low Resistance Electrically Bonded Connections in Seconds with Pin Brazing

From its early days as a method of connecting signalling system cables to railway lines, pin brazing is now increasingly being specified as a safe, quick and cost effective alternative to exothermic welding attachment techniques, which although cheap do have some distinct disadvantages.

Mechanical clamp type devices are not easy to apply, particularly as a retrofit on an existing buried pipeline and conductive resin systems need sufficient cure time to ensure a positive connection. Thermit welding requires skilled application whereas pin brazing is safe, quick and reliable and permits a large number of connections to be made in a relatively short time using unskilled labour – training takes about an hour. The process can be carried out in all weathers and damp pipes pose no problem.

Pin brazing dates back to the early 1950s but it was not until the 1980s that BAC Corrosion Control introduced its own fully portable equipment to produce electrical bonds for connections in pipeline cathodic protection systems. Each connection takes about a minute to complete. It is the most common method used in the North Sea, is extensively used in the Middle East and is approved for use by Transco. For ductile or cast iron pipes, threaded pins to accept a crimped cable lug and a nut are used.

For steel pipes, either threaded brazing pins with nuts or a special lug for direct cable brazing is the norm. In a cathodic protection system there are often a great number of connections for anode cables, test posts and measuring cables to be made.

The portable nature of the equipment means that connections can be made in almost any location above or below ground and if necessary overhead. In situations where a great many connections need to be made in one place such as pipecoating yards and pipelay barges, the Bright-Bond pin brazing system can use a welding

generator as its power source.

As demand for pipelines as a cost effective means of transporting fluids over vast distances continues to grow so does pressure from the world's safety bodies to ensure that installations conform to accepted standards. Welding of steel pipelines on land and offshore is a critical element and operators need to ensure that undue stresses or damage to the internals of lined pipes are not being created when attaching components for protective systems. Extensive tests have confirmed that as pin brazing is a relatively low temperature process, the heat affected zone is only a small percentage of that produced by thermit welding techniques which, being exothermic produce high temperatures. These can generate stresses in the pipe and possibly damage internal linings.



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