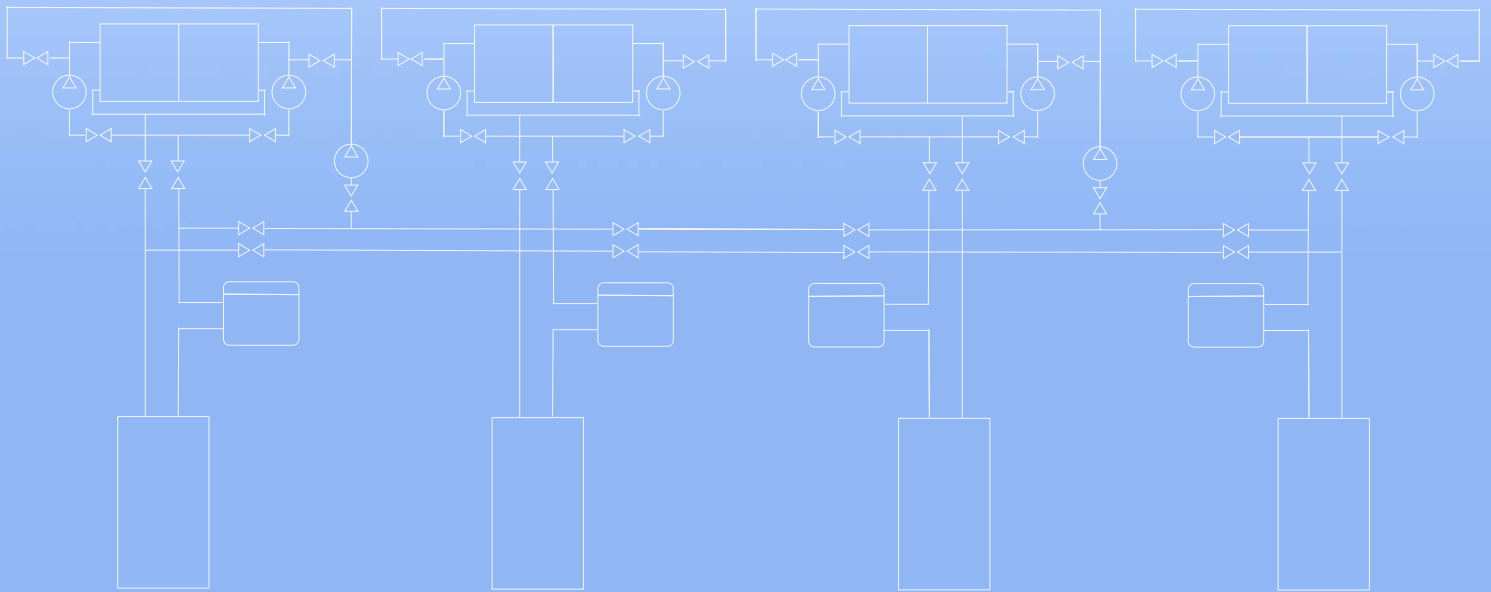


WCS Group

The H₂O experts

MARLOWE Critical Services

-  WATER TREATMENT
-  WATER HYGIENE
-  AIR HYGIENE
-  ENGINEERING
-  TRAINING SERVICES



**Quality water treatment
engineering** for enhanced
system performance, safety
and compliance.



First class engineering support for critical systems and water treatment

Customers are constantly striving to protect plant and equipment whilst extending asset life and delivering enhanced operational performance safely and reliably. For over 25 years, our water treatment engineers have been offering customers high quality bespoke solutions, tailored to site and business objectives to give customers a competitive advantage in all aspects of water treatment, hygiene and compliance.

What we do

- We bring deep industry knowledge, consulting and full programme change management to optimise the efficiency and performance of plant and equipment safely and reliably
- We facilitate practical engineering solutions bespoke for each site and application
- We ensure compliance with ACoP L8 and HSE guidelines
- We reduce energy and water use and optimise processes, systems and chemical control – making customers more competitive and focussed on their core business

How we deliver

Our people are water engineers, chemical process experts and project managers with specialist water treatment, hygiene and compliance knowledge. We apply outstanding system risk protection from corrosion, scale and bacteria as well as Legionella control through tailor-made risk assessment, chemical dose and water treatment solutions for each individual plant configuration.

We audit, specify, buy, install, test, train and hand back over critical system management for all aspects of water treatment.

- Filtration and treatment for private water supplies (water analysis and bespoke systems improvement for bore holes etc)
- Chemical dosing systems (control of bacteria, other contaminants including biofilm and rust)
- Electronic dosing equipment (Advanced management of inhibitors, detergents and biocides)
- Resin disinfection (filtering and removal of ions to enhance the quality of outflow)
- Base exchange units (removal of cations to improve mains water quality)
- Routine maintenance (cooling towers, softeners, RO plant)
- Remedial works (dead leg removal, backflow protection, expansion vessels, piping and tank installation and insulation)

Who we service

Our customers are single and multi-site operators (Heads of Engineering, Maintenance, Plant and Operations Managers). Also, construction and engineering contractors and Facility Management service providers – including real estate managers. We work on private and public sites across the UK.

Sector specialists

We are sector agnostic but we have deep industry expertise in the following industries;



Building Management

(inc Education Institutions and Private and Public Healthcare, Hospitals, Large Office Blocks, Retail Shopping Centres, Hotel Groups, Leisure Parks, MoD Facilities)

Chemicals

Energy

Food and Beverage

(Canning, Dairy, Edible Oil, Grain & Starch, Meat, Poultry, Processing, Seafood, Sugar)

Manufacturing

(inc Aerospace & Defence, Automotive, Glass, Building Materials, Corrugated Box, Electronics, Household Goods, Industrial Machinery, Plastics, Textiles, Tyre & Rubber)

Natural Gas Processing

Petrochemicals

(inc Oil & Energy)

Pharmaceutical

Primary metals

Accreditations

We are constantly challenging ourselves to work better with customers and partners. Accreditations are just part of our commitment to highest standards, continuous improvement and exacting compliance coupled with the very best level of service.

| Certificate | Level | Number |
|--------------------------------|--|---------------|
| ISO 9001:2008 | Certified with Alcumus ISOQAR since 2013 | 11011-QMS-001 |
| ISO 14001:2004 | Certified with Alcumus ISOQAR since 2016 | 11011-EMS-001 |
| BS OHSAS 18001:2007 | Certified with Alcumus ISOQAR since 2013 | 11011-HAS-001 |
| CHAS | Accredited | |
| SafeContractor | Accredited | ZF0503 |
| Constructionline | Accredited | 69955 |
| Altius | Assured Vendor and CDM Vendor | 3788 |
| ISNetworkd | Verified Supplier | 400-182732 |
| Legionella Control Association | Accredited since 1999 | 199/583 |
| Sedex | Supplier (B) Member | |
| Humber Bank ConCom | Accredited | |
| MoD | Verified Supplier since 1994 | |

Why WCS Group?

- We bring supplementary technological knowledge and best practice
- Advanced water treatment solutions unique to your site / equipment starting point
- We can improve asset life management and life cycle enabling new levels of performance and reliability
- Sustainable solutions trusted by leading public and private customers
- Full project management to budget and timeline with predictable results

Engineering experience includes;

| | | |
|----------------------------------|------------------------------------|-----------------------------|
| Amey | ENGIE (inc Shepherd FM and Cofely) | Norland Managed Services |
| Aspire Defence | GE Aviation | Serco Group |
| Associated British Ports | GKN Aerospace | Sodexo |
| Babcock | Honeywell Building Solutions | Sun Valley Foods |
| BAE Systems Properties | Imtech | Taylor Woodrow |
| Balfour Beatty Workplace | Leonardo (Agusta Westland) | The Restaurant Group |
| Brake Brothers | Lorne Stewart | Travelodge Hotels |
| Britannia Foods | Nestle | Valero Energy (Chevron Oil) |
| Bilfinger Engineering & Services | NG Bailey | Workplace Securities |
| BMW | NHS | |
| Dalehead Foods | | |

Services checklist

| | ONE-OFF | ON-GOING SERVICE SUPPORT | PERFORMANCE IMPROVEMENT | SAFETY / COMPLIANCE |
|--|---------|--------------------------|-------------------------|---------------------|
| Engineering / Plumbing Works | | | | |
| Analytical measurement equipment | ● | | ● | ● |
| Bulk storage systems | ● | ● | ● | |
| Cooling tower refurbishment / installation | ● | ● | ● | ● |
| Control panel design / installation | ● | | ● | ● |
| Heater supply / installation | ● | ● | ● | |
| Pipe work (cleaning, dead-leg removal, testing) | ● | ● | ● | ● |
| Pump supply / installation | ● | ● | ● | ● |
| Pre-Treatment solutions | ● | ● | ● | ● |
| Remote telemetry | ● | | | |
| Tank supply / installation | ● | ● | ● | ● |
| Specialist / Advanced Water Treatment | | | | |
| Cooling tower trouble shooting / works | ● | ● | ● | ● |
| Heating / Chiller closed loop systems | ● | ● | ● | ● |
| Hot / Cold water distribution | ● | ● | ● | ● |
| Spa / Leisure facilities trouble shooting / works | ● | ● | ● | ● |
| Steam boiler trouble shooting / control | ● | ● | ● | ● |
| Vehicle wash systems | ● | ● | ● | ● |
| Equipment / specification, install, maintenance, service, upgrade | | | | |
| Base exchange water softening units | ● | ● | ● | ● |
| Chemical dosing units | ● | ● | ● | ● |
| Chlorine dioxide plants | ● | ● | ● | ● |
| Copper / Silver ionisation systems | ● | ● | ● | ● |
| De-mineralisation systems | ● | ● | ● | ● |
| Filtration equipment (ion, suspended solids, pH control) | ● | ● | ● | ● |
| Media filtration | | | | |
| - Suspended Solids Removal | ● | ● | ● | ● |
| - Iron and Manganese Removal | ● | ● | ● | ● |
| - Activated Carbon | ● | ● | ● | ● |
| - pH Correction | ● | ● | ● | ● |
| - Cartridge and new Filtration technology | ● | ● | ● | ● |
| - Booster pump systems and associated tanks | ● | ● | ● | ● |
| - Ultrafiltration | ● | ● | ● | ● |
| Redox / Chlorine control systems | ● | ● | ● | ● |
| Remote monitoring, electronic analysis / compliance | ● | ● | ● | ● |
| Reverse Osmosis (RO) units | ● | ● | ● | ● |
| Sanitisation Systems (including but not limited to); | | | | |
| - Chlorine Dioxide | ● | ● | ● | ● |
| - Calcium Hypochlorite | ● | ● | ● | ● |
| - Bromine Dispensers | ● | ● | ● | ● |
| - Ultra Violet Disinfection | ● | ● | ● | ● |
| - Side Stream Filtration | ● | ● | ● | |
| Specialist ("super") heat, chilling control systems | ● | ● | ● | ● |
| Specialist metal finishing support services | ● | ● | ● | ● |
| Ultra Violet Light (UV) filtration units | ● | ● | ● | |

Case study

Food ingredients processor



CLEANING
MAJOR PLUMBING
SPECIALIST WATER TREATMENT
PRE-TREATMENT
WATER PURIFICATION (INC RO)
SPECIAL PROJECTS
REMEDIATION (PRECISION) WORKS

Overview

A major UK food ingredients speciality fats company operating in the chocolate, confectionary, biscuit and snack food markets wanted to undertake a system investment programme. They operated a steam rising plant for the processing of fats but were unhappy with associated operating costs because of raw water quality (very high natural alkalinity), low cycle achievement and expensive blow-downs – which was causing them to miss operating efficiency KPIs.

Our approach

We conducted a cost benefit analysis for a Reverse Osmosis plant and calculated pay-back would be in around 9-months. Further system improvements were identified in parallel. We;

- Specified, installed and set up a new RO plant
- Benchmarked reduced blow-down and lower water and chemical use
- Enhanced boiler feed caustic dosing to compensate for purified water
- Incorporated corrosion monitoring to assess system improvements

Outcome

All engineering work was undertaken within the agreed timeline and budget. The customer was able to show investment pay-back within 12-months along with a c40% reduction in gas use and more efficient cycles with significantly reduced blow-downs.

Alkalinity was transformed. Corrosion monitoring and new systems control enabled the site manager to demonstrate better control, lower operating cost, improved system design, safety and compliance. They translated this in to a relevant environmental and operating message for key customers.

Case study FTSE100 commercial property company

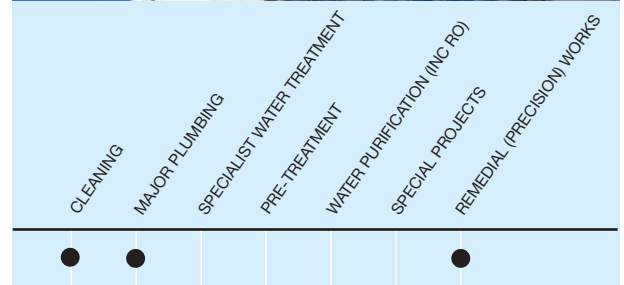
Overview

The company acquired what was Leeds Shopping Plaza and converted it to a modern office block. The site has three closed systems (LTHW, Chilled and Condensate). The FM manager required water treatment and hygiene services including quarterly monitoring for pH, Conductivity, Corrosion, Iron and Glycol. Areas within the LTHW, Condensate and Chilled system were found to have major blockages through build-up of sediment and sludge, which revealed unacceptable bacteria growth, foul smelling and discoloured water. We were required to stabilise and improve all systems reliably and quickly.

Our approach

We were able to provide indicative benchmark guidelines and a rapid recovery plan;

- We tested and analysed samples and created a photo document for systems, piping and key equipment
- We installed strainers on all three systems alongside the use of a solid chemical online cleaner
- We reduced iron levels with the use of 50 micron down to 5 micron filter bags over the course of a 5-month period
- We introduced a solid chemical biocide to penetrate and remove biofilms
- We re-tested and refined dosing, delivery and chemical cycles to achieve optimal water hygiene and compliance



Outcome

All three systems showed significant improvements within weeks 3 and 4. Iron levels fell from 4.0 to 1.5 (Chilled and Condensate). Nitrate and Molybdate levels were gradually increased over the course of the operation. Suspended solids were reduced from 350 to virtually nil (Chilled) within two weeks and maintained.

WCS Group still maintain the system providing water treatment and water hygiene testing and monitoring. Bacteria levels are under control. Total and dissolved iron levels are down. Nitrite levels now provide appropriate protection. All three systems are operating efficiently to optimal and safe standards.

Case study Petrochemicals company

Overview

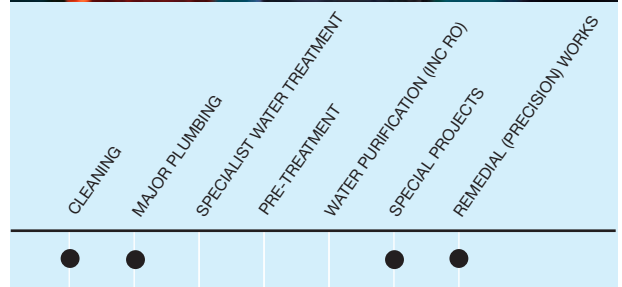
A major energy corporation maintains UK subsidiaries that manufacture fuels and petrochemicals. Water cooling towers are used to transfer the heat from production and are integral for continuous operations. The operator wanted to extend the cooling tower service life and boost operating efficiency for five or more years before committing to decommissioning and installing new water cooling towers.

Our approach

We created a rolling change management programme designed to refurbish and substantially improve cooling tower efficiency and operational control to modern benchmarked performance levels.

Schematic and photographic audit documents and risk assessments were used to justify and prioritise change programmes and improvement works. We;

- Replaced the hanging fill-packing with block-fill packing
- Modern L8 compliant plastic air inlet louvres replaced obsolete wooden louvres
- Eliminators were modernised and re-specified
- The distribution system was redesigned and re-installed
- Fans and motors were upgraded / rebuilt with improvements
- New fit-for-purpose Control panel
- Externals were enhanced (new timber cladding, walkways, access doors and changes to pipework and valve configuration)



Outcome

All refurbishment work was completed on time and on budget. A return visit by HSE found all work to be fully compliant.

The site manager saw a 10% increase in cooling efficiency compared with previous works data. Across the summer, production at the normal rate became possible because of additional cooling.

Full replacement of assets has been delayed in line with the customer's wishes.

Core services



WATER TREATMENT

Cooling Tower Systems
Evaporative Condensers
Steam Boilers
Low and Medium Pressure
Heating Systems
Chilled Water and Cooling Systems
Pre-Commission cleans
Pre-Treatment Plant, Dosage,
Chemical Cycle and Control
Remote data logging
Web-based electronic log book



WATER HYGIENE

Legionella Risk Assessments and
Water Hygiene Surveys
Monitoring / Inspection Contracts with
Log Book Management
Remote temperature monitoring
Sampling and Analysis
Cleaning and Disinfectant Works
Remedial Works



AIR HYGIENE

Air Hygiene Risk Assessment Survey
Indoor Air Quality Monitoring
Cleaning and Treatment of
Air Handling Equipment



TRAINING SERVICES

eLearning
WCS Group / IOSH / COSHH
training
On-site training for bespoke needs



ENGINEERING

Design and specification for
water treatment
Installation
Reverse Osmosis plant
Cooling Tower maintenance
Plumbing and remedial works
Installation of water softeners
Pre-treatment plant
Closed system chemical cleaning
and flushing

A Marlowe Critical Services company

WCS Group is the 'Water Treatment and Hygiene' division of the Marlowe Critical Services Group owned by parent Marlowe plc. The Group provides one access point for specialist 'highest standards' across 'Fire & Security', 'Water Treatment & Hygiene', and 'Air Quality' – three divisions can be accessed singularly or in combination. The Group shares many common customers and collectively employs 1,100+ specialists, servicing 10,000+ customers, carrying out 500,000+ service visits and helping manage over 10 million assets for circa 6% of the UK's 1.8 million non-residential buildings.

One name. One standard. Everywhere.



Cert No. 11011
ISO 9001, ISO 14001,
OHSAS 18001



www.wcs-group.co.uk