



## Mercury Management Services



### YOUR CHALLENGES

Mercury is a naturally occurring by-product of hydrocarbon processing that potentially affects all stages of production. Its presence complicates shutdowns and turnarounds by contributing to the contamination, embrittlement and corrosion of process equipment. Mercury also presents significant Quality, Health, Safety and Environmental (QHSE) challenges during routine maintenance, repair and overhaul activities, and when handling process fluids and waste materials. To minimise these risks, a detailed understanding of rigorous safety precautions and proper handling procedures is essential.

### OUR MERCURY MANAGEMENT SOLUTIONS

CR3 has established an enviable reputation as the leading provider of mercury management solutions to the Hydrocarbon Processing industries. To further strengthen and complement our own in-house mercury management service offering, we have formed partnerships to provide mercury mapping studies including sampling and analytical services, comprehensive decontamination validation techniques and

cradle-to-grave solutions for mercury removal adsorbents. In addition, CR3 has existing relationships with a number of licensed disposal facilities to ensure the safe handling and disposal of waste materials.

### HOW WE SUPPORT YOUR BUSINESS

Your operations can benefit from our extensive knowledge and experience in the development and application of advanced techniques for the assessment, monitoring and removal of mercury. Our comprehensive range of mercury management solutions extends to all parts of the value chain within the Oil and Gas industry, from exploration and production through to processing, transmission and distribution.

CR3 and its partners represent one of the world's top mercury technology and decontamination providers. Our collective know-how draws on over 25 years of industry experience. Together, CR3 and its partners are able to offer specialised equipment, chemistries and methods for QHSE monitoring and mercury decontamination of hydrocarbon processing systems (vessels, columns, drums, pipelines, tanks and valves made from carbon, stainless steel or other materials susceptible to mercury contamination).

## THE CR3 DIFFERENCE

CR3's large in-house team of highly trained technicians is subject to regular audits and a stringent safety passport scheme. We invest heavily in the latest equipment and SMART systems to maintain our reputation as the region's leading one-stop provider of specialised maintenance services.

### State-of-the-art processes and equipment

Utilising advanced methods and specialised equipment, we sample and analyse mercury in hydrocarbon process streams, including natural gas, natural gas liquids, refinery fuel gas and olefins. Our technology and equipment measures and analyses mercury in hydrocarbon process streams with detection limits well below 1 nanogram/Sm<sup>3</sup>.

### Outstanding QHSE performance

We work closely with clients to develop and implement various workplace QHSE monitoring plans. In addition, we provide mercury awareness training to our clients' operations and maintenance personnel (practical, field and emergency response).

Our clients also benefit from accredited and licensed mercury waste disposal, complete with Chain of Custody documentation. Working with certified and accredited disposal companies, our experts provide safe and transparent disposal options that meet all local regulations and environmental requirements. When it comes to removing hazardous mercury waste from offshore production platforms, we strive to ensure safety and timeliness to support efficient shutdowns and turnarounds.

### Unrivalled experience

CR3 has successfully completed thousands of mercury management projects. In addition, rigorous training

programmes keep our experts up to date with the latest technological developments, safety practices and industry regulations.

### Exceptional service

Our customer-focused culture ensures on-time, on-budget delivery for all your planned and unplanned maintenance activities. This commitment to service excellence is backed by our track record of integrated management systems that is certified to multiple international standards.



## OUR SOLUTIONS

- Mercury chemical cleaning and decontamination (process systems & equipment) including sludge removal
- Mercury mapping and sampling
- Pipeline chemical pigging, flushing and decontamination
- Mercury area and personnel occupational exposure monitoring
- Mercury scale, sludge, waste minimisation and management
- Hg sampling and analysis of process streams using advanced sampling and analytical techniques
- Hg natural gas / process stream / NGLs sampling, analysis and mapping
- Hg mass balance and mass flux studies for pipelines systems, process platforms, natural gas plants, NGL plants, LNG process trains and refineries
- Plant shutdown monitoring (steam-out, purging, vessel opening)
- Production platform mercury decontamination
- Cryo-separation equipment inspection, modelling
- Hg absorption bed catalyst removal / replacement
- Pipeline abandonment programmes (special programmes for mercury contamination)

## YOUR BUSINESS BENEFITS

**Save time and costs** – based on our ability to quickly assess the most appropriate solution for each application, as well as our proprietary technology that rapidly and effectively removes mercury contamination from processes and equipment.

**Minimise risk** – by working with a partner that can reduce mercury to extremely low levels in order to meet the most stringent international specifications to protect your plant, people and the environment.

**Increase efficiency** – through our deep understanding of the issues and our ability to provide high quality international solutions via local resources quickly and cost effectively, thereby enhancing the reliability and productivity of your operations.

## CR3 IN ACTION

### The challenge

A refiner in Southeast Asia registered mercury contamination in a 2km, 6-inch carbon steel pipeline connecting storage spheres to a downstream plant.

### The solution

CR3 completely removed the mercury by flushing the pipeline with an aqueous mixture of readily available chemicals. After cleaning, the mixture containing dissolved mercury was treated by calcium embedding for safe disposal.

### The outcome

Within 3 weeks, we maintained the downstream plant's integrity, safeguarding the operator against massive potential damages and lost production.

CR3 is a leading provider of energy engineering solutions. Established in 1991, we provide specialised maintenance, plant upgrade, revamp and engineering services with a sharp focus on **Energy Efficiency**, **Engineering Excellence**, and Sustainable **Solutions**.

To learn more, visit [CR3.Group](#)

## Leading one-stop provider of specialised maintenance services

CR3 supports your business with extensive contracting experience in the delivery of catered service packages, 'blind to blind' jobs and turnkey maintenance services during major shutdowns and turnarounds. Our business upholds a culture and track record of integrated management systems that are certified to multiple international standards.

## Our Solutions

We offer a comprehensive portfolio of maintenance services that are grouped into six business lines. Our experts deliver these services – onshore and offshore – on time and on budget.

Our complete 'blind to blind' solution ensures more streamlined and efficient projects, as we maintain direct, single-source control of all critical path elements. We cater to projects of widely varying scope and complexity, and can deliver multiple shutdowns concurrently.

### Related services:

- Static & Rotating Equipment Maintenance
- Industrial Scaffolding
- Mechanical Services
- Column Modifications & Repairs
- Total Heat Exchanger Maintenance
- Flare Tip Replacements & Repairs
- Cleaning & Decontamination Services
- Mercury Management Services
- Catalyst Handling Services
- Nitrogen Services
- Waste Handling
- Decommissioning Services
- Insulation Services
- Valve Maintenance
- Storage Tank Cleaning & Maintenance

Our experts meet your demands for shorter change-outs, leaner project teams and superior quality standards for all reactor types with end-to-end solutions that reduce downtime and increase profitability.

### Related services:

- Catalyst & Adsorbent Handling Services
- Tubular Reactor Services
- Dense Loading
- 'Blind to Blind' Mechanical Services
- Reactor Internals Replacement & Repairs
- Nitrogen Services
- Waste Handling

We clean and inspect virtually all plant vessels, columns, drums and piping systems, both onshore and offshore, with services that can be tailored to requirements.

### Related services:

- Pre-Commissioning & Commissioning Services
- Nitrogen Services
- Pipeline Cleaning (Chemical & Mechanical)
- Pipeline Flooding
- Pressure Testing
- Dewatering
- Drying
- Purging

Our investment in training, equipment and SMART systems combined with our focus on safety and rigorous planning, preparation and execution of work underpins our track record as a leading provider of mechanical & plant maintenance services.

### Related services:

- Static Equipment Maintenance
- Rotating Equipment Maintenance
- Specialist Cutting Services
- Online Leak Sealing
- Controlled Bolting
- Reactor Repairs & Maintenance
- Plant Change & Piping Modifications
- In-situ Flange Facing & Machining
- Industrial Scaffolding
- Insulation Services
- Valve Maintenance
- Continuous Plant Maintenance
- Storage Tank Cleaning & Maintenance

Our extensive portfolio of cleaning services sets the benchmark in terms of technical, environmental and safety standards.

### Related services:

- Chemical Cleaning Services
- Mercury Management Services
- Fin Fan Optimisation
- Hydro Jetting Services
- CR3 Decoking Technology (CDT)
- Decontamination Services
- Waste Handling

We deliver projects safely, on time and on budget by ensuring single-source control through our multi-disciplinary approach and project management capability.

### Related services:

- Process Revamps, Rejuvenations & Retrofits
- Construction & Constructability Reviews
- Engineering, Procurement & Commissioning Services
- Operations & Maintenance
- Dismantling, Demolishing & Removal of Equipment
- Fabrication of structural, Carbon Steels & Pipe Systems
- Fabrication of Stainless Steels & Special Alloys
- Installation of Large Equipment & Pipe Systems
- Welding
- Hot & Cold Cutting
- Scaffolding & Insulation



CR3 is a leading provider of energy engineering solutions. Established in 1991, we provide specialised maintenance, plant upgrade, revamp and engineering services with a sharp focus on **Energy** Efficiency, **Engineering** Excellence, and Sustainable **Solutions**.

### Contact us today to learn more

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