

PROJECT EXPERTISE AT A GLANCE

REFERENCES FOR THE POWER GENERATION INDUSTRY



Project Name:

Vietnam, Vung Ang 1 Coal Fired Plant, 2 x 600 MW

Client:

Torishima

Solution Type:

Sea-to-plant intake system

Year of Completion:

2013

Capacity:

5 intake channels, each 47,520m³/h (209,225 gpm)

Challenge:

Install sea-to-plant intake system to filter uninterrupted cooling water supply and remove encountered debris, to prevent condenser blockage. Intake channels permitting isolation for preventative maintenance.

Solution:

A two-stage intake system with course screening bar racks cleaned by an automatic grab rake, fine stage provided by dual flow traveling water screens with filtered spray water system and controls for automatic operation.

Scope of Work Included:

- Design & engineering
- Equipment supply
- Project management
- Construction & installation supervision
- Start-up & commissioning
- Control system
- Ancillary equipment

Results:

Uninterrupted cooling water supply of 237,600 m³/h (1,046,125 gpm).



Project Name:

Indonesia, Tanjung-Jati Coal Fired Plant, 2 x 600 MW

Client:

Okamura Co., Ltd.

Solution Type:

Electrochlorination system

Year of Completion:

2012

Capacity:

460 kg/hr of sodium hyperchlorite

Challenge:

Develop solution for bio-fouling control, preventing marine growth in cooling water circulating system.

Solution:

On-site generation of hypochlorite using seawater and dose-to-seawater intake continuously at low concentration.

Scope of Work Included:

- Design & engineering
- Equipment supply
- Project management
- Construction & installation supervision
- Start-up & commissioning
- Chloropac® electrolyzers
- PLC control system

Results:

An electrochlorination system that produces 460 kg/hr of sodium hyperchlorite.



Project Name:

S. Arabia, Marafiq Yanbu Oil Fired Plant, 2 x 250 MW

Client:

Hanwha Engineering & Construction

Solution Type:

Boiler feed water system

Year of Completion:

2012

Capacity:

3 x 80 m³/hr (350 gpm)

Challenge:

Boilers required demineralized water free from total dissolved solids (TDS) in order to perform without corrosion, scaling or fouling.

Solution:

Three mixed-bed demineralizer systems polish desalinated water from the Red Sea to boiler feed water quality before being fed to the boilers.

Scope of Work Included:

- Design & engineering
- Equipment supply
- Project management
- Construction & installation supervision
- Start-up & commissioning
- Mixed-bed exchangers
- PLC control system
- Ancillary equipment

Results:

A system that produces 3 x 80 m³/hr (350 gpm) of demineralized water with conductivity < 0.1 microS.



Project Name:

India, Raipur Coal Fired Plant, 2 x 685 MW

Client:

Doosan Heavy Industries & Construction

Solution Type:

Condensate polishing system with external regeneration

Year of Completion:

2014

Capacity:

3,100 m³/hr (13,640 gpm)

Challenge:

Reuse supercritical boiler condensate by removing metal oxides, trace ionic impurities and silica with high-pressure deep bed condensate polishers.

Solution:

Six spherical condensate polishers to treat 3,100 m³/hr of return condensate. Fullsep™ external regeneration system for minimal cross-contamination, high-quality condensate, maximizing uptime.

Scope of Work Included:

- Design & engineering
- Equipment supply
- Project management
- Construction & installation supervision
- Start-up & commissioning
- Spherical condensate polishers
- Fullsep regeneration system
- PLC control system
- Ancillary equipment

Results:

Polished condensate with conductivity < 0.1 microS and low ppb levels of sodium, chloride, dissolved iron and copper will be generated.



Project Name:

USA, Coal Fired Plant with FGD, 2,240 MW

Client:

Duke Energy

Solution Type:

FGD wastewater treatment application

Year of Completion:

2007

Capacity:

135 m³/h (600 gpm)

Challenge:

Use of wet limestone-forced oxidation (LFSO) scrubbers in flue gas desulphurization (FGD) systems to meet emission standards results in a purge stream that is acidic, supersaturated with gypsum, contains high TDS and total suspended solids (TSS), heavy metals, chlorides and magnesium.

Solution:

A physical/chemical treatment combined with a biological process that utilizes selected strains of bacteria residing in a series of granular activated carbon-filled bioreactors for the selenium reduction.

Scope of Work Included:

- Total process design
- Design & engineering
- Equipment supply
- Project management
- Construction & installation by partner
- Supply of initial reagents and supplies
- Startup & commissioning
- Operation & maintenance

Results:

A system providing 135 m³/hr (600 gpm) of treated FGD wastewater with < 1 ppb of mercury and < 100 ppb of selenium.



Project Name:

USA, Combined Cycle Power Plant, 628 MW

Client:

Power Utility in Southwestern USA

Solution Type:

Zero liquid discharge system

Year of Completion:

2011

Capacity:

75 m³/h (300 gpm)

Challenge:

Reduce freshwater consumption and eliminate water discharge from combined cycle plant. Achieve zero liquid discharge (ZLD).

Solution:

An integrated system comprising of physical/chemical treatment, tubular micro-filtration, reverse osmosis and dewatering equipment.

Scope of Work Included:

- Total process design
- Design & engineering
- Equipment supply
- Project management
- Start-up & commissioning
- Reverse osmosis skids
- Memtek® microfiltration

Results:

Recovery of > 95% (minimal discharge to evaporation ponds and trucking solids off-site). Lower capital and operating costs than conventional approach/thermal design.



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PO-MARKET-PR-0614