

*high volume purity ~ simple package ~ proven reliability*

# **RecoPur® CBM Water Treatment System**

Increase production by eliminating Coal Bed Methane produced water issues with Eco-Tec's RecoPur® CBM Water Treatment System. This system is specifically configured to economically purify and recycle produced water resulting in water quality that exceeds agricultural and environmental standards.

## **Why Use RecoPur® CBM Systems?**

### **Quantity of Produced Water**

The production of coal bed methane requires treatment of produced water from multiple wells. Required water treatment system capacities can be 50,000 barrels per day or higher. That quantity of water must be disposed of in a manner that does not significantly alter the well's natural surroundings. The RecoPur® CBM System provides a continuous, online process for handling large volumes of water.

### **Quality of Produced Water**

The large volumes of water contain high levels of sodium that may pose an environmental risk to agriculture and natural wildlife. Sodium is measured by its Sodium Absorption Ratio (SAR), which can reach levels exceeding 50 in some areas. The **RecoPur® CBM System** can purify the water to **SAR levels of less than 3** - exceeding purification standards for agriculture and other uses.

### **Why Eco-Tec?**

Eco-Tec's RecoPur® CBM System addresses the following needs of Coal Bed Methane Producers:

- Water quality that meets SAR, Conductivity and pH specifications
- Handle variable large volumes of feed water
- Minimal commissioning costs
- Compact and easy to relocate system
- Low or no waste
- Economical treatment costs

Since 1970, Eco-Tec's engineers have worked to perfect water treatment technologies for application to various industrial needs, including Coal Bed Methane processes. Eco-Tec's system efficiency and reliability is backed by over 1500 successfully installed systems in over 52 countries.



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## System Components

### Base Components

#### Spectrum Micro Media Filter™

The Spectrum Micro Media Filter™ prevents fouling of ion exchange resin and ensures the performance of the cation exchanger.

#### Recoflo® Cation Exchanger

The Recoflo® Cation Exchanger is used to remove all cations present in the water and can be regenerated with either sulfuric or hydrochloric acid depending on the market potential of the residual brine.

#### Decarbonator

The decarbonator contacts the water with air to remove carbonates such as carbon dioxide.

### Optional Components

*By implementing the optional components, CBM producers are able to eliminate waste by upgrading the by-products to marketable value for resale.*

#### Recoflo® Brine Softener

The Recoflo® Brine Softener is used to remove hardness from the brine solution to ensure higher quality brine by-product.

#### Recoflo® Deacidifier

The Recoflo® Deacidifier is designed to remove the acid from the water before its entry into the evaporator to produce acid-free brine.

#### Evaporator/Boiler

The evaporator is used to concentrate the solution containing sodium content to 250 g/L NaCl.

| Features  | Benefits   | Impacts   |
|---|--|---|
| Eco-Tec has a 35-year history with more than 1500 systems world wide  | <ul style="list-style-type: none"><li>Proven process technology and equipment designs</li><li>Long operating life of equipment</li><li>Experienced engineering</li></ul> | <ul style="list-style-type: none"><li>Proven, reliable equipment, operation and performance</li><li>Lower long-term capital investments</li><li>Low client risk</li></ul>   |
| Eco-Tec's RecoPur® CBM System uses the highly efficient and effective Recoflo® ion exchange processes             | <ul style="list-style-type: none"><li>Proven process elements</li><li>Advanced technology</li></ul>  | <ul style="list-style-type: none"><li>Confirmed ability to achieve low SAR values</li><li>Low chemical consumption</li><li>Low waste volume</li></ul>                       |
| Eco-Tec's RecoPur® CBM System incorporates the Eco-Tec chemical purification process                              | <ul style="list-style-type: none"><li>No residual waste</li><li>Produces a marketable by-product (brine)</li><li>Produces marketable water (irrigation)</li></ul>        | <ul style="list-style-type: none"><li>Environmentally friendly</li><li>Potential to recoup operating/capital costs</li><li>Potential to develop secondary revenue</li></ul> |
| Eco-Tec's RecoPur® CBM System is compact, skid-mounted, factory assembled, and fully tested prior to installation | <ul style="list-style-type: none"><li>Small footprint</li><li>Easy to relocate</li><li>Easy to adjust capacity levels</li></ul>  | <ul style="list-style-type: none"><li>Low site installation costs</li><li>Flexibility to meet different site flow and composition specifications</li></ul>                  |
| Eco-Tec's RecoPur® CBM System is highly automated with operation, maintenance and monitoring available            | <ul style="list-style-type: none"><li>Minimal operating staff required</li><li>Remote monitoring and control available</li></ul>   | <ul style="list-style-type: none"><li>Lower operating costs</li><li>Minimize risk/facilitate technical support</li></ul>  |
| ALL Eco-Tec systems include exceptional customer support offering expertise and technical skills                  | <ul style="list-style-type: none"><li>24/7 Contact Installation and Commission support</li><li>Routine follow up</li><li>Training</li></ul>                              | <ul style="list-style-type: none"><li>Assured performance</li><li>Low client risk</li><li>Long-term relationship</li></ul>  |
| Financing Available   | <ul style="list-style-type: none"><li>Eliminates capital outlay</li></ul>  | <ul style="list-style-type: none"><li>Paid for out of cash flow</li></ul>   |

**Contact Eco-Tec For More Details.**

SS-027-01-10.1



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