

- **ONE TEAM.**
- **ONE FOCUS.**
- **YOUR SUCCESS!**



Recirculation Technologies, LLC

Your Full Service Resource For Water System Improvement

## Ion Exchange Resin Restoration

### Situation

Pure water is the lifeblood of every process plant. Ensuring that enough high-quality water is generated at optimal costs is therefore a key strategic goal for high-performing industrial water systems. However, the variability of surface feed water continues to challenge the capability of aging water treatment systems to keep pace with steady and often growing demands.

Ion exchange resin is the heart of nearly every water treatment process, and that resin must be maintained so that it can properly remove hardness elements, particulates and other microbiological and natural organics that are suspended in the treated water that flows through it. Fouled resin lowers throughput and drives up regeneration costs.

Over a three year period, untreated resin can:

- Decrease throughput by 30%
- Quadruple the risk of available water
- Add 30% to the operating costs associated with running your water treatment facility

Traditionally, fouled resin is replaced by new resin. However, the price of new resin continues to increase while its availability is decreasing ...creating additional issues for plant operation managers everywhere!

### RTI's Predictive Restoration™ Service

RTI solves the problem of fouled resin by offering a better and far less costly solution...by *restoring* ion exchange resin...rather than replacing it.

RTI's **Predictive Restoration On-Site Ion Exchange Services** combines *Chemical Restoration* with *Predictive Maintenance* to ensure that resin remains at peak effectiveness. Validated through an extensive study by Black & Veatch, RTI **guarantees** resin restoration through our patented and proprietary process.

### Chemical Restoration:

- Removes over 90% of organic and hardness foulants
- More than doubles the life of the resin beds
- Substantially increases throughput and significantly decreases regeneration costs
- ...all for **less than half the cost** of resin replacement

### Predictive Maintenance:

- Restoration based on water conductivity ...not the calendar
  - Regularly scheduled restoration may be ineffective and costly since surface feed water quality varies
  - Waiting too long to restore resin drives up operating costs
  - EconoTrac™ simulation models based on actual resin samples determine the best timing to optimize costs and water availability
- Reduces regeneration chemical costs and associated water risks
- Ensures that water purification systems are operating in a proper manner



*To the left...fouled Ion Exchange Resin prior to restoration*

*To the right...restored Ion Exchange Resin after RTI restoration process*

### Service Delivery

The Chemical Restoration portion of **ReStore +** is an on-site process that is delivered utilizing a fleet of mobile cleaning tractor-trailers, equipped with cleaning vessels and testing capability, and operated by a highly trained, two-man crew. There is no plant process disruption and wastes can be handled normally through existing plant processes. The patented chemical mixture used in the cleaning process is shipped and delivered separately to your facility to coincide with the arrival of mobile unit.



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### RTI's Mobile Cleaning Unit

The Predictive Maintenance portion of **ReStore +** includes proprietary data monitoring methodology to predict improved plant performance. RTI's **EconoTrac™** software provides a true understanding of the economics of ion exchange operation using your actual plant data. Every month, the EconoTrac analysis is executed to provide the water plant with on-going, valuable economic data. EconoTrac plots the monthly cost of operating the water plant and shows the savings being accrued from the cleaning. It is also used to forecast when the next cleaning will be needed and even when the resin may need to be replaced.

### Benefits

With an installed base of over one hundred plants serving the energy utility, refinery, chemical and paper production industries, the benefits of RTI's **ReStore +** resin restoration process includes:

- **Guaranteed restoration of ion exchange resin to "like new" condition**
- **Reduction in the amount (and cost) of acids and caustics used in the regeneration process**
- **Higher water throughput, resulting in a more consistent and reliable operation**
- **Tailored restoration planning based upon monitored data and throughput demands**
- **Overall operational risk reduction**
- **Fewer unplanned operating issues that often lead to expensive quick fixes**
- **Consistently higher quality water through the system, extending equipment life and ensuring that it operates at peak performance**

- **The opportunity to conduct maintenance work on exchange vessels, if needed**
- **Less waste leaving the plant, improving sustainability initiatives**
- **Peace-of-mind that purified water is available to meet a facilities product needs...day and night**
- **Valuable economic data that plots monthly cost of operating the water plant compared with the accrued savings of restoring the resin**
- **Known hard cost savings, particularly related to regeneration chemicals and resin replacement avoidance**
- **A demonstrated return on investment usually in less than three months**

### How to Get Started

- Resin samples are collected and RTI performs an analysis of them...*at no cost to you*
- Data is generated and recorded specific to your system's performance and capabilities
- Together with you, RTI examines other water system issues impeding system performance
- RTI prepares a comprehensive improvement plan...**ready for implementation!**

## ReStore.....Don't Replace!

Reduce Water Risk

Improve Water Quality

Cut Operating Costs

Call or Contact RTI at (215) 682-7099

[www.rtiservices.com](http://www.rtiservices.com)

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