



# Arsenic Removal: LayneRT Regeneration

## LayneRT™ Arsenic Removal Media Replacement and Regeneration Program



The Layne Water Technologies Center of Excellence located in Phoenix, Arizona.

The LayneRT Media Regeneration Program was developed to significantly reduce the operating costs associated with the treatment of arsenic in potable water supply systems. This turn-key program can be applied to existing adsorption and coagulation-filtration systems in addition to new construction projects.

The program begins with a sample of the well's raw water for evaluation of the well's water chemistry. A regeneration plan is developed based upon the results of the analytical testing.

Layne then performs a cost analysis of the existing system compared with converting to the LayneRT Media Regeneration Program. Once the savings have been quantified, and the system has been converted to LayneRT, the service phase of the program begins.

Layne will monitor the system and when breakthrough of the vessel occurs, Layne will mobilize a vac-truck to the site to remove the existing media for transport to our NSF-certified regeneration facility in Phoenix. The media will be regenerated and shipped back to the job site where it will be reinstalled after the vessel disinfection has been completed.

Regenerating LayneRT eliminates on-site disposal residuals and reduces the amount of waste that must be disposed of by over 90% compared to most other sorbents. The LayneRT Regeneration Program includes free arsenic testing and provides our clients with a consistent operational cost of treated water.

Additional services can be incorporated into the program, such as vessel inspection, disinfection and system start-up.

### LayneRT Media Regeneration Program Benefits:

- Reduces life cycle treatment costs
- Eliminates residuals disposal
- Mitigates long-term disposal liability
- Consistent annual operating costs
- No backwash required

### Highlights of the Media Regeneration Program:

#### Evaluation

- Sample process water
- Analyze water chemistry

#### Analysis

- Provide financial performance evaluation

#### Replacement

- Replace existing media

#### Service

- Monitor system performance

#### Regeneration

- Media regeneration
- Arsenic monitoring



Certified to NSF/ANSI 61



Layne Christensen Company

Water Technologies:  
Define  
Develop  
Deliver



# LayneRT Arsenic Removal Media

## The LayneRT Difference

- NSF/ANSI Standard 61 Certified
- Longer lasting
- Higher capacity
- Lower operating cost
- Proven iron chemistry
- No fines
- No backwash
- Regenerable
- Limits liability associated with disposal
- Optimal flow dynamics
- Rapid adsorption kinetics
- Low pressure drop
- Spent media passes Toxicity Characteristic Leaching Procedure (TCLP)

## Variables Affecting Arsenic Removal From Drinking Water

Media used for arsenic removal is affected by a number of water parameters. To provide a life estimate, Layne requires a full water analysis that must include arsenite (As(III)), arsenate (As(V)), pH, silica, phosphate, iron, and manganese.

**Total Arsenic** - Total arsenic concentration above 0.30 mg/L will reduce media life.

**Arsenite As(III)** - The arsenic removal media removes both As(III) and As(V) but has approximately four times the capacity for As(V) over As(III). If arsenite is present it is recommended to oxidize the water ahead of the arsenic removal media.

**pH** - Adsorption media operate most effectively between 5.5-8.5. The media will reduce arsenic outside of this range but the capacity may be compromised. At elevated pH, silica becomes a more aggressive interfering species. Note: Do not use organic acids (such as citric or acetic) to adjust the pH ahead of the media.

## Media Assurance Program

The annual media regeneration costs of Pre-Engineered Systems (PES) using LayneRT can be determined by completing a pilot test on the site to be treated.

Our Pilot/Performance program is unique in the industry and is illustrative of our confidence in our technologies and in the systems that we install.

Pilot evaluations, which are usually completed in 3-6 months, provide enough information for Layne to warrant your annual media regeneration costs under certain conditions.



The LayneRT Media Regeneration Facility located in Phoenix, Arizona.



Layne offers free arsenic monitoring.



LayneRT arsenic removal system installed for Sahuarita Water Company in southern Arizona.

Contact your  
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