

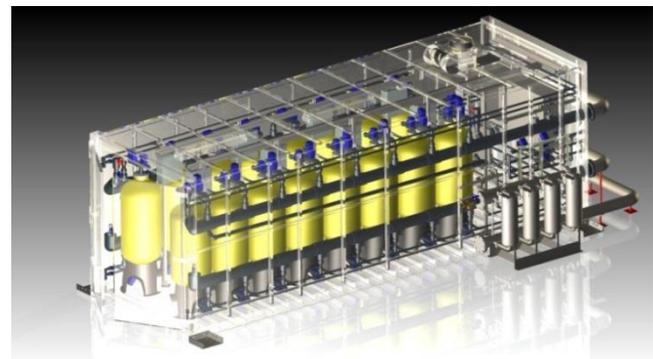
Ion Exchange for Hexavalent Chromium

Proven Technology with Rapid Implementation & Low Lifecycle Costs



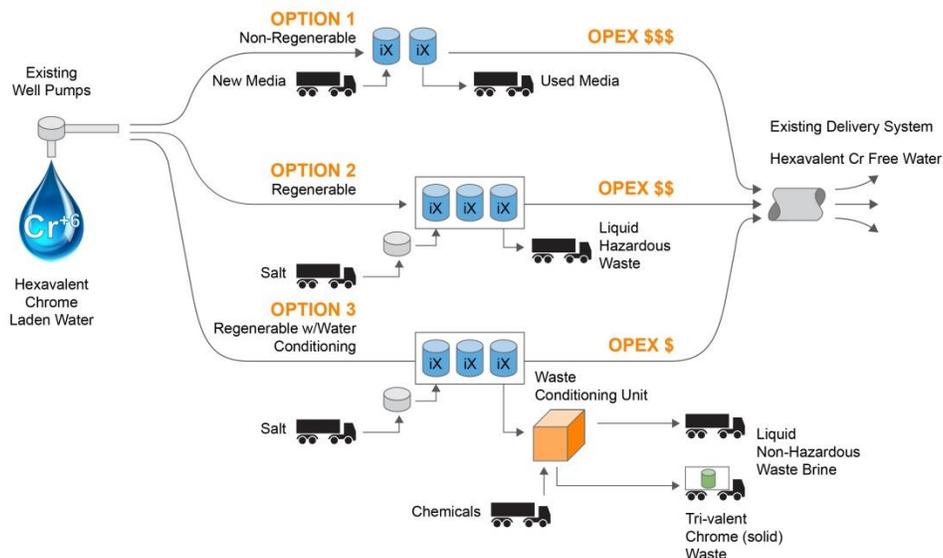
With the implementation of the new 10 µg/Liter MCL for hexavalent chromium (chromium-6) for drinking water supplies in California, communities and utilities are in search of reliable, cost-effective answers on how to meet this standard. Envirogen offers a field-proven option for meeting these goals with our high efficiency ion exchange systems.

Depending on flow rates, contaminant loading and hazardous waste handling capabilities, Envirogen offers a range of ion exchange options to cost-effectively treat from as low as 5 gallons per minute (gpm) to thousands of gpm. These include our CLEANPOINT™, MinX™ and SimPACK™ packaged, pre-engineered systems that remove hexavalent chromium from incoming streams, along with waste conditioning systems that can be matched to the economics and requirements of a specific site.



As an experienced specialist in ion exchange treatment of drinking water, Envirogen can manage as much of the design, installation and operation of a hexavalent chromium solution as a community, water utility or engineering firm requires. Today, Envirogen Technologies has numerous ion exchange systems in operation with treatment capacities ranging from 5 gpm to more than 6,000 gpm.

High Efficiency IX Installation Options for Hexavalent Chromium



Envirogen ion exchange systems can be configured to remove a target contaminant or a combination of contaminants. This is an important feature for applications with multiple anionic contaminants, eliminating the need to employ multiple treatment technologies.

CLEANPOINT: Economical One-Pass Solution for Low Flow Applications

Envirogen CLEANPOINT Ion Exchange systems have been in operation treating hexavalent chromium for nearly 5 years. They are designed to work economically in very low flow (5-35 gpm) applications but are scalable depending on requirements. These systems feature non-regenerable ion exchange media that is disposed of after it is exhausted.

MinX and SIMPACK: On-site regeneration with low waste rates & residuals

Envirogen MinX (35-800 gpm) and SimPACK (400-1000+ gpm) systems are multi-bed, PLC controlled treatment concepts that use up to 16 resin vessels depending upon flow, each in a different stage of the treatment/regeneration process. Each vessel can be operated until contaminant breakthrough without reducing treated water quality, thereby allowing maximum bed utilization through longer run times before regeneration. This results in decreased salt usage, lower waste production and lower operating costs.

Envirogen MinX and SimPACK systems can be configured for on-site regeneration, using a concentrated brine solution to restore depleted resin. An extremely low volume of waste brine allowed by these systems is a key factor in managing lifecycle cost for treatment. For hexavalent chrome applications, these systems can feature a brine processing unit (BPU) that precipitates the contaminant. This significantly reduces the amount of waste that must be hauled to a disposal site. In addition to waste minimization, Envirogen can provide assistance with regulatory issues, as well as compliance on an on-going basis.



Technology & Services for Impacted Groundwater

Envirogen is an industry leader in the treatment and clean-up of impacted groundwater. Our technology portfolio features biological, phys-chem and adsorptive systems that have been used to address a variety of groundwater contaminants, including chromium, nitrate, arsenic, perchlorate, radium, uranium and more. Our process engineering group can develop tailored solutions that offer guarantees for performance, costs and lifetime of the system. Envirogen also offers range of O&M programs that can lower total costs and improve the reliability and operating life of system investment.

Visit our website at www.envirogen.com for more information about Envirogen hexavalent chromium treatment options and all of our technologies & services for impacted groundwater.

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Envirogen IX Highlights

- Guaranteed performance
- Low lifecycle costs
- Low waste rates < 0.001%
- On-site regeneration
- Low energy requirements
- No pH adjustment needed
- Rapidly deployable
- Fully automatic operation
- Continuous flow
- NSF approved
- Residuals management
- O&M programs available