Agricultural Water Treatment Process

2 Cr^{+6} impacted water is then pumped to a storage tank and sent to a drip irrigation system

Pump
Storage Tank
Pump
Drip Irrigation System
Center Pivot
Control Room

3 Cr^{+6} impacted water is converted to Cr^{+3} in the grass/alfalfa root zone *(see right image)*

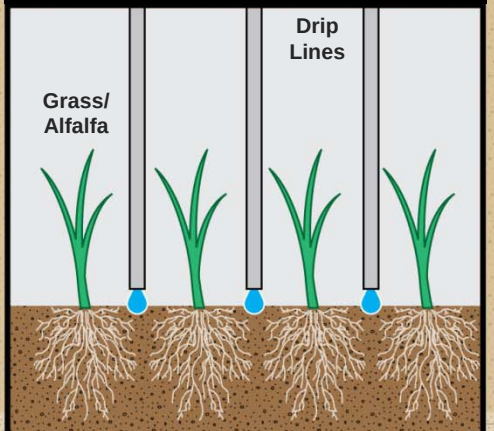
Extraction Wells

1 Low concentration Cr^{+6} in groundwater is extracted from the upper aquifer

Cr^{+6} impacted groundwater

Unsaturated Zone (Vadose Zone)
Groundwater
Upper Aquifer
Blue Clay
Lower Aquifer
Consolidated Bedrock

How Cr^{+6} is Converted to Cr^{+3} in the Root Zone



1. Reduction of Cr^{+6} to Cr^{+3} through interaction with electron donor in soil and organic matter
2. Uptake and reduction by plant roots
3. Adsorption onto colloids and organic matter in the root zone microbial-induced (microorganisms or bugs) reduction of Cr^{+3}
4. Complexation with organic functions groups involved in the reductions

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