New Electrobiochemical Reactor for Removal of Selenium, Arsenic, and Nitrate

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Problem

• 100's of trillions of gallons of metal and inorganic contaminated water require treatment.

Metal / Inorganic Removal

• Supplies energy to microbes using low voltage and no current
• Provides a controlled electron density gradient throughout the EBR
• Controls and increases removal of multiple contaminants
• Excess electrons provide easy energy for microbial growth and contaminant transformation

Process Water – Laboratory Results

Process Water – Laboratory Selenium Results
On-Site

Oxidation Reduction Potential - Field

Field Test Results

EBR Advantages

- 2 to 9 times faster contaminant removal
- More cost effective
  - ≥40% lower capital costs
  - ≥50% less operational costs
  - Reduces expensive nutrient amounts
  - No water heating required
- ≥50% more effective treatment of complex contaminants
- Can remove multiple contaminants in a single EBR
- Low energy requirements

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