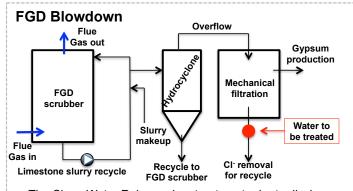


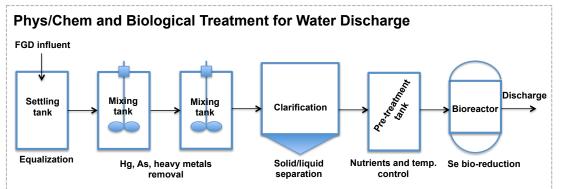
Intensified Flue Gas Desulfurization Water Treatment for Reuse, Solidification, and Discharge (DE-FE0031555)



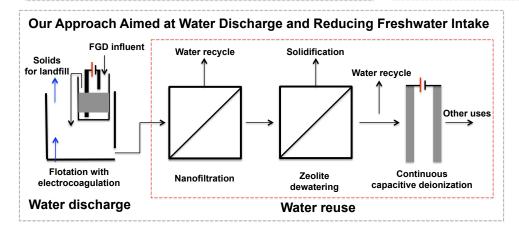
University of Kentucky Center for applied Energy Research



- The Clean Water Rule requires treatment prior to discharge.
- Se^{VI} cannot be effectively removed by phys/chem treatment.



- A relatively large footprint is required and chemical contamination may occur.
- Bacteria are sensitive to temperature and additional nutrients.

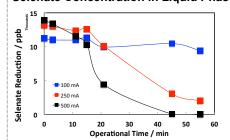


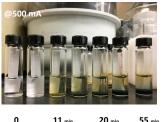
UKy-CAER Separation Modules CDI combined with UF and NF Ultrafiltration Ultrafiltration CDI-2 Pumps CDI-2 Pumps Continuous operation using CDI, UF, and NF

Project Objective

- Develop an intensified process to remove toxic species by electrocoagulation, and reduce TDS/TSS using flotation and membrane-based filtrations.
- Practical salt concentration needs for solidification
- Removal of the lower concentration regulated species by CDI.
- Process TEA.

Preliminary Results – Using Electrocoagulation to Reduce Selenate Concentration in Liquid Phase





Expected Output

- More effective solutions to meet ELG for regulated species.
- · Promote water recycle in power plants.
- Aid in understanding of water energy nexus.

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- · LG&E KU Energy: Mahyar Ghorbanian
- · UKy- CAER, CUMT, SR, and Trimeric.