

## **PRODUCT DESCRIPTION**

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This is an interim report to present the preliminary results of a study conducted by Duke Energy to test the potential effectiveness of vertical flow wetlands (VFWs) for the removal of selenium, mercury, and other related compounds from a flue gas desulfurization (FGD) discharge. These compounds commonly are found in and regulated for coal-fired utility water discharges. There is a widespread need for a cost-effective alternative to physiochemical treatment to maintain compliance for these parameters, one of which is application of VFWs.

### **Results and Findings**

The preliminary findings of this study are that VFWs are very effective for removal of mercury, selenium, and related parameters from FGD wastewater. Final results are expected to demonstrate that VFWs are a cost-saving water treatment option for FGD sources.

### **Challenges and Objectives**

The primary goal of this study was to demonstrate that VFWs could meet the selenium reduction goals of the Marshall Steam Station by augmenting an existing surface flow constructed wetland treatment system. The main challenge of this work was identifying an organic substrate source for this site that would replicate the successes of other utility VFW treatment projects.

### **Applications, Values, and Use**

The final report for this study is expected to present this developing technology as an alternative to the current approaches and related costs of treatment for selenium and mercury at utility sites. VFWs, especially with future research on use of local byproducts for organic substrates, should be applicable to any utility site worldwide.

### **EPRI Perspective**

To be completed

### **Approach**

The goal of this report is to transmit the findings of a VFW application study for use at other utility water treatment sites.

### **Keywords**

Water Treatment, Wetlands, Vertical Flow Wetlands, Selenium, Mercury, Flue Gas Desulfurization