

# Particulate and Condensables Removal



## Wet ESP Polishing

# MATS Requirements

## LIMITS

Filterable Particulate Material	0.03 lb/MMBtu
Hydrogen Chloride	0.002 lb/MMBtu
Sulfur Dioxide as HCl Surrogate	0.2 lb/MMBtu
Mercury Coal (>8000 BTU/lb)	1.2 lb/TBtu
Mercury Coal (<8000 BTU/lb)	4.0 lb/TBtu
Sulfur Trioxide (limited)	1 ppm

# EGU Pollution Control



## Description

*Low NOx Burners*

Staged Combustion and Overfire Air

0.1-0.15 lb/MMBTU<sup>1</sup>

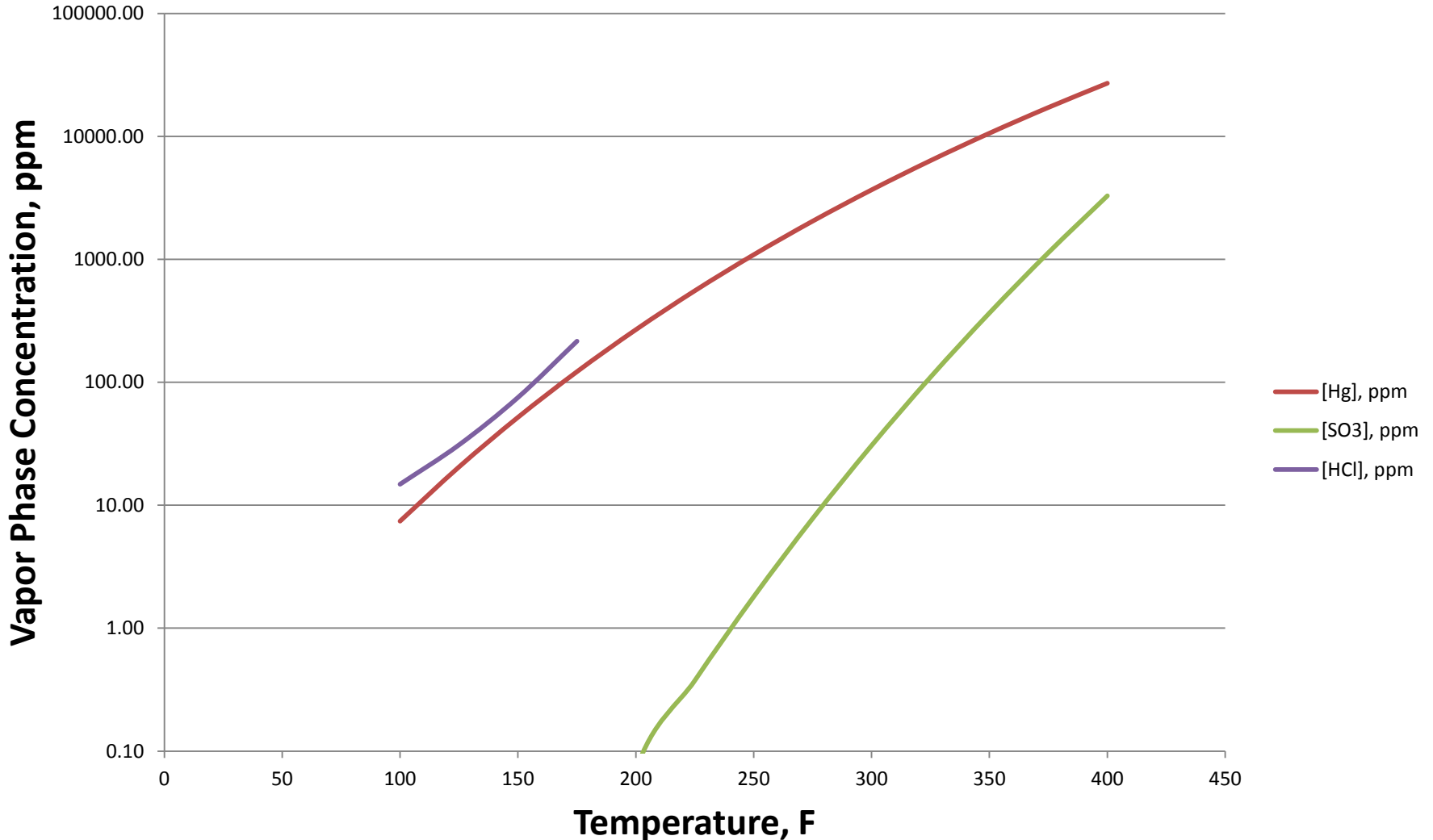
*Selective Catalytic Reactors*

Up to 90% Removal of NOx<sup>1</sup>

1. Lani, et. al; DOE/NETL's NOx Emissions Control R&D Program – Bringing Advanced Technology to the Marketplace. NETL/DOE August 2004
2. Sargent & Lundy; *Control of NOx Emissions from Coal-Fired Boilers*; EPA, 1998
3. Gale, T.; *Testing of Mercury Control with Calcium Based Sorbents and Oxidizing Agents*. DOE/NETL, 2003

Local/State Specific Restrictions

# Aerosol Concentrations



# WESPs Target

Mercury

Heavy Metals

Sulfur Trioxide

Hydrogen Chloride

# How WESPs Work

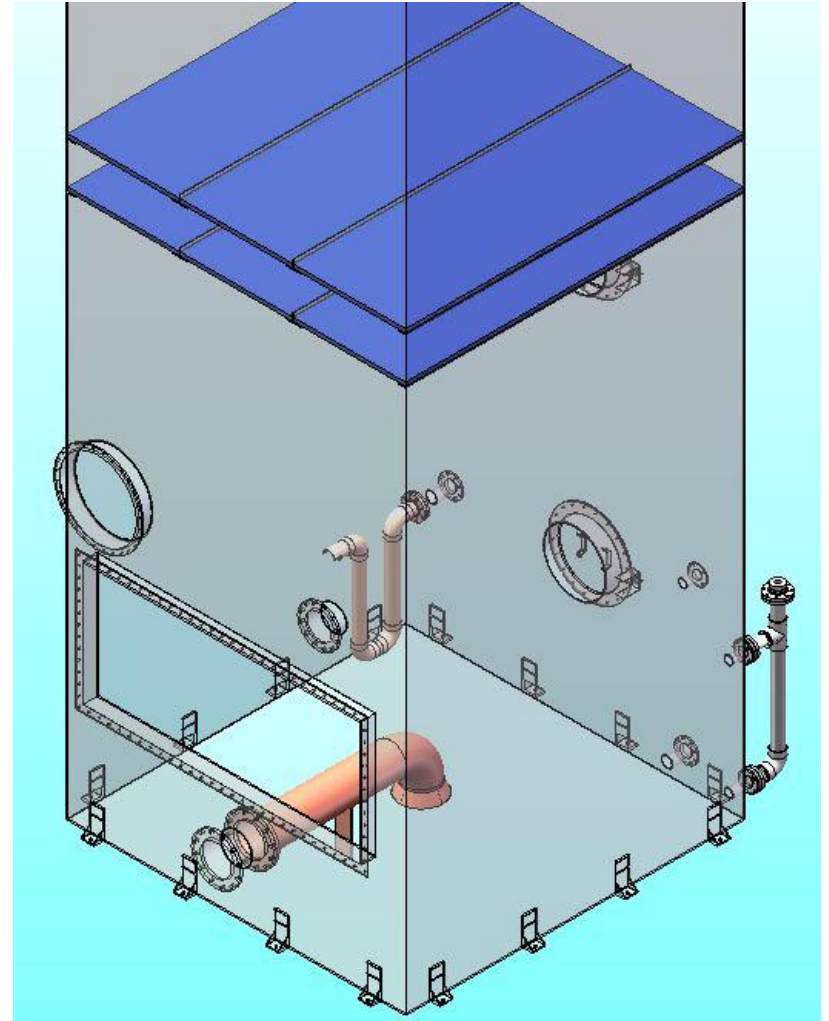
WESP are split into three sections:

- Conditioning Section
- Collection Section
- Outlet Section



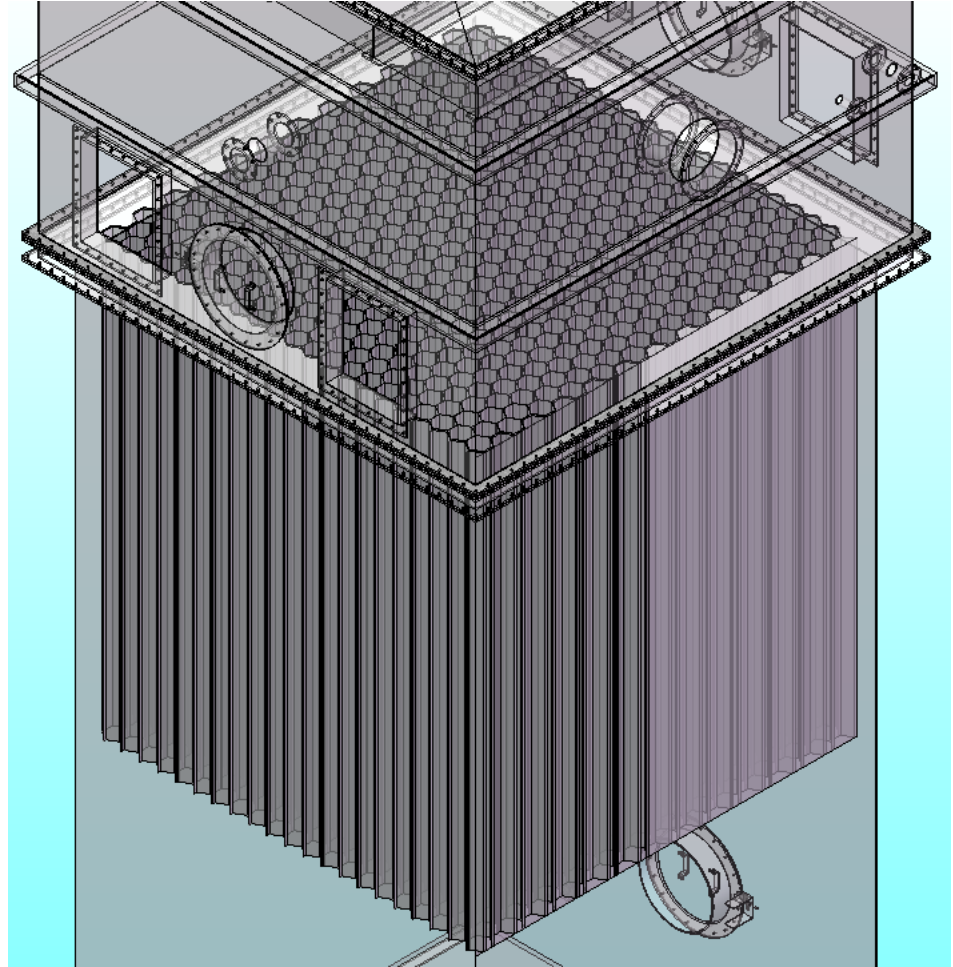
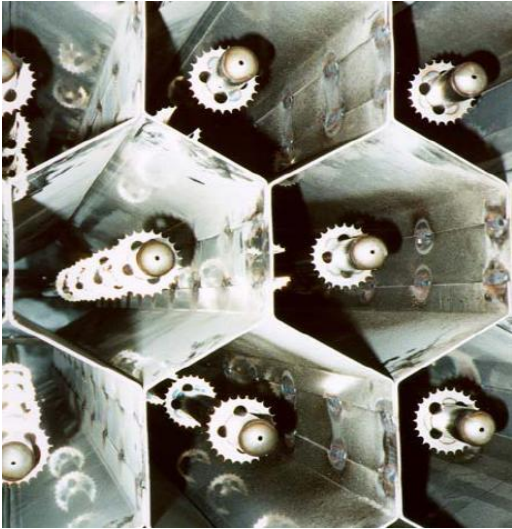
# Conditioning Section

- Ensures the gas is saturated
- Evenly distributes gas to maximize removal efficiency
- Sump collects and purges particulates



# Collection Section

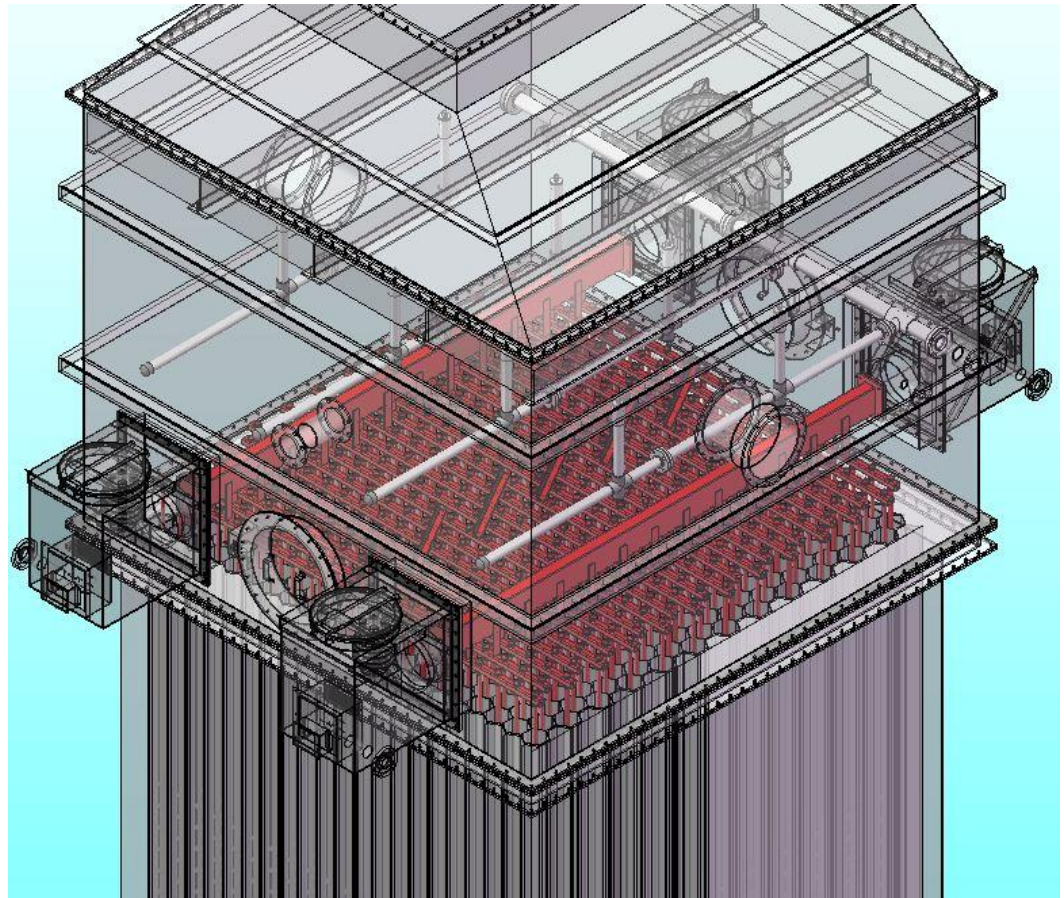
- Gas travels through an array of collector tubes
- Particles are charged and collected on tube surfaces





# Outlet Section

- A high voltage grid maintains alignment
- Air purge system cleans high voltage insulators
- Wash header provides wet film for PM removal
- Entrainment separator removes water droplets





# THANK YOU!