

ESP Improvements to meet MATS and MACT Rules

McIlvaine Hot Topic Hour

October 02, 2014

ESP Aftermarket Offerings

- Process and Performance Analysis
- Inspections & Tune-ups
- Replacement Parts
- Life Extensions
- Rebuilds
- Upgrades

Evaluating an ESP for MATS or MACT Compliance

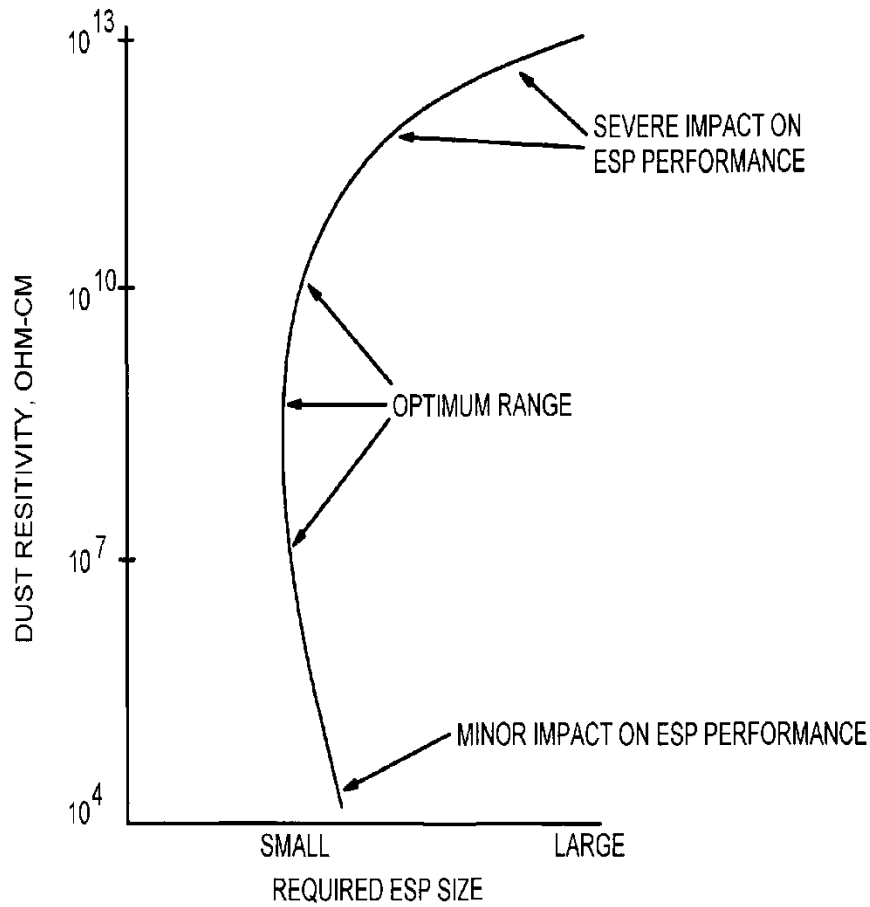
- What was it originally designed to do?
 - Flow rate
 - Fuel & Ash Characteristics
 - Emission Limits
- How is it operating now?
 - Changes to fuel or flow?
 - Maintenance history?
- Where does it need to be?
 - Emission limit
 - Sorbent injection?

ESP UPGRADE OPTIONS

- Improved gas distribution
- New Internals – collectors, electrodes
- Improved Rapping
- Increased power - more T/R sets, or
- Hi Frequency TRs & control systems
- Flue gas conditioning
- Raise the roof
- Additional inlet / outlet fields
- New parallel ESP
- Full or part bag house conversion

Various potential solutions tailored to specific site

Ash Resistivity



Ash resistivity is the **MAJOR** factor in ESP sizing and resulting emissions performance.

KC LABORATORY - RESISTIVITY APPARATUS (New Jersey)



Bob Mastropietro
V.P. Technology &
Senior Consultant;
ISESP Int'l Fellow;
40+ years ESP
experience

Resistivity Cell & Electrode



Recent Examples of ESP Upgrades



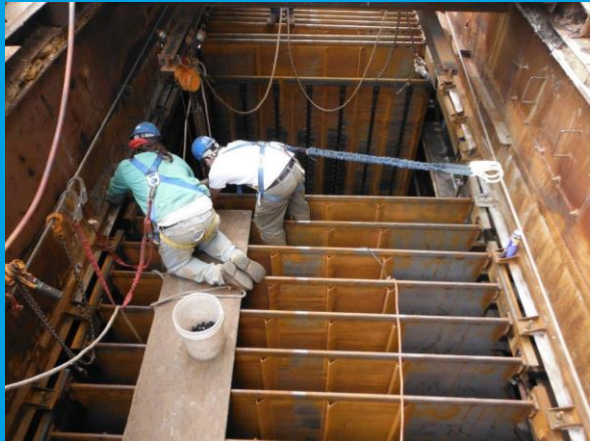
Tumbling Hammer to Magnetic Rapper Conversion



Complete ESP Replacement



New Rigid Electrode System



European to American type ESP Conversion