

# **PM CEMS - DÉJÀ VU?**

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**EPRI CEM Users Group Meeting**

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# PM CEMS Technology

- ◆ **Light Scattering**
- ◆ **Light Extinction (transmissometer)**
- ◆ **Optical Scintillation**
- ◆ **Probe Electrification (triboelectric effect)**
- ◆ **Beta Attenuation**

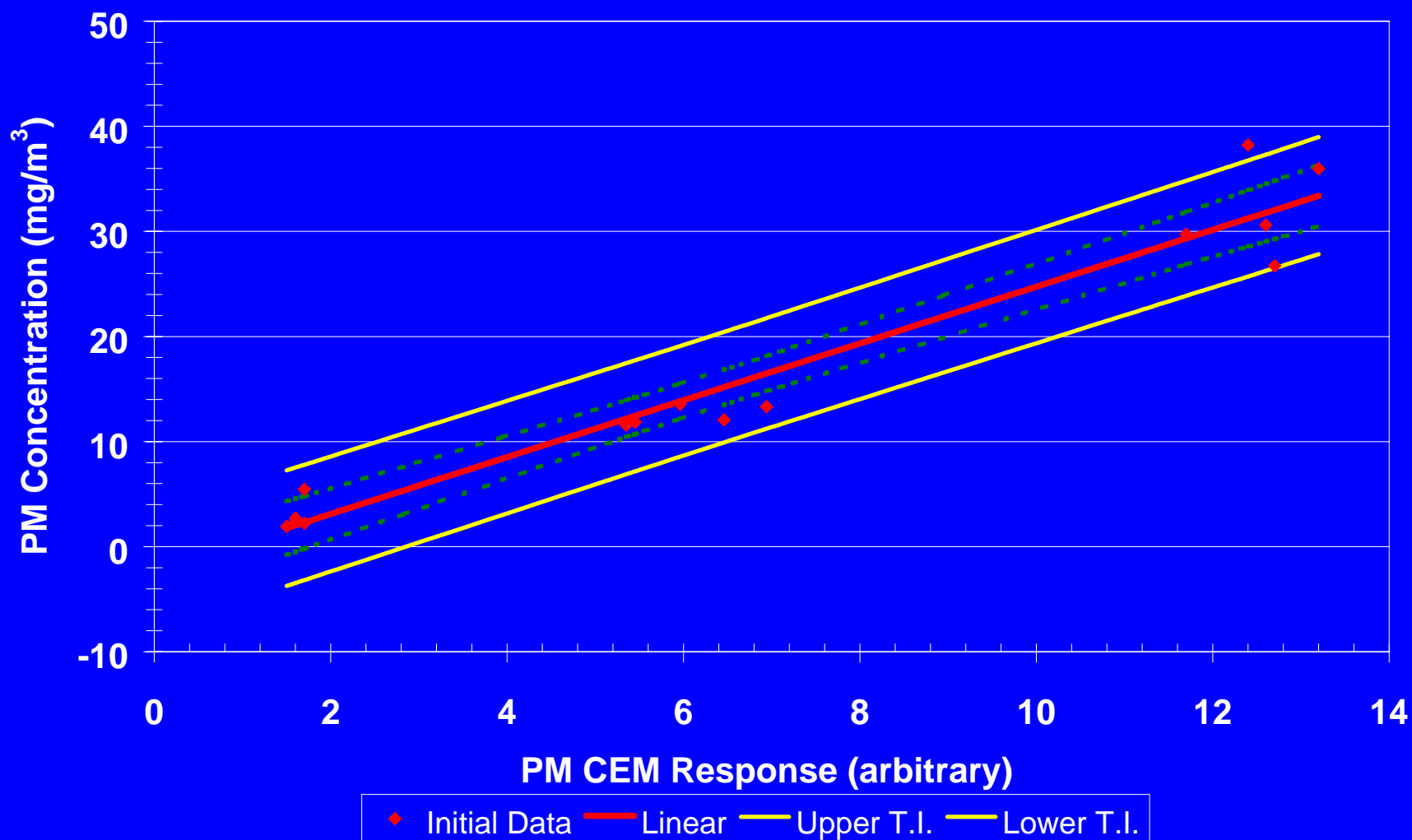
# **Litany of Performance Specification 11**

- ◆ **Initially proposed April 19, 1996 (61 FR 17358)**
- ◆ **Revisions December 30, 1997 (62 FR 67788)**
- ◆ **Re-proposed December 12, 2001 (66 FR 64176)**
- ◆ **Public comment period closed March 12, 2002.**
  - **Agency reviewed comments, rulemaking package forwarded to EPA's Office of General Counsel.**
  - **June 2003 promulgation "penciled in."**

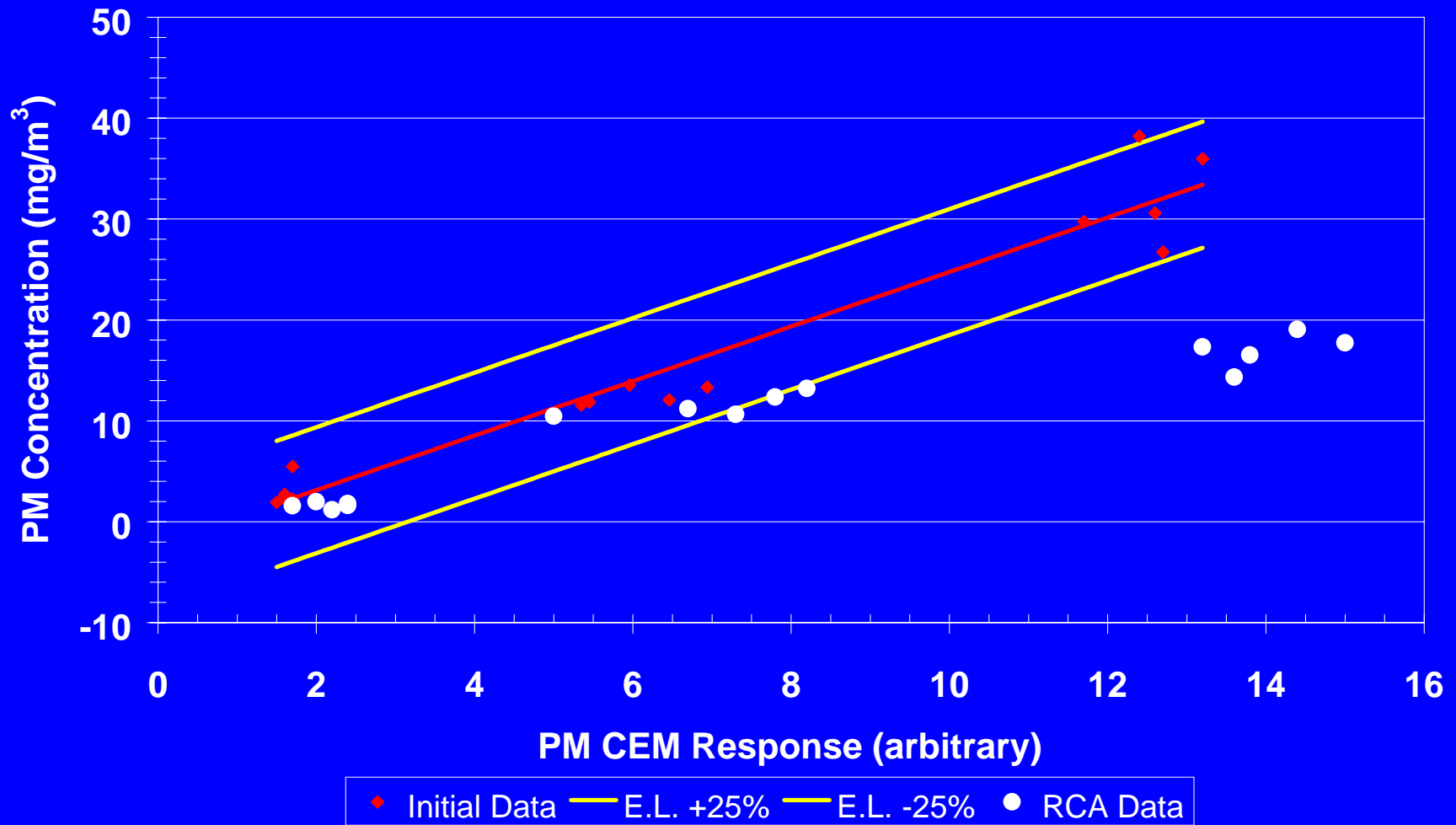
# Performance Specification 11

- ◆ **Calibrate at 3 particulate loading using manual stack testing measurements - 15 runs.**
- ◆ **Statistically-based evaluation criteria**
  - **Correlation coefficient  $\geq 0.85$**
  - **Confidence interval within  $\pm 10\%$  of emission limit at median PM CEMS reading.**
  - **Tolerance interval - 95% confidence that 75% of all possible values are  $\pm 25\%$  of emission limit.**

# Example Calibration



# Response Correlation Audit



# Regulatory Quagmire

- ◆ **PM CEMS required by hazardous waste combustor MACT and cement kiln MACT.**
- ◆ **Requirements “delayed” until EPA completes rulemaking (i.e., PS-11 & compliance issues).**
- ◆ **Proposed Industrial Boiler MACT - “CEMS for PM have not been demonstrated in U.S. for determining compliance.”**

# PM CEMS - Extortion?

- ◆ **EPA's Office of Enforcement is including installation of PM CEMS in NSR settlement offers.**
- ◆ **Consent Degrees requiring PM CEMS include Tampa Electric (1 unit), plus recent Dominion Energy (3/6 units) and WE Energy (10 units) agreements.**

# Outstanding Technical Issues

- ◆ **Available technology - what do these instruments actually measure?**
- ◆ **Routine calibration - how?**
- ◆ **PM stratification at testing location (e.g., how to determine, how to handle).**
- ◆ **Reference Method limitations (e.g., low concentrations, wet stacks, etc.).**

# Potential for Collaboration

- ◆ **Conducting RM5 testing in wet stacks with low mass concentrations to calibrate PM CEMS raises serious questions.**
- ◆ **EPRI is interested in forming a group to conduct joint research to address the RM testing issues (e.g., precision, accuracy, and stratification) .**