

**Boiler/Process Heater NESHAP Proposal**  
**API/NPRA Key Issues**  
**January 28, 2011**

- Boiler/process heater regulations should be consistent with an objective of improving U.S. manufacturing energy efficiency, global competitiveness, and minimizing the loss of jobs.
  - EPA's analysis shows that, despite the high costs, there are essentially no emission or health benefits from the imposition of the proposed requirements for gas-fired units.
  - The costs of this proposal are significantly underestimated and would be further exacerbated if numeric emission limits are applied to natural gas and refinery fuel gas-fired units.
  - Many gas- and oil-fired units subject to numerical emission limits under the proposal have no demonstrated path to compliance; the limits are technically unattainable or not viable economically (Attachment 1). The inability of a single process heater in a production process to meet the standards would cause the entire process to shutdown.
- Good combustion work practices are the appropriate standard for all gas-fired units since the combustion and emission characteristics of all gas-fired units are similar. Such work practices should be extended to units firing gases other than natural gas and refinery gas, particularly to units firing fuel gas from chemical operations. Chemical and refinery fuel-gas systems are often integrated at major sites and some chemical processes are present in some refineries as well as in chemical plants.
  - A work practice, similar to the proposal but focused on optimizing combustion efficiency, is legal and appropriate for all gas-fired units and is consistent with State requirements.
- Application of the excessively low numerical CO limits in the proposal for liquid- and some gas-fired units and using the proposed work practice to minimize CO regardless of the impact on combustion will result in less efficient operation of boilers and process heaters, thereby increasing CO<sub>2</sub>, NO<sub>x</sub> and other emissions, and provide no benefits. (Attachment 2)
  - CO is a good surrogate for HAP destruction down to a range generally above the optimum operating point for boilers/process heaters; further CO reduction provides little/no added benefit. (Attachment 3)
- The oil subcategory should be divided into separate subcategories and the special case of island and remote refineries addressed.
  - Without relief, island refineries with no natural gas availability face severe economic consequences.
- The proposal to impose a facility-wide energy assessment and on-going management system through this rulemaking is not practical, overstates benefits, and understates costs.

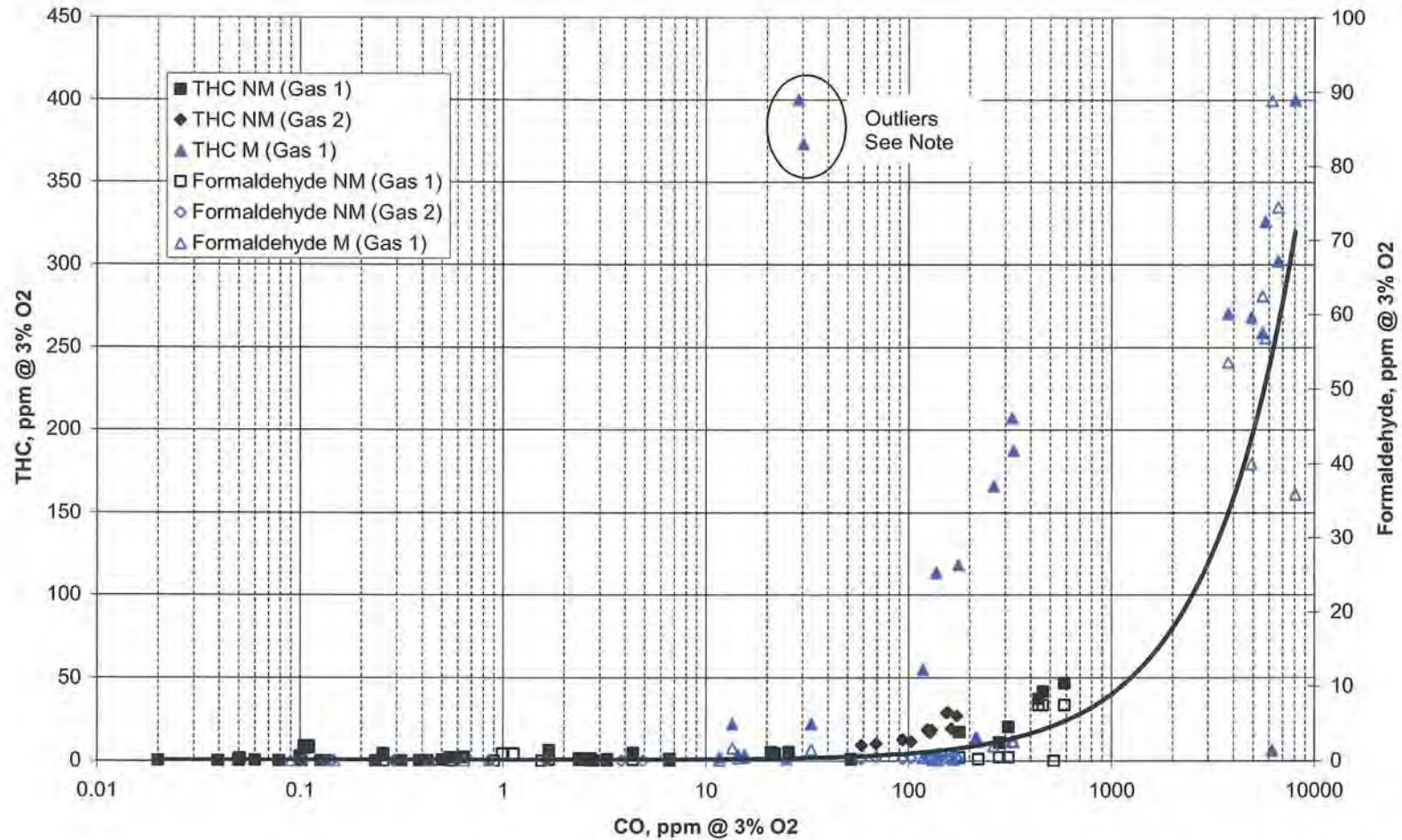
We suggest OMB consider the following questions relative to gas-fired sources when evaluating the final rule:

1. What will be the increase in fuel consumption (i.e. reduction in efficiency) that will occur if boilers/process heaters are required to meet CO levels below the optimum energy efficiency level?
2. What will be the emission impact of the proposal on greenhouse gas, hazardous air pollutant and criteria pollutant emissions due to non-optimum operation and the impact of add-on controls?
3. What will be the health impacts of the proposed limits due to those emission increases (e.g. NO<sub>x</sub> and ozone formation, HAPs)?
4. What is the evidence that existing gas-fired units have a demonstrated path to continuous compliance even when controls are applied?

### Attachment 3

## THC and Formaldehyde Emissions for Gas 1 and Gas 2 Fuels Versus CO

All (including metal furnaces)



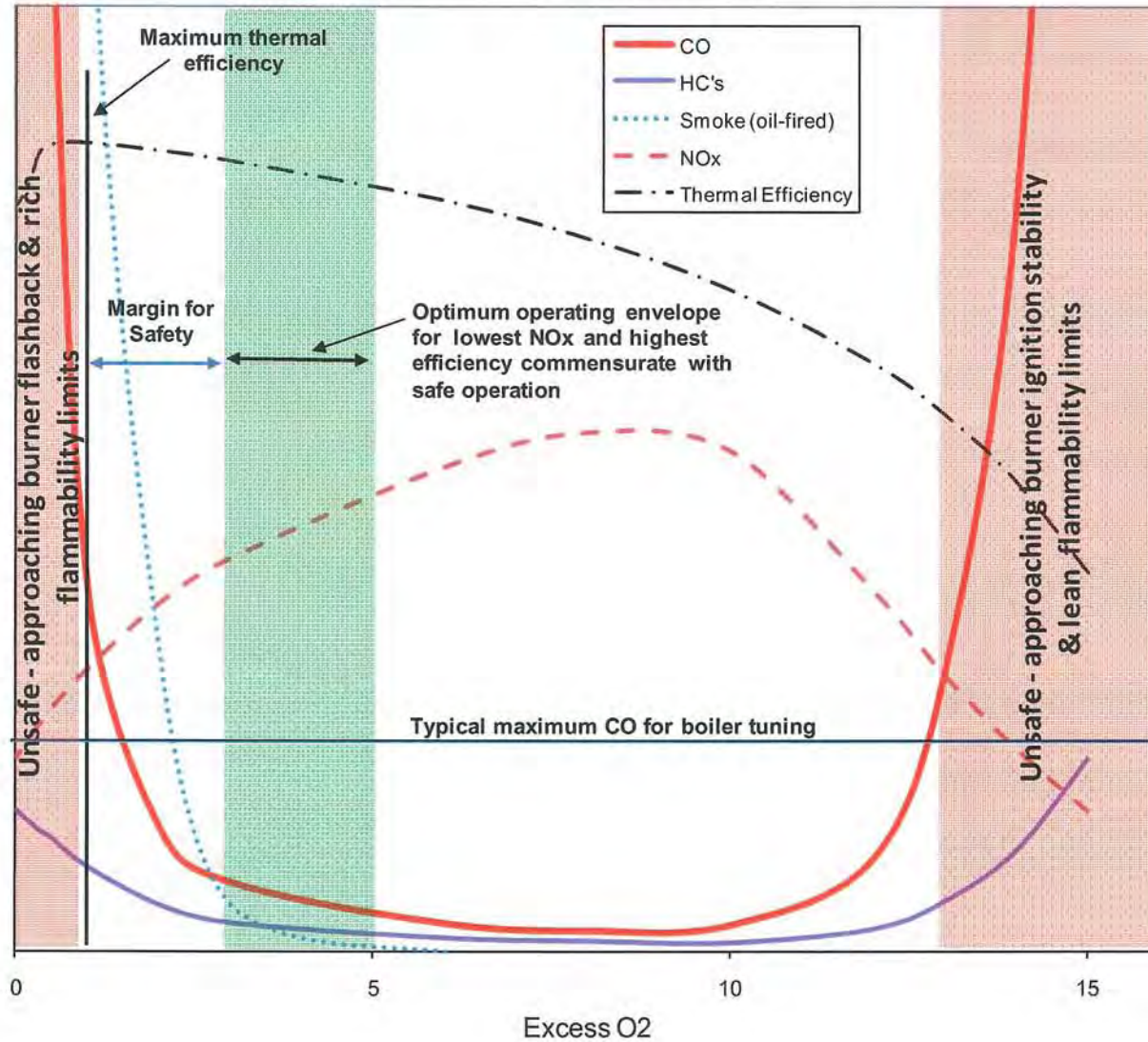
(EPA ICR database, version 5).

Note: The 2 data points with THC concentration far higher than the other data in this region are clearly outliers, seen in Figure 3 for Gas 1 M at CO concentrations of approximately 30 ppm and THC levels of 370-400 ppm. These results are for a natural gas-fired aluminum preheating furnace, and the elevated THC concentrations correspond to test runs performed at times during the latter part of the batch cycle where the burners operate at very low load. While not unusual for metal furnaces, this operational duty cycle is not typical of most other types of indirect-fired boilers and process heaters; therefore these two data points were excluded from the analysis.

## Attachment 2

### Typical Relationships between CO, Hydrocarbons, NOx, and Efficiency with Excess Oxygen

#### Typical Boiler or Process Heater

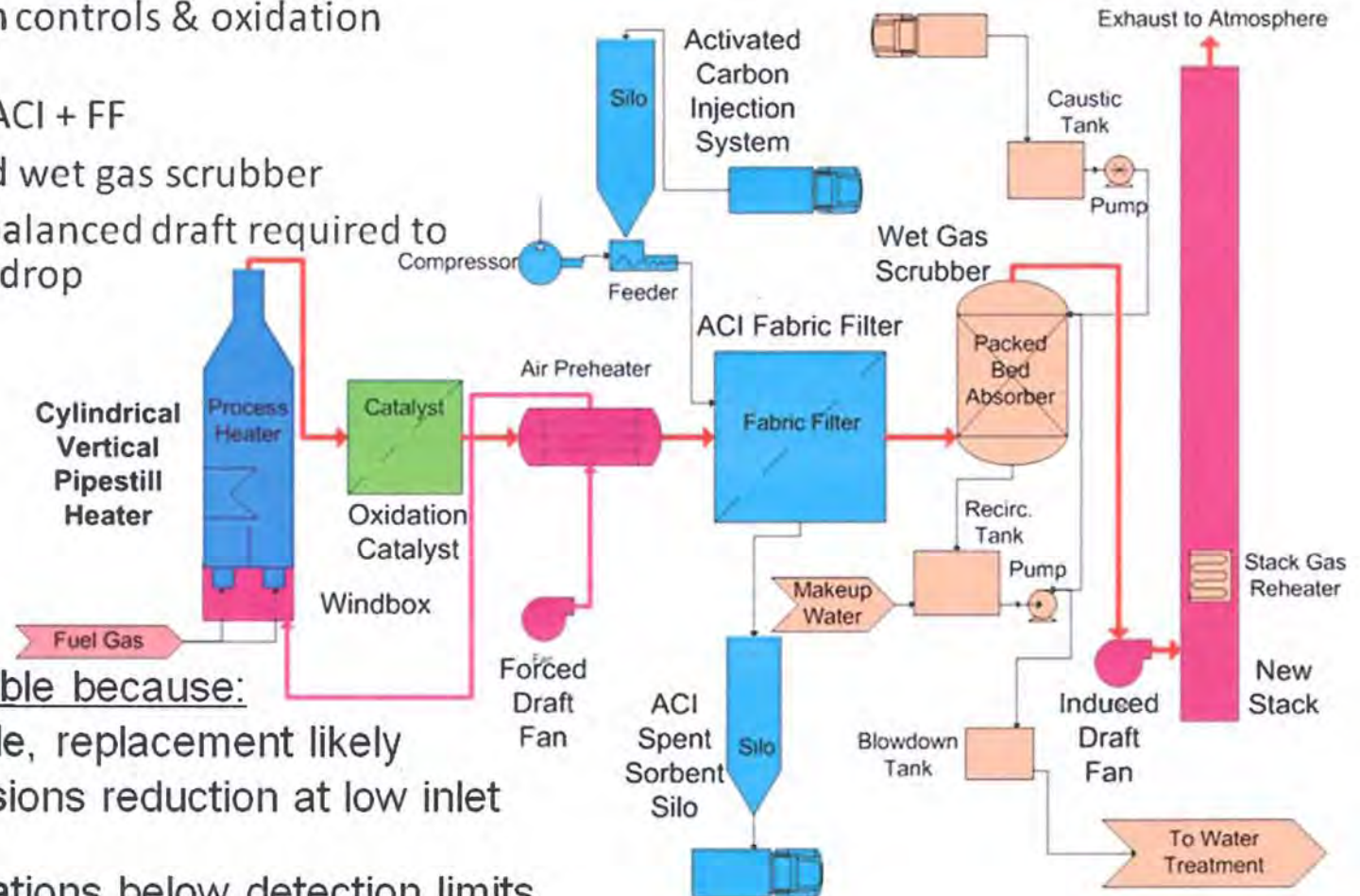


# Attachment 1

## Process Heater with Potential MACT Emission Controls

No Guarantee Controls Will Meet Numeric Emission Limits

- CO: combustion controls & oxidation catalyst
- Hg, D/F & PM: ACI + FF
- HCl: packed bed wet gas scrubber
- Conversion to balanced draft required to offset pressure drop



### Technically infeasible because:

- Retrofit infeasible, replacement likely
- Unproven emissions reduction at low inlet concentrations
- Outlet concentrations below detection limits
- Increased energy, water consumption