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News Bits:

Lipten is providing combustion control system upgrades to four boilers at the General Motors Willow Run Plant.



Lipten has completed the renovation of two thermal oxidizers for the Owens Corning Trumbull facilities in Jacksonville, FL and Oklahoma City, OK.



Lipten has been awarded a contract by Daimler Chrysler to provide fuel flow monitoring at its Detroit Axle Plant in Detroit, MI.



New Packaged Boilers for Wheeling Pittsburgh Steel Coke Plant

Follansbee, WV. – Lipten Company was awarded a contract for the supply and coordination of capital equipment for Wheeling Pittsburgh Steel’s Follansbee Coke Plant Pow-

agement systems. This equipment will provide the basis for additional steam production required by Wheeling Pittsburgh Steel’s production process.



One of the new Boilers being loaded at factory



New COMBUSTION PAC control panel

erhouse. Within this scope, Lipten provided two 73,000 pph superheated package boilers, each with a dual fuel burner (coke oven gas and natural gas), a 320,000 pph deaerator, two combustion air fans (one

This project was unique in that coke oven gas is utilized as the primary fuel for boiler firing while natural gas is the backup fuel. Coke oven gas is



Coke oven gas & natural gas valve train



Dual drive combustion air fan

with electric/steam dual drives), two dual fuel valve trains and two Lipten *Combustion Pac* burner man-

yielded as a by-product during coke production, and consists of hydrogen, methane and carbon monoxide. Due to sporadic coke production sched-

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Lipten Launches the **COMBUSTION PAC** Line

Wixom, MI — Lipten has supplied its unified PLC based boiler management system / combustion control panel for over 200 applications in a time period spanning more than twelve years. What started a revolution in integrated burner management controls now has its own identity — **COMBUSTION PAC**.

This control system takes the lead in providing industry standard PLC controls to combustion applications with full NFPA 85 code compliance. The color touchscreen display gives full access to all boiler operating controls as well as complete status monitoring.



FEATURES

- Single Point Positioning, Parallel Positioning or Full Metering
- Cross-Limited Full Metering
- Display provides complete real time status of boiler
- Embedded trend graphs
- Tune fuel/air ratio for optimum combustion control
- Standard PLC components
- Ethernet Communications & PC Monitoring

BENEFITS

- Reduced Emissions
- Fuel efficiency
- Safety
- Data Availability

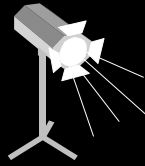
Contact us to learn more about the **COMBUSTION PAC** control system.



Did you know ...?

In the midst of the debate concerning greenhouse gases and global warming, GRASS has become established in Antarctica. Scientists have reported that broad areas of grass are now forming turf where there were once ice-sheets and glaciers.

As reported in *The Australian*, 12/27/04



Spotlight On ... **Lipten's Home Office**



Fran Dorland
Chief Financial Officer
Human Resources Director

When it comes to financial matters, Fran is Lipten's point person. From payables to receivables, and everything in between, Fran watches over all. And, if that doesn't keep her busy enough, there are always those other matters of insurance, payroll and employee benefits.

Fran has been with the Lipten Company for over 20 years. She started as secretary to Lipten's founder Sy Lipten when the company was known as Sy Lipten and Associates. As the company evolved, so did Fran's position to her current role running the accounting department and overseeing all aspect of our human resource matters.

Prior to working at Lipten, Fran was an administrative assistant at Tretco and an assistant to a senior partner of a law firm.



Rosemary Macek
Office Manager

Rosemary is usually the first person you'll talk to when you telephone Lipten. But, that is hardly where her talents end. At any give time, she may be preparing invoices, filing, assembling manuals or issuing transmittals. Rosemary's multi-faceted office skills make her an invaluable asset to the Company.

Rosemary started working for Lipten Company in June of 1996 on a part-time basis as an office clerk. Her duties expanded to full-time in July of 1998 and her role in the company has expanded to her current position as Office Manager.

Rosemary's employment history includes exemplary work at Michigan National Bank, the City Treasurer's Office for the City of Saginaw, K-mart Corporation and Employee Benefit Concepts, Inc.



MACT Evaluation Example

The supplement included with this newsletter provides a comprehensive discussion of the new MACT requirements issued by the EPA. Given the significance and urgency of these new requirements, the following example is presented to provide insight on how a facility implements the new standards.

An Industrial client has identified that the emissions from their coal-fired boilers will not meet the requirements of the new NESHAP and Boiler MACT rule. The client initiates a study to determine what options are available. Based on the results of the study, the client determines that there are five compliance alternatives available to meet the necessary standards:

1. Upgrade the existing boilers with additional air pollution control equipment
2. Convert the existing boilers to natural Gas / coal co-firing
3. Convert the existing boilers to natural gas firing only
4. Replacement of the existing boilers with natural gas fired package boilers
5. Shut down the boilers and eliminate the facility's requirement for steam

Each alternative is evaluated to determine the optimal solution. The evaluation includes the analysis of the technical benefits as well as the capital costs, operating and maintenance costs, fuel costs, and electricity costs, all of which contribute to pros and cons of each solution.

In this example, it was not possible to eliminate the need for steam. The boilers were in excellent operational condition, but there was no room for new dust collection or other flue gas treatment equipment. The best solution was determined to be the conversion of the boilers to natural gas only firing with a complete control system upgrade.

With the direction of the project established, a project schedule was developed:

Develop The Budget - January 3, 2005 to March 4, 2005

Project Approval – March 7, 2004 to April 15, 2005

Engineering - April 18, 2005 to September 12, 2005

Equipment Procurement – June 20, 2005 to July 15, 2005

Equipment Deliveries – July 18, 2005 to November 18, 2005

Site Installation – September 12, 2005 to August 4, 2006

Environmental Certification – August 14, 2006 to September 15, 2006

As can be seen, a reasonable and prudent schedule beginning the first of the year, 2005 puts the MACT compliant system in place scant months before the 2007 regulatory deadline. For facilities management, what this means is there is no time to waste to begin investigating the impact the new MACT standards will have and make plans for bringing their boilers into compliance.



Lipten Company hopes you have found these articles regarding the new MACT informative and beneficial. We are ready with our team of knowledgeable engineers and technicians to answer your questions and assist you in any or all phases of MACT implementation. Contact one of our sales offices or representatives to discuss our full range of design and installa-

LIPTEN COMPANY

28054 Center Oaks Ct.
Wixom, MI 48393

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ules, the resulting gas may be off-line for certain periods. Thus, natural gas can be subsequently fired to insure steam production is not interrupted.

All equipment deliveries were coordinated for arrival at site the beginning of December 2004. Installation and tie-ins to the existing infrastructure is under way with startup early 2005.

Lipten would like to thank the following organizations for their assistance in making this a successful project:

- Paul Reiter, Thermal Power Products, Inc.
- Babcock & Wilcox Package Boiler Business Group (boilers)
- Bloom Engineering (burners & fuel trains)
- Sheldon Engineering (combustion air fans)
- Ecodyne Limited (deaerator)



LIPTEN

Hands-on EPC Energy Solutions

Corporate Office

28054 Center Oaks Ct. Wixom, MI 48393
Phone (800) 860-0790
Fax (248) 374-8906
www.lipten.com

Coastal Office

98 Guinea Road, Monroe, CT 06468
Glen Altpfart, Regional Operations Manager
Phone (203) 452-7117 Fax (203) 452-7017
galtpfart@lipten.com

Midwest Office

28054 Center Oaks Court, Wixom, MI 48393
Jim Marshall, Regional Operations Manager
Phone (248) 374-8910 Fax (248) 374-8906
jmarshall@lipten.com

Lipten Energy Canada, Inc.

561 Duncan Ave., Greenfield Park, QC J4V 1E4
Paul Henry, Regional Operations Manager
Phone (450) 676-3222 Fax (450) 676-5997
pherry@lipten.com

Find us on the web at www.lipten.com

*The Lipten Letter is published periodically by Lipten Company
Edited by Frank Hrlie - fhrlie@lipten.com*

How will the Industrial Boiler MACT Affect your Facility?

A special supplement to the Lipten Letter

DECEMBER 15, 2004

The 2007 deadline for the new MACT Standards is just three years away. Industrial Boiler Owners need to Plan their strategies NOW to meet the EPA's National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers and Process Heaters, or more simply, "Boiler MACT."

The great interest in the regulation is in part due to how many facilities it will affect. EPA's own estimates indicate that nearly 62,000 sources will be affected at a national cost impact of \$1.8 billion in capital expenditures and up to \$860 million in annual operating costs. The costs would be lowered slightly depending on the number of facilities able to comply using the health-based alternatives.

Those of you who have been tracking the development of this regulation are probably wondering what changed from the proposed rule published on January 13, 2003. If you are just now learning about Boiler MACT your main concern is likely does this affect me and if so, how? Either veteran or novice, no one is going to be terribly excited about slogging the 351 pages of the recently signed rule to discern the intricacies of the final Boiler MACT. This article is an attempt to summarize the main points in the final regulations and highlight changes from the proposed rule.

The Basics

Let's begin with the basics. The EPA was required by Congress per the Clean Air Act Amendments (CAAA) to establish NESHAP standards applicable to major sources of hazardous air pollutants (HAPs) for specific source categories. These categories include, among others, industrial, commercial and institutional boilers, and process heaters. Major sources of HAPs are facilities that have the ability to emit more than 10 tons per year of a single HAP or 25 tons of multiple HAPs. The CAAA requires NESHAPs to reflect the maximum degree of reduction in emissions of HAPs that is achievable considering cost, non-air quality health and environmental impacts, and energy requirements.

This level of control is considered "Maximum Achievable Control Technology", thus the term "MACT" was derived. The minimum level of emissions control for existing sources is referred to as the "MACT floor." The MACT floor is based on the emission levels achieved by the best-performing 12 percent of existing sources for the source category. For new sources, new is defined as a unit installed after the Boiler MACT was proposed on January 13, 2003. The MACT floor for new sources cannot be less than the emission control currently achieved at a best-controlled similar source.

Pollutants of Concern

The pollutants identified and limited by the final regulation have not changed from the proposal. What has changed is a recognition that the predominate HAP emitted by boilers, hydrogen chloride (HCl), does not pose a great health risk. The potential emissions of HCl are one of the main reasons many coal-fired boilers are considered major sources of HAPs. In addition to

HCl industrial boilers emit hydrogen fluoride, chlorine, metals (arsenic, cadmium, chromium, mercury, manganese, nickel, and lead), and organic HAP emissions (mainly formaldehyde, benzene, and acetaldehyde).

The final rule allows a source to demonstrate compliance with either Particulate Matter (PM) or Total Selected Metals (TSM) limits. This has not changed from the proposed rule and is intended to recognize that depending on the fuel being used, a source may have particulate emissions at levels warranting control, but very little, if any, heavy metal emissions. For organic HAP, the surrogate remains carbon monoxide (CO). CO is a good indicator of incomplete combustion and thus provides a direct correlation to the formation of organic HAP emissions. HCl continues to be the chosen surrogate for inorganic HAP (acid gases). The EPA has determined that the best controls of HCl are also the best control for other inorganic HAPs.

Large vs. Small, Gas vs. Liquid...

When most of us consider a large boiler we tend to have something grander in mind than 10 MMBtu/hour, but not the EPA. The definition of large in Boiler MACT is a boiler with a rated capacity greater than 10MMBtu/hour. This definition was not changed from the original proposal. The definition of small includes firetube boilers of any size in addition to all boilers and process heaters with capacities less than or equal to 10 MMBtu/hour.

In the proposed regulation, a gaseous fuel-fired source was limited to units where gas was the only fuel option. The final rule allows for liquid fuels to be used for periods of natural gas curtailment or gas supply emergency without reclassification of the source to liquid fuel-fired.

A limited use definition is specific to large sources with capacity utilization less than or equal to 10 percent. The capacity limitation, in order to qualify for limited use status, must be part of a federally enforceable permit.

The Ups and Downs

The emission limitations as originally proposed in January of 2003 remained fairly constant, with only slight tinkering here and there. One of the most notable differences is the emission limit for mercury from existing sources which went from 0.000007 to 0.000009 lbs/MMBtu.

Opacity

The proposed rule required that the opacity operating limit be set based on the initial performance test. The EPA agreed with commenters that this method was not appropriate for this source category. The opacity limit for existing sources in the final rule is consistent with opacity limits defined in the New Source Performance Standards for industrial boilers (20 percent). The final rule requires new/reconditioned sources to achieve less than or equal to 10 percent opacity (based on 1-hour block averages). The EPA established the new/reconditioned source requirements based on the lowest opacity level currently applicable to industrial boilers in State regulations.

Demonstrating Compliance

One aspect of the final rule is the incorporation of additional compliance options. Large solid fuel-fired boilers can take advantage of the health-based compliance alternative for HCl as well as emission averaging between sources (existing sources where States allow). A facility may also choose to demonstrate compliance using fuel pollutant content as opposed to stack testing requirements (no change from the proposal). The final rule also includes an alternative compliance method for TSM (Total Selected Metals) where manganese is excluded.

Testing and Initial Compliance Requirements

Either initial stack testing or an initial fuel analysis is required to demonstrate compliance with any applicable emission limits. On-going compliance is demonstrated by annual stack tests or fuel sampling. New liquid fuel sources may sign a compliance status report instead of performing initial and annual compliance testing if no residual oil is used.

Part of the initial compliance demonstration includes establishing the operating parameters for either the add-on control equipment, fuel parameters, monitoring criteria, or averaging method.

Continuous Compliance Requirements

Demonstrating continuous compliance typically requires continuous emission monitors (CEMs). In some instances the final rule does contain compliance options other than CEMs. For example, where a fabric filter is used to achieve compliance with a PM or TSM limit, a bag leak detection system is acceptable in lieu of an opacity monitor.

The final rule allows sources with heat input capacities greater than 10 MMBtu/hour, but less than 100 MMBtu/hour, to conduct initial and annual compliance tests to demonstrate compliance with the CO limit. Sources greater than 100 MMBtu/hour must still demonstrate compliance using CO CEMs.

Where the facility is using the fuel pollutant content as the method for demonstrating compliance, detailed fuel use records must be kept that demonstrate that no new fuel types or new mixtures have been used. If a new fuel type or mix is proposed, the maximum pollutant input must be calculated to show that the level will not exceed the level measured during the initial compliance test. A new performance test will then be required prior to a new fuel or fuel mix being allowed.

Notification, Recordkeeping and Reporting Requirements

An initial notification report is the only required submittal for existing large gas, existing limited use gas, existing large liquid, and new liquid fuel-fired sources. The notification is required to be submitted no later than 120 days after the date of publication of the final rule in the Federal Register. If your boiler or process heater is an existing small gas, liquid, or solid fuel unit, or a new small gas fuel source you are not required to keep any records or submit any reports.

If your boiler or process heater is in any of the other categories not specifically mentioned in the preceding paragraph, you are required to complete a initial notification report as well as keep records such as hours of operation, fuel usage, supporting calculations; continuous monitoring data; and a written startup, shutdown, and malfunction plan; as well as several other reports and records as detailed in the final regulation.

Odds and Ends

The final rule specifically excludes existing small gaseous fuel, liquid fuel, and solid fuel sources from any requirements.

Fuel type is defined in the final rule as each category of fuels that share a common name. A few examples are biomass, tires, and bituminous. Individual fuel types from different suppliers are not considered new fuel types. This is not the case for construction and demolition

material where a new supplier would be considered a new fuel type.

Temporary boilers are not subject to the regulation. The final rule defines temporary boilers as any gas or liquid fuel-fired boiler that does not remain at a location for more than 180 consecutive days. A temporary boiler replacing another temporary boiler, intended to perform the same function, will be included in calculation of the consecutive time period.

Waste heat boilers are not subject to the final rule. The final rule clarifies that if a boiler has duct burners, or supplement burners, designed to supply 50 percent or more of the total rated heat input capacity, it cannot be considered a waste heat boiler.

The final rule does not allow data averaging for compliance demonstration using data recorded during periods where any of the following are occurring: the boiler or process heater is operating less than 50 percent of its rated capacity, monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities. All other data collected from other periods must be used for data compliance.

Compliance Date

New or reconstructed sources must be in compliance as of the publication of the final rule in the Federal Register (expected early March 2004) or upon startup, whichever is later. If a facility is not currently a major source of HAPs but increases its emissions of HAPs to major sources thresholds, new/reconstructed sources must be in compliance with the final Boiler MACT at their startup and existing sources will have three years to be in compliance from the date the area source became major for HAPs.

Although requested by many commenting on the proposed rule, the final rule did not include an extra year extension for compliance. The CAAA allows EPA, or delegated permitting authority, on a case-by-case basis to grant an extension if it is shown that the additional period is necessary for the installation of controls. The procedures for requesting an extension are part of the general rule provisions 63.6(i) – (14). The general provisions also include a Presidential compliance exemption 63.6(j).

The final rule extends the compliance demonstration date for 180 days from the compliance date. For new or reconstructed sources installed after January 13, 2003, the date compliance would be required to be demonstrated is 180 days from the final rule Federal Register publication date. Existing sources will have 180 days starting 3 years after the Federal Register publication date to demonstrate compliance.

Further Reading

This article is intended to summarize the final Boiler MACT rule and highlight some of the differences from the proposed rule. Please refer to the entire text of the regulations to determine the requirements specific to your affected source. A copy of the final rule is available at www.epa.gov/ttn/atw/boiler/boilerpg.html. If you have any questions, or would like a specific review of what this rule means to your operation, please contact Lipten Company at either lipten@lipten.com or (800) 860-0790.