

AHM SAN JOAQUIN AIR QUALITY DISTRICT

AHM Helps Users Meet New Rules

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This newsletter provides specialized information to our customers in the San Joaquin Valley Air Quality District on new proposed changes to Rule 4320.

The provisions of these rule changes apply to any boiler, steam generator, or process heater with a rated heat input capacity equal to or greater than 5 MMBtu/hr.

The rule limits NOx and CO emissions, and has requirements for monitoring, recordkeeping, and test methods.

AHM Associates, Inc. provides our customers with the engineering expertise and products to meet all the new regulations in the most efficient and cost effective way.

Not sure how to meet the new rules?? Backend SCR?? New boiler?? Combustion controls?? Ultra Low NOx burners?? Improved efficiency??

Let AHM review your system to make the correct and most economical choice for your plant

AHM Associates, Inc. Products Help Users Meet New Rules

- Low NOx Burners
- SCRs
- Condensing Economizers
- Firetube Boilers
- Watertube Boilers
- Combustion Controls

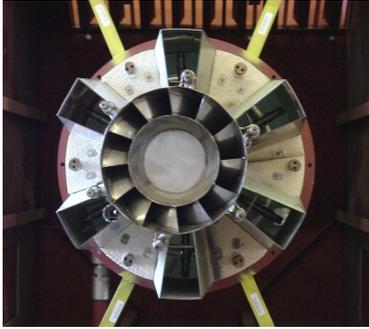
San Joaquin Valley's New Rule 4320

Category	NOx Limit	Authority to Construct	Compliance Deadline
> 5.0 to < 20.0 MMBtu/hr	Standard Schedule 9 ppmv	6/1/2011	6/1/2012
	Enhanced Schedule 6 ppmv	1/1/2013	1/1/2014
> 20.0 MMBtu/hr	Standard Schedule 7 ppmv	7/ 1/2009	7/1/2010
	Enhanced Schedule 5 ppmv	1/1/2013	1/1/2014
Oilfield Steam Generators >20.0 MMBtu/hr	Standard Schedule 7 ppmv	7/1/2009	7/1/2010
	Enhanced Schedule Initial Limit 9 ppmv	7/1/2011	7/1/2012
	Final Limit 5 ppmv	1/1/2013	1/1/2014
	Final Limit 9 ppmv	1/1/2013	1/1/2014

Also Note:

- This rule applies to all boilers, steam generators and process heaters.
- All units need to have a continuous emissions monitor or approved equal.
- The CO (Carbon Monoxide) limit shall not exceed 400 ppm.

MacPherson Achieves 5 ppm NOx



Oil field steam generators in the Bakersfield, CA need to meet the San Joaquin Valley emission requirements of single digit NOx levels. Recently, MacPherson in Bakersfield retrofitted a steam generator with Coen's new **Ultra Low NOx** burner.

The user wanted to meet strict NOx levels with minimal Flue Gas Recirculation (FGR), while operating with low excess air levels and using conventional burner controls.

The **Coen Ultra Low NOx** burner provides low-NOx with low excess air, low FGR rates, and uses conventional burner controls.

Low FGR rates and low excess air mean increased thermal efficiency and reduced overall operating costs. Coen Company's Ultra-Low-NOx techniques enhance the overall stability of the burner, which allows the use of conventional burner controls.

The startup results were substantially below the new emission regulated limits.

- **LOW-NOx** - NOx set for < 9 ppm and demonstrated as low as 5 ppm
- **LOW-CO** - CO emissions were less than 10 ppm
- **LOW EXCESS AIR** – 15% excess air or lower.
- **LOW FGR RATE** – Only 20% FGR needed
- **ST'd CONVENTIONAL CONTROLS** – Used existing control system.

Cedars Sinai M.C. Reduces NOx with SCR to <3



Cedar Sinai M.C., a world renowned facility, focuses on research and technologically advanced medical care. Facility infrastructure improvements receive the same world class decision making.

Now, the hospital's three 35 MMBtu/Hr watertube boilers, currently operating at 30 ppm NOx, face new limits from SCAQMD Rule 1146. The hospital is also required to provide a back-up fuel to meet < 40 ppm NOx on Amber 363.

After reviewing several technologies, the hospital selected **the Peerless Green Machine SCR**, which is used by virtually all hospitals with SCRs in the SCAQMD area.

This is important in meeting the strict OSHPD review process while providing high reliability required at a hospital. SCR maintenance, another strong consideration, requires little day to day care. The catalyst, designed with small blocks, is

easily inspected or replaced without the need for heavy equipment.

While the SCAQMD Rule 1146 required a NOx limit of 9 ppm, the hospital specified NOx levels of 5 ppm.

Peerless actually designed their Green Machines to produce less than 3 ppm NOx, which will provide some margin in the case of future regulatory tightening. The Peerless SCR allowed the boiler to maintain its wide turndown range of up to 8:1.

Tomatek Achieves <5 ppm with Coen

"Coen designs <5 ppm Ultra Low NOx Burner to meet future NOx regulations."

California's Central Valley Air District allows users to miss the deadline for meeting 9 ppm NOx if they agree to meet a level of 6 ppm at a later date.

In order to meet 6 ppm NOx requirement, a new burner operating at 5 ppm needed to be developed. The application involved the retrofit of two (2) 80,000 lb/hr "D" style package watertube boilers.

To meet the customer's needs, a **Coen Cell-Rapid Mix Burner (C-RMB™)** was developed, which consists of two smaller 50 MMBtu/Hr burners operated in unison.

Coen designed a vertical configuration of one over one to meet the required capacity, maintain the fully swirling flow through each burner, and fit the boiler geometry.

No boiler modifications were required to allow operation at 5 ppm, and the burners were installed in the existing wind-box. A new burner management and combustion control system was installed to allow precise control of fuel, air, and FGR during operation.

The burners operated at <5 ppm NOx in automatic with a three minute ramp rate from 20% to 100% firing rate.

Heinz Recoups Heat from Flue Gas

With rising fuel prices, Heinz decided to investigate new technologies to improve efficiency by recouping heat from the high temperature stack flue gas.

By adding state-of-the-art heat exchange and recovery technology, Heinz could capture valuable waste heat energy from the exhaust gases to reduce significantly their natural gas use while heating process water essential to their food processing operation.

Heinz decided to install a **Condex Condensing Heat Exchanger** on their new 350 HP boiler.

The patented "Reverse Flow" condensing economizer maximizes condensing heat recovery and keeps the condensing section completely separate from boiler stack while maintaining extremely low pressure drop. Getting utility rebates made the project

The Results

- Recovers 1,264,000 Btu/hr.
- Yearly savings \$105,900
- Annual CO₂ Emissions reduction: 732 tons/year
- Annual Water Recovery: 544,530 Gallons per year
- Received PG&E rebate for improved efficiency



Scripps Mercy Hospital Lowers NOx <6

Scripps Mercy Hospital with campuses in San Diego and Chula Vista is known for providing outstanding care. They are now in the midst of a major expansion, which includes a complete new central steam plant that must meet the NEW strict Seismic regulations.

The initial plan called for the existing older style 350 HP dryback firetube boilers to be relocated from the old facility to the new central steam plant.

The hospital compared the cost of moving the older boiler with new Ultra Low NOx Controls against providing a new Superior Super Seminole boiler with factory packaged S.T. Johnson NOxMatic Ultra low NOx Burners.

The higher EFFICIENCY provided by a new Superior wetback design and advanced controls allowed the hospital to qualify for generous rebates, which helped offset the cost.

After a thorough economic evaluation, the hospital selected the new 350 HP Superior boiler with Ultra Low NOx Burners. In 2010, the boilers were emission tested by the local Air District.

As quoted from the installing contractor; "The boilers passed with flying colors, the NOx emission was less than 6 ppm through the tested firing range. There was virtually no CO in the exhaust as well."



New Burner Meets New San Joaquin NOx Rules

Since 1903 the S.T. Johnson Company quietly led the worldwide combustion industry in innovation. The latest innovation is the current NOxmatic® burner, which provides single digit NOx performance without any FGR.

The NOxmatic is widely used in the San Joaquin AQMD to meet all the new stringent retrofit requirements of recent NOx rules.

The NOxmatic provides a high performance axial flow burner design that creates the most stable, compact, quiet, and energy efficient ultra low NOx burner in the market.

The innovative design features full premix combustion, which inherently yields extremely low NOx emissions, coupled with a metal fiber mat firing head to deliver single digit NOx and very low CO, without using any FGR.

The burner's straight forward design, stable combustion and simple linkage-less combustion controls allows for fast start ups allowing users to achieve compliance practically "out of the box".

The swing-open housing allows easy access to all components for ease of service and maintenance. A variable speed blower package supplied as standard equipment further enhances efficiency and performance.



About AHM Associates, Inc... ..:

AHM Associates, Inc. is a manufacturer's representative that has served the territories of California, Nevada, Arizona and Hawaii since 1956. With offices conveniently located in Northern and Southern California, we are able to address combustion, power plant/boiler room, air pollution control and monitoring requirements.

AHM Represents the Following:



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RECIPIENT NAME

COMPANY NAME

STREET ADDRESS

CITY, ST, ZIP CODE