

**FACT SHEET  
COKE OVEN NESHAP**

**WHAT ARE COKE OVEN EMISSIONS?**

- ◆ Coke is used in blast furnaces for the conversion of iron ore to iron, which can be further refined to produce steel. The conversion of coal to coke is performed in coke oven batteries. A battery consists of a group of ovens connected by common walls.
- ◆ Coke oven emissions are among the most toxic of all air pollutants. Emissions from coke ovens include a mixture of polycyclic organic matter, benzene, and other chemicals that can cause cancer. Occupational exposure studies of coke oven workers have shown statistically significant excess mortality from cancers of the respiratory tract, kidney, and prostate and all cancer sites combined.
- ◆ At the current level of control, coke oven batteries emit an estimated 1660 MG/yr of coke oven emissions (810 MG from doors, lids, offtakes, and charging; and 850 MG from by-pass stacks).
- ◆ The risk of contracting cancer for the population exposed to coke oven emissions is high. The risk to an individual exposed to the maximum concentration (maximum individual risk) ranges from 1 in 10,000 to 1 in 100 with more than half the facilities having a maximum risk greater than 1 in 1,000.

**REGULATORY BACKGROUND**

- ◆ EPA and states have long been concerned about the health effects associated with coke oven emissions.
- ◆ EPA initiated a regulatory examination of coke oven emissions in the late 1970's and proposed a regulation to control these emissions in 1987.
- ◆ EPA and the Administration worked with Congress to develop new provisions to control coke oven emissions in the Clean Air Act Amendments of 1990. In the Amendments, Congress recognized the significant health effects associated with coke oven emissions.
- ◆ The new coke oven standards were proposed in the Federal Register on December 4, 1992. The 1987 proposal was withdrawn.
- ◆ A public hearing was held in Philadelphia, PA on January 15, 1993 to allow participation by local citizens who requested

the public hearing.

- ◆ A total of 61 comments were received and considered in developing the final standard.

#### CLEAN AIR ACT AMENDMENTS OF 1990

- ◆ The Clean Air Act Amendments of 1990 include sweeping and complex provisions to limit emissions from both new and existing coke ovens.
- ◆ The Amendments require EPA to issue by December 31, 1992 coke oven emissions standards for maximum achievable control technology (MACT) for new and existing sources, and an even tighter control limit called "lowest achievable emissions rate" (LAER) for certain existing sources to be promulgated by December 31, 1992. The coke oven MACT and LAER standards will establish emission limits for a variety of different aspects of coke oven facilities, including coke oven doors, lids, offtakes, and seconds of charging.
- ◆ The Clean Air Act also requires EPA to issue "work practice standards" with Industry compliance by November 15, 1993, and so-called "residual risk" standards by November 15, 2000. These residual risk provisions require EPA to examine the remaining risk to the public after technology-based standards are imposed and to further reduce emissions, if appropriate.
- ◆ The coke oven emissions standards apply to all new and existing facilities that produce coke. The Amendments allow the coke oven industry a choice of two tracks of compliance. We call these tracks the "LAER" extension track and the "MACT" track.

**LAER EXTENSION TRACK:** Affected companies can elect to qualify for an extension of compliance with the "residual risk" standards beyond the 01/01/03 compliance date by doing the following:

- Comply with Clean Air Act limits by 11/15/93
- Comply with LAER limits by 01/01/98
- Comply with revised LAER limits by 01/01/10
- Comply with residual risk standard by 01/01/20

**MACT TRACK:** Companies can elect not to defer compliance with residual risk standards. These ovens must:

- Comply with existing source MACT limits by 12/31/95.
- Comply with residual risk standard by 01/01/03.

- ◆ Companies commencing construction of their ovens after December 4, 1992 (proposal date) must meet New Source MACT requirements, except for replacement capacity.

### REGULATORY NEGOTIATION

- ◆ EPA has made widespread use of consultation in developing rules under the Clean Air Act. In some rulemakings including coke oven emissions, EPA has used formal regulatory negotiation, where parties negotiate and sign a formal agreement that becomes the basis for EPA's proposed rule.
- ◆ The Coke Ovens Regulatory Negotiation Committee is comprised of several interested parties: Environmental groups such as the National Resources Defense Council (NRDC) and Group Against Smog and Pollution (GASP), Industry associations such as American Iron and Steel Institute (AISI) and American Coke and Coal Chemicals Institute (ACCCI), representatives from the Steel Worker's Union, and State and local agencies.
- ◆ The Committee held a series of public meetings and informal workshops to identify and resolve the many issues associated with the regulation. At the final negotiating session on October 8, 1992, the Committee members conceptually resolved all outstanding major issues and decided to reach final agreement after reviewing and concurring on the draft regulation. The final Coke Oven Standard reflects the agreements reached by this Committee.

### BENEFITS OF THE AGREEMENT AND FINAL RULE

- ◆ The negotiated agreement meets -- and in some cases exceeds -- the environmental goals of the coke oven provisions in the Clean Air Act. The agreement also provides industry with flexibility that will significantly reduce compliance costs.
  - Increased Emission Reduction: The Committee has agreed that flares be required to control emissions of raw coke oven gas during venting episodes. Flares will eliminate 850 MG/yr of coke oven emissions. The MACT and LAER standards will result in reductions of coke oven emissions from the doors, lids, oftakes and charging ranging from 540 to 720 MG/yr. (66% to 90% reduction)
  - Consistent Monitoring: Under the agreement, coke oven inspectors will have to undergo a rigorous certification program to qualify as observers. Also, the inspectors will be chosen by the enforcement agency instead of the company. These requirements ensure fairness and consistency in the application of the method.
  - Improved Compliance: Industry has agreed to pay the enforcement agency or an independent contractor to monitor their coke oven batteries daily. This means there will be enforcement presence at every battery in the country

every day. This is another significant result which we would not have achieved through normal regulation development.

- Work Practices: The work practice standards would require new or existing coke oven batteries to develop a written plan describing emission control work practices to be implemented for each battery. The plan must include provisions for training and procedures for controlling emissions from the battery. Work practices are implemented when performance standards are not in effect or when emission limits are violated.
- Alternative Door Leak Standard: The agreement provides industry the flexibility of an alternative door leak standard for coke oven batteries equipped with sheds. The alternative standard will be determined on a case-by-case basis, but it must achieve a greater reduction of coke oven emissions than the original door leak standard.

#### IMPACTS

- ◆ Coke Oven emissions: reduction of 1390 to 1570 MG/year.
- ◆ Annualized cost: increase of \$84 million by 1998.
- ◆ MACT Capital cost: \$66 million by 1995.
- ◆ LAER Capital cost: \$444 million by 1998.

The final coke oven standard was promulgated in the Federal Register on October 27, 1993. (58 FR 57898)

**COKE OVEN EMISSION LIMITS**

- ◆ **MACT AND LAER:** The negotiated agreement includes the emission limits outlined in the following table. All numbers are rolling averages of the last thirty readings; that is, if no reading is taken on a day, nothing is entered for that day. The states are responsible for conducting the daily readings and nothing in this rulemaking precludes citizen suits under the Clean Air Act.

	MACT TRACK		LAER TRACK		
	12/31/95	Beyond 2003 (must meet residual risk)	11/15/93 (Act's Limits)	1/1/98	1/1/10
<b>LIDS PLL</b> % leaking lids	<b>0.6</b>	<b>0.6</b>	<b>0.83</b>	<b>0.4</b>	<b>0.4</b>
	<b>3.0</b>	<b>3.0</b>	<b>4.2</b>	<b>2.5</b>	<b>2.5</b>
<b>OFFTAKES PLO</b> % leaking offtakes	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>
	<b>6.0</b>	<b>5.5</b>	<b>7.0</b>	<b>4.3</b>	<b>4.0</b>
<b>CHARGING (log)</b> s/charge	<b>5.5</b>	<b>5.0</b>	<b>7.0</b>	<b>3.8</b>	<b>3.3</b>
<b>DOORS PLD</b> % leaking doors	<b>5.5</b>	<b>5.0</b>	<b>7.0</b>	<b>4.3</b>	<b>4.0</b>
<b>TALL</b>					
<b>SHORT</b>					
<b>FOUNDRY</b>					