

# **RECENT REGULATORY DEVELOPMENTS AFFECTING THE CEMENT SECTOR**

January 13, 2011

# WHAT IS NESHAP?

2

- National Emissions Standards for Hazardous Air Pollutants (NESHAP), also known as PCMACT (Portland Cement Maximum Achievable Control Technology)
  - ▣ Joined at the hip with New Source Performance Standards (NSPS)
  - ▣ Signed by EPA on August 6, 2010
  - ▣ Effective September 9, 2010
- Plants have 3 years to achieve compliance

3

## HOW DO THESE REGULATIONS AFFECT THE CEMENT INDUSTRY?

# NEW EMISSIONS STANDARDS

4

## □ NESHAP

- Mercury (Hg)
- Total Hydrocarbons
- Hydrochloric Acid
- Particulate Matter
- Dioxins/Furans

## □ NSPS

- Nitrous Oxides
- Sulfur Dioxide
- Particulate Matter

# HOW DOES EPA SET EMISSIONS STANDARDS?

5

- Clean Air Act
  - ▣ For Existing Plants: Take the average of the top 12 percentile performers. This becomes the standard for existing plants
  - ▣ For New Plants: The best performer set that standard
  - ▣ Typically 1-hour tests make the determination
  - ▣ DC Circuit Court 'Brick MACT'
    - Raw materials must be considered

# EMISSIONS STANDARDS

6

- Hydrochloric Acid (HCl): 3 ppm for all plants
  - No previous standards for any plants for HCl
  - Raised because no reliable measurement technology
  - Many plants will need wet scrubbers
    - Problem for areas with limited water resources
- Total Hydrocarbons (THC): 24 ppm for all plants
  - Only newest plants were regulated (most at 50 ppm)
  - Plants currently emitting between 20-50 will need Activated Carbon Injection (ACI)
  - Above 50 ppm must consider Reduced Thermal Oxidizers (RTOs) or shutdown

# EMISSIONS STANDARDS

7

- Mercury (Hg): 55 pounds per million tons clinker
  - Virtually no previous regulation
    - That limit reduced by more than 80%
  - Many plants will require ACI
  - Some plants will face shutdown
- PM standard reduced significantly (MACT)
  - Previous standard was 0.5 lb/ton clinker
  - NESHAP standard is 0.04 lb/ton clinker (92% reduction)
  - NSPS standard is 0.01 lb/ton clinker (98% reduction)
- Other NSPS
  - NO<sub>x</sub> at 1.5 lb/ton clinker
  - SO<sub>2</sub> at 0.4 lb/ton clinker

# OTHER NESHAP REQUIREMENTS

8

- Continuous Emissions Monitors (CEMs)
  - THC, HCl, Hg, PM
  - Stack flow monitoring
  - Clinker weigh systems
  - Reliability questions for many CEM technologies
- Clinker storage facilities
- Startup Shutdown Standards
  - Separate emissions standards
  - Separate reporting

# INDUSTRY STRATEGIES

9

- National Cement Association (PCA) and Individual Companies in multiple efforts to fight
  - Regulatory (Clean Air Act)
    - Petition for Reconsideration
  - Legislative
    - Congressional Oversight and appropriations rider
  - Judicial
    - Petition for Review
      - Vacature of rule
      - Remand of the rule back to EPA

## WHAT ARE THE IMPLICATIONS FOR THE CEMENT INDUSTRY?

No plant is known that can achieve compliance today with all proposed standards.

# CAPACITY IMPACTS FOR CEMENT

11

- 7 plants have already shut down
  - 4 million tons of capacity
- 18 additional plants likely to shut down
  - 11 million tons capacity
  - Additional 3 plants at high risk
    - Additional 2.5 MM tons capacity
- Overall national capacity drop of 17%
  - Down to 80 MM metric tons

# FINANCIAL IMPACTS FOR CEMENT

12

- Current industry estimations of \$3.4 Billion of capital investment needed to achieve compliance for NESHAP
  - ▣ Does not include capital avoided for closed facilities
  - ▣ \$40 per ton of capacity – average US
  - ▣ \$900 MM annualized capital cost added to industry over a 5 years period at 12% discount rate (\$11.25 per ton)
  - ▣ As much as \$2BB more capital for CISWI regulation
- Estimated \$5-\$15 per ton of additional operating cost
  - ▣ Average: \$21 per ton of added cost
- Industry association places estimate for current and pending regulations at \$26/ton

# MORE REGULATIONS LOOMING

13

- Greenhouse Gas Emissions
  - Monitoring and reporting started in 2010
  - Permitting and BACT for CO<sub>2</sub> began January 2, 2011
  - Some states passing separate climate change legislation
  - DC Circuit Court denied industry challenges
- Solid Waste Regulations
  - Fly Ash and Tires
- EPA enforcement initiative targeted cement
  - *Number of fines too low*
  - *Penalty amounts not enough*
- New Congress has promised EPA oversight as priority

14

## WHAT ARE THE IMPLICATIONS FOR THE CONSTRUCTION INDUSTRY?

# DEMAND PRESSURES

15

- Demand recovery expected through 2014
- NESHAP closures coincide with demand jump (2013)
- 3.5 MM tons of sustained increased demand starting in 2015
- Regulatory pressures make new investments
  - ▣ Higher risk
  - ▣ Lower return
- Grim reality is that cement availability will hinge largely on import availability

# Portland Cement Consumption

Thousand Metric Tons

## Growth Rates

2007: - 9.6

2008: - 15.1

2009: - 26.9

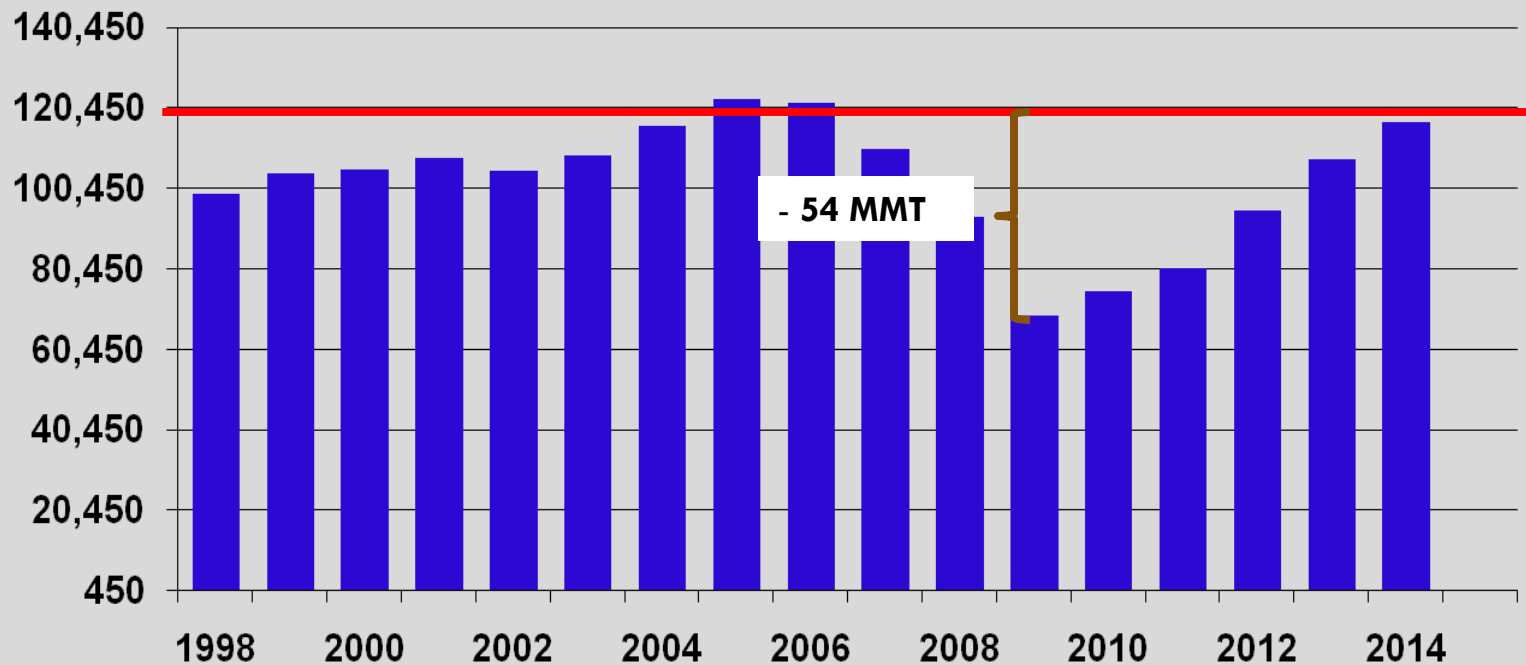
2010: + 2.6

2011: + 6.7

2012: + 8.1

2013: + 14.3

2014: + 5.9



Source: Portland Cement Association

# CONCLUSIONS

17

- Major environmental regulations have passed through EPA in the last 2 years
- Substantial cash flow impacts for the cement industry
- Capital investment required to achieve compliance
- Domestic manufacturing displaced overseas
- PCA estimates that construction industry could realize annual cost increases of \$2.5-\$4.0BB annually
- Legal challenges underway