Current Direction of NESHAP Residual Risk Technology Review

The Auditing Roundtable
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EPA is required to conduct two reviews and update the existing “major source” standards, if necessary

- **Residual Risk Assessment:** To determine whether additional emission reductions are warranted to protect public health or the environment; this is a one-time requirement

- **Technology Reviews:** To determine if better emission control approaches, practices or processes are now available; required every eight years

  - [http://www.epa.gov/ttn/atw/rrisk/rtrpg.html](http://www.epa.gov/ttn/atw/rrisk/rtrpg.html)
Presentation Overview

• Section 112 Refresher
• Residual Risk and Technology Review Requirements
• Legal Issues
  • SSM Exclusion
• USEPA Approach
  • Environmental Justice
• Industry and Agency Challenges
• RTR Rule Making
• Closing Comments
• Question and Answer
CAA §112 Background

• Section 112(d) of the 1990 Federal Clean Air Act (FCAA) Amendments required EPA to promulgate regulations establishing emission standards for major and area sources of hazardous air pollutants (HAP)

• First standard issued final in September 1993 (dry cleaners)

• 89 standards have been issued (codified in 40 CFR 63) for all source categories that EPA considers to be significant sources of HAP

• A few standards have regulated area (non-major) sources, but most have regulated only major sources of HAP emissions

• Housekeeping
  • Major sources - ≥ 10 tpy individual/25 tpy total HAPs; MACT
    • MACT – Best performing 12%; or top 5 if less than 30 sources
  • Area source – not major ; GACT or MACT
  • EPA is not required to address area sources in RTR
RTR Regulatory Background

• Section 112(f) of the Federal Clean Air Act establishes specific requirements: Report to Congress within 6 years after enactment of the 1990 FCAA Amendments on:
  • Methods of calculating risk remaining after implementation of §112(d) standards
  • The public health significance of remaining risks
  • Technologies available to reduce these risks
  • Residual Risk Report to Congress, EPA-453/R-99-001 (March 1999)

• Because Congress did not take any actions based on the recommendations in the referenced report, EPA is to:
  • Promulgate new standards for each source category regulated by a §112(d) MACT standard if such a standard is required to protect the public health or prevent an adverse environmental effect
  • Promulgate these residual risk standards within 8 years of final publication of the original MACT standard
Risk and Technology Review (RTR)

Residual Risk

• Control technology improvements that warrant updated MACT
• Address residual public health risk after MACT emission controls
  • Trigger for further review is >1 in million excess cancer risk to most exposed individual
• 112(f) does not determine the level of those standards
• Benzene NESHAP (54 FR 38044, September 14, 1989)
  • “Ample margin of safety” generally less than 100 in million excess cancer risk. Cost and feasibility of control considered for risks in the 1 to 100 in million range
  • <1.0 hazard index is target for noncarcinogens
  • Can be more stringent if “adverse environmental effect”
Benzene NESHAP Approach to Risk

June 2008 - Court upheld EPA’s RTR approach

- Not obligated to recalculate MACT floors
- Allows for post-RTR cancer risk above 1 in million, if less than 100 in million per Benzene NESHAP approach cited in 1990 CAA amendments
- Allow “no control” (or existing MACT) if EPA determines existing is sufficient even if not less than 1:1,000,000.
- Considers cancer and other health effects within 50 km exposure radius around facilities.
Other Important Litigation

2007 – Brick MACT
- Incorrectly calculated MACT emissions limits
- Failed to establish emissions limits
- Did not regulate processes that emit HAPs.

2000/2001 – Cement Kiln Recycling and National Lime
- Did not regulate processes that emit HAPs.
- Did not establish HAP emissions limits
Other Important Litigation

December 2008 – SSM Vacature

- Court vacated startup, shutdown & malfunction (SSM) provisions in 35 NESHAPs
  - Vacated portion of General Provisions in 63.6(f)(1) and (h)(1) that exempt sources from compliance during SSM if SSMP was followed

Sept 2010 – Consent Decree Sierra Club v. Jackson

- EPA is well beyond 8 year statutory schedule
## RTR – Schedule based on Sierra Club

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Technology Review - USEPA’s Approach

1. Add-on control not identified in MACT rules
2. Add-on control considered and improvements made
3. Work practice, process changes, pollution prevention or operational changes not considered in MACT rule.
4. Equipment changes that may reduce HAPs
5. Reviewed RBLC
Risk Review - USEPA’s Approach

1. Looking back at previous MACT and area source rule development processes
2. Reviewing other applicable rules (NSPS)
3. Authorizing and issuing a new Information Collection Request
4. ICR Compilation and Review – See the Aerospace RTR spreadsheet for example
5. Stack testing
6. May establish model facilities or make assignments of known data to facilities (BEWARE)
Risk Review - USEPA’s Approach (con’t)

7. Risk Review

- Model – Actual and MACT allowable
- Evaluate the risk from breathing air toxics to the communities
- The Maximum Individual Cancer Risk (MIR) is one factor in determining whether the risk level is acceptable
- Considered along with other factors, such as incidence (number of persons suffering health effects), presence of non-cancer health effects and the uncertainties of the risk estimates
- EPA will generally presume that if the MIR for cancer is less than 1 in 1 million the risk level is acceptable
- If MIR is greater than 100 in 1 million, risks are generally considered “unacceptable”
Risk Review - USEPA’s Approach (con’t)

8. Community Impacts
   • Beyond the CAA requirements, EPA will identify potential Environmental Justice issues, as directed by Executive Order 12898
     • To determine potential EJ issues, demographic analyses of the minority, low-income and indigenous populations
     • Percentages of different social, demographic and economic groups within populations living near the facilities are compared with total percentages of demographic groups nationwide

9. Removal of SSM language
USEPA and Regulated Industry Challenges

- How many and which facilities to model?
  - Only one for primary lead smelter
- Emission data sets
  - Modeling requires emission point details not found in many EIqs. Most EIQ data are annual
- Sec. 114 data calls are extremely time consuming for both responding facilities and EPA contractors
- Aerospace 114 is a massive spreadsheet with hundreds of low volume coatings that were excluded from MACT as de minimis
- Dispersion modeling
- Further uncertainties of Human Exposure Model (HEM-3).
- Facility-wide vs. source category HAP
- Is all this ripe for challenge and disagreements?
RTR Standards
RTR – Mineral Wool and Wool Fiberglass

• Proposed November 2011
• Added pollutants
  • Phenol, Methanol, HF, HCl
• Regulated other processes that emit HAPs
  • Collection and curing
• Removing surrogates excluding PM for metallic HAPs
• SSM revisions for both
RTR - Pulp & Paper

- Proposed December 2011
- Conducted risk assessments to determine the public cancer and non-cancer risks from each facility
- Found emission health impact following the application of MACT to be acceptable
  - MIR based on actual emissions is 10 in a million
  - MIR based on allowable emissions is 10 in a million
  - 76,000 people have risks of one in a million or more
- Eliminate SSM
RTR – Pulp and Paper (con’t)

• Kraft Condensate Standards - organic HAPs that precipitate out during the collection of gaseous emissions during pulping
  • Current standard: 92% emission control (reduction) and evaluated options between 92-98% control
  • Options beyond 94% become cost prohibitive
  • Proposed 94% control

• Kraft Vent Standards - Address organic toxic gas emissions from pulping and bleaching:
  • Current Standard: 98+% control
  • Further controls not found cost effective
  • No changes proposed
RTR - Wood Furniture and Shipbuilding

- December 2010
- SSM revisions for both

Residual health risk:
- Within acceptable risk for shipbuilding
- Reduction needed for wood furniture
- Usage limit on formaldehyde in coatings & adhesives

Technology review:
- No change for shipbuilding
- Disallows conventional spray guns for wood furniture
Closing Thoughts
RTR - Proposed and in the Future

• Engage in the residual risk rulemaking process through your industry association
  • ICR development
  • Data Validation and Evaluation
  • Model development (stack parameters, emission rates, etc.)
    • Assignment of emissions to untested sources
    • Actual to MACT allowable
  • Assessment of Risk
• Comment on any proposed rule