

# **Risk and Technology Review Update**

## **CAPCA 2008 Spring Meeting**

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# Outline



- Background
- Residual Risk Decision Framework
- Previous Approach
- New RTR Approach
- Grouping of Categories and Schedule
- RTR and the NEI
- Risk Characterization
- HON Litigation Update

# Background



- Section 112(f)(2) Residual Risk
  - Assess remaining risk within 8 years after promulgation of MACT standard
  - Set standards to provide an ample margin of safety based on the Benzene NESHAP Decision Framework if MACT standards do not reduce cancer risks to less than 1-in-1 million
  - Set standards to prevent an adverse environmental effect considering cost
- Section 112(d)(6) Technology Review
  - Review and revise MACT standard, as necessary, every 8 years
  - Evaluate developments in practices, processes, and control technologies

# Residual Risk Decision Framework



## Goals:

- Limit Maximum Individual Risk (MIR) for cancer to no higher than about 100-in-1 million (MIR is the person exposed to maximum lifetime HAP concentrations)
- Protect the greatest number of persons to less than 1-in-1 million lifetime cancer risk

Step one - Achieve “acceptable risk” of approximately 100-in-1 million or less considering all health information, including uncertainty and without consideration of costs

Step two - Set standard to provide “ample margin of safety” considering health information and other relevant factors (costs, feasibility)

# Previous Approach



Performed separate risk and technology reviews for the first 8 MACT standards

- Met consent decree schedules
- First 8 reviews show MACT generally did a good job
  - Two MACT standards posed low risks
  - Three MACT standards did not pose low risks but ample margin of safety (AMOS) was met without requiring additional controls
  - Three MACT standards required additional controls
- Each review required significant Agency resources and only three reduced risk

# RTR Phase I



## Completed first 8 reviews

- April 2005
  - Coke ovens
- March 2006
  - Industrial cooling towers
  - Magnetic tape
  - Ethylene oxide sterilizers
  - Gasoline distribution
- July 2006
  - Dry Cleaning (litigation)
- December 2006
  - Hazardous Organic NESHAP (HON) (litigation)
- April 2007
  - Halogenated Solvents (reconsideration)

# What is the New Approach?



- Bin Risk and Technology Review (RTR) MACT standards into phases/groups
- Extract MACT category data from latest emissions inventory
  - For the first 33 MACT standards used 2002 NEI
  - Supplement with industry supplied data
- Model each MACT category to obtain inhalation risks, including cancer risk and incidence, population cancer risk, non-cancer effects (chronic and acute)
- Perform screening level multipathway analysis if necessary
- Solicit public review and comment on inventory and present risk results and obtain better source data (via ANPRM)
- Propose and promulgate RTR results

# What are the Advantages of the New Approach?



- More closely meet statutory dates (without schedule suits, if possible)
- Minimize resources by using available data and focusing attention on high-risk sources
- Provide better consistency in our analysis and decisions

# RTR Phase II



## Group 1

- Polymers and Resins I (4 source categories)
- Polymers and Resins II (2 source categories)
- Hydrogen Fluoride
- Acetal Resins

## Group 2A

- Group I Polymers and Resins (5 source categories)
- Pharmaceuticals Production
- Marine Tank Vessel Loading Operations
- Mineral Wool Production
- Printing and Publishing Industry

## Group 2B

- Aerospace Manufacturing and Rework Facilities
- Natural Gas Transmission and Storage
- Oil and Natural Gas Production

## Group 2C

- Primary Aluminum Reduction Plants
- Group IV Polymers and Resins ( 7 source categories)
- Shipbuilding Coatings

# RTR Phase II



## Group 3

- Polycarbonates
- Acrylic/Modacrylic Fibers
- Off-Site Waste Treatment
- Phosphate Fertilizer
- Phosphoric Acid
- Primary Lead Smelting
- POTW
- Ferroalloys
- Steel Pickling
- Secondary Lead
- Chrome Electroplating (3 source categories)
- Flexible Polyurethane Foam
- Secondary Aluminum
- Pulp and Paper MACTs I, II and III
- Wood Furniture
- Wool Fiberglass
- Polyether Polyols

# RTR Phase II Consists of Groups 1, 2, and 3



## – Group 1

- Went directly to NPRM and proposed no additional standards for 8 low-risk source categories (December 12, 2007)

## – Group 2

- Published the Group 2 ANPRM on March 29, 2007
- Plan to propose 5 MACTs (Group 2A) by Spring 2008, FR by end of 2008
- Plan to propose 3 MACTs (Group 2B) Summer 2008, FR by end of 2008
- Plan to propose 3 MACTs (Group 2C) Spring 2009
- Published the NPRM for Petroleum Refineries on September 4, 2007

## – Group 3

- Plan to publish the Group 3 ANPRM in the Federal Register in Summer 2008

# RTR and the National Emission Inventory (NEI)



- RTR process supports development of NEI
  - Comments from ANPRM and NPRM
- NEI supports development of risk for RTR
  - Use pre-ANPRM inventory to support preliminary assessment of risk
  - Use post-ANPRM inventory to support proposed rulemaking

# RTR and the National Emission Inventory (NEI)



- Start with the a base inventory
  - 2002 National Emissions Inventory (NEI) Version 3 - current
  - 2005 NEI in early 2008
- Internal review of inventory by OAQPS MACT engineers
  - Consistency
  - Representative of source category
- Solicit comments via ANPRM process
  - Provide facility specific inventory and preliminary risk results
    - [www.epa.gov/ttn/atw/rrisk/rtrpg.html](http://www.epa.gov/ttn/atw/rrisk/rtrpg.html)
  - Request comments and clarifications on anomalies
  - 90 day comment period

# RTR and the National Emission Inventory (NEI)



- **Comments accepted only electronically, via ANPRM database**
  - Documentation must accompany proposed revisions
- **EPA will evaluate and incorporate proposed revisions**
  - Review proposed revisions and documentation
  - Resolve data discrepancies between proposed revisions and original data source
  - Share comments with S/L/T as needed
- **Incorporate revisions**
  - Develop inventory for rulemaking (NPRM database)
- **Key Issues from initial ANPRM**
  - Emissions
  - Applicability (MACT codes)
  - Missing sources
  - Source locations
  - Speciation (Hg, Chromium, Dioxin, and PAH's)
  - Acute multiplier



# MACT Source Category Review of 2002 NEI Data

Please read the instructions before exploring and revising the data.



Very Important !!!

**View Instructions**



**View Summary Data**



**Revise Data**



**Review Revisions**



**Submit Revisions**



# RTR: Risk Characterization



- Inhalation Assessment
  - Utilizes Human Exposure Model 3 (HEM3)
- Multipathway/Ecological Assessment
  - HHRAP Approach
  - Utilize TRIM Screen Model

# Facility HEM-3

Tool for Human Exposure Modeling

**Version 1.2.0 Beta**

Prepared for:

Risk and Exposure Assessment Group  
U. S. Environmental Protection Agency  
Research Triangle Park, NC 27711

Prepared by:

EC/R Incorporated  
6330 Quadrangle Drive, Suite 325  
Chapel Hill, NC 27517

EPA Contract 68-D-01-071

Exit

Next >

Available at:

[http://www.epa.gov/ttn/fera/human\\_hem.html](http://www.epa.gov/ttn/fera/human_hem.html)

# RTR: HEM3 Summary



- Based on AERMOD (07026)
- Run for each facility in source category to predict both chronic & acute; cancer & noncancer risks
- Receptors based on 2000 census blocks
- Meteorological data selected for each facility
  - 5 stations in NC
  - 3 stations in SC

# RTR: Inhalation Assessment Results



- **Chronic**

- Maximum Individual Risk (MIR) - highest risk at a census block centroid (cancer & noncancer)
- Cancer incidence
- Cancer risk distributions

- **Acute**

- Maximum off-site impact – highest of census block and polar grid receptors

- **Population risk levels**

- Facility and source category cancer incidence levels



- **Goals**
  - Identify source categories with potential human multipathway or ecological risks
  - Set them on separate, refined analytical path
  
- **Approach**
  - Iterative process for source categories emitting PBT- HAPS
    - HHRAP emission thresholds developed using “worst-case facility“
    - TRIM model in screening mode
    - TRIM model in refined mode



# Hon Litigation Update



- NRDC filed suit on HON Residual Risk Rule alleging that:
  - Under Section 112(f)(2), EPA must reduce MIR to less than 1 in a million, and that EPA must at least set additional standards if MIR exceeds 1 in a million
  - Under Section 112 (d)(6), EPA must not use risk as a factor in reviewing technology, and EPA must revisit the MACT floor determination every 8 years
- The NRDC lawsuit also questions:
  - The quality and extent of the data upon which the risk assessment is based
  - Whether EPA has included all relevant emissions data in its risk assessment, alleging the omission of allowable versus actual emissions, upset emissions, clustered facility emissions, and background ambient concentrations
- Oral arguments scheduled for April 10
- Expect court ruling in the summer
- Adverse ruling could substantially influence future of the RTR program