
State HAP Rule Implementation for Counties

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Overview

- Clean Air Act Regulatory Background
 - Statutory Authority
 - Rule Elements
 - Litigation
 - Implementation Guidance
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CAA Regulatory Background

- Two Approaches to Air Regulation
 - Risk Management (RM)
 - Risk Reduction Through Application of Control Technology (CT)
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CAA Regulatory Background

- Risk Management

- Identify “safe” concentration for a pollutant, e.g. NAAQS
 - Determine current exposure
 - Rollback emissions to a level that will assure the safe concentration is not exceeded
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CAA Regulatory Background

- Control Technology
 - Specified level, such as maximum achievable, reasonably available
 - Imposition reduces risk , but not necessarily to acceptable level
 - May be part of wider effort to reduce risk to acceptable level, e.g. RACT in nonattainment areas
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CAA Regulatory Background

■ Means of Imposing

- By rule for a category of similar sources, e.g.
 - State rules for copper smelters (RM)
 - Federal New Source Performance Standards (NSPS) (CT)
 - Federal Maximum Achievable Control Technology (MACT) Standards for HAPs (CT)
 - By permit or “new source review” (NSR)
 - Appropriate RM level or CT determined on source-specific basis
 - Examples: PSD, Nonattainment NSR
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Statutory Authority

■ Overview

- ❑ A.R.S. 49-426.06 authorizes ***control technology approach, NSR type***
 - ❑ Applies to certain new and modified sources of HAP
 - ❑ Provides for imposition of control technology on a case-by-case basis
 - ❑ Level of control technology varies with size of source
 - ❑ Source has opportunity to avoid or mitigate application of control technology by conducting risk management analysis
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Statutory Authority

■ HAP

- Federal HAP listed in section 112(b) of Clean Air Act automatically included
 - ADEQ has authority to list additional HAPs under 49-426.04
 - Criteria for listing
 - Must have “credible medical and toxicological evidence that has been subjected to peer review”
 - Evidence must “demonstrate adverse effects to human health...at concentrations that are likely to occur in the environment... .”
 - No state HAP listed in current rule
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Statutory Authority

- Sources Subject to Program
 - All major sources of HAP; defined as source with potential to emit (PTE):
 - 10 tons per year (TPY) of a single HAP
 - 25 TPY of any combination of HAP
 - Minor sources
 - With PTE of
 - 1 TPY of a single HAP
 - 2.5 TPY of a combination of HAP
 - ***But only if*** the source belongs to a category listed pursuant to section 49-426.05
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Statutory Authority

- New Sources and Modifications
 - New source = newly constructed source
 - Modification (under 49-401.01): “a physical change in or change in the method of operation of a source which increases actual emissions of any regulated air pollutant emitted by such source by more than any relevant **de minimis amount** or which results in the emission of any regulated air pollutant not previously emitted by more than such de minimis amount.”
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Statutory Authority

- New Sources and Modifications (cont'd)
 - Additional Role of De Minimis Amounts:
 - 49-426.06(C): Standards apply only to HAPs emitted in amounts > de minimis
 - Limits applicability for both modifications and new sources
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Statutory Authority

- Control Technology

- Major sources:

- Subject to “maximum achievable control technology” (MACT)
 - Same as standard applicable to major sources under section 112 of CAA



Statutory Authority

- Control Technology (cont'd)
 - Minor sources
 - Subject to “hazardous air pollutant reasonably available control technology” (HAPRACT)
 - In determining what is reasonably available, the Director must take into consideration “the estimated actual air quality impact of the standard, the cost of complying with the standard, the reliability and widespread use of the technology required to meet the standard and any non-air quality health and environmental impacts and energy requirements.”
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Statutory Authority

- Control Technology (cont'd)
 - A source can avoid the imposition of MACT or HAPRACT by “conducting a scientifically sound risk management analysis” which demonstrates that imposition of MACT or HAPRACT “is not necessary to avoid adverse effects to human health or adverse environmental effects.”
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Rule Elements

- Effective 1/1/07
 - Added new Article 17 to Title 18, Chapter 2, A.A.C.
 - Revised Articles 3, 4, 5 permitting rules
 - Available at:
 - <http://www.azsos.gov/aar/2006/23/final.pdf>
 - http://www.azsos.gov/public_services/Title_18/18-02.htm
 - Maricopa County Rule 372
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Rule Elements

- Source Category List
 - Purpose: regulation of minor sources
 - R18-2-702, Table 2
 - 24 source categories
 - Identified by Primary SIC Code
 - E.g.
 - 2434 Wood Kitchen Cabinets
 - 3331 Primary Copper Smelters
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Rule Elements

■ Source Category List:

SIC Code	Source Category	HAPs Emitted > 120% AAC	Percent of Annual AAC w/ Rural Dispersion	Percent of Annual AAC w/ Urban Dispersion	Cancer Effects	Noncancer Target Organ
2434	Wood Kitchen Cabinets	Xylenes	1,948	800	---	Nervous System
2451	Mobile Homes	Ethylene Glycol	133	983	---	Respiratory Tract Kidney-Developmental
2621	Paper Mills	Chromium Compounds	1,364	934	X	Respiratory Tract
2679	Converted Paper & Paperboard Products, nec ⁴	Formaldehyde	4,292	2,247	X	Respiratory Tract
2851	Paints, Varnishes, Lacquers, Enamels & Allied Products	Glycol Ethers	5,165	2,446	---	Reproductive-Blood-Developmental
2911	Petroleum Refining	Benzene Methyl Tert-Butyl Ether ⁷	1,560 289	1,153 213	X X	Blood Kidney-Liver-Eyes
3086	Plastics Foam Products (polystyrene)	Methyl Chloride	15, 770	11,658	---	Nervous System
3088	Plastics Plumbing Fixtures	Styrene	1,824	751	---	Nervous System
3089	Plastics Product, nec ⁴	Styrene	1,030	422	---	Nervous System
3241	Cement, Hydraulic	Formaldehyde	353	212	X	Respiratory Tract
3281	Cut Stone & Stone Products	Styrene	309	127	---	Nervous System
3296	Mineral Wool	Chromium Compounds	1,171,532 34,384	479,529 14,233	X X	Respiratory Tract Respiratory Tract

Rule Elements

■ Source Category List:

SIC Code	Source Category	HAPs Emitted > 120% AAC	Percent of Annual AAC w/ Rural Dispersion	Percent of Annual AAC w/ Urban Dispersion	Cancer Effects	Noncancer Target Organ
		Formaldehyde				
3312	Steel Works, Blast Furnaces, & Rolling Mills (including coke ovens)	Manganese Compounds Nickel Compounds	1,517 8,578	673 3,870	--- X	Nervous System Respiratory Tract-Blood
3331	Primary Smelting & Refining of Copper	Arsenic Cadmium Chromium Cobalt	105,957 41,143 4,969 3,127	47,401 18,440 3,425 2,282	X X X X	Cardiovascular-Nervous System-Developmental Kidney-Respiratory Tract Respiratory Tract Respiratory Tract
3411	Metal Cans	Glycol Ethers	641	413	---	Reproductive-Blood-Developmental
3444	Sheet Metal Work	Chromium Compounds Glycol Ethers	53,638 20,836	22,329 8,674	X ---	Respiratory Tract Reproductive-Blood-Developmental
451	Screw Machine Products	Trichloroethylene	1,055,169	780,005	X	Nervous System-Eyes
3479	Coating, Engraving, & Allied Services, , nec ⁴	Chromic Acid Methyl Chloride Perchloroethylene Trichloroethylene	2,472 531 219,876 804,750	1,419 217 90,402 330,872	X --- X X	Respiratory Tract Nervous System Kidney-Liver Nervous System-Eyes
3585	Air-Conditioning & Warm Air Heating Equip. & Commercial & Industrial Refrigeration Equipment	Perchloroethylene	101,304	74,886	X	Kidney-Liver
3672	Printed Circuit Boards	Formaldehyde	3,973	2,937	X	Respiratory Tract
3999	Manufacturing Industries, nec ⁴	Styrene	389	160	---	Nervous System
4922	Natural Gas Transmission	Formaldehyde	64,291	26,314	X	Respiratory Tract
5169	Chemicals & Allied Products, nec ⁴	Methyl Chloride	412	305	---	Nervous System
5171	Petroleum Bulk Stations & Terminals	Benzene MTBE ⁵	362 - 5,602 263 - 1,677	268 - 2,293 186 - 686	X X	Blood Kidney-Liver-Eyes

Rule Elements

- De Minimis Amounts
 - Purpose
 - Modification threshold
 - Control technology applicability threshold
 - R18-2-1701(13) (definition of modification), Table 1
 - Range (chronic): 0.0010-146,766 lbs/yr
 - Only developed for 73 pollutants about which we had emission data for Arizona sources
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Rule Elements

- Risk Management Analyses
 - Purpose: Exemption from control technology requirement
 - 4 Tiers (R18-2-1708)
 - Two Steps:
 - Determine exposure (ambient concentration resulting from emissions)
 - Compare to health-based concentration
 - ADEQ guidance or custom concentration in Tier 1
 - AAC (R18-2-1708, Table 3) in Tiers 2 and 3
 - AAC or custom in Tier 4
 - If exposure < health-based concentration, applicant qualifies for an exemption for HAP
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Rule Elements

- Risk Management Analysis
 - Tier 1
 - Background: HAP groups, e.g. chromium compounds; one AAC for most toxic compound in group
 - Method:
 - Identify health-based concentration (ADEQ guidance or custom)
 - Apply equations in 18-2-1701(B)(1)(b) & (c) to hourly and annual emissions, respectively, to determine exposure
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Rule Elements

- Risk Management Analysis
 - Tier 2
 - Use SCREEN model (conservative) to determine exposure in ambient air
 - Compare to AAC
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Rule Elements

- Risk Management Analysis
 - Tier 3, same as Tier 2, except
 - In determining chronic exposure, may exclude areas normally considered ambient air
 - If there are permanent and enforceable measures outside permit to exclude access
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Rule Elements

- Risk Management Analysis
 - Tier 4 = Tier 3 plus
 - More refined modeling allowed (but not required)
 - May take into account statutory factors listed in 49-426.06(D)
 - One factor: “available epidemiological or other health studies”; i.e. applicant can submit own toxicology
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Rule Elements

- Alternative Operating Scenarios (AOS)
 - R18-2-1708(F)
 - If RMA for AOS demonstrates no adverse health effects, operations consistent with AOS are not subject to program
 - AOS may incorporate range of operating conditions, as long as supported by RMA
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Rule Elements

- Integration with Federal Program
 - May not impose controls incompatible with EPA HAP emissions standard (49-426.06(C))
 - Exemptions
 - Affected sources subject to EPA HAP emission standard in Part 63 or Part 61
 - Affected minor sources in category covered by Part 63 or 61 standard that opt to comply
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Litigation

- Plaintiffs: Oak Canyon Manufacturing, Inc. and Arizona Chamber of Commerce and Industry
 - Filed November 30, 2006
 - Motion to Dismiss
 - Amended Answer filed April 10, 2007
 - Answer filed April 30, 2007
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Implementation

- **AAAQG Applicability**
 - 12/7/2006 Memo to County Permit Managers
 - State HAP program replaces AAAQGs for applications submitted after effective date
 - Conditions in existing permits based on AAAQGs remain valid
 - Conditions based on AAAQGs will remain in effect on permit revision, reopening or renewal
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Implementation

- Guidance

- Weston Solutions

- Emission estimation techniques

- Stakeholder concern

- No measurement techniques for some HAPs

- De minimis levels BDL for others

- For new and modified sources, estimates, not measurements, are needed

- Estimation techniques covered in detail

Implementation

- Guidance (continued)
 - Permitting procedures
 - RMA Modeling
 - AACs for HAP group members
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Implementation

- Outreach
 - Permitted sources
 - Unpermitted sources
- No permit applications submitted to ADEQ



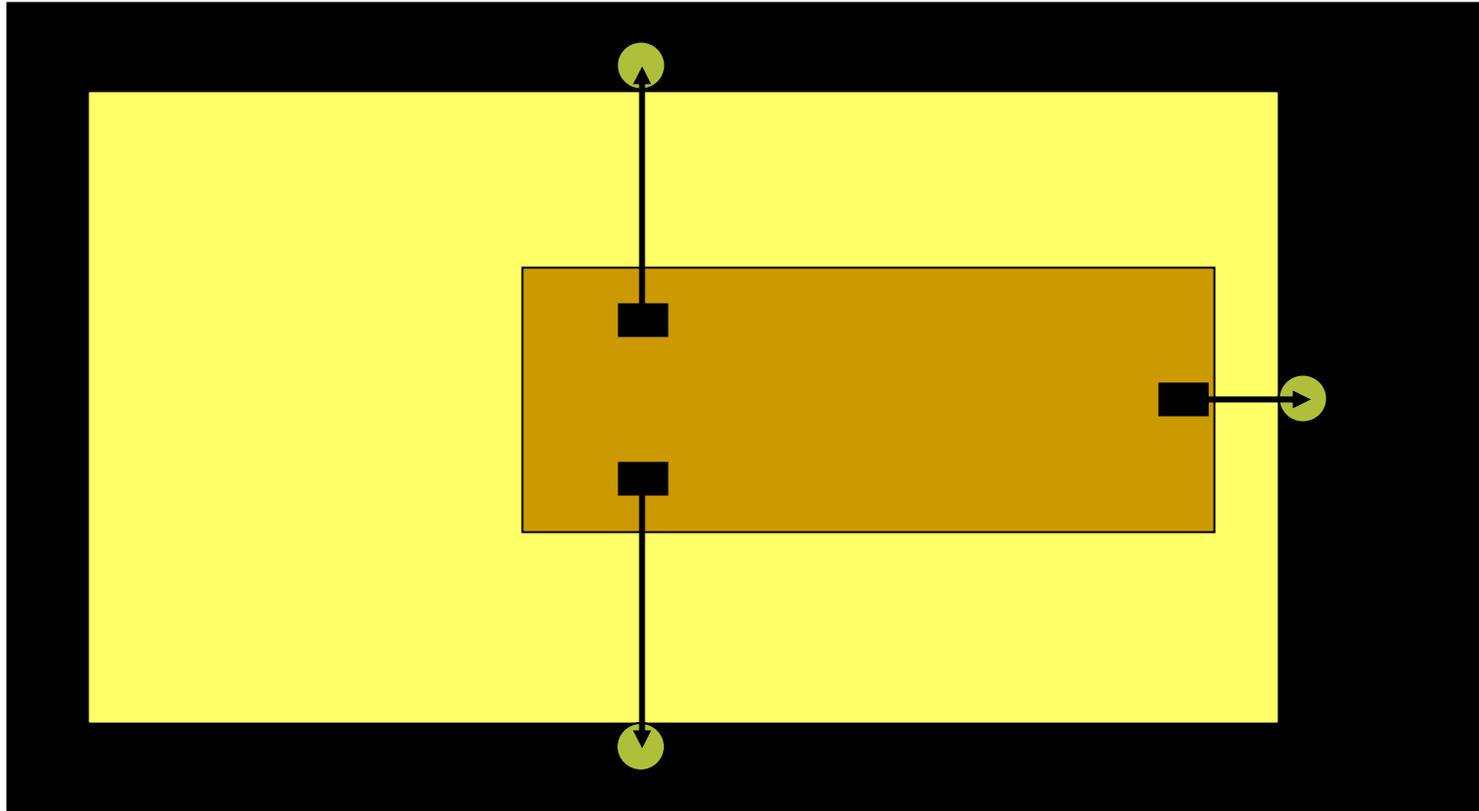
Implementation

- Opportunities for Flexibility
 - NSR Strategy: Voluntary emission limits to keep emissions below threshold
 - Sources on category list: 1 and 2.5 TPY
 - Sources not on list: 10 and 25 TPY
 - Federal MACT opt-in
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Implementation

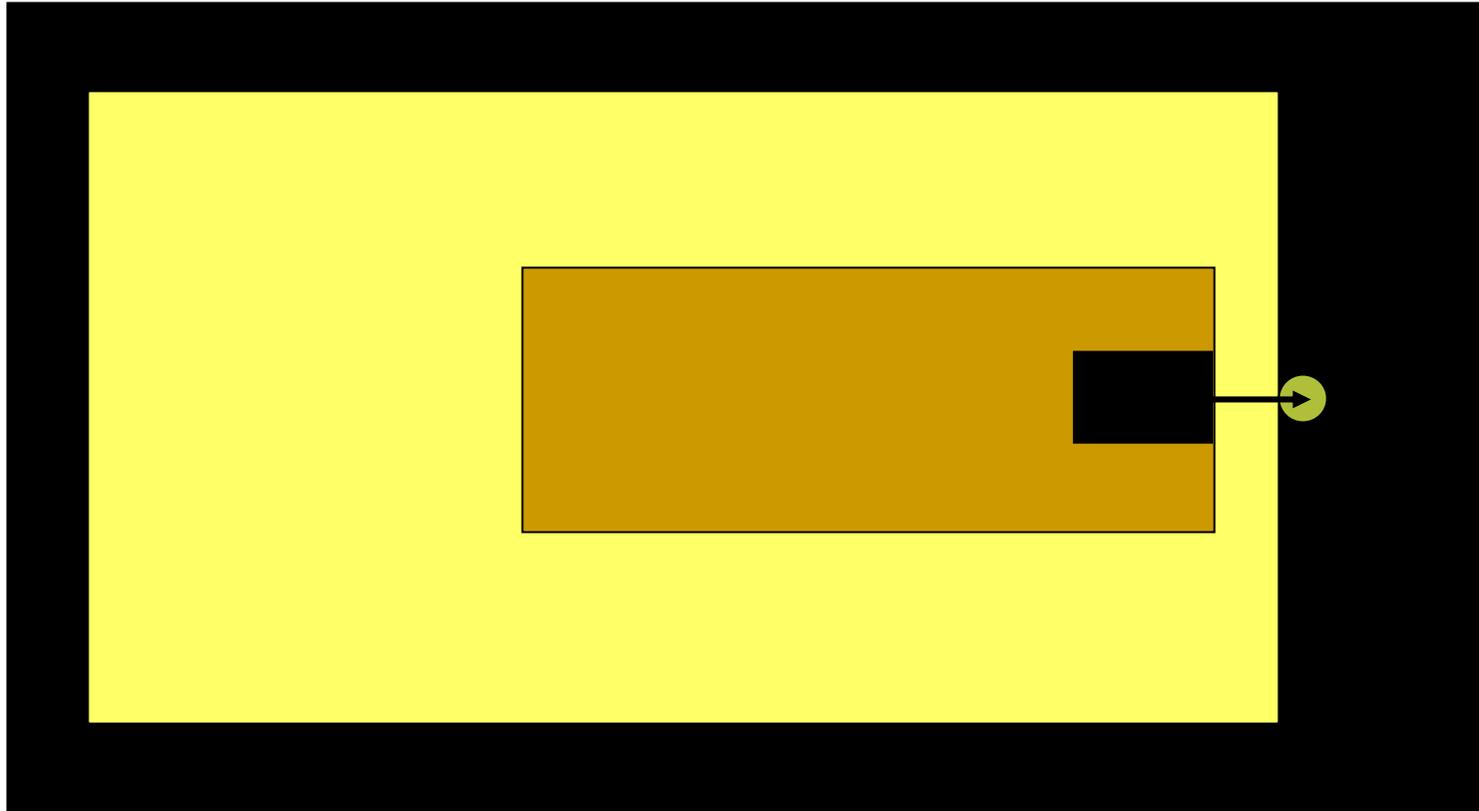
- Opportunities for Flexibility (continued)
 - Alternative Operating Scenario
 - Can be equivalent to emissions cap
 - Example
 - HAPRACT safe harbors
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AOS Example: Actual Configuration



Key:  = Ambient air  = Public excluded  = Process building
 = Fugitive source  = Receptor  = Source/nearest receptor

AOS Example: Modeled Configuration



Key:  = Ambient air  = Public excluded  = Process building
 = Fugitive source  = Receptor  = Source/nearest receptor