



Air Quality in Arizona

NM/AZ Air Quality and Energy Training

April 20, 2010



Governor's Agriculture Best Management Practices Committee

- Created in 1998.
- To address PM10 emissions from agricultural activities in the Maricopa County planning area.

- Researched and adopted best management practices (BMPs) for agricultural activities.
- Developed an agricultural PM10 general permit .



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- The rule was cited in the Maricopa County PM10 State Implementation Plan (SIP).

Later the:

- rule
- educational booklet
- and technical assessment for the BMPs were included in a 2001 Agricultural Best Management Practices SIP.

December 31, 2006

- Didn't meet attainment

Maricopa Association of Governments (MAG) developed the Five Percent Plan for PM10

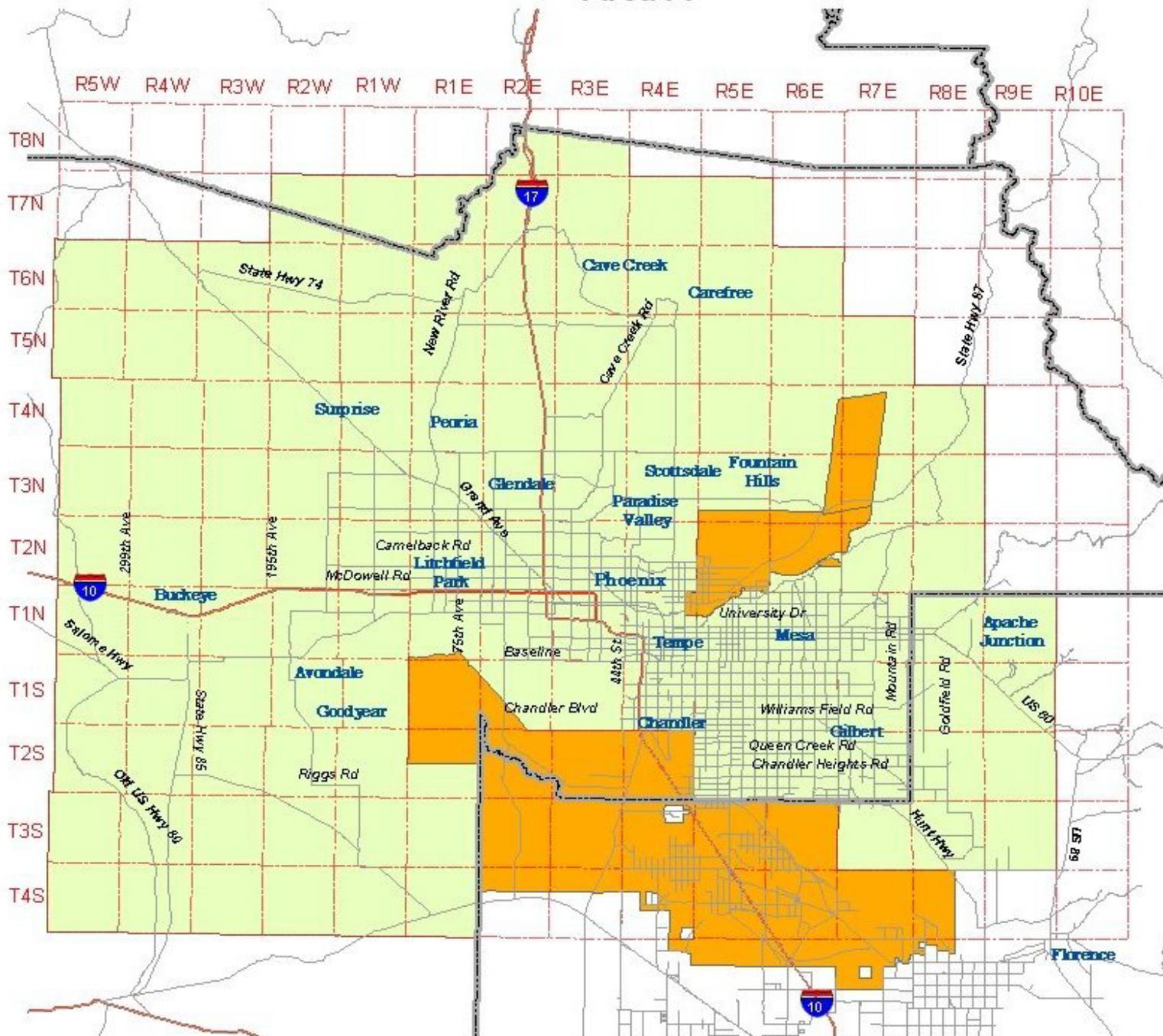


Statute was revised

- Require two BMPs
- Beginning Dec. 31, 2007
- Adopted five new BMPs



Area A



Legend

-  Area A Boundary
-  Indian Reservations
-  County Boundaries
-  Interstate Highways
-  Roads



Location Map



Guide to Agricultural PM10 Best Management Practices

“Agriculture Improving Air Quality”



**Governor's Agricultural
Best Management Practices Committee**

Second Edition, 2008

1) Overview of the agricultural PM10 BMP Program

2) Descriptions of the BMP's

3) Suggestions for implementation and a sample record form

Agricultural Best Management Practices General Permit Record

The following is an example of a form that you can use or duplicate. You are not required to use this form.

Name of commercial farmer _____

Date _____

Mailing or physical address of the commercial farm

Phone _____

City _____ State _____ Zip _____

Email _____

Selected Best Management Practices. A commercial farmer must implement at least **TWO** practices from each category.

CATEGORY 1: Tillage & Harvest

- Cessation of Night Tilling
- Chemical Irrigation
- Combining Tractor Operations
- Equipment Modification
- Green Chop
- Integrated Pest Management
- Limited Activity During High-Wind Events
- Multi-Year Crop
- Planting Based on Soil Moisture
- Precision Farming
- Reduced Harvest Activity
- Reduced Tillage System
- Tillage Based on Soil Moisture
- Timing of Tillage Operation
- Transgenic Crops

Notes:

CATEGORY 2: Non-Cropland

- Access Restriction
- Aggregate Cover
- Artificial Wind-Barrier
- Critical Area Planting
- Manure Application
- Reduce Vehicle Speed
- Synthetic Particulate Suppressant
- Track-Out Control System
- Tree/Shrub/Windbreak Planting
- Watering

Notes:

CATEGORY 3: Cropland

- Artificial Win-Barrier
- Cover Crop
- Cross-Wind Ridges
- Cross-Wind Strip-Cropping
- Cross-Wind Vegetative Strip
- Integrated Pest Management
- Manure Application
- Mulching
- Multi-Year Crop
- Permanent Cover
- Planting Based on Soil Moisture
- Residue Management
- Sequential Cropping
- Surface Roughening
- Transgenic Crops
- Tree/Shrub/Windbreak Planting

Notes:

Signature: _____

Senate Bill 1225

- Passed Arizona Legislature in 2009
add five members to the Committee:
 - *beef feedlots
 - *dairies
 - *poultry
 - *swine
 - *representative from a county air quality department or agency

Governor's Agricultural Best Management Committee

Requested the formation of a Technical Workgroup:

- propose new BMPs for beef feedlot, dairy, swine, and poultry operations
- reviewing the current practices
- Practices can vary by regional or geographical conditions or management practices.

AgBMP Technical Workgroup

- Discussed agricultural management practices proposed by each agricultural sector.
- Agreed to forward the BMPs proposed by each sector to the Committee for review.



Document Contains

- Proposed BMPs and a brief narrative
- A compilation of the work conducted by each agricultural sector – poultry, swine, beef feedlots, dairies, and cropland, pertaining to best management practices (BMPs).



- The BMPs reflect the requirements of Senate Bill 1225, which includes adopting BMPs for unpaved access connections, unpaved roads or feed areas, animal waste handling and transporting, and arenas, corrals, or pens.





Future refinements to this list shall establish individual thresholds of BMP's for 3 categories:

- 1) Most Stringent Measures (MSM);
- 2) Best Available Control Measures (BACM)
- 3) Reasonably Achievable Control Measures (RACM).



All of these BMP's and emission factors were derived from

- San Joaquin Valley Air District Program
- Imperial County Air Pollution Control District
- Pinal County Cowtown Area Feedlot Study implemented from February 1, 2009 through October 1, 2009.



**Deadline to adopt
June 30, 2010**

AZ Air Quality EQIP

Air Quality Sign up:

- February 28 - March 5
- Obligated by April 1

Allocated

- \$1.8

Obligated

- \$1.6

Currently Designated Nonattainment Areas for All Criteria Pollutants Listed by State, County then Pollutant - Current as of November 13, 2009

ARIZONA			
Cochise Co			
	<i>PM-10</i>	*	Paul Spur/Douglas (Cochise County), AZ - Moderate
Gila Co			
	<i>PM-10</i>	*	Hayden AZ - Moderate
	<i>PM-10</i>	*	Miami, AZ - Moderate
Maricopa Co			
	<i>8-Hr Ozone</i>	*	Phoenix-Mesa, AZ - Former Subpart 1
	<i>PM-10</i>	*	Phoenix, AZ - Serious
Pima Co			
	<i>PM-10</i>	*	Ajo (Pima County), AZ - Moderate
	<i>PM-10</i>	*	Rillito, AZ - Moderate
Pinal Co			
	<i>8-Hr Ozone</i>	*	Phoenix-Mesa, AZ - Former Subpart 1
	<i>PM-10</i>	*	Hayden AZ - Moderate
	<i>PM-10</i>	*	Phoenix, AZ - Serious
	<i>SO2</i>	*	Hayden (Pinal County), AZ - Primary
Santa Cruz Co			
	<i>PM-10</i>	*	Nogales, AZ - Moderate
	<i>PM-2.5 2006</i>	*	Nogales, AZ - Nonattainment
Yuma Co			
	<i>PM-10</i>	*	Yuma, AZ - Moderate

NRCS Practices for Addressing Air Quality Issues

For Addressing... PM10 PM2.5 PM2.5 PM2.5, Ozone PM2.5, Ozone

We recommend these practices:

Practice	Practice Code	Direct PM - PM10	Direct PM - PM2.5	Ammonia	Volatile Organic Compounds (VOCs)	Oxides of Nitrogen (NOx)
Waste Storage Facility	313	x	x	x	x	x
Composting Facility	317			x	x	x
Conservation Cover	327	x	x			
Conservation Crop Rotation	328	x	x			
Residue and Tillage Management, No Till/Strip Till/Direct Seed	329	x	x		x	x
Prescribed Burning	338	x	x		x	x
Cover Crop	340	x	x	x		x
Residue and Tillage Management, Mulch Till	345	x	x		x	x
Waste Facility Cover	367	x	x	x	x	
Windbreak/Shelterbelt Establishment	380	x	x	x		
Prescribed Grazing	528	x	x			
Stripcropping	585	x	x			
Nutrient Management	590			x		x
Amendments for Treatment of Agricultural Waste	591	x	x	x		
Feed Management	592			x	x	x
Waste Treatment	629	x	x	x	x	x
Waste Utilization	633			x	x	x
Windbreak/Shelterbelt Renovation	650	x	x	x		
Engine Replacement	CA 723	x	x		x	x
Dust Control on Unpaved Roads and Surfaces	CA 729	x	x			

Also consider:

Practice	Practice Code	Direct PM - PM10	Direct PM - PM2.5	Ammonia	Volatile Organic Compounds (VOCs)	Oxides of Nitrogen (NOx)
Agrichemical Handling Facility	309				x	
Alley Cropping	311	x	x			
Contour Buffer Strips	332	x	x			
Critical Area Planting	342	x	x			
Residue Management, Seasonal	344	x	x		x	x
Residue and Tillage Management, Ridge Till	346	x	x		x	x
Waste Treatment Lagoon	359			x	x	x
Anaerobic Digester, Ambient Temperature	365			x	x	
Anaerobic Digester, Controlled Temperature	366			x	x	
Fuel Break	383	x	x		x	x
Firebreak	394	x	x		x	x
Hedgerow Planting	422	x	x			
Irrigation System, Microirrigation	441	x	x			
Irrigation System, Sprinkler	442	x	x			
Irrigation System, Surface & Subsurface	443	x	x			
Irrigation Water Management	449	x	x		x	x
Anionic Polyacrylamide (PAM) Erosion Control	450	x	x			
Access Control	472	x	x			
Mulching	484	x	x			
Cross Wind Ridges	500	x	x			
Range Planting	550	x	x			
Drainage Water Management	554	x	x			
Heavy Use Area Protection	561	x	x			
Cross Wind Trap Strips	589c	x	x			
Pest Management	595				x	
Herbaceous Wind Barriers	603	x	x			
Surface Roughening	609	x	x			
Solid/Liquid Waste Separation Facility	632			x	x	

Trackout Control Devices

Aaron Chavez, Maricopa County Air Quality Department-Dust Compliance Unit

As per Maricopa County Air Quality Rule 310, a trackout control device is defined as a gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and a paved area accessible to the public that controls or prevents vehicular trackout.

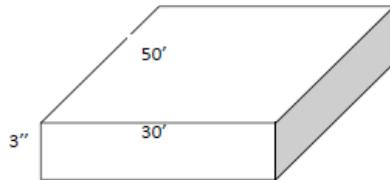


Gravel Pad

1''-3'' diameter washed gravel, rock, or crushed rock. Minimum dimensions are 50'L x 30'W x 3''D.

1 ton of 3/8", 1/2", or 1" rock will cover:

- 120 sq. ft 2" deep
- 100 sq. ft 3" deep
- 60 sq. ft 4" deep
- 40 sq. ft 6" deep
- To estimate your rock at a 3" depth:



Square Footage divided by 100 = tons

50x30=1500 sq. ft. 1500/100=15 tons (1 standard dump truck load.)

Pioneer Landscaping Materials Inc. (480.926.1700)-\$29.95/ton plus delivery (delivery varies depending on distance from dispatch yard.) + \$45 delivery

Marvel Building and Masonry Supply (480.945.7219)-\$23.95/ton plus delivery (delivery varies depending on distance from dispatch yard.) + \$20 per truck

All Star Materials (480.839.1442)-\$25.00/ton plus delivery (delivery varies depending on distance from dispatch yard.) Free Delivery

Average of the three examples above=\$394.50 plus delivery.



Grizzly

Grizzly rails must be a minimum of 3'' tall, 6'' apart, and 20 feet long. The easiest way to explain what a grizzly looks like is to compare it to a "cattle guard" type system.

The Grizzly Trackout Control Device (1.800.761.0056; www.trackoutcontrol.com.) Product pricing was not available at the time of this writing. This company offers two different size grates-8'Lx10'W or 8'Lx20'W.

Contractor's Service, LLC (562.310.3017; www.contractors-services.us.) Product cost varies on the current price of steel. Average cost of 1 plate (8'L X10'W) is around \$2,100.00. Shipping would be an additional \$300.00.



Wheel Wash

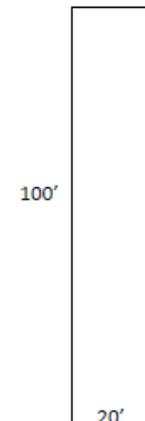
This is a relatively new system. There are no design parameters written into the Air Quality regulations for wheel wash systems. These systems are rarely encountered.

Stanton Systems (1.800.884.9281; www.tirewash.com.)-Wheel wash system can be setup on a portable or permanent basis. \$62,000.00 plus shipping.

National Environmental Service Company (973.543.4586; www.drdust.com/wheelwash.) No pricing was available at the time of this writing.

Paving

The paved area must extend down the centerline of the intersection of the paved area accessible to public a distance of 100' and a width of 20'. This is the most difficult control measure to estimate due to many factors. The area must first be prepped (land clearing, debris removal) before pavement can be applied. The area must also be graded and filled if necessary. After grading it will be ready for paving using any number of materials (concrete, asphalt.) The cost of materials and labor will need to be included as well. This control measure will need to be bid out to contractors.





Questions????

Guide to Agricultural PM10 Best Management Practices

<http://www.azda.gov/ACT/AirQuality.htm>