

Evaluation of PM-10 Control Measures in the 2012 Five Percent Plan

Maricopa County Air Quality
Planning & Analysis Division



Maricopa County
Air Quality Department



WALK MORE USE CFLS MORE CARPOOL MORE
BIKE MORE RAKE MORE TELECOMMUTE
MORE DRIVE HYBRIDS MORE CONSOLIDATE
ERRANDS MORE RIDE PUBLIC TRANSPORTATION
MORE USE ENERGY EFFICIENT APPLIANCES
MORE CARRY REUSABLE TOTE BAGS MORE
CONSIDER SOLAR MORE RUN COLD WATER
CYCLES MORE USE REUSABLE CONTAINERS
MORE CONSERVE ELECTRICITY MORE REDUCE
WOODBURNING MORE RECYCLE MORE USE
ELECTRIC LAWN AND GARDEN EQUIPMENT
MORE REFUEL AFTER DARK MORE RIDE
THE BUS MORE RIDE THE LIGHT RAIL MORE
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**CLEAN AIR
MAKE
MORE**

- Background

- Maricopa County is in non-attainment for PM-10 NAAQS
- Clean Air Act requires Maricopa County to reduce PM-10 emissions by 5% each year
- 5% Plan quantified PM-10 emission reductions by taking credit for increases in rule effectiveness (RE)
 - Rule 310: Fugitive Dust from Dust-Generating Operations
 - Rule 316: Nonmetallic Mineral Processing
 - Rule 310.01: Fugitive Dust from Non-Traditional Sources of Fugitive Dust



- RE Study Purpose
 - Evaluate if anticipated PM-10 emissions reductions were achieved during calendar year 2012
 - Rule 310 and Rule 316
 - Demonstrate Dust Action General Permit increased RE of Rule 310.01 by 1%
 - Allowed by EPA guidance: *Incorporating Emerging and Voluntary Measures in State Implementation Plan*

- RE Methodology
 - Methodology developed in consultation with EPA
 - Same methodology as previous RE studies
 - 4 step method
 - Define the parameters of study
 - When: CY 2012
 - Where: Maricopa County
 - What: Rule 310, 310.01, & 316
 - Identify relevant emission sources
 - Earthmoving permits, R316 permits, 310.01 sources
 - Identify relevant inspections
 - Only inspections that determine compliance
 - Identify relevant violations
 - Only RE applicable, emission-based violations

Violation Type

- Emission vs. Procedural Violations
 - Emission Violations
 - R310, S304.3: Failure to stabilize disturbed surface areas
 - R310, S302.1: Failure to obtain dust permit
 - R316, S501: Failure to maintain daily records of operations
 - Procedural Violations
 - R310, S308: Failure to erect and maintain a project information sign

Rule Effectiveness

- Reduce inspection & violation data to “unique sources”
 - Reduces “noise”
 - Eliminates limited-observation inspections

- RE Equation:

$$RE = 1 - \left(\frac{\text{Sources with an Emission-based Violation}}{\text{Total Sources Inspected}} \right)$$

RE Rule 316

- Rule 316: Nonmetallic Mineral Processing

- # of unique sources with emissions violation: 27
- # of unique sources inspected: 155

- $RE = 1 - \left(\frac{\text{Sources with an Emission-based Violation}}{\text{Total Sources Inspected}} \right)$
 $= 1 - \left(\frac{27}{155} \right)$
 $= 83\%$

RE Rule 310

- Rule 310: Fugitive Dust from Dust-Generating Operations

- # of unique sources with emissions violation: 216
- # of unique sources inspected: 2971

- $RE = 1 - \left(\frac{\text{Sources with an Emission-based Violation}}{\text{Total Sources Inspected}} \right)$
 $= 1 - \left(\frac{216}{2971} \right)$
 $= 93\%$

RE Rule 310.01

- Rule 310.01: Fugitive Dust from Non-Traditional Sources of Fugitive Dust

- # of unique sources with emissions violation: 129
- # of unique sources inspected: 5431

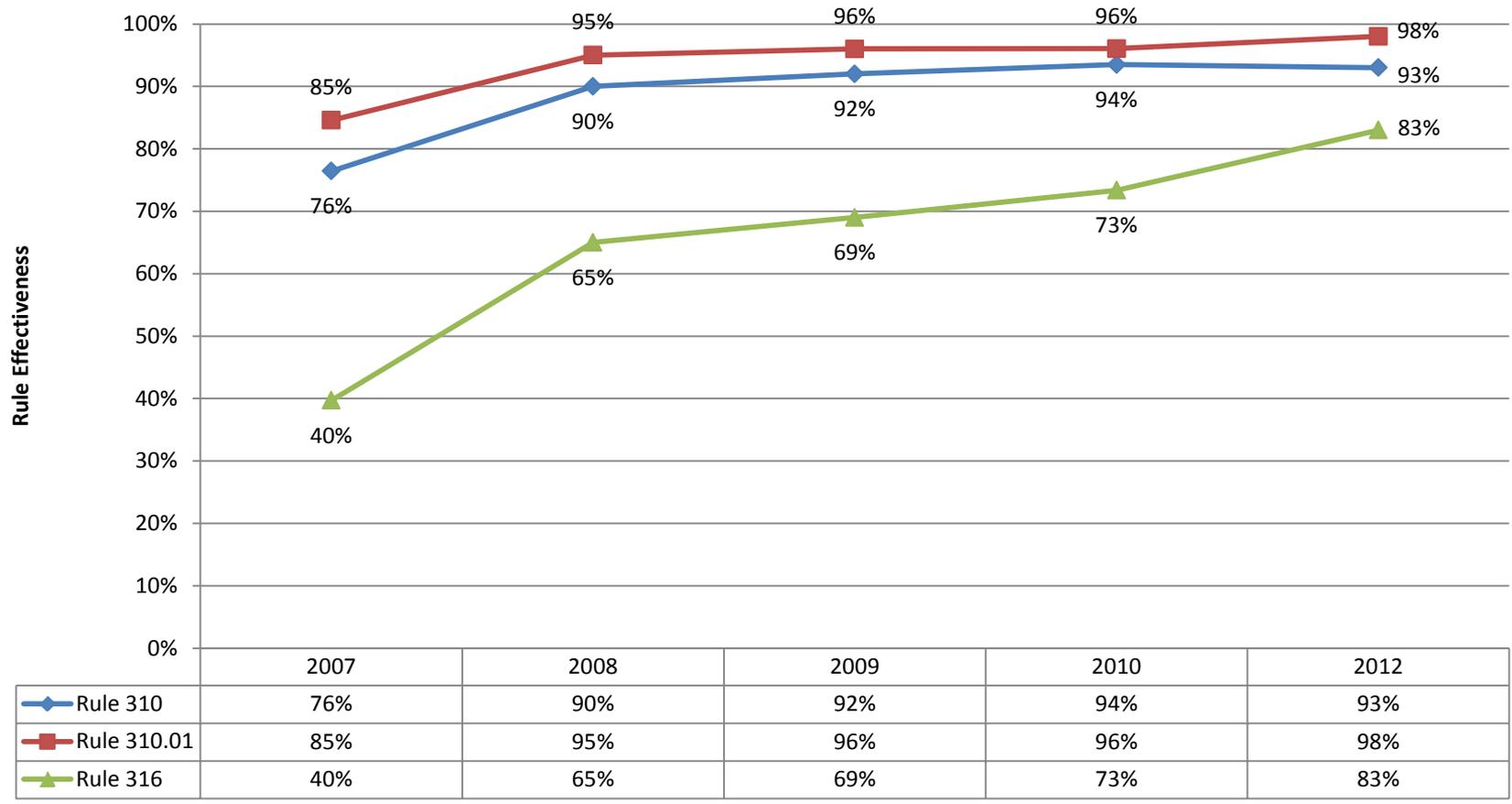
- $RE = 1 - \left(\frac{\text{Sources with an Emission-based Violation}}{\text{Total Sources Inspected}} \right)$
 $= 1 - \left(\frac{129}{5431} \right)$
 $= 98\%$

CLEAN AIR MAKE MORE

WALK MORE USE CFLS MORE
ERRANDS MORE RIDE PUBLIC
MORE CONSIDER SOLAR MORE
REDUCE WOODBURNING MORE
MORE RIDE THE BUS MORE

RE Results

DRIVE MORE CONSOLIDATE
ERRANDS REUSABLE TOTE BAGS
CONSERVE ELECTRICITY MORE
REFUEL AFTER DARK
RISE MORE RAKE MORE



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WOODBURNING MORE RECYCLE MORE USE ELECTRIC LAWN AND GARDEN EQUIPMENT MORE REFUEL AFTER DARK MORE RIDE THE BUS MORE WALK MORE

- RE Results
 - 2% increase in Rule 310.01 RE
 - 5% Plan estimated a 1% increase to Rule 310.01 RE because of ADEQ Dust Action General Permit
 - 10% increase in Rule 316 RE

- Emissions Reduction
 - Overall RE increases exceed the reduction of PM-10 quantified in 5% Plan
 - Actual reduction of 16,190 tons of PM-10
 - 101 tons greater than estimated in the 5% Plan

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