Appendix 2.1

Instructions for Reporting 2002 Annual Air Pollution Emissions

MARICOPA COUNTY
AIR QUALITY DEPARTMENT

INSTRUCTIONS

FOR REPORTING 2005

ANNUAL AIR POLLUTION EMISSIONS

February 2006

Emissions Inventory Unit
1001 North Central Avenue, Suite 400
Phoenix, Arizona 85004
(602) 506-6790
(602) 506-6985 (Fax)

Copies of this document, related forms and other reference materials are available online at our web site:
www.maricopa.gov/aq/ei.aspx

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WHAT'S NEW FOR 2005?

Emissions reporting requirements:

- The US EPA has recently designated the chemical **t-butyl acetate** (CAS number 540-88-5) as a VOC for record-keeping and emissions reporting requirements, but not for emission limitations or content requirements. If you use this chemical at your facility, see the box on page 3 for specific reporting instructions.

- It is **critical** to the accuracy of your report to use the emission calculation method that best represents **actual** emissions from your facility. Page 4 of these instructions now includes details on the preferred emission calculation methods. Please double check your emissions calculations to make sure the best method is employed.

Reporting forms:

- Some **pre-printed information** on your report may be different from last year's version. Please review the enclosed forms carefully, and verify all pre-printed information.

- Many of our reporting forms **have changed** recently. If you use your own forms, or a computerized reproduction of our forms, the forms used ***MUST*** conform to the current information requirements and **FORMAT** as supplied on our preprinted forms. "Homemade" reporting forms that vary significantly from the preprinted forms sent to you will ***not*** be accepted.

Miscellaneous:

- **EPA emission factors** for certain activities at sand and gravel facilities have been revised. The new emission factors appear on applicable pre-printed general process forms and are also listed on our revised Sand & Gravel Helpsheet available at: **www.maricopa.gov/aq/ei.aspx**

- In accordance with Maricopa County Air Pollution Control Rule 280 (Fees), the 2005 annual emission fee (for Title V sources only) is $13.65/ton.

I. INTRODUCTION

An annual emissions inventory is a document submitted by a business that: (1) lists all processes emitting reportable air pollutants and (2) provides details about each of those processes. Submitting the emissions inventory report is ***required*** as a condition of your Maricopa County Air Quality Permit. A separate emissions report is required for each business location with its own air quality permit.

Follow these steps to complete your 2005 Maricopa County emissions inventory:

STEP 1: Determine which forms are needed for your business. There are eight different forms available, but not all are required for every type of business. For most permitted sources, the packet you received from us contains the necessary pre-printed forms based on your site's most recent emissions inventory.

1. **Business Form**: Contains general contact information about the permitted site. This form is required for all businesses.
2. **Stack Form**: Only required if your business location annually emits over 10 tons of a single pollutant (CO, VOC, NO_x, PM_{10}, or SO_x). A "stack" is defined as a stack, pipe, vent or opening through which a significant percentage of emissions (from one or more processes) are released into the atmosphere. See the "Stack Form Instructions" on page 9 for specific requirements.
3. **Control Device Form**: Required only if there is one or more emission control devices used at the business location.
4. **General Process Form** and
5. **Evaporative Process Form**: } Either or both will be required for all businesses.
6. **Off-Site Recycling/Disposal Form**: Required if you want to claim off-site recycling or disposal.
7. **Emission Factor Calculations**: Required as attachment for each process for which you calculated your own emission factors.
8. **Data Certification Form or Data Certification/Fee Calculation Form**: Only sources with a **Title V** permit are required to pay a fee for their emissions and need to use the Data Certification/Fee Calculation Form. All other sources use the Data Certification Form.

STEP 2: Complete the applicable forms. Verify all preprinted information, and make corrections where necessary. When making corrections, strike out the preprinted data and write in corrections beside it. Please make all changes readily noticeable. Detailed information on how to complete the most common forms is included in this document. The packet you received also contains information about other resources (workshops, one-on-one assistance, etc.) available to help you in completing the necessary forms.

STEP 3: Make a copy of your completed emissions inventory report. Make sure to KEEP COPIES of all forms submitted and copies of all records and calculations used in completing the forms. Air pollution control regulations require that you keep all documentation for at least FIVE YEARS at the location where pollution is being emitted.

STEP 4: Make sure the Data Certification Form (or Data Certification/Fee Calculation Form for Title V sources) is ***signed*** by a company representative. ***Include your air quality permit number on all correspondence and applicable checks submitted with your report.*** Return the ***original***, signed copy of your annual emission report, with payment for any applicable emission fees to:

Maricopa County Air Quality Department
Emissions Inventory Unit
1001 North Central Avenue, Suite 100
Phoenix, AZ 85004

II. REPORTING REQUIREMENTS

POLLUTANTS TO BE REPORTED:
Your emissions inventory must include your business's emissions of the following air pollutants:

CO	=	Carbon monoxide
NO_x	=	Nitrogen oxides
PM_{10}	=	Particulate matter less than 10 microns
SO_x	=	Sulfur oxides
VOC	=	Volatile organic compounds *
HAP&NON	=	Hazardous Air Pollutant (HAP) that is also NOT a volatile organic compound (VOC)**
NH_x	=	Ammonia and ammonium compounds
Pb	=	Lead

* A ***volatile organic compound (VOC)*** is defined as any compound of carbon that participates in atmospheric photochemical reactions. This definition ***excludes***: carbon monoxide, carbon dioxide, acetone, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, as well as certain other organic compounds. (See Maricopa County Air Pollution Control Rule 100, Sections 200.69 and 200.110 for a full definition.)

NEW FOR 2005: EPA has redesignated the chemical **t-butyl acetate (CAS Number 540-88-5)** as a VOC for record-keeping requirements and emissions reporting, but not for emission limitations or content requirements. An anticipated revision to County Rule 100, Section 200.69 (tentatively scheduled for adoption in March 2006) will incorporate this change as follows:

"The following compound(s) are VOC for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling and inventory requirements which apply to VOC and shall be uniquely identified in emission reports, but are not VOC for purposes of VOC emissions limitations or VOC content requirements: t-butyl acetate (540-88-5)."

Therefore, if your facility uses t-butyl acetate, it is necessary to report t-butyl acetate as a separate material on the evaporative process form, not as part of a grouped material (e.g., solvents, thinners, activators, etc.). T-butyl acetate will continue to be identified as a VOC on your emission report and count towards any applicable emission fees.

** ***HAP&NON:*** Usage of certain materials that are: (1) a Hazardous Air Pollutant (HAP) **and** (2) **not** also a VOC (that is, not also an ozone precursor) should also be reported if:
(a) your site is subject to a Federal MACT (Maximum Achievable Control Technology) standard ***or***
(b) your air quality permit contains specific quantitative limits for HAP emissions.

The most common materials categorized as "HAP&NON" include:

- methylene chloride (dichloromethane)
- perchloroethylene
- 111-trichloroethane (111-TCA or methyl chloroform)
- hydrochloric acid
- hydrofluoric acid

NOTE: HAPs that are also considered volatile organic compounds are reported as VOC.

EMISSION CALCULATION METHOD HIERARCHY:

When preparing emission information for your report, the most accurate method for calculating **actual** emissions must be used. The hierarchy listed below outlines the preferred methods for calculating emission estimates. (The hierarchy listed below will be incorporated into an anticipated July 2006 revision of Rule 280 of Maricopa County's Air Pollution Control Rules and Regulations).

(1) Whenever available, emissions estimates should be calculated from continuous emissions monitors certified under 40 CFR Part 75, Subpart C, or data quality assured pursuant to Appendix F of 40 CFR, Part 60.

(2) When sufficient data obtained using the methods described in paragraph 1 is not available, emissions estimates should be calculated from source performance tests conducted pursuant to Rule 270 in Maricopa County's Air Pollution Control Rules and Regulations.

(3) When sufficient data obtained using the methods described in paragraphs 1 or 2 is not available, emissions estimates should be calculated from material balance using engineering knowledge of the process.

(4) When sufficient data obtained using the methods described in paragraphs 1 through 3 is not available, emissions estimates shall be calculated using emissions factors from EPA Publication No. AP-42 "Compilation of Air Pollutant Emission Factors," Volume I: Stationary Point and Area Sources.

(5) When sufficient data obtained using the methods described in paragraphs 1 through 4 is not available, emissions estimates should be calculated by equivalent methods supported by back-up documentation that will substantiate the chosen method.

III. CONFIDENTIALITY OF DATA SUBMITTED

Information submitted in your annual emissions reports must be made available to the public unless it meets certain criteria of Arizona State Statutes and Maricopa County Rules. Applicable excerpts concerning confidentiality of data are reproduced below.

ARS § 49-487 D. ...the following information shall be available to the public:…

2. The chemical constituents, concentrations and amounts of any emission of any air contaminant. ...

MARICOPA COUNTY AIR POLLUTION CONTROL RULES AND REGULATIONS, Rule 100:

§ **200.107 TRADE SECRETS -** Information to which all of the following apply:

a. A person has taken reasonable measures to protect from disclosure and the person intends to continue to take such measures.

b. The information is not, and has not been, reasonably obtainable without the person's consent by other persons, other than governmental bodies, by use of legitimate means, other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding.

c. No statute, including ARS §49-487, specifically requires disclosure of the information to the public.

d. The person has satisfactorily shown that disclosure of the information is likely to cause substantial harm to the business's competitive position.

§ **402 CONFIDENTIALITY OF INFORMATION:**

402.2 Any records, reports or information obtained from any person under these rules shall be available to the public ... unless a person:

a. Precisely identifies the information in the permit(s), records, or reports which is considered confidential.

b. Provides sufficient supporting information to allow the Control Officer to evaluate whether such information satisfies the requirements related to trade secrets as defined in Section 200.107 of this rule.

For emissions inventory information to be deemed confidential, the following steps must be followed:

- Specific data which you request be held confidential must be identified by marking an "X" in the corresponding gray confidentiality box(es) on the relevant report forms.
- Provide a written explanation which gives factual information satisfactorily describing why releasing this information could cause substantial harm to the business's competitive position.
- Use the gray-shaded boxes on the reporting forms to indicate which data are to be held confidential. Do NOT stamp "Confidential", highlight data, or otherwise mark the page.
  No data can be held confidential without proper justification.

IV. HELPFUL HINTS AND INFORMATION

Be sure to verify all preprinted information on forms. If any information is incorrect or blank, please provide correct information. Making a change on the Business Form will **NOT** transfer the permit ownership or location. You must contact the Department's Permit Engineering Division at (602) 506-6464 to accomplish this.

WHAT IS A PROCESS? A ***process*** is a business activity at your location that emits one or more of the pollutants listed on page 3, and has only ***one*** material type as input and ***one*** operating schedule. For each applicable process at your business, you must assign a unique Process ID number to differentiate each process.

PROCESSES AND MATERIALS THAT DO ***NOT*** HAVE TO BE REPORTED:

- Welding.
- Acetone usage.
- Fuel use for forklifts or other vehicles. (NOTE: Fuel use in ***non-vehicle*** engines ***is*** reportable.)
- Soil remediation activities. (Note: Other periodic reporting requirements may exist; consult your permit.)
- Storage emissions from fuels or organic chemicals in any tank with a capacity of 250 gallons or less.
- Storage emissions of diesel and Jet A fuel in underground tanks of any size.
- Storage emissions of diesel and Jet A fuel in aboveground tanks, with throughput < 4,000,000 gal/yr.
- Routine pesticide usage, housekeeping cleaners, and routine maintenance painting at your facility.

Please group all similar equipment and materials together before applying the following limitations:

- Internal combustion engines (e.g., emergency generators) or external combustion equipment (e.g., boilers and heaters) that operated less than 100 hrs. and burned less than 200 gals. diesel or gas, or less than 100,000 cubic feet of natural gas.
- Materials with usage of less than 15 gallons or 100 pounds per year.

GROUPING MATERIALS AND/OR EQUIPMENT UNDER ONE PROCESS ID:

You can group together under one process ID:

- All internal combustion engines ***less than 600 hp*** if they burn the same fuel and have similar operating schedules.
- All external combustion equipment (boilers, heaters) with a capacity of ***less than 10,000,000 Btu*** per hour if they burn the same fuel and have similar operating schedules.
- All similar evaporative materials with similar emission factors that have similar operating schedules and process descriptions. For example, group low-VOC red paint, green paint and white paint together as one material: "Paint: Low-VOC." Do ***not*** group dissimilar materials together, such as thinners and paints. Attach documentation (see example, p. 20) showing how the grouped emission factor was determined.
- All underground tanks with the same fuel and same type of vapor recovery system.

ASSIGNING IDENTIFICATION NUMBERS (IDs):

Unique IDs are required for the following report elements: Stacks, Control Devices and Processes. For processes, that means a process ID number may be used only once on each General Process form and for each material reported on the Evaporative Process Forms.

These numbers are usually assigned by the person who prepares the original report. If you are adding a new item to a preprinted report, assign a number not already in use. Once an ID number is assigned, continue

using the same number for that item each year. If that item is no longer reportable, return the preprinted form with a brief explanation. Do not use that ID number again.

INDUSTRY-SPECIFIC INSTRUCTIONS: Additional help sheets, detailed examples, and special instructions are available for a number of specific processes or industries listed below. To get copies of any of these documents, please visit our web site at *www.maricopa.gov/aq/ei.aspx* or call (602) 506-6790.

- Bakeries
- Concrete Batch Plants
- Fuel Storage and Handling
- Incinerators and Crematories
- Lg. Aboveground Storage Tanks
- Natural Gas Boilers/Heaters
- Polyester Resin
- Printing Plants
- Roofing Asphalt
- Sand and Gravel Plants
- Using EPA's TANKS 4.09d Program
- Vehicle Refinishing
- Vehicle Travel on Unpaved Roads
- Woodworking

COMMONLY USED CONVERSION FACTORS:

1 gram/liter	= 0.00834 lbs/gal	1 foot	= 0.0001894 mile
1 liter	= 0.2642 gallon (US)	1 square foot	= 0.000022957 acre
1 therm	= 0.0000952 MMCF	1 pound	= 0.0005 ton

NOTE: MM = 1,000,000 Example: MMCF = 1,000,000 cubic feet
M = 1,000 Example: MGAL = 1,000 gallons

ADDITIONAL RESOURCES AND ASSISTANCE:
The Maricopa County Emissions Inventory web site at *www.maricopa.gov/aq/ei.aspx* contains additional reference materials, such as:

- blank copies of most emissions reporting forms.
- an updated list of emission factors for a large number of industrial processes, including SCC codes.
- a list of Tier Codes for industrial processes.
- detailed help sheets for a number of specific industries or processes.

To receive any of the above materials by fax or mail, or for additional information or assistance in how to calculate and report your emissions, please call us at (602) 506-6790.

V. INSTRUCTIONS AND EXAMPLES FOR COMPLETING EMISSIONS REPORTING FORMS

Business Form Instructions

Verify all preprinted information, and make corrections where necessary. When making corrections, strike out the preprinted data and write in corrections beside it. Please make all changes readily noticeable.

NOTE: Indicating a change in ownership or business location on the Business Form will ***not*** serve to transfer the permit ownership or location. You must contact the Department's Permit Engineering Division at (602) 506-6464 to accomplish this.

Data fields:

6 Number of employees: This should be the annual average number of full-time equivalent (FTE) employee positions ***at this business location***.

9 NAICS Code: This 5- or 6-digit North American Industrial Classification System (NAICS) code has been introduced to replace the 4-digit Standard Industrial Classification (SIC) codes. Please list the primary and secondary NAICS codes for your business, if known. (Consult our website, at *www.maricopa.gov/aq/ei.aspx*, for a link to a full list of NAICS codes.)

10 Preparer of the Inventory (primary contact for technical questions concerning this report): This should be the person who knows the most about the data in the report. If this person has an e-mail address used for business purposes, please provide it.

Stack Form Instructions

A "stack" is defined as a **stationary** stack, pipe, vent or opening through which a significant percentage of emissions (from one or more processes) are released into the atmosphere (with or without a control device).

NOTE: Stack information is required only if your business location annually emits over 10 tons of any one individual pollutant. If so, you must complete a Stack Form for:

- each stack connected to a control device.
- any stack that discharges annually more than 5 tons of combined pollutant emissions (such as a paint booth exhaust).

EXAMPLE Stack Form Information:

1	2	3	4	5a OR 5b		6a OR 6b & 6c			7
Stack ID	Stack Type Code*	Stack Height**	Exit Gas Temperature	Velocity feet/sec	Flow Rate acfm	Diameter inside inch	Length / Width inside inch		Stack Name/Description. Include lat/long coordinates of stack (in decimal degrees)
1	***W***	***30*** ft	***90*** ^{o}F		***20,000***	***36***			***paint booth Lat: N33.531873 Long: W112.261331***
2	***V***	***14*** ft	***200*** ^{o}F		***19,186***	***40***			***thermal oxidizer, Bldg. 2 Lat: N33.5325 Long: W112.26136***

* Stack Type Codes: **V** = Vertical unobstructed; **H** = Horizontal unobstructed; **D** = Downward unobstructed; **G** = Gooseneck; **W** = Obstructed vertical (e.g. weather cap)

** Stack height is calculated relative to the surrounding terrain. For instance, the stack height of a 10-foot stack on top of a 20-foot tall building is 30 feet.

Data fields:

1 Stack ID: (See "Assigning Identification Numbers" on page 6.) A number (up to three digits, numeric only) which identifies a specific stack. It is suggested you start with 1, then 2, etc.

4 Exit Gas Temperature: Should represent average operating conditions, in degrees Fahrenheit. ***DO NOT*** report "ambient".

5a Exit Gas Velocity: ***OR*** 5b Gas Flow Rate:
Provide ***EITHER*** the exit velocity (in feet per second) ***OR*** the flow rate of gas (in actual cubic feet per minute) exiting the stack during normal operations. Preprinted information provides both.

6a Inside Stack Diameter: For round stacks, provide Inside Stack ***Diameter*** in inches.
OR
6b & 6c Inside Stack Length and Width: For square or rectangular stacks, provide inside ***Length and inside Width*** in inches.

7 Stack Name/Description and Lat/Long Coordinates: Provide a brief text description of the stack along with the latitude and longitude coordinates of the stack (in decimal degrees).

Control Device Form Instructions

EXAMPLE Control Device Form Information

1	2	3	4	5	6
Control ID	Installation/ Reconstruction* Date	Size or Rated Capacity**	Control Type Code	Control Device Name/Description	Stack ID
1	***05/09/98***	***25,000.0*** cfm	***021***	***Thermal oxidizer***	***2***
4	***03/10/97***	cfm	***153***	***Watering with water trucks***	

Data fields:

1 Control ID: (See "Assigning Identification Numbers" on page 6.) A unique number (up to three digits) that you assign to identify a specific control device.

2 Installation/Reconstruction Date: The completion date (given in *mm/dd/yy* format) of installation or the most recent reconstruction of the identified control device. This is not a date on which routine repair or maintenance was done. Reconstruction means any component of the control device was replaced and the cost (fixed capital) of the new component(s) was more than half of what it would have cost to purchase or construct a new control device.

3 Size or Rated Capacity: Report the air or water flow rate in ***cubic feet per minute***. Some devices (e.g., water trucks for dust control) will not include a value in this field.

4 Control Type Code: A 3-digit code designating the type of control device. A complete list of all EPA control device codes can be found on the Web at *www.maricopa.gov/aq/ei.aspx* or call (602) 506-6790 for assistance.

6 Stack ID: Not all businesses require a Stack ID. This is required if the Stack Form is used for your site (see page 9) ***and*** the control device is vented through that identified stack. This is the ID number shown in column 1 of the Stack Form. The Stack ID can be entered on this form after the Stack Form has been filled out.

General Process Form Instructions

The General Process Form is used to record data on all emissions-producing processes except evaporative processes. A "***general process***" is normally characterized by the burning or handling of a material. One form reports all the pollutants for one process. For example, several pollutants are produced by burning fuel, and PM_{10} is emitted by processing rock products, processing materials such as wood or cotton, and driving on unpaved areas.

Data fields: (See sample forms on pages 13 and 14.)

1 Process ID: A number (up to three digits) that is preprinted or you assign. (See "Assigning Identification Numbers" on page 6.) This Process ID number can not be used for any other process at this location.

2 Process Type/Description: Brief details on the type of activity that is occurring.

3 Stack ID(s): The stack ID number(s) shown in column 1 of the Stack Form that identify the stack(s) which vent pollution created by this process. Not all businesses are required to report stacks. This is only required if the Stack Form is required for your site (see page 9) ***and*** the process has a stack.

4 Process Tier Code and
5 SCC Code:
If these codes are not preprinted on your form, please consult the section "Other Resources" on our web site, or call (602) 506-6790.

6 Seasonal Throughput Percent: Enter the percent of total annual operating time that occurred per season, rounded to the nearest percent. For example, "Dec-Feb 30% " means 30% of total annual activity occurred in January, February and December 2005. The total for all four seasons must equal 100%.

7 Normal Operating Schedule and
8 Typical Hours of Operation:
These reflect the normal daily, weekly, and annual operating parameters of ***this process*** during 2005.

9 Emissions Based on: Provide the ***name*** of the material used, fuel used, product produced, or whatever was measured for the purpose of calculating emissions, such as "natural gas", "hours of operation," "vehicle miles traveled," or "acres."

10 Used, Produced or Existing: Indicate whether calculated emissions are based on a material type or fuel *used* (an input, such as "paint" or "natural gas"), or an *output* (such as "sawdust produced" or "finished product"). Use "Existing" if the parameter reported on line 9 is not directly used or produced in the process (such as "vehicle miles traveled" or "acres").

11 Annual Amount: The annual amount (a number) of material that was used, fuel combusted, product produced, hours of operation, vehicle miles traveled, or acres.

12 Fuel Sulfur Content (in percent): For processes that involve the combustion of oil or diesel fuels, report the sulfur content of the fuel as a decimal value. Example: 0.05 % (= 500 ppm)

13 Unit of Measure: Units of the material used, fuel used or product produced shown on line 9. For example: gallons, pounds, tons, therms, acres, vehicle miles traveled, units produced.

14 Unit Conversion Factor: You must provide this if you use an emission factor with an emission factor unit (see item 17 below) that is ***not*** the same as the unit of measure (from line 13). This is the standard number you would multiply your amount (line 11) by to convert it to the units of the emission factor. See page 7 for a list of commonly used conversion factors.

General Process Form Instructions (continued)

15 Pollutant: See page 3 for a list of pollutants that need to be reported.

16 Emission Factor (EF): The number to be multiplied by the annual amount (line 11) to determine how much of the pollutant was emitted. If you calculate your own emission factor or change the preprinted emission factor, you must provide details of your calculations in an attachment.

17 Emission Factor (EF) Units: Enter the appropriate Emission Factor Units in pounds (lb) per unit; e.g., lb/ton, lb/MMCF, lb/gal.

18 Controlled Emission Factor (EF)? YES or NO: Indicate "YES" if: 1) you have your own emission factor from testing **and** included the control device efficiency within the factor, or 2) the emission factor used is clearly identified as a controlled emission factor. A "YES" response requires the use of Formula A (see #25 below). Indicate "NO" if: 1) there is no emission control device, or 2) the emission factor represents emission rates **before** controls. A "NO" response requires the use of Formula B (see #25 below).

19 Calculation Method: Enter the number code (listed at the bottom of the General Process Form) which best describes the method you used to obtain this emission factor. Code 5, "AP-42/FIRE Method or Emission Factor" means that the factor comes from EPA documents or software. ***NOTE:*** If you have continuous emissions monitors (CEM) data or conducted a source test that was required and approved by the County for a specific process or piece of equipment, you ***must*** use the emission data from the CEM or the test results. Report "1" in this column for CEM data or "4" for performance test data.

20 through 24: Leave blank if there is no control device.

20 Capture % Efficiency: The percent of the pollutant that is captured and sent to the primary control device in this process. Be sure to list capture efficiency separately for ***each*** pollutant affected.

21 Primary Control Device ID: If this pollutant is being controlled in this process, enter the Control Device ID number which represents the first control device affecting the pollutant.

22 Secondary Control Device ID: If this pollutant is being controlled sequentially by 2 devices, enter the Control Device ID number which represents the second control device; otherwise leave this field blank.

23 Control Device(s) % Efficiency: Enter the total control efficiency of the control device(s). Be sure to list control device efficiency separately for ***each*** pollutant affected. If you report control device efficiency, you must ***also*** show capture efficiency in column 20.

24 Efficiency Reference Code: Enter the code (1 through 6) that best describes how you determined the ***control device efficiency***. A list of possible codes is included at the bottom of the form.

25 Estimated Actual Emissions (in pounds/year): You may round the calculated emissions values to the nearest pound. Calculate as follows:

A. *Emissions with no controls* or *controls are reflected in the emission factor:*
Column 25 = line 11 × line 14 × column 16

B. *Emissions after control:*
Column 25 = line 11 × line 14 × column 16 × (1 – [column 20 × column 23])

Use the decimal equivalent for columns 20 and 23. Example: 96.123% = 0.96123

General Process Form **2005**

EXAMPLE: Internal Combustion

Permit number(s) V99999

Place an X in any gray cell to mark data requested to be held confidential. See page 5 for requirements for information to be deemed confidential.

1- Process ID 80

2- Process Type/Description: 3 ENGINES FOR CRUSHING (EACH LESS THAN 600 HP)

3- Stack ID(s) *(only if required on Stack Form)* _____ _____ _____ _____ _____

4- Process TIER Code: 020599 FUEL COMB. INDUSTRIAL: INTERNAL COMBUSTION

5- SCC Code 20200102 *(8 digit number)* IND:DIESEL-RECIPROCATING

6- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

7- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080 Weeks/Year 52

8- Typical Hours of Operation: *(military time)* Start 0700 End 1530

9- Emissions based on *(name of material or other parameter, e.g. "rock", "diesel", "vehicle miles traveled")* DIESEL

10- [X] Used (input) or [ ] Produced (output) or [ ] Existing (e.g. VMT, acres)

11- Annual Amount: *(a number)* 16,250

12- Fuel Sulfur Content (in percent) 0.05 %

13- Unit of Measure: *(for example: tons, gallons, million cu ft, acres, units produced, etc.)* GALLONS

14- Unit Conversion Factor *(if needed to convert Unit of Measure to correlate with emission factor units)* 0.001

	Emission Factor (EF) Information				Control Device Information					
15	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Pollutant	Emission Factor (EF) (number)	Emission Factor Unit (lb per)	Controlled EF? Yes or No	Calculation Method Code*	Capture % Efficiency	Primary Control Device ID	Secondary Control Device ID	Control Device(s) % Efficiency	Efficiency Reference Code**	Estimated Actual Emissions
CO	130	M GALS	N	5						2,113 lbs
NOx	604	M GALS	N	5						9,815 lbs
PM-10	42.5	M GALS	N	5						691 lbs
SOx	39.7	M GALS	N	5						645 lbs
VOC	49.3	M GALS	N	5						801 lbs

*** Calculation Method Codes:**

1 = Continuous Emissions Monitoring Measurements
2 = Best Guess / Engineering Judgment
3 = Material Balance
4 = Source Test Measurements (Stack Test)
5 = AP-42 / FIRE Method or Emission Factor
6 = State or Local Agency Emission Factor
7 = Manufacturer Specifications
8 = Site-Specific Emission Factor
9 = Vendor Emission Factor
10 = Trade Group Emission Factor

**** Control Efficiency Reference Codes:**

1 = Tested efficiency / EPA reference method
2 = Tested efficiency / other source test method
3 = Design value from manufacturer
4 = Best guess / engineering estimate
5 = Calculated based on material balance
6 = Estimated, based on a published value

General Process Form **2005**

EXAMPLE: Unpaved Road Travel

Permit number(s) V99999

Place an X in any gray cell to mark data requested to be held confidential. See page 5 for requirements for information to be deemed confidential.

1- Process ID 28

2- Process Type/Description: UNPAVED ROAD TRAVEL: HEAVY-DUTY TRUCKS @ 15 MPH

3- Stack ID(s) *(only if required on Stack Form)* _____ _____ _____ _____ _____

4- Process TIER Code: 140799 MISCELLANEOUS: FUGITIVE DUST

5- SCC Code 30502504 *(8 digit number)* SAND/GRAVEL: HAULING

6- Seasonal Throughput Percent: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %

7- Normal Operating Schedule: Hours/Day 8 Days/Week 5 Hours/Year 2080 Weeks/Year 52

8- Typical Hours of Operation: *(military time)* Start 0700 End 1530

9- Emissions based on *(name of material or other parameter, e.g. "rock", "diesel", "vehicle miles traveled")* VEHICLE MILES TRAVELED (VMT)

10- ☐ Used (input) or ☐ Produced (output) or ☒ Existing (e.g. VMT, acres)

11- Annual Amount: *(a number)* 7,500

12- Fuel Sulfur Content (in percent) __ _____%

13- Unit of Measure: *(for example: tons, gallons, million cu ft, acres, units produced, etc.)* VMT

14- Unit Conversion Factor *(if needed to convert Unit of Measure to correlate with emission factor units)* _____

	Emission Factor (EF) Information				Control Device Information					
15	16	17	18	19	20	21	22	23	24	25
Pollutant	Emission Factor (EF) (number)	Emission Factor Unit (lb per)	Controlled EF? Yes or No	Calculation Method Code*	Capture % Efficiency	Primary Control Device ID	Secondary Control Device ID	Control Device(s) % Efficiency	Efficiency Reference Code**	Estimated Actual Emissions
PM-10	3.2	VMT	N	6	100	4		70	6	7200 lbs
										lbs
										lbs
										lbs
										lbs
										lbs

NOTE: Emissions in col. 25 are calculated as follows: (line 11 × col. 16) × (1 – [col. 20 × col. 23])

*** Calculation Method Codes:**

1 = Continuous Emissions Monitoring Measurements
2 = Best Guess / Engineering Judgment
3 = Material Balance
4 = Source Test Measurements (Stack Test)
5 = AP-42 / FIRE Method or Emission Factor
6 = State or Local Agency Emission Factor
7 = Manufacturer Specifications
8 = Site-Specific Emission Factor
9 = Vendor Emission Factor
10 = Trade Group Emission Factor

**** Control Efficiency Reference Codes**

1 = Tested efficiency / EPA reference method
2 = Tested efficiency / other source test method
3 = Design value from manufacturer
4 = Best guess / engineering estimate
5 = Calculated based on material balance
6 = Estimated, based on a published value

Evaporative Process Form Instructions

The Evaporative Process Form is used to report all emissions produced by evaporation. Examples include: cleaning with solvents, painting and other coatings, printing, using resin, evaporation of fuels from storage tanks, ammonia use, etc. All other processes should be shown on the General Process Form.

One Evaporative Process Form may be used to report numerous materials, with each material given a separate process ID number, as long as the information on lines 1–5 apply to all items on that form. Use a separate form for each group of materials that has a different Process Type/Description (shown on line 1), different Tier Code (line 2) or different operating schedule (lines 3, 4, or 5).

Data fields: (See sample forms on pages 17 and 18.)

1 Process Type/Description: Brief details of the activity in which the listed materials were used.

2 Process Tier Code: If this 6-digit code is not preprinted on your form, please refer to the Tier Code list at *www.maricopa.gov/aq/ei.aspx* or call (602) 506-6790.

3 Seasonal Throughput Percent: Enter the percent of total annual operating time that occurred per season (rounded to the nearest percent). For example, "Dec-Feb 30% " means 30% of the total annual activity occurred during January, February and December 2005. The total for all four seasons must equal 100%.

4 Normal Operating Schedule and
5 Typical Hours of Operation: These represent the usual number of hours, time of day and weeks per year when ***this process*** occurred during the calendar year.

6 Process ID: A number (up to three digits) that represents this specific material (process). Each process on one form must have the same tier code and operating schedule as that shown in the top portion of the form. This Process ID number can ***not*** be used for any other process at this business location. See page 6 of these instructions for more explanation of ID numbers and for exclusions and guidance on grouping materials.

7 Stack ID(s): The stack ID number(s) shown in column 1 of the Stack Form that identify the stack(s) which vent pollution created by this process. Not all businesses are required to report stacks. This is only required if the Stack Form is required for your site (see page 9) ***and*** the process has a stack.

8 Material Type: Provide the name of the material used in this process. Give the chemical name for pure chemicals or a name that reflects its use (paint, ink, etc.), rather than just a brand name or code number. Examples of materials include: paint, thinner, degreasing solvent (plus its common name), ink, fountain solution, ammonia, alcohol, ETO (ethylene oxide), gasoline (in a storage tank).

9 Annual Material Usage/Input: Amount of this material used during the year. In most cases, the amount purchased is suitable. Write in "lbs" or "gal" (pounds or gallons).

10 Pollutant: The only pollutants reported on this form are VOC, HAP&NON and NH_X (see definitions on page 3). When one process (or material) has more than one of these pollutants, list each pollutant on a separate line, using the same process ID number.

Evaporative Process Form (continued)

11 Emission Factor (EF): An emission factor is a number used to calculate the pounds of pollutant emitted based on the quantity of material used in a process. Emission factors can be obtained from your supplier (usually provided on a Material Safety Data Sheet or environmental data sheet), and must correspond with the material units reported in column 9. If the material unit is "gal," then the emission factor must be in pounds of pollutant per gallon. If the material unit is "lb," then the emission factor must be in pounds of pollutant per pound of material.

Verify (and correct, where necessary) all pre-printed emission factors, as the composition of materials used may have changed since your last report. A "lb/gal" emission factor is almost always less than 8 and never greater than 14. A "lb/lb" emission factor is never larger than 1.0.

12 Pounds of pollutant sent off-site: Required only if you wish to take credit for reduced emissions because waste of this material is sent off-site for recycling or disposal. Only waste generated during the report year may be claimed. The Off-Site Recycling/Disposal Form ***must*** be completed if you wish to claim a credit. The number of pounds reported in column 12 ***must*** equal the number of pounds reported on the Off-Site Recycling/Disposal Form(s) for the same Process ID number.

13 and 14: Leave these fields blank if there is no control device present.

13 Capture % Efficiency: The percent of the pollutant from this process that is captured and sent to the control device.

14 Control ID: If this pollutant is being controlled in this process, enter the Control Device ID number from column 1 of the Control Device Form.

Control % Efficiency: Enter the percent of this pollutant that is controlled by this control device.

Code: Select the Control Efficiency Reference Code from the list at the bottom of the form.

15 Estimated Emissions (lbs/yr): Estimated pounds of the pollutant emitted during the year, after off-site recycling/disposal and controls if applicable. **Credit will not be given for off-site recycling/disposal unless it is shown on the Off-Site Recycling/Disposal Form.** Round to the nearest pound. If the answer is 0, give a decimal answer to the first significant digit. Column 15 is calculated as follows:

Emissions without off-site recycling/disposal or controls:
Column 15 = column 9 × column 11

Emissions with off-site recycling/disposal:
Column 15 = (column 9 × column 11) – column 12

*Emissions with off-site recycling/disposal **and** controls:*
Column 15 = ([column 9 × column 11] – column 12) × (1 – [column 13 × column 14])

Use the decimal equivalent for columns 13 and 14. Example: 96.123% = 0.96123

EXAMPLE: Coating and Painting

Evaporative Process Form 2005

Permit number(s) V99999

Place an X in any gray cell to mark data requested to be held confidential. See page 5 for requirements for information to be deemed confidential.

1- Process Type/Description: *Coating metal widgets*

2- Process TIER Code: *080415* **SOLVENT USE: SURFACE COATING - MISC METAL PARTS**

3- Seasonal Throughput Percent: Dec-Feb *25* % Mar-May *25* % Jun-Aug *25* % Sep-Nov *25* %

4- Normal Operating Schedule: Hours/Day *8* Days/Week *5* Hours/Year *2080* Weeks/Year *52*

5- Typical Hours of Operation *(military time)* Start *0800* End *1700*

6	7	8	9		10	11		12	13	14			15
Process ID	Stack ID(s)	Material Type	Annual Usage Input	lb or gal	VOC, HAP&NON or NHx	Emission Factor	EF Units (lbs per)	Pounds of pollutant* sent off site	Capture Efficiency %	Control ID	Control Efficiency %	Control Efficiency Code**	Estimated Emissions (lbs/yr)
800	*1*	*Lacquer 6455-06*	*95*	*gl*	*VOC*	*4.7*	*gal*		%		%		*447*
801	*1*	*lacq thinner*	*120*	*gl*	*VOC*	*7.1*	*gal*		%		%		*852*
802	*1*	*Paint red 4039-03*	*940*	*gl*	*VOC*	*4.2*	*gal*		%		%		*3,948*
803	*1*	*paint thinner*	*707*	*gl*	*VOC*	*7.0*	*gal*		%		%		*4,949*
804	*1*	*powder paint 8730-11*	*20,200*	*lb*	*VOC*	*0.001*	*lb*		%		%		*20*
									%		%		

Note: Do NOT change pre-printed Process ID numbers. See page 6 of these instructions for information on how to delete materials that are no longer used, or to assign Process ID numbers for new materials.

* If you have off-site recycling/disposal of any of the materials listed above, you must complete an Off-site Recycling/Disposal Form to receive credit for reduced emissions.

NOTE: Emissions in col. 15 are calculated as follows: **([col. 9 × col. 11] – col. 12) × (1 – [col. 13 × col. 14])**

**** Control Efficiency Reference Codes**

1 = Tested efficiency / EPA reference method **2** = Tested efficiency / other source test method **3** = Design value from manufacturer
4 = Best guess / engineering estimate **5** = Calculated based on material balance **6** = Estimated, based on a published value.

EXAMPLE: Cleaning solvent (with recycling)

Evaporative Process Form **2005** Permit number(s) ***V99999***

Place an X in any gray cell to mark data requested to be held confidential. See page 5 for requirements for information to be deemed confidential.

1- Process Type/Description: ***Cleaning metal parts***

2- Process TIER Code: ***080103*** **SOLVENT USE: DEGREASING - COLD CLEANING**

3- Seasonal Throughput Percent: Dec-Feb ***25*** % Mar-May ***25*** % Jun-Aug ***25*** % Sep-Nov ***25*** %

4- Normal Operating Schedule: Hours/Day ***8*** Days/Week ***5*** Hours/Year ***2080*** Weeks/Year ***52***

5- Typical Hours of Operation *(military time)* Start ***1300*** End ***1700***

6	7	8	9		10	11		12	13	14			15
Process ID	Stack ID(s)	Material Type	Annual Usage Input	lb or gal	VOC, HAP&NON or NHx	Emission Factor	EF Units (lbs per)	Pounds of pollutant* sent off site	Capture Efficiency %	Control ID	Control Efficiency %	Control Efficiency Code**	Estimated Emissions (lbs/yr)
3	***2***	***sanitizer***	***716***	***lb***	***VOC***	***1.0***	***lb***		***95*** %	***1***	***80*** %	***3***	***172***
6		***gun cleaner***	***180***	***gl***	***VOC***	***7.2***	***gl***	***569***	%		%		***727***
7		***xyz stripper***	***1300***	***gl***	***VOC***	***3.3***	***gl***	***1,884***	%		%		***2,406***
8		***cleaning solvents***	***358***	***gl***	***VOC***	***6.4***	***gl***	***1,006***	%		%		***1,285***
9		***generoclean***	***2258***	***gl***	***VOC***	***6.8***	***gl***	***6,741***	%		%		***8,613***
									%		%		

Note: Do NOT change pre-printed Process ID numbers. See page 6 of these instructions for information on how to delete materials that are no longer used, or to assign Process ID numbers for new materials.

* If you have off-site recycling/disposal of any of the materials listed above, you must complete an Off-site Recycling/Disposal Form to receive credit for reduced emissions.

NOTE: This example shows the case where 2,400 of the original 4,096 gallons of materials #6 through 9 were captured for off-site recycling, and the pollutant content of the waste material was estimated to be 75% of the original. The pounds of pollutant sent off-site shown in column 12 is calculated on the example Off-Site Recycling/Disposal Form on the next page.

EXAMPLE

Off-Site Recycling/Disposal Form 2005

Permit number(s) ***V99999***

NOTE: If you need blank copies of this form, call the Emissions Inventory Unit at (602) 506-6790 or consult our web page at www.maricopa.gov/aq/ei.aspx.

Provide one off-site recycling/disposal form for each waste stream at your business location. A waste stream is the waste from one or more processes mixed together to make one waste product before it is taken off site for recycling, disposal or combustion.

1) Assign a unique two-digit ID number to identify the waste stream that will be described below. ***01***
(Start with ID# 01 for first waste stream. Make copies of a blank Off-Site Recycling/Disposal form and use 02 for second, etc.)

2) What was the quantity of this waste stream in 2005? 2,400
Check one: ☐ pounds ☒ gallons
Indicate whether this quantity is reported in pounds or gallons. Keep waste disposal company manifests as proof that this amount of waste was taken off-site.

3) What was the **average** pollutant content of the waste stream? NOTE: Report in the same units (pounds or gallons) as used in line 2.

VOC ***4.25*** lbs/unit HAP&NON _____ lbs/ unit NHx _____ lbs/ unit

NOTE: Waste normally has less pollutant content than the new product. Some of the pollutant evaporates during the use of the product, and there is usually dirt, water or other contaminants in the waste stream. The estimated pollutant content of the waste is usually between 50% and 95% of the new product. This example estimates an average VOC content (on line 3) to be 75% of the original VOC content of 5.67 lbs/gal., to account for evaporation and contaminants. See page 20 to calculate a weighted average.

4) Calculate the **total** annual pollutant content of the waste in this waste stream.
(volume of waste, from Line 2) × (pollutant content, from Line 3) = Total pollutants in waste stream, in lbs/yr.

VOC ***10,200*** lbs/yr HAP&NON _____ lbs/yr NHx _____ lbs/yr

5) List the process ID numbers of the processes contributing to this waste stream. Also estimate the pounds of pollutant that each process contributed to this waste stream.

NOTE: In this example, the amount each process material contributed to total pollutants in the waste stream (Line 4) is based on the percentage, by weight, of each material that contributed to the waste stream. (e.g. Process ID #6 contributed 5.6%, therefore 5.6% × 10,200 lbs/yr = 569 lbs. See example on page 20.)

NOTE: Column totals in the table below must equal the total for each pollutant type reported on line 4. The quantities you report below for each pollutant and process must also be reported in column 12 on the Evaporative Process Form.

Process ID		Annual VOC (lbs)		Annual HAP&NON (lbs)	Annual NHx (lbs)
6	Contributed about	***569***	lbs	lbs	lbs
7	Contributed about	***1,884***	lbs	lbs	lbs
8	Contributed about	***1,006***	lbs	lbs	lbs
9	Contributed about	***6,741***	lbs	lbs	lbs

EXAMPLE: Documentation of Emission Factor Calculations

Identify the process ID number(s) and pollutant(s). Show calculations made to obtain the emission factors used for the process(es). Include references to data sources used, including the document name, date published, page numbers, etc.

Emission Factor Calculation

Process ID ***201*** Permit number ***V99999***

Emission factors derived from source test performed 12/2/00 by XYZ Engineering Company (copy of summary tables also attached).

Outlet (after controls):

CO = 0.43 lb/hr × 1 hr/60 min × 1 min/77.9 cu. ft × 1,000,000 cu. ft/MMCF
= 92.0 lb/MMCF

NOx = 0.09 lb/hr × 1 hr/60 min × 1 min/77.9 cu. ft × 1,000,000 cu. ft/MMCF
= 19.3 lb/MMCF

Weighted average sample calculation

NOTE: The example below shows how the weighted average of the materials going into the waste stream is calculated. A weighted-average emission factor has been calculated by listing usage amounts and emission factors for each material, summing each column, and then dividing the total emissions by the total gallons used.

In this example: 23,231 lbs ÷ 4,096 gal = 5.67 lb/gal average VOC content. This emission factor is then used to calculate the average pollutant content in the Off-site Recycling / Disposal Form example.

This process can also be used to find the weighted average emission factor for similar materials if you are reporting them together as a single line item on the Evaporative Process form. Refer to the explanation of "grouping" on page 6.

Process ID #	Material Type	2005 Usage	Units	VOC (lbs/unit)	VOC Emissions (= Usage × VOC content)	Percent contributed to waste stream
6	gun cleaner	180	gal	7.2	1,296 lbs.	5.6 %
7	xyz stripper	1,300	gal	3.3	4,290 lbs.	18.5 %
8	cleaning solvent	358	gal	6.4	2,291 lbs.	9.9 %
9	generoclean solvent	2,258	gal	6.8	15,354 lbs.	66.1 %
	Totals:	**4,096**	**gal**		**23,231 lbs.**	100.0 %

Average VOC content:	***23,231 lbs. / 4,096 gals***	=	***5.67 lb/gal***

EXAMPLE (for all sources except Title V sources)

Data Certification Form 2005

Permit number ***999999***

For EACH pollutant listed, total up all emissions recorded on your General Process and Evaporative Process Forms. Enter these numbers in column 1, "Totals from Process Forms." Report any emissions from accidental releases in column 2.
Add the figures in each row across, and enter the result in column 3, "Total Emissions".

NOTE: "Accidental Releases" reported in column 2 should include all excess emissions reported to the Department under Rule 140, Section 500.

Summary of 2005 Annual Emissions:	(1) Totals from Process Forms	(2) + Accidental Releases	(3) = TOTAL 2005 Emissions
CO	***2,113***	***0***	***2,113***
NH_x	***0***	***0***	***0***
Lead	***0***	***0***	***0***
HAP&NON	***0***	***0***	***0***
VOC	***24,220***	***0***	***24,220***
NO_x	***9,815***	***0***	***9,815***
SO_x	***645***	***0***	***645***
PM_{10}	***7,891***	***0***	***7,891***

NOTE: Review specific requirements for data confidentiality on page 5. We cannot hold any data confidential without the required documentation.

TO COMPLETE YOUR EMISSIONS INVENTORY REPORT:

- Complete the Confidentiality Statement below.
- Sign and date this form below where indicated.
- Send the **original** copy of your completed forms: Maricopa County Air Quality Department, Emissions Inventory Unit, 1001 N. Central Ave., Suite 100, Phoenix, AZ 85004. Keep a copy of all forms for your records.

CONFIDENTIALITY STATEMENT:

This annual emissions report contains requests to keep some data confidential. ☐ YES ☒ NO
If you check "YES", you must submit documentation and meet certain requirements before your data can be deemed confidential. See enclosed instructions for further details.

NOTE: The Data Certification form must be signed by a responsible company official.

CERTIFICATION STATEMENT:

I declare under penalty of perjury that the data (e.g. inputs, emission factors, controls, and annual emissions) presented herein represents the best available information and is true, accurate and complete to the best of my knowledge.

Signature of owner/business officer | Date of signature | Telephone number

Type or print full name of owner/business officer | Type or print full title

How to calculate an emission fee (for Title V sources only):

1. For each pollutant listed on the "Data Certification/Fee Calculation" form, total up all emissions recorded on your General Process and Evaporative Process Forms. Enter these numbers in column 1, "Totals from Process Forms."

NOTE: While most processes that generate PM_{10} should be reported on line 5 of the Data Certification/Fee Calculation form, "[f]ugitive emissions of PM_{10} from activities other than crushing, belt transfers, screening, or stacking" (County Rule 280, § 305.2d) are NOT subject to annual emission fees. The most common occurrences of these PM_{10}-producing activities that are NON-billable are listed below:

SCC codes and description of PM_{10}-producing processes that are NOT subject to emission fees

SCC	Major Category	Subcategory	Facility / Process Type	Process Description
30200814	Industrial Processes	Food and Agriculture	Feed Manufacture	Storage
30400737	Industrial Processes	Secondary Metal Production	Steel Foundries	Raw Material Silo
30500120	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Storage Bins: Ferric Chloride
30500121	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Storage Bins: Mineral Stabilizer
30500134	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Blown Saturant Storage
30500135	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Blown Coating Storage
30500141	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Granules Storage
30500143	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Mineral Dust Storage
30500203	Industrial Processes	Mineral Products	Asphalt Concrete	Storage Piles
30500212	Industrial Processes	Mineral Products	Asphalt Concrete	Heated Asphalt Storage Tanks
30500213	Industrial Processes	Mineral Products	Asphalt Concrete	Storage Silo
30500290	Industrial Processes	Mineral Products	Asphalt Concrete	Haul Roads: General
30500303	Industrial Processes	Mineral Products	Brick Manufacture	Storage of Raw Materials
30500608	Industrial Processes	Mineral Products	Cement Manufacturing (Dry Process)	Raw Material Piles
30500708	Industrial Processes	Mineral Products	Cement Manufacturing (Wet Process)	Raw Material Piles
30501710	Industrial Processes	Mineral Products	Mineral Wool	Storage of Oils and Binders
30502007	Industrial Processes	Mineral Products	Stone Quarrying - Processing	Open Storage
30502011	Industrial Processes	Mineral Products	Stone Quarrying - Processing	Hauling
30502504	Industrial Processes	Mineral Products	Construction Sand and Gravel	Hauling
30502507	Industrial Processes	Mineral Products	Construction Sand and Gravel	Storage Piles
30502760	Industrial Processes	Mineral Products	Industrial Sand and Gravel	Sand Handling, Transfer, & Storage
30531090	Industrial Processes	Mineral Products	Coal Mining, Cleaning, Material Handling	Haul Roads: General
30532007	Industrial Processes	Mineral Products	Stone Quarrying - Processing	Open Storage
30704002	Industrial Processes	Pulp and Paper & Wood Pdts.	Bulk Handling and Storage - Wood/Bark	Stockpiles
31100199	Industrial Processes	Building Construction	Construction: Building Contractors	Other Not Classified
31100299	Industrial Processes	Building Construction	Demolitions/Special Trade Contracts	Other Construction/Demolition
50100401	Waste Disposal	Solid Waste Disposal	Landfill Dump	Unpaved Road Traffic
50100402	Waste Disposal	Solid Waste Disposal	Landfill Dump	Fugitive Emissions
50100403	Waste Disposal	Solid Waste Disposal	Landfill Dump	Area Method
50100404	Waste Disposal	Solid Waste Disposal	Landfill Dump	Trench Method
50100405	Waste Disposal	Solid Waste Disposal	Landfill Dump	Ramp Method

2. Report any accidental releases in column 2. Add columns 1 and 2 together for each pollutant, and enter the sum in column 3. Sum lines 1 through 5 together, and enter the total on line 6.

3. Divide your facility's total billable emissions (on line 6) by 2000 to convert pounds into tons. **Round to the nearest ton.** Enter this value on line 7. Multiply this number by **$13.65**, and enter the result on line 8. This is your 2005 emission fee.

EXAMPLE (for Title V sources only)

Data Certification/Fee Calculation Form 2005

Permit number ***V99999***

For EACH pollutant listed, total up all emissions recorded on your General Process and Evaporative Process Forms. Enter these numbers in column 1, "Totals from Process Forms." Report any emissions from accidental releases in column 2.
Add the figures in each row across, and enter the result in column 3, "Total Emissions".
Carefully follow the instructions on lines 6 through 8 to calculate any emission fee owed.

NOTE: "Accidental Releases" reported in column 2 should include all excess emissions reported to the Department under Rule 140, Section 500.

	Summary of 2005 Annual Emissions:	**(1) Totals from Process Forms**	**(2) + Accidental Releases**	**(3) = TOTAL 2005 Emissions**
	CO	***2,113***	***0***	***2,113***
	NH_x	***0***	***0***	***0***
	Lead	***0***	***0***	***0***
	PM_{10} (non-billable; see page 22)	***7,200***	***0***	***7,200***
	Emissions fees are based on your emissions of the following pollutants ONLY:			
1	HAP&NON	***0***	***0***	***0***
2	VOC	***24,220***	***0***	***24,220***
3	NO_x	***9,815***	***0***	***9,815***
4	SO_x	***645***	***0***	***645***
5	PM_{10} (billable; see page 22)	***691***	***0***	***691***
6	**Add "TOTAL" column from lines 1 through 5 ONLY:**			***35,371*** lbs.
7	Divide the total on line 6 by 2000 (pounds per ton) to get tons, and round the number to the nearest ton. (Drop any decimal of .499 or less. Increase to the next whole number any decimal of .500 or more.) Enter the resulting WHOLE NUMBER here.			***18*** TONS
8	Multiply line 7 (a WHOLE number) by **$ 13.65**. This is your **2005 ANNUAL EMISSION FEE**.			$ ***245.70***

NOTE: Review specific requirements for data confidentiality on page 5. We cannot hold any data confidential without the required documentation.

TO COMPLETE YOUR EMISSIONS INVENTORY REPORT:

- Include a check (made payable to Maricopa County Air Quality Department) for the amount calculated on line 8 above.
- Complete the Confidentiality Statement below.
- Sign and date this form below where indicated.
- Send the **original** copy of your completed forms, along with any emission fee due to: Maricopa County Air Quality Department, Emissions Inventory Unit, 1001 N. Central Ave., Suite 100, Phoenix, AZ 85004. Keep a copy of all forms for your records.

CONFIDENTIALITY STATEMENT:

This annual emissions report contains requests to keep some data confidential. ☐ YES ☒ NO
If you check "YES", you must submit documentation and meet certain requirements before your data can be deemed confidential. See enclosed instructions for further details.

NOTE: The Data Certification form must be signed by a responsible company official.

CERTIFICATION STATEMENT:

I declare under penalty of perjury that the data (e.g. inputs, emission factors, controls, and annual emissions) presented herein represents the best available information and is true, accurate and complete to the best of my knowledge.

Signature of owner/business officer | Date of signature | Telephone number

Type or print full name of owner/business officer | Type or print full title

Appendix 2.2

Rule Effectiveness Study For Maricopa County Rules 310, 310.01, and 316

RULE EFFECTIVENESS STUDY FOR MARICOPA COUNTY RULES 310, 310.01, AND 316

Table of Contents

1. Overview

This rule effectiveness study objective is to quantify compliance with the fugitive dust rules in the Maricopa County air quality regulatory program and determine how well the rules are achieving the intended results. Rule Effectiveness is applied to emissions inventory estimates used in State Implementation Plans (SIP). This evolved from the observation that regulatory programs may be less than 100 percent effective due to lack of rule compliance or control equipment inefficiency. EPA's initial rule effectiveness policy[1] was limited to the ozone related pollutants and recommended an 80 percent default rule effectiveness factor. EPA has revised their initial rule effectiveness policy and replaced it; specifically, the 80 percent default no longer applies and particulate matter related pollutants are now included.[2]

EPA has encouraged local agencies and regional planning organizations to include in rule effectiveness evaluations consideration of inspection frequency, experience with equipment processes as well as previous rule effectiveness studies that have been conducted to determine current rule effectiveness factors. In this study the application of these various factors and data from actual compliance inspections are used to measure how well a rule is achieving its intended results.

This study of the effectiveness of the Maricopa County fugitive dust rules consists of two parts: field and office inspections. The study team consists of representatives from Maricopa County's Air Quality Department (MCAQD) and the Arizona Department of Environmental Quality's Air Quality Division.

2. Background

In May 1997, ADEQ submitted the Plan for Attainment of the 24-hour PM-10 Standard – Maricopa County PM-10 Nonattainment Area, as a SIP revision. This plan demonstrated attainment and reasonable further progress (RFP) for the 24-hour PM-10 standard at the Salt River air quality monitoring site by May 1998.

On July 9, 1999, the Maricopa Association of Governments (MAG) submitted to EPA the MAG 1999 Serious Area Particulate Plan for PM-10, demonstrating attainment for both the 24-hour and annual PM-10 standards for the Metropolitan Phoenix area (Maricopa County), Arizona. A revised plan was submitted in February 2000. The Revised Plan included an extension request for PM-10 attainment, no later than Dec. 31, 2006.

The Salt River air quality monitoring site continued to violate the standard and on July 2, 2002 (67 FR 44369), EPA found the SIP for the Metropolitan, Phoenix serious PM-10 area to be inadequate to attain the 24-hour PM-10 standard at the Salt River monitoring site. Under authority from the Clean Air Act, EPA required a SIP revision be submitted to correct the inadequacy. A component of this SIP revision demonstrates attainment at the Salt River monitoring site as a result of the additional controls adopted by the Maricopa County Air Quality Department to strengthen its dust rule inspection program.

As of 2006, the Metropolitan Phoenix serious nonattainment area continues to violate the PM-10 24 hour standard. There were 19 exceedances in 2005 and 27 exceedances in 2006.[3] Three years without

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[1] U.S. EPA, Guidelines for Estimating and Applying Rule Effectiveness for Ozone/CO State Implementation Plan Base Year Inventories, EPA-452/R-92-010, November 1992.

[2] Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations. EPA-454/R-05-001, August 2005.

[3] a. The 2006 data has been validated by the Maricopa County Air Quality Department
b. Monitoring data for 2006 is Calendar year January through December, 2006.

violations (3-year average) is required at all PM-10 monitors to attain the standard. Because this area did not attain the PM-10 standards by December 31, 2006, the Clean Air Act requires a demonstration plan be submitted providing for attainment of the PM-10 air quality standard and five percent annual reductions of PM10 or PM10 precursor emissions until attainment. The five percent plan is due to EPA by December 31, 2007.

To prepare the Five Percent Plan, Maricopa Association of Governments (MAG) will use the 2005 PM-10 2007, 2008, and 2009 period emissions inventory prepared, by MCAQD to project the emissions inventories. The results of the Rule Effectiveness Study will be incorporated into this 2005 PM-10 periodic emissions inventory.

Maricopa County has implemented dust control regulations to help achieve timely attainment of the ambient standard for PM-10. The following are Maricopa County Regulations that apply to PM-10 control:

Maricopa County	Rule 310	Fugitive Dust Sources
Maricopa County	Rule 310.01	Fugitive Dust From Open Areas, Vacant Lots, Unpaved Parking Lots and Unpaved Roadways
Maricopa County	Rule 316	Nonmetallic Mineral Mining and Processing

For state permitted portable sources, that operate within Maricopa County, the Maricopa County Air Pollution Control Regulations are applied in lieu of the state of Arizona's Administrative Code Article 6 rules (R18-2-604, 605, 606, and 607). The state of Arizona Air Quality Control General Permit for Crushing and Screening plants incorporates the requirements of Maricopa County Air Pollution Control Rule 310 for the dust control plan requirements and Rule 316 for the visible emission limitations for facilities that operate in Maricopa County.

2.1 Study Purpose and Goals

The purpose of this rule effectiveness study is to quantify the control strategy efficiency as described in the rules of MCAQD and determine if these rules are adequate. This study was conducted according to EPA guidance provided for states and local agencies on how to review and measure the efficiency of a control strategy intended to progress towards reaching air quality goals. To accomplish this goal, a two part study was conducted comprised of field and office inspections and focusing on the compliance and enforcement of Maricopa County Rules 310, 310.01, 316.

2.1.1 Office Inspection Phase

The office investigation phase focused on rule content and the internal policies and procedures that affect how rules are implemented and enforced, such as regulatory enforceability, inspection procedures, training, and agency resource management.

2.1.2 Field Inspection Phase

In the field inspections conducted as part of this rule effectiveness study, the study team visited sites subject to Maricopa County Rules 310, 310.01, and 316. The study group identified which rules apply, which specific parts of the rule apply to the site, the type of site (earthmoving, vacant lots, nonmetallic mineral processing), the compliance status of the site and if any compliance notifications would be issued. Inspections occurred consistent with current department

c. Exceedances are defined as number of days in 2006 where at least one monitor exceeded the 24hr PM-10 Standard

schedules. If a level 1 inspection was planned, then that was carried out. If a level 2 inspection was planned, then that type of inspection occurred. The goals of this phase were to determine whether MCAQD and ADEQ programs are adequate to:
1) Determine compliance and
2) Deter, detect and correct any instances of noncompliance.

2.2 Sample Size and Rule Effectiveness Calculation

The number of inspections determines sample size of the study. There is a very large number of Rule 310, 310.01, 316 inspections sites in Maricopa County so it is not practical to visit each site for this study. Since we can not visit all the inspection sites in the county, we can randomly select according to statistically sound procedures, a small number of sites that provides inference from the sample drawn, to the entire population of inspections. This process used in this study is detailed in EPA's 'Guidelines for Estimating and Applying Rule Effectiveness for Ozone/CO State Implementation Plan Base Year Inventories', Appendix D [4].

There are three distinct categories of inspection sites:

- Maricopa County Rule 310 Fugitive Dust Sources
- Maricopa County Rule 310.01 Fugitive Dust From Open Areas, Vacant Lots, Unpaved Parking Lots and Unpaved Roadways
- Maricopa County Rule 316 Nonmetallic Mineral Processing.

EPA guidance recommends for each category, a 90 percent confidence interval and a sample error of 5 percent, that should not exceed 10 percent. These parameters are listed in Table D-1 of EPA's guidelines (Appendix C of this report). Referring to this table, assuming the above parameters, we can determine what sample size is needed for each population category after we calculate the standard deviation of each sample group.

In summary:

The variance or variation of a sample is reflected in the standard deviation.
Since we do not have an estimate of the standard deviation from past surveys of Rule 310, Rule 310.01 inspection sites, we are required to calculate one. According to the EPA rule effectiveness guidance, the standard deviation is calculated from ten randomly chosen inspection sites from each category. From these initial inspections, the calculated standard deviation for each category is used to determine adequate study sample size. The standard deviation reflects the amount of variation of the inspection site compliance with existing rules. In this study, the variation ranged from total compliance to non-compliance. After adequate study sample size was determined, additional inspections were scheduled to comprise a statistically sound study sample size.

The rule effectiveness for Rule 316 sources was estimated following the recently updated EPA guidance[5], with factors that are most likely to affect rule effectiveness. These factors are listed in Appendix A. EPA grouped likely responses to these factors into rule effectiveness ranges, such that

[4] U.S. EPA, Guidelines for Estimating and Applying Rule Effectiveness for Ozone/CO State Implementation Plan Base Year Inventories, EPA-452/R-92-010, November 1992.

[5] US EPA, Emissions Inventory guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations, EPA, August 2005.

more positive responses to a number of the factors will lead towards selection of a higher RE value, whereas more negative responses will direct one to select an RE value from a lower range.

Rule Effectiveness factors are only applied to those emissions estimates where a control device or control technique is used The Maricopa County fugitive dust rules define a pollution control technique; therefore emission estimates of sources regulated by these rules would need to be adjusted for rule effectiveness.

3. Study Team

The study team is composed of personnel from the MCAQD and the Arizona Department of Environmental Quality (ADEQ). Both the Compliance and Planning-Analysis sections from the Maricopa County Air Quality will participate.

The study team inspected three types of facilities: Nonmetallic mineral processing, earthmoving sources, and vacant lots. The Quality Assurance/ Supervisor insured consistency of the data collection.

The Study Team consists of three members:

- Maricopa County Quality Assurance/ Supervisor
- Maricopa County earthmoving, dust or small source inspector or
  ADEQ Compliance Inspector
- Maricopa County Planning & Analysis Observer

3.1 Rule Summaries

The following includes a summary of the Maricopa County fugitive dust rules included in this study.

3.1.1 Rule 310

Rule 310 applies to all dust generating operations including open areas, vacant lots, unpaved parking lots, and unpaved roadways which are located at sources that require a permit under Maricopa County Rules. Normal farm cultural practices as defined under Arizona Revised Statutes (ARS) §49-457 and ARS §49-504.4 and are exempt from this rule. These sources are subject to the ADEQ's PM-10 General Permit (AAC R18-2-611) established under Arizona Revised Statutes Section 49-457 and were not be subject to this study. Fugitive dust sources are required to keep dust stabilized and control measures implemented at all times and visible fugitive dust emissions shall not exceed a 20% opacity. Measures include stabilization requirements, installing signs restricting trespassing, applying gravel or paving unpaved parking lots, applying water, gravel, or dust suppressant to haul roads, pre-watering work sites, constructing wind barriers and establishing vegetative cover. Earthmoving operations must submit a dust control plan if the project is equal to or greater than 0.1 acres. Specific work practices for different types of activities are described in the rule. Compliance shall be determined by conducting opacity observations, stabilization determinations, observing implementation of controls and recordkeeping.

3.1.2 Rule 310.01

Rule 310.01 applies to open areas, vacant lots, unpaved parking lots and unpaved roadways which are not regulated by Rule 310. Any open area or vacant lot that is not defined as agricultural land and is not used for agricultural purposes according to ARS § 42-1251 and ARS § 42-1252, and normal farm cultural practices as defined under Arizona Revised Statutes (ARS) §49-457 and ARS §49-504.4, is

subject to this rule. The rule outlines control measures and stabilization limitations required for different dust source activities such as preventing vehicular access to open areas and vacant lots, establishing vegetative cover, uniformly applying and maintaining surface gravel, and application of dust suppressant. Stabilization and recordkeeping are required to be maintained.

3.1.3 Rule 316

Rule 316 regulates particulate matter emissions from nonmetallic mineral processing and rock product processing plants. Opacity and emission limits, stabilization, equipment design, and control measures are outlined for the different type of operations and stack and fugitive dust emissions. For those sources with air pollution control equipment and/or monitoring equipment, an Operation and Maintenance Plan is required. This rule requires recordkeeping of daily operations and control device data. Additionally a facility with a permitted capacity of 25 tons or more of material per hour shall have in place a Fugitive Dust Control Technician or designee. The owner and/or operator of a nonmetallic mineral processing plant and/or a rock product processing plant shall implement the fugitive dust control measures described in rule 316, section 306.

4. Field Inspection Phase

There are three types of field inspections in this study. The first two require the study team members to conduct inspections at earthmoving sites and vacant lots. The third requires the study team to inspect stationary permitted sources.

4.1 Inspection Scoring Protocol

Study scoring for the rules 316 and Rule 310, 310.01 are prioritized according to significance of creating emissions. For example, an opacity limit has a direct correlation to pollution being emitted, where recordkeeping requirements are administrative in nature and may have less direct affect on emissions. This is similar to the approach taken in EPA's Rule Effectiveness Guidance: Integration of Inventory, Compliance and Assessment Applications.[6]

The scoring system observes: No violations observed on site;
Notice to Correct; and
Notice of Violations.

Points are assigned as follows:

No violations observed on site - Maximum 1.0 point;
All violations: Notice of Violation or
Notice to Correct - zero (0) points;

Administrative compliance is only scored if there are no emissions violations. A complete administrative failure, such as failure to obtain a dust permit is considered a violation and is a zero score. A partial administrative failure is not included in the scoring if there were no emissions violations observed at the site. Both MCAQD Quality Assurance/ Supervisor and inspector reports were summarized but final study results were compiled from the Supervisor reports only.

[6] U.S. EPA, Office of Air quality Planning and Standards, Rule Effectiveness Guidance: Integration of Inventory, Compliance and Assessment Applications, EPA-452/4-94-001, January 1994.

Table 4.1.1: Rule 310 Rule Effectiveness Violations

Emission Violations
Condition of Areas not being worked
Stabilize storage piles
Water:
▪ Available
▪ Use
Track out / Track out device
Haul Roads
Not follow dust plan
Work Practices:
▪ dumping
▪ tarping
▪ >50 ft.track out/ clean up end day
▪ bulk materials
Administrative Violations
Lack of records
Permit not current / on Site
Records not on site
No dust plan posted
Lack of Dust Plan

Table 4.1.2: Rule 310 Rule Effectiveness Score System

Compliance Status	Points
Notice of Violation (NOV)	0
Notice to Correct (NTC)	0
Administrative Violation - NOV or NTC	1.0 - If no observed emissions violations
No violations Observed	1.0

A similar point system is used for Rule 310.01 scoring. When non-compliance is observed at a lot or open area, a letter is sent to the parcel owner requesting correction. After receipt of this letter, the parcel owner has 60 days to institute control measures, establish stabilization, or contact MCAQD. The owner has 14 more days to comply and/or contact the MCAQD offices before a Notice of Violation (NOV) is issued.

The study scoring for Rule 310.01 is the same as described above where either No Violations are observed (1.0) or Violations exist (0). Stabilization test methods are completed to determine violations in accordance with rule requirements. If the inspection site passes one of the five stabilization test, then the site is scored as "no violations are observed".

Table 4.1.3 Rule 310.01 Rule Effectiveness Score System

Results of Stabilization Tests	Points
Passed	1.0
Failed	0

TABLE 4.1.4 Rule 316 Violation

Emissions Violations
Standards
Stack Emissions
Operations or Process
Trucks Dumping
O&M Requirements
Submit Permit
Permit maintained and Onsite
Comply with Permit actions & Schedules
Schedules
Recordkeeping Requirements
General Data/Hours of Operations

4.2 Inspection Priority for Rule 310.01 sources

The MCAQD inspects vacant lots, open areas and unpaved parking lots based on following criteria:

1. Citizen complaints.
2. Located within Salt River Study Area.
3. Open areas with soil textures that may consist of high silt content and increased wind erosion potential.
4. Areas that are in excess of ten acres.
5. Areas outside the Salt River Study area but within the border of the Maricopa County PM10 nonattainment area.
6. Areas located in close proximity to schools, health care facilities, assisted care facilities, residential neighborhoods, parks, etc.
7.

The goal of the inspection program is to proactively inspect vacant lots/ open areas and unpaved parking lots based on these inspection priorities. Before May 2006, the inspection program was exclusively based on citizen complaints. Over 100,000 vacant lots/open areas and an unknown number of unpaved parking lots exist within Maricopa County and will require at least one compliance inspection. Utilizing data loaded into Permits Plus from the County Assessor records, the vacant lots/open areas are identified and then inspection schedules and routes are determined. Further, utilizing GPS readings provides map locations of these areas for planning and monitoring. MCAQD vacant lot/open area program goal is to complete 5,200 vacant lot inspections per year (approximately 3,100 inspections of vacant parcels > 10 acres; and 2,100 inspections of vacant parcels < 10 acres). Initial focus is on vacant parcels > 10 acres. The program also provides for complaint processing from telephone as well as internet based submittals.

4.3 Rule Effectiveness Calculation

As referenced earlier in the report, the number of inspection sites in the sample size was determined by calculating the standard deviation of the initial ten random inspections, based on EPA guidance.7 Table D-1 referenced in EPA guidance correlates confidence level, sample error, standard deviation, and sample size and is listed in Appendix C of this report.

The standard deviation for both Rule 310 and 310.01 from the first 10 sites inspected was 24%.

The standard deviation calculated from 10 initial Rule 310 and Rule 310.01 inspection sites with a 90 percent confidence level and a sample error of 5%, determined that a sample size of at least 63 sites was required. Sixty-three Rule 310 sites and 124 Rule 310.01 sites (many sites have multiple parcels) were inspected. The first 47 Rule 310.01 inspections were conducted over a three week period. The remaining seventy-seven inspections were conducted during the last six months of 2006. Inspections conducted over a six month time period were required so as to obtain a sample of inspections that represents the average Maricopa County ambient weather conditions.

4.4 Inspection Results

4.4.1 Earthmoving Sites

Ten earthmoving sites were randomly chosen for inspection during the months of July - August, 2006. Fifty-three additional earthmoving sites were inspected during September through November 2006. The following table summarizes what was observed at each site and if any corrective action was taken. Two types of corrective actions were taken: Notice to Correct (NTC) and Notice of Violation (NOV). The NOV is the most serious corrective action.

Table 4.4.1 List of Inspected Earthmoving Sites

					Rule310 Section
Date	**Permit ID**	**Site**	**Address**	**Violation**	**NTC/ NOV**
				Observed	**Issued**
7/19/2006	E062984	Ardavin Builders	16705 E. Ave. of Fountains	No	*
9/27/06	EO54480	Aston Woods	Westar/184 Ave Goodyear	No	
7/17/2006	E061115	Gierczyk	17275 N. Litchfield Rd.	No	*
7/17/2006	E053622	Quailwood Const.	13370 West Van Buren	Yes	308
7/17/2006	E060901	Canterra Contract	SWC Maricopa Rd & Miller Rd	Yes	306, 308
7/17/2006	E054144	Concord Companies	708 W. Baseline Rd	Yes	306, 308
7/17/2006	E054289	Catalina Custom Hms	5009 E. Road Runner Rd	No	*
7/17/2006	E062849	Markham Contract.	2565 E. Southern Ave	Yes	308
7/17/2006	E062311	Zacher Homes	119 W. Maryland	No	*
7/18/2006	E054191	Veneto Inc.	19th Ave & Vineyard	Yes	306, 308
7/18/2006	E060726	Layton	Happy Valley & Lake Pleasant	Yes	306, 308
9/21/2006	E062535	Lehi Meadow	2354 E. Meadow Mesa	Yes	301,302,308
9/21/2006	E063893	Larry Boblitz	4728 E. Virginia Mesa	Yes	302
9/21/2006	E063372	TRC Bellatrix	Val Vista & Thomas Mesa	No	*
9/26/2006	E063550	Pulte Homes	200 N. 95th Ave Buckeye	Yes	308
9/26/2006	E054400	SouthwestGas	Jackrabbit Buckeye	Yes	401

[7] Guidelines for Estimating and Applying Rule Effectiveness for Ozone/CO State Implementation Plan Base Year Inventories, U.S. EPA, EPA-452/R-92-010, November 1992.

					Rule310 Section
Date	**Permit ID**	**Site**	**Address**	**Violation**	**NTC/ NOV**
7/26/2006	E063293	Ames Const.	Perryville/Northern Waddell	Yes	301, 306,308
9/28/2006	E061166	Trend Homes	Citrus/Bell Surprise	No	*
9/28/2006	E060852	HBT Const.	Bell/Citrus Surprise	Yes	307
9/28/2006	E054565	KB Homes	Bell/Citrus Surprise	No	*
9/20/2006	E061304	Colorado Stru	1825 W. Bell Rd. Phoenix	Yes	302
9/20/2006	E061294	Colorado Stru	1525 W. Bell Rd. Phoenix	No	*
9/19/2006	E060380	Buzz Oats	4707 W. Camelback Phoenix	Yes	307
9/19/2006	E060641	Hallcraft Homes	75th Ave/ Glendale Glendale	Yes	302, 306
9/20/2006	E060974	Summit Bldrs	8220 N. 23rd Ave Phoenix	Yes	401
9/19/2006	E054279	MT Buildiers	11120 W. Van Buren Avondale	Yes	307
9/19/2006	E060071	Morrison Hms	107th Ave/Becker Avondale	Yes	307, 503
9/19/2006	E060073	Morrison H	103 S. 110th Ave Avondale	Yes	307, 503
9/19/2006	E060026	Sundt.	115 Ave/Van Buren Avondale	No	*
9/19/2006	E061280	Randall Martin	Roosevelt Park Avondale	Yes	302, 308
9/21/2006	E062154	Bill Dennis	3435 N. 91st Pl. Mesa	No	*
9/21/2006	E055258	Willow Park	1928 E. Riverdale St. Mesa	No	*
9/19/2006	E063901	Design Bldg	326 S. 353 Rd Tonopah	Yes	302
9/19/2006	E063039	Beazer Hms	SR 85/ I -10 Buckeye	Yes	306, 308
9/19/2006	E063922	Meritage Homes	Rainbow/Yuma Rd Buckeye	Yes	306, 401, 503
9/19/2006	EO54234	Meritage Homes	228 Ave/ Moonlight Path Buck	Yes	308
9/19/2006	E061531	Morison Homes	Yuma/ Watson Buckeye	No	*
9/20/2006	E062768	Maracay Homes	Dobson/ German Chandler	Yes	307
9/20/2006	E061984	Nickle Contr	Ryan/ Hartford Chandler	No	*
9/20/2006	E063069	Double AA	German/ Gilbert Changler	Yes	302, 306
9/20/2006	E060500	Laguna Homes	24410 S. 120 Way Chandler	Yes	401
9/20/2006	E060025	Meritage Homes	Hunt HWY/AZ Ave Chandler	Yes	306
9/21/2006	E063747	Austin Bridge	I - 10 / Ray Rd Phx-Chandler	No	*
9/21/2006	E063029	Starpointe	16160 S. 50 st. Phoenix	Yes	302, 306, 308
9/21/2006	E061488	Sunstate Building	685 W. Elliott Tempe	Yes	306, 308
9/21/2006	E061056	Scott Homes	Rural / Elliot Tempe	No	*
9/21/2006	E054436	Carlson Mas	1901 E. 5th St Tempe	No	*
9/26/2006	E060334	Eagle Homes	395 E. Baseline Phoenix	Yes	302, 308
9/26/2006	E061805	Engle Homes	2901 E. Baseline Rd Phoenix	Yes	302
9/26/2006	E063979	Stnd Pacific Homes	67th/Baseline Laveen	Yes	302
9/26/2006	E063559	Stnd Pacific Homes	Meadow Loop W/ Beverly Laveen	Yes	401
9/26/2006	E060896	B & D Ericks	S. Mountain Rd/ 7th Ave Phoenix	No	*
9/28/2006	E063571	Northld Res	4000 W. Mohave St. Phoenix	No	*
9/28/2006	E062060	Heartland Exp	4555 W. Mohave St Phoenix	Yes	306, 308
9/28/2006	E063832	Renaissance	4747 W. Buckeye Rd Phoenix	Yes	301, 308
11/1/2006	E062927	Sundt.	1636 W Alameda Tempe	No	*
11/1/2006	E055477	Russell Granors	1845 E University Tempe	No	*
11/1/2006	E061981	LGE Corporation	4040 W EarHart Chandler	Yes	302. 308
11/1/2006	E061791	Forte Homes	4452 W Kitty Hawk Chandler	No	*
11/6/2006	E063905	Gemcor Homes	1121 E. Birdwood Chandler	Yes	302,306,308
11/6/2006	EO63799	SGL Custom Homes	3660 S Nash Way, Chandler	Yes	302, 306
11/6/2006	EO64332	CGS109 - Magee	SWC Pecos& Hamilton Gilbert	Yes	302, 306, 308
11/6/2006	EO63826	Monza Const.	2920 E. Germann Rd Gilbert	Yes	306
Total					63 Inspected Sites

* Indicates there is no violation observed during this inspection.

The scoring system described in section 3.1 was applied to each inspection site. Each site has 1.0 possible point. If a corrective action is required, then the score is zero. The status of the site is either 'yes' a violation was observed or 'no violations were observed' for the site.

Table 3.4.1 above summarizes 63 Rule 310 inspection sites. There were violations observed at forty-one (41) of these sites. Ten (10) of these violating sites were administrative violations only and emissions violations were not observed. The ten (10) administrative only violations were excluded in the final count of violating sites because of the absence of an emission violation resulting in the final count of violating sites totaling thirty-one (31).

The resulting rule effectiveness for all Rule 310 sites inspected is 51% (32/63 = 51%), where conversely 49% of the sites had an observed a violation (31/63=49%).

4.4.2 Vacant Lots/Open Areas

Ten vacant lots were randomly chosen for inspection subject to Rule 310.01 during the months of August - September 2006. Applying the standard deviation calculated from these 10 initial Rule 310.01 inspection sites, to the matrix of 90 percent confidence level and sample error of 5%, the sample size should be at least 63 sources. The following table lists the compliance status of each Rule 310.01 site as determined by the test methods required in Rule 310.01.

Table 4.4.2 List of Inspected Vacant Lot Sites

Site	*Date*	*Parcel #*	*Address*	*Violation Observed*
AO10318	9/22/2006	105-03-078A	1527 W. Buckeye	No
"		105-03-078H	"	No
	9/22/2006	105-02-123	1235 S. 15 Ave. Phoenix	No
"		105-02-124	"	No
"		105-02-122	"	No
A010318	9/22/2006	105-02-121	1233 S. 15th Ave. Phoenix	Non-Reg
"	9/22/2006	105-02-125	1241 S. 15th Ave Phoenix	Non-Reg
"	9/22/2006	105-03-078F	1227 S. 15th Drive Phoenix	Non-Reg
	9/22/2006	105-03-078B	1231 S. 15th Drive Phoenix	Non-Reg
A010318	9/22/2006	105-03-078G	15th Dr/Buckeye Phoenix	Non-Reg
"	9/22/2006	105-03-0780	1225 S. 15th Dr. Buckeye	Non-Reg
	9/22/2006	105-03-078C	1229 S. 16Ave Phoenix	Non-Reg
AO10203	9/29/2006	106-10-066	623 N. 37th Dr. Phoenix	No
A010203	9/29/2006	106-10-068	611 N. 37th Dr. Phoenix	No
A0102	9/29/2006	111-34-102	City of Ph - 3rd Ave Portland	Yes
A010203	9/29/2006	106-10-067	617 N. 37th Dr. Phoenix	No
BO20115	9/18/2006	502-62-011F	Litchfield/Camelback Litchfield	No
BO20115	9/18/2006	501-62-008C	Litchfield/Camelback Litchfield	No
BO20114	9/18/2006	501-63-013D	Dysart/Camelback Maricopa	No
BO20122	9/18/2006	501-68-414B	Litchfield/Wigwam Litchfield Park	No
B020122	9/18/2006	501-68-012S	Litchfield/Wigwam Litchfield Park	No
A0102	10/3/2006	106-10-065	629 N. 37 Dr, Phoenix	No
A0102	10/3/2006	106-10-047	3734 W Fillmore Phoenix	No
A0102	10/3/2006	106-10-048	3740 W Fillmore Phoenix	Non-Reg
A0102	10/3/2006	106-10-046	3728 W Fillmore Phoenix	No
A0102	10/3/2006	106-10-045	3722 W Fillmore Phoenix	No
DO20730	9/27/2006	304-90-375J	Power/Riggs Queen Creek	No
"	9/27/2006	304-90-375F	"	No
DO20732	9/27/2006	304-90-017G	25518 S 192 Pl Maricopa Co	Yes
DO20731	9/27/2006	304-89-013-U	Power/San Tan Maricopa Co	Yes
A06033100	9/22/2006	21151003D	36822 N 17th Ave Phoenix	No
21151003L	9/22/2006	A06033100	36824 N.17th Ave Phoenix	No
21151033L	9/22/2006	A06033100	11th & Maddock Phoenix	No
21153049	9/22/2006	A05030500	7th Ave &Cloud Rd. Phoenix	No
21181001	9/22/2006	A05030200	32nd St & Cloud Phoenix	No
D01061200	9/29/2006	30416004G	SW Power/Guadalupe Gilbert	No
D01061200	9/29/2006	30405985	NE Power/Guadalupe Gilbert	No
AOBO409	10/2/2006	21561004A	62 st / Thunderbird Phoenix	No
3N403Sec 7	10/2/2006	21570356	NWC Tatum/Nesbet Phoenix	No
3N403Sec 7	10/2/2006	21570355	NWC Tatum/Nesbet Phoenix	No
T03R04506	10/2/2006	21531007-8	NEC Steuer T/Jerry Florence	No
T03R04506	10/2/2006	21531007-7	NEC Steuer T/Jerry Florence	No
A031406	10/2/2006	21524001	SEC Paradise.40th St Phoenix	No
A205040900	10/2/2006	21564005J	5880 E Thunderbird Phoenix	No
A03040700	10/2/2006	21570354	15002 N. Tatum Phoenix	No
A2030407	10/2/2006	21570357	15030 N. Tatum Phoenix	No
A010535	9/27/2006	13913244A	1511 S. Mesa Dr Mesa	No
A010522	9/27/2006	13861080	NE Pasadena Mesa	No
A010523	9/27/2006	13822098	139 S. Mesa Dr. Mesa	No
A010523	9/27/2006	13827096	2nd Ave/ Mesa Dr Mesa	No
A010523	9/27/2006	13827095-A	2nd Ave/ Mesa Dr Mesa	No

Site	*Date*	*Parcel #*	*Address*	*Violation Observed*
A010523	9/27/2006	13827097	2nd Ave/ Mesa Dr Mesa	No
A010523	9/27/2006	13827064A	2nd Ave/ Mesa Dr Mesa	No
A010523	9/27/2006	13827065A	2nd Ave/ Mesa Dr Mesa	No
A010523	9/27/2006	13827066A	2nd Ave/ Mesa Drive Mesa	No
A01073500	9/18/2006	22081002D	SWC Signal Butte/Southeast Mesa	No
A01073500	9/18/2006	220-81-002D	SW Signal Butte/Southeast Mesa	No
A01073500	9/18/2006	22081004B	SW Signal Butte/Southeast Mesa	No
A01072600	9/18/2006	22071001Q	NW Signal Butte/Southeast Mesa	No
A01073400	9/18/2006	22080007Q	SW Crimson/SO Mesa	Yes
A01073400	9/18/2006	22080001M	SW Ellsworth/Southeast Mesa	No
A01073400	9/18/2006	22080001P	SW Ellsworth/Southeast Mesa	No
A01073400	9/18/2006	2208007-Q	1330 S. Crismon Mesa	Yes
A01073400	9/18/2006	22080007P	S Signal Butte/South Mesa	No
A01073500	9/18/2006	77081004B	SW Signal Butte/SE Mesa	No
1073500	9/18/2006	22081002D	SW Signal Butte/Southeast Mesa	No
A010786	9/18/2006	22071001Q	NW Signal Butte/Southeast Mesa	No
A01073400	9/18/2006	22680001P	SE Ellsworth/Southern Mesa	Yes
A1073400	9/18/2006	22080001M	SE Ellsworth/Southern Mesa	Yes
A01073400	9/18/2006	22080007N	SW Crimson/Southern Mesa	No
D010304	10/3/2006	33019023D	SW 7th St/Baseline Phoenix	No
D010304	10/3/2006	30019023E	SE 7th St/Baseline Phoenix	No
D010304	10/3/2006	30043019M	SW 7th St/Baseline Phoenix	No
D010304	10/3/2006	30043007A	SW 7th St/Baseline Phoenix	Yes
D010304	10/3/2006	30062066A	Central/Dobbins Phoenix	No
A01070600	9/29/2006	30405977B	NE Power/ Guadalupe Mesa	Yes
A010706	9/29/2006	30405977A	2650 S. Power Mesa	Yes
D01061200	9/29/2006	30416004G	SW Power/Guadalupe Mesa	No
D01030400	10/3/2006	30019023D	SW 7th St/Baseline Phoenix	No
A06033100	9/22/2006	21151003D	36822 N 17th Avenue Phoenix	No
A06033100	9/22/2006	21151003C	36824 N. 17th Avenue Phoenix	No
A06033100	9/22/2006	21151933C	SE 11th Ave/ Maddock Phoenix	No
A050305	9/22/2006	21153049	SE 7th Ave/Cloud Phoenix	No
A05030200	9/22/2006	21181001	SW 2411 E Cloud Phoenix	No
A010523	9/27/2006	13827096	NE Mesa dr/2nd Avenue Mesa	No
A01053500	9/27/2006	13913244A	SE Mesa Dr/Holmes Mesa	No
A01052300	9/27/2006	13827098	NE Mesa dr/2nd Avenue Mesa	No
A010522	9/27/2006	13861080	NE Pasadena/2nd Street Mesa	No
A01052300	9/27/2006	13827095A	NE Mesa Dr/2nd Avenue Mesa	No
		13827064A	Adjoining parcels	No
		13827065A	"	No
A01052300	9/27/2006	13827066A	"	No
B0204Sec28	10/3/2006	11932002A	3109 N 16th Street Phoenix	No
B0204Sec28	10/3/2006	11930076	3435 N 16th Street Phoenix	No
B02032800	10/3/2006	16328048A	4249 N. 16th Street Phoenix	Yes
A29040200	9/27/2006	20027005P	20000 N 57th Drive Glendale	No
"	"	20027010	"	No
"	"	200005W	"	No
"	"	20027005P	"	No
"	"	20027005Q	"	No
"	"	20027005T	"	No
"	"	20027005G	"'	No
"	"	20027005K	"	No
"	"	20027005L	"	No

Site	*Date*	*Parcel #*	*Address*	*Violation Observed*
"	"	20027005U	"	No
"	"	20027005V	"	No
"	"	20027005N	"	No
A29040200	9/27/2006	20027005M	"	No
A030406	9/22/2006	21526031	4102 E. Greenway Phoenix	No
A030406	9/22/2006	21531001M	"	No
"	"	21531007	"	No
"	9/22/2006	21531008	"	No
US 60 & El Recreo	9/18/2006	50526005A	US 60 & El Recreo Phoenix	No
US 60 & El Recreo	9/18/2006	50526011	"	No
US 60 & El Recreo	9/18/2006	50526003C	"	No
Mariposa & US 60	9/18/2006	50534049	NW US60/Mariposa Dr. Phoenix	No
	10/2/2006	21231966	Hayden/101 Freeway Phoenix	No
	10/2/2006	21705017	NE 92st/Pinacle Peak Scottsdale	No
	10/2/2006	21705018	NE 92st/Pinacle Peak Scottsdale	No
	10/02/2006	21705013B	9456 E. Pinnacle Peak Scottsdale	No
A010624	9/29/2006	14159017	6762 E. Albany St. Mesa	Yes
"	9/29/2006	14159018	206 N Power Rd Mesa	Yes
A010624	9/29/2006	14159019	214 N. Power Rd Mesa	No
A010601	9/29/2006	14171158J	Power/Heather Dr Mesa	No
		14171158K		
3/2S/6E	5/23/2006	304-52-041	16202 E. Claxton Gilbert	No
4/1S/GE	6/7/2006	30409- 956	Val Vista-Baseline Gilbert	No
17/15/GE	6/30/2006	304-22-170	1240 E Sagebrush Gilbert	No
DO10509	7/17/2006	302-04-006-Q	SE Vineyard/Baseline Mesa	No
TINR2E Sec 22	8/15/2006	104-61-002-D	43rd/ Lower Buckeye Phoenix	No
TIN2E14	8/17/2006	10512015	1817 S 35th Avenue Phoenix	No
67th Ave &Chester	8/22/2006	201-12-816-A	64th Ave Peay Dr Phoenix	No
A03032400	8/24/2006	166-36-004-Q	10801 N. 32 St. Phoenix	No
A010211	8/29/2006	10958108	3402 W. Buckeye Phoenix	Yes
A010212	8/29/2006	109-49-071A	19th Ave/Madison Phoenix	Non-reg
A010309	8/31/2006	116-48-001A	1451 E. Washington Phoenix	No
A010214	8/31/2006	10510011A	2916 W. Yuma Phoenix	No
A040427	9/21/2006	215-04-037	Scottsdale/Mayo Phoenix	No
A040428	9/21/2006	212-32-953	56th St/ Mayo Phoenix	No
A10040300	9/28/2006	212-15-438	N 23 St/E Avenida Del Sol Phoenix	Yes
A04040200	10/4/2006	205-07-076	4500 Block W. Saddlehorn Phoenix	No
1 IN 1E	10/12/2006	102-41-297-A	7309 W. Lynwood Phoenix	No
9 1N 1E	10/12/2006	101-08-012-L	91Ave/Adams Tollison	Non-reg
13-2S-Se	10/12/2006	303-43-4-529	Cooper/Queen Creek Chandler	No
D010526	10/16/2006	302-84-001M	215 N. McQueen Chandler	No
18 1N 1E	10/16/2006	101-17-169	111Ave/4 St. Avondale	Non-reg
A02010700	10/17/2006	102-59-001-T	Glen Harbor Blvd Glendale	Yes
A03031500	10/19/2006	166-40-298-J	1802 E Larkspur Phoenix	Yes
D0206500	10/20/2006	304-78-014 V	24620 S. 182 Pl Gilbert AZ	Yes
A050406	10/23/2006	211-48-083	Lt 1 La Ventanas Cave Creek	No
A03033300	10/23/2006	160-11-012	1247 E. Griswold Phoenix AZ	No
A050406	10/23/2006	211-48-066	48 St. Carefree HWY Phoenix AZ	No
14 IN 1E	10/23/2006	104-32-013-C	83Ave Buckeye Maricopa AZ	Yes
30-2S-5E	10/31/2006	303-50-001-4	Sun Lakes Blvd/Riggs Sun Lakes	No
A030319	11/1/2006	159-15-047-F	1326 W. Becker Lane Phoenix AZ	No
A02023400	11/2/2006	108-11-058	3630 W Roanoke Ave Phoenix AZ	No

Site	*Date*	*Parcel #*	*Address*	*Violation Observed*
D01060900	11/2/2006	304-09-014	159 E. Elliot Rd Gilbert AZ	No
A010309	11/3/2006	116-47-084	1302 E. Jefferson Phoenix AZ	Yes
A0290403	11/6/2006	200-24-013A	19812 N. 53 Ave Glendale AZ	Yes
A02022700	11/9/2006	107-33-054	35 Ave/Indian School Phoenix AZ	Yes
D010509	11/9/2006	302-88-989	Arizona Ave/Chilton Chandler	No
A02022600	11/13/2006	108-04-202	3010 Grand Ave Phoenix AZ	Yes
D010509	11/14/2006	302-88-989	3300 Arizona Ave Chandler AZ	No
D02073100	11/15/2006	304-89-066-U	Chandler Heights Citrus Unit 3127	Yes
D010529	11/15/2006	302-48-830-B	Alma School/Ivanhoe Chandler	No
D02073200	11/15/2006	304-90-417	NEC Sossaman/Happy Rd City	Yes
01 01 19	11/15/2006	101-23-004-A	Avondale Blvd/ Broadway Avondale	Yes
A040424	11/16/2006	212-31-976	Pima/ Deer Valley Rd Scottsdale	No
A02020300	11/16/2006	151-04-080	7750 N 35 Ave Phoenix	No
D020533	11/16/2006	303-59-972-C	25558 S Arizona Ave Chandler	No
D010521	11/16/2006	302-23-095	Arizona/Orchid Chandler	Yes
A040424	11/16/2006	212-31-977	Pima/Deer Valley Scottsdale	No
D020503	11/21/2006	303-28-022A	800 E. Germann Rd Chandler	No
A010206	11/21/2006	103-23-003-P	67Ave/Roosevelt Phoenix	Yes
D020522	11/21/2006	303-46-011-C	McQueen/Chandler Heights Chandler	No
D01071100	11/21/2006	304-01-006-E	NW Signal Butte/Elliot Mesa	Yes
A0303225	11/22/2006	165-15-003-A	3937 E. Ocotillo Phoenix	Yes
A040109	11/27/2006	210-16-288	23416 N Cunino Rancho Peoria	Yes
A040123	12/27/2006	200-20-006-G	21000 N 75 Ave Glendale	Yes
A0404109	11/27/2006	201-16-299	MCR 58440 Peoria	Yes
A03020300	11/27/2006	207-14-045	4101 W Waltann Lane Phoenix	No
A03020700	11/27/2006	200-70-004-T	76 Ave/ Thunderbird Glendale	No
A02023100	11/28/2006	103-13-695-	59 Ave McDowell Phoenix	No
D01070400	11/28/2006	304-03-009N	Joslyn/Guadalupe Mesa	No
D020522	11/28/2006	303-46-002-A	450 E Chandler Heights Chandler,	Yes
A02023500	11/29/2006	108-26-115	32 Ave/McDowell Phoenix	No
A02023300	11/29/2006	103-51-143	4733 W. Thomas Phoenix	No
B030113	12/1/2006	200-85-972-A	115 Ave/El Mirage	Yes
A030206	12/1/2006	20051007E	59 Ave/Paradise Lane Phoenix	Yes
D010622	12/1/2006	304-27-016-K	Higley/Ray Gilbert	No
A01 02 22	12/4/2006	102-19-007-V	4115 N. 91 Ave Phoenix	Yes
A040207	12/5/2006	20112004Q	67 Ave Pinnacle Peak Phoenix	Yes
A060215	12/6/2006	203-03-003	Anthem Common Park Lot 2 Phoenix	No
D020525	12/6/2006	303-55-161	2331 E Cedar Pl Chandler	Yes
A060215	12/6/2006	203-03-034	4124 W Fortune Dr Phoenix	No
A03021000	12/11/2006	207-13-003-B	15024 N 37 Phoenix	Yes
D020525	12/11/2006	303-55-165	2452 E Elmwood Chandler	Yes
D02070400	12/12/2006	304-62-011-C	88 st/ Woodland Ave Mesa	Yes
A02022700	12/12/2006	107-33-026-F	3515 W. Clarendon Phoenix	Yes
A010219	12/15/2006	104-57-001-K	63 Ave/Broadway Phoenix	Yes
A060328	12/13/2006	2111-49-027	1- St/ Joy Ranch Rd Phoenix	Yes
A02031800	12/15/2006	156-38-029	1604 W. Pasadena Phoenix	Yes
A010211	12/21/2006	109-40-001M	3101 W. Washington St Phoenix	Yes
D010626	12/4/2006	304-39-016W	Higley/Ray Rd Gilbert	No

Yes = Violations were observed

No = No Violations were observed during this inspection

Non-Regulated = Parcel greater than .5 acre and no vehicle use.

Table 3.4.2 above summarizes 124 Inspected Rule 310.01 sites. Often one inspection site will have multiple owners, creating more than one parcel at a specific site. These multiple parcels were counted as one site. There were violations observed at forty (40) of the 124 sites; thus 32% of sites had an observed violation. From this we observe a 68% Rule Effectiveness. 68% of the sites inspected had no observable violations. Rule 310.01 Supervisor/ Inspector inspection reports were identical. There were no differences between supervisor and inspector observations of Rule 310.01 violations.

Forty-seven of the inspections were conducted during a three week period: September 18, 2006 through October 3, 2006. Two weeks before, September 2 – September 14, Maricopa County experienced a high precipitation rate. Many of these days were categorized by the U.S. National Weather service as Thunderstorm activity days. Stabilization observed at these sites was due to this unusual but naturally occurring wet weather and not to actions initiated by property owners. Within two weeks, activity or trespass on these vacant lots destabilized some of the later test sites. To better reflect the range of weather conditions more representative of Maricopa County, the Department randomly selected 77 more inspection sites from the last six-months of 2006 to include with the original 47 sites. This larger set of inspection sites more closely approximates the average Maricopa County weather conditions.

4.4.3 Nonmetallic Mineral Processing Plants

Ten Rule 316 sources were randomly chosen for inspection during the months of August - November 2006. The following table lists the compliance status of each site as determined by QA/Supervisor – Inspector.

Table 4.4.3: List of Inspected Non-Metallic Mineral Processing

Site Address	Permit Issued By	Compliance Status
Paradise Valley Desert Rock Inc. 17238 N. Cave Creek Rd Phoenix Arizona	MCAQD	CSN
Kilauea Crushers, Inc 7516 W. Deer Valley Phoenix Arizona	MCAQD	No Observed Violation
Master Block 12620 W. Butler Drive Phoenix Arizona	MCAQD	NOVs
Maricopa Ready Mix 1800 N. Alma School Rd Mesa Arizona	MCAQD	NOVs
Southwest Asphalt Paving Fisher Sand & Gravel dba Tempe Arizona	ADEQ & MCAQD	NOVs
Vulcan Materials/ Calmat Div. 5301 S. Dysart Rd. Avondale, Arizona	ADEQ	No Observed Violation
Vulcan Materials Co. Plant #138 2205 W. Adobe Dr. Phoenix, Arizona	MCAQD	CLOSED PLANT
Rinker 11920 W. Glendale Glendale Arizona	MCAQD	NOV
Superstition Crushing 3914 East Presidio Street Mesa Arizona 85215 (double inspection State/ County)	ADEQ & MCAQD	NOVs
Kilauea Crushers	MCAQD	NOV

Site Address	Permit Issued By	Compliance Status
16402 S. Tuthill Buckeye Arizona		
Imix Group LLC 7505 S. 143 Ave Goodyear Arizona	MCAQD	NOVs
Sunshine Redi-Mix, Inc. 5725 N. 55th Ave Glendale Arizona 85301	MCAQD	NOV

Of the eleven randomly chosen inspection sites, two of the sites had no observable violations. Consequently, 18% of these sites had not observable violations.

Using EPA guidance (EPA, 1992), MCAQD determined that eleven inspections were not adequate to meet the required 90 percent confidence level and 5 percent sample error. Therefore, MCAQD applied recently revised EPA Rule Effectiveness Guidance (August 2005) to the Nonmetallic Mineral Processing source category and derived a rule effectiveness of 54% for Rule 316 (Appendix B). Appendix B describes the revised rule effectiveness methodology used. In this methodology, the value assigned to the "compliance history" was derived from the inspection results of the eleven randomly selected Rule 316 inspections.

4.5 Summary of Rule Effectiveness Study

		Rule Effectiveness Study Results	Revised EPA Rule Effectiveness Guidance
Rule 310	Earth Moving Sources	51%	-
Rule 310.01	Vacant Lots/Open Areas	68%	-
Rule 316	Nonmetallic Mineral	-	54%

4.6 Quality Assurance

As mentioned above, a quality assurance (QA) supervisor assigned to follow inspectors on the Rule 310 and Rule 310.01 inspections. The Earthmoving inspector data reported a lower rule effectiveness or 46% Rule Effectiveness while the QA/ Supervisor data resulted in a 49% rule effectiveness. As the difference between scoring was relatively small, the Department chose to rely upon the more experienced, QA/ Supervisor observations to score the Rule 310 rule effectiveness. The Rule 310.01 QA/Supervisor and the inspector reports were identical. The consistent observations result from the application of the Fugitive Dust Test Methods required by Rule 310.01

5. Recommendations

Maricopa County's significant growth rate over the last 5 years significantly affected the Department's workload. The Department was unable to add staff as rapidly as the growth took place. As a result, for a period of time the Department responded to complaints but was unable to complete many proactive inspections. To train the significant number of new staff necessary, the Department updated its new employee training program and developed an ongoing training program. These updates were put in place since the last rule effectiveness study.8 The small (3%) difference in Supervisor/inspector observations reflects the success of this training and ongoing inspector quality control program.

[8] MCESD, 2003 Rule Effectiveness Study for Salt River PM_{10} Study. Maricopa County Environmental Services Department. Revised December 2003.

6. Policy/Procedure Improvements

The Department programs for non-permitted sources are at the point where it is now conducting proactive and well as reactive inspections. Based on the experience gained from inspections, the Department will be recommending clarifications as to rule text to make the rule clearer to both the regulated community and the regulators.

APPENDIX A

EPA Revised Rule Effective Guidance Factors for Non-point Sources

NON-POINT SOURCE RULE EFFECTIVENESS FACTORS:	
Most important factor:	• Compliance History
Other important factors:	
	• Compliance Certification
	• Type of Inspection
	• Unannounced inspections
	• Inspection Frequency
	• Enforcement
	• Compliance assistance
	• Monitoring requirements
	• Follow-up inspections
	• Media publicity

APPENDIX B

Rule 316- EPA Revised Rule Effectiveness Guidance-Nonmetallic Mineral Processing

A. Most important factor (1 criteria, assigned weighting of 40% total)

	Range		Midpt. Value	Description	Weight	Value Assigned by MCAQD	Score (=weight x value)
Compliance History	86%	100%	93%	Over 90% of facilities Inspected in the source Category are in compliance			
	70%	85%	78%	Over 75% of facilities inspected in the source category are in compliance			
		<70%	35%	Over 60% of facilities inspected in the source category are in compliance	40%	18%	7.2%

B. Other Important factors (6 criteria, each assigned weighting of 8% of total)

Compliance Certifications	86%	100%	93%	Source is subject to some type of compliance certification			
	70%	85%	78%	Source is subject to some type of compliance certification			
		<70%	35%	Source is not subject to any type of compliance certification;	8%	50%	4.00%
Type of Inspection	86%	100%	93%	Inspections are thorough and detailed, and include close examination of control equipment, and a detailed records review			
	70%	85%	78%	Inspections consist of a records review, and sometimes inspections of control equipment	8%	80%	6.4%
		<70%	35%	Inspections generally consist of a records review only;			
Inspection Frequency/ Percentage	86%	100%	93%	Percent of facilities inspected in the sector in a given year is 25% or greater.			
	70%	85%	78%	Percent of facilities inspected in the sector in a given year is 15% or greater	8%	80%	6.40%
		<70%	35%	Percent of facilities inspected in the sector in a given year is less than 15%			
Unannounced Inspections	86%	100%	93%	Unannounced inspections are sometimes done	8%	93%	7.44%
	70%	85%	78%	Unannounced inspections are sometimes done, but infrequently			
		<70%	35%	Unannounced inspections are never done			
Enforcement Penalties	86%	100%	93%	Agency takes prompt enforcement action, including monetary fines, against violators			
	70%	85%	78%	Agency usually takes enforcement action, including monetary fines against violators;	8%	80%	6.40%
		<70%	35%	Agency usually does not take enforcement action against violators;			
Compliance Assistance	86%	100%	93%	A compliance assistance program exists and is adequately staffed, and includes such things as workshops,			
	70%	85%	78%	Mailings, web-based tutorials, etc.	8%	80%	6.40%
		<70%	35%	Workshops, mailings, web-based tutorials, etc available			

C. Other factors (3 criteria, each assigned weighting of 4% total):							
Monitoring Requirements	86%	100%	93%	Monitoring requirements exist and must be reported to regulatory agency at least once a year;			
	70%	85%	78%	Monitoring requirements exist but records don't have to be filed with regulatory agency	4%	80%	3.2%
		<70	35%	Monitoring requirements do not exist;			
Follow Up Instructions	86%	100%	93%	Follow-up inspections are done when violations are noted most (>75%) of the time			
	70%	85%	78%	Follow-up inspections are done when violations are noted most (>75%) of the time	4%	80%	3.2%
		<70%	35%	Follow-up inspections are routinely done;			
Media Publicity	86%	100%	93%	Media publicity of enforcement actions is routinely conducted	4%	93%	3.72%
	70%	85%	78%	Media publicity of enforcement actions is sometimes done			
		<70%	35%	Media publicity of enforcement actions is rarely if ever done			
							54.35%

APPENDIX C

SAMPLE SIZE with a 90% CONFIDENCE LEVEL
As a function of Standard deviation & Sample error 9

	TABLE D-1		ANALYSIS OF SAMPLE SIZE; CONFIDENCE LEVEL = 90%									
						STANDARD DEVIATION						
SAMPLE												
ERROR	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%	22%	24%
2.5%	2	7	16	28	44	63	85	112	141	174	211	251
3.0%	1	5	11	19	30	44	59	77	98	121	146	174
3.5%	1	4	8	14	22	32	44	57	72	89	108	128
4.0%	1	3	6	11	17	25	33	44	55	68	82	98
4.5%	1	2	5	9	13	19	26	34	44	54	65	77
5.0%	0	2	4	7	11	16	21	28	35	44	53	63
5.5%	0	1	3	6	9	13	18	23	29	36	44	52
6.0%	0	1	3	5	8	11	15	19	25	30	37	44
6.5%	0	1	2	4	6	9	13	16	21	26	31	37
7.0%	0	1	2	4	6	8	11	14	18	22	27	32
7.5%	0	1	2	3	5	7	9	12	16	19	23	28
8.0%	0	1	2	3	4	6	8	11	14	17	21	25
8.5%	0	1	1	2	4	5	7	10	12	15	18	22
9.0%	0	1	1	2	3	5	7	9	11	13	16	19

[9] Guidelines for Estimating and Applying Rule Effectiveness for Ozone/CO State Implementation Plan Base Year Inventories, U.S. EPA, EPA-452/R-92-010, November 1992.

Appendix 2.3

Calculating Rule Effectiveness for Controlled (Title V and non-Title V) Point Source Processes

A. Most important factors (2 criteria, each assigned weighting of 20% of total):

	Range		Midpt. value	Description	Weight	Value assigned to MCAQD	Score (= weight × value)
Monitoring	94%	100%	97%	Source specific monitoring used for compliance purposes, and monitoring records filed with regulatory agency at least every 4 months.			
	87%	93%	90%	Source specific monitoring used as an indicator of compliance, and monitoring records filed with regulatory agency every 6 to 9 months.	20%	90%	18.0%
	81%	86%	84%	Source specific monitoring used as an indicator of compliance, and monitoring records filed with regulatory agency each year.			
	70%	80%	75%	General guidance exists for source specific enhanced monitoring, and monitoring records required but aren't submitted to regulatory agency.			
		< 70%	35%	No requirements for any type of monitoring.			

Compliance History	94%	100%	97%	The facility has been in compliance for the past eight quarters.		18 of 39 facilities	9.0%
	87%	93%	90%	The facility is believed to have been in compliance for the past eight quarters, although inspection frequency is such that this can't be positively confirmed.		5 of 39 facilities	2.3%
	81%	86%	84%	On schedule; the facility is meeting its compliance schedule.			
	70%	80%	75%	In Violation; facility is in violation of emissions and/or procedural requirements.		7 of 39 facilities	2.7%
		< 70%	35%	High Priority Violator (HPV): the facility is in significant violation of one or more applicable requirement of the CAA.		9 of 39 facilities	1.6%
					20%	Sum:	**15.6%**

B. Other important factors (4 criteria, each assigned weighting of 6% of total):

Type of Inspection	94%	100%	97%	Inspections involve compliance test methods with a high degree of accuracy, such as stack testing or other types of precise emissions measurement.	6%	97%	5.8%
	87%	93%	90%	Inspections involve detailed review of process parameters & inspection of control equipment.			
	81%	86%	84%	Inspections involve review of process and inspection of control equipment.			
	70%	80%	75%	Inspections generally consist of only a records review.			
		< 70%	35%	Inspections most likely consist of visual inspection (e.g., opacity), or drive by.			

Operation & Maintenance	94%	100%	97%	Control equipment operators follow and sign daily O&M instructions.			
	87%	93%	90%	Control equipment operators follow daily O&M instructions.	6%	90%	5.4%
	81%	86%	84%	Control equipment operators follow daily or weekly O&M instructions.			
	70%	80%	75%	O&M requirements exist, but on no specific schedule.			
		< 70%	35%	No specific O&M requirements.			

	Range		Midpt. value	Description	Weight	Value assigned to MCAQD	Score (= weight × value)
Unannounced Inspections	94%	100%	97%	Routinely conducted.	6%	97%	5.8%
	87%	93%	90%	Sometimes done.			
	81%	86%	84%	Done, but infrequently.			
	70%	80%	75%	Rarely done.			
		< 70%	35%	Never done.			

Enforcement Penalties	94%	100%	97%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.	6%	97%	5.82%
	87%	93%	90%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.			
	81%	86%	84%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.			
	70%	80%	75%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.			
		< 70%	35%	Agency does not have sufficient authority to impose punitive measures towards violators.			

C. Other factors (9 criteria, each assigned weighting of 4% of total):

Compliance Certifications	94%	100%	97%	Source subject to Title V or other type of compliance certification.	4%	97%	3.88%
	87%	93%	90%	Source subject to Title V or other type of compliance certification.			
	81%	86%	84%	Source not subject to any type of compliance certification.			
	70%	80%	75%	Source not subject to any type of compliance certification.			
		< 70%	35%	Source not subject to any type of compliance certification.			

Inspection Frequency	94%	100%	97%	Source(s) are inspected once every 2 years or more frequently.	4%	97%	3.88%
	87%	93%	90%	Source(s) inspected every 3 years or more frequently.			
	81%	86%	84%	Source(s) inspected every 5 years or more frequently.			
	70%	80%	75%	Inspection of source(s) infrequent. > every 5 years.			
		< 70%	35%	Inspections rarely, if ever, performed.			

EPA HPV Enforcement	94%	100%	97%	Agency has sufficient resources to implement EPA's 12/22/98 HPV policy.	4%	97%	3.88%
	87%	93%	90%	Agency's resources allow it to implement EPA's 12/22/98 HPV policy in most instances.			
	81%	86%	84%	Agency's resources allow it to implement EPA's 12/22/98 HPV policy in most instances.			
	70%	80%	75%	Agency's resources allow it to implement EPA's 12/22/98 HPV policy more often than not.			
		< 70%	35%	Resource constraints prohibit agency from implementing EPA's 12/22/98 HPV policy in most instances.			

	Range		Midpt. value	Description	Weight	Value assigned to MCAQD	Score (= weight × value)
Operator Training	94%	100%	97%	Control equipment operators complete a formal training program on use of the equipment, and such program is kept up to date and has been reviewed by the regulatory agency.			
	87%	93%	90%	Control equipment operators complete formal training program, and such program is kept up to date and available for review by the regulatory agency upon request.			
	81%	86%	84%	Control equipment operators complete some amount of formal training.	4%	84%	3.36%
	70%	0.8	75%	Control equipment operators receive only on the job training .			
		< 70%	35%	Control equipment operators receive no specific training.			
Media Publicity	94%	100%	97%	Media publicity of enforcement actions.	4%	97%	3.88%
	87%	93%	90%	Media publicity of enforcement actions.			
	81%	86%	84%	Media publicity of enforcement actions.			
	70%	80%	75%	Media publicity of enforcement actions.			
		< 70%	35%	No media publicity of enforcement actions.			
Regulatory Workshops	94%	100%	97%	Regulatory workshops are available annually, and/or the implementing agency mails regulatory information packages each year.	4%	97%	3.88%
	87%	93%	90%	Regulatory workshop are available every 1-2 years, and/or the implementing agency mails regulatory information packages every 1-2 years.			
	81%	86%	84%	Regulatory workshop are available every 2-3 years, and/or the implementing agency mails regulatory information packages once every 2-3 years.			
	70%	80%	75%	Regulatory workshop not routinely available, but implementing agency mails regulatory information packages out about once every 2-3 years.			
		< 70%	35%	Regulatory workshops not routinely available. implementing agency mails regulatory information packages infrequently, if ever.			
Inspector Training	94%	100%	97%	Inspectors must undergo 2 weeks of comprehensive basic training, and 1 to 2 weeks of source specific training, and such training is updated each year.			
	87%	93%	90%	Inspectors must undergo 1 to 2 weeks of basic training and 1 week of source specific training, and such training is updated every 1-2 years.	4%	90%	3.60%
	81%	86%	84%	Inspectors must undergo 1 to 2 weeks of basic training and 3 to 5 days of source specific training, and such training is updated every 1-2 years.			
	70%	80%	75%	Inspectors must undergo 1 to 2 weeks of basic training and 1 to 3 days of source specific training, and such training is updated every 1-2 years.			
		< 70%	35%	Inspectors must undergo less than 5 days of basic training less than 3 days of source specific training, and such training is updated only every 2 years or less frequently.			

	Range		Midpt. value	Description	Weight	Value assigned to MCAQD	Score (= weight × value)
Testing Guidelines	94%	100%	97%	Specific guidelines and schedule for testing and test methods exist.	4%	97%	3.88%
	87%	93%	90%	Specific guidelines on testing and test methods exist, but no schedule for testing.			
	81%	86%	84%	Specific guidelines on testing and test methods exist, but no schedule for testing.			
	70%	80%	75%	Specific guidelines on testing and test methods, but no schedule for testing.			
		< 70%	35%	Only general guidance on testing, or no mention of testing requirements.			

Follow-up Inspections	94%	100%	97%	Follow-up inspections always or almost always done (90 % of the time or more).	4%	97%	3.88%
	87%	93%	90%	Follow-up inspections usually done (approximately 75% of the time).			
	81%	86%	84%	Follow-up inspections sometimes done (approximately 50% of the time).			
	70%	80%	75%	Follow-up inspections infrequently done (approximately 25% of the time).			
		< 70%	35%	Follow-up inspections rarely or never done (10% of the time or less)			
							90.55%

A. Most important factors (2 criteria, each assigned weighting of 20% of total):

	Range		Midpt. value	Description	Weight	Value assigned to MCAQD	Score (= weight × value)
Monitoring	94%	100%	97%	Source specific monitoring used for compliance purposes, and monitoring records filed with regulatory agency at least every 4 months.			
	87%	93%	90%	Source specific monitoring used as an indicator of compliance, and monitoring records filed with regulatory agency every 6 to 9 months.			
	81%	86%	84%	Source specific monitoring used as an indicator of compliance, and monitoring records filed with regulatory agency each year.			
	70%	80%	75%	General guidance exists for source specific enhanced monitoring, and monitoring records required but aren't submitted to regulatory agency.	20%	75%	15.0%
		< 70%	35%	No requirements for any type of monitoring.			

Compliance History	94%	100%	97%	The facility has been in compliance for the past eight quarters.		182 of 748 facilities	4.7%
	87%	93%	90%	The facility is believed to have been in compliance for the past eight quarters, although inspection frequency is such that this can't be positively confirmed.		404 of 748 facilities	9.7%
	81%	86%	84%	On schedule; the facility is meeting its compliance schedule.			
	70%	80%	75%	In Violation; facility is in violation of emissions and/or procedural requirements.		156 of 748 facilities	3.1%
		< 70%	35%	High Priority Violator (HPV): the facility is in significant violation of one or more applicable requirement of the CAA.		6 of 748 facilities	0.1%
						Sum:	**17.6%**

B Other important factors (4 criteria, each assigned weighting of 6% of total):

Type of Inspection	94%	100%	97%	Inspections involve compliance test methods with a high degree of accuracy, such as stack testing or other types of precise emissions measurement.			
	87%	93%	90%	Inspections involve detailed review of process parameters & inspection of control equipment.	6%	90%	5.4%
	81%	86%	84%	Inspections involve review of process and inspection of control equipment.			
	70%	80%	75%	Inspections generally consist of only a records review.			
		< 70%	35%	Inspections most likely consist of visual inspection (e.g., opacity), or drive by.			

Operation & Maintenance	94%	100%	97%	Control equipment operators follow and sign daily O&M instructions.			
	87%	93%	90%	Control equipment operators follow daily O&M instructions.	6%	90%	5.4%
	81%	86%	84%	Control equipment operators follow daily or weekly O&M instructions.			
	70%	80%	75%	O&M requirements exist, but on no specific schedule.			
		< 70%	35%	No specific O&M requirements.			

	Range		Midpt. value	Description	Weight	Value assigned to MCAQD	Score (= weight × value)
Unannounced Inspections	94%	100%	97%	Routinely conducted.	6%	97%	5.8%
	87%	93%	90%	Sometimes done.			
	81%	86%	84%	Done, but infrequently.			
	70%	80%	75%	Rarely done.			
		< 70%	35%	Never done.			

Enforcement Penalties	94%	100%	97%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.	6%	97%	5.82%
	87%	93%	90%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.			
	81%	86%	84%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.			
	70%	80%	75%	Agency has the authority to impose punitive measures, including monetary fines, towards violators such as in delegated Title V Operating Permit programs.			
		< 70%	35%	Agency does not have sufficient authority to impose punitive measures towards violators.			

C. Other factors (9 criteria, each assigned weighting of 4% of total):

Compliance Certifications	94%	100%	97%	Source subject to Title V or other type of compliance certification.			
	87%	93%	90%	Source subject to Title V or other type of compliance certification.			
	81%	86%	84%	Source not subject to any type of compliance certification.			
	70%	80%	75%	Source not subject to any type of compliance certification.	4%	75%	3.00%
		< 70%	35%	Source not subject to any type of compliance certification.			

Inspection Frequency	94%	100%	97%	Source(s) are inspected once every 2 years or more frequently.	4%	97%	3.88%
	87%	93%	90%	Source(s) inspected every 3 years or more frequently.			
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	81%	86%	84%	Inspectors must undergo 1 to 2 weeks of basic training and 3 to 5 days of source specific training, and such training is updated every 1-2 years.			
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	81%	86%	84%	Follow-up inspections sometimes done (approximately 50% of the time).			
	70%	80%	75%	Follow-up inspections infrequently done (approximately 25% of the time).			
		< 70%	35%	Follow-up inspections rarely or never done (10% of the time or less)			
							87.95%