

COUNTY NOTICES PURSUANT TO A.R.S. § 49-112

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NOTICE OF FINAL RULEMAKING

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS

REGULATION III – CONTROL OF AIR CONTAMINANTS

[M11-45]

PREAMBLE

- | | |
|---|---------------------------------|
| 1. <u>Rule affected</u> | <u>Rulemaking action</u> |
| Rule 337: Graphic Arts | Amend |
| 2. <u>Statutory authority for the rulemaking:</u> | |
| Authorizing statutes: A.R.S. §§ 49-474, 49-479, and 49-480 | |
| Implementing statute: A.R.S. § 49-112 | |
| 3. <u>The effective date of the rule:</u> | |
| Date of adoption: January 12, 2011 | |
| 4. <u>List of all previous notices appearing in the Register addressing the rulemaking:</u> | |
| Notice of Rulemaking Docket Opening: 15 A.A.R. 1860, November 6, 2009 | |
| Notice of Proposed Rulemaking: 16 A.A.R. 1342, July 23, 2010 | |
| Notice of Public Information: 16 A.A.R. 1510, August 13, 2010 | |
| 5. <u>The name and address of department personnel with whom persons may communicate regarding the rulemaking:</u> | |

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6. An explanation of the rule, including the department's reasons for initiating the rulemaking:

The Maricopa County Air Quality Department (department) regulates emissions of volatile organic compounds (VOCs) from graphic arts operations through Maricopa County Air Pollution Control Regulation III, Rule 337 (Graphic Arts). "Graphic arts" include, but are not limited to, any digital, screen, gravure, letterpress, flexographic and lithographic printing process, including any related coating and laminating process(es). Rule 337 is an industry-specific rule designed to limit emissions of VOCs to the ambient air from the use of inks, coatings, adhesives, fountain solutions, and cleaning materials from graphic arts operations. This rule applies to all graphic arts operations involving the preparation, handling, mixing and application of VOC-containing materials. Affected processes include, but are not limited to, prepress and press operations; use of cleaning materials; and any other processes associated with a graphic arts operation.

The department has revised the rule to include reasonably achievable control technology (RACT) recommendations from the U.S. Environmental Protection Agency (EPA) Control Techniques Guidelines (CTGs) for graphic arts operations. Specifically, the department has converted the rule applicability threshold into a VOC emission

threshold, rather than using a press size limit (Section 100); provided partial exemptions from the VOC limitations of this rule but established requirements to comply with the work practices and the recordkeeping requirements (Section 100); recognized new graphic arts technologies such as digital printing and UV cured inks in the definitions (Section 200); added, revised or deleted terms defined in Section 200; defined rule applicability in Section 300 by type of graphic arts operation; updated control efficiency requirements for emission control systems (ECS) to be consistent with the CTG recommendations (Section 300); added a “best work practices” section per CTG recommendations; and corrected and updated other provisions including modifications to recordkeeping requirements (Section 502) and test methods (Section 503) that facilitate compliance verification and enhance the enforceability of the rule.

In response to comments received, the department has also clarified that digital printing is exempt from the VOC limitations of this rule but is subject to its work practices and the recordkeeping requirements; changed the requirement of a person selling, offering for sale, supplying for use, or manufacturing for sale VOC-containing material for use in graphic arts; added an ECS option for screen printing operations for reduction of VOC emissions; and added a third acceptable method to calibrate a hydrometer.

The amendments to Rule 337 are not expected to affect the graphic arts industry significantly. Overall emissions from graphic arts operations in Maricopa County over the past decade indicate significant decreases in per-employee VOC emissions. This downward trend in VOC emissions can be attributed to graphic arts process changes, such as increasing the usage of low-VOC inks, the substitution of alcohol in fountain solutions, and using digital printing processes. The amended ECS efficiencies and VOC-content limits are expected to have little impact on graphic arts operations within the county because these existing processes can already comply with the requirements of the revised rule.

In addition, revisions to Maricopa County Regulation III, Rule 337 (Graphic Arts), were necessary to meet state implementation plan (SIP) requirements, ensure the region’s continued progress toward attaining both the 1-hour and 8-hour ozone NAAQS, and meet the EPA’s minimum CTG RACT recommendations (71 FR 58745, October 5, 2006) in its CTG for Flexible Package Printing (EPA 453/R-06-003, September 2006) and its CTG for Offset Lithographic Printing and Letterpress Printing (EPA 453/R-06-002, September 2006).

Background:

Section 183(e) of the Clean Air Act (CAA) requires the EPA to regulate categories of products that account for at least 80% of VOC emissions from consumer and commercial products in areas that violate the national ambient air quality standard (NAAQS) for ozone. The EPA promulgates regulations applicable to manufacturers, processors, distributors or importers of solvents, materials or products supplied to the customer or industry. By law, the EPA cannot directly regulate end users of products, but can issue a CTG recommending RACT measures for the end users of consumer or commercial products. The EPA defines RACT as “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.” (44 FR 53761, September 17, 1979). A CTG is intended to provide state and local air pollution control authority’s information to assist in determining RACT to reduce VOC emissions in ozone nonattainment areas (971FR58747, October 5, 2010).

In 2004, the EPA designated over 98% of Maricopa County as an 8-hour ozone nonattainment area (69 FR 23858, April 30, 2004). On June 14, 2005, the EPA [70 FR 34362] redesignated the Phoenix metropolitan area to attainment of the 1-hour ozone NAAQS and approved the attainment demonstration and maintenance plan showing maintenance of the 1-hour ozone NAAQS through 2015. The NAAQS 1-hour ozone standard was revoked by EPA effective June 15, 2005, under the anti-backsliding provisions of the Clean Air Act (CAA), Sections 110(1) and 193. However, certain control measures developed and implemented for the 1-hour NAAQS were required to remain in place to ensure continued progress toward attainment of the 8-hour NAAQS. In addition, EPA strengthened the air quality standards for ground-level ozone by reducing the ozone standard from 0.84 parts per million (ppm) to 0.075 ppm to improve public health protection (73 FR 16436; March 27, 2008).

Clean Air Act Section 172(c)(1) provides that State Implementation Plans (SIPs) for nonattainment areas include reasonably available control measures (RACM) including RACT for sources of emissions. Section 182(b)(2)(A) provides that for certain nonattainment areas, states revise their SIPs to include RACT for each category of VOC sources covered by a CTG document issued between November 15, 1990 and the date of attainment.

In September 2008, the department began the graphic arts rulemaking process to address SIP requirements and meet the minimum CTG RACT recommendations issued by the EPA actions. Public workshops and conference calls with stakeholders were conducted. The department received written comments from four different stakeholders regarding

the proposed rulemaking. The issues raised and discussed during this rulemaking process can be categorized as follows:

- Clarification of definitions in relationship to graphic arts processes.
- Rule applicability.
- Fountain solution monitoring and recordkeeping.
- Recordkeeping requirements.
- Options for cleaning solutions.

Each of these issues is described in further detail below. Following that discussion is a list of specific amendments to Rule 337.

Issues Raised and Discussed During This Rulemaking Process:

Clarification of definitions in relationship to graphic arts processes: One commenter requested the addition and revision of several terms defined in the rule. As a result, definitions of 17 additional terms have been added to the rule. The definitions of seven terms were revised.

Rule applicability:

- a. Two commenters requested a total exemption be included for “office and personal” copiers and printers. Both commenters expressed concerns that the proposed recordkeeping requirements for this type of equipment were unreasonable.

A review of the material safety data sheets for three different brands of inkjet printer inks indicated the inks had specific gravities of between 1.0 and 1.2. The capacity of an inkjet cartridge was typically 10 to 15 ml for personal printers, but up to 350 ml for an inkjet printer plotter cartridge. Volatile fraction by weight for inks ranged from 3% to over 70%. Assume a quantity of one gallon of inkjet ink weighs 10 pounds per gallon (weight of water as 8.3454 multiplied by specific gravity of inkjet ink as 1.2). Using a volatile fraction by weight percentages of 3% and 70%, the VOC weight of the inkjet ink would be range between 0.3 to 7 pounds per gallon. Using a retention factor of 95%, the VOC emissions would range between 0.015 and 0.35 pounds per gallon of inkjet ink. Assuming a larger quantity of personal printers are used compared to printer plotters, approximately 720 ink cartridges (15 ml capacity) would have to be consumed to emit the equivalent of one pound of VOCs. The department considers this a de minimis amount.

Due to the de minimis amount of VOC emissions from these sources, no emission controls are recommended in the CTG or in other agency rules concerning the regulation of office and personal printer inks at this time. Maintaining records of the purchase and use of business and personal printer cartridges does nothing to contribute to the overall reduction of VOCs. The intent of the rule is not to create a burden to small businesses by classifying office and personal copiers and printers as graphic arts operations. To clarify this position, the department added a total exemption for office and personal copiers and printers in Section 103.3.

- b. The department was requested to establish exemptions for fountain solutions reservoirs one gallon or less; press sizes of 11” x 17” or less; lithographic printing operations with actual annual VOC emissions of less than 3 tons per year (tpy); any letterpress or heatset web offset press less than 22 inches; and letterpress or heatset web offset presses used to print books. In addition, the commenter cited material use factors approved by EPA to allow printers to track material usage instead of actual emissions to determine exemption status. The material usage exemptions proposed by the commenter were 768 gallons annual use of cleaning solvent and fountain solution for sheet-fed and non-heatset web presses. For heatset web presses, an annual material use threshold of 5,400 pounds of ink, cleaning solvent, and fountain solution additives was proposed by the commenter.

In a separate comment, the department was requested to increase the rule applicability threshold to 3 tpy of VOC emissions to be consistent with the 2006 CTG for Offset Lithography and Letterpress. Per the commenter, the 3 tpy threshold was established by EPA to prevent overregulation of very small businesses and provide consistency in the CTGs across many industries, including printing. A 3 tpy threshold equates into a monthly emission threshold of 500 pounds VOC.

Previously, Rule 337, Section 306.2(b) exempted “[a]ny printing operation in which no printing press has over two units, and the combined impression area of all presses together does not exceed 500 square inches...”. Press size was used in the previous rule to provide an easier method of determining rule applicability for small operations. In March, 2010, the Printing Industries of America (PIA) provided calculations using EPA’s model plant and nominal press material use and emission factors for a 2-unit, 500 square-inch impression size press (G. Jones, Printing Industries of America, Mar. 22, 2010, personal communication.) The emissions were

estimated to be 3.99 tpy for coldset presses and 79.63 tpy for heatset presses. Both of these emissions exceed the threshold of 3 tpy recommended by the CTG for Offset Lithography and Letterpress. The rulemaking removed the press size exemption and applied a VOC emission threshold.

In an EPA memorandum, Potential to Emit (PTE) Guidance for Specific Source Categories, April 14, 1998, Table 3 Guidance for Printing, Publishing and Packaging Operations, a VOC material usage of 1,425 gallons for cleaning solvent and fountain solution additives was equated to emissions of 10 tpy. Using the ratio of 1,425 gallons to 10 tpy emissions, the commenter's proposed threshold limits would equate to approximately:

- (1) Sheetfed 768 gallons = approximately 5.4 tpy.
- (2) Non-heatset Web 768 gallons = approximately 5.4 tpy.
- (3) Heat-set web 5,400 pounds = approximately 2.7 tpy before controls.

The threshold limits suggested by the commenter are also greater than the previous press size limit of 500 square inches emission as calculated by the PIA. The commenter's suggested limits would thus make Rule 337 less stringent. When a proposed rule is less stringent than the current rule, it is considered as "backsliding" by the EPA. As backsliding is not permitted under the anti-backsliding provisions of the Clean Air Act, Sections 110(1) and 193, the requested change was not made.

- c. A commenter requested a separate provision that allows the use of adhesives that contain greater than 2.5 pounds VOC per gallon, and suggested a total limit of 110 gallons over a consecutive 12-month period.

The previous rule already included the commenter's proposed 110-gallon exemption as part of the overall total emissions from the graphic arts operation. This VOC limit does not apply to any graphic arts operation emitting less than the threshold amounts of 25 tpy (22,680 kg/year) and 4200 pounds (1909 kg) per month of VOC from all graphic arts and related coating operations prior to control. In addition, the previous rule already limited the VOC content of material equal to or less than 2.5 pounds per gallon (300 grams per liter), less water and non-precursor organic compounds after the thresholds have been met. Any further exemption would be considered backsliding by the EPA, therefore the requested change was not made.

Fountain solution monitoring and recordkeeping:

A commenter requested an allowance for a printer to use a thermometer to measure the temperature of the fountain solution once per day and record the results in a log. This approach is recognized by EPA in the CTG for Offset Lithography and Letterpress and was reflected in the model rule, as verified by the department.

Prior Rule 337 required weekly monitoring of fountain solution containing alcohol using a refractometer, a hydrometer or a conductivity meter. Log sheets must include a weekly entry of the results of an instrument reading. Rule 337 was amended to include a requirement for daily temperature monitoring and recording of data for refrigerated fountain solutions. The use of thermometers for fountain solutions measurement was added in the test method section.

Recordkeeping requirements:

One commenter requested that monthly threshold values be calculated on a 12-month rolling or annual monthly average for smaller operations.

The previous rule required monthly recordkeeping and did not allow for exceptions with respect to the capacity of the operation. A change from monthly recordkeeping to annual monthly average or rolling 12-month average would be considered backsliding by EPA, therefore the requested change was not made.

Options for cleaning solutions:

One commenter requested additional alternatives to the VOC composite vapor pressure limit for cleaning solutions.

Alternatives were added in Section 302.4, Cleaning Materials. Two options were provided: the use of cleaning solutions with a VOC composite vapor pressure less than 10 mm Hg at 20°C, or the use of cleaning materials containing less than 70 percent VOC by weight.

Description of Amendments

Revisions to Rule 337 can be categorized as follows:

- Added a new Section 102, Applicability
- Added a new Section 103, Exemptions

- Added, revised, or deleted various definitions in Section 200
- Revised Section 300 to specify rule requirements for specific types of graphic arts operations
- Updated the compliance schedule in Section 400
- Revised the monitoring, recordkeeping and test methods in Section 500
- Made other minor editorial changes and corrected typographical errors throughout the document

Added Section 102, Applicability:

The department added that the rule is applicable to all VOC-containing materials associated with graphic arts operations.

Added Section 103, Exemptions:

The department added Section 103 to clarify total and partial exemptions in the general section (Section 100) of the rule instead in the body of the rule. The exemptions formerly in Section 306 were moved to the beginning of the rule (Section 100). Two additional total categorical exemptions were added. One total categorical exemption is for coating applications not performed in association with printing operations. The second categorical exemption is for office and personal printers.

Partial exemptions in Section 103 include the requirement of a graphic arts operation to comply with the proposed work practices in Section 306 and the recordkeeping requirements in Section 502.5. Additional revisions included identifying retention factors used for calculating VOC content of inks; partial exemption of graphic arts operations not exceeding 250 pounds of VOC emissions per month and partial exemptions for any radiation-cured inks and coatings. The exemption for graphic arts operations emitting less than the VOC threshold amount of 25 tpy was moved in its entirety from the previously identified Section 306.1 to Section 103.

Added, revised and deleted definitions in Section 200:

The department added 17 definitions, revised seven definitions and deleted seven definitions to improve the clarity and applicability of the rule. The definitions added were: adhesive, batch, digital printing, extreme performance ink/coating, fountain solution, heatset, non-heatset, non-porous substrate, offset lithographic printing, overall control efficiency, porous substrate, radiation-cured inks and coatings, sheet-fed, solvent, specialty coating, VOC-containing material, and web. The definitions revised were: flexographic printing, graphic arts, graphic arts coating, gravure printing, lithographic printing, vapor pressure, and VOC composite vapor pressure. The definitions deleted were: coating, graphic arts varnish, lamination, non-precursor organic compound, units per printing press, volatile organic compound, and web-feed.

Revised Section 300 to specify rule requirements for specific types of graphic arts operations: The department revised Section 300 by reorganizing the standards to delineate the various printing processes to improve clarity and applicability in the rule. Revisions included:

- **Section 301** applies to manufacturers and suppliers of graphic arts materials. The requirements are comparable to the requirements in Section 304 of the present rule. An additional requirement of providing mixing instructions and material VOC content was added.
- **Section 302** applies to lithographic and letterpress graphic arts operations. The revisions include VOC limits for the following: materials used; fountain solutions; and cleaning solutions. Requirements for work practices described in Section 306; emission control system (ECS) limits; and Operation and Maintenance (O&M) plan requirements were also included in this rulemaking.
- **Section 303** applies to rotogravure and flexographic operations that include material VOC content limits; requirements to follow work practices described in Section 306 when using cleaning solutions; ECS limits; and O&M Plan requirements. ECS requirements in Table 337-4 that specify overall capture and control efficiencies, capture efficiencies and control efficiencies for ECS equipment installed before or after specific dates.
- **Section 304** applies to screen print operations that include material VOC content limits and requirements to follow work practices described in Section 306 when using cleaning solutions.
- **Section 305** applies to any other types of graphic arts operations not specifically listed elsewhere in the rule. The section included material VOC content limits, requirements to follow work practices described in Section 306 when using cleaning solutions; and O&M plan requirements.
- **Section 306** applies to work practices. Clarified requirements for labeling of containers; use of VOC-containing materials; storage and disposal; added language concerning clean up of spills; and added language on the conveyance of VOC-containing materials.
- **Section 307** applies to the requirements of an O&M plan. Listed out the general requirements of an O&M Plan; the approval process; and the process of revising and modifying an O&M Plan.

Updated the compliance schedule in Section 400:

The department changed Section 400 by removing the effective date of the rule because the date has already passed. A compliance schedule for graphic arts operations that are required to come into compliance with Rule 337 was added.

Revised the monitoring, recordkeeping and test methods in Section 500: Revisions include:

- **Section 501:** The department divided Section 501 into separate sections, one for the ECS device and one for the fountain solution systems. This clarified the requirements for each device.
- **Section 502:** The department clarified the recordkeeping requirements for current materials, usage records, fountain solutions and ECSs by separating out each group of records. In addition, the department listed some, but is not limiting, types of acceptable records. The department allowed records to be maintained in either electronic or paper format. Section 502.5 specifies recordkeeping requirements for the owner or operator claiming an exemption under Section 103.
- **Section 503:** The department included the full title of each reference method referenced in the text and incorporated by reference additional EPA Reference Methods.

In addition, the amendments corrected typographical or other clerical errors; made minor grammatical changes to improve readability or clarity; modified the format, numbering, order, capitalization, punctuation, or syntax of certain text to increase standardization within and among rules; or made various other minor changes of a purely editorial nature. As these changes did not alter the sense, meaning, or effect of the rule, they are not described in detail here, but can be readily discerned in the “strikeout and underline” version of the rule contained in Item 17 of this notice.

7. Demonstration of compliance with A.R.S. § 49-112:

A.R.S. § 49-112(A)

When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:

- a. The rule, ordinance or other regulation is necessary to address a peculiar local condition.
- b. There is credible evidence that the rule, ordinance or other regulation is either:
 - (1) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible.
 - (2) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance or other regulation is equivalent to federal statutes or regulations.

Revisions to Rule 337 (Graphic Arts) were necessary to address the EPA-designated (69 FR 23858, April 30, 2004) 8-hour ozone nonattainment area within Maricopa County. On June 14, 2005, EPA [70 FR 34362] redesignated the Phoenix metropolitan area to attainment of the 1-hour ozone NAAQS and approved the attainment demonstration and maintenance plan showing maintenance of the 1-hour ozone National Ambient Air Quality Standards (NAAQS) through 2015. The 1-hour ozone NAAQS was revoked by EPA effective June 15, 2005, under the anti-backsliding provisions of the Clean Air Act, Sections 110(1) and 193. However, certain control measures developed and implemented for the 1-hour NAAQS were required to remain in place to ensure continued progress toward attainment of the 8-hour NAAQS. In addition, EPA strengthened the air quality standards for ground-level ozone by reducing the ozone level from 0.84 ppm to 0.075 ppm to improve public health protection (73 FR 16436; March 27, 2008). Rule 337 meets A.R.S. § 49-112(A)(1), demonstrating the rule is necessary to address a peculiar local condition, in that Maricopa County fails to meet the 8-Hour NAAQS for ozone.

Revisions to Rule 337 were also necessary to meet the SIP requirements; ensure continued progress toward attainment of the 1-hour and 8-hour ozone NAAQS; and to meet the minimum RACT. Section 182(b)(2)(A) of the Clean Air Act provides that for certain nonattainment areas, states revise their SIPs to include RACT for each category of VOC sources covered by a CTG document issued between November 15, 1990 and the date of attainment. A notice of final determination and availability of final CTGs was issued by the EPA (71 FR 58745, October 5, 2006.) This notice included two CTGs relating to graphic arts: CTG for Flexible Package Printing (EPA 453/R-06-003, September 2006) and the CTG for Offset Lithographic Printing and Letterpress Printing (EPA 453/R-06-002, September 2006). Rule 337 meets the requirements of A.R.S. § 49-112(A)(2)(b), in that Maricopa County is required by federal law to revise current rules to address RACT for the graphic arts industry. The department affirms that Rule 337 Graphic Arts meets the requirements of A.R.S. § 49-112 (A)(1) and A.R.S. § 49-112 (A)(2).

8. A reference to any study relevant to the rule that the department reviewed and either proposes to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

US EPA, 2007. Control Techniques Guidelines for Paper, Film and Foil Coatings, Rep. EPA 453/R-07-003. , Office of Air Quality Planning and Standards, September 2007. Internet address:
http://www.epa.gov/ttn/caaa/t1/ctg/20070928_paper_film_ctg.pdf

US EPA, 2006a. Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing, EPA-453/R-06-002, September 2006. Internet address:
http://www.epa.gov/ttncaaa1/t1/ctg/litho_print_ctg_092906.pdf

US EPA, 2006b. Control Techniques Guidelines for Flexible Package Printing, EPA 453/R-06-003, September 2006. Internet address: http://pubweb.epa.gov/ttn/oarpg/t1/ctg/flex_pack_print_ctg_092906.pdf

National Emission Standards for the Printing and Publishing Industry Paper and Other Web Coating. 40 CFR 63, Subpart JJJJ. December 4, 2002. Internet address:
<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div6&view=text&node=40:12.0.1.1.1.17&idno=40>

U.S. Environmental Protection Agency. National Emission Standards for Hazardous Air Pollutants: Printing and Publishing Industry NESHAP (40 CFR 63, Subpart KK). Internet address: <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=ff2846d70a9b1e68603ced4a15531ea0&rgn=div6&view=text&node=40:10.0.1.1.1.11&idno=40>

MAG, 2007. Eight-Hour Ozone Plan for the Maricopa Nonattainment Area. Maricopa Association of Governments, Phoenix, AZ, June 2007. Internet address:
http://www.mag.maricopa.gov/pdf/cms.resource/ES_2007_8-HourOzonePlan.pdf

14 A.A.R. 2838-2839, July 18, 2008, Notice of Final Rulemaking Title 18. Environmental Quality Chapter 2. Department of Environmental Quality Air Pollution Control. Internet address:
http://www.azsos.gov/public_services/rulemakingmanual/section2.pdf

9. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision:

Not applicable

10. The summary of the economic, small business, and consumer impact:

Executive Summary: The entities potentially affected by the rule revisions are lithographic, letterpress, rotogravure, flexographic, screen printing operations and any other graphic arts operations. Recent trends in graphic arts processes such as the use of low-VOC inks, alcohol substitute fountain solutions and the industry movement towards digital printing processes have already resulted in cost savings as well as reduced VOC emissions to the environment. The department expects the additional costs associated with the proposed increase in recordkeeping requirements, to be minimal.

Maricopa County is the implementing government entity for the proposed rule. No additional County inspectors are expected to be hired. The amount or frequency of inspections currently being conducted is not expected to increase or decrease due to this rule revision. The department does not expect an increase or decrease in revenue generated from these rule changes, as no additional graphic arts operations will be subject to this rule as a result of the proposed changes.

Maricopa County residents and businesses will benefit by decreased medical treatment costs, health related illness, and missed work days. Reducing the number of ozone-related illnesses results in a cost-benefit saving to individuals and business. Although Maricopa County cannot provide an estimate of how many individuals will experience fewer of the health related illness, staff maintains the benefits of this rulemaking will exceed any costs associated with this rulemaking.

Background: Clean Air Act (CAA) Section 172(c)(1) provides that SIPs for nonattainment areas include RACM that include RACT for sources of emissions. Section 182(b)(2)(A) provides that for certain nonattainment areas, states revise their SIPs to include RACT for each category of VOC sources covered by a CTG document issued between November 15, 1990 and the date of attainment.

A notice of final determination and availability of final CTGs was issued by the EPA (71 FR 58745, October 5, 2006.) This notice included two CTGs relating to graphic arts: CTG for Flexible Package Printing (EPA 453/R-06-003, September 2006) and the CTG for Offset Lithographic Printing and Letterpress Printing (EPA 453/R-06-002, September 2006). Maricopa County amended Rule 337 include revisions recommended in these CTGs.

Entities Directly Affected: The entities most likely to be directly affected by the rule revisions include lithographic, letterpress, rotogravure, flexographic, and screen printing operations and any other graphic arts operations.

Potential Costs and Benefits: The department does not expect any change in revenue generated as a result of these rule changes.

Costs: The Maricopa County Air Quality Department is funded primarily by permit and annual fees from regulated entities. Three types of operating permits are issued by the department, including: general permits; non-Title V permits; and Title V permits. Specific criteria are used to determine the type of permit issued to an operation. More than 70% of the graphic arts operations operate under a general permit which allows for a streamlining permitting process. The internal permit process time is reduced resulting in significantly less expense to the source. The non-Title V and Title V permits typically apply to larger operations and require additional investigation when reviewing the permit application. The department does not anticipate an increase or decrease in the costs associated with the permitting process for this rule.

As of March 2010, approximately 107 facilities operate under a general permit for Graphic Arts within Maricopa County. No Title V permits are currently issued in Maricopa County for only graphic arts operations, although there are facilities that hold a Title V operating permit with graphic arts operations as a part of the overall facility operation. Approximately 37 non-Title V and synthetic minor permits have been issued to graphic arts operations; the remaining 70 facilities hold general permits. The department does not anticipate any significant change in the number of entities that would become subject to the rule due to rule revisions.

Maricopa County is the implementing government entity for Rule 337. No other significant impacts on public-sector employment of other agencies or political subdivisions of the state are anticipated. The revisions to Rule 337 are not expected to require hiring of any additional County personnel. In addition, the department does not anticipate any significant changes in either the amount or frequency of inspections that it currently conducts.

On December 4, 2002, the EPA issued a National Emission Standard for Hazardous Air Pollutants: Paper and Other Web Coating (40 CFR Part 63, subpart JJJJ). Costs associated with compliance to the NESHAP were related to the use of thermal oxidizers to achieve an overall Hazardous Air Pollutant (HAP) control rate of 95 percent. (Reducing HAPs by this amount tends achieves equivalent 95 percent reductions in VOC emissions, which is higher than the CTG-recommended 90 percent emission reduction.) The department's inspection and compliance data indicate that all relevant facilities already comply with the NESHAP requirements, either through limited VOC product usage or through existing emissions capture and control systems already required under the present (2010) Maricopa County Rule 337. No Maricopa County graphic arts operation is projected to be required to install an emissions capture and control system due to this rulemaking and therefore would have no additional annual costs. However, sizeable graphic arts facilities may be required to install an emissions capture and control system if its VOC emissions increased due to production changes unrelated to these rule revisions.

EPA used emissions estimated from the 2002 NESHAP to estimate the aggregate reduction in VOC emissions due to the use of thermal oxidizers. Estimated VOC emissions from facilities in ozone nonattainment areas are approximately 21,000 Mg (23,100 tons) per year. Applying the 90-percent emission reduction to facilities located in ozone nonattainment yielded an emission reduction of approximately 18,900 Mg/yr (20,800 tpy). The cost effectiveness was estimated to be \$1,300 per Mg (\$1,200 per ton) of VOC (CTG for Paper, Film and Foil Coatings, EPA 453/R-07-003, September 2007).

In a 1993 draft CTG, EPA estimated baseline (1990) emissions from the offset lithographic printing industry in ozone nonattainment areas to be 820,000 tons per year (tpy) (with 62,000 tpy coming from ink, 631,000 tpy from fountain solution and 126,000 tpy from cleaning). EPA also estimated nationwide VOC emissions from the letterpress printing industry in 1990 at 28,000 tpy. EPA deemed it reasonable to assume that these cost-effectiveness estimates are apply equally to the letterpress printing industry due to the numerous similarities between the two: e.g., the nature of the affected processes, sources of VOC emissions, and similar control approaches.

Emissions inventory data from 1999, 2001 and 2004 indicate a downward trend in the quantity of VOC emissions reported from graphic arts operations. This trend is illustrated below in Table 1. This downward trend in VOC emissions is attributed, in part, to changes in the graphic arts process such as the use of low-VOC inks, alcohol-substitute fountain solutions and the growing use of lower-emitting digital printing processes.

Table 1. Annual VOC Emissions from Graphic Arts Facilities in Maricopa County.

Year	VOC Emissions from All Graphic Arts Operations (tons/yr)	VOC Emissions per Employee (lb/yr)
1999	348.43	125.39
2002	460.58	86.23
2005	208.71	43.85

EPA’s cost effectiveness values for the recommended control approaches for offset lithographic and letterpress printing were estimated as follows: Control of VOC from heatset inks was estimated to be \$2,010 per ton VOC removed. Reduction in alcohol use or conversion to alcohol substitutes resulting in savings to the company. Control of VOC from cleaning materials was estimated to be \$855 per ton VOC removed. Due to the changes already made by graphic arts operations located within Maricopa County, the VOC reductions and the cost savings have already been realized.

EPA believes the work practice recommendations in the CTGs will result in a net cost savings. Implementing the work practices is expected to reduce the amount cleaning materials used by reducing the amount that evaporates and is wasted. Maricopa County included the recommended work practices in the rulemaking.

The revised ECS efficiencies and VOC-containing material content are expected to have little impact on the graphic arts industry within the county due to the fact that the graphic arts owners or operators have already implemented some or all of the recommended processes for the graphic arts operations. The department expects the insignificant additional costs to regulated community from additional recordkeeping required for daily temperature monitoring of refrigerated fountain solutions.

Benefits: Environmental regulations are promulgated to reduce the magnitude of the impact of pollutants on public health and the environment. In this case, Maricopa County expects the rulemaking to help internalize the damages from VOC emissions which can be classified as a negative externality. When a person’s actions impose uncompensated costs on another, it is called a negative externality. Damage occurs because people and businesses do not pay the true social costs for using resources, and the result is a malfunctioning market. From the society’s perspective, externalities result in an undesirable level of pollution, namely, excess VOCs emitted from sources in Maricopa County.

Ozone, a metabolic poison and the main cause of eye irritation in photochemical smog, can cause or aggravate bronchitis, asthma, and other lung diseases. Ozone can result in minor restricted activity days, asthma emergency room visits, school absences, asthma attacks, and respiratory hospital admissions. The studies summarized below illustrate these ozone impacts (Hall et al., 2006).

Minor Restricted Activity Days. Minor restricted activity days (MRADs) represent days when various respiratory symptoms reduce normal activities, but not enough to prevent going to work or attending school. The combination of symptoms inducing an MRAD is more restrictive than any individual symptom.

The Ostro and Rothschild study (1989) used a national sample of the adult population (18-65) over a six-year time period (1976-1981) to determine some of the health consequences of ozone and fine particles. The authors found an association between ozone and minor restrictions in activity, after controlling for fine particles which could be used to derive an exponential ozone concentration response function. Using a weighted average of the coefficients reported in the analysis, EPA (2003) developed a best estimate coefficient. An annual baseline number of 7.8 MRADs per person also was derived from the study. Following Ostro and Rothschild, Hall et al., applied this function to the “working” adult portion of the population. EPA (2003) notes that this application is likely to produce a somewhat conservative health outcome estimate, since elderly adults are probably at least as susceptible to ozone pollution as are individuals under 65 years of age.

Asthma Emergency Room Visits. Several studies have established a relationship between increases of ozone and a variety of asthmatic symptoms. Weisel et al. (1995) conducted a five-year retrospective study of the relationship between summer ozone concentrations and asthma-induced emergency room (ER) visits. They examined the relationship between ambient ozone levels and ER visits by asthmatics in central and northern New Jersey (1986-1990). Cody et al. (1992) did a similar study for the same geographical area during the summer months of 1988 and 1989. Although Weisel et al.’s results derive from a single-pollutant equation, the Cody et al. study included SO₂ as a copollutant.

Multiple linear regression analyses were conducted for each year, generating positive and significant coefficients of daily ER visits with ozone concentrations. From these studies' coefficients, EPA (2003) derived slope coefficients for a linear concentration-response function. Hall et al. (2006) averaged these two linear coefficients, forming the basis for their calculation of reductions in asthma-related ER visits from improved ozone levels.

School Absences. Ozone-related school absence is a health outcome that has been examined in two published health studies. The first, by Chen et al. (2000), considered the association between air pollution and daily elementary school absenteeism in Washoe County, Nevada (1996–1998). Hall et al. (2006) regressed student absenteeism on three air pollutants (ozone, PM₁₀, and CO), weather variables, and other confounding factors, using autoregression analysis. The second, by Gilliland et al. (2001), examined 1996 school absences for 12 southern California communities with differing concentrations of multiple pollutants (ozone, NO₂, and CO).

These researchers used a two-stage, time series regression model, controlling for day of the week and temperature to assess whether there were any associations between pollution levels and absences. The studies found ozone to be statistically associated with daily absenteeism. Chen et al. (2000) predicted that for every 50 ppb increase in ozone the overall absence rate increased by 13.01%. In contrast, Gilliland et al. found that a 20 ppb increase in eight-hour average ozone concentrations was associated with a 16.3% increase in the all-absence rate. From these results, Hall et al. (2006) derived exponential values that were averaged together, resulting in an ozone-related school absence concentration-response value of 0.004998. EPA (2003) reports a daily school absence rate of 0.055 that was obtained from the U.S. Department of Education.

Asthma Attacks. In a widely cited study, Whittemore and Korn (1980) examined daily asthma attack diaries from 16 panels of asthmatics living in six communities in southern California during the mid-1970s. They used multiple logistic regression analysis to test for relationships between daily attacks and daily levels of two types of pollutants (photochemical oxidants and total suspended particulates), and a variety of weather variables. Results for the two pollutant models showed significant relationships between daily levels of both pollutants and reported asthma attacks. EPA (2003) adjusted the model's oxidant results so that they could be used with ozone data. A daily incidence rate of wheezing attacks for adult asthmatics of 0.055 was assumed to be the baseline rate, based on an analysis of the 1999 National Health Interview Survey (EPA 2003).

Respiratory Hospital Admissions. For the non-elderly ages (0-64) ozone-related respiratory hospital admissions, Hall et al. used a report by Thurston and Ito (1999), which summarized an extensive literature on hospital admissions that included ozone as one of the explanatory variables. This was the same approach adopted by CARB (2005). In this report, a statistical synthesis of three Canadian studies (Burnett et al. 1994, Thurston et al. 1994, and Burnett et al. 1997) yielded a quantitative estimate of the respiratory hospital admission effect associated with ozone exposures for the non-elderly general population. They calculate a relative risk factor of 1.18 per 100 ppb increase in daily one-hour maximum ozone levels. To estimate ozone-related avoided incidences of respiratory hospital admissions for patients 65 and older, Hall et al. (2006) generated a pooled value using several health studies referenced by the EPA (2003). All of these studies found significant associations between ozone and various categories of respiratory hospital admissions according to Schwartz (1995), who analyzed the relationship between ozone and all respiratory admissions for the cities of New Haven, Connecticut and Tacoma, Washington; and Moolgavkar et al. (1997), Schwartz (1994a), and Schwartz (1994b), who considered pneumonia and chronic obstructive pulmonary disease admissions in Minneapolis and Detroit.

Health benefits resulting from reduced air pollution can be expressed as avoided cases of ozone-related health effects and assigned dollar values. Table 2 shows monetized values of specific adverse health effects. If these health endpoints were avoided, cost-benefit savings could accrue to individuals. The information provided and monetized values are included in this EIS to provide a basis for potential human health benefits from reducing VOCs emitted by vehicles. Although Maricopa County cannot provide an estimate of how many individuals will experience fewer of the health endpoints contained in Table 2, the department maintains that benefits of this rulemaking will exceed costs.

Potential Impacts to Small Businesses: A large portion of the graphic arts operations in Maricopa County have already changed their printing processes to include the use of low-VOC inks and alcohol substitute fountain solutions. In addition, some graphic arts operations have moved into lower emitting digital printing processes. Any graphic arts operation with the potential to annually emit more than 25 tons VOC is already required to install ECS. The department's inspection data continue to indicate high rates of compliance with these requirements. Thus, Rule 337's ECS efficiencies and VOC-containing material content thresholds are not expected to impose any significant additional economic impact on current graphic arts operation processes within the county due to the fact most facilities have already implemented these processes.

Recordkeeping requirements under the revised rule remain consistent with the previous version of Rule 337 recordkeeping requirements. One notable exception is the new requirement to record the temperature of the refrigerated alcohol solution on a daily basis. Discussions with graphic arts stakeholders throughout the rulemaking process, revealed that the temperature of the fountain solution is critical to the quality of the print; thus this new recordkeeping requirement is not expected to impose any additional burden to the affected facilities.

Table 2. Monetized Values of Health Endpoints.

Health Endpoint (avoided health effect)	Value per Incidence (2005 \$ unless noted)	Notations
Premature Mortality (VSL)	\$6,500,000	EPA's value of \$5.5 million converted to 2005 dollars
Chronic Bronchitis (onset)	\$374,000	Estimated in two CV studies (Krupnick and Cooper 1989; Viscussi et al. 1991) updated from the value used by EPA (2003b, 2004, 2005).
Respiratory Hospitalizations (applies to adults and children)	\$32,000	CA-based value (Chestnut et al., 2006).
Emergency Room Visit	\$335	Based on two combined COI studies (EPA 2005); excludes time lost at work or school and value of pain avoidance.
Work Loss Day (WLD)	\$141	Daily wage rates in Kern and San Joaquin counties.
Work Loss Day (WLD)	\$123	Daily wage rates in Merced counties.
Acute Bronchitis (six-day period)	\$110	Computed from Loehman et al. (1979) values for chest discomfort and cough, adjusted to 2005 dollars.
School Absent Day (SAD)	\$79	San Joaquin County.
School Absent Day (SAD)	\$65	Tulare County.
Minor Restricted Activity Day (MRAD)	\$61	Based on WTP (Tolley et al. 1986) and reported by EPA 2005 (\$51 in 1999), and converted to current dollars and adjusted for income (CARB 2005).
School Absent Day (SAD)	\$54	Computed from an indirect cost of 3.6 million school loss days to be \$194.5 million in 1994 dollars (Smith et al. 1997).
Asthma Attack (per event)	\$50	Adjusted from EPA's peer-reviewed value and updated to current dollars and income; value is based on a 1986 CV study conducted in Los Angeles that estimated WTP to avoid a "bad asthma day" (Rowe and Chestnut).
Upper Respiratory Symptom Day (URS)	\$32	Adjusted from the value EPA adopted (2005) to account for inflation and income
Lower Respiratory Symptom Day (LRS)	\$20	Adjusted from the value EPA adopted (2005) to account for inflation and income.
Acute Bronchitis (single day)	\$18	Computed from Loehman et al. (1979) values for chest discomfort and cough, adjusted to 2005 dollars.

*Source: Hall et al. (2006), pp.69-71. VSL = value of a statistical life; CV = contingent valuation; WTP = willingness-to-pay; MRAD = minor restricted activity day; COI = cost of illness.

11. Name and address of department personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: Cheri Dale or Jo Crumbaker

Address: Planning and Analysis Division
Maricopa County Air Quality Department

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Phoenix, AZ 85004

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12. Description of the changes between the proposed rules, including supplemental notices and final rules:

Since the final draft of Rule 337 was published in the Notice of Proposed Rulemaking (16 A.A.R. 1342) on July 23, 2010, and in response to formal comments received, the following revisions to Rule 337 were made. These revisions appear in the text of the final rules published in this Notice of Final Rulemaking. The department revised the following:

Section 103.2: Added “Any digital printing operation” and changed partial exemption “c” to partial exemption “d”.

Section 103.2: Added “304.1” to Section 103.2(d).

Section 221: Revised the definition “non-porous substrate” by deleting the wording “Clay coated printing paper as defined by the American Paper Institute Classification System, and paperboard coated with clay to prevent water penetration, are considered non-porous substrates.”

Section 233: Revised the definition of “VOC vapor pressure” to be defined as “VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE) - The sum of the partial pressures of the compounds defined as VOCs, calculated according to the formula in Section 503.4 of this rule.”

Section 301: Changed the VOC content requirement for manufacturers and suppliers to supply information on VOC content “as supplied” and not “as applied.”

Section 301: Added the wording “The VOC content requirement does not apply to radiation-cured inks and coatings.”

Section 302.1: Changed the wording to read “An owner or operator of a lithographic press or letterpress shall limit VOC emissions from inks, varnishes, coatings, or adhesives, as applied, to less than 2.5 pounds per gallon (300 grams per liter), less water and non-precursor organic compound unless VOC emissions are controlled by an ECS as described in Section 302.4 of this rule and by following the work practices described in Section 306 of this rule.”

Section 302.4(a): Changed the wording to read “The VOC material limits of Section 302.1 of this rule does not apply when emissions of VOC to the atmosphere from the lithographic or letterpress printing operations are controlled by an ECS that meets one of the requirements listed in Table 337-2; and...”

Section 303.1: Changed the wording to read “The owner or operator of rotogravure or flexographic press shall limit VOC emissions from inks, coatings, and adhesives as listed in Table 337-3 or by an ECS as described in Section 303.3 of this rule and by following the work practices described in Section 306 of this rule.”

Section 304.1: Added the wording “...or by an ECS as described in Section 304.3 of this rule” to allow for the use of an ECS to control emissions in the screen printing operation.

Section 304.3: Added Section 304.3 describing ECS requirements for screen printing operations.

Section 304.4: Added Section 304.4 describing operation and maintenance (O&M) plan requirements for screen printing operations.

Section 305.1: Clarified that actual emissions, not potential emissions, are used to determine VOC emission limits and ECS controls for other graphic art operations. In addition, ECS requirements were revised to provide alternative methods to meet the requirements to limit VOC emissions.

Section 306.1: Changed the wording for labeling of containers to read “All containers that are 1 gallon or larger used for collection of VOC-containing material shall be clearly identified with their contents.”

Section 401: Revised the wording to apply to “An owner or operator who chooses to, or is required to comply with the new emission limits by installing or increasing the efficiency of an ECS under Section 302.4, 303.3, 304.3 or 305.1 of this rule shall meet the following milestones:”

Section 501.2(b): Revised the wording to read “The temperature of a refrigerated fountain solution shall be determined by the use of a temperature monitoring device. Each temperature monitoring device used for the purposes of this section, shall be calibrated and accurate to $\pm 0.5^{\circ}\text{F}$.”

Section 502.2: Revised the wording to clarify recordkeeping requirements for the type and amount consumed of each graphic-arts ink, varnish, coating, adhesive, fountain solution, blanket wash, and cleaning solutions.

Section 502.3(a)(2): Revised the wording to specify fountain solution recordkeeping requirements for each different batch of alcohol, alcohol-substitutes, and water used in making each fountain solution.

Section 503.1(c)(3): Added a third option for hydrometer use and calibration by adding the wording “A standard solution for the type of alcohol used in the fountain solution. The department is defining a standard solution as any solution that has a precisely known concentration.”

13. A summary of the comments made regarding the rule and the department response to them:

The department conducted three public workshops during the informal rulemaking process – September 2008-July 2010. After the publication of the Notice of Proposed Rulemaking in the Arizona Administrative Register, the department received formal comments from the following stakeholders: Printing Industries of Arizona/New Mexico (PIAZ/NM), Specialty Graphic Imaging Association (SGIA), 3M, and Hewlett Packard (HP).

Formal comments submitted to the department are summarized below. A copy of the complete text of the submitted comments can be obtained by contacting the department as indicated in Section 5 of this document. The department’s responses to the submitted comments to Rule 337, Graphic Arts, are included below:

Comment #1: Section 103.2 Partial Exemptions: The draft issued on November 05, 2009, contained an exemption for digital printing operations. In the final draft the exemption was deleted with no documentation supporting the deletion. Inclusion of this exemption conforms to actions taken by other air quality districts. We would support an exemption for digital printing operations that would also include a requirement for recordkeeping pursuant to Section 502.5 as well as work practices identified in Section 306 (SGIA and HP).

Response #1: A partial exemption for digital printing was added in Section 103.2.

Comment #2: Section 103.2 now includes the retention factor for non-heatset lithographic inks and heatset inks, which is significant. However, it does not include the other requested retention and emission factors for contaminated shop towels; and capture efficiencies for inks, fountain solutions and automatic blanket wash solutions, that are necessary to determine emissions from printing operations. Since these emission and retention factors have been approved by USEPA, they need to be included as they are essential for printers to determine their VOC emissions for both applicability and other emission reporting purposes (PIAZ/NM).

Response 2: The department does not agree with allowing emission retention factors to be used for shop towels. The department feels this would add an additional recordkeeping burden on the business for calculation of shop towel usage and retention factoring for the various cleaning solutions used. The previous rule did not allow emission retention factors to be used for shop towels; thus making this allowance would make the rule less stringent than the previous rule. This is considered “backsliding” by the EPA.

The department disagrees with the commenter to include capture efficiencies for ink, fountain solutions and automatic blanket wash solutions in Section 103.2. The previous Rule 337, Section 301.2 specifies the VOC emissions must be reduced by 90% weight. Section 301.3 requires a reduction of VOC emissions of at least 90% with an overall capture and control efficiency of at least 65% by weight. The previous rule did not allow for the requested capture efficiencies. This allowance would make the rule less stringent than the previous rule and be considered “backsliding” by the EPA.

The commenter requested an exemption be included in the rule from continuous dryer air flow monitoring. The approved O&M plan would specify the type of air flow monitoring required for verifying the dryer pressure is maintained at a lower pressure than the press room air pressure during press operations as specified in previous Rule 337, Section 301.2 and Section 307. The operation and maintenance (O&M) plan required in previous Rule 337, Section 305 and Rule 337, Section 307, is required to be submitted and approved by the Control Officer. The previous rule did not totally exclude continuous dryer air flow monitoring without any other approved air flow demonstration. This allowance would make the rule less stringent than the previous rule and be considered “backsliding” by the EPA.

The commenter requested removing the requirement of capture efficiency testing for heatset dryers if it is demonstrated that dryer pressure is negative relative to the surrounding pressroom and the airflow is into the dryer.

Section 504.3 of the previous rule specifies the method to be used for determining capture efficiency of an emissions control device. Rule 337, Section 503.3, added additional options for capture efficiency testing. To remove the requirement of capture efficiency testing would make the rule less stringent than the previous rule and be considered “backsliding” by the EPA.

Comment #3: In a letter dated November 18, 2009, PIAZ/NM requested a change in the threshold for exemption under 103.2 from a physical press size to an emission based threshold of 3 tons of VOC emissions per year as this is consistent with the CTG. The 3 ton per year threshold was established by EPA to prevent overregulation of very small businesses and is consistently used in all of the recent and many previously issued CTGs.

On March 22, 2010 a supplemental letter was submitted by Gary Jones of Printing Industries of America which provided calculations detailing the VOC emissions released from presses that meet the existing 500 square inch press size limit (existing Section 306.2 b). The calculations in the letter demonstrated that the 3 tons per year threshold recommended in the CTG is more stringent than the existing press size limit.

The “Issues Raised and Discussed During This Rulemaking Process” section contained in the July 23, 2010 Notice of Proposed Rulemaking stated that the 3 tons per year VOC emissions threshold was accepted and was to be incorporated as a VOC emissions threshold to replace the press size threshold. However, the July 23, 2010 draft of the proposed rule did not identify the 3 ton per year threshold, but contains a 225 pound per month emission threshold in Section 103.2 (a.). The 225 pound per month threshold is not equivalent to 3 tons per year, and should be revised to 3 tons per year so that it is consistent with the statement in the “Issues Raised and Discussed During This Rulemaking Process” section and the CTG’s recommended emission threshold (PIAZ/NM).

Response #3: The VOC threshold was stated in Section 103.2(a) of the rule as 225 pounds (100 kg) per month, as cited by the commenter. The department disagrees that the 3 tons per year VOC emissions threshold was accepted and was to be incorporated as a VOC emissions threshold to replace the press size threshold. The 225-pound (100 kg) per month emission threshold was specified in the November 19, 2009, workshop draft as well as the July 2010 notice. Since VOCs are precursors to ozone formation, if the high VOC emissions occurred during the local ozone season, there could be a higher potential for more harmful health effects to sensitive populations. This type of situation could put a facility in a position that would make them a larger contributor to the local ozone problem. If the emissions were very low at other times of the year, the facility could still fall under the yearly emission limit threshold using the yearly total. The department’s monthly threshold limit is used in conjunction with an overall calendar year threshold limit. Therefore the department does not agree with removing the monthly threshold limit and only using a yearly threshold limit.

Comment #4: PIAZ/NM appreciates the inclusion of an exemption for radiation cured inks and coatings. On pages 7 and 8 of the CTG, it states that UV cured and water-based coatings applied at lithographic printing operations are not significant sources of VOC and should not be regulated. Therefore, Section 103.2 (b) should also include water-based coatings as exempt materials (PIAZ/NM).

Response #4: The department does not agree that water-based coatings should be exempt materials. Radiation cured ink and coatings are cured using a chemical bonding process. Water-based coating dry by evaporation. Any solvent in the original material would be either retained in the substrate or evaporated into the air. Even though a water-based coating may not overall have a large quantity of VOC material, water-based coatings do vary in the percentages of VOCs contained within the material. The department does not agree that water-based coatings should be added as a limited exemption.

Comment #5: Section 103.2(c) needs to be revised by deleting the 4,200 pound monthly applicability emission threshold because the existing 25 ton threshold is more stringent, as 4,200 pounds per month for 12 months equates to 25.2 tons VOC emissions. The annual emission rate threshold would be consistent with the limits as described in the CTG and would allow for the least burdensome administrative requirements (PIAZ/NM).

Response #5: The department does not agree with removing the monthly threshold limit and only using a yearly threshold limit. The higher monthly limit of 4,200 pounds (1,909 kg) allowed for times of higher emissions to be offset by times of lower emissions as long as the yearly total did not exceed the 25 tons (22,680 kg) threshold limit. Using both the monthly and yearly totals allowed flexibility for the facility and eliminated short periods of high emissions to the environment. Using only an annual emission threshold would make the rule less stringent and would be considered backsliding by the EPA.

Comment #6: Under Section 103.2(c), facilities that do not emit more than 25 tons of VOC per year; 4,200 pounds per month from all graphic arts operations prior to controls, are exempt from specific sections. Section 103.2(c) of

the proposed rule includes references to Sections 302.1, 303.1 and 305.1. Section 304.1 is not included in this listing. The current rule does exempt all printing processes that emit less than 25 tons per year from Section 301. The proposed language does not include a similar provision for screen printing. Inclusion of this reference creates a level playing field for all print processes and maintains the same applicability level across all print platforms (SGIA).

Response #6: An ECS option was added in Section 304.1.

Comment#7: Regarding Alternative Material Use Thresholds: Since many of the facilities that will be subject to the rule are small and lack the resources to perform emission calculations, an alternative applicability determination needs to be provided that allows the printer to simply track material use. A threshold of 768 gallons of fountain and cleaning solution requested in the material use exemption should be used as this is based on a VOC content of 8.5 pounds per gallon, which is a common density for alcohol substitutes. The 768 gallons is more stringent than the 3 tons per year threshold. The same logic applies to the 5,400 pounds of ink, cleaning solvent and fountain solution additives for heatset presses (PIAZ/NM).

Response #7: The previous rule did not allow for material use threshold limits or the partial exemptions requested by the commenter. Using only an annual use thresholds and or allowing the partial exemptions suggested by the commenter would make the rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #8: Regarding Section 221(Definition Of Non-Porous Substrate): Please delete the second sentence describing clay coated paper as this example is not appropriate to the referred limits in Section 303.1 as it implies that clay coated paper is nonporous, which it is not, and is the only nonporous substrate. There are a large number of nonporous substrates that are used to print on by the flexographic and rotogravure process and they are typically plastic based substrates, not paper based substrates, so it is best to leave the definition as broad as possible as there are technologies that allow for the printing of water-based (non-lithographic) inks on non-porous substrates (PIAZ/NM).

Response #8: The department revised the definition of “non-porous substrate” by deleting the second sentence describing the clay coated paper.

Comment #9: The definition of “VOC composite vapor pressure” (Section 233) needs a few minor edits as the current proposed definition is confusing. The better way to describe the temperature would be to use “constant” instead of “even” as this is a more accurate description. Since cleaning solutions usually have more than one VOC component, the definition should reflect that there can be more than one VOC present in the solution. Lastly, the definition should reference the formula found in Section 503.4 (PIAZ/NM).

Response #9: The department revised the definition of “VOC composite vapor pressure” and included the location of the formula in the definition.

Comment #10: Section 301 requires a manufacturer to disclose information of VOC content as applied. The manufacturer has no control over how customers blend various inks together or the application processes that are used. Therefore the requirement should be for the manufacturer to disclose VOC content “as supplied” and not “as applied.” (SGIA and 3M)

Response #10: The department agrees with the comments and revised the wording in Section 301 from “as applied” to “as supplied.”

Comment #11: Section 103.2 exempts radiation-cured inks from the VOC limits of the rule but does not specifically exclude radiation-cured inks from the VOC disclosure requirement of the new Section 301. Although radiation-cured inks are considered to be low-VOC, there is no scientifically valid, reproducible, agency or industry approved direct method for determining the VOC content of these inks. Therefore we request they be excluded from the requirements of the new Section 301 (3M).

Response #11: The department agrees with the comment and revised the wording in section 301 to read “The VOC content requirement does not apply to radiation-cured inks and coatings.”

Comment #12: It is not clear if the intent of Section 302.1 is to prohibit the use of materials with 2.5 pounds per gallon of VOC once a printer has reach 25 tons of VOC emissions, or if it sets a baseline in which a printer using one or more materials greater than 2.5 pounds per gallon would have to meet one of the conditions as described in Section 302.4, use of control equipment, or observing the work practice requirements identified in Section 306. Section 302.1 as written is confusing as there is no clear relationship between not using materials with VOC contents greater than 2.5 pounds per gallon and requirements in Section 302.4 and Section 306.

If the intent of Section 302.1 is to not link the two requirements together, the inclusion of lithographic inks, varnishes and coatings in this section creates a condition that cannot be met by printers and is not supported by EPA's CTG as EPA clearly indicates that VOC content limits for inks, varnishes, and coatings are not necessary due to the minimal VOC emissions that are released from these materials.

As a minimum, the current structure of the Section should be revised by joining the two conditions with the word "unless." Ideally, joining the two conditions with "unless" and using one of the two options to address the VOC content would be the best approach (PIAZ/NM).

Response #12: The department's intent was to allow flexibility in achieving VOC emission limits by either the use of a material content limit or the use of an emissions capture and control device(s). Work practices should be followed regardless of the use of material VOC content or an emissions capture system. The department revised the wording in Section 302.1.

Comment #13: In Section 302.2, an exemption from the limits of Table 337-1 should apply to any press with a fountain solution reservoir less than 1 gallon or any sheetfed press that is 11"x17" or smaller. This exemption was provided by USEPA in the CTG due to the technical and economic limitations of small presses to meet the prescribed VOC content limits for the fountain solutions. EPA recognized that the 3 ton per year VOC emission applicability threshold would subject many small printing operations with small printing presses to the limits and wanted to provide relief to these small presses as the fountain solution requirements for these small presses are not the same as those for the larger presses (PIAZ/NM).

Response #13: The previous rule did not allow for an exemption due to fountain solution reservoir size. Including this exemption in the rule would make the rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #14: The CTG for offset lithography and letterpress has allowed for the use of 110 gallons of cleaning solution that does not meet either of the conditions of Sections 302.3(a) or (b) over a 12 month consecutive period. EPA recognized that there are instances where cleaning presses require solvents that do not meet either the VOC content or vapor pressure limit. Since the original requirement for cleaning solutions is being modified, including this exclusion would not be considered backsliding, but a change that would provide consistency with the CTG. Therefore, an additional condition (c) should be added to Section 302.3 to allow the use of no more than 110 gallons of cleaning materials per 12 month rolling period (PIAZ/NM).

Response #14: The previous rule did not allow for an exemption due to quantity usage. In addition, emissions are not based on a 12-month rolling average. Including this exemption in the rule would make the rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #15: Section 302.4(a) creates a circular reference to Section 302.1. By stating in Section 302.1 that printers may use Section 302.4 to meet the requirements of Section 302.1, and then stating in Section 302.4 that Section 302.1 does not apply if they meet Section 302.4, the two sections viewed together create confusion. To fix this circular reference, Section 302.4(a) should be revised so that it presents the requirement in an affirmative and not negative basis (PIAZ/NM).

Response #15: The department's intent was to allow flexibility in achieving VOC emission limits by either the use of a material content limit or the use of an emissions capture and control device(s). Work practices should be followed regardless of the use of material VOC content or an emissions capture system. The department revised the wording in Sections 302.1 and 302.4(a).

Comment #16: Section 302.4(a) needs to have the words "heatset web offset" inserted between "the" and "lithographic" and "heatset" between "or" and "letterpress" in so it is clear the condition applies to heatset presses (PIAZ/NM).

Response #16: The previous Rule 337 did not limit the threshold to only heatset operations, albeit, heatset operations may be the only type of operations that may exceed the threshold limit. To restrict the 25 ton per limit to only heatset web offset lithographic or heatset letterpress printing operations would make the rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #17: An exemption from Section 302.4 should be provided for any heatset web offset or heatset letterpress press that is less than 22 inches in width, used to print books, or with potential ink oil emissions of less than 25 tons per year. This exemption is consistent with the CTG and these exemptions were provided by EPA due

to uneconomical costs of control associated with using add-on controls as the small amount of VOC emissions from these presses far exceeds any test of being reasonable (PIAZ/NM).

Response #17: The previous rule allowed an exemption for any printing press for two or less units with a total impression area of less than 500 square inches. The rule eliminated the size exemption and uses an emission exemption. Including an exemption for any number of units as well as quantity of presses as suggested in this exemption would make the rule less stringent than the current rule and be considered backsliding by the EPA.

Comment #18: Section 305 needs to be deleted since it establishes requirements for printing technologies that do not yet exist. Digital printing should be exempt from this rule, as it was per Section 103.2 (b) in the November 2009 version of the proposed rule which states “103.2-Partial Exemption: The following operations are exempt from the VOC limitations of this rule... b. Any Digital Printing Operation.” Therefore, the requirements established in the other sections of the draft regulation address all known printing technologies and are based on recommendations that fall into specific guidelines issued by EPA after they carefully study a given print process and evaluate all possible control options. Since future technologies have not been invented or commercialized, setting limits is premature. The inclusion of a section to which no graphic arts operations are currently subject is unnecessary. The original rule did not include such a section therefore its deletion from the draft rule will not constitute a relaxation of the original rule. The Department should wait until the new technologies are brought to market and then studied for VOC control effectiveness, feasibility, and economic impact before limits can be set. Setting conditions before a technology is brought to market can prohibit its introduction into the market (PIAZ/NM).

Response #18: Section 103.2 was revised to include a partial exemption for digital printing, thereby eliminating digital printing from Section 305. The previous Rule 337 did not partition out the different types of graphic art operations. The department intended this section include all graphic arts operations that are not specifically called out in other sections of the rule. It is not intended to limit new technologies. In fact, it is intended to encourage new technologies that allow the graphic arts operations to grow without creating excess emissions while doing so. The department disagrees that this section limits technology grow and disagrees that the section is not necessary.

Comment #19: The applicability threshold in Section 305 is based on a 25 ton per year VOC potential to emit, whereas the other applicability threshold in Section 103.2 (a) is based on actual emissions. If this section is to remain, the 25 ton threshold needs to be based on actual emissions (PIAZ/NM).

Response #19: The department revised the rule to base the applicability on actual emissions as required in the previous rule.

Comment #20: Section 305 applicability emission threshold of 4,200 pound per month needs to be deleted for the same reasons as described above for the deletion of the 225 pound threshold in Section 103.2(a) (PIAZ/NM).

Response #20: This is addressed in Response #3 and Response #5.

Comment #21: In Section 306.1, the requirement to have a separate label on containers of 1 gallon or more is redundant with other regulatory requirements and poses an unacceptable administrative burden as labels are already required by OSHA under the Hazard Communications Standard for products and by EPA under the Resources Conservation and Recovery Act for wastes. As such, this requirement should be deleted, or revised to state that labels required by other regulations are sufficient to demonstrate compliance.

The requirement to have the ink “insoluble” is difficult, if not impossible, to meet. Therefore, the requirement, if retained, should use “resistant” and not “insoluble” to describe the ink (PIAZ/NM).

Response #21: The department does not intend to specify the various labels that may be applied to a container. The department requires that the contents of the container are clearly identifiable to a reasonable person. The department revised the wording in Sections 306.1 to require the containers are clearly labeled without specifying the type of ink to be used on the label.

Comment #22: The requirements of Section 306.3 are redundant with Section 306.2, because Section 306.2 is very comprehensive, which renders Section 306.3 moot. Section 306.3 should therefore be deleted (PIAZ/NM).

Response #22: Section 306.2 deals with the use of VOC containing materials and Section 306.3 deals with the storages of VOC containing materials. A container may be not actively in use, but intermittently used throughout a time period. The department disagrees that these sections are redundant with each other. The department wants to be clear in the rule that the owner or operator shall cover VOC containing material at all times.

Comment #23: The requirements of Section 306.5 are redundant with Section 306.2 because Section 306.2 is very comprehensive which renders Section 306.5 moot. Section 306.5 should therefore be deleted (PIAZ/NM).

Response #23: Section 306.2 deals with the use of VOC containing materials. Section 306.5 deals with the conveyance of VOC containing materials. In some cases, the conveyance of materials is actually during the use of the material. At other times, it may be the process of relocating an item that is not actively being used. The department wants to be clear in the rule that the owner or operator shall cover VOC containing material at all times.

Comment #24: Due to the structure of the Emission Control System requirements contained in Tables 337–2 and 337–4, the requirement to submit a compliance plan for sources that would be newly subject to the rule in Section 401.1 is moot and should be deleted. New sources are mandated to meet the requirements in Tables 337–2 and 337–4 upon start up, which makes the need to develop and submit a compliance plan on how they would meet the requirement unnecessary and imposes an unnecessary administrative burden (PIAZ/NM).

Response #24: The department agrees that a new source is required to be compliant upon startup as stated by the commenter. The department revised the wording in Section 401.1 to clearly state the section is applicable to existing sources that must become compliant due to the revisions in the rule.

Comment #25: Section 501.2 (a) needs to be modified to limit its applicability to only the conditions that appear in the middle column of Table 337–1, in which refrigeration is required in order to use the higher levels of alcohol in fountain solution. The condition as currently written applies to any refrigerated fountain solution system and since this is a common process control technology, it should only be applied to those fountain solutions where refrigeration is required (PIAZ/NM).

Response #25: Previous Rule 337, Section 502 required alcohol monitoring for any printing press using fountain solutions containing alcohol. The previous rule did not make a distinction between refrigerated and non-refrigerated alcohol containing fountain solutions. The department disagrees that the section needs to be revised to limit the alcohol content requirements to only the refrigerated fountain solutions.

Comment #26: Section 501.2(b) needs to be modified to limit its applicability to only the conditions that appear in the middle column of Table 337–1, in which refrigeration is required in order to use the higher levels of alcohol in fountain solution. The condition as currently written applies to any refrigerated fountain solution system and since this is a common process control technology, it should only be applied to those fountain solutions where refrigeration is required.

In addition, the term “temperature control device” should be revised as it is confusing. The requirement in the section is focused on temperature monitoring and not temperature control, which is the focus of a different section, Section 501.2(a). It is not clear that using a handheld thermometer would be an acceptable approach and revising the term from “temperature control device” to “temperature monitoring device” would provide the necessary clarity and certainty as to what is being required (PIAZ/NM).

Response #26: The department disagrees that the section needs to be revised to limit the alcohol content requirements to only the refrigerated fountain solutions. The department does agree that the term “temperature control device” can be confusing. The department revised the wording in Section 501.2(b).

Comment #27: Section 502.1 needs to be revised by providing a small quantity use exclusion as keeping a list of every single product used that contains VOC is a significant administrative burden that is not necessary and is redundant with the requirements mandated by OSHA’s Hazard Communication Standard. The requirement as currently written requires a printer to identify, track, and record information on materials supplied or used in any quantity, including those materials used in containers as small as several ounces of material such as ink jet printing cartridges. Since a printer can literally use hundreds of inks in small quantities due to specialty colors, this requirement creates an unacceptable administrative burden with no commensurate environmental benefit.

The condition needs to allow a printer to avoid tracking materials that are purchased and used in quantities less than 1/2 gallon or 64 fluid ounces. This provides a reasonable balance between tracking very small quantities of materials with insignificant emissions and capturing the use of materials that contribute to the total emissions released from the facility.

For materials used in quantities greater than one-half gallon or 64 fluid ounces, an alternative to allow for the tracking of similar classes of materials such as inks, fountain solutions, and cleaning solutions as an aggregate also needs to be provided. In this approach, the VOC content or other property such as vapor pressure for each material in the class of similar materials would be based on the specifications for the material which has the highest VOC content or other property such as vapor pressure in that class (PIAZ/NM).

Response #27: Section 502.1 is a requirement to maintain a list of materials that are used in the graphic arts operation. The commenter suggested the list required in Section 502.1 would be redundant with the regulatory requirements. The department is not suggesting that an additional list be maintained specifically for the department, just that a list is maintained for materials used at the graphic arts operation. Grouping materials by similar classes for calculations is different from the requirement to list what is in use at a graphic arts operation. The previous version of Rule 337 did not allow for any small quantity exemptions. Incorporating the exemption, as suggested by the commenter, would make the rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #28: The proposed changes to Sections 502.2(a) and (b) are both extremely confusing and conflicting and need to be revised so the regulated printer can clearly understand their recordkeeping requirements. The proposed changes took an already confusing requirement and made it more complex and the purpose and intent of the proposed changes is not clear. For example, it is not obvious as to why a printer using a heatset web press would need to keep daily material use records, while a non-heatset press may use monthly recordkeeping. If based on emissions, there are several other types of printing presses such as a solvent based flexographic or rotogravure that could emit significantly more VOC than a heatset lithographic press, yet they are allowed to use a monthly material use tracking recordkeeping system.

Since there is no daily applicability threshold, emission, material use, or other similar limits in Sections 301, 302, 303, 304, or 305, the need to perform daily material use recordkeeping for any covered source is not necessary as there is no corresponding compliance demonstration requirement. As has been detailed in the November 18, 2009 PIAZ/NM comment letter, daily recordkeeping poses a significant and unacceptable administrative burden, is virtually impossible to achieve, and produces extremely inaccurate results (PIAZ/NM).

Response #28: The department revised the wording in Section 502.2 by separating out the requirements for facilities emitting less than 25 tons of VOC emissions per year and for facilities emitting 25 tons of VOC emissions per year. The department consulted with the EPA and does not agree with the commenter to eliminate daily recordkeeping. If a facility uses noncompliant materials in conjunction with an ECS, daily recordkeeping is required. In previous Rule 337 rulemaking revisions, the department made provisions for alternatives to daily recordkeeping in the SIP approved current Rule 337 by allowing monthly recordkeeping if a facility uses complying materials or when a facility is not subject to the emission control requirements. The department revised the rule language to clarify the conditions requiring daily recordkeeping.

Comment #29: Section 502.3(a) needs to be revised by clarifying that the requirement to monitor the alcohol content of fountain solution is only required if alcohol is being added to maintain the concentration of alcohol in the fountain solution. In addition, subconditions (2) and (3) need to be combined into one requirement along with the elimination of the weekly frequency as there is no need to require these records on a weekly basis. Once the proper mix ratio is determined, this mix ratio is not altered. Therefore, it is only necessary to record the mix ratio and resultant VOC content once per each fountain solution used on a per press or per “batch” basis as that fountain solution will always be mixed according to the same ratio. In the event that additional wetting additives have to be added to the fountain solution, then the resultant as applied VOC content needs to be recalculated.

In addition, an exclusion from recordkeeping should be provided for fountain solutions that are used “as is” without dilution that are below 5% VOC content (PIAZ/NM).

Response #29: The department disagrees with the commenter’s proposed exemption for purchased fountain solutions containing less than 5% VOC content. Incorporating the exemption, as suggested by the commenter, would make rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #30: Section 502.3(b) needs to be revised by clarifying that the requirement to monitor the alcohol substitute content of fountain solution is only required if alcohol substitutes are being added to achieve and maintain the concentration of alcohol in the fountain solution and combining subconditions (1) and (2). In addition, the need to prepare monthly mix ratio records is not necessary due to the reasons identified in the comment above on Section 502.3(a) (PIAZ/NM).

Response #30: The department disagrees with the commenter’s proposed exemption to monitor only fountain solutions if alcohol substitutes are being added. Incorporating the exemption, as suggested by the commenter, would make the rule less stringent than the previous rule and be considered backsliding by the EPA.

Comment #31: Section 502.4(b) establishes requirements to record on a daily basis “operating parameters” of “key systems” as required by the O&M plan. However, the requirements specified for O&M plans in Section 307.5 do not specify which “operating parameters” are to be identified and monitored or which systems are “key systems.” Furthermore, the O&M plan section does not provide any guidance as to what parameters should be used by the

regulated printer to identify the appropriate “operating parameters” or “key systems”. Adding to the confusion is the circular reference contained in Section 307.5, which requires records to be kept per Section 502.4 and since Section 502.4 does not provide any specificity, it is not clear what records are needed to be kept.

In addition, Section 501.1 requires the installation of the appropriate ECS monitoring equipment as identified in the O&M plan, yet Section 307.3 of the O&M plan does not contain specific guidance as to which monitoring systems are to be used for each ECS (such as an oxidizer or a carbon absorption unit). Since there is no clear establishment of monitoring requirements for specific ECS in the O&M plan, sections of 501.1 and 502.4 (b) cannot be appropriately applied as written. Without any specificity, the requirement to record on a daily basis “operating parameters” of “key systems” should be deleted, or the specific “operating parameters” of “key systems” must be identified for each type of ECS.

Additionally, this section refers to records required if the ECS was “not operational.” It is unclear if “not operational” refers to time that the ECS was not operating due to a malfunction, or if it refers to time that the ECS was simply not being used (PIAZ/NM).

Response #31: The previous Rule 337, Section 503.3, required a graphic arts operation to maintain daily records of the O&M Plan’s key system operating parameters. The ECS recordkeeping requirements were tied into the operating maintenance plan to allow the graphic arts operation flexibility to work with the department to identify the “operating parameters of key systems” of an ECS. Rule 337, Section 307.1 requires an owner, operator or person to provide and maintain operation and maintenance plans for any ECS and ECS monitoring device. The department will provide guidance to a graphic arts operation, but it is up to the facility to determine the type of emission control system for the site and obtain department approval for that system. The department disagrees with specifically identifying operating parameters or key systems due to the variety and uniqueness of each system.

The department’s intent was to require documentation of any time the ECS was not in operation for any reason and not limit the recordkeeping requirement only to “equipment malfunction” non-operation time. The department revised Rule 337, Section 502.4(b) to read “If the ECS was not operational due to equipment malfunction or not being used at any time during the day, record this fact in the permanent record.”

Comment #32: Section 503.1(c) needs to be revised by allowing for more flexibility with respect to the use of hydrometers. Hydrometers that meet the ASTM E100-05 standard are very expensive and many small printers are required to use alcohol in their fountain solution due to the age of their equipment and type of dampening or fountain solution system. Therefore, the condition should allow for the less expensive units that are either incorporated into the fountain solution recirculating system or handheld ones commonly used by printers to determine alcohol content. The handheld units are similar in nature to the ones used to check the viability of anti-freeze in an automobiles coolant system, but using a different scale (PIAZ/NM).

Response #32: In the previous rulemaking, the department allowed the use of a hydrometer to be used for determining alcohol content in the fountain solutions. The department did not intend to limit the type of hydrometer used, but to establish verification the hydrometer is providing accurate results. While the department does not believe hydrometers calibrated to ASTM standards are cost prohibitive, the department does agree that there are alternative methods for determining accuracy of the hydrometer. The department is allowing the use of a standard solution in calibrating the hydrometer for the type of alcohol used in the fountain solution. This method is easier and less costly for the graphic arts operation to incorporate into their business practice. In addition, the calibration method can be easily demonstrated to a compliance inspector when requesting verification of equipment accuracy and fountain solution alcohol content. The department consulted with Region IX EPA for approval of demonstrating compliance using this method of hydrometer calibration.

Comment #33: Section 503.3 needs to be modified by deleting the reference to the 1995 “Guidelines for Determining Capture Efficiency” because they are redundant with EPA Reference Method 204 as they are one in the same. The guidelines were issued before Method 204 was officially adopted (PIAZ/NM).

Response #33: Per the EPA, “The Method 204 series test methods present the methodology for evaluating the various VOC streams needed for determining capture efficiency, but do not discuss how to use the test results to calculate capture efficiency. The ... document *Guidelines for Determining Capture Efficiency* (GD-035, dated January 9, 1995)...describes how to calculate capture efficiency. The guideline document discusses recommended capture efficiency testing protocols and acceptable alternative test procedures.” (“TECHNICAL SUPPORT DOCUMENT (TSD) FOR TITLE V PERMITTING OF PRINTING FACILITIES,” Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, January 2005, page 67. Internet address:

<http://www.epa.gov/ttn/oarpg/t5/memoranda/tsd.pdf>). The department does not agree that the EPA Reference Method and the 1995 Guidelines are one in the same and does not agree with deleting the reference.

Comment #34: Section 503.3(a)(4) needs to be modified to reflect the current position taken by EPA regarding the use of Reference Method 25A and printing operations, especially when the method is used for oxidizers controlling heatset web offset presses. Therefore, subconditions should be added to Section 503.3(a)(4) for correcting the outlet readings from a thermal or catalytic oxidizer and specifying a minimum temperature during testing (PIAZ/NM).

Response #34: The department disagrees with the comment to modify an approved/established EPA testing method.

Comment #35: Section 503.3 needs to be modified to clarify the conditions in which compliance tests need to be conducted. In many instances, testing is required to be conducted under “maximum conditions” and achieving these conditions with printing presses is many times impossible as a press is never run at its maximum possible conditions as it pertains to ink coverage. Therefore, a condition needs to be added to Section 503.3 to state that testing shall be run at typical operating conditions and flow rates (PIAZ/NM).

Response #35: The department disagrees that an operational condition requirement should be included in the rule.

Comment #36: Sections 503.3 (a)(1) and (2) need to be modified by adding a condition that excludes heatset web offset presses from performing traditional capture efficiency testing. This is because of the nature of the inks used in the lithographic press and the fact that the VOC in them are only released in the dryer, which is run at negative pressure. EPA only requires that negative air pressure in the dryer be established and that no continuous air flow monitoring be required. Once the negative air flow is established, EPA allows for a 100% capture of the ink oil or ink VOC emissions, 70% for alcohol substitutes, and 40% for automatic blanket wash VOC. EPA’s position is detailed in the CTG and the Technical Support Document (TSD) for Title V Permitting of Printing Facilities (PIAZ/NM).

Response #36: In Comment #2, the commenter requested an exemption be included in the rule from continuous dryer air flow monitoring and capture efficiency testing for heatset dryers if it is demonstrated that dryer pressure is negative relative to the surrounding pressroom and the airflow is into the dryer. The department does not support this exemption. Rule 337, Section 503.3, added additional options for capture efficiency testing. To not require any capture efficiency testing makes the rule less stringent than the previous rule. This is considered “backsliding” by the EPA.

Comment #37: Section 503.4(b) needs clarification to provide specificity as to which “certification” is required for the laboratory. It is not clear which certifications are acceptable (PIAZ/NM).

Response #37: Section 503.4(b) requires “certified data from a laboratory or manufacturer revealing the exact formulation.” The department is requiring the laboratory to certify the accuracy of their data. It is the responsibility of the graphic art operation to obtain the required information from a reliable source.

14. Any other matters prescribed by the statute that are applicable to the specific department or to any specific rule or class of rules:

Not applicable

15. Incorporations by reference and their location in the rules:

EPA Reference Methods, American Society for Testing and Materials (ASTM) standards and other documents incorporated by reference in Rule 337:

Section 503.1:

- Method 24 - Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.
- Method 24A - Determination of Volatile Matter Content and Density of Publication Rotogravure Inks and Related Publication Rotogravure Coatings.
- ASTM E100 - 05 Standard Specifications for ASTM Hydrometers.
- ASTM E126 - 05a Standard Test Method for Inspection, Calibration, and Verification of ASTM Hydrometers.

Section 503.2:

- ASTM E1 - 07 Standard Specifications for ASTM Liquid-in-Glass Thermometers.

Section 503.3:

- "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA.

- EPA Reference Method 18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography, 40 CFR 60, Appendix A.
- EPA Reference Method 25 - Determination of Total Gaseous Nonmethane Organic Emissions as Carbon, 40 CFR 60, Appendix A; or applicable Subparts 25A, or 25B.
- EPA Reference Method 204 - Criteria for and Verification of a Permanent or Temporary Total Enclosure, 40 CFR 51, Appendix M; or applicable Subparts 204A, 204B, 204C or 204D.

Section 503.4:

- ASTM D2879 - 97(2007) Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope.

16. Was this rule previously an emergency rule?

No

17. The full text of the rule follows:

REGULATION III – CONTROL OF AIR CONTAMINANTS

**RULE 337
GRAPHIC ARTS**

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Revised 11/20/96
Revised 01/12/11

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 337
GRAPHIC ARTS

SECTION 100 – GENERAL

- 101** **PURPOSE:** To limit the emissions of volatile organic compounds (VOCs) to the ambient air from graphic arts operations ~~and associated coating processes.~~
- 102** **APPLICABILITY:** This rule applies to all VOC-containing materials associated with graphic arts operations. This includes, but is not limited to the prepress and press operations; and the cleaning materials and processes associated with such operations.
- 103** **EXEMPTIONS:**
 - 103.1** **Total Categorical Exemptions:** This rule does not apply to the following operations:
 - a.** Circuitry printing and other associated printing performed for labeling, logo, or identification purposes on a printed circuit, its substrate, its immediate covering, or its immediate encapsulant by a circuitry printer.

- b.** Coating applications that are not performed in association with a printing operation and that are considered coating operations are not graphic arts printing operations.
- c.** Printing conducted on office and personal printers such as ink jet, bubble jet, and laser printers.
- 103.2 Partial Exemptions:** For the purpose of determining exemptions, the following substrate retention factors shall be applied: 20% retention of the VOC content of heatset inks and 95% retention of the VOC content of non-heatset inks. The following are exempt from the VOC limitations of this rule but shall comply with the work practices listed in Section 306 of this rule and the recordkeeping requirements in Section 502.5 of this rule:
- a.** The total emissions from graphic arts operations, including surface preparation and cleanup solvent, does not exceed threshold limit of 225 pounds (100 kg) of VOC per month before controls.
- b.** Any radiation-cured inks and coatings.
- c.** Any digital printing operation.
- d.** Sections 302.1, 303.1, 304.1 and 305.1(a) of this rule do not apply to any graphic arts operation which emits less than the threshold amounts of 25 tons (22,680 kg) per calendar year and 4,200 pounds (1,909 kg) per month of VOC from all graphic arts and related coating operations prior to control. Except as otherwise directed by air pollution permit, any graphic arts operation that becomes subject to the provisions of Section 302.1 of this rule by exceeding either the monthly or yearly threshold amount shall remain subject to these provisions even if monthly or annual emissions later fall below the thresholds.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100: General Provisions and Definitions of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

- 201** **ADHESIVE** – A material applied for the primary purpose of bonding two surfaces together by surface attachments. Adhesives may be used to facilitate the attachment of two surfaces or substances in varying degrees of permanence.
- 201 202** **ALCOHOL** – A volatile organic compound – such as isopropanol, normal-propanol, and or ethanol – of alkane structure consisting of fewer than ~~6~~ six carbon atoms and having a single OH– (hydroxyl) group and no other non-alkane attachments.
- 202 203** **ALCOHOL SUBSTITUTE** – A wetting agent, used to replace some or all of the alcohol in fountain solutions, and usually containing ~~inorganic phosphates and~~ volatile organic compounds such as glycols and glycol ethers.
- 204** **BATCH** – A supply of fountain solution or cleaning solution that is prepared and used without alteration until completely used or removed from the printing process. For the purposes of this rule, this term may apply to solutions prepared in either discrete solutions or solutions that are continuously blended with automatic mixing units.
- 203 205** **CIRCUITRY PRINTING** – Any graphic arts operation which either uses ink(s) with specific electrical properties to print an electrical circuit, or prints a circuit pattern that is made into an electrical circuit through further processing.
- 204 206** **CLEANING SOLUTION** – Any liquid, including automatic blanket and roller wash system or manual blanket wash and roller wash, used to remove ink and debris from the operating surfaces of a printing press or from any of the attached parts of a press.
- 205** **COATING** – A layer of material applied to a substrate. ~~in a relatively unbroken film.~~
- 207** **DIGITAL PRINTING** – A method of printing that does not use a physical master, stencils or plates but uses an electronic output device to transfer variable data, in the form of an image, from a computer to a variety of substrates. Digital printing methods include, but are not limited to, inkjet printing, electrophotographic printing, dye sublimation printing, thermal wax printing and solid ink printing.
- 206 208** **EMISSION CONTROL SYSTEM (ECS)** – A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.
- 209** **EXTREME PERFORMANCE** – An ink or coating used in screen printing on a non-porous substrate that is designed to resist or withstand any of the following:
- 209.1** More than two years of outdoor exposure; or
- 209.2** Exposure to industrial-grade chemicals, solvents, acids, or detergents, oil products, cosmetics, temperatures exceeding 170°F, vacuum-forming, embossing or molding.
- 207 210** **FLEXOGRAPHIC PRINTING** – The application of words, designs or pictures by roll-printing technique in which the image-carrying surface is raised above the surface of the printing roll and the image carrier is made of flexible rubber or other elastomeric material. The image is transferred to the substrate through first applying ink to a smooth roller which in turn transfers the ink onto the raised pattern of the rubber or elastomeric image carrier fastened around a second roller, which then transfers the ink onto the substrate.

- 211** **FOUNTAIN SOLUTION** – The solution applied to the image plate to maintain the hydrophilic properties of the non-image areas and to keep the non-image area free from ink.
- 208 212** **GRAPHIC ARTS** – All printing processes including but not limited to digital, screen, gravure, letterpress, flexographic and lithographic printing processes, including related coating and laminating processes.
- 213** **GRAPHIC ARTS COATING** – A relatively unbroken layer of material applied onto or impregnated into a substrate. A material applied after the application of inks to the substrate that serves to enhance or protect the printed substrate and includes graphic arts varnish, water-based, or radiation cured formulation of resins, solvents, cosolvents and other additives. Equipment capable of both coating and printing is considered a printing operation for this rule. Coating applications that are not performed in association with a printing operation are considered coating operations and are not graphic arts printing operations.
- 209 214** **GRAPHIC ARTS FACILITY OPERATION** – All the graphic arts processes and activities which are located on one or more contiguous or adjacent properties and are under the control of the same person (or persons under common control).
- 240 215** **GRAPHIC ARTS MATERIAL** – Any ink, varnish, coating or adhesive, including added thinner or retarder, used in printing or related coating or laminating processes.
- 211** **GRAPHIC ARTS VARNISH** – A transparent material, applied by printing press, that is used to adjust gloss, to adjust color, or to protect printed material or printing substrate.
- 242 216** **GRAVURE PRINTING** – An intaglio process in which the ink is carried in minute, etched or engraved wells on a roll or cylinder, excess ink being removed from the surface by a doctor blade. Images are transferred onto a substrate through first applying ink to the etched roll or cylinder, wiping the lands between the cells free of ink with a doctor blade, and rolling the cylinder over the substrate so that the surface of the substrate is pressed into the cells transferring the ink onto the substrate.
- 217** **HEATSET** – A lithographic web printing process where heat is used to evaporate ink oils from the printing ink.
- 243** **LAMINATION** – A process of fusing two or more layers of material together to form a single sheet by using adhesive.
- 244 218** **LETTERPRESS PRINTING** – A method in which the image area is raised relative to the non-image area and the ink is transferred to the paper directly from the image surface.
- 245 219** **LITHOGRAPHIC PRINTING** – A planographic method of printing process where the image and non-image areas of the printing plate are chemically differentiated; the image area is oil receptive and the non-image area is water receptive. This method differs from other printing methods, where the image is on a raised or recessed surface.
- 220** **NON-HEATSET** – A lithographic printing process where the printing inks are set by absorption or oxidation of the ink oils. For the purposes of this rule, use of an infrared heater or printing conducted using radiation cured inks is considered non-heatset.
- 221** **NON-POROUS SUBSTRATE** – Any substrate whose surface prevents penetration by water.
- 246** **NON-PRECURSOR ORGANIC COMPOUND** – Any of the organic compounds, listed in subsection a. of Appendix A, which have been designated by the EPA as having negligible photochemical reactivity.
- 222** **OFFSET LITHOGRAPHIC PRINTING** – A planographic method of printing in which the image and non-image areas are on the same plane and the ink is transferred from a plate to an intermediary surface, typically a rubber blanket, which in turn transfers the image to the substrate. Offset lithographic printing includes the application of overprint coatings.
- 223** **OVERALL CONTROL EFFICIENCY** – The overall control efficiency of an ECS is determined by multiplying the ECS efficiency by the destruction efficiency of the control device expressed as a percentage.
- 224** **POROUS SUBSTRATE** – A substrate whose surface does not prevent penetration by water.
- 247 225** **PRINTING** – An operation that imparts color, design, pattern, alphabet or numerals onto a substrate. It differs from coating in that its principal intent is to accomplish such visual/spatial outcome(s) rather than for other purposes commonly accomplished by using coatings.
- 248 226** **PRINTING INK** – A fluid or viscous formulation used in printing, impressing or transferring an image onto a substrate.
- 227** **RADIATION-CURED INKS AND COATINGS** – A printing ink or graphic arts coating that dries by polymerization reaction by ultraviolet or electron-beam radiation.
- 249 228** **SCREEN PRINTING** – A process of passing printing ink through a screen (a taut web or fabric) to make an imprint on a substrate. A refined form of stencil has been applied to the screen such that the stencil openings determine the form and dimensions of the imprint.
- 229** **SHEET-FED** – A lithographic printing process in which individual sheets of substrate are fed to the press sequentially.
- 230** **SOLVENT** – Organic compounds that are used as diluents, thinners, dissolvers, viscosity reducers, cleaning agents or for a similar purpose.

- 231** SPECIAL PURPOSE – Printing or coating on polyethylene, polyester and foil substrates for food packaging, health care products, fertilizer bags, or liquid-tight containers.
- ~~220~~ **232** UNITS PER PRINTING PRESS – The number of printing surfaces per printing press.
- ~~221~~ **232** VAPOR PRESSURE – The pressure exerted at a uniform temperature by the gas of a substance when the gas is in equilibrium with the liquid (or solid) phase of that substance. Example: At 68°F the vapor pressure of toluene vapor in equilibrium with undiluted liquid toluene is 23 millimeters of mercury.
- ~~222~~ **233** VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE) – The total vapor pressure exerted by VOC at an even temperature. It distinguishes the vapor pressure of VOC from the vapor pressures of other fluids when a liquid contains both VOC and non-VOC fluids. The sum of the partial pressures of the compounds defined as VOCs, calculated according to the formula in Section 503.4 of this rule.
- 234** VOC-CONTAINING MATERIAL – Any chemical or item that contains an organic compound that participates in atmospheric photochemical reactions, except the non-precursor organic compounds. This includes but is not limited to rags, waste coatings, waste brushes, waste rollers, waste applicators, waste solvents, and their residues are used in the surface preparation, cleanup or removal of inks and surface coatings associated with graphic arts operations.
- 223** VOLATILE ORGANIC COMPOUND (VOC) – Any organic compound which participates in atmospheric photochemical reactions, except a non-precursor organic compound.
- 235** WEB – A continuous substrate capable of being rolled at any point during the coating process.
- 224** WEB FEED – An automatic system which supplies substrate from a continuous roll or from a continuous extrusion process.

SECTION 300 – STANDARDS

- 301** GRAPHIC ARTS MATERIALS: VOC emissions from graphic arts materials shall be limited as follows:
MANUFACTURERS AND SUPPLIERS: A person selling, offering for sale, supplying for use, or manufacturing for sale within Maricopa County any VOC-containing material for use in graphic arts operations shall provide a material safety data sheet (MSDS) or product data sheet showing the material name, manufacturer's name, specific mixing instructions (if applicable) and VOC content as supplied. The VOC content requirement does not apply to radiation-cured inks and coatings.
- 301.1** Limits of VOC Content: No person shall apply any inks, varnishes, coatings, or adhesives unless the VOC content as applied is equal to or less than 2.5 pounds per gallon (300 grams per liter), less water and non-precursor organic compounds.
- 301.2** Emission Control System for Offset Lithographic Printing: As an alternative to the provisions of subsection 301.1, a person may comply by using an Emission Control System with a control device efficiency which reduces the VOC emissions from the dryer exhaust vent by at least 90 percent by weight. The dryer pressure shall be maintained lower than the press room air pressure such that air flows into the dryer at all times when the press is operating.
- 301.3** Emission Control System for All Other Graphic Arts Printing: As an alternative to the provisions of subsection 301.1, a person may comply by using an Emission Control System which reduces the VOC emissions from the dryer exhaust vent by at least 90 percent by weight, and an overall capture and control efficiency of at least 65 percent by weight.
- 302** LITHOGRAPHIC AND LETTERPRESS OPERATIONS: VOC emissions from all lithographic and letterpress operations are limited to the following:
- 302.1** Materials: An owner or operator of a lithographic press or letterpress shall limit VOC emissions from inks, varnishes, coatings, or adhesives, as applied, to less than 2.5 pounds per gallon (300 grams per liter), less water and non-precursor organic compound unless VOC emissions are controlled by an ECS as described in Section 302.4 of this rule and by following the work practices described in Section 306 of this rule.
- 302** **302.2** Fountain Solution VOC Limits: After March 27, 1997, an An owner or operator of an an offset a lithographic printing press shall limit the combined total volume of alcohol, alcohol substitute, and any other VOC in each fountain solution source to the limits percentages specified in column A of Table 1-337-
1 whenever the press is on, except that a fountain solution source refrigerated below 60°F and having a properly indicating temperature monitor is subject to the limits in column B of Table 1.

TABLE 1
 VOC LIMITS BY VOLUME FOR FOUNTAIN SOLUTION *

Column A	Column B	Column C
	Limit for a Source Refrigerated	
General Limit	Below 60°F	Compliance Date
15 percent	25.5 percent	March 28, 1997

10 percent	17 percent	March 28, 1998
5 percent	8.5 percent	March 28, 1999

*(Appendix A Table AP I gives equivalent limits)

TABLE 337-1. VOC Limits by Percent by Weight (as Applied) for Fountain Solutions for Lithographic Printing

	<u>Fountain Solutions Containing Alcohol</u>	<u>Fountain Solutions Containing Alcohol Refrigerated at or Below 60°F (15.5°C)</u>	<u>Fountain Solutions Containing Alcohol Substitutes</u>
<u>Heatset Web</u>	Current: 5.0 % Effective: Jan. 12, 2012: 1.6 %	Current: 8.5 % Effective Jan. 12, 2012: 3.0%	5%
<u>Sheet-Fed</u>	5%	8.5%	5%
<u>Cold-Set Web</u>	None	None	5%

- 303 302.3** Cleaning Solutions: Any person who owns or operates An owner or operator of a lithographic printing press or letterpress shall reduce VOC emissions from cleaning solutions by following the work practices described in Section 306 of this rule and one of the following: by using cleaning solutions with a vapor pressure at 20°C compliant with the standards in Table 2. In addition, all VOC containing materials used for cleaning and cleanup, including rags and towels, shall be stored in closed containers when not in use.
- a. Use cleaning materials with a VOC composite vapor pressure less than 10 mm Hg at 20°C; or
 - b. Use cleaning materials containing less than 70 weight percent VOC.

TABLE 2
VOC VAPOR PRESSURE LIMITS FOR CLEANING SOLUTIONS

<u>Vapor Pressure</u>	<u>Compliance Date</u>
33 mm Hg	March 28, 1997
25 mm Hg	March 28, 1998
10 mm Hg	March 28, 1999

- 304** LABELING REQUIREMENT: No person shall sell, offer for sale, or manufacture for sale within Maricopa County any ink, coating, adhesive, fountain solution or fountain solution concentrate for use in graphic arts operations unless such material includes a designation of VOC content on data sheet(s), expressed in pounds per gallon or grams per liter.

302.4 Emission Control System (ECS):

- a. The VOC material limits of Section 302.1 of this rule do not apply when emissions of VOC to the atmosphere from the lithographic or letterpress printing operations are controlled by an ECS that meets one of the requirements listed in Table 337-2; and
- b. The dryer pressure shall be maintained lower than the press room air pressure such that air flows into the dryer at all times when the press is operating.

TABLE 337-2. ECS Control Efficiencies for Lithographic and Letterpress Printing Operations.

<u>ECS Installation Date</u>	<u>Control Efficiency</u>
<u>ECS installed prior to January 12, 2011</u>	<u>90 percent by weight control efficiency for VOC emissions from the dryer exhaust vent.</u>
<u>ECS installed on or after January 12, 2011</u>	<u>95 percent by weight control efficiency for VOC emissions from the dryer exhaust vent.</u>
<u>Any installation date</u>	<u>Maintain VOC emissions from the dryer exhaust vent at a concentration at or below 20 ppmv as hexane on a dry basis.</u>

- 302.5** Operation and Maintenance (O&M) Plan: The owner or operator of an ECS used to meet the requirements of this rule shall comply with the requirements in Section 307 of this rule.

303 ROTOGRAVURE AND FLEXOGRAPHIC OPERATIONS:

- 303.1** Inks, Coatings and Adhesives: The owner or operator of rotogravure or flexographic press shall limit VOC emissions from inks, coatings, and adhesives as listed in Table 337-3 or by an ECS as described in Section 303.3 of this rule and by following the work practices described in Section 306 of this rule.

Table 337-3. VOC Limits for Materials used in Rotogravure and Flexographic Operations.

<u>GRAPHIC ARTS MATERIAL</u>	<u>VOC CONTENT LIMIT</u> less water and non-precursor organic compounds	
	<u>lbs/gal</u>	<u>grams/liter</u>
<u>Ink</u>	<u>2.5</u>	<u>300</u>
<u>Flexographic Ink Porous Substrate:</u>	<u>2.5</u>	<u>300</u>
<u>Effective January 12, 2012:</u>	<u>1.9</u>	<u>225</u>
<u>Flexographic Ink Non-Porous Substrate</u>	<u>2.5</u>	<u>300</u>
<u>Coating</u>	<u>2.5</u>	<u>300</u>
<u>Adhesive</u>	<u>2.5</u>	<u>300</u>
<u>Effective January 12, 2012:</u>	<u>1.25</u>	<u>150</u>

303.2 Cleaning Solutions: An owner or operator of a rotogravure or flexographic press shall reduce VOC emissions from cleaning solutions by following the work practices as described in Section 306 of this rule.

303.3 Emission Control System (ECS): The limits of Section 303.1 of this rule do not apply when emissions of VOC to the atmosphere from the rotogravure or flexographic printing operations are controlled by an ECS that meets either:

- a. One of the requirements listed in Table 337-4; or
- b. Reduces the VOC emissions from the dryer exhaust vent by at least 90 percent by weight, and an overall capture and control efficiency of at least 65 percent by weight; and
- c. Maintains the dryer pressure lower than the press room air pressure such that air flows into the dryer at all times when the press is operating.

Table 337-4. ECS Efficiencies for Rotogravure and Flexographic Printing Operations.

<u>Press and ECS Installation Dates</u>	<u>Overall Capture and Control Efficiency</u>	<u>Capture Efficiency</u>	<u>Control Efficiency</u>
<u>Press installed prior to March 14, 1995 and controlled by an add-on ECS installed prior to January 12, 2011</u>	<u>65 %</u>	<u>75 %</u>	<u>90 %</u>
<u>Press installed prior to March 14, 1995 and controlled by an add-on ECS installed on or after January 12, 2011</u>	<u>70 %</u>	<u>75 %</u>	<u>95 %</u>
<u>Press installed on or after March 14, 1995 and that is controlled by an add-on ECS whose first installation date was prior to January 12, 2011</u>	<u>75 %</u>	<u>85 %</u>	<u>90 %</u>
<u>Press installed on or after March 14, 1995 and controlled by an add-on ECS whose first installation date was on or after January 12, 2011</u>	<u>80 %</u>	<u>85 %</u>	<u>95 %</u>

303.4 Operation and Maintenance (O&M) Plan: The owner or operator of an ECS used to meet the requirements of this rule shall comply with the requirements in Section 307 of this rule.

304 SCREEN PRINTING OPERATIONS:

304.1 An owner or operator of a screen printing operation shall limit the VOC emissions from screen printing inks, coatings and adhesives as listed in Table 337-5 or by an ECS as described in Section 304.3 of this rule and by following the work practices described in Section 306 of this rule.

TABLE 337-5. VOC Content Limits for Screen Printing Inks, Coatings, and Adhesives

<u>Material</u>	<u>Pounds of VOC per gallon (grams/liter)</u> less water and less non-precursor organic compounds	
	<u>lb/gal</u>	<u>grams/liter</u>
<u>Inks and Coatings</u>	<u>3.3</u>	<u>400</u>
<u>Adhesives</u>	<u>1.25</u>	<u>150</u>
<u>Special Purpose, Extreme Performance</u>	<u>6.7</u>	<u>800</u>

304.2 Cleaning Solutions: An owner or operator of a screen printing press shall reduce VOC emissions from cleaning solutions by following the work practices as described in Section 306 of this rule.

304.3 Emission Control System (ECS):

- a. The VOC material limits of Section 304.1 of this rule do not apply when emissions of VOC to the atmosphere from the lithographic or letterpress printing operations are controlled by an ECS that meets one of the requirements listed in Table 337-4; and
- b. The dryer pressure shall be maintained lower than the press room air pressure such that air flows into the dryer at all times when the press is operating.

304.4 Operation and Maintenance (O&M) Plan: The owner or operator of an ECS used to meet the requirements of this rule shall comply with the requirements in Section 307 of this rule.

305 OTHER GRAPHIC ARTS OPERATIONS NOT COVERED BY SECTIONS 302, 303, AND 304 OF THIS RULE:

305.1 Limits of VOC Emissions: Any graphics arts operation which emits 25 tons per calendar year and 4200 pounds per month of VOC from all graphic arts and related coating operations shall:

- a. Limit the VOC content as applied of any inks, varnishes, coatings, or adhesives to a maximum of 2.5 pounds per gallon (300 grams per liter), less water and non-precursor organic compounds; or
- b. Install, operate and maintain an ECS that meets either:
 - (1) One of the requirements listed in Table 337-4; or
 - (2) Reduces the VOC emissions from the dryer exhaust vent by at least 90 percent by weight, and an overall capture and control efficiency of at least 65 percent by weight; and
 - (3) Maintain the dryer pressure lower than the press room air pressure such that air flows into the dryer at all times when the press is operating.

305.2 Cleaning Solutions: An owner or operator of a graphic arts printing press shall reduce VOC emissions from cleaning solutions by following the work practices as described in Section 306 of this rule.

305.3 Operation and Maintenance (O&M) Plan: The owner or operator of an ECS used to meet the requirements of this rule shall comply with the requirements in Section 307 of this rule.

306 WORK PRACTICES – STORAGE, HANDLING AND DISPOSAL OF VOC-CONTAINING MATERIAL:

For the purposes of this rule, “in use” is the active application of contents to a substrate by pouring, siphoning, brushing, rolling, padding, wiping or other methods. For the purposes of this rule, “containers” include but are not limited to drums, buckets, cans, pails, and trays. An owner or operator of any graphic arts printing operation shall store, handle, and dispose of VOC or VOC-containing material in a way to prevent the evaporation of VOC to the atmosphere. Work practices limiting VOC emissions include but are not limited to the following:

306.1 Labeling of Containers: All containers that are 1 gallon or larger used for collection of VOC-containing material shall be clearly identified with their contents.

306.2 Use of VOC-Containing Materials: An owner or operator shall not leave containers of ink, coating, adhesive or fountain solution or any other VOC-containing material open when not in use.

306.3 Storage and Disposal: An owner or operator shall not use open containers for the storage or disposal of VOC-containing materials.

306.4 Spills: An owner or operator shall implement procedures to minimize spills of any VOC-containing material during handling and transfer to and from containers, enclosed systems, waste receptacles and other equipment.

306.5 Conveyance of VOC-Containing Materials: All VOC-containing materials including VOC-containing cleaning materials shall be conveyed from one location to another in labeled, closed containers or pipes.

305 **307**

OPERATION AND MAINTENANCE (O&M) PLAN REQUIREMENTS FOR AIR POLLUTION

CONTROL EQUIPMENT AND APPROVED EMISSION CONTROL SYSTEM (ECS): An owner, operator, or person subject to this rule must provide, properly install and maintain in calibration, in good working order, and in operation air pollution control equipment required by this rule.

307.1 An owner, operator, or person subject to this rule must provide and maintain readily available on-site at all times (an) O&M Plan(s) for any ECS and any ECS monitoring devices that are used under this rule or an air pollution control permit.

307.2 An owner, operator, or person subject to this rule must submit to the Control Officer for review every O&M Plan(s) for any ECS including any ECS monitoring device that is used under this rule or required under an air pollution control permit.

307.3 An owner, operator, or person subject to this rule operating an ECS must install, maintain, and accurately calibrate monitoring devices described in the O&M Plan(s) including, but not limited to, monitoring devices that measure pressure differentials and other operating conditions necessary to determine if control devices are functioning properly.

307.4 An owner, operator, or person, who is required to have an O&M Plan for any ECS including any ECS monitoring devices must fully comply with all elements of an O&M Plan(s) including, but not limited to, every action, schedule, and condition identified in each O&M Plan.

307.5 An O&M Plan for any ECS including any ECS monitoring devices must include all of the following information:

a. ECS equipment manufacturer.

b. ECS equipment model.

c. ECS equipment identification number or identifier that owner, operator, or person subject to this rule assigns to such ECS equipment when manufacturer's equipment identification number is unknown, and

d. Information required by Section 502.4 of this rule. (This is the recordkeeping section of the rule)

307.6 The owner, operator, or person subject to this rule, who receives a written notice from the Control Officer that the O&M Plan is deficient or inadequate, must make written revisions to the O&M Plan for any ECS including any ECS monitoring devices and must submit such revised O&M Plan to the Control Officer within five working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon written request, for good cause. During the time that such owner, operator, or person subject to this rule is preparing revisions to the O&M Plan, such owner, operator, or person must still comply with all requirements of this rule.

306 EXEMPTIONS:

306.1 ~~**Exemption from Section 301:** The provisions of Section 301 of this rule shall not apply to any graphic arts facility which emits less than the threshold amounts of 25 tons (22,680 kg) per calendar year and 4200 pounds (1909 kg) per month of VOC from all graphic arts and related coating operations prior to control. Except as otherwise directed by air pollution permit, any facility that becomes subject to the provisions of Section 301 by exceeding either threshold amount will remain subject to these provisions even if annual emissions later fall below these thresholds.~~

306.2 Total Exemption:

a. ~~Circuitry printing is exempt from this rule. This exemption includes other associated printing performed for labeling, logo, or identification purposes on a printed circuit, its substrate, its immediate covering, or its immediate encapsulant by a circuitry printer.~~

b. ~~Any printing operation in which no printing press has over two units, and the combined impression area of all presses together does not exceed 500 square inches (3226 cm²) is exempt from this rule.~~

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 ~~**EFFECTIVE DATE:** This rule is effective May 3, 1996. **COMPLIANCE SCHEDULE:** An owner or operator who chooses to, or is required to comply with the new emission limits by installing or increasing the efficiency of an ECS under Section 302.4, 303.3, 304.3 or 305.1 of this rule shall meet the following milestones:~~

401.1 ~~Submit a compliance plan, by (3 months after date of rule adoption) or within three (3) months of becoming subject to the rule, to the Control Officer for approval which describes the method(s) used to achieve full compliance with the rule. The compliance plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require an owner or operator submitting the compliance plan to also submit subsequent reports on progress in achieving compliance; and~~

401.2 ~~Attain full compliance with all of the standards in this rule by (12 months after date of rule adoption) or within twelve (12) months of becoming subject to the rule.~~

SECTION 500 – MONITORING AND RECORDS

501 ~~**PROVIDING AND MAINTAINING MONITORING DEVICES:** Any person operating an ECS pursuant to this rule shall install, maintain, and calibrate monitoring devices described in an O&M Plan. The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly:~~

501.1 ~~**ECS Monitoring Device(s):** An owner or operator of an ECS pursuant to this rule shall install, maintain, and calibrate monitoring devices described in an O&M Plan. The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly. Each ECS that is operated in compliance with this rule shall be equipped with monitoring device(s) capable of demonstrating that the ECS is operating in a manner that assures compliance with this rule. The monitoring device(s) shall be installed, calibrated, maintained, and operated according to their manufacturers' instructions and the O&M Plan.~~

502 501.2 Monitoring Fountain Solution Containing Alcohol:

- a. ~~The An~~ owner or operator of any ~~printing press graphic arts operation~~ shall ~~monitor~~ determine the alcohol VOC-concentration of each fountain solution source containing any alcohol with a refractometer, a hydrometer or conductivity meter. The instrument shall:
 - (1) ~~have~~ Have a visual readout (analog or digital) with an accuracy of ± 2 percent of the meter's instrument's full scale, or ± 0.5 percent absolute (such as for meter readings given in percent.); and
 - (2) ~~Be installed, calibrated, maintained and operated according to the manufacturers' instructions and the O&M Plan.~~
- b. ~~The temperature of a refrigerated fountain solution shall be determined by the use of a temperature monitoring device. Each temperature monitoring device used for the purposes of this section, shall be calibrated and accurate to $\pm 0.5^{\circ}\text{F}$.~~

502.1 Weekly Entry of Monitoring Data if Any Alcohol Is Used:

- a. ~~A weekly entry shall be made of the results of an instrument reading, required by Section 502, for each fountain solution source containing any alcohol; and~~
- b. ~~Weekly, for each fountain solution source, record the names and the most current mixing ratio of all alcohol, alcohol substitutes, and water used in making fountain solution in that source.~~

502.2 Monthly Entries for Presses Which Never Use Any Alcohol: Monthly, record the names of all alcohol substitutes and the mixing ratio of all alcohol substitutes to water, for each fountain solution source on a press which never uses alcohol.

503 502 RECORDKEEPING AND REPORTING: ~~Any~~ An owner, operator or person subject to this rule shall comply with the following recordkeeping and reporting requirements of this section. Records can consist of but are not limited to purchase orders, invoices, receipts, usage records, MSDS, and hazardous wastes manifests. Any records required by this rule shall be retained for five (5) years and be made available to the Control Officer upon request. Records may be kept in either electronic or paper format.

503.1 502.1 Current Materials List: ~~Maintain~~ The owner or operator of a graphic arts operation shall maintain a current list of inks, coatings, adhesives, fountain-solution alcohol(s) and alcohol substitutes, thinners, cleaners, and any other VOC-containing materials used that includes at a minimum: ~~at the facility; state the VOC content of each in pounds per gallon or grams per liter. In addition, for each blanket wash and other cleaning solution, list the VOC vapor pressure at 20°C (68°F).~~

- a. **Material Name:** Record the name/code/manufacturer and the appropriate material type category of inks, coatings, adhesives, fountain-solution alcohol(s) and alcohol substitutes, thinners, cleaning solutions, and any other VOC-containing materials used in the graphic arts processes; and
- b. **VOC Content:** The VOC content of each material listed as pounds of VOC per gallon or grams of VOC per liter; and
- c. **Product Data Sheet:** Specific mixing instructions and the VOC content as applied for products requiring dilution.
- d. **VOC Vapor Pressure:** For each cleaning solution, list the VOC composite vapor pressure (VP) at 20°C (68°F) by providing one of the following:
 - (1) A current manufacturer's technical data sheet listing vapor pressure; or
 - (2) A current manufacturer's safety data sheet (MSDS) listing vapor pressure; or
 - (3) Actual vapor pressure test results.

503.2 502.2 Usage Records of Graphic Arts Materials and Cleaning Solutions: ~~In compliance with the schedule in subsections 503.2 a. and 503.2 b. below,~~ The owner or operator shall update records showing the type and amount consumed of each graphic-arts ink, varnish, coating, adhesive, fountain solution, blanket wash, and all other cleaning solutions according to one of the following schedules:

- a. **Daily Material Usage Records for Sources Emitting 25 Ton Sources Tons or More:** Daily, an owner or operator of a graphic arts facility shall update usage records of materials specified in section 503.2 502.2 of this rule if facility-wide such facility uses noncompliant coating in conjunction with an emissions control system; or emits 25 tons or more of VOC emissions per calendar year or 4200 pounds or more of VOC emissions per month from all graphic arts and related coating operations prior to any control.
- b. **Monthly Material Usage Records for Sources Emitting 25 Tons or More:** Monthly, an owner or operator of a graphic arts facility shall update usage records of materials specified in section 502.2 of this rule if facility wide such facility emits 25 tons or more of VOC emissions per calendar year or 4200 pounds or more of VOC emissions per month from all graphic arts and related coating operations prior to any control and:

(1) The facility uses materials complying with the limits in Sections 302, 303, 304 or 305 of this rule; and

(2) Each material served by a control device is identified as such.

b-c. Monthly Material Usage Records for Sources Emitting Less Than 25 Tons: ~~Monthly records of materials' usage shall be maintained pursuant to subsection 503.2 an owner or operator of a graphic arts facility shall update the usage records of materials specified in Section 502.2 of this rule, if facility wide, such facility emits less than 25 tons of VOC emissions per calendar year or less than 4200 pounds of VOC emissions per month from all graphic arts and related coating operations prior to any control, by any facility except for the (≥ 25 TPY) facilities subject to subsection 503.2 a.~~

502.3 Fountain Solutions:

a. Alcohol Containing Fountain Solutions:

(1) Daily: An owner or operator shall record the temperature of the refrigerated alcohol solution.

(2) Weekly: An owner or operator shall record the percentage of VOC for each different batch of fountain solution containing alcohol; and

(3) Maintain a weekly record of the names and the most current mixing ratio for each different batch of all alcohol, alcohol-substitutes, and water used in making each fountain solution for that source.

b. Fountain Solutions Containing Alcohol Substitutes:

(1) Monthly: An owner or operator shall record the mixing ratio of all alcohol-substitutes to water, for each fountain solution source on a press which never uses alcohol; and

(2) Maintain a current list of the names of all fountain solutions containing alcohol-substitutes.

503.3 ECS Operation and Maintenance: ~~Maintain a continuous record of the times an Emission Control Device is used to comply with this rule. Maintain daily records of the O&M Plan's key system operating parameters. Maintain records of all maintenance performed according to the O&M Plan.~~

502.4 ECS Recordkeeping Requirements: The owner or operator of the facility shall document the installation, maintenance, and calibration of ECS monitoring devices described in an O&M Plan in the following manner:

a. Initial Installation: Make a permanent record of the date of installation of the ECS.

b. Daily: Make a permanent record of the operating parameters of the key systems as required by the O&M Plan. If the ECS was not operational at any time during the day, record this fact in the permanent record; and

c. Within 24 hours of a completed scheduled routine maintenance, make a permanent record of the maintenance actions taken for each day or period in which the O&M Plan requires that maintenance be done; or

d. Enter an explanation for scheduled maintenance that is not performed during the period designated for it in the O&M Plan.

502.5 Facilities Claiming an Exemption: The owner or operator claiming an exemption under subsection 103 of this rule shall document the quantity of VOC materials used and keep sufficient records of the basis of such calculations to justify the exemption status.

504 503 COMPLIANCE DETERMINATION – TEST METHODS: An exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule. The EPA and the American Society for Testing and Materials (ASTM) test methods and other documents as they exist in the Code of Federal Regulations (CFR) as listed below, are adopted and incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. These documents are available Maricopa County Air Quality Department, 1001 N. Central Avenue, Phoenix, AZ 85004 or by calling (602) 506-0169 for information.

504.1 503.1 Sample Analysis VOC Content of Materials:

a. The VOC content of graphic arts materials regulated by ~~Section 301 or Section 302, or Sections 302, 303, 304 or 305 of this rule~~ shall be determined using one of the following: the applicable EPA Reference Method: 24 of 24A, Title 40, CFR, Part 60, Appendix A.

(1) EPA Reference Method 24 - Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, 40 CFR 60, Appendix A; or

(2) EPA Reference Method 24A - Determination of Volatile Matter Content and Density of Publication Rotogravure Inks and Related Publication Rotogravure Coatings, 40 CFR 60, Appendix A; or

(3) A material safety data sheet (MSDS) or product data sheet showing the material name and VOC content as applied.

b. Calculation of the VOC content of fountain solutions (~~reference Section 302~~) shall place the entire volume of the sample in the denominator, e.g., including water, alcohol, non-precursors, and all other solutes, such that the entire volume of the sample is included in the calculations.

c. Any hydrometer used for the purposes of this section shall be accurate within ± 2 percent of the meter's full scale, or ± 0.5 percent absolute (such as for meter readings given in percent) and be calibrated using one of the following methods:

(1) ASTM E100 - 05 Standard Specification for ASTM Hydrometers

(2) ASTM E126 - 05a Standard Test Method for Inspection, Calibration, and Verification of ASTM Hydrometers.

(3) A standard solution for the type of alcohol used in the fountain solution. The department is defining a standard solution as any solution that has a precisely known concentration.

504.2 ~~Test Method for Determining Minimum VOC Content of A Fountain Solution Via Density and Specific Gravity:~~ The test method procedure, which employs an ASTM rated hydrometer, is found in this rule's Appendix A, subsection b. ASTM is the American Society for Testing and Materials.

503.2 ~~Determining the Temperature of A Refrigerated Fountain Solution:~~ The temperature of a refrigerated fountain solution shall be determined by the use of a temperature control device. Each temperature control device used for the purposes of this section, shall be accurate to $\pm 0.5^\circ\text{F}$ and calibrated by one of the following methods:

a. ASTM requirements (ASTM E1-07 Standard Specification for ASTM Liquid-in-Glass Thermometers);
or

b. National Institute of Standards and Technology (NIST) traceable calibration certificate; or

c. Manufacturer's recommended method of calibration.

504.3 ~~503.3~~ Emission Testing:

a. Control Capture and control efficiency of an emissions control device shall be determined according to: EPA Reference Method 25, 25A, or 25B, Title 40, CFR Part 60, Appendix A. Capture efficiency of an Emissions Control System shall be determined according to "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA. This document is incorporated by reference and is available at 2406 South 24 Street, Suite E 214, Phoenix, Arizona, or call (602) 506 6700 for information

(1) "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA.

(2) EPA Reference Method 204 - Criteria for and Verification of a Permanent or Temporary Total Enclosure, 40 CFR 51, Appendix M; or applicable Subparts 204A, 204B, 204C or 204D.

(3) EPA Reference Method 18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography, 40 CFR 60, Appendix A.

(4) EPA Reference Method 25 - Determination of Total Gaseous Nonmethane Organic Emissions as Carbon, 40 CFR 60, Appendix A; or applicable Subparts 25A, or 25B.

504.4 ~~503.4~~ Vapor Pressure: The total composite partial vapor pressure of all VOC in a cleaning solution shall be determined by ASTM D2879-92 ~~or by calculations using certified data from a laboratory or manufacturer revealing the exact formulation;~~ one of the following methods:

a. ASTM D2879-97(2007) Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isotenoscope; or

b. Calculations using certified data from a laboratory or manufacturer revealing the exact formulation; or

c. Calculating VOC composite partial vapor pressure as follows:

$$PP_c = \sum_{i=1}^n \frac{(W_i)(VP_i) / MW_i}{\frac{W_w}{MW_w} + \frac{W_c}{MW_c} + \sum_{i=1}^n \frac{W_i}{MW_i}}$$

where:

W_i = Weight of the "i"th VOC compound, in grams

W_w = Weight of water, in grams

W_c = Weight of exempt compound, in grams

MW_i = Molecular weight of the "i"th VOC compound, in g/g-mol

MW_w = Molecular weight of water, in g/g-mol

MW_c = Molecular weight of exempt compound, in g/g-mol

PP_c = VOC composite partial vapor pressure at 20°C (68°F), in mm Hg

VP_i = Vapor pressure of the “i”th VOC compound at 20°C (68°F), in mm Hg

- d.** A material safety data sheet (MSDS) or product data sheet showing the material name and VOC vapor pressure.

APPENDIX A TO RULE 337

a. Definition:

NON PRECURSOR ORGANIC COMPOUND— Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: acetone; methane; ethane; methylene chloride (dichloromethane); 1,1,1 trichloroethane; trichlorofluoromethane (CFC 11); dichlorodifluoromethane (CFC 12); chlorodifluoromethane (CFC 22); 1,1,2 trichloro 1,2,2 trifluoroethane (CFC 113); 1,2 dichlorotetrafluoroethane (CFC 114); chloropentafluoroethane (CFC 115); trifluoromethane (HFC 23); 2,2 dichloro 1,1,1 trifluoroethane (HCFC 123); 2 chloro 1,1,1,2 tetrafluoroethane (HCFC 124); 1,1 dichloro 1 fluoroethane (HCFC 141b); 1 chloro 1,1 difluoroethane (HCFC 142b); pentafluoroethane (HFC 125); 1,1,2,2 tetrafluoroethane (HFC 134); 1,1,1,2 tetrafluoroethane (HFC 134a); 1,1,1 trifluoroethane (HFC 143a); 1,1 difluoroethane (HFC 152a); parachlorobenzotrifluoride (PCBTF); perchloroethylene (tetrachloroethylene); 3,3 dichloro 1,1,1,2,2 pentafluoropropane (HCFC 225ea); 1,3 dichloro 1,1,2,2,3 pentafluoropropane (HCFC 225eb); 1,1,1,2,3,4,4,5,5,5 decafluoropentane (HFC 43-10mee); cyclic, branched, or linear completely methylated siloxanes; all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

b. Test Method for Determining the Density and Specific Gravity of a Fountain Solution:

- (1) **Procedure:** Gently invert or shake a covered container of fluid to be tested several times to assure adequate mixing. No foam should be present where hydrometers are inserted. Readings should be taken as quickly as is practicable to avoid unnecessary evaporation of VOC content. Conduct 6 successive readings with 2 different hydrometers, 3 readings apiece. Each hydrometer shall be accurate within 2 percent of full scale and conform to ASTM requirements. A thermometer, accurate to $\pm 0.5^\circ\text{F}$ and conforming to ASTM requirements, shall be used and the temperature of the fountain solution being tested shall be noted. The thermometer may be an integral part of a combined form hydrometer. The density of water at that temperature shall be obtained from a standard table such as is found in the CRC reference.
- (2) **Findings:** The quotient of the density of the fluid divided by the density of water shall be determined for each of the 6 pairs of numbers. If none of the 6 results equals or exceeds (is larger than) the applicable specific gravity limit in Table AP 1, then the percent of VOC in the tested fountain solution exceeds the limit. In other words, it is not a violation of the limit unless each of the total of six results is below the limit.

e. Equivalent Expressions of VOC Limit:

Table AP 1*

<u>VOC LIMIT (by volume)</u>	<u>Limit: Maximum pounds of VOC per gallon of fountain solution</u>	<u>Limit: Metric equivalent</u>	<u>Specific Gravity of IPA & water at VOC volume limit</u>
15%	1.1 lb/gal	130 g/liter	0.9800
10%	0.75 lb/gal	90 g/liter	0.9860
5%	0.43 lb/gal	52 g/liter	0.9920
25.5%	1.75 lb/gal	210 g/liter	0.9690
17%	1.16 lb/gal	140 g/liter	0.9790
8.5%	0.58 lb/gal	70 g/liter	0.9890

*(This table references Table 1, Section 302)

NOTICE OF FINAL RULEMAKING

MARICOPA COUNTY ORDINANCES

P-27: VEHICLE PARKING AND USE ON UNSTABILIZED VACANT LOTS

P-28: OFF-ROAD VEHICLE USE IN UNINCORPORATED AREAS OF MARICOPA COUNTY

[M11-46]

PREAMBLE

- | <u>1. Rules Affected</u> | <u>Rulemaking Action</u> |
|---|--------------------------|
| Ordinance P-27: Vehicle Parking and Use on Unstabilized Vacant Lots | Amend |
| Ordinance P-28: Off-Road Vehicle Use in Unincorporated Areas of Maricopa County | Amend |
- 2. Statutory authority for the rulemaking:**
Authorizing statutes: A.R.S. §§ 49-474.01 and 11-251
Implementing statutes: A.R.S. § 49-112
- 3. The effective date of the rule:**
Date of adoption: January 12, 2011
- 4. List of all previous notices appearing in the Register addressing the rulemaking:**
Notice of Rulemaking Docket Opening: 16 A.A.R. 1776, September 3, 2010
Notice of Proposed Rulemaking: 16 A.A.R. 1767, September 3, 2010
- 5. The name and address of department personnel with whom persons may communicate regarding the rulemaking:**
Name: Kathleen Sommer
Address: Maricopa County Air Quality Department
Planning and Analysis Division
1001 N. Central Ave., Suite 595
Phoenix, AZ 85004
Telephone: (602) 506-0169
Fax: (602) 506-6179
E-mail: aqplanning@mail.maricopa.gov

- 6. An explanation of the rule, including the department's reasons for initiating the rulemaking:**
The Maricopa County Air Quality Department (department) has revised ordinances P-27 (Vehicle Parking and Use on Unstabilized Vacant Lots) and P-28 (Off-Road Vehicle Use in Unincorporated Areas of Maricopa County).

Background: These ordinances were adopted by the Maricopa County Board of Supervisors on February 20, 2008. As authorized under Arizona Revised Statutes (A.R.S. § 49-474.01(A)(7)), Ordinance P-27 applies in the unincorporated sections of Area A within Maricopa County and restricts vehicle parking and use on unpaved property. Ordinance P-27 allows for vehicle access to properties if lawful authority is obtained from the land owner and if such use does not violate any other applicable laws. Authorized under A.R.S. § 11-251(43), Ordinance P-28 applies to all unincorporated areas within Maricopa County and applies to any person operating a vehicle on unpaved private property or unpaved public property. These ordinances fulfill the mandatory emissions curtailment elements as required by the passage of Senate Bill 1552 (2007) and commitments made in the Five Percent Plan (MAG, 2007).

Summary: The amendments to these ordinances resulted from recommendations made during meetings with the Maricopa County Justices of the Peace. The changes to Section 4 of the ordinances support graduated or tiered monetary fines for consecutive violations that can be enforced over a three-year period. The amendments impose a civil penalty and eliminate the more serious class 3 misdemeanor for parking on unstabilized vacant lots. In Ordinance P-27, the tiered fines under the civil code range from \$50 for the first violation, \$100 for a second violation and \$250 for a third and any subsequent violation within three years. Also eliminated from the Ordinance

P-27 penalty structure is the option to complete an off-highway motor vehicle safety and environmental ethics course.

The tiered fines in Ordinance P-28 replaced a class 3 misdemeanor with civil violations (fines of \$100 and \$250) for the first and second offense, respectively. The criminal class 3 misdemeanor penalty applies after the third or any subsequent offense within any three-year period. Additionally, Ordinance P-28's penalty structure allows the option of completing community restitution or an off-highway motor vehicle safety and environmental ethics course. Other amendments to these ordinances clarify several definitions, address inconsistencies within the ordinances, and clarify exemptions.

As part of the rulemaking process, the department conducted two public workshops on September 30, 2008 and February 4, 2010 to solicit stakeholder comments on these ordinances. Stakeholder responses at these workshops came from regulatory agencies, members of the public, and representatives of the 8500-member Arizona Off-Highway Vehicle Coalition. Additionally, the department conducted nine internal meetings with staff and three meetings with stakeholders. The department received numerous written comments from stakeholders regarding this rulemaking. Issues raised during this process and at the workshops are listed and described below.

Issues Raised and Discussed During This Rulemaking Process:

- Why is there a recording requirement to dedicate a road or highway?
- Do state trespass laws and state access laws enacted for the Arizona Game and Fish Department (A.R.S. §§13-1502(A)(1) and 17-304) apply to these County ordinances?
- Clarify Ordinance P-28's "safety and environmental ethics course" option.
- Do these ordinances regulate the types of recreation that private property owners can allow on their property?
- How do these fugitive dust ordinances P-27 and P-28 differ from the County fugitive dust Rules 310 and 310.01?
- Why does Ordinance P-28 apply to all unincorporated areas of Maricopa County whereas Ordinance P-27 only applies to the unincorporated areas of Area A?
- How can OHV riders determine which trails that traverse multiple properties (with different owners) are lawfully accessible?
- Why does the proposed new definition of an approved trail system allow trails to be either "designated or managed or opened"?
- Why are the penalty fees for creating fugitive dust on commercial sites so many magnitudes higher than the penalty fees for public OHV riders creating fugitive dust?

Why is there a recording requirement to dedicate a road or highway?

During discussions of the first (2008) ordinance revisions, stakeholders objected to the definition of "road or highway" definition in which a recording requirement is specified to establish a private road, highway or managed trail. The objection to this requirement was first addressed when the ordinances were originally adopted in February, 2008. The response to this question is that the definition of a road or highway in Ordinance P-28 is consistent with state statute (A.R.S. § 28-1171), and the Maricopa County Zoning and Building Code definition of private road. After reviewing the Arizona Revised Statutes, the Code of Federal Regulations, and the Maricopa County Zoning Ordinance, and consulting with the concerned public and trust land managers, it was concluded that Ordinance P-28 cannot serve its purpose to reduce unrestricted cross-country vehicle travel unless appropriate routes can be identified with a recorded document.

Do state trespass laws and state access laws enacted for the Arizona Game and Fish Department (A.R.S. §§ 13-1502(A)(1) and 17-304) apply to these County ordinances??

A.R.S. § 13-1502(A)(1) (Criminal trespass in the third degree) applies to all criminal trespass where someone knowingly enters or remains unlawfully on any real property. In contrast, these ordinances do not address "access" to properties and only restrict where a person can operate or drive a vehicle. The ordinances do not address access by other means, such as walking. These ordinances describe that vehicle operators are responsible to understand where they are allowed to operate their vehicles just as hunters and anglers are responsible for knowing which lands are open to recreational activity.

A.R.S. § 17-304 (Prohibition by Landowner upon hunting; posting) establishes policies and programs managed by the Arizona Game and Fish Department. Specifically, A.R.S. § 17-304 provides landowners who desire to prohibit hunting, fishing or trapping on their lands, the authority to post such lands closed to hunting, fishing, or trapping using notices or signboards. These ordinances do not supersede this authority of the landowners on their own

property. Ordinance P-28 restricts cross-country vehicle travel by identifying appropriate routes, and does not address recreational activities such as hunting, fishing, or trapping.

Clarify Ordinance P-28's "safety and environmental ethics course" option.

Senate Bill 1167 (2008) defined the content of the off-highway vehicle safety course, which is now described in A.R.S. § 28-1175. Under this statute, the Arizona Game and Fish Department conducts or approves this educational course of instruction in off-highway vehicle safety and environmental ethics. The course includes instruction on off-highway vehicle use that limits air pollution and harm to natural terrain, vegetation and animals. Successful completion of the course requires passing a written examination.

Do these ordinances regulate the types of recreation that private property owners can allow on their property?

Private property access, use, exclusion, and management are controlled by the private property owner and County ordinances do not supersede the private property owner's rights. Also, County regulations do not specify or address types of recreation allowed on private properties. A property owner can allow any or all types of recreation on their properties, such as hunting, fishing, and trapping, as long as they do not violate any other applicable laws or rules, such as Maricopa County Rule 310.01. Irrespective of what property owners choose to do on their land, they are still responsible for maintaining and stabilizing their properties under Maricopa County Rule 310.01.

How do these fugitive dust ordinances P-27 and P-28 differ from the County fugitive dust Rules 310 and 310.01?

Ordinances P-27 and P-28 reduce unrestricted vehicle access on unstabilized properties and do not supersede or overlap the Maricopa County fugitive dust rules (Rules 310 and 310.01). The difference between the ordinances and the Maricopa County fugitive dust rules (Rules 310 and 310.01) is that the ordinances apply to vehicle owners operating on unpaved property, while the rules apply to the property owner(s). Together the ordinances and the Maricopa County fugitive dust rules fulfill mandatory emissions curtailment elements as required by Senate Bill 1552 (2007), and commitments made in the Five Percent Plan for PM₁₀.

Why does Ordinance P-28 apply to all unincorporated areas of Maricopa County whereas Ordinance P-27 only applies to the unincorporated areas of Area A?

The two ordinances apply to different jurisdictions due to different statutory authorities. Ordinance P-28 is authorized by Title 11 of the Arizona Revised Statutes, which applies to all of Maricopa County. Ordinance P-27 is authorized by Senate Bill 1552 (2007), under Title 49 of the Arizona Revised Statutes, requiring the adoption of an ordinance for Area A within Maricopa County. Ordinance P-28's purpose is to reduce unrestricted cross-country vehicle travel in unincorporated areas of Maricopa County, while Ordinance P-27 is designed to reduce vehicle parking and use in Area A of Maricopa County.

How can OHV riders determine which trails that traverse multiple properties (with different owners) are lawfully accessible?

Stakeholders commented that Arizona is a patchwork quilt of jurisdictions, so it is very difficult for OHV riders recreating across multiple properties to determine where they are lawfully allowed to ride. To help resolve the confusion of identifying approved trails, the County made the following ordinance revisions. The private property owners can make agreements with the land management agencies to manage the trails on their properties. The land management agencies can identify trails and properties that are open for OHV riders by posting signs, creating maps, or posting virtually. OHV riders will be able to rely on the land management agencies to identify trails, rather than being burdened to approach individual property owners. The land management agencies will also take responsibility for stabilizing and maintaining routes and trails on the private properties for which there is an agreement established.

Why does the proposed new definition of an approved trail system allow trails to be either "designated or managed or opened"?

Restricting vehicles activities to approved trails limits cross-country, off-trail, vehicle activity and helps reduce fugitive dust. The amendments to the definition of "designated or open trail system" allow vehicle routes and trails to be approved without going through the extensive and timely designation process. This process allows a route that is not officially "designated" to be approved for use by land management agencies as either "managed" or "opened". This is consistent with A.R.S. § 28-1171.8, which defines "off-highway vehicle trail" as including a choice of

designated or managed routes. Allowing additional methods of trail approval helps create more trails for OHV use and discourages the vehicle, off-trail activities.

Why are the penalty fees for creating fugitive dust on commercial sites so many magnitudes higher than the penalty fees for public OHV riders creating fugitive dust?

The legislature has established appropriate penalties for different entities, and the penalty structure in the County ordinances and rules follows this statutory authority.

Description of Amendments:

Ordinance P-27: Vehicle Parking and Use on Unstabilized Vacant Lots:

- Section 2: Revised and clarified the definitions “Designated, Managed or Opened Trail System”, “Road or Highway”, and added a definition of “Enforcement Officer”.
- Section 4: Revised this section to institute a new tiered penalty structure and deleted the alternative to the monetary fine of community restitution time or completing a safety/environmental course.

Ordinance P-28: Off-Road Vehicle Use in Unincorporated Areas of Maricopa County:

- Section 2: Revised and clarified the definitions “Designated, Managed, or Opened Trail System”, “Road or Highway”, and added a definition of “Enforcement Officer”.
- Section 3: Added a new paragraph clarifying where the restrictions apply and reorganized this section by eliminating the redundancy in the explanations of obtaining lawful authority and consent of the lawful owner.
- Section 3(D): Renamed and clarified the definition of “Proof of Lawful Authority or Consent”.
- Section 4: Revised this section to institute a new tiered penalty structure and clarified the alternatives to the penalty.
- Section 5: Clarified to whom the existing exemptions apply and added an exemption for commercial farming practices.

In addition, the amendments corrected typographical or other clerical errors; made minor grammatical changes to improve readability or clarity; modified the format, numbering, order, capitalization, punctuation, or syntax of certain text to increase standardization; or made various other minor changes of a purely editorial nature.

7. Demonstration of compliance with A.R.S. § 49-112:

Under A.R.S. § 49-479(C), a county may not adopt a rule or ordinance that is more stringent than the rules adopted by the Director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the requirements of A.R.S. § 49-112(A).

Compliance with A.R.S. § 49-112(A):

When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:

1. The rule, ordinance or other regulation is necessary to address a peculiar local condition;
2. There is credible evidence that the rule, ordinance or other regulation is either:
 - (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible, or
 - (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance or other regulation is equivalent to federal statutes or regulations.
3. Any fee or tax adopted under the rule, ordinance or other regulation will not exceed the reasonable costs of the county to issue and administer that permit or plan approval program.

Ordinances P-27 and P-28 were first passed in February, 2008 after they were mandated under Senate Bill 1552 (2007) and A.R.S. § 11-251(43) in response to the U.S. Environmental Protection Agency (EPA) designation of the Phoenix area as serious non-attainment area for particulate matter at 10 microns. This designation requires, under the Clean Air Act Section 189, an annual reduction in PM₁₀ or PM₁₀ precursor emissions of not less than 5 percent each year (Five Percent Plan) in the Phoenix area. The Phoenix area was designated as serious non-attainment for PM₁₀ after failing to attain the PM₁₀ standard by the federal deadline of December 31, 2006 (72 FR 31183, June 6, 2007).

The amendments to these ordinances are administrative changes and do not change the substance of these ordinances. These adopted revisions support a more flexible, graduated or tiered system of monetary fines for

consecutive ordinance violations. Imposing a graduated fine structure encourages public awareness of the importance of these regulations and the potential severity of violating them. Imposing a civil penalty for initial violations of Ordinance P-28 allows a public education process or warning before the third offense becomes a more severe criminal violation. Because these revisions are administrative and do not impact the original ordinance purpose to reduce PM₁₀ emissions under the original mandates, this demonstrates these ordinance revisions continue to be necessary to address this peculiar local condition and qualifies under A.R.S. § 49-112(A).

Compliance with A.R.S. § 49-112(B):

The A.R.S. § 49-112(B) demonstration does not apply, because these particular ordinances are in the portion of the department's air quality program that is administered under direct statutory authority. Therefore, these ordinances were not proposed for adoption or revision in lieu of a state program.

8. Reference to any study relevant to the rule that the department reviewed and either proposes to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

MAG, 2007. MAG Five Percent Plan for PM₁₀ for the Maricopa County Nonattainment Area. Prepared by the Maricopa Association of Governments. December 2007.

9. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

10. The summary of the economic, small business, and consumer impact:

Summary: Ordinance P-27 restricts vehicle parking and use on vacant lots within Area A in Maricopa County. Ordinance P-28 prevents unrestricted vehicle access on properties in Maricopa County. These ordinances regulate the reduction of emissions of PM₁₀ as required for the annual Five Percent Nonattainment Plan for PM₁₀ required by EPA as well that required by Arizona Revised Statutes. These ordinance revisions are administrative (imposing a graduated system of monetary fines for repeated violations), and do not impose additional costs to implement, do not affect small business, and have negligible economic consequences for the community. This tiered penalty structure does not affect the economic impacts previously described in the Ordinances' original version's Notice of Final Rulemaking (14 A.A.R. § 1148, April 11, 2008), such as the physical health and welfare effects, particulate matter emissions, or additional costs for the department to enforce compliance of these ordinances.

Conclusion of summary of economic, small business, and consumer impact: The graduated monetary fines do not change the substance of these ordinances and imposing the graduated fine structure should benefit the public. The tiered fine structure helps bring about an awareness of the importance of these regulations and the potential severity of violating them. The penalty consequence of the first and second violations of Ordinance P-28 are civil violations, and provide education to the public that these regulations are in place before receiving a third offense, which can become a more severe criminal violation.

Because these revisions are administrative changes, they do not impact the original ordinance purpose to reduce PM₁₀ emissions. The ordinances will continue to fulfill the mandatory emissions curtailment elements as required by the passage of Senate Bill 1552 (2007) and commitments made in the Five Percent Plan to reduce PM₁₀ emissions in the Phoenix nonattainment area as required by the Federal Clean Air Act.

11. Name and address of department personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: Kathleen Sommer
Address: Maricopa County Air Quality Department
Planning and Analysis Division
1001 N. Central Ave., Suite 595
Phoenix, AZ 85004
Telephone: (602) 506-0169
Fax: (602) 506-6179
E-mail: aqplanning@mail.maricopa.gov

12. Description of the changes between the proposed rule, including supplemental notices and final rule:

Since the final drafts of Ordinances P-27 and P-28 were published in the Notice of Proposed Rulemaking on September 3, 2010, and in response to formal comments received during the formal comment period September-

October, 2010, the following changes to Ordinances P-27 and P-28 were adopted by the Maricopa County Board of Supervisors on January 12, 2011. These amendments to the ordinances appear in the text of the final ordinances published in this Notice of Final Rulemaking. The adopted amendments include the following:

Ordinance P-27:

Section 2, Definitions: In the introduction to Section 2, retained the original text and deleted text, which had been proposed to be added: "...in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this ordinance take precedence."

Section 2(B): Re-inserted the phrase "approved by such agency" at the end of the definition.

Ordinance P-28:

Section 2, Definitions: In the introduction to Section 2, retained the original text and deleted text, which was proposed to be added: "...in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this ordinance take precedence."

Section 2(A): Re-inserted the phrase "approved by such agency" at the end of the definition.

13. A summary of the comments made regarding the rule and the department response to them:

The department conducted two public workshops throughout the rulemaking process for Ordinances P-27 and P-28 and received formal comments during the comment period (September 3, 2010 through October 4, 2010) from the Arizona Game and Fish Department, Arizona State Land Department, and the Arizona Off-Highway Vehicle Coalition. The formal comments and the department's responses to comments are provided below:

Comment #1:

Comments received indicated that the ordinance revisions were approved by both regulators and the regulated community and that these revisions have addressed and satisfied the many concerns that they had about the County off-road vehicle regulations.

Response #1:

The department appreciates the cooperation of regulators in the land management community who partnered and participated with Maricopa County in the ordinance development process. The department will continue to rely on the support of the regulatory agencies and the regulated community to help develop these air quality ordinances.

Comment #2:

Comments received indicated a concern with the change in the definition in Ordinance P-28, Section 2(A) "Designated, Managed or Opened Trail System", where trails "opened to public motor vehicle travel by a government land management agency, by rule...." could require additional formal rulemaking within their agency to accommodate the requirement.

Response #2:

The purpose of the addition of multiple options for land management agencies to open trails to public motor vehicle travel was to encourage the creation of more trails for OHV use, which should help discourage the vehicle, off-trail activities. The definition of a "Designated, Managed or Opened Trail System" adds alternative methods of trail approval by which a trail can be created via means other than the lengthy trail designation process. If a formal rulemaking process is too cumbersome for an agency to use, then regulators may open or approve trails by other alternatives (such as an order, sign or map) as long as the process designates the approving agency as the responsible party willing to maintain and manage the trail.

Comment #3:

Comments received expressed concern about the removal of the phrase "approved by such agency" as it applies to OHV trail maps, in the proposed definition, Ordinance P-28, Section 2(A) "Designated, Managed or Opened Trail System".

Response #3:

The department re-inserted the phrase “approved by such agency” at the end of the definition of “Designated, Managed or Opened Trail System”. Only the land management agency, with authority over a property, can open a trail on a property.

14. Any other matters prescribed by statute that are applicable to the specific department or to any specific rule or class of rules:

A.R.S. § 13-1502(A)(1) - Criminal trespass in the third degree.

A.R.S. § 17-304 – Prohibition by landowner upon hunting; posting.

A.R.S. § 28-1171 – Definition of a road or highway.

15. Incorporations by reference and their location in the rule:

Not applicable

16. Was this rule previously an emergency rule?

No

17. The full text of the rule follows:

MARICOPA COUNTY ORDINANCE

P-27

VEHICLE PARKING AND USE ON UNSTABILIZED VACANT LOTS

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- A. VIOLATIONS
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**Adopted 02/20/08
Revised 01/12/11**

MARICOPA COUNTY ORDINANCE

P-27

VEHICLE PARKING AND USE ON UNSTABILIZED VACANT LOTS

SECTION 1 – GENERAL

- A. **PURPOSE:** This ordinance ~~restricts all~~ limits particulate matter (PM₁₀) emissions into the ambient air from unrestricted vehicle parking and use on unstabilized vacant lots.
- B. **APPLICABILITY:** This ordinance applies to vehicle parking and use in the unincorporated sections of Area A that are within Maricopa County.

SECTION 2 – DEFINITIONS: For the purpose of this ordinance, the following definitions shall apply:

- A. AREA A** – The part of the greater Phoenix metropolitan area where specific pollution control programs are in place for ozone, carbon monoxide, and particulate matter. As defined in Arizona Revised Statutes (A.R.S. § 49-541(1)), the area in Maricopa County delineated as follows:
Township 8 North, Range 2 East and Range 3 East
Township 7 North, Range 2 West through Range 5 East
Township 6 North, Range 5 West through Range 6 East
Township 5 North, Range 5 West through Range 7 East
Township 4 North, Range 5 West through Range 8 East
Township 3 North, Range 5 West through Range 8 East
Township 2 North, Range 5 West through Range 8 East
Township 1 North, Range 5 West through Range 7 East
Township 1 South, Range 5 West through Range 7 East
Township 2 South, Range 5 West through Range 7 East
Township 3 South, Range 5 West through Range 1 East
Township 4 South, Range 5 West through Range 1 East
- B. DESIGNATED, MANAGED OR OPENED TRAIL SYSTEM** – Roads, highways, multiple use corridors, trails or routes that are part of a system of trails and routes that are designated, managed or opened to public motor vehicle travel by a government land management agency by rule, order, travel management plan, sign, and/or map approved by such agency.
- C. ENFORCEMENT OFFICER** – A person who enforces rules, ordinances, codes or regulations including, but not limited to, Maricopa County Air Quality Department Inspectors, Building and Zoning Code Enforcement, Certified Peace Officers including, but not limited to, Maricopa County Sheriff Deputies.
- ~~C.D.~~ **ROAD OR HIGHWAY** – The entire width between the boundary lines of every way publicly maintained by the federal government, a city, state agency, a town, or a county if any part of the way is generally open to the use of the public for purposes of vehicular travel. For purposes of this ordinance, the term “road or highway” also includes designated, managed or opened trail systems; service roads regardless of surface composition; and any ~~other~~ private property dedicated or otherwise reserved for public or private street uses, as evidenced by a recorded document providing vehicular access to more than one property, or having thereon a public easement for such use.
- ~~D.E.~~ **VACANT LOTS** – Any of the following described in Section ~~2(D)(1)~~ 2(E)(1) through Section ~~2(D)(4)~~ 2(E)(4) of this ordinance:
1. An unsubdivided or undeveloped tract of land.
2. A subdivided residential, industrial, institutional, governmental, or commercial lot that contains no approved or permitted buildings, structures, or uses of a temporary or permanent nature.
3. A partially developed residential, industrial, institutional, governmental, or commercial lot.
4. For the purposes of this ordinance, a vacant lot is not a road or highway.
- ~~E.F.~~ **VEHICLE** – A self-propelled device and its appurtenances, excluding devices moved by human power or used exclusively on stationary rails or tracks.

SECTION 3 – REQUIREMENTS

- A. RESTRICTED VEHICLE PARKING AND USE:** A person shall not park or use a vehicle on an unstabilized vacant lot within the unincorporated sections of Area A in Maricopa County.

SECTION 4 - VIOLATIONS, NOTICES, AND PENALTIES: ~~AND NOTICES~~

- A. VIOLATIONS:** A person who violates this ordinance is guilty of a class 3 misdemeanor subject to a civil penalty of \$50. A second violation of this ordinance within three years is subject to a civil penalty of \$100 and a third or any subsequent violation within a three-year period is subject to a civil penalty of \$250.
- B.** ~~In addition to or in lieu of a fine pursuant to this section, a judge may order the person to perform at least eight but not more than twenty-four hours of a community restitution course related to the off-highway operation of motor vehicles.~~
- ~~C.B.~~ **NOTICES:** For violations of this ordinance, the Enforcement Officer shall use a uniform traffic ticket and complaint prescribed by the rules of procedure in civil traffic cases adopted by the Supreme Court. The Enforcement Officer may issue a citation to persons in violation of this ordinance.

SECTION 5 – EXEMPTIONS

- A.** The property owner, person entitled to immediate possession of the property, or invitee who has lawful authority permission from the land owner may operate such vehicles if such use does not violate any other applicable laws.

- B. Any site that has been issued a permit by the Control Officer for the control of fugitive dust from dust generating operations.

MARICOPA COUNTY ORDINANCE

P-28

OFF-ROAD VEHICLE USE IN UNINCORPORATED AREAS OF MARICOPA COUNTY

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- A. UNPAVED PUBLIC PROPERTY
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D. PROOF OF LAWFUL AUTHORITY OR CONSENT

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- A. PENALTIES
B. ALTERNATIVE PENALTY
C. NOTICES

SECTION 5 – ~~EXEMPTION~~ EXEMPTIONS

Adopted 02/20/08

Revised 01/12/11

MARICOPA COUNTY ORDINANCE

P-28

OFF-ROAD VEHICLE USE IN UNINCORPORATED AREAS OF MARICOPA COUNTY

SECTION 1 – GENERAL

- A. **PURPOSE:** This ordinance ~~restricts the~~ limits particulate matter (PM₁₀) emissions into the ambient air from unrestricted operation of any vehicle on unpaved property.
B. **APPLICABILITY:** This ordinance applies to the operation of any vehicle in unincorporated ~~sections~~ areas within Maricopa County.

SECTION 2 – DEFINITIONS: For the purpose of this ordinance, the following definitions shall apply:

- A. **DESIGNATED, MANAGED OR OPENED TRAIL SYSTEM** – Roads, highways, multiple-use corridors, trails or routes that are part of a system of trails and routes that are designated, managed or opened to public motor vehicle travel by a government land management agency by rule, order, travel management plan, sign, and/or map approved by such agency.
B. **ENFORCEMENT OFFICER** - A person who enforces rules, ordinances, codes, or regulations including, but not limited to, Maricopa County Air Quality Department Inspectors, Building and Zoning Code enforcement, Certified Peace Officers including, but not limited to, Maricopa County Sheriff Deputies.
B-C. **ROAD OR HIGHWAY** – The entire width between the boundary lines of every way publicly maintained by the federal government, a city, state agency, a town, or a county if any part of the way is generally open to the use of the public for purposes of vehicular travel. For purposes of this ordinance, the term “road or highway” also includes designated, managed or opened trail systems; service roads regardless of surface composition; and any ~~other~~ private

property dedicated or otherwise reserved for public or private street uses, as evidenced by a recorded document providing vehicular access to more than one property or having thereon a public easement for such use.

- C-D.** **VEHICLE**— A self-propelled device and its appurtenances, excluding devices moved by human power or used exclusively on stationary rails or tracks.

SECTION 3 – RESTRICTIONS: Vehicles operating on either unpaved public or private properties in the unincorporated areas of Maricopa County shall remain on roads or highways. A person operating a vehicle on portions of these properties other than roads or highways shall comply with the following:

- A.** **UNPAVED PUBLIC PROPERTY:** A person ~~shall not access~~ operating a vehicle on unpaved public property ~~with any vehicle within the unincorporated areas of Maricopa County without~~ shall obtain lawful authority. Lawful authority ~~shall consist~~ consists of one of the following: rules, regulations, or orders of a federal agency, this state, a county, or municipality. ~~which~~ Determination of lawful authority shall be made available ~~to the public~~ by any one of the following: options listed in Section 3(C) of this ordinance.
1. ~~A sign to designate the property is/as open. Such sign shall be in compliance with the standard travel management signing protocol used by southwest land management agencies and~~ and shall at a minimum, be conspicuously placed at all points of vehicular access and contain the following information: “Travel must remain on designated routes.” Copies of the standard travel management signing protocol are available for review at the Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, AZ, 85004.
 2. ~~Through orders of a government land management agency.~~
 3. ~~Through most current maps approved by such government land management agency.~~
 4. ~~Virtual posting from a government land management agency.~~
- B.** **UNPAVED PRIVATE PROPERTY:** A person ~~shall not operate~~ operating a vehicle on unpaved private property ~~within the unincorporated areas of Maricopa County without~~ shall obtain the consent of the lawful property owner. Consent of the lawful owner ~~consists of either or both of the following:~~ can be obtained by any one of the options listed in Section 3(C) of this ordinance.
1. ~~A sign to designate the property is/as open. Such sign shall be in compliance with the standard travel management signing protocol used by southwest land management agencies and shall at a minimum, be conspicuously placed at all points of vehicular access and contain the following information: “Travel must remain on designated routes.” Copies of the standard travel management signing protocol are available for review at the Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, AZ, 85004.~~
 2. ~~Prior written permission which contains the following:~~
- C.** **DETERMINATION OF LAWFUL AUTHORITY OR CONSENT OF THE LAWFUL OWNER:** Determination of lawful authority or consent of the lawful owner shall be made available by any one of the options listed below:
1. A sign to designate the property is/as open. Such signs shall be in compliance with the standard travel management signing protocol used by each land managing agency which specifies the open roads and highways. The signs at a minimum shall be conspicuously placed at all points of vehicular access.
 2. Posting, publishing, or filing a rule, regulation, travel management plan, or order at the locations identified at the government agency’s office, or on its website.
 3. Current maps published and approved by a government land management agency.
 4. Virtual postings from a government land management agency.
 5. Prior written recreational access agreement originating from the lawful owner granting vehicular access which shall contain the following:
 - (a) The name, address, and telephone number of the person or organization granting permission for the use of the property;
 - (b) A description of the interest the person or organization granting permission has in the property (i.e., property owner, lessee, or agent);
 - (c) If the person or organization granting permission is not the owner of the property, the written permission shall also contain the name, address, and telephone number of the property owner;
 - (d) Specify the period of time for which permission for the use of the property is being granted and whether access is approved for any or a combination of OHV recreation, hunting, fishing, and/or trapping; and
 - (e) The signature of the person or organization representative granting permission for the use of the property.
 6. Written permission of consent originating from the lawful owner granting vehicular access, which shall contain the following:
 - (a) The name, address, and telephone number of the person granting permission for the use of the property;
 - (b) A description of the interest the person granting permission has in the property (i.e., property owner, lessee, or agent);

(c) If the person granting permission is not the owner of the property, the written permission shall also contain the name, address, and telephone number of the property owner;

(d) Specify the period of time for which permission for the use of the property is being granted; and

(e) The signature of the person or organization representative granting permission for the use of the property.

~~C-D.~~ **PROOF OF LAWFUL AUTHORITY OR CONSENT:** Whenever any person is stopped by an Enforcement Officer for a violation of Section 3 of this ordinance, ~~he/she~~ such person shall, upon the request of the Enforcement Officer, identify or present ~~the lawful authority~~ proof of lawful authority or lawful owner consent as required in this section 3(C) of this ordinance.

SECTION 4 – ~~VIOLATIONS, NOTICES, AND PENALTIES~~ AND NOTICES: Violations of this ordinance shall be punishable by civil or criminal penalties. The issuance of any lawful authority, consent of the lawful owner, or written permission, as allowed by this ordinance, shall not relieve any person subject to the requirements of this ordinance from complying with any federal laws, Arizona laws, or the Maricopa County Air Pollution Control Regulations.

A. ~~A person who violates this ordinance is guilty of a class 3 misdemeanor.~~ **PENALTIES:** A person who violates this ordinance shall be subject to the following penalties:

1. For the first offense, a civil penalty of \$100.

2. For the second offense within a three-year period, a civil penalty of \$250.

3. For the third or any subsequent offense within a three-year period, a class 3 misdemeanor.

B. **ALTERNATIVE PENALTY:** In addition to or in lieu of a fine pursuant to this section under Section 4 of this ordinance, a judge may order the person to perform at least eight but not more than twenty-four hours of a community restitution course or complete a safety and environmental ethics course according to A.R.S. § 28-1175 related to the off-highway operation of motor vehicles, or both.

C. **NOTICES:** For violations of this ordinance, the Enforcement Officer shall use a uniform traffic ticket and complaint prescribed by the rules of procedure in civil traffic cases adopted by the Supreme Court. The Enforcement Officer may issue a citation to persons in violation of this ordinance.

SECTION 5 – ~~EXEMPTION:~~ EXEMPTIONS:

A. This ordinance shall not apply during a period of emergency or if the operation is directed by a peace officer or other public authority.

B. ~~The~~ This ordinance shall not apply to the property owner, or person entitled to immediate possession of the property, or invitee who has lawful authority may operate such vehicles on the property if such use provided such property owner or person does not violate any other applicable laws.

~~C.~~ For the purposes of this ordinance, unpaved public or unpaved private property does not include roads or highways.

~~D-C.~~ This ordinance shall not apply to operations directed by utilities for operation, distribution, and transmission systems and operations directed by railroad companies for operation and maintenance provided that both of the following conditions are met:

1. Operations are performed in a ~~not~~ or using a marked company vehicle; and

2. If operations are performed in a ~~not~~ or using a personal vehicle, then identification of the company shall be visible and readable by the public without having to be asked by the public (e.g., included ~~in~~ / posted ~~in~~ on a sign that is visible on the vehicle or ~~included~~ / posted in a sign that is visible in the window of the vehicle).

D. This ordinance shall not apply to commercial farming practices including activities of a dairy, a beef cattle feed lot, a poultry facility and a swine facility.