

Notices of Final Rulemaking

NOTICE OF FINAL RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR POLLUTION CONTROL

[R06-149]

PREAMBLE

1. Sections Affected

R18-2-101
R18-2-302
R18-2-304
R18-2-306.01
R18-2-317
R18-2-330
R18-2-331
R18-2-406
R18-2-507
Article 17
R18-2-1701
R18-2-1702
R18-2-1703
R18-2-1704
R18-2-1705
R18-2-1706
R18-2-1707
R18-2-1708
R18-2-1709
Appendix 1
Appendix 12

Rulemaking Action

Amend
Amend
Amend
Amend
Amend
Amend
Amend
Amend
Amend
New Article
New Section
New Section
New Section
New Section
New Section
New Section
New Section
New Section
New Section
Amend
New Appendix

2. The statutory authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing Statutes: A.R.S. §§ 49-104(A)(1) and(A)(10), 49-425

Implementing Statutes: A.R.S. §§ 49-426, 49-426.01, 49-426.04, 49-426.05, 49-426.06, 49-426.08

3. The effective date of the rules:

January 1, 2007

4. A list of all previous notices appearing in the Register addressing the final rule:

Notice of Rulemaking Docket Opening: 11 A.A.R. 3976, October 14, 2005

Notice of Rulemaking Docket Opening: 11 A.A.R. 5129, December 2, 2005

Notice of Proposed Rulemaking: 11 A.A.R. 5038, December 2, 2005

5. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

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6. An explanation of the rule, including the agency's reason for initiating the rule:

Summary. These rules create an Arizona program for the regulation of listed hazardous air pollutants (HAPs), as required by statute, under Article 17 of Chapter 2 of Title 18 of the *Arizona Administrative Code*. In addition, the rulemaking amends some existing rules to reflect the requirements of the new program, and improve regulatory uniformity among related rules in other Articles of Chapter 2. Also, these amendments make other necessary technical changes, including improvements of the rules' clarity, conciseness, and understandability.

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

Statutory Framework. Arizona Revised Statutes §§ 49-426.04 through 49-426.06 authorize a program for the control of state hazardous air pollutants using a risk reduction approach, modeled on Section 112(g) of the Clean Air Act, after the publication of a scientific report on HAPs in Arizona, required by A.R.S. § 49-426.08. This program is similar to New Source Review, in that it applies only to new or modified sources of HAPs; existing sources are only brought into the program when they effect a qualifying modification. The program provides for the imposition of control technology on a case-by-case basis by creating a presumption that a source, subject to the program, which emits a listed HAP, shall be required to impose either Hazardous Air Pollutant Reasonably Available Control Technology (HAPRACT) for minor sources, or Arizona Maximum Achievable Control Technology (AZMACT) for major sources. This presumption may be rebutted if the source conducts a risk management analysis (RMA), demonstrating that the imposition of control technology is not necessary in that particular case to avoid adverse effects to human health or the environment.

Under A.R.S. § 49-426.04, the federal list of hazardous air pollutants, Section 112(b) of the Clean Air Act, is automatically included in the state list of HAPs. While § 49-426.04 includes criteria for listing HAPs not already included in the federal list, ADEQ is not listing any additional HAPs at this time.

Arizona Revised Statutes § 49-426.06 specifies those sources which are subject to the program. All major sources that emit, or have the potential to emit, either 10 tons per year (tpy) of a single listed HAP, or 25 tpy of any combination of listed HAPs are subject to the program. Minor sources, or sources that emit or have the potential to emit, either 1 tpy of any single listed HAP, or 2.5 tpy of any combination of HAPs shall be subject to the program if they belong to a source category designated by the Director under A.R.S. § 49-426.05. A category may be so designated if the Director finds that HAP emissions from sources in that category individually or in the aggregate result in, or significantly contribute to, adverse effects to human health or adverse environmental effects.

Under A.R.S. § 49-426.06, all newly constructed major sources, or new minor sources belonging to a designated category, are subject to the HAPs program; modifications as defined in A.R.S. 49-401.01, that increase the emissions of a HAP by more than a de minimis amount, are also subject to the program. According to the statute, the owner or operator of an affected source has to obtain a new permit or a significant permit revision that would include either a proposal for HAPRACT or AZMACT, or an RMA. Minor sources of HAPs, on a case-by-case basis, must submit as part of their permit application a proposal for HAPRACT, which the Department would then review. Major sources of HAPs must submit a similar proposal for AZMACT. Any affected source also has the option of conducting a scientifically sound risk management analysis as part of their permit application to show that the imposition of control technology, in their case, is unnecessary to avoid adverse effects to human health or the environment.

Background. The statutes implementing the Arizona State HAPs program were originally effective in 1993. At that time, the Department attempted a rulemaking to fulfill the intent of the legislature. The rulemaking was controversial; primarily, stakeholders were resistant to the idea of adding HAPs other than those on the federal list to the state program. The various parties reached no consensus on this issue and, ultimately, the Governor's Regulatory Review Council did not approve that program. In 1995, the statutorily required report, *Arizona Hazardous Air Pollutant Research Program, Final Report* (ENSR Consulting and Engineering, August 1995) was published. Originally, A.R.S. § 49-426.06 contained a deadline for the completion and implementation of the state HAPs program, but that deadline was removed from the statute by amendment in 1996.

In October of 2004, ADEQ opened the docket on this rulemaking in order to address concerns about the lack of regulation governing pollutants not covered under Section 112 of the federal Clean Air Act. The goal of this process has been to work with stakeholders regarding a rule requiring new and modified sources to install appropriate control technology for HAPs. This rule will replace the Arizona Ambient Air Quality Guidelines (AAAQG).

In April 2005, ADEQ retained the services of Weston Solutions, Inc. to assist in the development of a new Arizona State HAPs program. Specific tasks with which Weston was charged included the development of acute and chronic health-based ambient air concentrations for listed HAPs, the identification of affected source categories, and the development of de minimis values for listed HAPs. The results of Weston's work, as well as their methodology in arriving at these results, were the focus of an intensive and extensive stakeholder process initiated by ADEQ in June 2005.

Health-based ambient air concentrations. One of Weston's primary tasks was the development of ambient air concentrations for the 73 HAPs emitted by Arizona industries, as reported by those industries to ADEQ or EPA in their emission or toxic release inventories, based on the potential for adverse health effects. Ambient air concentrations (AACs), therefore, are those concentrations of HAPs above which it is predicted that adverse effects to human health would occur. Weston developed AACs for both short-term, acute effects, and long-term, chronic effects.

Acute ambient air concentrations (AAACs) were based on the potential for short-term, acute health effects, or those effects that result in, or significantly contribute to, an increase in mortality or serious irreversible or incapacitating illness. (See, *Arizona DEQ – Development of Acute Health-Based Ambient Air Criteria* (Weston Solutions, Inc., June 2005)). The approach used to develop health-based AAACs was based on a hierarchy of applicable health-based criteria, organized into tiers. Weston gave preference to EPA's Office of Prevention, Pesticides, and Toxic Substances (OPPTS) Acute Exposure Guideline Levels (AEGLs), Tier 1. The AEGLs are peer-reviewed and nationally recognized levels, developed by the National Advisory Committee for Acute Exposure Guideline Levels for federal, state and local agencies concerned with emergency planning and response. AEGLs represent the concentration of a HAP

above which it is predicted that the general population, including susceptible subpopulations, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape. If an AEGL value was available, it was preferentially used.

The American Industrial Hygiene Association (AIHA), a nonprofit professional organization, to assist emergency response personnel in planning for catastrophic, accidental chemical release, developed the second tier values, Emergency Response Planning Guidelines (ERPGs). These values represent the concentration below which it is assumed that nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action. ERPG-2 values were used for compounds that did not have an AEGL.

The Department of Energy developed the third tier, the Temporary Emergency Exposure Limits (TEELs), based on a hierarchy of occupational health standards. These values represent the maximum concentration below which it is believed nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action. TEELs were used in cases where AEGLs and ERPGs were not available.

In cases where there were no acute ambient air criteria available, Weston developed a fourth tier process. These cases usually arose where a listed compound was actually a group of compounds, such as glycol ethers. In these cases, Weston selected the compound in the group with the most stringent toxicological criterion for development of the AAAC for that group.

Weston Solutions used a similar tiered approach in their development of health-based chronic ambient air concentrations (CAACs). (See, *Arizona DEQ – Development of Chronic Ambient Air Concentrations (Long-Term)* (Weston Solutions, Inc., April 2005)). Health-based CAACs were developed for individuals to establish exposure levels to protect against serious chronic health-effects. National, peer-reviewed EPA toxicity criteria, namely Reference Concentrations (RfCs) and Air Unit Risk Factors (URFs), as presented in the Integrated Risk Information System (IRIS) were given preference as Tier 1. These values were used after being adjusted for an exposure duration of 350 days, rather than 365 days, per year for 30 years. Where both an RfC and URF were available, Weston selected the more stringent of the two values. Additionally, the criteria used in the other tiers were compared to Tier 1 values to see if they were in agreement with RfCs and URFs. In those situations where there was no reasonable agreement with the other criteria, further evaluation was undertaken to understand why this was the case. If one of the other criteria was based on a more recent or relevant study, Weston substituted that criterion for the RfCs or URF.

Weston moved to the second tier when RfCs and URFs were not available in IRIS. Tier 2 values were based on two regional EPA sources, EPA Region 9 (including Arizona) Preliminary Remediation Goals (PRGs), and EPA Region 3 Risk-Based Concentrations (RBCs). Like Tier 1, these values were based on individual exposure to ambient air concentrations for 350 days a year, for 30 years. EPA Region 9 PRGs were selected over RBCs, if the values were similar, because Arizona is an EPA Region 9 state. Additionally, as with Tier 1, Weston compared Tier 2 values with Tier 3 values for the particular HAP to determine whether the values were in reasonable agreement. If they were, the PRG was selected. If not, the criteria based on a more recent or relevant study was selected over the PRG.

In cases where no Tier 1 or 2 values were available, Weston considered three other sources for development of CAACs: Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs), and the California EPA (CalEPA) Reference Exposure Levels (RELs) and Unit Risk Factors. The most appropriate criterion was selected after review. As with Tiers 1 and 2, these values were based on exposure for 350 days a year for 30 years.

In cases where there were no chronic ambient air criteria available, Weston developed a fourth tier process, similar to the Tier 4 process for acute values. Cases where there were no criteria available because a listed compound was actually a group of compounds, such as glycol ethers, the compound in the group with the most stringent toxicological criterion was selected for development of the CAAC for that group. Where the lack of toxicological criteria was due to the lack of data to develop such a criterion, a surrogate compound was recommended based on what can be identified about the structure of the compound, and a chronic value was established using the surrogate.

The acute and chronic health-based ambient air concentrations developed by Weston were inserted into the proposed rules at R18-2-1708, Table 3. Appendix 12, to be used by applicants filing a Risk Management Analysis who are developing their own health-based ambient air criteria where none is listed in Table 3, follows the same procedure Weston used in the development of the values in that table. ADEQ and Weston Solutions are currently in the process of developing AACs for compounds in listed groups other than the selected compounds; ADEQ will make these AACs available in guidance documents.

Source categories. Minor sources of HAPs, or those that emit one tpy of an individual HAP or 2.5 tpy of any combination of HAPs, are subject to the AZ HAPs program only if they belong to a source category listed according to A.R.S. § 49-426.05. In order for a source category to be so listed, the Director must find that HAP emissions from sources in that category “individually or in the aggregate result in adverse effects to human health, or adverse environmental effects.” A.R.S. § 401.01 defines “adverse effects to human health” as, “those effects that result in or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness . . .”

ADEQ acquired HAPs emissions data for all sources with air quality permits issued by ADEQ and the three county air pollution control programs using industry reported data from the agencies' emissions inventories and air quality permits, and the EPA Toxics Release Inventory for calendar year 2002. In all, 231 sources in 90 SIC categories were evaluated to determine which met the minimum emissions threshold for coverage under this program. A total of 65 sources in 41 SIC categories were found to have emitted at least 1 tpy of a single or 2.5 tpy of a combination of listed HAPs. All of the data available that were needed to evaluate the potential impact of the emissions from these 65 sources were transmitted to Weston for air quality modeling.

Weston Solutions developed the list of source categories subject to the program by modeling HAP emissions from sources in the candidate categories, classified by Standard Industrial Classification (SIC) Code, to determine ambient air concentrations of HAPs. The modeled concentration was then compared to the health-based ambient air concentrations for each particular HAP emitted by a source. (See *Procedure for Air Quality Dispersion Modeling for the Arizona HAPRACT Rule* (Weston Solutions, Inc., July 2005)). If the modeled concentration of any HAP from any source in the candidate category was greater than 120% of the health-based AAC for that HAP, that source category was included in the list. If the highest modeled concentration of any HAP in a candidate category was less than 80% of the health-based AAC, that category was excluded from the list. When modeled concentrations fell within the 80-120% range, further evaluation of that source category was required. There was only one instance where a modeled source fell within that range. (See *Modeling Analysis Spreadsheet, Screen Modeling for Source Categories*, (Weston Solutions, September 2005)).

Facilities in a particular SIC category were modeled only until one met the listing criteria. A total of 64 facilities permitted in Arizona were modeled from 41 different SIC codes. Twenty-five source categories met the listing criteria and were classified as being source categories subject to the HAPS program, under A.R.S. § 49-426.05. Those categories are listed by primary SIC Code at R18-2-1702, Table 2.

De minimis levels. The determination of de minimis levels of HAPs is crucial to the program, which applies to both new and modified sources of HAPs. The statute defines a modification, briefly, as any change in the source that would increase the HAP emitted by a source by more than a de minimis level. ADEQ determined that de minimis levels should therefore reflect the maximum amount of a pollutant that could be emitted as a result of a modification without producing adverse effects to human health.

Seventy-three HAPs were identified as being emitted by sources in Arizona in amounts greater than the one and 2.5 tpy statutory thresholds. Weston Solutions developed chronic and acute ambient air concentrations (AAACs and CAACs) for each of these HAPs (see, generally, *Determination of De Minimis Levels*, Weston Solutions, August 22, 2005, (revised)). The SCREEN 3 dispersion model was used to determine the concentration-to-emission-rate ratio for a hypothetical facility with worst-case emission dispersion characteristics. The worst-case dispersion characteristics were used in order to assure that any emission increases that may adversely affect public health were evaluated. The model was run with a one gram per second (g/s) emission rate. The concentration-to-emission-rate ratio represents the one hour maximum concentration resulting from the 1g/s rate, measured in milligrams per cubic meter divided by grams per second ($\text{mg}/\text{m}^3/(\text{g}/\text{s})$).

Once the generic concentration-to-emission-rate ratio, $143.2 (\text{mg}/\text{m}^3)/(\text{g}/\text{s})$, was determined, de minimis amounts were calculated by dividing each AAC, for each pollutant and averaging period, by that ratio. Then an hourly average, expressed in pounds per hour (lb/hr), was determined for acute de minimis levels, and an annual average, expressed in pounds per year (lb/yr), was determined for chronic de minimis levels. Where the annual (chronic) emission rate is lower than the hourly (acute) rate, only the annual de minimis level was specified. The results of the de minimis determinations are shown in R18-2-1701(13), Table 1.

Structure of the proposed Article 17. Article 17 begins with a definition Section, R18-2-1701, which lists terms used in the Article that are in addition to general definitions listed in R18-2-101, and relevant statutory definitions in A.R.S. § 49.401.01. The definition of "modification," at R18-2-1701(13) is of particular note; it means, briefly, a change in the source, or in its method of operation, that increases the emissions of a HAP by more than any de minimis amount; those relevant de minimis amounts are listed in Table 1. R18-2-1702 lists those sources to which the Article is applicable. For sources in the source category list, the Director has determined that emissions exceeding one tpy of a single HAP, or 2.5 tpy of any combination of HAPs, result in adverse health effects. The rule therefore treats increases that cause a source's total emissions to exceed these thresholds as greater than de minimis and the physical or operational change producing the increase as a "modification."

The Arizona state list of HAPs is in R18-2-1703. R18-2-1704 requires owners or operators of sources subject to Article 17 to provide the Director with notification, in the permit application, of the types and amounts of HAPS emitted by the source.

Any new source, or "modification" of an existing source, subject to the program, that increases the emission of HAPs by more than the listed de minimis amount, would be required by R18-2-1705 to obtain a permit or significant permit revision, through one of three avenues: the imposition of HAPRACT, under R18-2-1706; the imposition of AZMACT, under R18-2-1707; or the demonstration that HAPRACT or AZMACT is unnecessary to avoid adverse human health or environmental effects, by conducting an RMA under R18-2-1708.

Under R18-2-1706, the case-by-case HAPRACT determination, an applicant for a permit or permit revision shall propose HAPRACT by documenting a series of steps. The applicant must identify the range of applicable control tech-

Notices of Final Rulemaking

nologies, propose one of those technologies as HAPRACT for their source, and identify the rejected technologies and explain why they rejected them. Based upon that documentation, the Director shall either find that the selected technology is HAPRACT and complies with A.R.S. § 49-426.06, or not. If not, the Director shall notify the applicant of the specific deficiencies in their application so that they can submit a new proposal. If the applicant fails to submit a new proposal, or if that proposal is also found to be deficient, the Director may deny the application for a permit or permit revision.

Similarly, under R18-2-1707, the case-by-case AZMACT determination, an applicant shall propose AZMACT for major sources. The applicant is required to identify all the available control options, including a survey of sources to determine the most stringent emission limitation practiced in the United States, although the applicant may include technologies employed outside the U.S. From that initial survey, the applicant shall eliminate demonstrably technically infeasible options. The applicant shall then rank the remaining technologies from the top down, proposing as AZMACT the highest ranked technology, unless economic, environmental and energy impacts eliminate it as a viable option. In that case, the applicant shall consider the next most stringent technology in the same manner, until AZMACT is selected. The Director shall then determine whether the applicant's AZMACT proposal meets the requirements of the statute. If not, the Director shall notify the applicant of the specific deficiencies in their application so that they can submit a new proposal. If the applicant fails to submit a new proposal, or if that proposal is also found to be deficient, the Director may deny the application for a permit or permit revision.

Rather than proposing HAPRACT or AZMACT, the applicant may, as part of their permit or permit revision, conduct a scientifically sound Risk Management Analysis under R18-2-1708. The rule takes a tiered approach to the analyses. ADEQ has provided for the statutory requirement of a scientifically sound analysis by allowing the applicant to conduct any of four successively more complex RMAs in order to show that the imposition of HAPRACT or AZMACT is unnecessary in order to avoid adverse health or environmental effects. If the applicant fails to make the necessary showing, they may either impose the appropriate control technology or proceed to a higher tier analysis.

The Tier 1 analysis is specifically for sources that emit a HAP that is included in a group of compounds, (e.g., chromium compounds) but is not the representative HAP selected for that group (hexavalent chromium) for purposes of determining health-based chronic and acute ambient air concentrations (CAACs, and AAACs). The applicant must determine the appropriate CAAC and AAAC for their particular HAP through a process laid out in Appendix 12. By employing the equation in R18-2-1708(B)(1), the applicant shall then determine the maximum hourly and annual exposure to the emitted HAP, and compare this value to the AACs. If the maximum hourly and annual exposures are less than the AAAC and CAAC, respectively, the applicant shall not be required to impose HAPRACT or AZMACT. If either maximum exposure is greater than the relevant AAC, then the applicant may either impose HAPRACT or AZMACT, as appropriate, or proceed to the Tier 2, Tier 3, or Tier 4 analysis.

The Tier 2 analysis requires the applicant to employ the SCREEN 3 Model for their source, consistent with federal and state guidelines. If the model predicts a maximum concentration less than the relevant AAC, listed in Table 3, then the applicant shall not be required to impose HAPRACT or AZMACT. If the predicted concentration is greater than or equal to the relevant AAC, then they may employ HAPRACT or AZMACT, or proceed to the Tier 3 or Tier 4 analysis.

The Tier 3 analysis is a modified version of SCREEN 3 modeling for which, for the evaluation of chronic exposure only, the applicant may use exposure assumptions that are consistent with institutional or engineering controls that are permanent and enforceable outside the permit. For example, the applicant may allow for exposure outside the ambient air if there are covenants and restrictions in the deeds to their property that would prohibit residential development or subdivision within the proposed exposure area, thereby limiting potential human exposure to the emitted HAP. Based on the predicted concentrations, the applicant may either impose HAPRACT or AZMACT, or move on to the Tier 4 analysis.

Tier 4 is an analysis based on a modified SCREEN 3, or other, refined air quality model, consistent with state and federal guidelines. The applicant may employ either the SCREEN 3 or some other refined model and, as in Tier 3, for evaluation of chronic exposure only, use exposure assumptions that are consistent with institutional or engineering guidelines that are permanent and enforceable outside the permit. The applicant may also include in the Tier 4 analysis consideration of a number of other factors, listed in A.R.S. 49-426.06(D), and incorporated into the rule in R18-2-1708(B)(4)(b). If the predicted concentration is less than the relevant AAC or, if in the Director's discretion, it is warranted by consideration of those statutory factors, the Director shall not require the imposition of HAPRACT or AZMACT. If the predicted concentration is greater than or equal to the relevant AAC, then the Director shall require HAPRACT or AZMACT.

R18-2-1709 requires periodic review of the list of HAPs, the minor source categories, the acute and chronic de minimis levels for listed HAPs, and the AAACs and CAACs for listed HAPs. The Director shall, within one year after the Administrator adds or deletes a HAP on the federal list, adopt those revisions by rulemaking. The Director may, based on triennial review of the state list of HAPs, revise de minimis levels and AACs for listed HAPs, and the list of included minor source categories.

Appendix 12 lays out procedures for the development of health-based ambient air concentrations for conducting an RMA. The necessity of employing these procedures would arise in two instances. First, AACs would need to be developed for HAPs that are not already included in R18-2-1708, Table 3. Second, an applicant conducting an RMA

Notices of Final Rulemaking

for a source that emits a HAP that is one of a listed group of compounds, but is not the selected compound included in Table 3, might wish to develop a separate AAC, particularly since those compounds selected from groups for inclusion in the table are typically the most toxic in that group. Appendix 12 follows the same procedure used by Weston in its original development of acute and chronic health-based ambient air concentrations for Table 3.

Amendments to rules other than Article 17. Generally, changes made to existing rules in other Articles of Chapter 2 reflect the requirements of the new HAPs program, and improve regulatory uniformity among related rules. Thus, in R18-2-101(99) and(106), R18-2-304, R18-2-330, R18-2-331, R18-2-507 and Appendix 1, all references to the implementing statutes of the HAPs program have been changed to references to the Article 17 HAPs program, or its various sections.

ADEQ amended R18-2-302 by expanding the conditions requiring a Class II permit, in R18-2-302(B)(2)(c) and (d), to include the beginning of actual construction of a source subject to the proposed Article 17, and modifications, subject to Article 17, to a source for which no permit has been issued under Article 3.

In R18-2-306.01, ADEQ deleted the word “federal,” thus allowing applicants who opt to accept a voluntary emission limitation under R18-2-1708(D) to avoid state and local applicable requirements, including the HAPs program under Article 17, rather than merely federal requirements. This change improves clarity in the relationship between R18-2-1708 and R18-2-306.01.

In R12-2-317, a reference to the statutory definition of “HAPRACT,” in A.R.S. § 49-401.01(17), was changed to the correct reference to the definition of “modification,” in A.R.S. § 49-401.01(24).

ADEQ updated, in R18-2-406, the incorporation by reference of the “Guideline on Air Quality Models.” This guideline was previously an independent document, but has since been included in the Code of Federal Regulations, at 40 CFR Part 51, Appendix W. This amendment merely reflects that change, and points the applicant to the latest edition of the Guideline.

Section by Section explanation of proposed rules:

Article 1

R18-2-101(99) The reference to hazardous air pollutants in R18-2-101(99)(d) is changed from a statutory reference to the definition in A.R.S. § 49-401.01, to a reference to the definition in the proposed Article 17.

R18-2-101(106) The reference to HAPS in this subsection was also changed from a statutory reference to a reference to Article 17.

Article 3

R18-2-302 Conditions requiring a Class II permit are expanded in R18-2-302(B)(2)(c) and (d) to include the beginning of actual construction of a source subject to the proposed Article 17, and making modifications subject to Article 17 to a source for which no permit has been issued under Article 3.

R18-2-304 References to permit requirements in R18-2-304(E)(3) are changed from statutory references to A.R.S. §§ 49-426.03 and 49-426.06 to references to the proposed Article 17.

R18-2-306.01 The word “federal” is deleted from R18-2-306.01(A) in order to allow applicants to accept emission limitations to avoid other requirements, such as state or local, rather than only federal applicable requirements.

R18-2-317 A reference to the statutory definition of “HAPRACT,” in A.R.S. § 49-401.01(17), was changed to the correct reference to the definition of “modification,” in A.R.S. § 49-401.01(24).

R18-2-330 References to A.R.S. § 49-426.06 are changed to references to R18-2-1705 and R18-2-1708.

R18-2-331 Reference to A.R.S. § 49-426.06 is changed to a reference to Article 17.

Article 4

R18-2-406 Incorporation by reference of EPA “Guideline on Air Quality Models (Revised)” has been updated to 40 CFR Part 51, Appendix W, “Guideline on Air Quality Models.”

Article 5

R18-2-507 Statutory references to A.R.S. §§ 49-426.05(A) and 49-426.06(D) are changed to references to R18-2-1702 and R18-2-1708, respectively.

Notices of Final Rulemaking

Article 17

- R18-2-1701 This Section lists the definitions applicable to Article 17. The definition for “modification” means a change that increases actual emissions of a HAP by more than a “de minimis level.” These de minimis levels of particular HAPs are listed in the referenced table, Table 1.
- R18-2-1702 This Section limits the applicability of the proposed Article 17 to major sources of HAPs, and minor sources of HAPs that belong to one of the source categories listed in the referenced table, Table 2, and sets the effective date of the rule at January 1, 2007.
- R18-2-1703 This Section lists the state HAPs.
- R18-2-1704 This Section requires the owner or operator of a source subject to the proposed Article 17 to provide to the Director notification, in a permit application, of the types and amounts of HAPs emitted by that source.
- R18-2-1705 This Section requires permits or permit revisions for persons who construct or modify a source subject to the proposed Article 17, and requires the imposition of HAPRACT or AZMACT, where appropriate, unless the permit applicant demonstrates such imposition is unnecessary by conducting a Risk Management Analysis.
- R18-2-1706 This Section outlines the requirements for the permit applicant’s proposal and selection of HAPRACT for the applicant’s new or modified minor source that is subject to the proposed Article 17.
- R18-2-1707 This Section outlines the requirements for the permit applicant’s proposal and selection of AZMACT for the applicant’s new or modified major source that is subject to the proposed Article 17.
- R18-2-1708 This Section outlines a multi-tiered approach to conducting a Risk Management Analysis to show that the permit applicant’s new or modified source should not be subject to HAPRACT or AZMACT. This Section includes a list of predetermined acute and chronic health-based ambient air concentrations in Table 3.
- R18-2-1709 This Section requires the Director to periodically review the state list of HAPs and, where necessary, revise by rulemaking the state list of HAPs, the acute and chronic health-based ambient air concentrations, the acute and chronic de minimis levels for those HAPs, and the list of included minor source categories.
- Appendix 1 The statutory reference to A.R.S. § 49-426.06 is changed to a reference to the proposed Article 17.
- Appendix 12 This new appendix outlines the procedures by which acute and chronic health-based ambient air concentrations shall be determined for HAPs not included in R18-2-1708, Table 3, or for compounds included in a group of compounds listed in Table 3, other than those identified as the “selected compound” for that group.

7. A reference to any study relevant to the rule that the agency reviewed and either relied on in its evaluation of or justification for the rule or did not 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:

Arizona Hazardous Air Pollutant Research Program, Final Report (ENSR Consulting and Engineering, August 1995.) Available for review at the ADEQ Library, First Floor, 1110 W. Washington St., Phoenix, AZ 85007 and online at <http://www.azdeq.gov/function/laws/draft.html#haps>.

Arizona DEQ – Development of Chronic Ambient Air Concentrations (Long-Term) (Weston Solutions, Inc., April 2005). Available for review at the ADEQ Library, First Floor, 1110 W. Washington St., Phoenix, AZ 85007, and online at <http://www.azdeq.gov/function/laws/download/hapsambient.pdf>.

Arizona DEQ – Development of Acute Health-Based Ambient Air Criteria (Weston Solutions, Inc., June, 2005). Available for review at the ADEQ Library, First Floor, 1110 W. Washington St., Phoenix, AZ 85007, and online at <http://www.azdeq.gov/function/laws/download/hapsacute.pdf>.

Procedure for Air Quality Dispersion Modeling for the Arizona HAPRACT Rule (Weston Solutions, Inc., July, 2005). Available for review at the ADEQ Library, First Floor, 1110 W. Washington St., Phoenix, AZ 85007, and online at <http://www.azdeq.gov/function/laws/download/hapsmodel.pdf>.

Determination of De Minimis Levels (Weston Solutions, Inc. August 2005). Available for review at the ADEQ Library, First Floor, 1110 W. Washington St., Phoenix, AZ 85007, and online at <http://www.azdeq.gov/function/laws/download/hapsdemin.pdf>.

Notices of Final Rulemaking

Modeling Analysis Spreadsheet, Screen Modeling for Source Categories (Weston Solutions, September, 2005). Available for review at the ADEQ Library, First Floor, 1110 W. Washington St., Phoenix, AZ 85007, and online at <http://www.azdeq.gov/function/laws/download/hapsspread.pdf>.

Proposal to Prepare an Application for a Modification Resulting in Emission Increases of an Arizona HAP Above the De Minimis Level (Applied Environmental Consultants, Inc., December 12, 2005).

Arizona Department of Health Services, Asthma Control Program, Office of Nutrition and Chronic Disease Prevention Services, October 2002.

Ecosystem Services: Benefits Supplied to Human Societies by Natural Ecosystems (Daily, Gretchen C., et al., Issues in Ecology, ESA, #2, Spring 1997).

Controlling Particulate Matter Under the Clean Air Act: A Menu of Options (STAPPA and ALAPCO, July 1996.)

Air Pollution Control Technology Fact Sheet (U.S. EPA, posting dates July 15, 2003) (www.epa.gov/ttn/catc/products).

Risk Assessment for Toxic Air Pollutants: A Citizen's Guide and Air Pollution and Health Risk (U.S. EPA's Air Toxics Web Site: (www.epa.gov/ttn/atw)).

Regulatory Impact Analysis for the Proposed Reciprocating Internal Combustion Engines NESHAP (U.S. EPA, Office of Air Quality Planning and Standards, Office of Air and Radiation, Research Triangle Park, (EPA/200/04), Table 8-3, November 2002).

Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers? (U.S. EPA Technical Bulletin, EPA 456/F-99-004, May 1999).

The Benefits and Costs of the Clean Air Act 1990 to 2010 (U.S. EPA, EPA Report to Congress (EPA-410-R-99-001), Chapter 5, "Human Health Effects of Criteria Pollutants," Table 5-1; Chapter 6, "Economic Valuation of Human Health Effects," Table 6-1; Appendix E, Nov. 1999).

The EPA's Particulate Matter (PM) Health Effects Research Centers Program, U.S. EPA, prepared by PM Centers Program staff, January 2002.

Health Effects of Particulate Air Pollution: What Does The Science Say? (107th Congress of the U.S., Hearing before the Committee on Science, House of Representatives, second session, May 8, 2002).

8. 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

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

Rule Identification. This rulemaking pertains to Title 18, Chapter 2, Article 17, "Arizona State Hazardous Air Pollutants Program." This rulemaking consists of amended and new sections. The rulemaking adopts the federally listed hazardous air pollutants, establishes de minimis levels for state Hazardous Air Pollutants (HAPs) in pounds per hour and pounds per year, as applicable, and lists 25 minor-source categories subject to the Program (see Table 1). Other sections provide for case-by-case determinations of Hazardous Air Pollutant Reasonably Available control Technology (HAPRACT) and Arizona Maximum Achievable Control Technology (AZMACT), risk management analyses, and periodic review.

Social Costs and Air Pollution. Byproducts of industrial processes can create negative externalities. Often, this is the result of an inefficient market, because prices, which could be malfunctioning or absent, do not reflect true social costs and benefits from sources using air to discharge pollutants. In these cases, air is treated as a free good without internalizing potential damages caused by air pollution. Society bears the costs of adverse impacts to human health and the environment. Individuals adversely affected by HAPs, for instance, are unable to collect compensation.

As negative externalities are internalized by sources (*viz.*, by reflecting the true social costs of production), the greater the improvement in the manner the market functions. In the long term, sources subject to the Arizona HAPs Program may need to increase the prices of their products to cover increases in net compliance costs. Costs for permit preparation and processing will increase. Two potential compliance strategies could either increase costs of production or reduce net environmental compliance costs. Installation and operation of pollution control devices to reduce HAPs emissions add an increment of additional cost for compliance. Where process modification and feedstock substitution are feasible, however, pollution control devices and associated operating expenses would not be incurred and could result in other savings. Reductions in the amounts or types of hazardous chemicals would lower the costs of processing, handling and disposal of these materials. In addition, the costs of regulatory compliance would be reduced. Depending upon which compliance strategy is used, costs to consumers of the products made by HAPs emitting industries could increase, stay the same, or decrease.

Some Arizona industries have avoided the costs of compliance for HAPs emissions, while their counterparts operating in other states with HAPs programs more stringent than the federal air toxics program, had to bear the costs of compliance with those programs. Thus, the implementation of this HAPs Program will help level the playing field

and help protect human health, with a margin of safety, as sources internalize the costs of HAPs emissions in Arizona.

Arizona HAPs Program. Arizona's HAPs Program is not intended to eliminate all air pollution or completely reduce the risk for cancer and non-cancer adverse-health effects. It is, however, intended to protect human health and the environment through risk reduction by the application of control technology to reduce emissions of HAPs. HAPs can exist in particulate matter (PM) in the form of heavy metals and semi-volatile organic compounds. Particles less than 10 micrometers in diameter are of the greatest concern because they can be breathed deeply into the respiratory system. Sources can also emit HAPs in the form of inorganic fumes, vapors, and gasses. Both particulate and gaseous pollutants can have direct adverse impact on the respiratory system or enter into the bloodstream (in the case of particulates, the soluble components) through the lungs.

The statute authorizes a risk-reduction approach similar to the federal New Source Review Program that requires source-specific control technology (A.R.S. § 49-426.06) for both new and modified sources. This rule will require the determination of control technology on a case-by-case basis through permits for new sources and modifications for existing sources. The level of control technology will vary by the size of the source: major sources, or those emitting at least 10 tons per year (tpy) of a single HAP or 25 or more tpy of any combination of HAPs not already covered by a federal standard under 40 CFR Part 61 or Part 63, will be subject to Arizona maximum achievable control technology (AZMACT); minor sources, those emitting 1 to 10 tpy of a single or 2.5 to 25 tpy of any combination of HAPs will be subject to hazardous air pollutant reasonably available control technology (HAPRACT).

Although this is not a risk management program, a source subject to this Program may conduct a risk management analysis (RMA) to avoid the application of a control technology. The rulemaking provides for RMAs using a tiered approach, based on the complexity of the analysis: Tier 1 requires a relatively simple arithmetic calculation; while Tier 4 could involve detailed air quality simulation modeling and the development of a site-specific risk assessment. Thus, ADEQ expects Tiers 1-3 could be accomplished at a relatively low cost, while Tier 4 could cost many tens of thousands of dollars, depending on the amount of effort necessary. Potentially, the source could reduce the overall compliance cost if the source conducts an RMA and can make a credible showing that the imposition of control technology is not needed to avoid adverse effects to human health or the environment.

The rule regulates emissions of the 187 HAPs that are listed under the federal HAPs control program.¹ Not all of these chemicals are emitted by sources in Arizona; further, not all sources that emit any of these HAPs are subject to this rule. ADEQ was required to make a determination that, in addition to emitting at least 1 tpy of a single or 2.5 tpy of a combination of HAPs, a source also was capable of causing adverse health effects. Twenty-four source categories are listed in this rule subject to this Program.² Source categories not listed in the rule will not be subject to this program unless they are listed in a subsequent rulemaking.

This rulemaking also establishes de minimis amounts for listed HAPs for new sources or existing sources making modifications. If a modification results in an increase of actual emissions of any regulated HAP by more than any de minimis amount or results in the emission for any HAP not previously emitted by more than the relevant de minimis amount, the source would be subject to this Program. Unmodified existing sources, however, will remain unregulated by the State HAPs Program.

Classes of Persons Impacted. Entities impacted by this rulemaking include: listed new major and minor sources emitting HAPs and existing major and minor sources that make modifications resulting in emissions greater than the listed de minimis amounts; consultants, including engineering services, lawyers, and associated businesses; pollution control vendors; ADEQ as the implementing agency; counties with approved air pollution control programs; and general public and consumers.

Potentially, major sources of State HAPs are subject to this rulemaking, but this program will not affect major sources of HAPs already subject to federal MACT standards or minor sources of HAPs subject to generally available control technology requirements (GACT) under the federal program (e.g., dry cleaners, gas stations). Table 1 includes Standard Industrial Classification (SIC) codes for those industries subject to this rulemaking, as well as the equivalent North American Industry Classification System (NAICS) codes. In some instances, equivalent NAICS codes comprise more than a single code that previously was described by a single SIC code.

¹ 188 federal HAPs were listed in the notice of proposed rulemaking. As EPA delisted methyl-ethyl ketone in December 2005, it has been dropped from the list in this adopted rule.

² Twenty-five source categories were proposed for listing in the notice of proposed rulemaking. As a result of a comment that demonstrated ADEQ had inappropriately included some emissions, the Copper Ores source category (SIC 1021) would not exceed the health effects threshold and has been dropped from the list.

Notices of Final Rulemaking

Table 1. Non-Major Source Categories for State HAPs: SIC Codes and Equivalent NAICS Codes

SIC Code	Source Category	NAICS Code(s)	Source Category	No. of Sources*
2434	Wood Kitchen Cabinets	337110	Wood Kitchen Cabinets & Countertop Manufacturing	2
2451	Mobile Homes	321991	Manufactured Home (Mobile Home) Manufacturing	1
2621	Paper Mills	322121	Paper Mills	1
2679	Converted Paper & Paperboard Products, not elsewhere classified	322231	Die-Cut Paper & Paperboard Office Supplies Manufacturing	2
2851	Paints, Varnishes, Lacquers, Enamels & Allied Products	325510	Paint & Coating Manufacturing	1
2911	Petroleum Refining	324110	Petroleum Refineries	1
3069	Fabricated Rubber Products, not elsewhere classified	326299	All Other Rubber Product Manufacturing	1
3086	Plastics Foam Products (polystyrene)	326140	Polystyrene Foam Product Manufacturing	1 (3)
3088	Plastics Plumbing Fixtures	326191	Plastics Plumbing Fixture Manufacturing	3 (1)
3089	Plastics Product, not elsewhere classified	326199	All Other Plastics Product Manufacturing	7 (2)
3241	Cement, Hydraulic	327310	Cement Manufacturing	2
3281	Cut Stone & Stone Products	327991	Cut Stone & Stone Product Manufacturing	2 (1)
3296	Mineral Wool	327993	Mineral Wool Manufacturing	2
3312	Steel Works, Blast Furnaces, & Rolling Mills (including coke ovens)	33111 331221 324199	Iron & Steel Mills Rolled Steel Shape Manufacturing All Other Petroleum & Coal Products Manufacturing	1
3331	Primary Smelting & Refining of Copper	331411	Primary Smelting & Refining of Copper	2
3411	Metal Cans	332431	Metal Can Manufacturing	1
3444	Sheet Metal Work	332322	Sheet Metal Work Manufacturing	1 (2)
3451	Screw Machine Products	332721	Precision Turned Product Manufacturing	1 (1)
3479	Coating, Engraving, & Allied Services, not elsewhere classified		339914, 339911, 339912, 332812	1 (3)

Notices of Final Rulemaking

3585	Air-Conditioning & Warm Air Heating Equipment & Commercial & Industrial Refrigeration Equipment	336391 333415	Motor Vehicle Air-Conditioning Manufacturing Air-Conditioning & Warm Air Heating Equipment & Commercial & Industrial Refrigeration Equipment Manufacturing	1 (1)
3672	Printed Circuit Boards	334412	Bare Printed Circuit Board Manufacturing	2 (5)
3999	Manufacturing Industries, not elsewhere classified	See next column	337127, 333319, 31611, 335121, 325998, 332999, 326199, 335211, 332212, 332211, 339932, 339999	1 (1)
4922	Natural Gas Transmission	486210	Pipeline Transmission of Natural Gas	2 (9)
5169	Chemicals & Allied Products, not elsewhere classified	422690	Other Chemical & Allied Products wholesalers	1 (7)
5171	Petroleum Bulk Stations & Terminals	422710 454311 454312	Petroleum Bulk Stations & Terminals (wholesale) Heating Oil Dealers LPG Dealers	5 (5)

*Number of sources with calendar year 2002 reported emissions above the 1 or 2.5 tpy thresholds; numbers in parentheses are for currently permitted facilities for which reported emissions fell below those thresholds.

Probable Costs and Benefits. This section is organized into the following subparts: regulated sources (major and minor), consultants (including engineering services, laboratories, epidemiologists, lawyers, and associated businesses), political subdivisions, pollution control vendors, ADEQ, general public and consumers, and employment (private and public).

Exposure to HAPs can cause adverse health and environmental impacts. Adverse health impacts could include respiratory disease or cancer, as well as a host of other quantifiable health effects (see Table 2). While some of the health effects listed in this Table do not reflect the reasons listing source categories, they are examples of costs imposed on the public as a result of exposure to air pollution. Unquantifiable adverse-health effects include: neonatal mortality; changes in pulmonary function; chronic respiratory diseases (other than chronic bronchitis); morphological changes; altered host defense mechanisms; and non-asthma respiratory emergency room visits (U.S. EPA, "The Benefits and Costs of the Clean Air Act 1990 to 2010," Chapter 5, "Human Health Effects of Criteria Pollutants," Table 5-1, Report to Congress, November 1999).

ADEQ expects probable benefits to outweigh probable costs.

Tables 3 and 4 contain cost information for various control technologies. These tables provide useful information about likely costs of various control technologies. Application of a technology will be by a case-by-case determination.

ADEQ does not expect this rulemaking to have a negative impact on state revenues. With the potential for sources to install control equipment for HAPs emissions, sales tax revenues could increase. The amount of time necessary for permitting staff to review and issue a permit for a HAPs source is expected to increase, which would, in turn, increase the ADEQ permit processing fee revenues. In the event sources not currently subject to ADEQ air quality permits are now required to acquire permits, annual permit fees and inspection fees could increase as well. ADEQ is not aware of any such sources, however, and comments received during the rulemaking process did not identify any.

Regulated Sources. The economic impact of this rule is dependent upon the number of new and modified sources that would have to comply with these rules and the time period considered. The impact also would be dependent upon the physical properties of HAPs emission streams, the configuration of the control devices, and the number of sources conducting RMAs. Overall costs for complying with these rules will vary widely depending upon the size and complexity of the source and the cost of the control technologies that would be applied as AZMACT or HAPRACT. The actual number of sources that would have to install control technology cannot be quantified at this time because the requirements only apply to future sources and modifications.

A suggested price range for the cost of a permit revision for a new or major AZMACT sources could be \$17,000 to \$23,000. This range includes the cost of a consultant preparing the application and making a HAPRACT or AZMACT determination. However, for an existing source with a permit, the application cost (\$7,000-\$9,000) should not be attributed to the State HAPs Program. Sources have an option to utilize cost-savings measures when evaluating

appropriate control technologies. Sources could substitute less toxic chemicals, or modify their processes to avoid imposition of pollution controls. The use of less toxic or non-toxic chemicals can reduce other regulatory burdens for reporting and waste management, which, ultimately, can result in net reductions in compliance costs. Sources also could use the less-resource intensive Tier 1 through Tier 3 RMA analyses. Refer to the subpart "Consultants" for additional information.

The preparation of RMAs could range from a simple calculation (Tier 1) to using the SCREEN Model (Tier 2) or a modified SCREEN Model (Tier 3). A Tier 4 would require either the SCREEN model or a refined air quality model. Costs to sources are expected to range from a minimal dollar amount for a Tier 1 RMA to \$15,000 for Tiers 2-3. Costs for Tier 4 could be considerably higher for complex evaluations. Refer to the subpart "Consultants" for additional information.

Sources can avoid the provisions of the State HAPs Program if they already are subject to and comply with EPA's MACT or GACT standards. Many existing major HAPs sources in Arizona already comply with EPA's MACT standards. A few sources exceeding the HAPs major source threshold are in source categories for which EPA has not promulgated a MACT standard or have been excused from having to install control technology under the federal rules. These sources, if modified to increase emissions over the de minimis amount, would be subject to AZMACT unless they choose to comply with a voluntary emissions limitation. New major HAPs sources in compliance with a MACT standard would not be subject to AZMACT. New minor HAPs sources could choose to comply with EPA's MACT standards rather than perform RMAs and/or propose to install control technologies that would be considered HAPRACT. Sources have a variety of options under this rule that provide opportunities to reduce both permitting and compliance costs.

If a source chooses to comply with an EPA MACT standard, the compliance costs associated with that option should not be considered a cost of the State HAPs Program. For new sources, the EPA MACT floor cannot be less stringent than the emission control achieved by the best-controlled similar sources. For existing sources, EPA's MACT standards cannot be less stringent than the average emission limitation achieved by the best performing 12% percent of existing sources for the applicable category or subcategory, or the best performing five sources when there are fewer than 30 sources in a category or subcategory.

The annualized cost for industries to comply with EPA's National Emissions Standard for Hazardous Air Pollutants (NESHAP) rule for surface coating of metal cans (40 CFR Part 63, Subpart KKKK) is estimated by EPA to be \$58.7 million, of which \$46.2 million is for capital equipment. About 200 establishments that are owned by 30 companies comprise the metal can manufacturing industry. Annual compliance costs could be less than \$100,000 for small facilities and in the millions for large facilities. The HAPs emitted by these facilities include: ethylene glycol monobutyl ether, other glycol ethers, xylenes, hexane, methyl isobutyl ketone (68 FR64432, November 13, 2003).

ADEQ expects compliance costs for its Program to vary among sources and across industry groups, depending on the type of HAP emitted and the technology required to control the pollutants. As a result, smaller business sources could experience a higher per unit cost of output than larger sources. Some small businesses (minor sources) will have to obtain an air quality permit that could cost approximately \$20,000 in regulatory fees over five years. This cost includes processing fees and annual inspection fees.

In addition to capital costs for control equipment, other costs could include permit applications, significant permit revisions, RMAs, increased operation and maintenance (O&M), testing, and recordkeeping. Annualized costs could range from a few thousand dollars to hundreds of thousands of dollars. Costs for pollution control equipment will be site-specific and vary widely depending on the control technology applied and the size and complexity of the source. Typical costs for different control technologies are included in Tables 3 and 4.

Tables 3 and 4 also have been included to provide an estimated range of costs for a variety of control technologies, such as fabric filters, electrostatic precipitators (ESP), and wet scrubbers. Table 3 shows costs for capital, O&M, and annualized costs in standard cubic feet per minute (scfm), as well as cost effectiveness in dollars per metric ton treated. The footnotes to Table 3 contain additional information that is relevant to the type of control technology illustrated (flow rates and pollutant characteristics, as applicable). Table 4 contains cost comparisons for various control technologies based on input flow rates (capital costs, O&M costs, and annual costs).

Costs are based on typical operating conditions. Costs could be higher than the ranges shown for applications requiring expensive materials, solvents, or treatment methods. Costs for control technologies illustrated in these tables do not include the following: land, auxiliary equipment, site preparation, building costs, installation conditions other than "average" conditions, unusually high level of control (e.g., Gore-Tex filters or stainless steel or titanium construction), emission stream pretreatment technologies, disposal or transport of collected material, post-treatment or disposal of used solvent or waste, freight, sales tax, engineering, handling and erection, piping, insulation, painting, and other finish work, lost production, and working capital. These costs were excluded because they will be specific to the new facilities or expansions of existing facilities and it is not possible to determine which costs will be necessary for affected sources or the magnitude of those costs until a source begins the process for acquiring a permit under this program.

A combination of technologies may be necessary to achieve compliance with AZMACT or HAPRACT. A cyclone could be used as a pre-cleaner for more expensive final control technologies (e.g., fabric filters and ESPs). Table 3 shows the annualized cost range to be \$1.30-\$13.50 per scfm. Other pre-cleaner technologies also could be used to

Notices of Final Rulemaking

remove PM: gravitational settling, mechanically aided separators, momentum separators, and settling chambers. The annualized costs for these technologies are highly variable, ranging from \$0.01 to \$76.00 per scfm.

Pre-treatment technology or custom designed permanent total enclosures (PTEs) may be necessary. Capital costs for PTEs, for instance, could range from \$10,000 to \$300,000. In terms of annualized costs covering capital and O&M, costs for PTEs could range \$1,800-\$54,000. PTEs are capable of controlling organic HAPs and volatile organic compounds (VOCs).

Annualized costs for fabric filter technologies range \$5.00-\$50.00 per scfm, based on flow rates of 1,000,000-2,000,000 scfm. This technology is applicable to HAPs that are in particulate form. Considering the highest flow rate illustrated in Table 3, the cost effectiveness for these four control technologies ranges \$41-\$94 per metric ton. Annualized costs are comparable for the four ESP technologies shown in Table 3 (\$4-\$47 per scfm.) Cost effectiveness, for example, ranges \$38-\$73 per metric ton at the highest flow rate illustrated. Annualized costs for the scrubber technologies shown in Table 3 also are variable, ranging \$2-\$78 per scfm. Cost effectiveness for these technologies ranges \$40-\$110 at the highest flow rate illustrated in the table. Wet-scrubber technologies can be used for HAPs in particulate form and inorganic fumes, vapors, and gases.

A carbon adsorption system could cost \$300,000 or more. Table 3 shows capital costs for these systems ranging \$22.00 to \$87.00 per standard cubic feet per minute (scfm) flow rate of emissions. Accordingly, a source with an emissions flow rate of 100,000 scfm could spend as much as \$2,200,000 for capital equipment (@\$22/scfm). In contrast, a source with a flow rate of 1,000 scfm could spend \$87,000 for capital equipment (@\$87.00/scfm). Recovery credit could reduce the annualized operating cost of an adsorption system.

Obviously, control costs depend on the type of control technology installed, control efficiency, flow rates, and characteristics of the HAP emitted. Table 4 contains cost comparisons for various control technologies. Cost ranges were calculated on volumetric throughput in scfm, as shown in Table 4. Arizona statute provides for tax credits for sources that install pollution control equipment (A.R.S. §§ 43-1081, 43-1129, and 43-1170).

Wet scrubber technology, such as impingement-plate/tray-tower or packed-bed/packed-tower or spray-chamber/spray-tower, can control HAPs in particulate form, as well as inorganic fumes, vapors, and gases. From Table 4, annualized costs for these technologies range from \$71,000-\$382,500; \$39,000-\$1,275,000; and \$72,000-\$250,000, respectively. These costs are based upon the input flow rates shown in Table 4.

Table 4 also illustrates five filter technologies. These technologies can control HAPs in particulate form, such as most metals. Although annualized costs vary according to the type of technology and the volumetric flow rate, the cost effectiveness for these filter technologies ranges \$41-\$372 per metric ton (see Table 3). The other technologies illustrated include various types of electrostatic precipitators.

Sources may pass on some costs of compliance to consumers. Some sources may not be able to pass on any increased costs, while others may be able to pass on only a small proportion of increased costs of compliance. Other sources may be able to pass on most, if not all, compliance costs to consumers, depending on price elasticity of demand and supply, as well as prevailing market conditions (see the subpart "General Public").

With the potential for higher costs of doing business in Arizona, sources could experience a decrease in pretax earnings as a direct result of increased compliance costs and reduced revenues due to higher wholesale and retail prices and reduced quantities of product generated due to the law of supply and demand. Therefore, some sources could be losers while other could be gainers in pretax earnings. Even though the proportion of gainers versus losers cannot be predicted, ADEQ believes that the majority of current earnings by sources will not decline. Because compliance costs for this program will represent only one of multitudes of factors considered in business decisions, no sources are expected to be at risk of closure, or jeopardize business expansions or competition. As a result, social costs of this rulemaking should approximate compliance costs. Differences could be accounted for by the changing behavior of producers and consumers (i.e., changes in economic welfare).

Consultants. This group of classes impacted is expected to experience increasing revenues as sources seek consulting services for permit applications, significant permit revisions, testing, preparation of RMAs, and other associated services. Potentially, increased revenues for this class of persons could range from several thousand dollars to hundreds of thousands of dollars, depending on the number of sources that will have to comply with the rule provisions.

Total compliance costs cannot be computed for this rulemaking because control technology will be done on a case-by-case determination through the permitting process for new sources and permit modifications for existing sources (refer to "Regulated Sources"). Furthermore, total cost is dependent upon the number of new sources and modified sources that would have to comply with the State HAPs Program. Because of these unknowns, it is only possible to include cost data for various control technologies without computing total compliance costs.

As a result, this EIS includes costs ranges for consultants to prepare applications to perform HAPRACT and AZMACT determinations, and RMAs. The estimated cost of preparing an application and making a control determination for a permit revision by a consultant could range \$17,000-\$22,500 (HAPRACT or AZMACT for a major or minor source). An RMA for a permit revision could range \$18,000-\$24,000 (Applied Environmental Consultants, Inc., December 12, 2005). Cost for more complex modifications and multiple HAPs would be higher. Other services provided would increase revenues to this class of persons.

Political Subdivisions. ADEQ concludes that no political subdivisions of the state are emitters of HAPs in listed minor HAPs source categories, or are they major HAPs emitters. They will be unaffected by this rulemaking. Counties with an air pollution control agency (Maricopa, Pima, and Pinal counties) would have to adopt HAPs rules that would be no less stringent than the state HAPs program. In some counties, current staffing levels may have to be supplemented to develop and implement a HAPs program. Potentially, this could include increasing county program fees.

Pollution Control Vendors. This represents another class of persons that can expect to experience increased revenues as sources purchase and install air pollution control equipment. Potentially, revenues could range from several thousands of dollars to hundreds of thousands of dollars. Revenues would depend on the quantity and type of control equipment installed by sources.

Tables 3 and 4 also have been included to provide an estimated range of costs for a variety of control technologies, such as fabric filters, electrostatic precipitators (ESP), and wet scrubbers. These tables contain cost ranges based on scfm. Capital costs range from thousands of dollars to millions of dollars.

ADEQ. In addition to the resources used for activities associated with proposing this rulemaking, ADEQ estimates that the current number of FTEs assigned is adequate to implement and enforce the state HAPs Program. The only exception may be the need for an additional FTE to review RMAs, but that would depend on the future number of RMAs received. Therefore, there may be a future need for an additional FTE or funding to hire a contractor to conduct a review of an RMA that included an assessment of human exposure or specific health effects. Revenues from issuing permits should increase.

General Public and Consumers. If HAPs emissions are better controlled in Arizona, one could expect mortality and illnesses to be mitigated, and in some cases, prevented for people working and living near affected industrial sources. Reductions in HAPs emissions also could have a greater positive impact on persons in higher risk categories, such as children, elderly, and those whose health status has been compromised.

Exposure to HAPs can increase the risk of experiencing health problems. Adverse health impacts can range from relatively minor (e.g., skin rash, nausea, cough, headache, eye irritation, and dizziness), to more severe health outcomes, including irreversible, debilitating, and life threatening effects (e.g., asthma, chronic bronchitis, emphysema, kidney and liver damage, cancer, and reproductive disorders). Exposure to HAPs also could lead to premature death. Sometimes full recovery may occur, while in other instances, recovery may be slow and incomplete. Further information is available on EPA's Air Toxics Web Site: "Risk Assessment for Toxic Air Pollutants: A Citizen's Guide" and "Air Pollution and Health Risk" (see www.epa.gov/ttn/atw).

Exposure to certain types of HAPs (e.g., hydrogen fluoride, hydrogen chloride, and HAP metals) causes adverse chronic and acute health impacts. Chronic health disorders include irritation to lung, skin, and mucus membranes, certain effects on central nervous system, and damage to kidneys. Acute health impacts include lung irritation, congestion, alimentary effects, such as nausea and vomiting, and effects on kidney and central nervous system (68 FR 26692, May 16, 2003). Exposure to other HAPs, such as ethylene glycol monobutyl ether, other glycol ethers, and xylenes, can cause chronic and acute health disorders (68 FR 1378, January 6, 2006).

Potential human health and environmental benefits are expected to accrue as HAPs emissions are reduced in the state. Health benefits can be expressed as avoided cases of adverse-health effects, including lost workdays, and assigned a dollar value. EPA used an average estimate of value for each adverse-health effect of criteria air pollutants. Table 2 contains valuation estimates from the literature reported in dollars per case reduced. For example, the table shows a value of \$385,800 per avoided case of chronic bronchitis. The avoidance of emergency room visits for asthma, or acute bronchitis are valued at \$288 and \$67, respectively. Each lost workday is valued at \$123. All of these costs are in 2003 dollars.

EPA's Office of Air Quality Planning and Standards, Office of Air and Radiation, Research Triangle Park, monetized values for health endpoints ("Regulatory Impact Analysis for the Proposed Reciprocating Internal Combustion Engines NESHAP" (EPA/200/04), Table 8-3, November 2002). For example, the value per avoided case of chronic bronchitis (base estimate) was \$331,000 in 1999 dollars. For the avoidance of emergency room visits for asthma and acute bronchitis, the incidence values were \$299 and \$57, respectively in 1999 dollars.

Mortality in Table 2 actually refers to statistical deaths, or inferred deaths due to premature mortality. A small decline in the risk for premature death will have a certain monetary value for individuals, and as such, they will be willing to pay a certain amount to avoid premature death. For instance, if HAPs emissions are reduced so that the mortality risk of the exposed population is decreased by one in one-hundred thousand, then among 100,000 persons, one less person will be expected to die prematurely. Thus, if the average willingness-to-pay (WTP) per person for such a risk reduction were \$100, the implied value of the statistical premature death avoided would be 10 million dollars annually.

Some HAPs are bound in particulate matter. Epidemiological evidence shows that particulates have negative health impacts in a variety of ways, including increased mortality and morbidity; more frequent hospital admissions, emergency room and clinician visits; increased need and demand for medication; and lost time from work and school. There is also increasing evidence that ambient air pollution can precipitate acute cardiac episodes, such as angina pectoris, cardiac arrhythmia, and myocardial infarction, although the majority of particulate matter-related deaths are

Notices of Final Rulemaking

attributed to cardiovascular disease (The EPA's Particulate Matter (PM) Health Effects Research Center's Program, prepared by PM Centers Program staff, January 2002).

The Health Effects Institute confirmed the existence of a link between particulate matter and human disease and death. The data revealed that long-term average mortality rates, even after accounting for the effects of other health effects, were 17% to 26% higher in cities with higher levels of airborne particulate matter (Health Effects of Particulate Air Pollution: What Does The Science Say? Hearing before the Committee on Science, House of Representatives, 107th Congress of the U.S., second session, May 8, 2002).

Data further reveal that every 10-microgram increase in fine particulates per cubic meter produces a 6 percent increase in the risk of death by cardiopulmonary disease, and an 8 percent increase for lung cancer. Even very low concentrations of PM can increase the risk of early death, particularly in elderly populations with preexisting cardiopulmonary disease (STAPPA and ALAPCO, Controlling Particulate Matter Under the Clean Air Act: A Menu of Options, July 1996). Chronic effects of repeated airway inflammation may also cause airway remodeling, leading to irreversible lung disease. Individuals with asthma and chronic obstructive pulmonary disease may be at even higher risk from repeated exposure to particulates ("The EPA's Particulate Matter (PM) Health Effects Research Center's Program," supra).

Improvement in air quality, through the reduction of HAPs is expected to generate cost-saving benefits by the general public avoiding adverse health impacts. Potentially, these impacts could include reductions in any or all of the following: emergency room visits, hospital admissions, acute pediatric bronchitis, chronic adult bronchitis, acute respiratory symptom days, and even premature death. Additionally, a reduction in HAPs emissions statewide should improve the general quality of life for Arizona's citizens, particularly those residing near sources, by improving health, increasing visibility, and enhancing the public's enjoyment of Arizona's abundant natural beauty and resources. Improvements in air quality potentially could extend to increased enjoyment of tourists and winter visitors. Also, refer to "Impact on Ecosystems".

Consumers may experience higher product costs as sources pass on higher compliance costs. However, any increases in product costs are expected to be minimal. In some cases, sources may experience a reduction in profits because they cannot pass on any or all of the increased costs of doing business. Because of the unknown variables in computing costs to the regulated sources, the regulatory costs to sources that would be passed on to consumers virtually are immeasurable.

Elasticity is defined as by buyers' and sellers' response to an increase in price. The price elasticity of demand measures the sensitivity of quantity demanded to a change in price. For example, if a 5 percent increase in the price of a product results in a 10 percent decline in sales, the good would be classified as relatively elastic. Conversely, if that same 5 percent increase in the price of the good resulted in only a 4 percent decline in sales, that good would be classified as inelastic. In other words, it can be said that consumers of that product are less sensitive to an increase in price. A product will be more elastic if substitute products are readily available, if the product is relatively important in consumers' budget, and if the time-frame is relatively short because consumers' are likely to be more sensitive to price over a longer period. A general rule is that most of increased compliance costs can be passed on to consumers if demand for a product is relatively inelastic and supply is elastic. However, that is based on holding other factors constant that potentially could change this rule.

Employment. As previously indicated by the potential for increased compliance costs, ADEQ expects a higher demand for labor requirements for sources affected by this rulemaking, as well as increased labor requirements from the "consulting" class of persons. Pollution control vendors, however, are expected to handle the increase in sales with their current level of personnel.

ADEQ does not expect short- or long-run employment, production, or industrial growth in Arizona to be negatively impacted. Product prices and profitability may only be affected in a minor fashion. Further, ADEQ expects no facility closures from the implementation of this rulemaking. Finally, competition is not expected to be impacted in an adverse way.

Impact on Ecosystems. Arizona is a land of extremes with great biological diversity. Numerous types of ecosystems, such as deserts, plains, meadows, forests, canyons, grasslands, and riparian areas, provide a host of services. For example, services include production of goods, generation and maintenance of biodiversity, and life support services (processing of waste products, climate stability, etc.).

In simplistic terms, an ecosystem is an ecological community with all of the species that constitute it along with its physical environment, regarded as a unit. Species are in the thousands, including wildlife and aquatic life. Society, however, undervalues their importance since they are not traded in formal markets. Furthermore, extensive valuation methods to quantify, or even monetize, the value of lost ecological services do not exist. Economic values arise from not only the myriad services they provide, but intrinsic beauty and intellectual/spiritual amenities as well. Values for ecosystems could range in the millions to trillions of dollars.

The negative effects of air pollution on ecosystems are variable and widespread. Many effects are either not understood or lack quantitative analyses. In some cases, these effects may not be observed, or it may be unknown what impact HAPs have had on their ecological structure and function. HAPs, such as mercury, dioxins, and furans, however, are capable of causing acute effects to animals, and chronic effects in biogeochemical cycles, and may accumu-

late in the food chain. Other HAPs also pose negative effects on Arizona's ecosystems and general welfare. Research on environmental effects of HAPs is limited to only a few chemicals, and, in only extreme cases, have been traced to emissions from specific industrial sources.

Potential welfare effects associated with exposure to HAPs include the following: corrosion and deterioration; unpleasant odors, transportation safety concerns, reductions in crop yields and foliar injury. Additionally, exposure of HAPs can negatively impact ecosystem structures, resulting in biomass decrease, species richness decline, species diversity decline, community size decrease, and organism lifespan decrease.

The statute includes the consideration of overall environmental impacts, and ADEQ considers the approach taken in this rulemaking to have a collateral benefit to wildlife, aquatic life, and other natural resources now subject to regulation would not be required to control HAPs under the current approach. When HAPs, and other pollutants, destroy habitats and impair life-support services, the losses create significant social costs, albeit generally hidden from economic accounting.

For more information, refer to Daily, Gretchen C., et al., "Ecosystem Services: Benefits Supplied to Human Societies by Natural Ecosystems," *Issues in Ecology*, ESA, #2, Spring 1997; EPA, "The Benefits and Costs of the Clean Air Act 1990 to 2010," EPA Report to Congress (EPA-410-R-99-001), Appendix E, Nov. 1999; and EPA/200/04), November 2002, *supra*.

Small Business Reduction of Impacts. State law requires agencies to reduce the impact of a rule on small businesses by using certain methods, when they are legal and feasible, in meeting the statutory objectives of the rulemaking. ADEQ considered each of the methods prescribed in A.R.S. §§ 41-1035 and 41-1055(B) for reducing the impact on small businesses. Methods that may be used include the following: (1) exempt them from any or all rule requirements, (2) establish performance standards that would replace any design or operational standards, or (3) institute reduced compliance or reporting requirements, such as establishing less stringent requirements, consolidating or simplifying them or setting less stringent schedules or deadlines.

Other than the following examples, ADEQ could not find other alternative methods that would reduce the impact of this rulemaking on small businesses, or that would be less intrusive or less costly to implement the statutory objectives. Although all sources may take advantage of methods to reduce or eliminate impacts, ADEQ is sensitive to the needs of small businesses. As a result, this rulemaking allows sources to do the following: (1) perform a RMA to establish the applicability of HAPRACT or AZMACT; (2) voluntarily propose an emissions limitation to avoid the imposition of HAPRACT or AZMACT; (3) apply for a general permit; or (4) control HAPs emissions through the application of certain design measures, work practices, process changes, or techniques.

Additionally, sources could reject the implementation of certain proposed control technologies by considering economic impacts and cost effectiveness in a RMA. This means that some costly control measures potentially could be eliminated by determining adverse economic, environmental, or energy impacts. If a reliable method of measuring HAPs emissions is not available, instead of imposing a numeric emissions limitation, design, equipment, work practices, or operational standard, or some combination thereof, would be required. Finally, ADEQ will provide compliance assistance to small businesses, as well as develop General Permits, if appropriate, to reduce permitting and compliance costs for small businesses.

Data Limitations. This EIS was developed with limited input from sources regarding potential costs and benefits of implementing this rulemaking. As a result, ADEQ has provided generalized statements about likely costs. The major focus upon regulated sources was potential treatment costs for a variety of treatment technologies. Cost ranges were provided for capital investments, O&M, and annualized costs. Additionally, health and environmental information and data were included in this EIS with the assumption that with improving HAPs emissions in the state, potential benefits could accrue to the general public and the environment. It is not unlikely that a reduction in HAPs emissions could lead to a reduction in excess cancer deaths and other non-cancer health benefits because HAPs by definition present acute or chronic hazards to public health.

Furthermore, because it is unknown how many sources will conduct RMAs, install pollution control equipment, or otherwise make expenditures for investigating how they will need to comply with this rulemaking, ADEQ was unable to predict total costs. However, from the cost categories in Tables 3 and 4, potentially, costs could be substantial as sources comply with either HAPRACT or AZMACT. Even though there are uncertainties about compliance costs, sufficient information has been provided in this EIS to make it possible for someone to determine probable cost ranges for various treatment technologies. A caveat is that cost ranges could be higher than shown in the tables for treatment applications that require more complex or multiple technologies and expensive materials or solvents. Additionally, other costs could be incurred if the application of the AZMACT or HAPRACT control technology requires site preparation, additional building, pretreatment, post treatment, and disposal and transport of waste materials. Finally, overall costs may be less than anticipated because a source may choose to comply with an applicable federal MACT standards. A source may also prepare an RMA and avoid control costs, or at least mitigate those costs. A voluntary emission limitation may be proposed by sources to avoid HAPRACT or AZMACT.

Compliance costs will be driven by a combination of site-specific variables, such as the HAP and its characteristics, input flow, type of control equipment, and control efficiency. Therefore, due to the absence of more specific data for preparing this EIS, ADEQ is relying on § 41-1055(C) that the efforts to develop this EIS shall sufficiently meet statutory requirements and not be grounds for legal challenges.

Notices of Final Rulemaking

Table 2. Monetized Adverse-Health Effects Avoided From Exposure to PM

Adverse-Health Effect¹	Per Case Valuation (1990 dollars)	Per Case Valuation² (2003 dollars)
Mortality	\$4,800,000	\$7,122,600
Chronic bronchitis	\$260,000	\$385,800
Hospital admissions for respiratory conditions	\$6,900	\$10,240
Hospital admissions for cardiovascular conditions	\$9,500	\$14,100
Emergency room visits for asthma	\$194	\$288
Acute Bronchitis	\$45	\$67
Asthma attack	\$32	\$48
Moderate or worse asthma day	\$32	\$48
Acute respiratory symptom	\$18	\$27
Upper respiratory symptom	\$19	\$28
Lower respiratory symptom	\$12	\$18
Shortness of breath, chest tightness, or wheeze	\$5	\$7
Work loss day	\$83	\$123
Mild restricted activity day	\$38	\$56

Source: Derived from U.S. EPA, "The Benefits and Costs of the Clean Air Act 1990 to 2010," Chapter 6, "Economic Valuation of Human Health Effects," Table 6-1, Report to Congress, November 1999. According to EPA, cost values of these illnesses tend to underestimate the true value of avoiding these adverse-health effects. Mean estimates of willingness-to-pay (WTP) were used to derive values, unless WTP values were not available, in which case, the cost of treating or mitigating the effects was used. The value of an avoided asthma attack, for example, would be a person's WTP to avoid that symptom.

In Arizona, deaths attributable to asthma have equaled or exceeded national rates from 1991-1998. In 1998, some 316,200 Arizonans suffered breathing discomfort or asthma related stress (Arizona Department of Health Services, "Asthma Control Program," Office of Nutrition and Chronic Disease Prevention Services, October 2002).

¹ An individual's health status and age prior to exposure impacts his/her susceptibility. At risk persons include those who have suffered a stroke or have cardiovascular disease. Some age cohorts are more susceptible to air pollution than others, i.e., children and elderly.

² These values have been adjusted for inflation. According to the Consumer Price Index for all urban consumers (U.S. Department of Labor, Bureau of Labor Statistics), the purchasing power of the dollar has declined about 48 percent between 1990 and 2003.

Table 3. Cost Comparisons of Control Technologies

Technology	Basis of Cost Ranges in Dollars	Capital Cost Range (\$ per scfm)	O & M Cost Range (\$ per scfm)	Annualized Cost Range (\$ per scfm)	Cost Effectiveness (\$ metric ton)
Fabric Filter Mechanical ^a	2002	8.00-72.00	4.00-24.00	5.00-45.00	41.00-334.00
Fabric Filter Pulse-Jet ^b	2002	6.00-26.00	5.00-24.00	6.00-39.00	46.00-293.00

Notices of Final Rulemaking

Paper/Non-woven Filters ^c	2002	7.00-13.00	9.00-25.00	13.00-38.00	94.00-280.00
Fabric Filter-Reverse ^d	2002	9.00-85.00	6.00-27.00	8.00-50.00	58.00-372.00
HEPA/ULPA Filters ^e	1999	3.00-4.00	N/R	N/R	N/R
ESP-Wire Pipe (dry) ^f	2002	20.00-125.00	4.00-9.00	9.00-26.00	47.00-710.00
ESP-Wire Plate (dry) ^g	2002	10.00-33.00	3.00-35.00	4.00-38.00	38.00-260.00
ESP-Wire Pipe (wet) ^h	2002	40.00-200.00	6.00-10.00	12.00-46.00	73.00-720.00
ESP-Wire Plate (wet) ⁱ	2002	20.00-40.00	5.00-40.00	9.00-47.00	53.00-570.00
Fiber-bed Scrubber ^j	3 qtr 1995	1.00-3.00	1.60-36.00	2.00-37.00	40.00-710.00
Impingement-Plate/Tray-Tower ^k	2002	4.00-11.00	3.10-44.00	5.10-71.00	104.00-1,400.00
Packed-bed/Tower Wet Scrubber ^l	2002	11.00-55.00	15.00-49.00	17.00-78.00	110.00-550.00
Spray-Chamber/Tower ^m	2002	2.00-6.00	1.50-30.00	2.50-48.00	50.00-950.00
Incinerators ⁿ	2002	12.00-140.00	4.00-75.00	8.00-98.00	105.00-23,000
Adsorption ^o	2 qtr 1998	22.00-87.00	N/R	(19,000) credit 110,000 cost	N/R
Cyclone ^p	2002	2.20-3.50	0.70-8.50	1.30-13.50	0.47-440.00

Source: EPA, "Air Pollution Control Technology Fact Sheet," posting dates July 15, 2003 (www.epa.gov/ttn/catc/products). O&M = operation and maintenance; scfm = standard cubic feet per minute; scf = standard cubic feet; ESP = electrostatic precipitator; VOCs = volatile organic compounds; HEPA-high efficiency particle air; ULPA = ultra low penetration air; N/R = not reported. Footnotes to this table follow Table 4.

Table 4. Cost Comparisons of Control Technologies Illustrated in Table 3: Based on Flow Rates

Technology	Input Flow Rates (scfm)	Capital Cost (1,000\$)	O & M (1,000\$)	Annual Cost (1,000\$)
Fabric Filter Mechanical	2,000-100,000	144-800	48-400	90-500
Fabric Filter Pulse-Jet	2,000-100,000	52-600	48-500	39-600
Paper/Non-woven Filters	2,000-10,000	26-70	50-90	76-130
Fabric Filter- Reverse	2,000-500,000	170-4,500	54-3,000	100-4,000
HEPA/ULPA Filters	3,000-40,000	12-120	N/R	N/R
ESP-Wire Pipe (dry)	1,000-100,000	125-2,000	9-400	26-900

Notices of Final Rulemaking

ESP-Wire Plate (dry)	100,000-300,000	3,000-3,300	900-3,500	1,200-3,800
ESP-Wire Pipe (wet)	1,000-100,000	200-4,000	10-600	46-1,200
ESP-Wire Plate (wet)	100,000-200,000	4,000	1,000-4,000	1,800-4,700
Fiber-bed Scrubber	1,000-100,000	3-100	36-160	37-200
Impingement-Plate Tower	1,000-75,000	11-300	44-232.5	71-382.5
Packed-Bed Wet Scrubber	500-75,000	27.5-825	24.5-1,125	39-1,275
Spray-Chamber/Tower	1,500-100,000	9-200	45-150	72-250
Incinerator, catalytic	700-50,000	63-1,100	17.5-200	35-400
Incinerator, thermal	500-50,000	45-1,250	37.5-250	49-400
Incinerator, recuperative	500-50,000	50-600	12.5-250	22.5-400
Incinerator, regenerative	5,000-500,000 (RTO)	700-17,500	50-2,000	165-4,000
Adsorption	5,000-50,000	240-1,700	N/R	43-110
Cyclone	1,100-100,000	3.9-220	9.4-70	14.9-130

Source: Adapted from Table 3. Cost ranges from Table 3 were applied to the input flow rates shown in this table. RTO = regenerative thermal oxidizer; N/R = not reported.

Footnotes to Table 3.

^a This type of technology (mechanical shaker cleaned type) also is referred to as baghouses. Sonic horn enhancement also can be used for such applications as utility boilers, metal processing, and mineral products. Sonic horns should cost an additional \$0.51 to \$24.00 per scfm. The costs represent flow rates of 1,000,000 scfm and 2,000 scfm and a pollutant loading of 4.0 grains per cubic foot. The technology is applicable to HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99% to 99.9%. Cyclones could be used to reduce the load on the fabric filter when the pollutant loading consists of relatively large particles.

^b This type of technology (pulse-jet cleaned type) also is referred to as a baghouse. The technology is applicable to HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99% to 99.9%. The costs represent flow rates of 1,000,000 scfm and 2,000 scfm and a pollutant loading of 4.0 grains per cubic foot.

^c This type of technology (cartridge collector type with pulse-jet cleaning, also referred to as extended media) is applicable to HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99.99% to 99.999+%. The costs represent flow rates of 1,000,000 scfm and 2,000 scfm and a pollutant loading of 4.0 grains per cubic foot. This type of technology can treat high dust loadings, operate at constant pressure drop, and occupy less space than bag-type filters. The cartridge filters operate as external cake collection devices.

^d These types of technologies (reverse-air cleaned, reverse air-cleaned with sonic horn enhancement, and reverse-jet cleaned, also referred to as baghouses) are applicable to HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99% to 99.9%. The costs in the table are for a reverse-air cleaned fabric filter. The additional cost for sonic horn enhancement is \$1.00 to \$2.00 per scfm. Costs are all based on flow rates of 1,000,000 scfm and 2,000 scfm with a pollutant loading of 4.0 grains per cubic foot. For the reverse-jet cleaned fabric filter, the capital cost is for a flow rate of 800,000 scfm. Sonic horns reduce the residual dust load on the bags which decreases the pressure drop across the filter fabric by 20% to 60%.

^e These technologies can be used to capture submicron PM, including HAPs that are in particulate form, *viz.*, most metals, except mercury. Costs are directly related to the waste stream volumetric flow rate and the pollutant loading. Capital cost, however, are much lower than for a baghouse.

^f This technology (dry electrostatic precipitator, wire-pipe type) is suited to control HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99% to 99.9%. ESPs may not be suitable in processes that are highly variable since they are sensitive to fluctuations in gas stream conditions and particulate loadings. ESPs also may be difficult to install in sites with limited space.

^g This technology (dry electrostatic precipitator, wire-plate type) is suited to control HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99% to 99.9%.

^h This technology (wet electrostatic precipitator, wire-pipe type) is suited to control HAPs that are in particulate form, *viz.*, most metals, except mercury. New equipment design efficiencies range 99% to 99.9%. This technology can be used to control acid mists and VOCs. Wet wire-pipe ESPs are used more extensively than dry wire-pipe types.

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

ⁱ This technology (wet electrostatic precipitator, wire-plate type) is suited to control HAPs that are in particulate form, viz., most metals, except mercury. This technology can be used to control acid mists and VOCs. New equipment design efficiencies range 99% to 99.9%.

^j This wetted-filter, or mist eliminator, technology collects fine or soluble PM or liquid aerosols, including inorganic and VOCs. For computing cost effectiveness, the inlet loading of PM was set at 3 grains per scf with a waste gas flow ranging from 1,000-100,000 scfm. Collection efficiencies for PM and VOC mists range from 70% to 99% depending on the size of the aerosols to be collected as well as the design of the scrubber and the fiber beds.

^k For computing cost effectiveness, an inlet loading of approximately 3 grains per scf of PM was used. Collection efficiencies range 50% to 99% for PM removal and 80% to 99% for inorganic gases. This technology can be effective for HAP control when used in combination with other control technologies, such as incinerators or carbon adsorbers.

^l This wet-scrubber technology is limited to applications where dust loading is low, but it can be used to control HAPs in particulate form. For computing cost effectiveness, the hydrochloric acid was used as the pollutant and aqueous caustic soda as the solvent. Collection efficiencies range 50% to 95% for PM, 70% to 99% for VOCs, and 95% to 99% for inorganic gases. Again, this technology generally will be effective for HAP control when used in combination with other control technologies, such as incinerators or carbon adsorbers.

^m For computing cost effectiveness, an inlet loading of approximately 3 grains per scf of PM was used. Collection efficiencies range 70% to 99% for PM, 50% to 95% for VOCs, and 80% to 99% for inorganic gases. Spray towers are generally limited to use for PM removal and with high-solubility gases (like venture scrubbers). Again, this technology generally will be effective for HAP control when used in combination with other control technologies, such as incinerators or carbon adsorbers. Other scrubbers technologies that could be used include: mechanically-aided scrubbers, orifice scrubbers, and condensation scrubbers.

ⁿ Incinerator technology includes catalytic (catalytic oxidizer or catalytic reactor), thermal (direct flame or thermal oxidizer), recuperative (thermal oxidizer or thermal incinerator), and regenerative (regenerative thermal oxidizer or regenerative catalytic oxidizer when a catalyst is used). This technology can be used to control VOCs, and many types of PM. Incinerators generally have a high initial cost and high maintenance. They could be difficult and expensive to install as well. Thermal incinerators normally are not as economical as recuperative or regenerative incinerators. Furthermore, they may not be suited to emission streams with highly variable flow rates due to reduced residence time and poor mixing during increased flow conditions.

^o This technology can be used to treat organic HAPs and VOCs. Although several types of equipment can collect gases, fixed-bed and canister units are the most commonly used in air pollution control applications. These pollutants could be recovered, recycled, or concentrated for additional treatment by adsorption technology. Adsorbents include carbon, zeolite, and polymer. A properly designed adsorber system could achieve 95% to 98% control efficiency at input concentrations between 500 ppm and 2000 ppm in air. This technology could be combined with an incinerator or condenser. It is possible to recover VOCs to sufficiently offset the annual costs of operation and produce a net annual credit (EPA Technical Bulletin, "Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers?" EPA 456/F-99-004, May 1999). The example in the table is based on a thermal swing (regenerative) carbon adsorption system operating 8,000 hours per year. The net annual credit is for toluene recovery. Recovery credit, however, depends on total annual cost, which is related to inlet emission rate, control efficiency, and value of the recovered organic.

^p Wet-scrubber technology removes PM by centrifugal and inertial forces by forcing particulate-laden gas to change direction. For computing cost effectiveness, the flow rate in this example ranged 1,060-106,000 scfm, the PM inlet loading was 1.0-100 grains per scf, and the control efficiency was 90%. Considering the volumetric flow rate and per quantity of pollutant controlled, smaller units controlling a waste stream with low PM concentrations should be more expensive to operate than a large unit controlling a waste stream with a high PM concentration.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):

1. Methyl ethyl ketone (MEK) was removed from the list of HAPs at R18-2-1703, the table of de minimis levels at R18-2-1701, Table 2, and the table of acute and chronic ambient air concentrations at R18-2-1708, Table 3, because of removal from the federal list of HAPs. (See 70 FR 75047 (December 19, 2005).)
2. The definition of glycol ethers (R18-2-1703(179)) was changed to match a redefinition in 65 FR 47432 (August 2, 2000). The definition in the Notice of Proposed Rulemaking excluded the group surfactant alcohol ethoxylates and their derivatives (SAED) by name in R18-2-1703(179)(b). The change excludes this same group by changing the formula in R18-2-1703(179)(a). The result in both cases is the same: the exclusion of SAED. However, the redefinition in the Notice of Final Rulemaking matches the redefinition made in the federal list, and is therefore more appropriate.
3. In response to Comment 20, ADEQ removed Copper Ores, SIC Code 1021, from the list of affected Minor Source Categories at R18-2-1702. The original inclusion of that SIC Code was the result of submittal of faulty data by the modeled source, which improperly included emissions from tailpipes of mobile sources. Upon review of the corrected data, ADEQ concluded that the Copper Ores SIC Code no longer qualified for listing.
4. In response to Comment 16, the language of R18-2-101(106)(c) was changed so that the reference to the statutory definition of hazardous air pollutants was changed to refer to Article 17. This change preserves regulatory uniformity and clarity.
5. In response to Comment 17, the definitions at R18-2-1701(3) and R18-2-1701(4) switched places.

Notices of Final Rulemaking

6. In response to Comment 17, the incorrect references in R18-2-1701(4) to R18-2-1708(D)(1), R18-2-1708(D)(2) and R18-1-1708(D)(3) were changed to R18-2-1708(C)(1), R18-2-1708(C)(2) and R18-1-1708(C)(3), respectively.
7. In response to Comment 19, the language in R18-2-1701(13)(a) was changed to read “any state HAP emitted by the source,” so that it mirrors the language in the root clause.
8. In response to Comment 116, ADEQ has added R18-2-1702(G), delaying the effective date of the rule until January 1, 2007, so that counties will have sufficient time to adopt their own HAPs programs.
9. In response to Comment 32, ADEQ has added language in R18-2-1702(G), clarifying that permit applications received before the rule becomes effective shall not be subject to the HAPs program.
10. Grammatical and technical changes to improve the rules’ clarity, conciseness and understandability.

11. A summary of the comments made regarding the rule and the agency response to them:

Comment 1: Commenter does not support relying on a risk-based approach to excuse a source from meeting environmental and health protection requirements.

Response: The Arizona Revised Statutes require ADEQ to establish the risk management analysis (RMA) procedures for this purpose. ADEQ has built sufficient safeguards, including review and approval of protocols for complex RMAs and requiring public review and comment on all RMAs, to prevent abuse of the process.

Comment 2: Commenter suggests that ADEQ’s use of the SCREEN model is overly conservative. As a result, ADEQ has not shown that emissions from the listed source categories, as the statutes require, “result in adverse effects ...” “[T]he ADEQ method can overestimate actual human exposure by close to 1 million times ... (1) up to 81 times the monitored concentration by using SCREEN3 with emissions exiting from the lowest stack; (2) 6 times the concentration predicted using the building height calculated following the method in the ADEQ memo; (3) up to 1.91 times the concentration predicted using urban dispersion; (4) 625 times that predicted with the EPA Tier 2 method using ISC to predict outdoor concentration at the nearest residences ... (5) 12.5 times greater than the outdoor exposure of the average individual, as the average individual is outdoors about 8% of the time compared with the 100% assumption used by ADEQ.”

Response: ADEQ disagrees. The purpose of this program is to protect public health and the environment from HAPs, which are, by definition, dangerous toxins; a conservative approach is entirely appropriate. ADEQ does not need to document that adverse effects to human health have actually resulted. A.R.S. § 49-401.01(2) defines adverse effects to human health as “those effects that result in or *significantly contribute to* an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, including adverse effects that are known to be or *may reasonably be anticipated* to be caused by substances ...” (emphasis added). (1) ADEQ has not been granted the resources to conduct refined modeling on every source, which would exceed \$100,000 by itself. Further, ADEQ used industry-reported data, which was incomplete for many sources. All data available were used, and when data were not available, ADEQ used conservative assumptions rather than making arbitrary determinations of what the data were likely to be. Further, SCREEN3 predictions are not always higher than those from more refined modeling. (2) Where building heights were not available, ADEQ assumed a minimum building height of 12 feet. (3) ADEQ cannot be assured that any new source or modification to an existing source will occur in an area that will have “urban dispersion” characteristics. ADEQ remodeled all sources using urban dispersion, and all those that were located in urban areas still exceeded the listing threshold by significant margins (see response below). (4) Ambient air does not begin at the nearest residences. Sources are very rarely isolated from other land uses, where people are working, shopping and even recreating. (5) While the average person may spend 8% of their time outdoors, Arizonans can and do spend more time outdoors than average people. Further, many houses are not tightly sealed or are swamp-cooled, in which cases indoor air would closely resemble or be identical to outdoor air.

Comment 3: Commenters note that EPA removed methyl ethyl ketone (MEK) from the federal list of HAPs on December 19, 2005, by final rulemaking and suggest that it be removed from the Arizona list in R18-2-1702.

Response: ADEQ agrees that removal of MEK from the state list of HAPs at R18-2-1702 is appropriate and has done so in this final rulemaking.

Comment 4: Commenter states that certain de minimis value emission rates are so extremely small that readily available information is inadequate to determine an exceedance of the de minimis value.

Response: Firstly, it is important to note that sources affected by this rulemaking already are emitting at least 1 ton of a HAP or 2.5 tons of a combination of HAPs. Some of the de minimis levels for these HAPs are low because the HAPs in question are toxic in very low doses. ADEQ recog-

Notices of Final Rulemaking

nizes that it may be infeasible for some sources to determine whether a particular increase exceeds some of the de minimis levels. In these cases, the source will have to assume that a physical or operational change that results in any increase constitutes a modification. ADEQ believes this is an appropriate approach for these highly toxic pollutants. Note, however, that there must be a reasonable basis for believing there will be at least some increase in emissions of the HAP in question. For example, if a source is substituting one process input for another, and it is not possible to determine whether the HAP content of the new ingredient exceeds that of the old, then the change to the new input will not trigger the program.

Comment 5: Commenter suggests the SCREEN3 model is inappropriate for reactive HAPs (like formaldehyde) or particle-bound HAPs that dry deposit from the atmosphere.

Response: ADEQ disagrees. Chemical transformations in the atmosphere are complex and require transport distances of several kilometers. Since the ADEQ modeling shows that for most facilities the maximum impact would occur within 1,000 meters of the facility, there would not be adequate time for photochemical reactions to occur that would make any difference in the predicted concentrations. Therefore, photochemical reactions were not considered applicable to the screening analysis conducted by ADEQ. ADEQ also points out that worst-case meteorological conditions often occur at night where photochemical reactions would not occur. Not much wet deposition would occur in Arizona and many of the pollutants modeled by ADEQ would not be in particle form. In addition, if deposition is occurring near a facility, these materials would be accumulating in the environment, be re-entrained, be re-introduced to the ambient air, and enter the body through different pathways not considered by the ADEQ analysis. The time and resources needed to conduct a dry/wet deposition analysis for the facilities modeled by ADEQ would be extensive, likely costing several hundred thousand dollars. ADEQ believes that the use of ISC with wet/dry deposition and depletion is appropriate in certain situations, and would consider using these options on a case-by-case basis for an RMA.

Comment 6: ADEQ ignores its own advice provided by ENSR in its 1995 report on HAPs exposure regarding modeling removal of HAPs from the atmosphere through chemical reactions and deposition.

Response: The example provided by the commenter is not applicable for the modeling conducted in support of this rule. The study to which the commenter refers included the use of an urban-scale model using a gridded comprehensive emissions inventory (all sources, including biogenic sources) over a very large modeling domain. If that level of modeling were to be conducted, ADEQ would most certainly consider all those factors. The modeling conducted in support of this rulemaking, however, assessed single sources at a microscale level of resolution. Consequently, the available resources, level of effort, and purposes of the modeling exercises were vastly different. Application of ENSR's rigor to all sources that needed to be modeled for this rule was far beyond ADEQ's available resources and would not be satisfactory for assessing near-field impacts from those sources.

Comment 7: ADEQ has inconsistently applied urban and rural dispersion characteristics in its regulatory decision-making. Commenter cites the Salt River PM10 SIP Technical Support Document, which provides details on ISCST3 modeling conducted by ADEQ for that SIP.

Response: The example provided by the commenter is not applicable for the modeling conducted in support of this rule. The Salt River PM10 SIP modeling was urban-scale, using a gridded comprehensive emissions inventory (all sources) over a large modeling domain. The modeling conducted in support of this rulemaking, however, assessed single sources at a microscale level of resolution.

Comment 8: Commenter asks for the scientific justification for using a risk level as low as one in a million to define chronic air levels above which serious irreversible effects will occur.

Response: The choice of a particular risk level is ultimately a policy, not a scientific, decision. In ADEQ's judgment, a 10^{-6} risk level satisfies the statutory definition of adverse effects as including those that "may reasonably be anticipated to be caused by substances that are . . . carcinogenic."

Comment 9: Commenter asks how AACs below background levels can cause serious irreversible effects?

Response: ADEQ does not agree with this commenter's apparent assumption that background concentrations, which are the result of existing emissions, cannot cause or contribute to adverse effects to human health.

Comment 10: Commenter asks why some chronic AACs are based on "highly uncertain" high-dose rodent data when a wealth of human data is available at low doses (e.g. formaldehyde)?

Notices of Final Rulemaking

- Response:** The AACs are based on EPA and other databases commonly used for the development of health-based concentrations. ADEQ does not have the resources to duplicate EPA's work and review the scientific literature underlying the concentrations. Therefore, it is reasonable for ADEQ to rely on established EPA data rather than attempt to duplicate or justify the work since EPA has already developed databases that have been subjected to peer review.
- Comment 11:** The Tier 4 RMA should be completely flexible and identical to the statutory example in A.R.S. § 49-426.06(D). ADEQ's Tier 4 is too restrictive.
- Response:** The Tier 4 RMA allows the applicant to submit, and requires ADEQ to consider, all of the data specified by the statute. It therefore complies with A.R.S. § 49-426.06(D). A.R.S. § 49-426.06(A) authorizes ADEQ to adopt regulations implementing the requirements of A.R.S. § 49-426.06. There would be no point in including this authority if ADEQ were required simply to duplicate the statutory language.
- Comment 12:** Commenter suggests that the HAPs program, because it exempts existing sources, is insufficiently responsive to the needs of Arizona citizens and places an unfair economic burden upon new businesses.
- Response:** Statutory mandate limits ADEQ to regulation of only new sources and modified existing sources. Lacking further statutory authority, unmodified existing sources will remain unregulated by this program.
- Comment 13:** Commenter states that the statute is insufficient to protect the needs of Arizona's citizens from hazardous air pollutants emitted by existing sources.
- Response:** Again, ADEQ must stress that only the execution of existing statutory law is within its purview. This rulemaking is not the appropriate forum to debate the effectiveness of existing statutory law.
- Comment 14:** Commenter states that an existing source, Brush Ceramics, emits deadly beryllium oxides in a predominantly blue collar, Hispanic community, and is within a 1-mile radius of six public schools and residences, including a new housing complex located directly across the street. The same area is under Tucson International Airport and Air National Guard flight paths. The HAPs program does not consider the possible cumulative effects of different sources on these impacted communities.
- Response:** ADEQ notes that cumulative effects may be a problem for impacted communities. The program authorized by statute is a control technology based program for primarily industrial sources of air pollution that reduces risk by requiring installation and operation of control technology to reduce emissions at new and modified existing sources. The statute does not authorize HAPs controls at unmodified existing sources.
- Comment 15:** In Question Three of the Notice of Proposed Rulemaking, the second "Notice of Docket Opening" should be listed as "Notice of Proposed Rulemaking."
- Response:** Commenter is incorrect. ADEQ terminated the original docket on this rulemaking, and opened a second docket immediately thereafter. A third docket was opened to cover all the ancillary rules not included in Article 17 that were affected by this rulemaking. Thus, there are three Notices of Docket Opening, and one Notice of Termination covered by Question Three of the proposed rulemaking.
- Comment 16:** Commenter suggests that R18-2-101(106)(c) should be changed from "A.R.S. § 49-401.01(11)" to "Article 17."
- Response:** Commenter is correct; that reference should be changed to reflect uniformity among the existing regulations. ADEQ will amend R18-2-101 appropriately.
- Comment 17:** Commenter suggests that R18-2-1701(3) should be R19-2-1701(4), and vice versa, and that R18-2-1701(4) should refer to R18-2-1708(C)(1) rather than R18-2-1708(D)(1).
- Response:** Commenter is correct. The subsections are incorrectly numbered in reverse order, and R18-2-1701(3) should refer to R18-2-1708(C)(1), as suggested. ADEQ will change R18-2-1701(3) accordingly.
- Comment 18:** Commenter suggests that R18-2-1701(7) should read "chronic adverse effects to human health that are of a persistent, recurring or long-term 'in' nature (emphasis added).
- Response:** ADEQ disagrees. ADEQ believes commenter has misread the sentence.
- Comment 19:** Commenter suggests that R18-2-1701(13)(a) should be changed so that the language "emitted by the source" is added, to mirror the language in the root clause, R18-2-1701(13).
- Response:** ADEQ agrees and will amend the subsection appropriately.

Notices of Final Rulemaking

Comment 20: Commenters request that the SIC for Copper Ores be removed from the list of affected Minor Source Categories at R18-2-1702, as the data used to make the category determination were inaccurate. The correct data were submitted to ADEQ.

Response: ADEQ has reviewed the analysis provided by commenter's contractor and agrees that the data originally submitted by the commenter incorrectly included tailpipe emissions from mobile sources. When those emissions are properly omitted from the analysis, the Copper Ores SIC Code no longer qualifies for listing. ADEQ has removed that source category from the list of affected minor sources in this rulemaking.

Comment 21: Commenter suggests that ADEQ has gone outside its statutory authority by ignoring the findings of the study required by A.R.S. § 49-426.08. The commenter argues that the report found that the majority of HAPs emissions resulting in adverse effects to human health come from motor vehicles, wood burning and chlorinated water and that, therefore, any HAPs regulations should have focused on these issues, rather than industrial sources.

Response: ADEQ disagrees that it has exceeded its authority in focusing on industrial sources. ADEQ fulfilled the mandate of A.R.S. 49-426.08 by conducting and publishing the required report. A.R.S. § 49-426.06, which is not dependent upon the findings of the required report, states that:

"After publication of the report prescribed by 49-426.08, subsection B, the director shall by rule establish a state program for the control of hazardous air pollutants that meets the requirements of this section. The program established pursuant to this section shall apply to the following sources:

1. *Sources that emit or have the potential to emit with controls ten tons per year or more of any hazardous air pollutant or twenty-five tons per year or more of any combination of hazardous air pollutants.*
2. *Sources that are within a category designated pursuant to section 49-426.05 and that emit or have the potential to emit with controls one ton per year or more of any hazardous air pollutant or two and one-half tons per year of any combination of hazardous air pollutants."* (Emphasis added.)

A.R.S. § 49-401.01(34) defines "source" as "any *building, structure, facility or installation* that may cause or contribute to air pollution or the use of which may eliminate, reduce or control the emission of air pollution." (Emphasis added.)

A.R.S. § 49-401.01(8) defines "building", "structure", "facility" or "installation" as "all of the pollutant-emitting activities which belong to the same *industrial* grouping, are located on one or more contiguous or adjacent properties and are under the control of the same person or persons under common control except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same *industrial* grouping if they belong to the same major group which has the same two digit code, as described in the standard *industrial* classification manual, 1972, as amended by the 1977 supplement." (Emphasis added.)

Therefore, it is clear that ADEQ is merely fulfilling its statutory mandate by regulating these industrial sources, not exceeding its authority or contravening the statute.

Comment 22: Commenter asserts that ADEQ's HAPs study conducted under A.R.S. § 49-426.08 concentrated on HAPs exposure in residential areas rather than near stationary sources of HAPs, which, as a result, failed to identify risks associated with HAPs emissions from stationary sources.

Response: ADEQ was careful to make sure that it conducted the study called for by A.R.S. § 49-426.08 in compliance with the requirements therein, which was to address "the existing risk to public health related to hazardous air pollution and to provide options and recommendations for programs to control the release of hazardous substances into the ambient air." The specific charges given to ADEQ on this study were considerably broader than evaluating sources that might have been subject to this rule. Even so, the \$1 million appropriated for this study could only fund 5 community monitoring locations and a background monitor in addition to the risk assessment and other components of the study. Conducting similar evaluations for the 75 categories of sources known to emit HAPs above the minor source threshold was not required by the statute and could not have been conducted within the budgets provided to ADEQ. In addition, the language of A.R.S. § 426.06(A) makes the development of this rule dependent only in time and not upon any finding from that report. This was correctly contemplated by the Legislature, as the purpose of this program is not to control all known risks from HAPs as much as to mitigate the near-field impacts of HAPs emissions from sources currently unregulated through the federal program.

Notices of Final Rulemaking

- Comment 23:** Commenter suggests that since the only cement plants currently active in Arizona are major sources, and therefore are subject to a federal MACT standard, ADEQ should not have listed cement plants as a HAPS minor source category.
- Response:** ADEQ disagrees. Merely because there are no minor sources in this category currently active does not mean that there will be no minor source cement plants opened in the future in Arizona. Major sources were modeled precisely to determine if minor sources in the same category should be listed. Further, since the only sources in the state are major sources subject to federal MACT standards, they cannot be subject to HAPRACT and the inclusion of their category in the minor sources list will have no effect upon them.
- Comment 24:** Commenter suggests that ADEQ must consider, under A.R.S. § 49-426.05(A)(3), “whether the category should be limited to sources located in one geographic area.” By listing SIC Code 3241, “Cement, Hydraulic,” for which no minor sources currently exist in any geographic area, ADEQ has exceeded its authority.
- Response:** ADEQ disagrees. § 49-426.05(A) requires the director, in determining whether a source category results in adverse effects to human health to consider a number of factors, including location and whether the category should be limited to a specific geographic area. In modeling major cement plant sources, and determining that minor sources of the same category pose a sufficient threat to public health to list them, that consideration was included in the decision-making process. It was necessary to list the category, but not practicable to limit that category to a geographic area, because they might be located anywhere in the state. The statutory scheme upon which the HAPs program is based requires regulation of modified and new sources. A new source, by definition, has not previously existed or been located anywhere, as yet.
- Comment 25:** Commenter states that the listing of cement plants as a minor source needlessly suggests that cement plants emit dangerous levels of formaldehyde, a suggestion they strongly dispute. They suggest that the IRIS data on formaldehyde is outdated, and cite 69 FR 18333-18334 in support of this claim, and further assert that EPA issued a stay of the NESHAP for two stationary combustion turbine engines as a result of that conclusion (*see* 69 FR 51185).
- Response:** Health effects data on formaldehyde are currently undergoing review and in the future may be determined to represent a lower cancer risk than currently estimated. While this may be true, it has not happened yet. According to the EPA Tracking site, the estimated completion date for review of formaldehyde is June 2007; the first draft is not due until October 4, 2006, and it typically takes at least two years after a first draft for completion. Further, these deadlines are routinely unmet. ADEQ has selected the best currently available regulatory values and recognizes that in the future some of the values may go up and others may go down. The modeled cement plant emits formaldehyde at 353% of the chronic AAC. ADEQ believes that it is appropriate to list cement plants as a minor source category based on potential annual emissions of formaldehyde.
- Comment 26:** Commenter suggests that by listing cement plants, ADEQ is ignoring EPA’s position on formaldehyde emissions and contravening its statutory mandate to implement the federal program under A.R.S. § 49-426.03.
- Response:** ADEQ disagrees. The listing of cement plants as a minor source category for regulation under the state program does not interfere with or contravene implementation and enforcement of the federal program.
- Comment 27:** Commenter states that the average background concentration of formaldehyde in Phoenix is 4 µg/m³, nearly eight times higher than maximum predicted concentrations from cement plant emissions and more than twenty-five times greater than the listed chronic AAC. Commenter therefore questions ADEQ’s conclusion that the proposed chronic AAC for formaldehyde represents the concentration of HAPs above which it is predicted that adverse effects to human health would occur.
- Response:** ADEQ disagrees with the commenter’s apparent assumption that background concentrations, which are the result of existing emissions, cannot cause or contribute to adverse effects to human health. The proposed chronic AAC for formaldehyde indicates that, for this particular pollutant, EPA’s databases show adverse human health effects at levels one twenty-fifth of the background number provided by the commenter. ADEQ, therefore, maintains that the AAC established for formaldehyde is appropriate.
- Comment 28:** Commenter asserts that ADEQ should remove cement plants from the list of affected minor source categories for HAPs; if a new minor source cement plant is proposed in Arizona, commenter suggests that authority to regulate it exists under A.R.S. § 49-425.05(C).

Notices of Final Rulemaking

- Response:** ADEQ disagrees. A.R.S. § 49-425.05(C) allows for the designation of a category as an affected minor source category, when a source that is within a category that has not been so designated submits a permit application. ADEQ maintains that cement plants have been so designated, and appropriately so.
- Comment 29:** Commenter asserts that all emissions units at a major source subject to a federal MACT standard should be exempt from the Arizona HAPs rule. EPA continues to update MACT standards, so there is little chance that federal MACT standards will become dated.
- Response:** ADEQ disagrees. Emissions units subject to a MACT standard would be exempt from the Arizona HAPs rule, but it is not in keeping with the requirements of the statute to exempt emissions units not subject to emission standards for HAPs under a federal MACT standard if the units emit HAPs that would exceed an AAC.
- Comment 30:** ADEQ can only establish case-by-case MACT for modifications or new major sources after EPA establishes guidance under Section 112(g) of the Clean Air Act, according to A.R.S. § 49-426.03(B)(2).
- Response:** ADEQ disagrees. A.R.S. § 49-426.03(B) governs ADEQ's adoption of "a program for administration and enforcement of the federal HAPs program established by § 112 of the clean air act." ADEQ believes commenter is confusing the state HAPs program with state enforcement of the federal HAPs program. A.R.S. § 49-426.03(B) has nothing to do with the state HAPs program to be established under A.R.S. § 49-426.06.
- Comment 31:** Commenter suggests that ADEQ should clarify that it cannot impose additional emission limitations for other HAPs for cement kilns than those already covered by the federal MACT.
- Response:** Commenter is correct that the existing regulatory language in R18-2-1702(B)(1) has this effect for cement kilns, since they are "affected sources" under 40 CFR Part 63. R18-2-1702(B)(1) reads: "The provisions of this *Article* shall not apply to: . . . [a]ffected sources for which a standard under 40 CFR Part 61 or 40 CFR Part 63 imposes and emissions limitation." (Emphasis added.)
- Comment 32:** ADEQ should state in the rule that permit applications submitted before the effective date of the new HAPs rule would be excluded from applicability of the new rule.
- Response:** ADEQ agrees that this is a useful clarification and will amend the rule accordingly by adding language to R18-2-1702, Applicability.
- Comment 33:** ADEQ should explicitly exclude natural crustal materials from regulation in R18-2-1702(B).
- Response:** R18-2-1705(E) excludes natural crustal materials from inclusion in the determination of whether HAP emissions from a new source or modification exceed the prescribed thresholds or de minimis amounts, in accordance with A.R.S. § 49-426.06(I).
- Comment 34:** Commenters state that proposed de minimis levels should be amended to be measurable and otherwise technically supportable. Some of the proposed de minimis levels are so small as to render any modification a modification that would implicate the HAPs program that commenter suggests is contrary to the statute, which defines a modification as a change that "increases the actual emissions of any regulated air pollutant" above the relevant de minimis levels. A.R.S. § 49-401.01(24). A program that supposes that, because of extremely low thresholds, nearly any modification would trigger control requirements, is likely to result in unreasonable delays, and unnecessary and potentially devastating economic consequences. In addition, there is precedent for establishing any emission rate as the de minimis level for a pollutant in EPA's PSD rules, which regulate less dangerous pollutants than the state HAPs program. (see 40 CFR 52.21(b)(23)(ii)).
- Response:** ADEQ disagrees. Again, it is important to note that sources affected by this rulemaking already are emitting at least 1 ton of the HAP in question or 2.5 tons of a combination of HAPs. Further, ADEQ must stress that this program regulates toxic air pollutants. Some of the de minimis levels are low because the HAPs in question are toxic in very low doses. ADEQ recognizes that it may be infeasible for some sources to determine whether a particular increase exceeds some of the de minimis levels. In these cases, the source will have to assume that a physical or operational change that results in any increase constitutes a modification. ADEQ believes this is an appropriate approach for these highly toxic pollutants.
- The rule utilizes a consistent methodology to adopt de minimis levels for all pollutants regulated under the proposed rule regardless of whether businesses can measure a specific pollutant at the de minimis levels given current technology. The methodology is consistent with the statutory framework and A.R.S. § 49-401 (24) and serves to protect human health. Establishing a de minimis level at a higher level solely based on businesses' ability to measure that level under current technology would be inconsistent with the statutory framework, and would not

Notices of Final Rulemaking

protect human health, nor would it recognize that technological advances may allow pollutants to be measured at lower and lower levels over time.

Note, however, that there must be a reasonable basis for believing there will be at least some increase in emissions of the HAP in question. For example, if a source is substituting one process input for another, and it is not possible to determine from the Material Data Safety Sheets (MSDS), or other means, whether the HAP content of the new ingredient exceeds that of the old, then the change to the new input will not trigger the program.

Economic impact is discussed in detail in the Economic Impact Statement. ADEQ notes that the statute requires HAPRACT for the listed source categories, unless they are major sources, in which case they are subject to regulation without regard to the category list. The economic impact of controls is very much a relevant consideration in determining HAPRACT. In addition, controls can be avoided entirely, or the cost mitigated, through the submission of an RMA, and ADEQ has endeavored to allow for a number of low-cost RMA options.

Comment 35: Commenter contends that voluntary, facility-wide HAPs emissions caps are a critical, and more flexible means of minimizing adverse economic impacts on Arizona businesses, and urges ADEQ to change the rule to allow for such emissions caps.

Response: ADEQ disagrees. The Department remains concerned about the difficulty of ensuring that public health is protected in implementing emissions caps because they would allow HAPs concentrations resulting from emissions to exceed levels that humans can tolerate, even if total emissions remain below the cap. The Department has concluded that alternative operating scenarios can provide flexibility while assuring that public health is protected.

Comment 36: Commenter states that the application of ADEQ's Process Area Boundary Policy is in contravention of the definition of "ambient air" as adopted by rule. Commenter also notes that ADEQ cannot apply this unique policy that expressly fails to recognize public access as a deciding factor in determining where the ambient air boundary lies.

Response: ADEQ disagrees that its long-standing policy concerning the process area boundary is inconsistent with the definition of ambient air or other air quality regulations. Areas outside the process area are generally open to visitors, resulting in acute exposure concerns. In addition, they may be sold to and developed by third parties, which may result in future chronic exposure. Moreover, ADEQ notes that no permit application has ever been denied based on the application of the process area boundary policy.

Comment 37: Commenter states that ADEQ's attempt to impose perpetual limitations, such as recorded deed restrictions, expands the definition of ambient air beyond its present meaning. Such restrictions are unnecessary, as ADEQ already has enforcement authority to ensure that artificial ambient air boundaries are not created for permitting purposes, and then subsequently dismantled.

Response: ADEQ believes that the commenter misapprehends the purpose of "exposure assumptions consistent with institutional or engineering controls that are permanent and enforceable outside the permit" (See R18-2-1708(B)(3) and (4), the Tier 3 and Tier 4 RMA procedures), of which deed restrictions are one example. The demonstration of these controls is an option of which permit applicants may avail themselves when conducting a Tier 3 or Tier 4 RMA. By demonstrating that there will be permanent and enforceable controls on emissions outside the process area boundary, the applicant may, when modeling for their RMA, assume exposure outside the "ambient air." This gives the applicant greater flexibility in conducting their RMA, as well as present and future operations, while still ensuring that the public, now and in the future, will be protected from HAP emissions in that specified area. It is by no means an attempt to impose a new requirement, nor is it an attempt to expand the definition of ambient air beyond its present meaning. As ADEQ has noted previously, there is no mutual inconsistency between the current definition of ambient air and the process area boundary policy that would necessitate such a redefinition.

Comment 38: Commenter contends that Tier 1 and 2 RMAs do not warrant public notice and hearing because they involve simple, pre-defined mathematical equations and should not, therefore, invoke a significant permit revision. Public notice would, in these cases, create undue delay in permit applications.

Response: Although the calculations and procedures in Tier 1 and Tier 2 are specifically defined in rule, ADEQ has determined that implementation of the calculations and procedures constitutes a "case-by-case determination of an emission limitation or other standard," which is excluded from being processed as a minor permit revision under A.A.C. R18-2-319(A)(3). In addition, Tier 1 RMAs will, and Tier 2 RMAs may, use AACs established by guidance or developed by the permit applicant. The public should have the opportunity to comment on whether these AACs are sufficiently protective. Further, even if a source were exempt from HAPRACT or

Notices of Final Rulemaking

AZMACT through an RMA, they would still require a permit. Most such permits will need to incorporate the assumptions, such as limits on operating hours, on which the RMA is based. In addition, the permit will include any other applicable requirements, such as opacity standards, that apply to the source.

Comment 39: Commenter requests that ADEQ exempt existing combustion turbines based on the EPA determination that MACT for existing combustion turbines is the same as the MACT floor, i.e. no emission reduction. (See 69 FR 10512, March 5, 2004.)

Response: ADEQ disagrees. The Department has concluded that it is not appropriate to exempt emissions units not subject to a federal MACT standard for HAPs.

Comment 40: Commenter asserts that the Ryan report correctly identifies inappropriate application of the SCREEN3 model. SCREEN3 should be used to identify exposure and when and where exposure is unlikely to be of environmental concern. Industrial Source Complex model is more appropriate for multiple sources, even for screening-level analysis.

Response: ADEQ disagrees. It is not apparent that this commenter has read ADEQ's modeling analysis, or other supporting documents to the rule. The Ryan report has mischaracterized EPA's modeling guidance regarding criteria pollutants. The EPA guidance covers criteria pollutants only because criteria pollutants are the only pollutants covered by the federal permitting program that would require air quality modeling. None of the EPA permitting programs require modeling for HAPs. The EPA guidance (40 CFR Part 51 Appendix W1) does state that SCREEN3 can be used "where a preliminary or conservative estimate is desired ... EPA has published guidance for screening procedures ... and a computerized version of the recommended screening technique, SCREEN3, is available." The use of SCREEN3 in this manner was the intent of the ADEQ analysis. EPA's SCREEN model guidance document, "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources" (EPA, 1992) states, "The techniques can also be used, where appropriate, for new major or minor sources or modifications subject to new source review regulations, and existing sources of air pollutants, including toxic air pollutants." (emphasis added)

In its modeling demonstration, the Ryan report used only one year of meteorological data to conduct ISC modeling. One year of meteorological data is not adequate to demonstrate that the ISC model would always show lower 1-hour impacts than the SCREEN3 model. In reality, it is possible for ISC to predict higher 1-hour concentrations than SCREEN3. The analysis is misleading because Ryan Environmental modeled a single source and a single emission scenario (the generic volume source) and not the wide variety of emission scenarios modeled by ADEQ. To adequately demonstrate that ISC always predicts lower than the SCREEN3 model in all cases would require an extensive analysis of all the modeling scenarios modeled by the ADEQ for each facility and a larger set of meteorological conditions (i.e., 5 years of data per EPA guidance; See 40 CFR Part 51, Appendix W, Section 9.3.1.2).

Again, conducting refined ISC modeling for each HAP emitted at each facility would be time and resource intensive. An estimated dollar amount to conduct refined ISC modeling for all the facilities modeled with SCREEN3 in the ADEQ analysis would easily exceed \$100,000.

The Risk Management Analysis (RMA) process allows any applicant subject to the HAPRACT rules to conduct an analysis in which a more refined model could be utilized as approved by ADEQ.

Comment 41: Commenter states that, as mentioned in the Ryan report, the dispersion analyses based on annual average emission rates may not represent real intermittent emissions.

Response: ADEQ disagrees. Intermittent emissions are irrelevant when considering potential to emit. Annual averages must be considered for a proper evaluation of long-term exposure and the ensuing risks of chronic adverse health effects.

Comment 42: Commenter asserts that the Ryan report correctly notes that ADEQ's analysis assumes that exposure occurs at a distance of as close to 11 meters (de minimis) and 25 meters (source category) away from the emission source.

Response: Commenter is incorrect. The receptor array *begins* at 25 meters, and extends out to 10 kilometers. In addition, the SCREEN3 model locates the specific distance to the overall maximum concentration at or beyond 25 meters. It is this overall maximum concentration that was used in the decision-making process, regardless of the distance where it occurred. However, the distance to maximum concentration was specifically 25 meters for only some of the facilities modeled by ADEQ. Since the HAPs program only applies to new and modified existing sources, the location of the nearest receptor to a facility for facilities that will be subject to its requirements is unknown. ADEQ feels that 25 meters adequately represents conditions that currently occur at existing facilities in Arizona.

Notices of Final Rulemaking

- Comment 43:** Commenter states that the Ryan report correctly suggests that the heights of the release sources were arbitrarily assumed without connection to any real facilities. Moreover, plume rise due to temperature effects was not considered. Also, exit velocity was not appropriately considered. Site-specific information should be used for the analysis.
- Response:** ADEQ understands that release height is an important factor in dispersion. The ADEQ modeled facilities as they existed in the state and local agency databases based on information supplied by the facilities. The report continues to miss this fact and concentrate on only one aspect of the analysis (i.e., the volume source modeling). In addition, if a specific source wished to correct the modeling conducted for its facility, it had the opportunity to supply the appropriate information to ADEQ. Only when information was not available to model a facility was the generic volume source used. Therefore, this comment is misleading, since many facilities with elevated stacks were modeled using the information provided by each individual source and found in ADEQ and county stationary source databases.
- Neither SCREEN3, used by Weston, nor ISC, provide options to account for plume rise from a heated volume source. It should be noted that volume source modeling was in any case only performed when Weston did not possess the necessary stack data, such as plume temperature.
- ADEQ was not able to determine from the relatively old references (one over 30 years old and the other over 20 years old) presented in the report the rational basis for the “500% to 800%” values asserted therein.
- Comment 44:** Commenters assert that ADEQ did not take the time to characterize true building heights near the industrial sources that it modeled. ADEQ assigned an artificial building height to each source, which caused stack emissions to impact the ground at greater concentrations than if there were no building.
- Response:** ADEQ originally planned to use actual building heights but found that these data were not readily available for all sources modeled. If emission point data for a facility could not be identified from the ADEQ or local program databases, ADEQ reviewed topographical maps, aerial photographs, or other mapping resources to identify dimensions to use for modeling the source as a volume source. If no building height data were available, ADEQ assumed a 12-foot building height. Guidance based on recommendations in the EPA ISC and Screen model user’s guides were followed, based on information obtained from the maps and aerial photography. If this information could not be determined then a generic volume source was used as a surrogate representation. A volume source based on a 2-story (24-foot high, 100-foot long) building was used and HAP emissions were modeled from this source for the facility. For this surrogate source, the height was set to 12 feet (3.66 m). This height value is based on recommendations in the EPA ISC and Screen model user’s guides. (*See Procedure for Air Quality Dispersion Modeling for the Arizona HAPRACT Rule* (Weston Solutions, Inc., July 2005))
- Comment 45:** ADEQ did not follow its own method for determining building heights by dividing the stack height by 1.5 and subtracting 0.1 meter. For five plants, ADEQ assumed a 12-foot building height rather than the results of this equation, which would have produced building heights ranging from 3.7 to 9.7 feet. For the Shell Oil plant, replacing the 12-foot building height with the 6.4-foot building height derived from the equation results in a HAP concentration that is only 939% of the AAC, rather than the 5,602% reported by ADEQ.
- Response:** Weston explained in its August 10, 2005, presentation to the stakeholders that it used a 12-foot building height as a reasonable lower bound where the equation produced an unrealistically small building height. This is reflected at page 16 of the presentation document available online at <http://www.azdeq.gov/function/laws/download/haps810p.pdf>. ADEQ wonders whether the commenter truly believes that there are industrial buildings that are 3.7 feet tall. In the case of the Shell Oil Plant the modeled concentrations are still nearly 1,000% of the AAC using the 6.4-foot building height apparently advocated by the comment. In fact, even if each of the facilities discussed had been modeled using the unreasonably short building heights advocated by the comment, the modeling results would still show concentrations greater than the AACs.
- Comment 46:** Commenter asserts that rural dispersion coefficients were utilized in cases that clearly required the use of urban dispersion coefficients.
- Response:** The Ryan report did not show that any facility modeled by the ADEQ would be located in an area that would be classified as urban with the use of either SCREEN3 or ISC. The report makes unsubstantiated statements that have little to do with the analysis conducted by ADEQ to intentionally discredit that work without presenting any relevant facts, standards or counter analysis. Further, the report appears to be intentionally misleading readers by not providing descriptions of urban and rural characteristics, as they are relevant to the dispersion models.

Notices of Final Rulemaking

Ultimately, the comparison of modeled pollutant ambient air concentrations under the rural versus urban classifications used by these two dispersion models will be dependent on source characteristics, meteorology, and distance.

Very few areas within Arizona would be classified as having urban configurations as defined for the purposes of modeling using SCREEN3. Weston is familiar with the classification systems cited by the AMA. The land-use classifications for urban categories (from the Auer, 1978-referenced document) are not described in the report to substantiate the claim that ADEQ has intentionally mischaracterized the location of these sources. ADEQ, to reveal the facts, will provide these descriptions, as follows:

- o I1 – Heavy Industrial
 - Major chemical, steel and fabrication industries; generally 3-5 story buildings, flat roofs
 - Grass and tree growth extremely rare; <5% vegetation
- o I2 – Light moderate industrial
 - Rail yards, truck depots, warehouses, industrial parks, minor fabrication; generally 1-3 story buildings, flat roofs
 - Very limited grass, trees almost totally absent, <5% vegetation
- o C1 – Commercial
 - Office and apartment buildings, hotels, >10 story heights, flat roofs
 - Limited grass and trees; <15% vegetation
- o R2 – Compact residential
 - Single, some multiple, family dwellings with close spacing; generally <2 story, pitched roof structures; garages (via alleys), no driveways.
 - Limited lawn sizes and shade trees; <30% vegetation
- o R3 – Compact residential
 - Old multi-family dwellings with close (<2 meters) lateral separation; generally 2 story, flat roof structures; garages (via alleys) and ash pits, no driveways
 - Limited lawn sizes, old established shade trees; <35% vegetation

In summary, “urban,” as used for the purposes of the SCREEN3 and ISC models, requires high density of relatively tall buildings, which is not the same as “urbanized.” A majority of the land-use in Arizona would not fit into these “urban” land-use categories, especially in the areas where the facilities modeled are located. It is rare that you would ever find these types of urban land use in proximity to the HAP sources located in Arizona. In addition, since the modeling is being used to determine whether future facilities or modifications to existing facilities would be subject to HAPRACT, the rural mode was selected since it is not known if the modification or new facility will be located in an urban or rural area. Finally, the report fails to recognize that, for some facilities, both models may predict higher concentrations with the urban mode selected than they would with the rural mode.

Comment 47:

Commenter asserts that the Ryan report correctly suggests that the Quantitative Risk Assessment should consider detailed population activity patterns, including indoor to outdoor concentrations.

Response:

The Arizona statute requires analysis of ambient air not indoor air. Many children and adults recreate outside and children tend to spend more time outdoors than adults, and breathe more air per unit of body mass than adults. Even if the statute required evaluation of indoor air concentrations, significant segments of the Arizona population living near stationary sources do not live in newer, well sealed buildings and rely on swamp cooling rather than refrigeration. For these people there will be little difference between indoor and outdoor concentrations of air pollution. Further, populations living near industrial facilities often tend to be lower

Notices of Final Rulemaking

income, and, as a result, have a higher proportion of people who would fall into segments of the population considered to be sensitive (e.g., asthmatics).

Comment 48:

Commenter states that, since indoor air (especially in residential buildings) is not regulated, they are unsurprised that in conservative analysis one often has to resort to the assumption of an outdoor/indoor concentration ratio of unity.

Response:

ADEQ concurs with the comment.

Comment 49:

Commenter says that ADEQ should use the most conservative de minimis levels available, and asserts that low de minimis levels help to insure regulations of toxins that pose an extremely high threat to human health.

Response:

The proposed rule utilized the de minimis levels authorized by statute to give effect to the statutory framework and ensure the protection of public health.

Comment 50:

The commenter says that the proposed rule adopts de minimis values that make the program practically enforceable and that minimize ambiguity.

Response:

ADEQ agrees with the commenter.

Comment 51:

Commenter says that, due to delays in selecting case-by-case HAPRACT or obtaining approval of a risk management plan, ADEQ should reconsider the extremely low de minimis levels in the proposed rule.

Response:

ADEQ disagrees that the proposed de minimis levels are lower than authorized by statute or lower than necessary to protect human health. General permits will be developed by ADEQ to minimize the need for case-by-case HAPRACT. Only Tier 4 RMAs are expected to require extensive review due to their complexity.

Comment 52:

Commenter states that ADEQ developed this rule at a record breaking pace, which deprived stakeholders of a reasonable opportunity to develop consensus on as many issues as possible through the informal stakeholder process. Further, the time table for the formal rulemaking process did not provide adequate time for stakeholders to fully comment on the rulemaking.

Response:

ADEQ disagrees with the contention that additional time for the informal process would have fostered consensus on the most significant policy and statutory interpretation issues (see both comments and their responses, below). The extensive stakeholder and public process for this rulemaking included three educational workshops that were recorded on DVD and subsequently made available to the public; seven stakeholder meetings; two additional public meetings held in Tucson; and four public hearings, two of which were held in Phoenix, and two in Tucson. Moreover, ADEQ extended the public comment period one month beyond the original date of the close of comment. ADEQ also points out that the Governor signed the statutes authorizing ADEQ to develop the state program into law on July 10, 1992, with a deadline for ADEQ to adopt a rule by November 1, 1993. Even though consensus was not achieved by that deadline, ADEQ continued to negotiate with stakeholders, without achieving consensus, into 1996. The more than 300 pages of comments received from this commenter, alone, demonstrate that adequate time was allocated for public input and review.

Comment 53:

Commenter states that some items in the proposed rule package, like the economic and small business impact statement, were not part of the stakeholder process.

Response:

Even though Arizona administrative procedures do not require informal public consultation for rulemaking, the majority of ADEQ rules are developed through informal stakeholder consultation. ADEQ provided ample consultation on development of this rule, and did consider stakeholder comments, as well as formal comments on the record, regarding economic impacts on stakeholders, which were addressed in the final EIS.

Comment 54:

ADEQ has not used its time and resources over the past years to gather all the information that it needs to promulgate a stationary source HAP rule that complies with the scientific and factual criteria of the Arizona HAP statutes.

Response:

This comment implies that the same rigor of scientific study should have been applied to evaluating source-specific information as that which was applied for the study required under A.R.S. § 49-426.08. With only 5 community monitoring locations sampled every 6th day for a year and a background site with sampling every 12th day, the study consumed more than \$1 million dollars. Conducting similar evaluations for the 75 categories of sources known to emit HAPs above the minor source threshold is not required by the statute and could not have been conducted within the budgets provided to ADEQ. Since that time, three major audits of ADEQ have been conducted, and no finding has been made that the Air Quality Division had inappropriately identified and carried out its priorities nor misallocated its resources. (See response to Comment 22.)

Notices of Final Rulemaking

Comment 55: ADEQ has not used its authority under A.R.S. § 49-426.05(B) to gather HAP information for sources that “the director reasonably believes may qualify for designation” as a source of HAPs.

Response: ADEQ disagrees. HAPs emissions have been required to be reported annually by all stationary sources under ADEQ’s jurisdiction in accordance with AAC R18-2-327.

Comment 56: ADEQ has refused to identify each health effect that ADEQ relied upon for each proposed AAC. This inappropriately shifted the burden to the public for discerning the basis for the determination that the exposure to each HAP at the AAC would result in adverse health effects.

Response: ADEQ and its contractor, Weston Solutions, relied upon the extensive research and regulatory findings of EPA and California Air Resources Board to determine which HAPs cause or contribute to specific adverse health effects. As both of these agencies are widely accepted as the authorities on setting health-based standards and guidelines for HAPs, ADEQ did not find it necessary to second-guess their findings or engender arguments as to what does or does not constitute an adverse health effect. While this information is readily available to the public, Table 5 includes the health effects upon which EPA or CARB relied to set their health effects concentrations that lead ADEQ to list each source category.

Table 5

Listed Minor Source Categories for State HAPs:

HAPs Leading to Listing and Modeled Ambient Concentration Compared to AAC for Rural and Urban Dispersion, and Health Effects

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

Notices of Final Rulemaking

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

³ The facility modeled was determined to be located in an area that qualified as “rural” for the purposes of dispersion modeling.

⁴ Not elsewhere classified.

⁵ MTBE is now banned statewide; as a consequence, this will be dropped from discussion if it appears anywhere within the NFRM.

Comment 57: ADEQ has not demonstrated, as the statute requires, that actual health effects have occurred because of exposure to HAPs from Arizona sources.

Response: The statute does not require ADEQ to have documented evidence of people being killed by, or suffering adverse health effects from HAPs emitted by specific sources to make this program applicable to any particular source category. A.R.S. § 49-401.01(2) defines adverse effects to human health as “those effects that result in or *significantly contribute to* an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, including adverse effects that are known to be or *may reasonably be anticipated* to be caused by substances ...” (emphasis added).

Comment 58: ADEQ has not adequately documented the potential costs of compliance for source categories listed in the rule, including major sources of HAPs.

Response: ADEQ agrees and has incorporated into the final EIS for this rulemaking more detailed documentation on this subject.

Comment 59: ADEQ has not adequately documented the potential health benefits of the rule.

Response: The Administrative Procedure Act and the rules for developing small business and economic impact statements do not require monetization of every benefit. Moreover some benefits are

Notices of Final Rulemaking

intangible and not easily quantified. However, ADEQ has incorporated into the EIS for this final rulemaking more detailed documentation on this subject.

Comment 60: ADEQ failed to evaluate forest management burns, which fall under the definition of what constitutes a source under R18-2-101 and are the largest source of HAPs in Arizona.

Response: ADEQ disagrees. A.R.S. § 49-401.01 defines “source” as “any building, structure, facility or installation that may cause or contribute to air pollution . . .” That statute also defines “building, structure, facility or installation” as all pollutant-emitting actions belonging to the same industrial grouping, located on one or more contiguous or adjacent properties and under control of the same person or person. R18-2-101(113) similarly defines “stationary source,” adding “any *building, structure, facility or installation* subject to regulation under A.R.S. § 49-426(A).” (Emphasis added.) Authority for ADEQ to regulate open burning appears in a separate statute at A.R.S. § 49-501. Forest management burns, while constituting a significant source of HAPs, are not subject to regulation under A.R.S. § 49-426(A), and are not sources or stationary sources as defined by the statutes and regulations. ADEQ has regulated forest management burns for over a decade under a complex set of rules designed specifically to limit the impacts of these activities on public health and welfare (*see* AAC R18-2-1501 through 1515).

Comment 61: ADEQ has failed to assess the impacts of the rule on sources operated by governments and has not relied on its institutional knowledge and literature to recognize how its HAP rule would regulate government sources now and in the future.

Response: ADEQ included government entities in the stakeholder process and has not proposed listing source categories operated by governmental entities at this time, based on all comments received. This comment did not identify any sources operated by a government that might be covered by this rulemaking.

Comment 62: ADEQ excluded permit application costs, including those for permit modifications, in its impact analysis.

Response: ADEQ agrees and has incorporated into the EIS to this final rulemaking more detailed documentation on this subject.

Comment 63: ADEQ has falsely assumed that businesses subject to the HAPs rule would be able to pass their costs of compliance to consumers.

Response: The commenter does not provide specific examples for source categories that would be covered under this rule. In the absence of any other information, it is reasonable to make this assumption. ADEQ points out that approximately 31 states have HAP programs that go beyond EPA regulations. In the fourteen years since enactment of the statutes authorizing the State HAPS program, Arizona business have avoided the costs of compliance while their counterparts operating in other states with programs have borne the costs of compliance with those programs. Further, a more detailed analysis of the issues of relative burdens and assignment of compliance costs is included in the EIS to this final rulemaking.

Comment 64: ADEQ has not addressed the potential for the HAPs rule to be a major impediment to business expansion.

Response: ADEQ disagrees. When considering if a rulemaking will be an impediment to business expansions, one must take into account the flexibility of rule provisions. Part of this issue includes whether or not a source would have compliance options, such as a tiered approach for evaluating RMAs, and other cost-saving mechanisms (e.g., pollution prevention, product substitution, process practices, and voluntary emissions limitations). ADEQ also anticipates allowing certain source categories to apply for a general permit.

Whether or not a source would have the ability to pass on compliance costs to consumers is also pertinent. Sources may be able to pass on some or all of their increased costs of compliance to consumers, depending on the price elasticity of demand and supply, as well as market conditions.

With the potential for higher costs of doing business in Arizona, sources could experience a decrease in pretax earnings as a direct result of increased compliance costs and reduced revenues due to higher wholesale and retail prices and reduced quantities of product generated due to the law of supply and demand. Therefore, some sources could be losers while other could be gainers in pretax earnings. Even though the proportion of gainers vs. losers cannot be predicted, ADEQ believes that the majority of current earnings by sources will not decline. ADEQ also believes that no sources will be at risk of closure, or that this rulemaking will jeopardize business expansions or competition.

Notices of Final Rulemaking

- Comment 65:** ADEQ has failed to assess the secondary economic impacts of the HAPs rule with respect to reductions in tax revenue and employment that stem from the potential for reduced profits for businesses subject to the rule.
- Response:** The Administrative Procedure Act and the rules for developing small business and economic impact statements do not require assessment of secondary costs.
- Comment 66:** ADEQ has failed to adequately identify the range of alternatives for reducing the impact of the HAPs rule on small businesses, including:
- Listing only sources that ADEQ has demonstrated result in actual adverse health effects;
 - Restricting applicability to major sources so as to develop experience regulating sources of HAPs and more adequately assess the economic impacts on smaller sources;
 - Providing businesses certainty by establishing AZMACT and HAPRACT by rule rather than by permit.
- Response:** ADEQ disagrees. Other than the following examples, ADEQ could not find other alternative methods that would reduce the impact of this rulemaking on small businesses, or that would be less intrusive or less costly to implement the statutory objectives. Although all sources may take advantage of methods to reduce or eliminate impacts, ADEQ is sensitive to the needs of small businesses. This rulemaking allows sources to do the following: (1) perform a RMA to establish the applicability of HAPRACT or AZMACT; (2) voluntarily propose an emissions limitation to avoid the imposition of HAPRACT or AZMACT; (3) apply for a general permit; or (4) control HAPs emissions through the application of certain design measures, work practices, process changes, or techniques.
- Additionally, sources could reject the implementation of certain proposed control technologies by considering economic impacts and cost effectiveness in a RMA. This means that some costly control measures might be eliminated by determining adverse economic, environmental, or energy impacts. If a reliable method of measuring HAPs emissions is not available, instead of imposing a numeric emissions limitation, the program would require design, equipment, work practices, or operational standard, or some combination thereof. Finally, ADEQ will provide compliance assistance to small businesses, as well as develop General Permits, if appropriate, to reduce permitting and compliance costs for small businesses.
- Comment 67:** Commenter said scheduled stakeholder meeting times were convenient for industry but inconvenient for the general public and evening meetings should have been scheduled.
- Response:** The primary purpose of the stakeholder process is to allow an agency to have a dialogue with, and work to achieve some consensus, among a group of persons who provide representation of the divergent interests in a particular agency decision, not to receive comments from every individual who has an interest in the rule. ADEQ did endeavor to be sensitive to the scheduling difficulties that might be faced by some members of the public, but opportunity for public comment is afforded during the public comment period of the formal rulemaking process. In future, if possible, ADEQ will attempt to have some evening meetings. Additionally, in the near future, ADEQ will install electronic comment portals in the capsules of proposed rules on the rules page of the agency web site. This will allow greater public involvement in the rule-making process.
- Comment 68:** Commenter said it was difficult to find the Draft Rule on ADEQ's Web site and the site listed in the rule should take people directly to it.
- Response:** ADEQ distributed the Web site location of all materials related to the rule development process during each stakeholder meeting and in the Notice of Proposed Rulemaking. ADEQ will continue to strive for improvements to make its Web site more user friendly.
- Comment 69:** Commenter asked ADEQ to set standards to protect people with an ample margin of safety.
- Response:** The Ambient Air Concentrations (AACs), which provide the foundation for determining which source categories are regulated and what constitutes a de minimis increase in emissions (the threshold for subjecting an existing source undergoing expansion to the requirements of the rule) were based upon potential health impacts that would affect more sensitive segments of the population, particularly children and pregnant women. As such, the rule provides an adequate margin of safety.
- Comment 70:** Commenter asked ADEQ to require zero emissions of HAPS where technologically possible.
- Response:** ADEQ has included methodologies for determining HAPRACT and AZMACT in the proposed rule. Zero emissions could only be required if it is found to be the result of applying HAPRACT or AZMACT.

Notices of Final Rulemaking

- Comment 71:** Commenter asked ADEQ to require stringent levels of control, including elimination of the use of toxic substances or substitution of less toxic substances.
- Response:** ADEQ has included methodologies for determining HAPRACT and AZMACT in the proposed rule that will result in Reasonably Available Control Technology and Maximum Achievable Control Technology, respectively. AZMACT requires analysis of the most stringent level of control first. ADEQ believes that the program does provide stringent controls of toxics while still balancing industry and business needs for flexibility, thus allowing sources to respond to technological and market changes. In addition, the Risk Management Analysis offers an opportunity for elimination of the use of toxic substances or substitution of less toxic substances.
- Comment 72:** Commenter stated that ADEQ's HAPS program should be consistent with the Clean Air Act Section 112(b) requirement that the EPA Administrator add HAPs that "present or may present...a threat of adverse human health effects" and that "may reasonably be anticipated to be carcinogenic, mutagenic..." to err on the side of caution.
- Response:** ADEQ believes that it has done so. ADEQ has chosen at this stage to focus on implementing its authority to regulate minor sources of federal HAPs, which have gone largely unaddressed by EPA. Arizona Revised Statutes provide ADEQ the authority to list state-only HAPs. ADEQ agrees that pollutants other than the federally listed HAPs may pose a threat to public health and the environment and intends to consider the adoption of state-only HAPs during a future triennial review of the rule. In addition, A.R.S. § 49-426.04(C) provides any person the right to petition ADEQ to add a pollutant to the HAPs list.
- Comment 73:** Commenter states that adequate information is available to list HAPs in addition to the federally listed HAPs and directs ADEQ to the HAPs lists adopted by California, New Hampshire, Massachusetts, Michigan, New Jersey, New York, North Carolina, Rhode Island, West Virginia and Wisconsin.
- Response:** It may not be possible to list all substances regulated by these states, since the statute only authorizes ADEQ to list state-only HAPs if "credible medical and toxicological evidence [exists] that ... demonstrates adverse effects to human health or adverse environmental effects ... at concentrations that are likely to occur in the environment as a result of emissions of the pollutant into the ambient air." (A.R.S. § 49-426.04(1)(a)).
- Comment 74:** Commenter suggests all definitions should be written out verbatim within this rule to make the rule easier for readers instead of incorporating by reference in some instances. Commenter states that the definitions in the proposed rule are consistent with the statute and purpose of the program.
- Response:** The manner in which ADEQ has incorporated definitions in the proposed Article is consistent with the approach used in other Articles of Title 18, Chapter 2 of the Arizona Administrative Code. To repeat, verbatim, other definitions from other Articles would actually be unnecessarily complicated; in such a case, any changes to any of these definitions would have to be accomplished multiple times for multiple Articles, and could easily lead to regulatory confusion, rather than the clarity commenter seeks.
- Comment 75:** Commenter stated A.R.S. §§ 49-426.03 and 49-426.06 give clear authority and a mandate to ADEQ to establish a program to limit emissions of HAPs including sources that have the potential to emit HAPs.
- Response:** ADEQ concurs with the comment.
- Comment 76:** Commenter stated that the proposed rule does not adequately address prevention of adverse environmental effects, including complex ecological effects from deposition of HAPs into waterways.
- Response:** At this time, quantification methods are not available to determine the ambient air concentrations at which adverse environmental effects on wildlife, aquatic life, or other natural resources occur. Further, the scientific literature on adverse environmental effects is limited to a very small number of chemicals, of which only mercury is currently emitted by Arizona sources. During the triennial review process, as more definitive research results become available, ADEQ will revisit this issue and update the program as appropriate to meet this statutory requirement.
- Comment 77:** Commenter stated that the rule does not adequately address aggregate impacts or bioaccumulation of HAPs.
- Response:** ADEQ did not have sufficient information to determine whether any of the sources in the same candidate category are sufficiently near each other or numerous enough, in aggregate, to produce ambient concentrations significantly higher than they do individually. All of ADEQ's

Notices of Final Rulemaking

experience with clustering of sources and aggregation problems relate to sources that are not subject to this program. At the same time, ADEQ is working with county air pollution control programs to address the issue of aggregate impacts outside of this rulemaking. There is insufficient information on the issue of bioaccumulation with regard to any HAP except mercury, which is included in the list of HAPs at R18-2-1703. As more information becomes available on bioaccumulation with respect to other HAPs, ADEQ will revisit this issue in the triennial review.

Comment 78: Commenter strongly supports a conservative approach to the establishment of the ambient air boundary and agrees with ADEQ's proposal to establish it as an area where the general public has access.

Response: ADEQ agrees with the comment. Areas outside what ADEQ has considered the process area are generally open to visitors, resulting in acute exposure concerns. In addition, air above property essential for operation of the facility (e.g., buffer zones and fenced areas required by other regulations) would be excluded from being considered "ambient air." Other property held by the facility may be sold to and developed by third parties, which may result in future chronic exposures.

Comment 79: Commenter stated that it is appropriate that ADEQ used a conservative model and reasonable worst-case scenario in developing de minimis levels.

Response: ADEQ concurs. The possibility that existing ambient levels may already exceed the AACs and the requirements applying only to new facilities and future expansions of existing facilities (for which, by definition, there is no information and cannot be predicted) militate in favor of adopting a conservative approach to the development of this program.

Comment 80: Commenter stated that ADEQ should not rely solely on SIC codes but also on other emission disclosure information and actual inspections to determine source categories to be listed.

Response: ADEQ did not rely solely on SIC codes to determine source categories to be listed. All readily available emissions information was considered including information reported to EPA's Toxics Release Inventory as well as information reported to ADEQ and the three county air pollution control agencies. Emissions monitoring or testing may be included in standards imposed pursuant to the State HAPs program. Any such monitoring data will be considered in ADEQ's triennial review of this program.

Comment 81: Commenter stated that ADEQ should clarify what information is required to be reported and what "readily available data" would include, as this term is used in R18-2-1704.

Response: Readily available data means information required to be generated by the source either for review by or submittal to ADEQ or another regulatory agency.

Comment 82: Commenter stated that if the permit applicant cannot meet the burden of proof to demonstrate HAPRACT is not necessary to avoid adverse effects to human health or the environment, the source should be subject to HAPRACT or a case-by-case AZMACT determination.

Response: ADEQ concurs and that is what the rule requires.

Comment 83: Commenter stated that R18-2-1707(E) should clarify who decides if a reliable method of measuring emissions is available.

Response: The Director will make this decision, and the decision will be subject to public comment as part of the permit decision.

Comment 84: Commenters say that A.R.S. § 49-426.06 authorizes the ADEQ director to establish de minimis levels for state HAPs, but not federally listed HAPs. Commenter does not support relying on a risk based approach to excuse a source from meeting environmental and health protection requirements.

Response: Section 49-426.06(A) provides that "the director shall by rule establish a state program for the control of hazardous air pollutants that meets the requirements of this section." A.R.S. § 49-426.06(B) provides that, "a person shall not commence the construction or *modification* of a source that is subject to this section without first obtaining a permit or permit revision" (Emphasis added.) A modification is defined in A.R.S. § 49-401.01(24) as a physical change in or change in the method of operation of a source which increases the actual emissions of any regulated air pollutant emitted by such source *by more than any relevant de minimis amount* or which results in the emission of any regulated air pollutant not previously emitted *by more than such de minimis amount*. (Emphasis added.)

Under A.R.S. § 49-426.06(B), the adoption of de minimis amounts is necessary to implement the legislature's directive to adopt a program "that meets the requirements this section," including the regulation of modifications. ADEQ disagrees with the contention of industry

Notices of Final Rulemaking

stakeholders that the second sentence of A.R.S. § 49-426.06(B) limits ADEQ's authority. That sentence *requires* ADEQ to adopt de minimis amounts for non-federal HAPs. It does not expressly, or by implication, preclude ADEQ from adopting de minimis amounts for federal HAPs.

Arizona law holds that each provision of a statute must be given effect. (*See, e.g., Baker v. Superior Court*, 190 Ariz. 336, 338, 947 P.2d 910, 912 (App.1997).) A statute should be interpreted to be consistent with other statutes where possible. *Id.* ADEQ's interpretation of A.R.S. § 49-426.06(B) is necessary to effect the statutory mandate to regulate modifications, and it is consistent with other statutes.

Please see also the letter, dated March 8, 2006, from the Arizona Attorney General's Office to Nancy Wrona, Director of the Air Quality Division of ADEQ, appended to the comments section of this rulemaking, for additional explanation of ADEQ's position on this subject.

- Comment 85:** Commenter asked if the voluntarily proposed emissions limit from a source included in a RMA under AAC R18-2-1708(D) would be subject to public review and comment.
- Response:** All permit actions involving RMAs would be subject to public review and comment either as a new source permit or a significant permit revision for an existing source.
- Comment 86:** Commenter asked if notification to permit agencies would be required for changes within a facility under alternative operating scenarios provided in AAC R18-2-1708(F).
- Response:** It would depend entirely upon the nature of the change. Because the alternative operating scenarios are prepared as part of an RMA, the flexibility to make modifications to a facility or its operation and the ambient air quality impacts of those changes would be spelled out within the RMA and the subsequent proposed permit. The level of notification and oversight to the permitting agency would need to be established within the proposed permit. All these aspects would be available for public review and comment as part of the permitting process.
- Comment 87:** Commenter said ADEQ should explain the large difference in Health Based Ambient Air Concentrations of State HAPs in R18-2-1708.C for arsenic listed as 2.5 mg/m³ compared to California listed as 0.19 mg/m³.
- Response:** The methodology for deciding between the EPA or CA health-based acute AAC was specified in the Weston report, *Arizona DEQ – Development of Acute Health-Based Ambient Air Criteria*.
- Comment 88:** Commenter asked if the petition process for modifying the list of State HAPs needed to be covered in the rule.
- Response:** Such petitions will be handled under existing procedures for rulemaking petitions found in A.R.S. § 41-1033.
- Comment 89:** Commenter states that periodic review is appropriate to expand the list of State HAPs and review new information on health and environmental effects of HAPs.
- Response:** ADEQ agrees.
- Comment 90:** One commenter submitted a lengthy list of general questions about air pollution, its control, the State air quality program, provisions of ADEQ rules unaffected by this proposal and details contained in the numerous documents that ADEQ has posted on its Web site and have otherwise been available for public review.
- Response:** Unless the question had a direct bearing on this proposed rule, it was not considered as a comment. If the commenter wishes to acquire a better understanding of the ADEQ air quality program, he is free to contact the Department to arrange to speak with ADEQ staff. Three comments submitted by this commenter that did have a direct bearing on this rule are addressed in this final rulemaking.
- Comment 91:** Commenter asked if ADEQ's contractor consider interactions among different pollutants.
- Response:** Because little information exists about the specific health effects arising from interactions between HAPs and among HAPs and other pollutants, ADEQ's contractor was unable to evaluate these interactions.
- Comment 92:** Commenter stated that ADEQ does not adequately look at the economic burden the rule will have on ADEQ and indirectly on the general public.
- Response:** The Economic Impact Statement has been revised to more fully address these concerns.
- Comment 93:** Commenter suggests that if implementation costs will vary depending on the type of HAPs emitted and the technology required to control them, then smaller business sources could expe-

Notices of Final Rulemaking

- rience a higher per unit cost of output than larger sources and a tax credit should be given to small businesses that must comply.
- Response:** ADEQ will provide compliance assistance to small businesses. ADEQ will also develop one or more General Permits to assist small businesses. Arizona law already provides tax credits for installation of pollution control equipment; See A.R.S. §§ 43-1081, 43-1129 and 43-1170.
- Comment 94:** Commenter stated that ADEQ should use the most conservative numbers available in setting *de minimis* levels for these dangerous toxins.
- Response:** ADEQ agrees.
- Comment 95:** Commenter stated that ADEQ should review studies by other states showing significant adverse environmental effects, particularly on aquatic organisms, during the triennial review process.
- Response:** At this time, quantification methods are not available to determine the ambient air concentrations at which adverse environmental effects on wildlife, aquatic life, or other natural resources occur. During the triennial review process, as quantification methods become available, ADEQ will update the program as appropriate to meet statutory requirements.
- Comment 96:** Commenter urged ADEQ to review its decision that it lacks authority to address aggregate effects.
- Response:** A.R.S. § 49-426.05(A) authorizes ADEQ to determine “whether emissions from sources in a category individually or in the aggregate result in adverse effects to human health.” ADEQ did not have sufficient information to determine whether any of the sources in the same candidate category are sufficiently near each other or numerous enough, in aggregate, to produce ambient concentrations significantly higher than they do individually. As noted above, ADEQ is mindful of, and is working to address this issue.
- Comment 97:** Commenter stated that R18-2-1701(5) cross-references R18-2-1708(D)(2) and (D)(3), which do not appear to be in the rule.
- Response:** The commenter has identified an error in the proposed rule. The correct references would be to R18-2-1708(C)(2) and (C)(3).
- Comment 98:** Commenter stated ADEQ should consider adopting state-only HAPS at the triennial review or sooner.
- Response:** ADEQ agrees that pollutants other than the federally listed HAPs may pose a threat to public health and the environment and intends to consider the adoption of state-only HAPs during a future triennial review of the rule. In addition, A.R.S. § 49-426.04(C) provides any person the right to petition ADEQ to add a pollutant to the HAPs list.
- Comment 99:** Commenter stated ADEQ’s Director should have authority in R18-2-1704 to require an owner/operator to conduct performance tests, sampling, or monitoring to have the most accurate information.
- Response:** All sources are required to submit annual emissions inventory information to ADEQ and many report other information on HAPs emissions to other regulatory agencies. In nearly all cases, these reports are certified as truthful and accurate by responsible corporate officials. Emissions monitoring or testing requirements may be included in permits issued pursuant to this program. Any data, if available, will be considered in ADEQ’s triennial review of this program.
- Comment 100:** Nucor Steel Kingman objects to the modeling analysis in general and to its application to the Kingman Facility for purposes of listing SIC Code 3312.
- Response:** ADEQ believes, as a matter of policy, the approach it has used in developing this program is appropriate for these highly toxic pollutants and comports with methods relied upon by EPA and other environmental agencies.
- Comment 101:** Nucor Steel Kingman asks ADEQ to exclude rolling mill operations from the proposed Blast Furnaces and Steel Mills source category or to split the rolling mill from the melt shop for the category source listing because the predecessor owner/operator operated only the rolling mill.
- Response:** The SIC code is Blast Furnaces and Steel Mills, and that is the correct source category name. Further, to do so would not be compliant with the requirements of the statute. The program applies to sources and not individual emissions units within a source.
- Comment 102:** Nucor Steel Kingman stated that ADEQ’s contractor used annual emissions data for manganese and nickel emissions from its rehear furnace to calculate hourly rates (0.240 lb/hr and 1.32 lb/hr, respectively). The correct hourly values are 2.73×10^{-5} lb/hr for manganese and $1.51 \times$

Notices of Final Rulemaking

- 10⁻⁴ lb/hr for nickel. As a result, the commenter's reanalysis of its HAP emissions show only its annual manganese AAC value is in excess of ADEQ's threshold.
- Response:** Even considering this re-analysis, the source category would qualify for listing.
- Comment 103:** Nucor Steel Kingman stated that the maximum impact distances should not be used because they are within the property boundary, which is 210 meters from the facility.
- Response:** Even considering the suggested maximum distances, the source category would qualify for listing.
- Comment 104:** Nucor Steel Kingman stated the correct volumetric flow rate for its EAF baghouse is 1,200,000 acfm, not 12,354 acfm.
- Response:** Even considering the suggested flow rate, the source category would still qualify for listing.
- Comment 105:** Nucor Steel Kingman remodeled its facility with these corrections and found modeled ambient concentrations at 19 percent of the AAC for nickel and 165 percent of the AAC for manganese. Blast Furnaces and Steel Mills should be dropped from the list of sources subject to this rule because the manganese numbers are only slightly above the threshold.
- Response:** Even with this reanalysis, the source category would still qualify for listing.
- Comment 106:** Commenter states multiplying the 1-hour average concentrations by 0.08 assumes the 1-hour conditions will persist throughout the year, which is too conservative.
- Response:** ADEQ and its contractor followed "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised", EPA, Office of Air and Radiation, Office of Air Quality Planning and Standards, (EPA 454/R-92-019, October 1992) which describes the 0.08 factor and its use.
- Comment 107:** Commenter stated that ADEQ's assumption that an individual is exposed to a particular HAP 350 days/year for 30 years overestimates risk.
- Response:** The unit risk factors (URFs) and Reference Concentrations (RfCs) in EPA's Integrated Risk Information System (IRIS) reflect the risks from lifetime exposure and assume that an individual may be exposed to a pollutant for 365 days per year for 70 years. It has been argued that these assumptions greatly exaggerate lifetime exposure, because individuals generally do not live in one location their entire lives and do not spend every day of the year at their homes. ADEQ determined that these concerns were justified and that exposure assumptions of 350 days/year for 30 years should be used. This approach reduces the lifetime exposure assumed in the IRIS criteria by more than one half but is still conservative and protective of public health. ADEQ believes that further reductions in the assumed lifetime exposure, as advocated by this commenter, would not adequately protect public health. ADEQ adjusted these assumptions ~~down~~ downward to 350 days/year for 30 years from those previously relied upon that assumed exposure to a HAP 365 days/year for 70 years.
- Comment 108:** Commenter supports adoption of a State HAPS program consistent with the Arizona statute adopted in 1992.
- Response:** ADEQ concurs.
- Comment 109:** Commenter stated ADEQ misapplied the definition of "ambient air" in development and implementation of the rule.
- Response:** ADEQ believes its long-standing process area boundary policy is consistent with the definition of "ambient air" and has been correctly applied in the development of the rule. This policy has been in effect at ADEQ since the late 1970s and was officially issued by the ADEQ director in June of 1997.
- Comment 110:** Commenter stated the pace of the rulemaking was too fast in light of controversial issues at hand and the impacts of the rule. Commenter requests additional opportunity for stakeholders to work towards consensus.
- Response:** ADEQ acknowledges that the pace of this rulemaking was rapid, but disagrees with the contention that additional time for the informal process would have fostered consensus on the most significant policy and statutory interpretation issues (see both comments and their responses, below). ADEQ points out that the Governor signed the statutes authorizing ADEQ to develop the state program into law on July 10, 1992, with a deadline for ADEQ to adopt a rule by November 15, 1993. Even though consensus was not achieved by that deadline, ADEQ continued to negotiate with stakeholders, without achieving consensus, into 1996.
- Please also note the report generated by the Office of the Auditor General, *Department of Environmental Quality — Sunset Factors* (Report No. 04-08, September, 2004). In Part 4, "The

Notices of Final Rulemaking

extent to which rules adopted by the agency are consistent with legislative mandate,” the report reads, “[t]he Department has adopted most of the required rules related to air quality. However, according to G.R.R.C., the Department has not adopted rules regarding the emission of hazardous air pollutants (HAPs). . . . [T]he Department . . . will begin the rulemaking process in September 2004.” The original docket for this rulemaking was opened in October 2004 and preliminary work begun. However, more than a year has passed since the report was completed and work on rules regulating the emission of HAPs is still ongoing. ADEQ believes that the somewhat rapid pace was justified considering both the length of time the statutory mandates had been unaddressed, and the specific criticism of the continuing lack of a program made in the Auditor General’s report.

- Comment 111:** Abitibi Consolidated stated that the potential-to-emit emission rate listed for chromium from its three power boilers is too high. Abitibi asked ADEQ to apply AP-42 factors, which Abitibi calculated resulted in chromium emissions of 7.1E-04 lb/hr (natural gas); 1.22E-02 lb/hour (coal); and 4.58 lb/hr (natural gas).
- Response:** Data used for the analysis are based on the potential to emit reported in Abitibi Consolidated’s air quality permit application that is memorialized in its permit.
- Comment 112:** Abitibi Consolidated said ADEQ’s contractor should choose one location yielding the highest total concentration for all three boilers, not add together maximum concentrations for all three locations.
- Response:** For most facilities modeled in the analysis, impacts from multiple stacks were usually fairly close in distance and the assumption of adding them together made little difference to the results.
- Comment 113:** Commenter stated that a property boundary fenced with 4 strands of barbed wire and patrolled five times daily meets EPA guidance to bar public access, so that the modeled maximum concentration value should be a value outside of the fenced perimeter.
- Response:** ADEQ will consult with each permit applicant in determining the appropriate process area boundary.
- Comment 114:** Commenter urged ADEQ to de-list paper mills from the source category list because re-modeling would show concentrations less than 80% of the AACs.
- Response:** Data used for the analysis are based on the potential to emit reported in Abitibi Consolidated’s air quality permit application that is memorialized in its permit. Delisting is not justified.
- Comment 115:** Commenter says State law precludes a County Board of Supervisors from addressing issues of local concern and need to work closely with counties to address these issues and give them adequate time to adopt their programs.
- Response:** Authority is provided in A.R.S. § 49-112 for County rules, ordinances or other regulations more stringent than or in addition to a provision of a rule adopted by the ADEQ Director if necessary to address a peculiar local condition. ADEQ is dedicated to assisting the counties with these issues, and has added language to the rule, at R18-2-1702(G), that extends the effective date of the rule an additional six months. This will provide Maricopa, Pima, and Pinal Counties sufficient time to adopt their rules, while also giving regulated sources additional time to prepare for the requirements of the new rules.
- Comment 116:** Commenter says A.R.S. § 49-480.04(H) limits County HAPS programs to the regulation of source categories designated by ADEQ, which do not include beryllium facilities, gasoline stations, auto body shops, and soil remediation activities.
- Response:** Authority is provided in A.R.S. § 49-112 for County rules, ordinances, or other regulations more stringent than or in addition to a provision of a rule adopted by the ADEQ Director if necessary to address a peculiar local condition. ADEQ is restricted by law from regulating sources that emit less than 1 ton per year of a single or 2.5 tons per year of a combination of HAPs. While the source categories listed by the commenter may be of concern, these sources within Arizona either are below the minor source threshold or ADEQ did not have sufficient information to be able to evaluate them. Further, the commenter did not provide ADEQ with additional information that could have fostered evaluation of these four source categories.
- Comment 117:** Commenter says the proposed rule exempts existing sources, resulting in significant environmental justice issues.
- Response:** The rule exempts existing sources because the statutory authority for the program only extends to new sources and existing sources undergoing modification. This was made clear from the beginning of the stakeholder process, during which there was ample opportunity for the commenter to provide a legal basis for extending the program to existing sources or addressing

Notices of Final Rulemaking

environmental justice concerns. De minimis levels were set specifically to address the potential impacts that modifications to existing sources may have on people living and working near source of HAPs.

- Comment 118:** Commenter says the statute allows the ADEQ Director to consider aggregate effects and environmental justice communities in Tucson and elsewhere in Arizona that should be evaluated to expand the list of source categories.
- Response:** A.R.S. § 49-426.05(A) authorizes ADEQ to determine “whether emissions from sources in a category individually or in the aggregate result in adverse effects to human health.” ADEQ did not have sufficient information to determine whether any of the sources in the same candidate category are sufficiently near each other to produce ambient concentrations significantly higher than they do individually. This topic will be revisited during the triennial review.
- Comment 119:** Commenter said the Pima Department of Environmental Quality’s current staffing levels are not adequate to implement a County HAPS program in six months and the current fee structure will need to be adjusted.
- Response:** ADEQ believes the program effective date of January 1, 2007, added in R18-2-1702(G), will provide the County with an additional six months to implement the program. Further, the County has authority to increase its fees if additional resources are necessary to implement this program.
- Comment 120:** Commenter supports ADEQ’s creation of a State HAPS program for the regulation of listed HAPS.
- Response:** ADEQ concurs that A.R.S. §§ 49-426.03 and 49-426.06 give clear authority and a mandate to ADEQ to establish a program to limit emissions of HAPs including sources that have the potential to emit HAPs at specified quantities.
- Comment 121:** Commenter said the methodology used by ADEQ’s contractor was appropriate for the rule development process.
- Response:** ADEQ concurs.
- Comment 122:** Commenter said *de minimis* levels make the program practically enforceable and minimize ambiguity.
- Response:** ADEQ concurs. The possibility that existing ambient levels may already exceed the AACs militates in favor of adopting a conservative approach to the development of this program.
- Comment 123:** Commenter supports R18-2-1701(13) and R18-2-1708(C)(3) because all releases of HAPS impact nearby receptors.
- Response:** ADEQ concurs.
- Comment 124:** Commenter stated that facility processes are inter-linked so a change in one process may alter emissions at another process, regardless of SIC classification at the same facility.
- Response:** The rule provides that applicability determinations will be based on a source’s primary SIC code. It should be noted, however, that once a source is subject to regulation based on its primary SIC code, all supporting activities within the same source are also subject to the program, even if they would be covered by a different SIC code when conducted independently.
- Comment 125:** Intel states that to ensure operational flexibility to prevent even a one-week delay in shipping a new product, the rule should include explicit language authorizing voluntary HAPS emissions caps in R18-2-306.02, like the cap in Intel’s XL permit in effect for 10 years at its Ocotillo, Arizona, location. Commenter adds that New Mexico, Oregon, Colorado, and Massachusetts all have HAPS emission caps in this company’s air pollution control permits in those States. Commenter concludes that recorded deed restrictions are not needed where a HAPS emission cap is in a permit.
- Response:** ADEQ disagrees. As stated above, the Department remains concerned about the difficulty of ensuring that public health is protected in implementing emissions caps. The Department has concluded that alternative operating scenarios can provide flexibility while assuring that public health is protected. ADEQ also notes that recorded deed restrictions are not *required* anywhere in the rule. They are one example of an extra-permit institutional control that may be considered as a factor allowing the applicant to assume exposure at some other point than the ambient air, when modeling for an RMA. Moreover, ADEQ notes that Intel is not a member of an affected source category under these rules.
- Comment 126:** ADEQ’s method is overly conservative because it uses only a screening model and relies on artificial source and site characteristics and worst-case assumptions rather than refined modeling and actual source and site characteristics.

Notices of Final Rulemaking

- Response:** See response to Comment 2 on the use of the SCREEN model. Contrary to the comment's assertion, ADEQ used actual source and site characteristics whenever available, including actual stack heights, exit temperatures, and velocities. Separate stacks were modeled with separate emission rates when data were available. Only when data were not available to determine emission rates of specific pollutants from individual stacks were emissions co-located. Emissions for all facilities were not assumed to occur at night.
- Comment 127:** ADEQ's conservative modeling methodology is contrary to A.R.S. § 49-426.05, which requires the Director to find that sources in a category "result in adverse effects"
- Response:** ADEQ disagrees that the statute precludes a conservative approach to modeling in order to determine whether source categories should be listed. The statute authorizes the Director to list a source category if the Director finds "that emissions of hazardous air pollutants from sources in the category individually or in the aggregate result in adverse effects to human health or adverse environmental effects." Adverse effects to human health are defined as "effects that result in or *significantly contribute* to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, including adverse effects that are known to be or *may reasonably be anticipated to be caused by* substances that are acutely toxic, chronically toxic, carcinogenic, mutagenic, teratogenic, neurotoxic or causative of reproductive dysfunction." (Emphasis added.)
- If a conservative modeling approach indicates that emissions of federal HAPs from a source standing alone cause an increase in mortality or in serious irreversible or incapacitating reversible illness, then it is reasonable to conclude that real world concentrations resulting from those emissions "significantly contribute" to those effects. In addition, it "may reasonably be anticipated" that those emissions cause the effects listed in the statute.
- Comment 128:** Data collected from ambient monitors at the Hidalgo copper smelter in New Mexico in 1994 and 1995 and at the Bowline power plant in New York in 1981 were compared with the results of applying ADEQ's modeling methodology to emissions from these two plants. The results demonstrate that ADEQ's method has a marked tendency to over-predict actual pollutant levels.
- Response:** In contrast to modeling performed for the Hidalgo Smelter by the commenter, ADEQ would have modeled each stack with the appropriate modeling parameters (since they were available) and therefore, the SCREEN modeling results shown are far greater than what would have been predicted using the ADEQ modeling approach. The same is true for the Bowline study. Models are accurate in magnitude, but not location and time. Therefore, comparing SCREEN results to a specific monitor location is not appropriate.
- Comment 129:** The realistic stack characteristics of the Transwestern Pipeline Kingman facility were ignored when ADEQ set de minimis levels. Instead, ADEQ assumed that all emissions came from the emergency generator stack. ADEQ used an ultraconservative artificial stack having no exit velocity and at atmospheric temperature.
- Response:** The modeling of the Transwestern Pipeline facility was used to determine whether its source category should be listed, not to set de minimis levels. Where ADEQ did not have data on the proportion of emissions coming from each stack, ADEQ took the conservative approach of assuming that all emissions came from the worst-case stack. As noted above, a conservative approach is consistent with the statutory language and purpose. ADEQ did not assume zero exit velocity and atmospheric temperature, as claimed by the comment, but used the actual exit velocity and gas temperature reported for the emergency generator stack.
- Comment 130:** ADEQ's method assumed all industrial plant locations modeled were subject to rural dispersion. Rural dispersion generally produces higher outdoor exposure concentrations because the mixing of emissions generally occurs at a lower rate than in urban areas. A 1999 EPA study and 2005 ADEQ study modeled sources in the Salt River Industrial Area using urban dispersion. Seven of the sources modeled by ADEQ were within or adjacent to this area.
- Response:** The commenter makes no attempt to demonstrate that the sources identified are located within urban areas within the meaning of EPA guidance. The ADEQ and EPA studies covered a broad area and did not attempt to evaluate whether urban dispersion was the correct assumption for individual facilities. Even if the sources identified are modeled using urban dispersion, the resulting concentrations are still in excess of the AACs, with one exception. It is clear, however, that the exception is located in an area that would qualify as rural under EPA guidance. In any case, the state HAPs program will apply to new sources, and there is no guarantee that new sources will locate in areas where modeling using urban dispersion is valid.

Notices of Final Rulemaking

- Comment 131:** For 75% of the sources modeled, ADEQ assumed the public is exposed to emissions within 25 meters of the emissions source, when this location is inside many sources' private property boundaries.
- Response:** This comment conflates the modeling methodology and modeling results. The modeling methodology assumed exposure could occur within 25 meters for all sources. The modeling results indicated that in some cases the maximum concentrations occurred farther away, and those concentrations, rather than any of the concentrations within 25 meters, were therefore compared to the relevant AACs. This conservative approach is justified by the statutory language and purpose as discussed above, by the fact that this program will apply to new sources as well as modified existing sources, and by the fact that even for an existing source the land use pattern surrounding the source cannot be assumed to be static.
- Comment 132:** ADEQ's modeling for WALLNOX shows how conservative its approach was. The nearest residence is more than 400 meters south of WALLNOX.
- Response:** The program is not designed to protect solely against residential exposure. Persons working at neighboring businesses are also entitled to protection. See also the response to the preceding comment.
- Comment 133:** ADEQ's method does not consider human activity patterns, such as time spent indoors, that reduce exposure to industrial sources.
- Response:** ADEQ did consider human activity patterns, particularly as they relate to sensitive populations, such as children, and while the average person may spend less than 10% of their time outdoors, Arizonans can and do spend more time outdoors than average people. Further, many residences are not tightly sealed or are swamp-cooled, in which cases indoor air would closely resemble or be identical to outdoor air. In fact, in many cases, indoor concentrations equal or exceed outdoor concentrations of a pollutant. Finally, the Arizona statute requires analysis of ambient air, not indoor air. Therefore, consideration of indoor air concentrations for the listing source categories in the HAPs rule is inappropriate.
- Comment 134:** Some of the de minimis levels proposed by ADEQ represent emissions levels below the measurement capabilities of current technology.
- Response:** De minimis levels will be used to assess whether emission increases from proposed modifications are subject to the program. The determination of whether a de minimis increase will occur necessarily will be based on projections using methods such as emission factors or mass balance equations. In any case, the de minimis levels have been set at amounts judged necessary to protect human health. Again, it is important to note that sources affected by this rulemaking already are emitting at least 1 ton of the HAP in question or 2.5 tons of a combination of HAPs. To the extent it proves infeasible to determine whether a particular increase exceeds the de minimis level, the permit applicant will have to assume that any increase qualifies.
- Comment 135:** ADEQ's selected AACs from criteria developed by EPA, the State of California and the Agency for Toxic Substances and Disease Registry. Because little evaluation of the actual basis of these values was conducted, the AAC values selected are often lacking in scientific rigor.
- Response:** ADEQ and its contractor, Weston Solutions, relied upon the extensive research and regulatory findings of EPA and California Air Resources Board to determine which HAPs cause or contribute to specific adverse health effects. ADEQ lacks the resources to duplicate EPA's or California's work and review the scientific literature underlying the concentrations. Further, as both of these agencies are widely accepted as the authorities on setting health-based standards and guidelines for HAPs, ADEQ did not find it necessary to second-guess their findings or engender arguments as to what does or does not constitute an adverse health effect. Table 5 includes the health effects upon which EPA or CARB relied to set their health effects concentrations that lead ADEQ to list each source category.
- Comment 136:** Many of the values used by ADEQ to develop AACs, such as preliminary remediation goals, risk-based concentrations and minimum risk levels were developed for screening purposes only and not for triggering remedial action or regulatory enforcement.
- Response:** This characterization of these levels is incorrect. For example, both Region 9 and Region 3 require that sites be screened at 0.1 of the RBC for non-carcinogens. This additional conservative step is to account for multiple chemicals that may contribute to the overall hazard. They do recommend screening at the RBC for carcinogens (i.e., a risk of 10^{-6}) since in many cases multiple carcinogens could be present, and including carcinogens at this level would typically ensure that the total risk would still be below 10^{-5} . In addition, the use of the PRGs and RBCs follows the spirit of the development of these criteria. The criteria are designed to identify facilities that pose a risk of health effects. Site-specific risk assessments, which are available under the state HAPs program, can be conducted to deal with any conservative assumptions

Notices of Final Rulemaking

that might impact a facility. Finally, ADEQ has only taken regulatory action based on these health-based levels if they were exceeded by modeled emissions. A more conservative approach using some fraction of the AACs to protect against exposure to concentrations from existing emissions arguably would have been justified.

Comment 137: Some agencies use a target risk range other than 10^{-6} , such as 10^{-5} . An additive risk of 10^{-6} cannot be considered very likely or to “significantly contribute” to one’s risk of cancer.

Response: The level of risk that constitutes a significant contribution is ultimately a policy judgment and depends on the particular regulatory program being implemented. In ADEQ’s judgment, the fact that this program applies to exposure via the ambient air and the wide variety of sources of the HAPs regulated by this program justifies the use of a low risk level for carcinogens. Other exposure pathways may be avoided, but human beings inhale approximately 32 liters of air per day. Moreover, prevention is a better solution than cure, and health benefits likely to arise from this program, while intangible, are nevertheless significant.

Comment 138: The endpoints that serve as the starting point for most of the AACs are not adverse effects to human health as defined by statute.

Response: The commenter, in effect, claims that the criteria on which the AACs are based protect against health endpoints that do not qualify as adverse effects to human health as defined in A.R.S. § 49-401.01(2). The commenter, however, has not pointed to any specific endpoint for any specific pollutant that allegedly fails to satisfy the statute.

Comment 139: Many of the AACs are based on levels derived by applying a risk factor of 10 to account for effects on sensitive subpopulations. More recent derivations of values by EPA have in many cases used uncertainty factors of less than 10.

Response: While EPA has recently applied uncertainty factors of less than 10 (usually 3) in the derivation of Reference Doses, they have not done so for the factor representing the sensitive portion of the population. Toluene is one of the more recent determinations by EPA and it used a ten-fold factor for the sensitive population in both the RfD and RfC determinations (EPA-IRIS database). The factors that are typically less than 10 are for duration of the study and level of toxicity. In addition, these values are already incorporated into the Reference Doses and Reference Concentrations used by ADEQ to develop the AACs.

Comment 140: ADEQ should base AACs on a critical review of the studies underlying the levels developed by EPA and other agencies. In some cases, comprehensive reviews that could serve as the basis for AACs have already been conducted.

Response: ADEQ cannot simply assume that these comprehensive reviews would serve as a reliable basis for establishing AACs. ADEQ does not have the resources to duplicate the work undertaken by other agencies or entities. As noted below, EPA, with resources greatly exceeding ADEQ’s, normally requires years to adjust existing IRIS levels. ADEQ and its contractor, Weston Solutions, relied upon the extensive research and regulatory findings of EPA and California Air Resources Board to determine which HAPs cause or contribute to specific adverse health effects. Both of these agencies are widely accepted as the authorities on setting health-based standards and guidelines for HAPs, ADEQ did not find it necessary to second-guess their findings or engender arguments as to what does or does not constitute an adverse health effect. Table 5 includes the health effects upon which EPA or CARB relied to set their health effects concentrations that lead ADEQ to list each source category.

Comment 141: AACs should not be set lower than typical ambient concentrations that have been found to be well tolerated by humans with no consistent evidence of adverse effects.

Response: The lack of “consistent” proof of human adverse effects at typical ambient concentrations is not proof that they are not occurring. Nobody knows with any certainty what proportion of cancer rates are due to exposure to existing emissions of HAPs.

Comment 142: Ongoing studies of formaldehyde, chloroform, and TCE may conclude that they should have higher unit risk factors for cancer than those employed by ADEQ. Formaldehyde should only be considered a carcinogen at irritating concentrations.

Response: While this comment may be accurate, these adjustments have not happened yet. For example according to the EPA Tracking site, the estimated completion dates, which are routinely not met, for these chemicals are: TCE - November 2008; Chloroform - October 2006; and Formaldehyde - June 2007. In the case of formaldehyde the first draft is not even due until October 4, 2006, and it typically takes at least two years after a first draft for completion. The specific comment relating to formaldehyde ignores the fact that the National Toxicity Program (Eleventh Report on Carcinogens, 2004) lists formaldehyde as “reasonably anticipated to be a human carcinogen,” based on limited evidence in humans and sufficient evidence in animals.

Notices of Final Rulemaking

- Comment 143:** ADEQ uses emissions from a HAP major source to list a minor source in at least one category. Commenter contends this contravenes the statute.
- Response:** The statute does not limit ADEQ to considering only non-major sources in making listing decisions.
- Comment 144:** ADEQ failed to list the health effect relied upon for each ambient air concentration.
- Response:** These data were available in other publicly available documents. In addition, this information is provided in Table 5 for chemicals on which source category listing decisions were based.
- Comment 145:** The listing decisions do not consider the number of persons likely to be exposed to sources in the category. A.R.S. § 49-426.05(A)(1).
- Response:** The modeling protocol employed by ADEQ was designed to assess exposure based on reasonably conservative assumptions.
- Comment 146:** Decisions probably do not consider whether the category should be limited to sources with the potential to emit HAPs in amounts greater than the 1 and 2.5 TPY thresholds. A.R.S. § 49-426.05(A)(2).
- Response:** ADEQ found no basis in the record for limiting any particular source category and none has been suggested in the stakeholder process or the public comments on the proposed rule. If the modeled concentration of any HAP from any source in the candidate category was greater than 120% of the health-based AAC for that HAP, that source category was included in the list. If the highest modeled concentration of any HAP in a candidate category was less than 80% of the health-based AAC, that category was excluded from the list. When modeled concentrations fell within the 80-120% range, that source category was evaluated further, although there was only one instance where a modeled source fell within that range. Only those sources that emit a HAP in greater than de minimis amounts would be required to install HAPRACT or AZMACT, or conduct an RMA.
- Comment 147:** Decisions only partially define source categories “to maximum extent practicable” so that designated categories cover only sources for which required findings have been made. SIC codes were used but in some cases only one or two sources were evaluated for purposes of listing all sources in that code, including generic SIC categories. A.R.S. § 49-426.05(A)(3).
- Response:** The comment does not explain how ADEQ’s methodology fails to satisfy the statutory criteria, which require grouping by standard industrial classification code. A.R.S. § 49-401.01(8) reads, “Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same major group which has the same two digit code, as described in the standard industrial classification manual . . .” (See also A.R.S. §§ 49-401.01(34), 49-426.05 and 49-426.06.)
- Comment 148:** An alternative operating scenario is insufficient to provide necessary flexibility to AZ businesses to compete economically. Emissions caps are the best method to allow modifications within predefined bounds, to protect the public and to afford industry necessary flexibility. Language to add an emissions cap provision to the rule has been submitted. (See also responses to Comments 35 and 127.)
- Response:** ADEQ disagrees. The Department is concerned with the difficulty of ensuring that public health is protected in implementing emissions caps, and has concluded that alternative operating scenarios can provide flexibility while assuring that public health is protected.
- Comment 149:** An RMA for a modification should not be required to include the entire PTE of a source after the modification; rather the RMA should be based on emissions from the modification itself or the net emissions increase.
- Response:** The statute does not limit the RMA’s applicability to the emissions associated with the modification. Allowing an exemption based on an RMA for the emissions increase alone without regard to existing emissions would allow existing sources to make changes that cause or contribute to adverse effects without being subject to controls.
- Comment 150:** A significant permit revision should not be required automatically for all RMAs; the requirement should depend solely on criteria for modifications of Class I and II sources as in other areas of regulations. The statute does not mandate public participation or a significant permit revision for a successful RMA; therefore the proposed rules are inconsistent with A.R.S. § 49-426.06(D).
- Response:** Implementation of the calculations and procedures required by Tier 1 and Tier 2 RMAs constitutes a “case-by-case determination of an emission limitation or other standard,” which is excluded from being processed as a minor permit revision pursuant to A.A.C. R18-2-319(A)(3). Tier 1 RMAs will, and Tier 2 RMAs may, use AACs established by guidance or

Notices of Final Rulemaking

developed by the permit applicant. The public should have the opportunity to comment on whether these AACs are sufficiently protective. The statute does not prescribe any particular procedure for evaluating RMAs but rather leaves it up to ADEQ to adopt rules implementing the requirements of 49-426.06.

- Comment 151:** Public participation can be achieved in other ways, such as notice and comment. Tier 1 and 2 components already include notice and comment so significant permit revision is not warranted as a practical matter.
- Response:** ADEQ believes that in the overwhelming majority of cases, a permit will be needed to assure that a source abides by the assumptions made in its RMA. The administrative burden of developing and implementing a new procedure to address the relatively few remaining sources would not be justified. As noted above, not all components of Tier 1 and 2 RMAs in which the public may have an interest will have been subject to public comment at the time of permit issuance.
- Comment 152:** Class I source permit revisions require EPA approval, further slowing approval; rules should be modified so as not to require EPA approval.
- Response:** ADEQ believes that it will be unusual for Class I significant revisions to address only the state HAPs program and therefore believes, again, that the administrative burden of developing and implementing a special permitting procedure for this program would not be justified.
- Comment 153:** MACT and HAPRACT should be adopted by rule, rather than case-by-case. A.R.S. § 49-401.02(17) and (19) define MACT and HAPRACT as standards, a word typically used to describe promulgated requirements.
- Response:** A.R.S. § 49-426.06(C) provides that “a permit or permit revision . . . shall impose” MACT or HAPRACT. This language appears to assume case-by-case implementation and is therefore inconsistent with the comment. The word “standard” is commonly used for emission limits imposed on a case-by-case basis, such as “emission standards and limitations” voluntarily accepted to avoid an applicable requirement under A.A.C. R18-2-306.01.
- Comment 154:** A.R.S. § 49-426.03(B)(2) recognizes that the “Administrator adopts emissions standards establishing the [MACT]”; case-by-case MACT is the exception not the rule.
- Response:** The very section cited by this comment requires ADEQ to implement section 112(g), which provides for the case-by-case imposition of federal MACT on new and modified major sources. The case-by-case implementation of MACT may be the exception rather than the rule under the Clean Air Act, but not when it comes to New Source Review programs, such as 112(g) and the state HAPs program.
- Comment 155:** A.R.S. § 49-426.06(C) states that the director shall not impose standards under this subsection that are incompatible with standards imposed under A.R.S. § 49-426.03(B), the categorical MACT standards.
- Response:** The requirement not to impose standards incompatible with EPA’s rules is satisfied at least in part by the exemption for sources subject to MACT and can be further implemented as part of the case-by-case MACT determination.
- Comment 156:** The definition of MACT and references to MACT incorporates language of 42 USC § 7412(d)(2) and 40 CFR § 63.2 all indicate the legislature’s intent to adopt a state program similar to the federal MACT program.
- Response:** Even under the federal program, MACT need not be imposed by rule. The federal Clean Air Act, 42 U.S.C. § 7412(g) and (j), and EPA rules, 40 CFR Part 63, Subpart B, provide for the imposition of MACT, as defined in the provisions cited by the commenter, on a case-by-case basis. Sources subject to AZMACT must follow procedures very similar to federal requirements to determine case-by-case MACT. There is no inconsistency.
- Comment 157:** Case-by-case MACT directly conflicts with state enforcement of federal program.
- Response:** ADEQ disagrees. The state program does not conflict with enforcement of the federal standards. ADEQ believes commenter is confusing the state HAPs program with state enforcement of the federal HAPs program. Under the state statute, ADEQ is prohibited from imposing any AZMACT standard that would be incompatible with an EPA MACT rule. (A.R.S. § 49-426.06(C).) In addition, ADEQ has by rule exempted any emission unit subject to a MACT standard from the state HAPs program.
- Comment 158:** The RMA process in A.R.S. § 49-426.06(D) is incompatible with case-by-case MACT and HAPRACT, since the statute requires RMA to be submitted with the permit application, but the source can’t know in advance what will be MACT/HAPRACT.

Notices of Final Rulemaking

- Response:** To be worthwhile, RMAs will need to assume a level of control that is below MACT or HAPRACT and that the source is willing to implement. There is no need to determine MACT or HAPRACT in advance of the RMA, although the source will likely want to make a preliminary assessment in order to determine whether conducting an RMA is worth the effort.
- Comment 159:** ADEQ should not use “actual to potential” measurement of emissions increases to determine whether a modification has occurred. Most sources do not operate continually at maximum production rates. Actual to potential will cause most, if not all, modifications to trigger regulation. The HAPs rule does not mirror the major source rule in allowing consideration of contemporaneous increases and decreases to possibly demonstrate no net increase. The “actual to potential” test is based on EPA regulations that have since been changed, although ADEQ has not changed state regulations to match EPA reforms.
- Response:** ADEQ has incorporated the existing state definition of actual emissions, which in some circumstances provides for an “actual to potential” test, because it is (1) a long-standing regulatory requirement, and (2) it is relatively protective compared to other potential options, including those advocated by this comment. There is no requirement that ADEQ mirror existing major source rules in all respects, let alone EPA amendments to these rules that may not be incorporated into state regulations. The proposed rule is a state-only program. It will not be part of the SIP and need not conform to federal requirements.
- Comment 160:** The “bump up” provisions in the rule do not comply with the statute. ADEQ is authorized only to regulate: construction of a new, or modification of an existing, major source; and construction of a new, or modification of an existing, minor source within a designated source category.
- Response:** Under A.R.S. § 49-426.06(C), MACT or HAPRACT must be imposed on a “new or modified . . . source that is subject to the state hazardous air pollutant program” under A.R.S. § 49-426.06(A)(1) or (2). Those provisions establish emission thresholds, among other prerequisites to the program’s applicability. This language is reasonably read as authorizing application of the program to a source that has emissions exceeding the relevant thresholds after its modification. There is nothing to indicate that assessment of the source’s status or emissions must be made pre-modification.
- Comment 161:** ADEQ’s policy on process area boundaries is inconsistent with the plain meaning of ADEQ’s regulatory definition of ambient air and interpretations that EPA has made in twenty-five years of rulings and guidance documents. ADEQ’s process area boundary policies also contradict the meaning of ambient air that has been consistently applied in every other jurisdiction.
- Response:** ADEQ disagrees. The rule itself does not use the term “process area boundary,” but rather refers to the defined term, “ambient air.” ADEQ’s Substantive Policy 0131.000 (Definition of Ambient Air and Areas Subject to Compliance with Ambient Air Quality Standards), which became effective on July 2, 1997, and while previously unwritten, has been in effect at ADEQ and its predecessor organizations since the late 1970’s, clearly references the definition of ambient air in A.A.C. R18-2-101(12) as the “portion of the atmosphere, external to buildings, to which the general public has access.” In order to ensure protection of public health, the policy states that the Department will determine, in consultation with the applicant, an appropriate “process area boundary” to which the public does not have access on a case-by-case basis through the permit application process.
- ADEQ’s Substantive Policy 2008.000, Air Dispersion Modeling Guidelines for AZ Air Quality Permits, which became effective on June 26, 2005, when read in its totality, allows ADEQ to recognize boundaries, fence lines, and other barriers as constituting the process area boundary where public access has in fact been precluded. Property lines, no trespassing signs, wire fences, or other proposed barriers that do not in fact preclude public access would not constitute a process area boundary under ADEQ’s policy. ADEQ has applied this policy through discussions with the permit applicant, and has recognized natural physical boundaries, fence lines, and other institutional controls to determine the process area boundary.
- ADEQ’s Substantive Policies 0131.000 and 2008.000 are consistent with determinations made by EPA over the course of the past 25 years. EPA encourages a more detailed review of the proposed facility boundaries to ensure that the general public was truly precluded from accessing the air within the boundaries. In those instances where the public had access, EPA explained that the National Ambient Air Quality Standards (NAAQS) and PSD increments applied. *See, e.g.*, memorandum from Walter C. Barber to Gordon M. Rapier (May 23, 1977) (incorporating OAQPS guidelines 1.2–046, “Guidelines for Implementation of Regional New Source Review Program for Stationary Sources;” and Memorandum of Law from Michael A. James to Jack R. Farmer (September 28, 1972)); Order On Petition for Review, EPA Administrator in Matter of Hibbing Taconite Company (July 20, 1989); Letter from Donald C. Toesin to W. Clark Smith (August 1, 2000).

Notices of Final Rulemaking

While ADEQ did not conduct a comprehensive assessment of the application of ambient air definitions in every other jurisdiction, based on its review of EPA guidance and determinations, and its experience of applying its policy, ADEQ concludes that its policies are consistent with the application of ambient air definitions in other jurisdictions. Because areas outside the process area may be open to visitors, the process area is an appropriate location at which to determine potential exposure. In addition, areas outside the process area may be sold to and developed by third parties, which may possibly result in future chronic exposure.

Comment 162: ADEQ's Substantive Policies 0131.000 and 2008.000 are invalid pursuant to A.R.S. § 41-1030 because they do not comply with the required public rulemaking process.

Response: A substantive policy statement is a written expression which informs the general public of an agency's current approach to the requirements of federal or state law, including the agency's current practice, procedure or method of action based upon that approach. (*see* A.R.S. § 41 – 1001.01 (20)). A substantive policy statement must meet the following criteria:

- 1) It must be advisory only;
- 2) It may not include internal procedural documents;
- 3) It may not impose additional requirements or penalties on regulated parties; and
- 4) It may not include confidential information or rules made in accordance with the Arizona administrative procedure act.

(*See* A.R.S. § 41-1091(B).)

ADEQ Substantive Policies 0131.000 and 2008.000 meet the statutory criteria for substantive policy statements. Both policies inform the general public and agency personnel about ADEQ's approach to statutory requirements for air pollution and ambient air; neither policy includes internal procedural documents (i.e., the policies offer an understanding of the assessment tools); neither policy imposes additional requirements or penalties on regulated parties (i.e. the policies are only used in an advisory nature during the case-by-case review of each permit application); and neither policy includes confidential information or rules made in accordance with the Arizona Administrative Procedure Act. Based upon this analysis, the Department maintains that neither Substantive Policy Statement is in violation of A.R.S. § 41-1030.

Policy 0131.000 points to the definition of ambient air in A.A.C. R18-2-101(12), and specifically states that its purpose is to employ the authority provided under A.R.S. § 49-424(4) when interpreting and applying the definition of ambient air. The policy recognizes that the protection of public health in some areas of a facility are governed and defined by other state and federal authorities, but explains that there are areas within a facility's fence line where the jurisdiction of such authorities end. In order to ensure protection of the health of the public which may not have been precluded from accessing such areas, the policy states that the Department will determine, in consultation with the applicant, an appropriate 'process area boundary' on a case-by-case basis through the permit application process.

These Substantive Policies provide direction to permit applicants and ADEQ staff on the process used to develop methodologies for conducting modeling of emissions from facilities receiving permits. This guidance is useful for applicants who employ consultants that do permit-related work in multiple states and for EPA. EPA has issued guidance memoranda that address similar issues. ADEQ met with stakeholders to compare the ADEQ Substantive Policies and the EPA guidance memos and at the conclusion of the meeting, ADEQ and the stakeholders agreed that the ADEQ policies and EPA guidance memos were consistent in their approach, and provided an appropriate level of direction. The parties discussed the flexibility provided by the policies and agreed that they were appropriate as such and that incorporating them into rule could deprive applicants the available flexibility. Because the policies provide direction on the development of modeling protocols, they provide a structure for dialogue between ADEQ and permit applicants in negotiating how modeling will be performed. The policies incorporate the definition of ambient air and will not result in the denial of a permit.

Comment 163: EPA has interpreted the phrase "to which the general public has access" as meaning "property which members of the community at large are not physically barred in some way from entering." When considering the term general public, such individuals that interact or participate with the source's activities should be excluded from consideration. Examples include the owner/operator and its employees, contractors and their employees, vendors and support businesses and their employees, and government agencies and services and their employees.

Response: ADEQ disagrees that the term general public should be construed as narrowly as proposed. In the commenter's examples, people such as a lessee and his employees, employee family mem-

Notices of Final Rulemaking

bers, vendors that operate vending machines, and postal employees would be excluded from protection as the general public. ADEQ concludes that these persons should be protected equally as other members of the public.

Comment 164: The use of the process area boundary in the proposed Risk Management Analysis (RMA) procedure remains problematic. The recognition that a location other than the process area boundary may be the appropriate point at which to measure ambient air concentrations should not be limited to chronic exposure. The definition of ambient air should be applied with equal force when measuring both acute and chronic concentrations.

Response: Again, the RMA procedure does not use the term “process area boundary,” but rather refers to the defined term, “ambient air.” ADEQ agrees that the definition of ambient air should be applied equally as to acute and chronic concentrations. As discussed in response to an earlier comment, ADEQ has determined that it is appropriate to protect members of the general public who may visit property owned by an affected source for a short period from acute exposures. As noted earlier, areas outside the process area may be sold to and developed by third parties, which may possibly result in future chronic exposures.

Comment 165: The requirement that controls be enforceable outside the permit is unnecessary. Permit conditions would be at least as effective as controls made enforceable outside the permit in providing protection for the public and would have the added benefit of being applicable only so long as the permitted activity is being conducted. Deed restrictions would be a permanent and inflexible cloud on the title of the property. The requirement for truth, accuracy and completeness in a permit application should suffice, or if a more effective restriction is necessary, then a condition should be included in the permit.

Response: ADEQ has included these requirements in the rule to provide flexibility for affected facilities attempting to limit the exposure of the general public while ensuring that public health remains protected. ADEQ has determined that making the measures enforceable outside the permit is necessary to ensure that future owners of the source have notice of and are required to continue implementing the measures. With rapid growth and frequent land use changes, prospective purchasers of properties are not likely to know the conditions contained in a permit for an adjacent or nearby facility. Deed restrictions are apparent to the prospective purchaser and could be structured to condition the use of the land as long as the permitted activity is being conducted.

Comment 166: Styrene is on of the HAPs cited by EPA as having an atmospheric half-life of 1 hour or less, which should have been taken into account when modeling sources of styrene and may have resulted in some or all of those sources from being listed.

Response: The maximum impact distance for the types of sources was less than 100 meters, and the transit time would be considerably less than an hour. Further, modeling guidance to which the commenter refers elsewhere in his comments provides specific numbers for the half-life of styrene at 5 hours during the summer and 10 hours during the winter (See page E-9, “Air Dispersion Modeling of Toxic Pollutants In Urban Areas, Guidance, Methodology and Example Applications,” EPA-454/R-99-021, July 1999). Finally, as mentioned before, providing that level of modeling evaluation for all sources evaluated for this rulemaking is considerably beyond the resources of ADEQ.

Comment 167: The commenters read a recent newspaper article about the proposed HAPs rules. When traveling home to Tucson from California via Sedona, they took note of the “largest densest amount of brown, filthy air enveloping Phoenix and the surrounding region” that they had ever seen. Commenters were interested to note objections to environmental standards and regulations, and were heartened by the possibility of approval of the proposed, and other, regulations.

Response: ADEQ acknowledges the comment.

Notices of Final Rulemaking



Terry Goddard
Attorney General

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March 8, 2006

VIA HAND DELIVERY

Nancy C. Wrona, Director
Air Quality Division
Arizona Department of Environmental Quality
1110 West Washington
Phoenix, AZ 85007

Dear Ms. Wrona:

I am submitting this letter concerning Arizona Department of Environmental Quality's ("ADEQ") rule package regulating hazardous air pollutants ("HAPs") (the proposed rule). The Arizona Legislature adopted HAPs listed in federal law to be regulated by ADEQ in 1992. A.R.S. §§ 49-426.03, 49-426.04.A.2. Some commenters to the proposed rule expressed concerns about the Department's establishment of de minimis levels for these federally listed HAPs. Other commenters supported ADEQ's development and adoption of de minimis levels for federal HAPs. I have conducted an independent review of ADEQ's authority and offer this informal opinion supporting ADEQ's conclusion that the Department in fact has authority to establish these de minimis levels for federally listed HAPs to fulfill the statutory mandates.

Arizona law provides as follows:

Each provision of a statute must be given effect. *See, e.g., Baker v. Superior Court*, 190 Ariz. 336, 338, 947 P.2d 910, 912 (App.1997). Likewise, statutory provisions should be interpreted to be consistent with other statutory provisions where possible. *Id.* The statutes at issue here provide as follows:

"The Director [of the Arizona Department of Environmental Quality] shall by rule establish a state program for the control of hazardous air pollutants that meets the requirements of this section." A.R.S. § 49-426.06(A).

"After [hazardous air pollutant] rules adopted pursuant to subsection A of this section become effective pursuant to § 41-1032, a person shall not commence the construction or **modification** of a source that is subject to this section without first obtaining a permit or permit revision For purposes of determining whether a change constitutes a modification, the Director shall by rule establish appropriate de minimis amounts for hazardous air pollutants that are not federally listed hazardous air pollutants." A.R.S. § 49-426.06(B) (Emphasis added.).

A **modification** is "a physical change in or change in the method of operation of a source which increases the actual emissions of any regulated air pollutant emitted by such source by **more than any relevant de minimis amount** or which results in the emission of any regulated air

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Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

Page 2

pollutant not previously emitted by **more than such de minimis amount.**" A.R.S. § 49-401.01(24) (Emphasis added.)

The first sentence of A.R.S. § 49-426.06 (B) requires ADEQ to regulate by rule hazardous air pollutants stemming from modifications of a source. The adoption of de minimis amounts is necessary to implement the Legislature's requirement to regulate modifications under A.R.S. § 49-426.06(B) because a modification is defined as a change that increases emissions of an air pollutant above de minimis amount. Because the Director of ADEQ must establish rules to implement these requirements under A.R.S. § 49-426.06 (A), the first sentence of A.R.S. § 49-426.06(B) provides the authority to adopt de minimis levels necessary to regulate modifications of sources with HAPs emissions.

Some commenters have asserted that the second sentence of A.R.S. § 49-426.06(B) limits ADEQ's authority. That sentence requires ADEQ to adopt de minimis amounts for non-federally listed HAPs. Some commenters conclude that, because the second sentence does not also require ADEQ to adopt de minimis amounts for federally listed HAPs, ADEQ does not have authority to adopt such de minimis amounts.

Contrary to the commenters' conclusions, however, the second sentence is not relevant to ADEQ's authority because such authority is already granted in the first sentence. Moreover, that sentence *does not*, either expressly or by implication, preclude ADEQ from adopting de minimis amounts for federal HAPs because that authority is already granted in the first sentence. Rather, the second sentence *directs* ADEQ to adopt de minimis amounts for non-federally listed HAPs, and certainly does not preclude the adoption of de minimis amounts for federally listed HAPs adopted by the Arizona Legislature. In directing ADEQ in this fashion, the Legislature may reasonably have concluded that ADEQ would have to develop de minimis levels for non-federally listed HAPs, but that EPA would adopt de minimis levels for federally listed HAPs. Unfortunately, EPA did not, and ADEQ now must do so in order to regulate modifications as required by statute. 61 F.R. 68384 (Dec. 27, 1996).

While the statutory text and historical circumstances seem to strongly support ADEQ's conclusion, at worst the statutory provisions may be argued to be ambiguous. In circumstances where the Legislature has not spoken definitively concerning an issue, considerable weight should be given to an executive agency's construction of a statutory scheme it is entrusted to administer. *Arizona Water Co. v. Arizona Department of Water Resources*, 208 Ariz. 147, 156, 91 P.3d 990, 999 (2004). In such circumstances, courts will not substitute their own construction of a statutory provision for a reasonable interpretation by the agency. *Id.*

In conclusion, ADEQ's development and adoption of de minimis levels is necessary to effectuate the statutory mandate to regulate modifications, and it is consistent with other provisions of the HAPs statutes.

If you have questions, please don't hesitate to contact me.

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Notices of Final Rulemaking

Page 3

Very truly yours,



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

Not applicable

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

40 CFR 51, App. W

R18-2-406

40 CFR 63.2

R18-2-1701(3)

Notices of Final Rulemaking

14. Was this rule previously made as an emergency rule?

No.

15. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

**CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR POLLUTION CONTROL**

ARTICLE 1. GENERAL

Section

R18-2-101. Definitions

ARTICLE 3. PERMITS AND PERMIT REVISIONS

Section

R18-2-302. Applicability; Classes of Permits

R18-2-304. Permit Application Processing Procedures

R18-2-306.01. Permits Containing Voluntarily Accepted Emission Limitations and Standards

R18-2-317. Facility Changes Allowed Without Permit Revisions - Class I

R18-2-330. Public Participation

R18-2-331. Material Permit Conditions

**ARTICLE 4. PERMIT REQUIREMENTS FOR NEW MAJOR SOURCES AND MAJOR MODIFICATIONS TO
EXISTING MAJOR SOURCES**

Section

R18-2-406. Permit Requirements for Sources Located in Attainment and Unclassifiable Areas

ARTICLE 5. GENERAL PERMITS

Section

R18-2-507. General Permit Variances

ARTICLE 17. ARIZONA STATE HAZARDOUS AIR POLLUTANTS PROGRAM

Section

R18-2-1701. Definitions

R18-2-1702. Applicability

R18-2-1703. State List of Hazardous Air Pollutants

R18-2-1704. Notice of Types and Amounts of HAPs

R18-2-1705. Modifications; Permits; Permit Revisions

R18-2-1706. Case-by-case HAPRACT Determination

R18-2-1707. Case-by-case AZMACT Determination

R18-2-1708. Risk Management Analyses

R18-2-1709. Periodic Review

Appendix 1. Standard Permit Application Form and Filing Instructions

Appendix 12. A12. Procedures for Determining Ambient Air Concentrations for Hazardous Air Pollutants

ARTICLE 1. GENERAL

R18-2-101. Definitions

In addition to the definitions prescribed in A.R.S. § 49-101, 49-401.01, 49-421, 49-471, and 49-541, in this Chapter, unless otherwise specified:

1. No change
2. No change
 - a. No change

Notices of Final Rulemaking

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Notices of Final Rulemaking

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- 99. "Regulated air pollutant" means any of the following:
 - a. Any conventional air pollutant as defined in A.R.S. § 49-401.01.
 - b. Nitrogen oxides and volatile organic compounds.
 - c. Any air contaminant that is subject to a standard contained in Article 9 of this Chapter.
 - d. Any hazardous air pollutant as defined in ~~A.R.S. § 49-401.01~~ Article 17 of this Chapter.
 - e. Any Class I or II substance listed in Section 602 of the Act.
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Notices of Final Rulemaking

104. No change

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106. "Significant" means:

- a. In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant	Emissions Rate
Carbon monoxide	100 tons per year (tpy)
Nitrogen oxides	40 tpy
Sulfur dioxide	40 tpy
Particulate matter	25 tpy
PM	10 15 tpy
VOC	40 tpy
Lead	0.6 tpy
Fluorides	3 tpy
Sulfuric acid mist	7 tpy
Hydrogen sulfide (H ₂ S)	10 tpy
Total reduced sulfur (including H ₂ S)	10 tpy
Reduced sulfur compounds (including H ₂ S)	10 tpy
Municipal waste combustor organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)	3.5 x 10 ⁻⁶ tpy
Municipal waste combustor metals (measured as particulate matter)	15 tpy
Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride)	40 tpy
Municipal solid waste landfill emissions (measured as nonmethane organic compounds)	50 tpy

- b. In ozone nonattainment areas classified as serious or severe, significant emissions of VOC shall be determined under R18-2-405.
- c. For a regulated air pollutant that is not listed in subsection (a), is not a Class I or II substance listed in Section 602 of the Act, and is not a hazardous air pollutant according to ~~A.R.S. § 49-401.01(11)~~ Article 17 of this Chapter, any emission rate.
- d. Notwithstanding the emission amount listed in subsection (a), any emissions rate or any net emissions increase associated with a major source or major modification, which would be constructed within 10 kilometers of a Class I area and have an impact on the ambient air quality of such area equal to or greater than 1 µg/m³ (24-hour average).

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Notices of Final Rulemaking

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ARTICLE 3. PERMITS AND PERMIT REVISIONS

R18-2-302. Applicability; Classes of Permits

- A.** Except as otherwise provided in this Article, no person shall commence construction of, operate, or make a modification to any source subject to regulation under this Article, without obtaining a permit or permit revision from the Director.
- B.** There shall be two classes of permits as follows:
1. A Class I permit shall be required for a person to commence construction of or operate any of the following:
 - a. Any major source,
 - b. Any solid waste incineration unit required to obtain a permit pursuant to Section 129(e) of the Act,
 - c. Any affected source, or
 - d. Any source in a source category designated by the Administrator pursuant to 40 CFR 70.3 and adopted by the Director by rule.
 2. Unless a Class I permit is required, a Class II permit shall be required for:
 - a. A person to commence construction of or operate any of the following:
 - i. Any source, including an area source, subject to a standard, limitation, or other requirement under Section 111 of the Act;
 - ii. Any source, including an area source, subject to a standard or other requirement under Section 112 of the Act, except that a source is not required to obtain a permit solely because it is subject to regulations or requirements under Section 112 (r) of the Act;
 - iii. Any source that emits or has the potential to emit, without controls, significant quantities of regulated air pollutants;
 - iv. Stationary rotating machinery of greater than 325 brake horsepower; or
 - v. Fuel-burning equipment which, at a location or property other than a one or two family ~~residence~~ residence, is fired at a sustained rate of more than 1 million Btu per hour for more than an eight-hour period.
 - b. A person to modify a source which would cause it to emit, or have the potential to emit, quantities of regulated air pollutants greater than or equal to those specified in subsection (B)(2)(a)(iii).
 - c. A person to begin actual construction of a source subject to Article 17 of this Chapter.
 - d. A person to make a modification subject to Article 17 of this Chapter to a source for which a permit has not been issued under this Article.
- C.** Notwithstanding subsections (A) and (B), the following sources do not require a permit unless the source is a major source, or unless operation without a permit would result in a violation of the Act:
1. Sources subject to 40 CFR 60, Subpart AAA, Standards of Performance for New Residential Wood Heaters;
 2. Sources and source categories that would be required to obtain a permit solely because they are subject to 40 CFR 61.145; and
 3. Agricultural equipment used in normal farm operations. "Agricultural equipment used in normal farm operations" does not include equipment classified as a source that requires a permit under Title V of the Act, or that is subject to a standard under 40 CFR 60 or 61.
- D.** No person may construct or reconstruct any major source of hazardous air pollutants, unless the Director determines that maximum achievable control technology emission limitation (MACT) for new sources under Section 112 of the Act will be met. If MACT has not been established by the Administrator, such determination shall be made on a case-by-case basis pursuant to 40 CFR 63.40 through 63.44, as incorporated by reference in R18-2-1101(B). For purposes of this subsection, constructing and reconstructing a major source shall have the meaning prescribed in 40 CFR 63.41.

R18-2-304. Permit Application Processing Procedures

- A.** Unless otherwise noted, this Section applies to each source requiring a Class I or II permit or permit revision.
- B.** Standard Application Form and Required Information. To apply for any permit in this Chapter, applicants shall complete the "Standard Permit Application Form" and supply all information required by the "Filing Instructions" as shown in Appendix 1. The Director, either upon the Director's own initiative or on the request of a permit applicant, may waive a requirement that specific information or data be submitted in the application for a Class II permit for a particular source or category of sources if the Director determines that the information or data would be unnecessary to determine all of the following:
1. The applicable requirements to which the source may be subject;
 2. That the source is so designed, controlled, or equipped with such air pollution control equipment that it may be expected to operate without emitting or without causing to be emitted air contaminants in violation of the provisions of A.R.S. Title 49, Chapter 3, Article 2 and this Chapter;
 3. The fees to which the source may be subject;
 4. A proposed emission limitation, control, or other requirement that meets the requirements of R18-2-306.01.
- C.** Unless otherwise required by R18-2-303(B) through (D), a timely application is:
1. For a source, other than a major source, applying for a permit for the first time, one that is submitted within 12 months after the source becomes subject to the permit program.

Notices of Final Rulemaking

2. For purposes of permit renewal, a timely application is one that is submitted at least six months, but not more than 18 months, prior to the date of permit expiration.
 3. For initial phase II acid rain permits under Title IV of the Act and regulations incorporated pursuant to R18-2-333, one that is submitted to the Director by January 1, 1996, for sulfur dioxide, and by January 1, 1998, for nitrogen oxides.
 4. Any source under R18-2-326(B)(3) which becomes subject to a standard promulgated by the Administrator pursuant to Section 112(d) of the Act shall, within 12 months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.
- D.** If an applicable implementation plan allows the determination of an alternative emission limit, a source may, in its application, propose an emission limit that is equivalent to the emission limit otherwise applicable to the source under the applicable implementation plan. The source shall also demonstrate that the equivalent limit is quantifiable, accountable, enforceable, and subject to replicable compliance determination procedures.
- E.** A complete application shall comply with all of the following:
1. To be complete, an application shall provide all information required by subsection (B) (standard application form section). An application for permit revision only need supply information related to the proposed change, unless the source's proposed permit revision will change the permit from a Class II permit to a Class I permit. A responsible official shall certify the submitted information consistent with subsection (H) (Certification of Truth, Accuracy, and Completeness).
 2. An application for a new permit or permit revision shall contain an assessment of the applicability of the requirements of Article 4 of this Chapter. If the applicant determines that the proposed new source is a major source as defined in R18-2-401, or the proposed permit revision constitutes a major modification as defined in R18-2-101, then the application shall comply with all applicable requirements of Article 4.
 3. An application for a new permit or a permit revision shall contain an assessment of the applicability of the requirements established pursuant to ~~under A.R.S. §§ 49-426.03 and 49-426.06~~ Article 17 of this Chapter. If the applicant determines that the proposed new source permit or permit revision is subject to the requirements of ~~A.R.S. § 49-426.03 or § 49-426.06~~ Article 17 of this Chapter, the application shall comply with all applicable requirements ~~promulgated under those sections of that Article~~.
 4. Except for proposed new major sources or major modifications subject to the requirements of Article 4 of this Chapter, an application for a new permit, a permit revision, or a permit renewal shall be deemed to be complete unless, within 60 days of receipt of the application, the Director notifies the applicant by certified mail that the application is not complete.
 5. If a source wishes to voluntarily enter into an emissions limitation, control, or other requirement pursuant to R18-2-306.01, the source shall describe that emissions limitation, control, or other requirement in its application, along with proposed associated monitoring, recordkeeping, and reporting requirements necessary to demonstrate that the emissions limitation, control, or other requirement is permanent, quantifiable, and otherwise enforceable as a practical matter.
 6. If, while processing an application that has been determined or deemed to be complete, the Director determines that additional information is necessary to evaluate or take final action on that application, the Director may request such information in writing, delivered by certified mail, and set a reasonable deadline for a response. Except for minor permit revisions as set forth in R18-2-319, a source's ability to continue operating without a permit, as set forth in this Article, shall be in effect from the date the application is determined to be complete until the final permit is issued, provided that the applicant submits any requested additional information by the deadline specified by the Director. If the Director notifies an applicant that its application is not complete under subsection (E)(4), the application may not be deemed automatically complete until an additional 60 days after receipt of the next submittal by the applicant. The Director may, after one submittal by the applicant pursuant to this subsection, reject an application that is determined to be still incomplete and shall notify the applicant of the decision by certified mail. After a rejection under this subsection, the Director may deny the permit or revoke an existing permit, as applicable.
 7. The completeness determination shall not apply to revisions processed through the minor permit revision process.
 8. Activities which are insignificant pursuant to R18-2-101(57) shall be listed in the application. The application need not provide emissions data regarding insignificant activities. If the Director determines that an activity listed as insignificant does not meet the requirements of R18-2-101(57), the Director shall notify the applicant in writing and specify additional information required.
 9. If a permit applicant requests terms and conditions allowing for the trading of emission increases and decreases in the permitted facility solely for the purpose of complying with a federally enforceable emission cap that is established in the permit independent of otherwise applicable requirements, the permit applicant shall include in its application proposed replicable procedures and permit terms that ensure the emissions trades are quantifiable and enforceable.
 10. The Director is not in disagreement with a notice of confidentiality submitted with the application pursuant to A.R.S. § 49-432.
- F.** A source applying for a Class I permit that has submitted information with an application under a claim of confidentiality

pursuant to A.R.S. § 49-432 and R18-2-305 shall submit a copy of such information directly to the Administrator.

- G.** Duty to Supplement or Correct Application. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a proposed permit.
- H.** Certification of Truth, Accuracy, and Completeness. Any application form, report, or compliance certification submitted pursuant to this Chapter shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this Article shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- I.** Action on Application.
1. The Director shall issue or deny each permit according to the provisions of A.R.S. § 49-427. The Director may issue a permit with a compliance schedule for a source that is not in compliance with all applicable requirements at the time of permit issuance.
 2. In addition, a permit may be issued, revised, or renewed only if all of the following conditions have been met:
 - a. The application received by the Director for a permit, permit revision, or permit renewal shall be complete according to subsection (E).
 - b. Except for revisions qualifying as administrative or minor under R18-2-318 and R18-2-319, all of the requirements for public notice and participation under R18-2-330 shall have been met.
 - c. For Class I permits, the Director shall have complied with the requirements of R18-2-307 for notifying and responding to affected states, and if applicable, other notification requirements of R18-2-402(D)(2) and R18-2-410(C)(2).
 - d. For Class I and II permits, the conditions of the permit shall require compliance with all applicable requirements.
 - e. For permits for which an application is required to be submitted to the Administrator under R18-2-307(A), and to which the Administrator has properly objected to its issuance in writing within 45 days of receipt of the proposed final permit and all necessary supporting information from the Department, the Director has revised and submitted a proposed final permit in response to the objection and EPA has not objected to this proposed final permit.
 - f. For permits to which the Administrator has objected to issuance pursuant to a petition filed under 40 CFR 70.8(d), the administrator's objection has been resolved.
 - g. For a Class II permit that contains voluntary emission limitations, controls, or other requirements established pursuant to R18-2-306.01, the Director shall have complied with the requirement of R18-2-306.01(C) to provide the Administrator with a copy of the proposed permit.
 3. If the Director denies a permit under this Section, a notice shall be served on the applicant by certified mail, return receipt requested. The notice shall include a statement detailing the grounds for the denial and a statement that the permit applicant is entitled to a hearing.
 4. The Director shall provide a statement that sets forth the legal and factual basis for the proposed permit conditions including references to the applicable statutory or regulatory provisions. The Director shall send this statement to any person who requests it and, for Class I permits, to the Administrator.
 5. Except as provided in R18-2-303 and R18-2-402, regulations promulgated under Title IV or V of the Act, or the permitting of affected sources under the acid rain program pursuant to R18-2-333, the Director shall take final action on each permit application (and request for revision or renewal) within 18 months after receiving a complete application.
 6. Priority shall be given by the Director to taking action on applications for construction or modification submitted pursuant to Title I, Parts C (Prevention of Significant Deterioration) and D (New Source Review) of the Act.
 7. A proposed permit decision shall be published within nine months of receipt of a complete application and any additional information requested pursuant to subsection (E)(6) to process the application. The Director shall provide notice of the decision as provided in R18-2-330 and any public hearing shall be scheduled as expeditiously as possible.
- J.** Requirement for a Permit. Except as noted under the provisions in R18-2-317 and R18-2-319, no source may operate after the time that it is required to submit a timely and complete application, except in compliance with a permit issued pursuant to this Chapter. However, if a source under R18-2-326(B)(3) submits a timely and complete application for continued operation under a permit revision or renewal, the source's failure to have a permit is not a violation of this Article until the Director takes final action on the application. This protection shall cease to apply if, subsequent to the completeness determination, the applicant fails to submit, by the deadline specified in writing by the Director, any additional information identified as being needed to process the application.

R18-2-306.01. Permits Containing Voluntarily Accepted Emission Limitations and Standards

- A.** A source may voluntarily propose in its application, and accept in its permit, emissions limitations, controls, or other requirements that are permanent, quantifiable, and otherwise enforceable as a practical matter in order to avoid classification as a source that requires a Class I permit or to avoid one or more other ~~federal~~ applicable requirements. For the purposes of this Section, "enforceable as a practical matter" means that specific means to assess compliance with an

Notices of Final Rulemaking

emissions limitation, control, or other requirement are provided for in the permit in a manner that allows compliance to be readily determined by an inspection of records and reports.

- B. In order for a source to obtain a permit containing voluntarily accepted emissions limitations, controls, or other requirements, the source shall demonstrate all of the following in its permit application:
 - 1. The emissions limitations, controls, or other requirements to be imposed for the purpose of avoiding an applicable requirement are at least as stringent as the emissions limitations, controls, or other requirements that would otherwise be applicable to that source, including those that originate in an applicable implementation plan; and the permit does not waive, or make less stringent, any limitations or requirements contained in or issued pursuant to an applicable implementation plan, or that are otherwise federally enforceable.
 - 2. All voluntarily accepted emissions limitations, controls, or other requirements will be permanent, quantifiable, and otherwise enforceable as a practical matter.
- C. At the same time as notice of proposed issuance is first published pursuant to A.R.S. § 49-426(D), the Director shall send a copy of any Class II permit proposed to be issued pursuant to this Section to the Administrator for review during the comment period described in the notice pursuant to R18-2-330(D).
- D. The Director shall send a copy of each final permit issued pursuant to this Section to the Administrator.

R18-2-317. Facility Changes Allowed Without Permit Revisions - Class I

- A. A facility with a Class I permit may make changes without a permit revision if all of the following apply:
 - 1. The changes are not modifications under any provision of Title I of the Act or under ~~A.R.S. § 49-401.01(17)~~ A.R.S. § 49-401.01(24);
 - 2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions;
 - 3. The changes do not violate any applicable requirements or trigger any additional applicable requirements;
 - 4. The changes satisfy all requirements for a minor permit revision under R18-2-319(A); and
 - 5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.
- B. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if the substitution meets all of the requirements of subsections (A), (D), and (E).
- C. Except for sources with authority to operate under general permits, permitted sources may trade increases and decreases in emissions within the permitted facility, as established in the permit under R18-2-306(A)(12), if an applicable implementation plan provides for the emissions trades without applying for a permit revision and based on the seven working days notice prescribed in subsection (D). This provision is available if the permit does not provide for the emissions trading as a minor permit revision.
- D. For each change under subsections (A) through (C), a written notice by certified mail or hand delivery shall be received by the Director and the Administrator a minimum of seven working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than seven working days in advance of the change but must be provided as far in advance of the change or, if advance notification is not practicable, as soon after the change as possible.
- E. Each notification shall include:
 - 1. When the proposed change will occur;
 - 2. A description of the change;
 - 3. Any change in emissions of regulated air pollutants;
 - 4. The pollutants emitted subject to the emissions trade, if any;
 - 5. The provisions in the implementation plan that provide for the emissions trade with which the source will comply and any other information as may be required by the provisions in the implementation plan authorizing the trade;
 - 6. If the emissions trading provisions of the implementation plan are invoked, then the permit requirements with which the source will comply; and
 - 7. Any permit term or condition that is no longer applicable as a result of the change.
- F. The permit shield described in R18-2-325 shall not apply to any change made under subsections (A) through (C). Compliance with the permit requirements that the source will meet using the emissions trade shall be determined according to requirements of the implementation plan authorizing the emissions trade.
- G. Except as otherwise provided for in the permit, making a change from one alternative operating scenario to another as provided under R18-2-306(A)(11) shall not require any prior notice under this Section.
- H. Notwithstanding any other part of this Section, the Director may require a permit to be revised for any change that, when considered together with any other changes submitted by the same source under this Section over the term of the permit, do not satisfy subsection (A).
- I. The Director shall make available to the public monthly summaries of all notices received under this Section.

Notices of Final Rulemaking

R18-2-330. Public Participation

- A. The Director shall provide public notice, an opportunity for public comment, and an opportunity for a hearing before taking any of the following actions:
1. A permit issuance or renewal of a permit,
 2. A significant permit revision,
 3. Revocation and reissuance or reopening of a permit,
 4. Any conditional orders pursuant to R18-2-328,
 5. Granting a variance from a general permit pursuant to A.R.S. § 49-426.06(E) under and R18-2-507 and R18-2-1705.
- B. The Director shall provide public notice of receipt of complete applications for permits to construct or make a major modification to major sources by publishing a notice in a newspaper of general circulation in the county where the source is or will be located.
- C. The Director shall provide the notice required pursuant to subsection (A) as follows:
1. The Director shall publish the notice once each week for two consecutive weeks in two newspapers of general circulation in the county where the source is or will be located.
 2. The Director shall mail a copy of the notice to persons on a mailing list developed by the Director consisting of those persons who have requested in writing to be placed on such a mailing list.
- D. The notice required by subsection (C) shall include the following:
1. Identification of the affected facility;
 2. Name and address of the permittee or applicant;
 3. Name and address of the permitting authority processing the permit action;
 4. The activity or activities involved in the permit action;
 5. The emissions change involved in any permit revisions;
 6. The air contaminants to be emitted;
 7. If applicable, that a notice of confidentiality has been filed under R18-2-305;
 8. If applicable, that the source has submitted a risk management analysis pursuant to A.R.S. § 49-426.06 under R18-2-1708;
 9. A statement that any person may submit written comments, or a written request for a public hearing, or both, on the proposed permit action, along with the deadline for such requests or comments;
 10. The name, address, and telephone number of a person from the Department from whom additional information may be obtained;
 11. Locations where copies of the permit or permit revision application, the proposed permit, and all other materials available to the Director that are relevant to the permit decision may be reviewed, including the closest Department office, and the times at which they shall be available for public inspection.
- E. The Director shall hold a public hearing to receive comments on petitions for conditional orders which would vary from requirements of the applicable implementation plan. For all other actions involving a proposed permit, the Director shall hold a public hearing only upon written request. If a public hearing is requested, the Director shall schedule the hearing and publish notice as described in A.R.S. § 49-444 and subsection (D). The Director shall give notice of any public hearing at least 30 days in advance of the hearing.
- F. At the time the Director publishes the first notice under subsection (C)(1), the applicant shall post a notice containing the information required in subsection (D) at the site where the source is or may be located. Consistent with federal, state, and local law, the posting shall be prominently placed at a location under the applicant's legal control, adjacent to the nearest public roadway, and visible to the public using the public roadway. If a public hearing is to be held, the applicant shall place an additional posting providing notice of the hearing. Any posting shall be maintained until the public comment period is closed.
- G. The Director shall provide at least 30 days from the date of its first notice for public comment. The Director shall keep a record of the commenters and of the issues raised during the public participation process and shall prepare written responses to all comments received. At the time a final decision is made, the record and copies of the Director's responses shall be made available to the applicant and all commenters.

R18-2-331. Material Permit Conditions

- A. For the purposes of A.R.S. §§ 49-464(G) and 49-514(G), a "material permit condition" shall mean a condition which satisfies all of the following:
1. The condition is in a permit or permit revision issued by the Director or a control officer after November 15, 1993.
 2. The condition is identified within the permit as a material permit condition.
 3. The condition is one of the following:
 - a. An enforceable emission standard imposed to avoid classification as a major modification or major source or to avoid triggering any other applicable requirement;
 - b. A requirement to install, operate, or maintain a maximum achievable control technology or hazardous air pollutant reasonably available control technology required pursuant to A.R.S. § 49-426.06 under Article 17 of this Chapter;

Notices of Final Rulemaking

- c. A requirement for the installation or certification of a monitoring device;
 - d. A requirement for the installation of air pollution control equipment;
 - e. A requirement for the operation of air pollution control equipment;
 - f. An opacity standard required by Section 111 or Title I, Part C or D of the Act.
4. Violation of the condition is not covered by A.R.S. § 49-464(A) through (F), or (H) through (J) or A.R.S. § 49-514(A) through (F), or (H) through (J).
- B.** For the purposes of subsections (A)(3)(c), (d), and (e), a permit condition shall not be material where the failure to comply resulted from circumstances which were outside the control of the source. As used in this Section, “circumstances outside the control of the source” shall mean circumstances where the violation resulted from a sudden and unavoidable break-down of the process or the control equipment, resulted from unavoidable conditions during a start up or shut down or resulted from upset of operations.
- C.** For purposes of this Section, the term “emission standard” shall have the meaning specified in A.R.S. §§ 49-464(U) and 49-514(T).

ARTICLE 4. PERMIT REQUIREMENTS FOR NEW MAJOR SOURCES AND MAJOR MODIFICATIONS TO EXISTING MAJOR SOURCES

R18-2-406. Permit Requirements for Sources Located in Attainment and Unclassifiable Areas

- A.** Except as provided in subsections (B) through (G) below and R18-2-408 (Innovative control technology), no permit or permit revision under this Article shall be issued to a person proposing to construct a new major source or make a major modification to a major source that would be constructed in an area designated as attainment or unclassifiable for any pollutant unless the source or modification meets the following conditions:
- 1. A new major source shall apply best available control technology (BACT) for each pollutant listed in R18-2-101(104)(a) for which the potential to emit is significant.
 - 2. A major modification shall apply BACT for each pollutant listed in R18-2-101(104)(a) for which the modification would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.
 - 3. For phased construction projects, the determination of BACT shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.
 - 4. BACT shall be determined on a case-by-case basis and may constitute application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment, clean fuels, or innovative fuel combustion techniques, for control of such pollutant. In no event shall such application of BACT result in emissions of any pollutant, which would exceed the emissions allowed by any applicable new source performance standard or national emission standard for hazardous air pollutants under Articles 9 and 11 of this Chapter. If the Director determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice, or operation and shall provide for compliance by means which achieve equivalent results.
 - 5. The person applying for the permit or permit revision under this Article performs an air impact analysis and monitoring as specified in R18-2-407, and such analysis demonstrates that allowable emission increases from the proposed new major source or major modification, in conjunction with all other applicable emission increases or reductions, including secondary emissions, for all pollutants listed in R18-2-218(A), and including minor and mobile source emissions of oxides of nitrogen and PM₁₀ :
 - a. Would not cause or contribute to an increase in concentrations of any pollutant by an amount in excess of any applicable maximum allowable increase over the baseline concentration in R18-2-218 for any attainment or unclassified area; or
 - b. Would not contribute to an increase in ambient concentrations for a pollutant by an amount in excess of the significance level for such pollutant in any adjacent area in which Arizona primary or secondary ambient air quality standards for that pollutant are being violated. A new major source of volatile organic compounds or oxides of nitrogen, or a major modification to a major source of volatile organic compounds or oxides of nitrogen shall be presumed to contribute to violations of the Arizona ambient air quality standards for ozone if it will be located within 50 kilometers of a nonattainment area for ozone. The presumption may be rebutted for a new major source or major modification if it can be satisfactorily demonstrated to the Director that emissions of volatile organic compounds or oxides of nitrogen from the new major source or major modification will not contribute to violations of the Arizona ambient air quality standards for ozone in adjacent nonattainment areas for ozone. Such a

Notices of Final Rulemaking

demonstration shall include a showing that topographical, meteorological, or other physical factors in the vicinity of the new major source or major modification are such that transport of volatile organic compounds emitted from the source are not expected to contribute to violations of the ozone standards in the adjacent nonattainment areas.

6. Air quality models:
 - a. All estimates of ambient concentrations required under this Section shall be based on the applicable air quality models, data basis, and other requirements specified in the ~~“Guideline on Air Quality Models (Revised)” (EPA-450/2-78-027R, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, July 1986), and “Supplement B to the Guideline on Air Quality Models” (U.S. Environmental Protection Agency, September 1990). Both documents 40 CFR 51, Appendix W, “Guideline On Air Quality Models,” as of July 1, 2004 (and no future amendments or editions), which shall be referred to hereinafter as “Guideline” and are is adopted by reference and is on file with the Secretary of State and with the Department.~~
 - b. Where an air quality impact model specified in the “Guideline” is not applicable, the model may be modified or another model substituted. Such a change shall be subject to notice and opportunity for public comment. Written approval of the EPA Administrator shall be obtained for any modification or substitution.
- B. The requirements of this Section shall not apply to a new major source or major modification to a source with respect to a particular pollutant if the person applying for the permit or permit revision under this Article demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment for the pollutant.
- C. The requirements of this Section shall not apply to a new major source or major modification of a source if such source or modification would be a major source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential emissions of the source or modification, and the source is not either among the Categorical Sources listed in R18-2-101 or belongs to the category of sources for which New Source Performance Standards under 40 CFR 60 or National Emission Standards for Hazardous Air Pollutants under 40 CFR 61 promulgated by the Administrator prior to August 7, 1980.
- D. The requirements of this Section shall not apply to a new major source or major modification to a source when the owner of such source is a nonprofit health or educational institution.
- E. The requirements of this Section shall not apply to a portable source which would otherwise be a new major source or major modification to an existing source if such portable source is temporary, is under a permit or permit revision under this Article, is in compliance with the conditions of that permit or permit revision under this Article, the emissions from the source will not impact a Class I area nor an area where an applicable increment is known to be violated, and reasonable notice is given to the Director prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the Director not less than 10 calendar days in advance of the proposed relocation unless a different time duration is previously approved by the Director.
- F. Special rules applicable to Federal Land Managers:
 1. Notwithstanding any other provision of this Section, a Federal Land Manager may present to the Director a demonstration that the emissions attributed to such new major source or major modification to a source will have significant adverse impact on visibility or other specifically defined air quality related values of any Federal Mandatory area designated in R18-2-217(B) regardless of the fact that the change in air quality resulting from emissions attributable to such new major source or major modification to a source in existence will not cause or contribute to concentrations which exceed the maximum allowable increases for a Class I area. If the Director concurs with such demonstrations, the permit or permit revision under this Article shall be denied.
 2. If the owner or operator of a proposed new major source or a source for which major modification is proposed demonstrates to the Federal Land Manager that the emissions attributable to such major source or major modification will have no significant adverse impact on the visibility or other specifically defined air quality-related values of such areas and the Federal Land Manager so certifies to the Director, the Director may issue a permit or permit revision under this Article, notwithstanding the fact that the change in air quality resulting from emissions attributable to such new major source or major modification will cause or contribute to concentrations which exceed the maximum allowable increases for a Class I area. Such a permit or permit revision under this Article shall require that such new major source or major modification comply with such emission limitations as may be necessary to assure that emissions will not cause increases in ambient concentrations greater than the following maximum allowable increases over baseline concentrations for such pollutants:

Notices of Final Rulemaking

Maximum Allowable Increase (Micrograms per cubic meter)	
Sulfur Oxide	
Period of exposure	
Low terrain areas:	
24-hour maximum	36
3-hour maximum	130
High terrain areas:	
24-hour maximum	62
3-hour maximum	221

- G. The issuance of a permit or permit revision under this Article in accordance with this Section shall not relieve the owner or operator of the responsibility to comply fully with applicable provisions of the SIP and any other requirements under local, state, or federal law.
- H. At such time that a particular source or modification becomes a major source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this Section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

ARTICLE 5. GENERAL PERMITS

R18-2-507. General Permit Variances

- A. Where MACT (maximum achievable control technology) or HAPRACT (hazardous air pollutant reasonably available control technology) has been established in a general permit for a source category designated pursuant to A.R.S. § 49-426.05(A) under R18-2-1702, the owner or operator of a source within that source category may apply for a variance from the standard by demonstrating compliance with A.R.S. § 49-426.06(D) R18-2-1708 at the time the source applies for coverage under the general permit.
- B. If the owner or operator makes the showing required by A.R.S. § 49-426.06(D) R18-2-1708 and otherwise qualifies for the general permit, the Director shall, in accordance with the procedures established pursuant to this Article, approve the application and authorize operation under a variance from the standard of the general permit.
- C. Except as modified by the variance, the source shall comply with all conditions of the general permit.
- D. A proposed variance to a standard in a general permit shall be subject to the public notice requirements of R18-2-330.

ARTICLE 17. ARIZONA STATE HAZARDOUS AIR POLLUTANTS PROGRAM

R18-2-1701. Definitions

The following definitions, and the definitions contained in Article 1 of this Chapter and A.R.S. § 49-401.01 apply to this Article unless the context otherwise applies.

1. “Acute adverse effects to human health” means those effects described in A.R.S. § 49-401.01(2) that are of short duration or rapid onset.
2. “Acute Ambient Air Concentration (AAAC)” means that concentration of a hazardous air pollutant, in the ambient air, above which the general population, including susceptible populations, could experience acute adverse effects to human health.
3. Notwithstanding the definition at R18-2-101(5), “Affected source,” in this Article, has the meaning of “affected source” contained in 40 CFR 63.2, as of July 1, 2004 (and no future amendments or editions), which is incorporated herein by reference, and is on file with the Department.
4. “Ambient air concentration (AAC)” means that concentration of a hazardous air pollutant in the ambient air, listed in R18-2-1708(C)(1) or determined according to R18-2-1708(C)(2) or (C)(3), above which the general population, including susceptible populations, could experience adverse effects to human health.
5. “Arizona maximum achievable control technology” or “AZMACT” means an emission standard that requires the maximum degree of reduction in emissions of the hazardous air pollutants subject to this Chapter, including a prohibition on the emissions where achievable and that the Director, according to R18-2-1707, has determined to be achievable by an affected source to which the standard applies, through application of measures, processes, methods, systems or techniques including measures that:
 - a. Reduce the volume of, or eliminate emissions of, the pollutants through process changes, substitution of materials, or other modifications;

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

- b. Enclose systems or processes to eliminate emissions;
- c. Collect, capture or treat the pollutants when released from a process, stack, storage or fugitive emissions point;
- d. Are design, equipment, work practice, or operational standards, including requirements for operator training or certification; or
- e. Are a combination of the above.
- 6. "Chemical Abstract Service (CAS) Number" means a unique, identifying number assigned by the Chemical Abstract Service to each distinct chemical substance.
- 7. "Chronic adverse effects to human health" means those effects described in A.R.S. § 49-401.01(2) that are of a persistent, recurring, or long-term nature or that are delayed in onset.
- 8. "Chronic Ambient Air Concentration (CAAC)" means that concentration of a hazardous air pollutant, in the ambient air, above which the general population, including susceptible populations, could experience chronic adverse effects to human health.
- 9. "Federally listed hazardous air pollutant" means any air pollutant adopted under R18-2-1703.
- 10. "Hazardous air pollutant" means any federally listed hazardous air pollutant.
- 11. "Major source of state hazardous air pollutants (HAPs)" means:
 - a. A stationary source that emits or has the potential to emit in the aggregate, including fugitive emissions, 10 tons per year or more of any state hazardous air pollutant or 25 tons per year or more of any combination of state hazardous air pollutants.
 - b. Any change to a minor source of hazardous air pollutants that would increase its emissions to the qualifying levels in subsection (a).
- 12. "Minor source of state hazardous air pollutants (HAPs)" means a stationary source that emits or has the potential to emit, including fugitive emissions, one ton or more but less than 10 tons per year of any hazardous air pollutant or two and one-half tons or more but less than 25 tons per year of any combination of hazardous air pollutants.
- 13. "Modification" or "modify" means a physical change in, or change in the method of operation of, a source that increases the actual emissions of any state hazardous air pollutant (HAP) emitted by the source by more than any de minimis amount listed in Table 1, or which results in the emission of any HAP not previously emitted by the source by more than any de minimis amount listed in Table 1, including a change that increases a source's actual emissions of any state HAP that results in total source emissions that exceed 1 tpy of any individual HAP or 2.5 tpy of any combination of HAPs. A physical change in, or change in the method of operation of, a source is not a modification under this definition if:
 - a. The change, together with any other changes implemented or planned by the source, qualifies for an alternative emission limitation under § 112(i)(5) of the Clean Air Act;
 - b. The Clean Air Act § 112(d) or (f) imposes a standard requiring the change that is implemented after the Administrator promulgates the standard;
 - c. The change is routine maintenance, repair, or replacement;
 - d. The change is the use of an alternative fuel or raw material by reason of an order under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, 15 U.S.C. 792, or by reason of a natural gas curtailment plan under the Federal Power Act, 16 U.S.C. 792 - 825r;
 - e. The change is the use of an alternative fuel by reason of an order or rule under Section 125 of the Act;
 - f. The change is the use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;
 - g. The change is an increase in the hours of operation or in the production rate, unless the change would be prohibited under an enforceable permit condition; or
 - h. The change is any change in ownership at a stationary source.
- 14. "Potential to emit" or "potential emission rate" means the maximum capacity of a stationary source to emit a pollutant, excluding secondary emissions, taking into account controls that are enforceable under any federal, state, or local law, rule or regulation, or that are inherent in the design of the source.
- 15. "SIC Code" means the standard industrial classification code number for a source category derived from 1987 Standard Industrial Classification Manual (U.S. Office of Management and Budget, 1987).
- 16. "State hazardous air pollutant" (HAP) means any federally listed hazardous air pollutant.
- 17. "Technology transfer" means the process by which existing control technologies that have been successfully applied in one or more source categories that have similar processes or emissions units are reviewed for potential use in a different source category.

Notices of Final Rulemaking

Table 1. State HAPs De Minimis Levels

<u>Chemical</u>	<u>De Minimis (lb/hr)</u>	<u>De Minimis (lb/yr)</u>
<u>1,1,1-Trichloroethane (Methyl Chloroform)</u>	<u>117</u>	<u>14,247</u>
<u>1,1,2,2-Tetrachloroethane</u>	<u>N/A</u>	<u>0.20</u>
<u>1,3-Butadiene</u>	<u>N/A</u>	<u>0.39</u>
<u>1,4-Dichlorobenzene</u>	<u>N/A</u>	<u>1.9</u>
<u>2,2,4-Trimethylpentane</u>	<u>51</u>	<u>N/A</u>
<u>2,4-Dinitrotoluene</u>	<u>N/A</u>	<u>0.13</u>
<u>2-Chloroacetophenone</u>	<u>N/A</u>	<u>0.19</u>
<u>Acetaldehyde</u>	<u>N/A</u>	<u>5.3</u>
<u>Acetophenone</u>	<u>1.4</u>	<u>2,261</u>
<u>Acrolein</u>	<u>0.013</u>	<u>0.129</u>
<u>Acrylonitrile</u>	<u>N/A</u>	<u>0.17</u>
<u>Antimony Compounds (Selected compound: Antimony)</u>	<u>0.71</u>	<u>9.0</u>
<u>Arsenic Compounds (Selected compound: Arsenic)</u>	<u>N/A</u>	<u>0.0027</u>
<u>Benzene</u>	<u>N/A</u>	<u>1.5</u>
<u>Benzyl Chloride</u>	<u>N/A</u>	<u>0.25</u>
<u>Beryllium Compounds (Selected compound: Beryllium)</u>	<u>0.000707</u>	<u>0.0049</u>
<u>Biphenyl</u>	<u>2.1</u>	<u>1,130</u>
<u>bis(2-Ethylhexyl) Phthalate</u>	<u>0.71</u>	<u>3.0</u>
<u>Bromoform</u>	<u>0.42</u>	<u>11</u>
<u>Cadmium Compounds (Selected compound: Cadmium)</u>	<u>N/A</u>	<u>0.0065</u>
<u>Carbon Disulfide</u>	<u>18</u>	<u>4,522</u>
<u>Carbon Tetrachloride</u>	<u>N/A</u>	<u>0.78</u>
<u>Carbonyl Sulfide</u>	<u>1.7</u>	<u>N/A</u>
<u>Chlorobenzene</u>	<u>57</u>	<u>6,442</u>
<u>Chloroform</u>	<u>N/A</u>	<u>2.2</u>
<u>Chromium Compounds (Selected compound: Hexavalent Chromium)</u>	<u>N/A</u>	<u>0.0010</u>
<u>Cobalt Compounds (Selected compound: Cobalt)</u>	<u>N/A</u>	<u>0.0042</u>
<u>Cumene</u>	<u>53</u>	<u>2,583</u>

Notices of Final Rulemaking

<u>Cyanide Compounds (Selected compound: Hydrogen Cyanide)</u>	<u>0.22</u>	<u>19</u>
<u>Dibenzofurans</u>	<u>1.4</u>	<u>45</u>
<u>Dichloromethane (Methylene Chloride)</u>	<u>20</u>	<u>25</u>
<u>Dimethyl formamide</u>	<u>9.3</u>	<u>194</u>
<u>Dimethyl Sulfate</u>	<u>0.018</u>	<u>N/A</u>
<u>Ethyl Benzene</u>	<u>14</u>	<u>6,442</u>
<u>Ethyl Chloride (Chloroethane)</u>	<u>71</u>	<u>64,420</u>
<u>Ethylene Dibromide (Dibromoethane)</u>	<u>N/A</u>	<u>0.020</u>
<u>Ethylene Dichloride (1,2-Dichloroethane)</u>	<u>N/A</u>	<u>0.45</u>
<u>Ethylene glycol</u>	<u>2.8</u>	<u>2,583</u>
<u>Ethylidene Dichloride (1,1-Dichloroethane)</u>	<u>354</u>	<u>3,230</u>
<u>Formaldehyde</u>	<u>N/A</u>	<u>0.90</u>
<u>Glycol Ethers (Selected compound: Diethylene glycol, monoethyl ether)</u>	<u>14</u>	<u>19</u>
<u>Hexachlorobenzene</u>	<u>N/A</u>	<u>0.026</u>
<u>Hexane</u>	<u>659</u>	<u>13,689</u>
<u>Hydrochloric Acid</u>	<u>0.93</u>	<u>129</u>
<u>Hydrogen Fluoride (Hydrofluoric Acid)</u>	<u>0.56</u>	<u>90</u>
<u>Isophorone</u>	<u>0.71</u>	<u>12,946</u>
<u>Manganese Compounds (Selected compound: Manganese)</u>	<u>0.14</u>	<u>0.32</u>
<u>Mercury Compounds (Selected compound: Elemental Mercury)</u>	<u>0.058</u>	<u>1.9</u>
<u>Methanol</u>	<u>53</u>	<u>25,830</u>
<u>Methyl Bromide</u>	<u>15</u>	<u>32</u>
<u>Methyl Chloride</u>	<u>67</u>	<u>582</u>
<u>Methyl Hydrazine</u>	<u>N/A</u>	<u>0.0024</u>
<u>Methyl Isobutyl Ketone (Hexone)</u>	<u>28</u>	<u>19,388</u>
<u>Methyl Methacrylate</u>	<u>18</u>	<u>4,522</u>
<u>Methyl Tert-Butyl Ether</u>	<u>N/A</u>	<u>46</u>
<u>N, N-Dimethylaniline</u>	<u>1.4</u>	<u>45</u>
<u>Naphthalene</u>	<u>N/A</u>	<u>0.35</u>

Notices of Final Rulemaking

<u>Nickel Compounds (Selected compound: Nickel Refinery Dust)</u>	<u>N/A</u>	<u>0.049</u>
<u>Phenol</u>	<u>3.3</u>	<u>1,295</u>
<u>Polychlorinated Biphenyls (Selected Compound: Aroclor 1254)</u>	<u>N/A</u>	<u>0.12</u>
<u>Polycyclic Organic Matter (Selected compound: Benzo(a)pyrene)</u>	<u>N/A</u>	<u>0.013</u>
<u>Propionaldehyde</u>	<u>N/A</u>	<u>5.3</u>
<u>Propylene Dichloride</u>	<u>14</u>	<u>26</u>
<u>Selenium Compounds (Selected compound: Selenium)</u>	<u>0.028</u>	<u>113</u>
<u>Styrene</u>	<u>31</u>	<u>6,442</u>
<u>Tetrachloroethylene (Perchloroethylene)</u>	<u>N/A</u>	<u>2.0</u>
<u>Toluene</u>	<u>109</u>	<u>146,766</u>
<u>Trichloroethylene</u>	<u>N/A</u>	<u>0.10</u>
<u>Vinyl Acetate</u>	<u>22</u>	<u>1,295</u>
<u>Vinyl Chloride</u>	<u>N/A</u>	<u>1.3</u>
<u>Vinylidene Chloride (1,2-Dichloroethylene)</u>	<u>2.1</u>	<u>1,295</u>
<u>Xylene (Mixed Isomers)</u>	<u>98</u>	<u>644</u>

R18-2-1702. Applicability

- A.** The provisions of this Article apply to:
1. Minor sources of state hazardous air pollutants that are in one of the source categories listed in Table 2; and
 2. Major sources of state hazardous air pollutants.
- B.** The provisions of this Article shall not apply to:
1. Affected sources for which a standard under 40 CFR 61 or 40 CFR 63 imposes an emissions limitation.
 2. Affected sources at a minor source of state HAPs if the minor source:
 - a. Is in a source category for which a standard under 40 CFR 63 has been adopted; and
 - b. Agrees to comply with the emissions limitation under R18-2-306.01.
- C.** If the Clean Air Act has established provisions including specific schedules for the regulation of source categories under Section 112(e)(5) and 112(n), those provisions and schedules shall apply to the regulation of those source categories.
- D.** For any category or subcategory of facilities licensed by the Nuclear Regulatory Commission, the Director shall not adopt or enforce any standard or limitation respecting emissions of radionuclides which is more stringent than the standard or limitation adopted by the Administrator under Section 112 of the Act.
- E.** The provisions of this Article shall not apply to sources for which the Administrator has made one of the following findings under Section 112(n) of the Clean Air Act, 42 U.S.C. 7412(n):
1. A finding that regulation is not appropriate or necessary, or
 2. A finding that the source should apply alternative control strategies.
- G.** The provisions of this Article shall be effective January 1, 2007, and shall not apply to permits or significant permit revisions for which the Department receives the first application component before the effective date of this Article.

Notices of Final Rulemaking

Table 2. State HAPs Minor Source Categories

<u>Primary SIC Code</u>	<u>Source Category</u>
<u>2434</u>	<u>Wood Kitchen Cabinets</u>
<u>2451</u>	<u>Mobile Homes</u>
<u>2621</u>	<u>Paper Mills</u>
<u>2679</u>	<u>Converted Paper Products, n.e.c.¹</u>
<u>2851</u>	<u>Paints and Allied Products</u>
<u>2911</u>	<u>Petroleum Refining</u>
<u>3086</u>	<u>Plastics Foam Products</u>
<u>3088</u>	<u>Plastics Plumbing Fixtures</u>
<u>3089</u>	<u>Plastics Products, n.e.c.¹</u>
<u>3241</u>	<u>Cement, Hydraulic</u>
<u>3281</u>	<u>Cut Stone and Stone Products</u>
<u>3296</u>	<u>Mineral Wool</u>
<u>3312</u>	<u>Blast Furnaces and Steel mills</u>
<u>3331</u>	<u>Primary Copper</u>
<u>3411</u>	<u>Metal Cans</u>
<u>3444</u>	<u>Sheet Metal Work</u>
<u>3451</u>	<u>Screw Machine Products</u>
<u>3479</u>	<u>Metal Coating and Allied Services</u>
<u>3585</u>	<u>Refrigeration and Heating Equipment</u>
<u>3672</u>	<u>Printed Circuit Boards</u>
<u>3999</u>	<u>Mfg. Industries, n.e.c.¹</u>
<u>4922</u>	<u>Natural Gas Transmission</u>
<u>5169</u>	<u>Chemicals and Allied Products, n.e.c.¹</u>
<u>5171</u>	<u>Petroleum Bulk Stations and Terminals</u>

¹ Not Elsewhere Classified

R18-2-1703. State List of Hazardous Air Pollutants

The following federally listed hazardous air pollutants listed in § 112(b)(1) of the Clean Air Act, 42 U.S.C. § 7412(b)(1) are hazardous air pollutants under this Article:

1. Acetaldehyde (CAS 75070)
2. Acetamide (CAS 60355)
3. Acetonitrile (CAS 75058)
4. Acetophenone (CAS 98862)
5. 2-Acetylaminofluorene (CAS 53963)
6. Acrolein (CAS 107028)
7. Acrylamide (CAS 79061)
8. Acrylic acid (CAS 79107)
9. Acrylonitrile (CAS 107131)

Notices of Final Rulemaking

10. Allyl chloride (CAS 107051)
11. 4-Aminobiphenyl (CAS 92671)
12. Aniline (CAS 62533)
13. o-Anisidine (CAS 90040)
14. Asbestos (CAS 1332214)
15. Benzene (including benzene from gasoline) (CAS 71432)
16. Benzidine (CAS 92875)
17. Benzotrichloride (CAS 98077)
18. Benzyl chloride (CAS100447)
19. Biphenyl (CAS 92524)
20. Bis(2-ethylhexyl)phthalate (DEHP) (CAS 117817)
21. Bis(chloromethyl)ether (CAS 542881)
22. Bromoform (CAS 75252)
23. 1,3-Butadiene (CAS 106990)
24. Calcium cyanamide (CAS 156627)
25. Captan (CAS 133062)
26. Carbaryl (CAS 63252)
27. Carbon disulfide (CAS 75150)
28. Carbon tetrachloride (CAS 56235)
29. Carbonyl sulfide (CAS 463581)
30. Catechol (CAS 120809)
31. Chloramben (CAS 133904)
32. Chlordane (CAS 57749)
33. Chlorine (CAS 7782505)
34. Chloroacetic acid (CAS 79118)
35. 2-Chloroacetophenone (CAS 532274)
36. Chlorobenzene (CAS 108907)
37. Chlorobenzilate (CAS 510156)
38. Chloroform (CAS 67663)
39. Chloromethyl methyl ether (CAS 107302)
40. Chloroprene (CAS 126998)
41. Cresols/Cresylic acid (isomers and mixture) (CAS 1319773)
42. o-Cresol (CAS 95487)
43. m-Cresol (CAS 108394)
44. p-Cresol (CAS 106445)
45. Cumene (CAS 98828)
46. 2,4-D.salts and esters (CAS 94757)
47. DDE (CAS 3547044)
48. Diazomethane (CAS 334883)
49. Dibenzofurans (CAS 132649)
50. 1,2-Dibromo-3-chloropropane (CAS 96128)
51. Dibutylphthalate (CAS 84742)
52. 1,4-Dichlorobenzene(p) (CAS 106467)
53. 3,3-Dichlorobenzidene (CAS 91941)
54. Dichloroethyl ether (Bis(2-chloroethyl)ether) (CAS 111444)
55. 1,3-Dichloropropene (CAS 542756)
56. Dichlorvos (CAS 62737)
57. Diethanolamine (CAS 111422)
58. N,N-Diethylaniline (N,N-Dimethylaniline) (CAS 121697)
59. Diethyl sulfate (CAS 64675)
60. 3,3-Dimethoxybenzidine (CAS 119904)
61. Dimethyl aminoazobenzene (CAS 60117)
62. 3,3'-Dimethyl benzidine (CAS 119937)
63. Dimethyl carbamoyl chloride (CAS 79447)
64. Dimethyl formamide (CAS 68122)
65. 1,1-Dimethyl hydrazine (CAS 57147)
66. Dimethyl phthalate (CAS 131113)
67. Dimethyl sulfate (CAS 77781)
68. 4,6-Dinitro-o-cresol, and salts (CAS 534521)

69. 2,4-Dinitrophenol (CAS 51285)
70. 2,4-Dinitrotoluene (CAS 121142)
71. 1,4-Dioxane (1,4-Diethyleneoxide) (CAS 123911)
72. 1,2-Diphenylhydrazine (CAS 122667)
73. Epichlorohydrin (1-Chloro-2,3-epoxypropane) (CAS 106898)
74. 1,2-Epoxybutane (CAS 106887)
75. Ethyl acrylate (CAS 140885)
76. Ethyl benzene (CAS 100414)
77. Ethyl carbamate (Urethane) (CAS 51796)
78. Ethyl chloride (Chloroethane) (CAS 75003)
79. Ethylene dibromide (Dibromoethane) (CAS 106934)
80. Ethylene dichloride (1,2-Dichloroethane) (CAS 107062)
81. Ethylene glycol (CAS 107211)
82. Ethylene imine (Aziridine) (CAS 151564)
83. Ethylene oxide (CAS 75218)
84. Ethylene thiourea (CAS 96457)
85. Ethylidene dichloride (1,1-Dichloroethane) (CAS 75343)
86. Formaldehyde (CAS 50000)
87. Heptachlor (CAS 76448)
88. Hexachlorobenzene (CAS 118741)
89. Hexachlorobutadiene (CAS 87683)
90. Hexachlorocyclopentadiene (CAS 77474)
91. Hexachloroethane (CAS 67721)
92. Hexamethylene-1,6-diisocyanate (CAS 822060)
93. Hexamethylphosphoramide (CAS 680319)
94. Hexane (CAS 110543)
95. Hydrazine (CAS 302012)
96. Hydrochloric acid (CAS 7647010)
97. Hydrogen fluoride (Hydrofluoric acid) (CAS 7664393)
98. Hydroquinone (CAS 123319)
99. Isophorone (CAS 78591)
100. Lindane (all isomers) (CAS 58899)
101. Maleic anhydride (CAS 108316)
102. Methanol (CAS 67561)
103. Methoxychlor (CAS 72435)
104. Methyl bromide (Bromomethane) (CAS 74839)
105. Methyl chloride (Chloromethane) (CAS 74873)
106. Methyl chloroform (1,1,1-Trichloroethane) (CAS 71556)
107. Methyl hydrazine (CAS 60344)
108. Methyl iodide (Iodomethane) (CAS 74884)
109. Methyl isobutyl ketone (Hexone) (CAS 108101)
110. Methyl isocyanate (CAS 624839)
111. Methyl methacrylate (CAS 80626)
112. Methyl tert butyl ether (CAS 1634044)
113. 4,4'-Methylene bis(2-chloroaniline) (CAS 101144)
114. Methylene chloride (Dichloromethane) (CAS 75092)
115. Methylene diphenyl diisocyanate (MDI) (CAS 101688)
116. 4,4'-Methylenedianiline (CAS 101779)
117. Naphthalene (CAS 91203)
118. Nitrobenzene (CAS 98953)
119. 4-Nitrobiphenyl (CAS 92933)
120. 4-Nitrophenol (CAS 100027)
121. 2-Nitropropane (CAS 79469)
122. N-Nitroso-N-methylurea (CAS 684935)
123. N-Nitrosodimethylamine (CAS 62759)
124. N-Nitrosomorpholine (CAS 59892)
125. Parathion (CAS 56382)
126. Pentachloronitrobenzene (Quintobenzene) (CAS 82688)
127. Pentachlorophenol (CAS 87865)

Notices of Final Rulemaking

128. Phenol (CAS 108952)
129. p-Phenylenediamine (CAS 106503)
130. Phosgene (CAS 75445)
131. Phosphine (CAS 7803512)
132. Phosphorus (CAS 7723140)
133. Phthalic anhydride (CAS 85449)
134. Polychlorinated biphenyls (Aroclors) (CAS 1336363)
135. 1,3-Propane sultone (CAS 1120714)
136. beta-Propiolactone (CAS 57578)
137. Propionaldehyde (CAS 123386)
138. Propoxur (Baygon) (CAS 114261)
139. Propylene dichloride (1,2-Dichloropropane) (CAS 78875)
140. Propylene oxide (CAS 75569)
141. 1,2-Propylenimine (2-Methyl aziridine) (CAS 75558)
142. Quinoline (CAS 91225)
143. Quinone (CAS 106514)
144. Styrene (CAS 100425)
145. Styrene oxide (CAS 96093)
146. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (CAS 1746016)
147. 1,1,2,2-Tetrachloroethane (CAS 79345)
148. Tetrachloroethylene (Perchloroethylene) (CAS 127184)
149. Titanium tetrachloride (CAS 7550450)
150. Toluene (CAS 108883)
151. 2,4-Toluene diamine (CAS 95807)
152. 2,4-Toluene diisocyanate (CAS 584849)
153. o-Toluidine (CAS 95534)
154. Toxaphene (chlorinated camphene) (CAS 8001352)
155. 1,2,4-Trichlorobenzene (CAS 120821)
156. 1,1,2-Trichloroethane (CAS 79005)
157. Trichloroethylene (CAS 79016)
158. 2,4,5-Trichlorophenol (CAS 95954)
159. 2,4,6-Trichlorophenol (CAS 88062)
160. Triethylamine (CAS 121448)
161. Trifluralin (CAS 1582098)
162. 2,2,4-Trimethylpentane (CAS 540841)
163. Vinyl acetate (CAS 108054)
164. Vinyl bromide (CAS 593602)
165. Vinyl chloride (CAS 75014)
166. Vinylidene chloride (1,1-Dichloroethylene) (CAS 75354)
167. Xylenes (isomers and mixture) (CAS 1330207)
168. o-Xylenes (CAS 95476)
169. m-Xylenes (CAS 108383)
170. p-Xylenes (CAS 106423)
171. Antimony Compounds
172. Arsenic Compounds (inorganic including arsine)
173. Beryllium Compounds
174. Cadmium Compounds
175. Chromium Compounds
176. Cobalt Compounds
177. Coke Oven Emissions
178. Cyanide Compounds (X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or Ca(CN)₂.)
179. Glycol ethers
 - a. Glycol ethers include mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH₂[2]CH₂)_[n]-OR' where:
 - i. n = 1, 2, or 3;
 - ii. R = alkyl C7 or less; or
 - iii. R = phenyl or alkyl substituted phenyl;
 - iv. R' = H or alkyl C7 or less; or

Notices of Final Rulemaking

- v. OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.
 - b. Glycol ethers does not include ethylene glycol monobutyl ether.
 - 180. Lead Compounds
 - 181. Manganese Compounds
 - 182. Mercury Compounds
 - 183. Fine Mineral Fibers including mineral fiber emissions from facilities manufacturing or processing glass, rock or slag (or other mineral derived fibers) of average diameter 1 micrometer or less.
 - 184. Nickel Compounds
 - 185. Polycyclic Organic Matter including organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 degrees C.
 - 186. Radionuclides, including radon. (Radionuclide is a type of atom which spontaneously undergoes radioactive decay.)
 - 187. Selenium Compounds

R18-2-1704. Notice of Types and Amounts of HAPs

An owner or operator of a source subject to this Article shall provide the Director with notice, in a permit application, of the types and amounts of HAPs emitted by the source. The notice shall include readily available data regarding emissions from the source. The Director shall not require the owner or operator to conduct performance tests, sampling, or monitoring to fulfill the requirements of this Section.

R18-2-1705. Modifications; Permits; Permit Revisions

- A. Any person who constructs or modifies a source that is subject to R18-2-1702 must first obtain a permit or significant permit revision that complies with Article 3 of this Chapter, and subsection (B) or (C).
- B. A permit or significant permit revision that the Department issues to a new or modified source that is subject to this program under R18-2-1702(A)(1) shall impose HAPRACT under R18-2-1706, unless the applicant demonstrates, with a Risk Management Analysis under R18-2-1708, that the imposition of HAPRACT is not necessary to avoid adverse effects to human health or adverse environmental effects.
- C. A permit or significant permit revision that the Department issues to a new or modified source that is subject to this program under R18-2-1702(A)(2) shall impose AZMACT under R18-2-1707, unless the applicant demonstrates, with a Risk Management Analysis under R18-2-1708, that the imposition of AZMACT is not necessary to avoid adverse effects to human health or adverse environmental effects.
- D. If the Director establishes a general permit establishing HAPRACT according to Article 5 of this Chapter, the following apply:
 - 1. The owner or operator of a source covered by that general permit may obtain a variance from HAPRACT by complying with R18-2-1708 when the source applies for the general permit;
 - 2. If the owner or operator makes the applicable demonstration required by R18-2-1708 and otherwise qualifies for the general permit, the Director shall approve the application according to A.R.S. § 49-426 and issue an authorization-to-operate granting a variance from the specific provisions of the general permit relating to HAPRACT; and
 - 3. Except as modified by a variance, the general permit governs the source.
- E. When determining whether HAP emissions from a new source or modification exceed the thresholds prescribed by R18-2-1701(11) or (12), or a de minimis amount described in R18-2-1701 Table 1, the Director shall exclude particulate matter emissions that consist of natural crustal material and that are produced either by natural forces, such as wind or erosion, or by anthropogenic activities, such as agricultural operations, excavation, blasting, drilling, handling, storage, earth moving, crushing, grinding or traffic over paved or unpaved roads, or other similar activities.
- F. In addition to the requirements of Title 18, Chapter 2, Appendix 1 "Standard Permit Application Form and Filing Instructions," an application for a permit or permit revision required under this Section shall include one of the following:
 - 1. The applicant's proposal and documentation for HAPRACT under R18-2-1706;
 - 2. The applicant's proposal and documentation for AZMACT under R18-2-1707; or
 - 3. A risk management analysis submitted under R18-2-1708.
- G. Any applicant for a permit or permit revision under this Article may request accelerated permit processing under R18-2-326(I).

R18-2-1706. Case-by-case HAPRACT Determination

- A. The applicant shall include in the application sufficient documentation to show that the proposed control technology or methodology meets the requirements of A.R.S. § 49-426.06 and this Section.
- B. An applicant subject to R18-2-1705(B) shall propose HAPRACT for the new source or modification, to be included in the applicant's permit or significant permit revision. The applicant shall document each of the following steps:
 - 1. The applicant shall identify the range of applicable control technologies, including:
 - a. A survey of similar emission sources to determine the emission limitations currently achieved in practice in the United States;
 - b. Controls applied to similar source categories, emissions units, or gas streams through technology transfer; and
 - c. Innovative technologies that are demonstrated to be reliable, that reduce emissions for the HAP under review at

Notices of Final Rulemaking

least to the extent achieved by the control technology that would otherwise have been proposed and that meets all the requirements of A.R.S. § 49-426.06 and this Section.

2. The applicant shall propose as HAPRACT one of the control technologies identified under subsection (B)(1), and shall provide:
 - a. The rationale for selecting the specific control technologies from the range identified in subsection (B)(1);
 - b. Estimated control efficiency, described as percent HAP removed;
 - c. Expected emission rates in tons per year and pounds per hour;
 - d. Expected emission reduction in tons per year and pounds per hour;
 - e. Economic impact and cost effectiveness of implementing the proposed control technology;
 - f. Other environmental impact of the proposed control technology; and
 - g. Energy impact of the proposed technology.
 3. The applicant shall identify rejected control technologies identified in subsection (B)(1), and shall provide for each rejected control technology:
 - a. The rationale for rejecting the specific control technologies identified in subsection (B)(1);
 - b. Estimated control efficiency, described as percent HAP removed;
 - c. Expected emission rates in tons per year and pounds per hour;
 - d. Expected emission reduction in tons per year and pounds per hour;
 - e. Economic impact and cost effectiveness of implementing the rejected control technologies;
 - f. Other environmental impact of the rejected control technology; and
 - g. Energy impact of the rejected control technologies.
- C.** The Director shall determine whether the applicant's HAPRACT selection complies with A.R.S. § 49-426.06 and this Section, based on the documentation provided in subsection (B).
1. If the Director finds that the applicant's proposal complies with A.R.S. § 49-426.06 and this Section, the Director shall include the applicant's proposed HAPRACT selection in the permit or permit revision.
 2. If the Director finds that the applicant's proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director shall:
 - a. Notify the applicant that the proposal fails to meet requirements;
 - b. Specify the deficiencies in the proposal; and
 - c. State that the applicant shall submit a new HAPRACT proposal according to the licensing time-frames provisions in Chapter 1, Article 5 of this Title.
 3. If the applicant does not submit a new proposal, the Director shall deny the application for a permit or permit revision.
 4. If the Director finds that the new proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director shall deny the application for a permit or permit revision.
- D.** If the Director finds that a reliable method of measuring HAP emissions is not available, the Director shall require, in the permit, the applicant to comply with a design, equipment, work practice or operational standard, or combination of these, but shall not impose a numeric emissions limitation upon the applicant.
- E.** The Director shall not impose a control technology that would require the application of measures that are incompatible with measures required under Article 11 or 40 CFR 63. An applicable control technology for a source or source category that is promulgated by the Administrator shall supersede control technology imposed by the Director for that source or source category.

R18-2-1707. Case-by-case AZMACT Determination

- A.** The applicant shall include in the application sufficient documentation to show that the proposed control technology meets the requirements of A.R.S. § 49-426.06 and this Section.
- B.** An applicant subject to R18-2-1705(C) shall propose AZMACT for the new source or modification, to be included in the applicant's permit or permit revision. The applicant shall document each of the following steps:
1. The applicant shall identify all available control options, taking into consideration the measures cited in R18-2-1701(5). The analysis shall include a survey of emission sources to determine the most stringent emission limitation currently achieved in practice in the United States. The survey may include technologies employed outside of the United States, and may include controls applied through technology transfer to similar source categories and gas streams.
 2. The applicant shall eliminate options that are technically infeasible because of source-specific factors. The applicant shall clearly document the demonstration of technical infeasibility, and shall base the demonstration upon physical, chemical and engineering barriers that would preclude the successful use of each control option that the applicant has eliminated.
 3. The applicant shall list the remaining control technologies in order of overall removal efficiency for the HAP under review, with the most effective at the top of the list. The list shall include the following information, for the control technology proposed and for any control technology that is ranked higher than the proposed technology:
 - a. Estimated control efficiency, described by percent of HAP removed;

Notices of Final Rulemaking

- b. Expected emission rate in tons per year and pounds per hour;
- c. Expected emission reduction in tons per year and pounds per hour;
- d. Economic impact and cost effectiveness;
- e. Other environmental impact; and
- f. Energy impact.
- 4. The applicant shall evaluate the most effective controls, listed according to subsection (B)(3), and document the results as follows:
 - a. For new major sources, the applicant shall consider the factors described in subsection (B)(3) to arrive at the final control technology proposed as AZMACT.
 - i. The applicant shall discuss the beneficial and adverse economic, environmental, and energy impacts and quantify them where possible, focusing on the direct impacts of each control technology.
 - ii. If the applicant proposes the top alternative in the list as AZMACT, the applicant shall consider whether other environmental impacts mandate the selection of an alternative control technology. If the applicant does not propose the top alternative as AZMACT, the applicant shall evaluate the next most stringent technology in the list. The applicant shall continue the evaluation process until the applicant arrives at a technology that the applicant does not eliminate because of source-specific, economic, environmental or energy impacts.
 - b. For a modification, the applicant shall evaluate the control technologies according to subsection (B)(4)(a). AZMACT for a modification may be less stringent than AZMACT for a new source in the same source category but shall not be less stringent than:
 - i. In cases where the applicant has identified 30 or more sources, the average emission limitation achieved by the best performing 12% of the existing similar sources, which the applicant shall include in the permit application; or
 - ii. In cases where the applicant has identified fewer than 30 similar sources, the average emission limitation achieved by the best performing five sources, which the applicant shall include in the permit application.
- 5. The applicant shall propose as AZMACT for the HAP under review:
 - a. The most effective control technology or methodology not eliminated in the evaluation described in subsection (B)(4); or
 - b. An innovative technology that reduces emissions to the extent achieved by the control technology that the applicant otherwise would have proposed under subsection (5)(a), and that meets all the requirements of A.R.S. § 49-426.06 and this Section.
- C. The Director shall not approve a control technology or methodology less stringent than any applicable federal New Source Performance Standard (NSPS) at 40 CFR 60 or National Emission Standard for Hazardous Air Pollutants (NEHAP) at 40 CFR 61.
- D. The Director shall determine whether the applicant's AZMACT proposal complies with A.R.S. § 49-426.06 and this Section.
 - 1. If the Director determines that the applicant's proposal complies with A.R.S. § 49-426.06 and this Section, the Director shall include the applicant's proposed AZMACT selection in the permit or permit revision.
 - 2. If the Director determines that the applicant's proposal does not comply with A.R.S. § 49-426.06 and this Section, the Director shall:
 - a. Notify the applicant that the proposal does not meet the requirements;
 - b. Specify the deficiencies; and
 - c. State that the applicant shall submit a new AZMACT proposal according to the provisions on licensing time-frames in Chapter 1, Article 5, of Title 18 of the Arizona Administrative Code.
 - 3. If the applicant does not submit a new proposal, the Director shall deny the application for a permit or permit revision.
 - 4. If the Director determines that the new proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director shall deny the application for a permit or permit revision.
- E. If a reliable method of measuring HAP emissions is not available, the Director shall require the applicant to comply with a design, equipment, work practice or operational standard, or combination of these, to be included in the applicant's permit, but shall not impose a numeric emissions limitation.
- E. The Director shall not impose a control technology that would require the application of measures that are incompatible with measures required under Chapter 2, Article 11, of Title 18 of the Arizona Administrative Code, or 40 CFR 63. An applicable control technology for a source or source category that is promulgated by the Administrator shall supersede control technology imposed by the Director for that source or source category.

R18-2-1708. Risk Management Analyses

A. Applicability.

- 1. An applicant seeking to demonstrate that HAPRACT or AZMACT is not necessary to prevent adverse effects to human health or the environment by conducting an RMA shall first apply for a permit or significant permit revision

Notices of Final Rulemaking

- that complies with Article 3 of this Chapter.
2. An applicant seeking to demonstrate that HAPRACT or AZMACT is not necessary to prevent adverse effects to human health or the environment shall conduct a risk management analysis (RMA) according to this Section.
 3. The RMA for a new source shall apply to:
 - i. The source's annual total potential to emit state HAPs for evaluation of chronic exposure; or
 - ii. The source's hourly total potential to emit state HAPs for evaluation of acute exposure.
 4. The RMA for a modified source shall apply to:
 - i. The source's annual total potential to emit state HAPs, after the modification, for evaluation of chronic exposure; or
 - ii. The source's hourly total potential to emit state HAPs, after the modification, for evaluation of acute exposure.
 5. An applicant shall conduct an RMA for each state HAP emitted by the source in greater than de minimis amounts.
- B.** The applicant may use any of the following methods for conducting an RMA:
1. Tier 1: Equation.
 - a. For emissions of a HAP included in a listed group of hazardous compounds, other than those HAPs identified in Table 3 as selected compounds, the applicant shall determine a health-based ambient air concentration, under subsection (C)(3).
 - b. The applicant shall determine the potential maximum hourly exposure resulting from emissions of the HAP by applying the following equation:
$$\text{MHE} = \text{PPH} * 17.68, \text{ where:}$$
 - i. MHE = maximum hourly exposure in milligrams per cubic meter, and
 - ii. PPH = hourly potential to emit the HAP in pounds per hour.
 - c. The applicant shall determine the potential maximum annual exposure resulting from emissions of the HAP by applying the following equation:
$$\text{MAE} = \text{PPY} * 1/\text{MOH} * 1.41, \text{ where:}$$
 - i. MAE = maximum annual exposure in milligrams per cubic meter,
 - ii. PPY = annual potential to emit the HAP in pounds per year, and
 - iii. MOH = maximum operating hours for the source, taking into account any enforceable operational limitations.
 - d. The Director shall not require compliance with HAPRACT for the HAP, under R18-2-1706, or AZMACT, under R18-2-1707, if both of the following are true:
 - i. The maximum hourly concentration determined under subsection (B)(1)(b) is less than the AAAC determined under subsection (C)(3); and
 - ii. The maximum annual concentration determined under subsection (B)(1)(c) is less than the CAAC determined under subsection (C)(3).
 - e. If either the maximum hourly concentration determined under subsection (B)(1)(b), or the maximum annual concentration determined under subsection (B)(1)(c) is greater than or equal to the relevant AAC:
 - i. The Director shall require compliance with HAPRACT under R18-2-1706 or AZMACT under R18-2-1707;
or
 - ii. The applicant may use the Tier 2, Tier 3 or Tier 4 method for conducting an RMA under subsection (B)(2).
 2. Tier 2: SCREEN Model. The applicant shall use the SCREEN Model, performed in a manner consistent with the Guideline specified in R18-2-406(A)(6)(a). The applicant shall compare the maximum concentration that is predicted in the ambient air with the relevant ambient air concentration determined under subsection (C).
 - a. If the predicted maximum concentration is less than the relevant ambient air concentration, the Director shall not require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
 - b. If the predicted maximum concentration is greater than or equal to the relevant ambient air concentration:
 - i. The Director shall require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707;
or
 - ii. The applicant may use the Tier 3 or Tier 4 method for determining maximum public exposure to state HAPs, under subsection (B)(3).
 3. Tier 3: Modified SCREEN Model. The applicant shall use the SCREEN Model, performed in a manner consistent with the Guideline specified in R18-2-406(A)(6)(a).
 - a. For evaluation of acute exposure, the applicant shall assume exposure in the ambient air.
 - b. For evaluation of chronic exposure:
 - i. The applicant may use exposure assumptions consistent with institutional or engineering controls that are permanent and enforceable outside the permit.
 - ii. The applicant shall notify the Director of these controls. If the Director does not approve of the proposed controls, or if the controls are not permanent and enforceable outside of the permit, the applicant shall not use the method specified in subsection (B)(3)(b) to determine maximum public exposure to the state HAP.

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

- c. If the predicted maximum concentration is less than the relevant ambient air concentration, the Director shall not require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
- d. If the predicted maximum concentration is greater than or equal to the relevant ambient air concentration:
 - i. The Director shall require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707;
or
 - ii. The applicant may use the Tier 4 method for determining maximum public exposure to state HAPs, under subsection (B)(4).
- 4. Tier 4: Modified SCREEN or refined air quality model. The applicant shall employ either the SCREEN or a refined air quality model, performed in a manner consistent with the Guideline specified in R18-2-406(A)(6)(a).
 - a. For evaluation of acute exposure, the applicant shall assume exposure in the ambient air.
 - b. For evaluation of chronic exposure:
 - i. The applicant may use exposure assumptions consistent with institutional or engineering controls that are permanent and enforceable outside the permit.
 - ii. The applicant shall notify the Director of these controls. If the Director does not approve of the proposed controls, or if the controls are not permanent and enforceable outside of the permit, the applicant shall assume chronic exposure in the ambient air.
 - c. The applicant may include in the Tier 4 RMA documentation of the following factors:
 - i. The estimated actual exposure to the HAP of persons living in the airshed of the source;
 - ii. Available epidemiological or other health studies;
 - iii. Risks presented by background concentrations of hazardous air pollutants;
 - iv. Uncertainties in risk assessment methodology or other health assessment techniques;
 - v. Health or environmental consequences from efforts to reduce the risk; or
 - vi. The technological and commercial availability of control methods beyond those otherwise required for the source and the cost of such methods.
 - d. The applicant shall submit a written protocol for conducting an RMA, consistent with the requirements of this Section, to the Director for the Director's approval. If the Director does not approve the written protocol, the applicant may:
 - i. Submit a revised protocol to the Director;
 - ii. Propose HAPRACT under R18-2-1706, or AZMACT under R18-2-1707; or
 - iii. Refuse to submit a revised protocol, in which case the Director shall deny the application.
 - e. If the predicted maximum concentration is less than the relevant ambient air concentration, or if warranted under the factors listed in subsection (B)(4)(c), the Director shall not require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
 - f. Except as provided in subsection (B)(4)(e), if the predicted maximum concentration is greater than or equal to the relevant ambient air concentration, the Director shall require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
- C. Health-based Ambient Air Concentrations of State HAPs.
 - 1. For state HAPs for which the Director has already determined an AAC, the applicant shall use the acute and chronic values listed in Table 3.

Table 3. Acute and Chronic Ambient Air Concentrations

<u>Chemical</u>	<u>Acute AAC</u> <u>(mg/m³)</u>	<u>Chronic AAC</u> <u>(mg/m³)</u>
<u>1,1,1-Trichloroethane (Methyl Chloroform)</u>	<u>2,075</u>	<u>2.30E+00</u>
<u>1,1,2,2-Tetrachloroethane</u>	<u>18</u>	<u>3.27E-05</u>
<u>1,3-Butadiene</u>	<u>7,514</u>	<u>6.32E-05</u>
<u>1,4-Dichlorobenzene</u>	<u>300</u>	<u>3.06E-04</u>
<u>2,2,4-Trimethylpentane</u>	<u>900</u>	<u>NA</u>
<u>2,4-Dinitrotoluene</u>	<u>5.0</u>	<u>2.13E-05</u>
<u>2-Chloroacetophenone</u>	<u>NA</u>	<u>3.13E-05</u>

Notices of Final Rulemaking

<u>Acetaldehyde</u>	<u>306</u>	<u>8.62E-04</u>
<u>Acetophenone</u>	<u>25</u>	<u>3.65E-01</u>
<u>Acrolein</u>	<u>0.23</u>	<u>2.09E-05</u>
<u>Acrylonitrile</u>	<u>38</u>	<u>2.79E-05</u>
<u>Antimony Compounds (Selected compound: Antimony)</u>	<u>13</u>	<u>1.46E-03</u>
<u>Arsenic Compounds (Selected compound: Arsenic)</u>	<u>2.5</u>	<u>4.41E-07</u>
<u>Benzene</u>	<u>1,276</u>	<u>2.43E-04</u>
<u>Benzyl Chloride</u>	<u>26</u>	<u>3.96E-05</u>
<u>Beryllium Compounds (Selected compound: Beryllium)</u>	<u>0.013</u>	<u>7.90E-07</u>
<u>Biphenyl</u>	<u>38</u>	<u>1.83E-01</u>
<u>bis(2-Ethylhexyl) Phthalate</u>	<u>13</u>	<u>4.80E-04</u>
<u>Bromoform</u>	<u>7.5</u>	<u>1.72E-03</u>
<u>Cadmium Compounds (Selected compound: Cadmium)</u>	<u>0.25</u>	<u>1.05E-06</u>
<u>Carbon Disulfide</u>	<u>311</u>	<u>7.30E-01</u>
<u>Carbon Tetrachloride</u>	<u>201</u>	<u>1.26E-04</u>
<u>Carbonyl Sulfide</u>	<u>30</u>	<u>NA</u>
<u>Chlorobenzene</u>	<u>1,000</u>	<u>1.04E+00</u>
<u>Chloroform</u>	<u>195</u>	<u>3.58E-04</u>
<u>Chromium Compounds (Selected compound: Hexavalent Chromium)</u>	<u>0.10</u>	<u>1.58E-07</u>
<u>Cobalt Compounds (Selected compound: Cobalt)</u>	<u>10</u>	<u>6.86E-07</u>
<u>Cumene</u>	<u>935</u>	<u>4.17E-01</u>
<u>Cyanide Compounds (Selected compound: Hydrogen Cyanide)</u>	<u>3.9</u>	<u>3.13E-03</u>
<u>Dibenzofurans</u>	<u>25</u>	<u>7.30E-03</u>
<u>Dichloromethane (Methylene Chloride)</u>	<u>347</u>	<u>4.03E-03</u>
<u>Dimethyl formamide</u>	<u>164</u>	<u>3.13E-02</u>
<u>Dimethyl Sulfate</u>	<u>0.31</u>	<u>NA</u>
<u>Ethyl Benzene</u>	<u>250</u>	<u>1.04E+00</u>
<u>Ethyl Chloride (Chloroethane)</u>	<u>1,250</u>	<u>1.04E+01</u>
<u>Ethylene Dibromide (Dibromoethane)</u>	<u>100</u>	<u>3.16E-06</u>
<u>Ethylene Dichloride (1,2-Dichloroethane)</u>	<u>405</u>	<u>7.29E-05</u>

Notices of Final Rulemaking

<u>Ethylene glycol</u>	<u>50</u>	<u>4.17E-01</u>
<u>Ethylidene Dichloride (1,1-Dichloroethane)</u>	<u>6,250</u>	<u>5.21E-01</u>
<u>Formaldehyde</u>	<u>17</u>	<u>1.46E-04</u>
<u>Glycol Ethers (Selected compound: Diethylene glycol, monoethyl ether)</u>	<u>250</u>	<u>3.14E-03</u>
<u>Hexachlorobenzene</u>	<u>0.50</u>	<u>4.12E-06</u>
<u>Hexane</u>	<u>11,649</u>	<u>2.21E+00</u>
<u>Hydrochloric Acid</u>	<u>16</u>	<u>2.09E-02</u>
<u>Hydrogen Fluoride (Hydrofluoric Acid)</u>	<u>9.8</u>	<u>1.46E-02</u>
<u>Isophorone</u>	<u>13</u>	<u>2.09E+00</u>
<u>Manganese Compounds (Selected compound: Manganese)</u>	<u>2.5</u>	<u>5.21E-05</u>
<u>Mercury Compounds (Selected com- pound: Elemental Mercury)</u>	<u>1.0</u>	<u>3.13E-04</u>
<u>Methanol</u>	<u>943</u>	<u>4.17E+00</u>
<u>Methyl Bromide</u>	<u>261</u>	<u>5.21E-03</u>
<u>Methyl Chloride</u>	<u>1,180</u>	<u>9.39E-02</u>
<u>Methyl Hydrazine</u>	<u>0.43</u>	<u>3.96E-07</u>
<u>Methyl Isobutyl Ketone (Hexone)</u>	<u>500</u>	<u>3.13E+00</u>
<u>Methyl Methacrylate</u>	<u>311</u>	<u>7.30E-01</u>
<u>Methyl Tert-Butyl Ether</u>	<u>1,444</u>	<u>7.40E-03</u>
<u>N, N-Dimethylaniline</u>	<u>25</u>	<u>7.30E-03</u>
<u>Naphthalene</u>	<u>75</u>	<u>5.58E-05</u>
<u>Nickel Compounds (Selected compound: Nickel Refinery Dust)</u>	<u>5.0</u>	<u>7.90E-06</u>
<u>Phenol</u>	<u>58</u>	<u>2.09E-01</u>
<u>Polychlorinated Biphenyls (Selected Compound: Aroclor 1254)</u>	<u>2.5</u>	<u>1.90E-05</u>
<u>Polycyclic Organic Matter (Selected compound: Benzo(a)pyrene)</u>	<u>5.0</u>	<u>2.02E-06</u>
<u>Propionaldehyde</u>	<u>403</u>	<u>8.62E-04</u>
<u>Propylene Dichloride</u>	<u>250</u>	<u>4.17E-03</u>
<u>Selenium Compounds (Selected com- pound: Selenium)</u>	<u>0.50</u>	<u>1.83E-02</u>
<u>Styrene</u>	<u>554</u>	<u>1.04E+00</u>
<u>Tetrachloroethylene (Perchlorethylene)</u>	<u>814</u>	<u>3.20E-04</u>

Notices of Final Rulemaking

<u>Toluene</u>	<u>1,923</u>	<u>5.21E+00</u>
<u>Trichloroethylene</u>	<u>1,450</u>	<u>1.68E-05</u>
<u>Vinyl Acetate</u>	<u>387</u>	<u>2.09E-01</u>
<u>Vinyl Chloride</u>	<u>2,099</u>	<u>2.15E-04</u>
<u>Vinylidene Chloride</u> <u>(1,2-Dichloroethylene)</u>	<u>38</u>	<u>2.09E-01</u>
<u>Xylene (Mixed Isomers)</u>	<u>1,736</u>	<u>1.04E-01</u>

2. For state HAPs for which an AAC has not already been determined, the applicant shall determine the acute and chronic AACs according to the process in Appendix 12.
3. For specific compounds included in state HAPS listed as a group (e.g., arsenic compounds), the applicant may use an AAC developed according to the process in Appendix 12.
- D.** As part of the risk management analysis, an applicant may voluntarily propose emissions limitations under R18-2-306.01 in order to avoid being subject to HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
- E.** Documentation of Risk Management Analysis. The applicant shall document each RMA performed for each state HAP and shall include the following information:
 1. The potential maximum public exposure of the state HAP;
 2. The method used to determine the potential maximum public exposure:
 - a. For Tier 1, the calculation demonstrating that the emissions of the state HAP are less than the health-based ambient air concentration, determined under subsection (C)(3).
 - b. For Tier 2, the input files to, and the results of the SCREEN Modeling.
 - c. For Tier 3:
 - i. The input files to, and the results of the SCREEN Modeling; and
 - ii. The permanent and enforceable institutional or engineering controls approved by the Director under subsection (B)(3)(b).
 - d. For Tier 4:
 - i. The model the applicant used;
 - ii. The input files to, and the results of the modeling;
 - iii. The modeling protocol approved by the Director under subsection (B)(4)(b); and
 - iv. The permanent and enforceable institutional or engineering controls approved by the Director under subsection (B)(4)(d);
 3. The health-based ambient air concentrations determined under subsection (C); and
 4. Any voluntary emissions limitations that the applicant proposes under subsection (D) and R18-2-306.01.
 - F.** An applicant may conduct an RMA for any alternative operating scenario requested in the application consistent with the requirements of this Section. The alternative operating scenario may allow a range of operating conditions if the Director concludes that the RMA demonstrates no adverse effects to human health or adverse environmental effects from operations within that range. Modifications to a source consistent with the alternative operating scenario are not subject to this Article.

R18-2-1709. Periodic Review

- A.** Within one year after the Administrator adds or deletes a pollutant to the federal list of hazardous air pollutants, under Section 112(b)(2) or 112(b)(3) of the Clean Air Act, the Director shall adopt those revisions for the state list of HAPs in R18-2-1703, unless the Director finds that there is no scientific evidence to support the revision.
- B.** The Director shall review the state list of HAPs and AACs at least once every three years.
- C.** Based upon the review under subsection (B), the Director may revise:
 1. The state list of HAPs. The Director shall add any HAP to, or delete any HAP from the state list at R18-2-1703 according to § 112(b)(1) of the Clean Air Act, 42 U.S.C. 7412(b)(1);
 2. The acute and chronic health-based ambient air concentrations for state HAPs;
 3. The acute and chronic de minimis levels for state HAPs; and
 4. The list of included minor source categories at R18-2-1702.

APPENDIX 1. STANDARD PERMIT APPLICATION FORM AND FILING INSTRUCTIONS

FILING INSTRUCTIONS

No application shall be considered complete until the Director has determined that all information required by this application form and the applicable statutes and regulations has been submitted. The Director may waive certain application requirements

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

for specific source types, pursuant to R18-2-304(B). For permit revisions, the applicant need only supply information which directly pertains to the revision. The Director shall develop special guidance documents and forms to assist certain sources requiring Class 2 permits in completing the application form and filing instructions. Guidance documents can be requested by contacting the Office of Air Quality at the address and phone number given on the "Standard Permit Application Form."

In addition to the information required on the application form, the applicant shall supply the following:

1. Description of the process to be carried out in each unit (include Source Classification Code, if known).
2. Description of ~~product(s)~~ product.
3. Description of alternate operating scenario, if desired by applicant (include Source Classification Code).
4. Description of alternate operating scenario ~~product(s)~~ product, if applicable.
5. A flow diagram for all processes.
6. A material balance for all processes (optional, only if emission calculations are based on a material balance).
7. Emissions Related Information:
 - a. The source shall ~~be required to~~ submit the potential emissions of regulated air pollutants as defined in R18-2-101 for all emission sources. Emissions shall be expressed in pounds per hour, tons per year, and such other terms as may be requested. Emissions shall be submitted using the standard "Emission Sources" portion of the "Standard Permit Application Form." Emissions information shall include fugitive emissions in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source in R18-2-101.
 - b. The source shall ~~be required to~~ identify and describe all points of emissions and to submit additional information related to the emissions of regulated air pollutants sufficient to verify which requirements are applicable to the source and sufficient to determine any fees under this Chapter.
8. Citation and description of all applicable requirements as defined in R18-2-101 including voluntarily accepted limits pursuant to R18-2-306.01.
9. An explanation of any proposed exemptions from otherwise applicable requirements.
10. The following information to the extent it is needed to determine or regulate emissions or to comply with the requirements of R18-2-306.01:
 - a. Maximum annual process rate for each piece of equipment which generates air emissions.
 - b. Maximum annual process rate for the whole plant.
 - c. Maximum rated hourly process rate for each piece of equipment which generates air emissions.
 - d. Maximum rated hourly process rate for the whole plant.
 - e. For all fuel burning equipment including generators, a description of fuel use, including the type used, the quantity used per year, the maximum and average quantity used per hour, the percent used for process heat, and higher heating value of the fuel. For solid fuels and fuel oils, state the potential sulfur and ash content.
 - f. A description of all raw materials used and the maximum annual and hourly, monthly, or quarterly quantities of each material used.
 - g. Anticipated Operating Schedules
 - i. Percent of annual production by season.
 - ii. Days of the week normally in operation.
 - iii. Shifts or hours of the day normally in operation.
 - iv. Number of days per year in operation.
 - h. Limitations on source operations and any work practice standards affecting emissions.
11. A description of all process and control equipment for which permits are required including:
 - a. Name.
 - b. Make (if available).
 - c. Model (if available).
 - d. Serial number (if available).
 - e. Date of manufacture (if available).
 - f. Size/production capacity.
 - g. Type.
12. Stack Information:
 - a. Identification.
 - b. Description.
 - c. Building Dimensions.
 - d. Exit Gas Temperature.
 - e. Exit Gas Velocity.
 - f. Height.
 - g. Inside Dimensions.
13. Site diagram which includes:
 - a. Property boundaries.

Notices of Final Rulemaking

- b. Adjacent streets or roads.
 - c. Directional arrow.
 - d. Elevation.
 - e. Closest distance between equipment and property boundary.
 - f. Equipment layout.
 - g. Relative location of emission ~~sources/points~~ sources or points.
 - h. Location of emission points and non-point emission areas.
 - i. Location of air pollution control equipment.
14. Air Pollution Control Information:
- a. Description of or reference to any applicable test method for determining compliance with each applicable requirement.
 - b. Identification, description and location of air pollution control equipment, including spray nozzles and hoods, and compliance monitoring devices or activities.
 - c. The rated and operating efficiency of air pollution control equipment.
 - d. Data necessary to establish required efficiency for air pollution control equipment (e.g. air to cloth ratio for bag-houses, pressure drop for scrubbers, and warranty information).
 - e. Evidence that operation of the new or modified pollution control equipment will not violate any ambient air quality standards, or maximum allowable increases under R18-2-218.
15. Equipment manufacturer's bulletins or shop drawings are acceptable for the purposes of supplying the information required by any item in numbers 11, 12, or 14 of this Appendix.
16. Compliance Plan:
- a. A description of the compliance status of the source with respect to all applicable requirements including, but not limited to:
 - i. A demonstration that the source or modification will comply with the applicable requirements contained in Article 6.
 - ii. A demonstration that the source or modification will comply with the applicable requirements contained in Article 7.
 - iii. A demonstration that the source or modification will comply with the applicable requirements contained in Article 8.
 - iv. A demonstration that the source or modification will comply with the applicable requirements contained in Article 9.
 - v. A demonstration that the source or modification will comply with the applicable requirements contained in Article 11 and in rules promulgated pursuant to A.R.S. § 49-426.03.
 - vi. A demonstration that the source or modification will comply with the applicable requirements contained in ~~rules promulgated pursuant to A.R.S. § 49-426.06~~ Article 17.
 - vii. A demonstration that the source or modification will comply with any voluntarily accepted limitations pursuant to R18-2-306.01.
 - b. A compliance schedule as follows:
 - i. For applicable requirements with which the source is in compliance, a statement that the source will continue to comply with such requirements
 - ii. For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis. A statement that the source will meet in a timely manner applicable requirements that become effective during the permit term shall satisfy this provision, unless a more detailed schedule is expressly required by the applicable requirement.
 - iii. A schedule of compliance for sources that are not in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will be in noncompliance at the time of permit issuance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction non-compliance with, the applicable requirements on which it is based.
 - c. A schedule for submission of certified progress reports no less frequently than every six months for sources required to have a schedule of compliance to remedy a violation.
 - d. The compliance plan content requirements specified in this subsection shall apply and be included in the acid rain portion of a compliance plan for an affected source, except as specifically superseded by regulations promulgated under Title IV of the Act and incorporated pursuant to R18-2-333 with regard to the schedule and ~~method(s)~~ method the source will use to achieve compliance with the acid rain emissions limitations.
17. Compliance Certification: A certification of compliance with all applicable requirements including voluntarily accepted limitations pursuant to R18-2-306.01 by a responsible official consistent with R18-2-309(A)(5). The certifi-

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

cation shall include:

- a. Identification of the applicable requirements which are the basis of the certification;
 - b. A statement of methods used for determining compliance, including a description of monitoring, recordkeeping, and reporting requirements and test methods;
 - c. A schedule for submission of compliance certifications during the permit term to be submitted no less frequently than annually, or more frequently if specified by the underlying applicable requirement or by the permitting authority; and
 - d. A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements.
 - e. A certification of truth, accuracy, and completeness pursuant to R18-2-304(H).
18. Acid Rain Program Compliance Plan: Sources subject to the Federal acid rain regulations shall use nationally-standardized forms for acid rain portions of permit applications and compliance plans, as required by regulations promulgated under Title IV of the Act and incorporated pursuant to R18-2-333.
19. A new major source as defined in R18-2-401 or a major modification shall submit all information required in this Appendix and information necessary to show compliance with Article 4 including, but not limited to:
- a. For sources located in a Non-Attainment Area:
 - i. In the case of a new major source as defined in R18-2-401 or a major modification subject to an emission limitation which is LAER (Lowest Achievable Emission Rate) for that source or facility, the application shall contain a determination of LAER that is consistent with the requirements of the definition of LAER contained in R18-2-401. The demonstration shall contain the data and information relied upon by the applicant in determining the emission limitation that is LAER for the source or facility for which a permit is sought.
 - ii. In the case of a new major source as defined in R18-2-401 or a major modification subject to the demonstration requirement of R18-2-403(A)(2), the applicant shall submit such demonstration in a form that lists and describes all existing major sources owned or operated by the applicant and a statement of compliance with all conditions contained in the permits or conditional orders of each of the sources.
 - iii. In the case of a new major source as defined in R18-2-401 or a major modification subject to the offset requirements described in R18-2-403(A)(3), the applicant shall demonstrate the manner in which the new major source or major modification meets the requirements of R18-2-404.
 - iv. An applicant for a new major source as defined in R18-2-401 or a major modification for volatile organic compounds or carbon monoxide (or both) which will be located in a nonattainment area for photochemical oxidants or carbon monoxide (or both) shall submit the analysis described in R18-2-403(B).
 - b. For sources located in an Attainment Area:
 - i. A demonstration of the manner in which a new major source or major modification which will be located in an attainment area for a pollutant for which the source is classified as a major source as defined in R18-2-401 or the modification is classified as a major modification will meet the requirements of R18-2-406.
 - ii. In the case of a new major source as defined in R18-2-401 or major modification subject to an emission limitation which is BACT (Best Available Control Technology) for that source or facility, the application shall contain a determination of BACT that is consistent with the requirements of the definition of BACT contained in R18-2-101. The demonstration shall contain the data and information relied upon by the applicant in determining the emission limitation that is BACT for the source or facility for which a permit is sought.
 - iii. In the case of a new major source as defined in R18-2-401 or major modification required to perform and submit an air impact analysis in the form prescribed in R18-2-407, such an analysis shall meet the requirements of R18-2-406. Unless otherwise exempted in writing by the Director, the air impact analysis shall include all of the information and data specified in R18-2-407.
 - iv. If an applicant seeks an exemption from any or all of the requirements of R18-2-406, the applicant shall provide sufficient information and data in the application to demonstrate compliance with the requirements of the subsection(s) under which an exemption is sought.
20. Calculations on which all information requested in this Appendix is based.

Notices of Final Rulemaking

STANDARD PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and A.A.C. Title 18, Chapter 2, Article 3)

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF AIR QUALITY

P.O. Box 600 • Phoenix, AZ 85001-0600 • Phone: (602) 207-2338

1. Permit to be issued to: (Business license name of organization that is to receive permit) _____
2. Mailing Address: _____
City: _____ State: _____ ZIP: _____
3. Plant Name (if different item #1 above): _____
4. Name (or names) of Owner or Operator: _____ Phone: _____
5. Name of Owner's Agent: _____ Phone: _____
6. Plant/Site Manager or Contact Person: _____ Phone: _____
7. Proposed Equipment/Plant Location Address: _____
City: _____ County: _____ ZIP: _____
Indian Reservation (if applicable): _____
Section/Township/Range, Latitude/Longitude, Elevation: _____
8. General Nature of Business: _____
Standard Industrial Classification Code: _____
9. Type of Organization:
☐ Corporation ☐ Individual Owner
☐ Partnership ☐ Government Entity (Government Facility Code: _____)
☐ Other _____
10. Permit Application Basis: ☐ New Source ☐ Revision ☐ Renewal of Existing Permit
☐ Portable Source ☐ General Permit (Check all that apply.)
For renewal or modification, include existing permit number: _____
Date of Commencement of Construction or Modification: _____
Is **any** of the equipment to be leased to another individual or entity? ☐ Yes ☐ No
11. Signature of Responsible Official of Organization: _____
Official Title of Signer: _____
12. Typed or Printed Name of Signer: _____
Date: _____ Telephone Number: _____

Arizona Administrative Register / Secretary of State
Notices of Final Rulemaking

ADEQ/OAQ/100B

A12. APPENDIX 12
PROCEDURES FOR DETERMINING AMBIENT AIR CONCENTRATIONS FOR
HAZARDOUS AIR POLLUTANTS

- A12.1 The procedure described in this appendix shall be used to develop chronic ambient air concentrations (CAACs) and acute ambient air concentrations (AAACs) for hazardous air pollutants (HAPs) for the following:
- A12.1.1 Any HAP not included in Article 17, Table 3; and
- A12.1.2 Any compound included in a group of HAPs listed in Article 17, Table 3, other than those identified in the group listing as the “selected” compound.
- A12.2 Chronic Ambient Air Concentrations
- A.12.2.1 The applicant shall review the following data sources and, except as otherwise provided, shall give them the priority indicated in the development of CAACs:
- A12.2.1.1 Tier 1 Data Sources: Reference Concentrations (RfCs) and air Unit Risk Factors (URFs) as presented in the Integrated Risk Information System (IRIS) of the United States Environmental Protection Agency (EPA).
- A12.2.1.2 Tier 2 Data Sources:
- A12.2.1.2.1 Preliminary Remediation Goals (PRGs) developed by Region 9 of EPA.
- A12.2.1.2.2 Risk-Based Concentrations (RBCs) developed by Region 3 of EPA.
- A12.2.1.3 Tier 3 Data Sources:
- A12.2.1.3.1 Minimal Risk Levels (MRLs) developed by the Agency for Toxic Substances and Disease Registry (ATSDR).
- A12.2.1.3.2 Reference Exposure Levels (RELs) and Unit Risk Factors (CalURFs) developed by the California Environmental Protection Agency.
- A12.2.2 Evaluation of Tier 1 Values
- A12.2.2.1 Calculation of Concentrations
- A12.2.2.1.1 RfCs shall be multiplied by 1.04 to reflect an assumed exposure of 350, rather than 365 days per year.
- A12.2.2.1.2 URFs shall be transformed into concentrations in milligrams per cubic meter (mg/m³) by applying the following equation:
- $$\frac{TR \times ATc}{(EF \times IFA \text{ adj} \times [URF \times BW/IR])}$$
- where: TR = 1E-06, ATc = 25,550 days, EF = 350 days/year,
- IFA adj = 11 m³-year/kg-day, BW = 70 kg, IR = 20 m³/day
- A12.2.2.2 Comparison to Tier 2 and Tier 3 Concentrations
- The concentration developed in accordance with section A12.2.2.1 shall be compared to the Tier 2 and Tier 3 concentrations for the compound, if any. URF-based concentrations shall be compared only to concentrations based on CalURFs. RfC-based concentrations shall be compared to concentrations based on PRGs, RBCs, MRLs and RELs.
- A12.2.2.2.1 If there is reasonable agreement between the Tier 1 concentration and the other concentrations for the compound, the Tier 1 concentration shall be selected as the CAAC.
- A12.2.2.2.2 If the Tier 1 concentration is not in reasonable agreement with the other concentrations, and one of the other concentrations is based on more recent or relevant studies, that concentration shall be selected as the CAAC. Otherwise the Tier 1 concentration shall be selected.
- A12.2.2.3 If both an RfC-based and URF-based Tier 1 concentration is selected under section A12.2.2.2, the more stringent of the two shall be used as the CAAC.
- A12.2.2.4 If a Tier 1 value is selected in accordance with this section, no further evaluation of Tier 2 or Tier 3 concentrations is required.
- A12.2.3 Evaluation of Tier 2 Concentrations
- A12.2.3.1 Selection of Tier 2 Values for Further Evaluation
- A12.2.3.1.1 If there is only a PRG or RBC for the compound, it shall be selected for further evaluation in accordance with section A12.2.3.2.
- A12.2.3.1.2 If there is both a PRG and an RBC for the compound, the concentrations shall be compared. If the concentrations are similar, the PRG shall be selected for further evaluation. If the concentrations are not similar, and the RBC is based on more relevant or more recent studies, it shall be selected for further evaluation. Otherwise the PRG shall be selected.
- A12.2.3.2 Comparison to Tier 3 Concentrations
- The concentration developed in accordance with section A12.2.3.1 shall be compared to the Tier 3 concentrations for the compound, if any. For purposes of this comparison, only MRL- or REL-based concentrations shall be considered.
- A12.2.3.2.1 If there is reasonable agreement between the Tier 2 concentration and the Tier 3 concentrations for the compound, the Tier 2 concentration shall be selected as the CAAC.

Notices of Final Rulemaking

- A12.2.3.2.2 If the Tier 2 concentration is not in reasonable agreement with the Tier 3 concentrations, and one of the Tier 3 concentrations is based on more recent or relevant studies, that concentration shall be selected as the CAAC. Otherwise the Tier 2 concentration shall be selected.
- A12.2.3.3 If a Tier 2 concentration is selected in accordance with section A12.2.3, no further evaluation of Tier 3 concentrations is required.
- A12.2.4 Evaluation of Tier 3 Values
- A12.2.4.1 Calculation of Concentrations
- A12.2.4.1.1 MRLs and RELs shall be multiplied by 1.04 to reflect an assumed exposure of 350, rather than 365, days per year.
- A12.2.4.1.2 CalURFs shall be transformed into concentrations in milligrams per cubic meter (mg/m^3) by applying the following equation:
- $$\frac{\text{TR} \times \text{ATc}}{(\text{EF} \times \text{IFA adj} \times [\text{CalURF} \times \text{BW}/\text{IR}])}$$
- where: TR = 1E-06, ATc = 25,550 days, EF = 350 days/year,
IFA adj = $11 \text{ m}^3\text{-year}/\text{kg-day}$, BW = 70 kg, IR = $20 \text{ m}^3/\text{day}$
- A12.2.4.2 Selection of Concentration
- A12.2.4.2.1 If both an MRL and an REL exist for the compound, the most appropriate shall be selected after considering the relevance and timing of the studies on which the levels are based.
- A12.2.4.2.2 If there is both a CalURF-based concentration and a concentration based on an MRL or REL for the compound, the more stringent of the two shall be selected.
- A12.2.5 No Available Data
- If there is no data available in any of the sources identified in section A12.2.1 for the compound, the applicant must perform a Tier 4 Risk Management Analysis under R18-2-1708 or forego the Risk Management Analysis option.
- A12.3 Acute Ambient Air Concentrations
- A12.3.1 Selection of Concentration
- The first concentration identified by evaluating the following data sources in the order listed shall be adjusted, where required, and used as the AAAC for the compound:
- A12.3.1.1 The level 2, four-hour average Acute Exposure Guideline Level developed by the EPA Office of Prevention, Pesticides and Toxic Substances.
- A12.3.1.2 The level 2 Emergency Response Planning Guideline (ERPG) developed by the American Industrial Hygiene Association. The AAAC shall be the ERPG divided by 2.
- A12.3.1.3 The level 2 Temporary Emergency Exposure Limit (TEEL) developed by the United States Department of Energy's Emergency Management Advisory Committee's Subcommittee on Consequence Assessment and Protective Action. The AAAC shall be the TEEL divided by 2.
- A12.3.2 No Available Data
- If there is no data available in any of the sources identified in section A12.3.1, the applicant must perform a Tier 4 Risk Management Analysis under R18-2-1708 or forego the Risk Management Analysis option.