NOTICES OF PROPOSED RULEMAKING

Unless exempted by A.R.S. § 41-1005, each agency shall begin the rulemaking process by first submitting to the Secretary of State's Office a Notice of Rulemaking Docket Opening followed by a Notice of Proposed Rulemaking that contains the preamble and the full text of the rules. The Secretary of State's Office publishes each Notice in the next available issue of the *Register* according to the schedule of deadlines for *Register* publication. Under the Administrative Procedure Act (A.R.S. § 41-1001 et seq.), an agency must allow at least 30 days to elapse after the publication of the Notice of Proposed Rulemaking in the *Register* before beginning any proceedings for making, amending, or repealing any rule. (A.R.S. §§ 41-1013 and 41-1022)

NOTICE OF PROPOSED RULEMAKING

TITLE 8. EMERGENCY AND MILITARY AFFAIRS

CHAPTER 4. ARIZONA EMERGENCY RESPONSE COMMISSION

[R06-263]

PREAMBLE

1. Sections Affected — **Rulemaking Action**

Article 1	New Article
R8-4-101	New Section
R8-4-102	New Section
R8-4-103	New Section
R8-4-104	New Section
R8-4-105	New Section
R8-4-106	New Section
R8-4-107	New Section
R8-4-108	New Section
R8-4-109	New Section
R8-4-110	New Section
R8-4-111	New Section

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

Authorizing statute: A.R.S. § 26-343(I)

Implementing statute: A.R.S. §§ 26-341 et seq.

3. A list of all previous notices appearing in the *Register* addressing the proposed rule:

Notice of Rulemaking Docket Opening: 12 A.A.R. 2156, June 16, 2006

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

Name: Daniel Roe, Executive Director

Address: Arizona Emergency Response Commission
5636 E. McDowell Rd.
Phoenix, AZ 85008

Telephone: (602) 231-6346

Fax: (602) 392-7519

E-mail: Dan.Roe@azdema.gov

5. An explanation of the rule, including the agency's reasons for initiating the rule:

The Commission is making rules regarding emergency planning required of Local Emergency Planning Committees, reports required from facilities that have extremely hazardous substances or hazardous chemicals onsite, and the community's right to know about these substances and chemicals.

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or 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:

None

7. 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

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

The economic, small business, and consumer impact of these rules will be minimal because the rules simply clarify procedures required by state and federal law.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name:	Daniel Roe, Executive Director
Address:	Arizona Emergency Response Commission 5636 E. McDowell Rd. Phoenix, AZ 85008
Telephone:	(602) 231-6346
Fax:	(602) 392-7519
E-mail:	Dan.Roe@azdema.gov

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

An oral proceeding regarding the proposed rules will be held as follows:

Date:	Monday, August 28, 2006
Time:	11:00 a.m.
Location:	Papago Military Reservation 5636 E. McDowell Rd. Building M5209, Room 114 Phoenix, AZ 85008

The rulemaking record will close at 5:00 p.m. on August 28, 2006.

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

None

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

None

13. The full text of the rules follows:

TITLE 8. EMERGENCY AND MILITARY AFFAIRS

CHAPTER 4. ARIZONA EMERGENCY RESPONSE COMMISSION

ARTICLE 1. EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW

Section

ARTICLE 1. EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW

R8-4-101. Definitions

A. The definitions in A.R.S. § 26-341 apply to this Chapter.

B. In this Article, unless specified otherwise:

1. "CERCLA hazardous substance" means a substance on the list that appears at 40 CFR 302.4.
2. "EHS" means an extremely hazardous substance listed in 40 CFR 355, Appendices A and B.
3. "Emergency planning district" means an area that the Commission designates to facilitate preparing and implementing an emergency response plan.
4. "EPA" means the United States Environmental Protection Agency.
5. "FD" means local fire department or the fire district with jurisdiction for a particular facility.
6. "LEPC" means "Committee," as prescribed at A.R.S. § 26-341(2).
7. "MSDS" means material safety data sheet, which is a written communication regarding a hazardous chemical that meets the standards at 29 CFR 1910.1200(g).
8. "NIMS" means National Incident Management System.
9. "Reportable release" means a release that is not excluded under 40 CFR 355.40.
10. "TPQ" means threshold planning quantity and has the same meaning as prescribed at 40 CFR 355.20.

R8-4-102. General Information

A. The Commission shall make all forms referenced in this Chapter available on its internet site, which is www.dem.state.az.us/azserc or www.azserc.org.

B. The owner or operator of a facility that is required to submit information under this Article shall:

1. Electronically submit the information to the Commission and LEPC; and
2. Electronically submit the information to the FD if the FD has entered into an agreement with the Commission regarding electronic submission. If the FD has not entered into an agreement with the Commission, the owner or operator of the facility shall mail the required information to the FD.

C. When the chairperson of a LEPC forwards to the Commission an item requiring action, the Executive Director of the Commission shall act on behalf of the Commission until the Commission acts at its next meeting.

R8-4-103. Responsibilities of a LEPC

Members of a LEPC shall:

1. Ensure that the LEPC includes the members required by A.R.S. § 26-344(B);
2. Appoint a chairperson for the LEPC;
3. Make rules regarding:
   a. Responding to public requests for information,
   b. Notifying the public of the LEAPED's activities,
   c. Conducting public meetings to discuss the Local Emergency Response Plan required under R8-4-105,
   d. Accepting and responding to public comment regarding the Local Emergency Response Plan, and
   e. Distributing copies of the Local Emergency Response Plan;
4. Receive the information that a facility is required by law to submit to the LEPC;
5. Evaluate the resources needed to develop and implement the Local Emergency Response Plan and make recommendations to the County Board of Supervisors and the Commission regarding mechanisms to provide the resources needed;
6. Respond to requests for information submitted under R8-4-110;
7. Ensure that newly appointed LEPC members participate in training provided by the Commission regarding the responsibilities of LEPC members; and
8. Ensure that representatives of the LEPC attend Commission-sponsored meetings.

R8-4-104. Emergency Planning and Preparedness

A. If a facility has present at any time an EHS in an amount equal to or greater than the TPQ for the EHS, the owner or operator of the facility shall comply with the emergency planning and preparedness requirements in this Section and the reporting requirements of R8-4-108.

B. If a facility is designated by the Commission under A.R.S. § 26-347(B), the owner or operator of the facility shall comply with the emergency planning and preparedness requirements in this Section and the reporting requirements of R8-4-108.

C. No later than 60 days after a facility first becomes subject to the emergency planning and preparedness requirements in this Section, the owner or operator of the facility shall:

1. Submit a facility emergency response plan. This may be done by completing and submitting an Emergency Response Plan Questionnaire;
2. Submit a Hazard Analysis Worksheet for each EHS at the facility; and
3. Comply with the reporting requirements at R8-4-108.

D. On or before March 1 of each year, the owner or operator of a facility described in subsection (A) or (B) shall review and determine whether the information submitted under subsection (C) is still accurate and:
1. Submit a statement certifying that the information previously submitted is still accurate; or
2. Submit a revised facility emergency response plan and Hazard Analysis Worksheets clearly indicating the changed circumstance that required the revision; and
3. Comply with the requirement at R8-4-108(E) or (F).

R8-4-105. Local Emergency Response Plan

A. Within 12 months after the Commission designates a new emergency planning district and appoints members of a LEPC for the newly designated emergency planning district, the LEPC shall prepare an emergency response plan that complies with the requirements at A.R.S. § 26-345(E) and is compliant with NIMS.

B. On or before December 31 of each year and when there are changed circumstances in the community or at a facility, a LEPC shall review and update the emergency response plan for its emergency planning district.

C. A LEPC shall submit a copy of the emergency response plan prepared under subsection (A) or (B) to the Commission and the district's governmental entity for incorporation into the county's emergency operation plan.

D. Within 60 days of receiving a copy of an emergency response plan under subsection (C), the Commission shall review the emergency response plan and make recommendations for revisions necessary to ensure that the emergency response plan complies with law and coordinates with the emergency response plans of adjoining emergency planning districts.

E. At least biennially and after providing at least 30 days notice to the Commission, a LEPC shall conduct an exercise of its emergency response plan.

F. On or before December 31 of each year, a LEPC shall survey its emergency planning district to determine how many copies of the Emergency Response Guidebook are needed and forward the information to the Commission.

R8-4-106. Reportable Release Notification

A. The owner or operator of a facility at which a hazardous chemical is produced, stored, or used and at which a reportable release of an EHS or a CERCLA hazardous substance occurs shall immediately:
1. Call 9-1-1 if emergency responders are needed; or
2. If emergency responders are not needed, call the:
   a. LEPC,
   b. Emergency response unit of the Arizona Department of Environmental Quality, and
   c. National Response Center.

B. The owner or operator of a facility required to provide notice under subsection (A) shall include the following information in the notice if able to do so without delaying the notice:
1. Specific location of the reportable release,
2. Chemical name or other identity of the substance released,
3. Description of the container or vessel from which the release occurred,
4. Estimate of the quantity of substance released,
5. Indication of whether the substance is extremely hazardous,
6. Time and duration of the release,
7. Medium or media into which the release occurred,
8. Known or anticipated acute or chronic health risks associated with the release,
9. Advice regarding medical attention necessary for individuals exposed to the substance,
10. Precautions or response actions to take as a result of the release, and
11. Name and telephone number of the individual to contact for additional information.

C. As soon as practicable but no later than 30 days after providing notice under subsection (B), the owner or operator of the facility shall submit a written report to the Commission and LEPC that:
1. Updates the information provided under subsection (B), and
2. Provides the following additional information:
   a. Actions taken to respond to and contain the release, and
   b. Measures that have been or will be taken at the facility to avoid occurrence of a similar release.

D. If the owner or operator of the facility becomes aware of additional information, the owner or operator of the facility shall submit to the Commission and LEPC a written update to the report submitted under subsection (C) within seven days of becoming aware of the additional information.

R8-4-107. Petroleum Release Notification

In addition to any notification required by federal or state law, an individual who releases or causes a release of more than 25

gallons or 200 pounds of a petroleum-based product shall assist the LEPC and Commission to comply with R8-4-105 by immediately notifying the LEPC and Commission by telephone, e-mail, or fax regarding the release. The individual shall ensure that the notice includes the information listed in R8-4-106(B)(1) through (B)(4) and (B)(6) through (B)(11).

R8-4-108. EHS or Hazardous Chemical Reporting

A. The owner or operator of a facility is required to comply with this Section if:
1. An EHS is produced, used, or stored at the facility in a quantity that equals or exceeds the TPQ or 500 pounds, whichever is less. For the purpose of this Section, the exclusions listed in 311(e) of Title III and 29 CFR 1910.1200 do not apply; or
2. A hazardous chemical is produced, used, or stored at the facility in a quantity that equals or exceeds 10,000 pounds.

B. To determine whether the quantity of an EHS or hazardous chemical produced, used, or stored at a facility equals or exceeds the quantity listed in subsection (A), the owner or operator of the facility shall:
1. Aggregate all amounts of the EHS or hazardous chemical present including the amounts present as a component of a mixture; and
2. Calculate the amount of EHS present without regard to the exclusions listed in subsection (A)(1).

C. An owner or operator described in subsection (A) shall:
1. Submit a MSDS for each EHS or hazardous chemical described under subsection (A); or
2. Submit a list of the EHS or hazardous chemicals described under subsection (A) that:
   a. Provides the chemical or common name of each EHS or hazardous chemical,
   b. Provides the Chemical Abstract Service registry number of each EHS or hazardous chemical, and
   c. Identifies each EHS or hazardous chemical as belonging to one or more of the following hazard categories:
      i. Immediate or acute health hazard,
      ii. Delayed or chronic health hazard,
      iii. Fire hazard,
      iv. Sudden release of pressure hazard, or
      v. Reactive hazard; and
3. Submit a MSDS for a chemical product if two or more EHS or hazardous chemicals are components of the chemical product. For the purpose of this subsection, water is not considered as a component of a chemical product.

D. An owner or operator that submits information under subsection (C) shall submit updated information:
1. Within three months of obtaining a new hazardous chemical or increasing the quantity of a hazardous chemical to equal or exceed the quantity in subsection (A)(2),
2. Within 60 days of obtaining a new EHS or increasing the quantity of an EHS to equal or exceed the quantity in subsection (A)(1), and
3. Within three months of becoming aware of significant new information regarding a hazardous chemical or EHS for which information was submitted.

E. An owner or operator described in subsection (A) shall submit a Tier Two Emergency and Hazardous Chemical Inventory Form by March 1 of each year.

F. If a facility ceases to meet the standard described in subsection (A)(1) or (A)(2), the owner or operator of the facility shall submit an Exemption Letter Form within 60 days indicating why a Tier Two Emergency and Hazardous Chemical Inventory Form is no longer required.

G. If a facility ceases to meet the standard described in subsection (A)(1) or (A)(2) with regard to a specific EHS or hazardous chemical, the owner or operator of the facility may submit a Change of Inventory Form to indicate that the specific EHS or hazardous chemical is longer present in the quantity listed in subsection (A). A Change of Inventory Form may be submitted at any time.

R8-4-109. Compliance Procedures

If a facility fails to comply with the provisions in R8-4-104 or R8-4-108, the Commission shall:
1. Notify the owner or operator of the facility of the requirement to contact the regional office of the EPA to determine the need to conduct a self-audit and come into compliance, and
2. If the facility fails to comply with subsection (1) within seven days, report the facility to the regional office of the EPA so compliance assistance or enforcement action can be taken.

R8-4-110. Community Right-to-know Procedures

A. To obtain information regarding a specific hazardous chemical or EHS at a specific facility, local emergency response plan, or notice regarding a reportable release, a person shall submit a written request to the Commission or LEPC. If a request is submitted to a LEPC, the LEPC is encouraged to forward a copy of the request to the Commission so Commission staff can coordinate a response to the request. To obtain a copy of a Form R relating to toxic chemical releases, a person shall submit a written request to the Commission.

B. The Commission or LEPC shall respond within 45 days to a written request for information. The response shall advise the person making the request:

1. Of the time and location at which the person may inspect and copy the requested information,
2. That additional information is needed to process the request,
3. That the requested information is not available but the Commission or LEPC will ask the owner or operator of the facility to provide the information; or
4. That the request is denied because:
   a. The requested information does not exist,
   b. The owner or operator of the facility is not required to provide the information,
   c. The Commission or LEPC determined that disclosing the information will impair its ability to protect public health or safety and the public interest in nondisclosure outweighs the public interest in disclosure, or
   d. The information is exempt by law from disclosure.

C. Information that may be withheld.
1. The owner or operator of a facility may withhold the identity of a specific chemical if the EPA determines that the information is a trade secret; and
2. If the owner or operator of a facility completes a Confidential Location Storage Form, the Commission or LEPC shall withhold the location of a specific chemical.

D. The Commission or LEPC shall advise the owner or operator of a facility of any request for information regarding the facility.

E. Under A.R.S. § 39-121.01, the Commission or LEPC shall charge the person making a request under this Section the cost of reproducing the information requested. If the information is requested for a commercial purpose, the Commission or LEPC shall charge the amount allowed under A.R.S. § 39-121.03. The Commission shall deposit the funds received under this subsection in accordance with A.R.S. § 26-343(G).

R8-4-111. Grants

A. On or before September 1 of each year, the Commission shall provide notice to all LEPC regarding:
1. The source and amount of grant funds available for the next year,
2. Eligibility requirements for obtaining a grant,
3. Uses of grant funds that are allowed and not allowed,
4. Procedures for applying for a grant,
5. Criteria used to make a grant award, and
6. The due date for an application.

B. To receive funds that are awarded on a non-competitive basis, a LEPC shall submit a "Certification and Request for Funding" form in which the LEPC certifies that it:
1. Is in compliance with all applicable law, including NIMS;
2. Will use the funds in the manner intended;
3. Will keep separate funds from the Emergency Response Fund and funds from other sources; and
4. Will submit all required reports.

C. To receive grant funds that are awarded on a competitive basis, a LEPC shall submit to the Commission a proposal that specifies:
1. The goal that the LEPC intends to accomplish with any grant funds received;
2. Where the grant funds will be expended;
3. The amount of grant funds needed to accomplish the goal;
4. The time needed to accomplish the goal; and
5. Other information that will assist the Commission to evaluate the grant proposal.

D. On behalf of the Commission, Commission staff shall meet annually with members of the LEPC and use a consensus process to establish the criteria used to evaluate a grant proposal. The Commission shall make the criteria available to all LEPC under subsection (A). Commission staff, on behalf of the Commission, shall evaluate each proposal that is timely received using the criteria established. The criteria generally include the following:
1. The extent to which the LEPC fulfilled the responsibilities listed in R8-4-103;
2. Whether the LEPC complied with all provisions of R4-8-104;
3. Whether the LEPC submitted all reports required for grant funds previously received;
4. Whether previously received grant funds were used in a manner that achieved the goal established;
5. The number of facilities required to report to the LEPC under this Chapter;
6. The population represented by the LEPC;
7. The number of reportable releases during the past year in the area represented by the LEPC;
8. Attendance by LEPC members at training meetings; and
9. Training provided by LEPC members to emergency responders in the emergency planning district.

E. The Commission shall provide written notice to each LEPC that applies for grant funds regarding whether grant funds will be awarded and if so, the amount awarded.

F. A LEPC that receives grant funds shall submit progress reports to the Commission on dates prescribed by the Commission. The LEPC shall include in each progress report a summary of the work done to accomplish the goal stated in the grant proposal and a detailed accounting of the grant funds expended and remaining.

NOTICE OF PROPOSED RULEMAKING

TITLE 9. HEALTH SERVICES

CHAPTER 25. DEPARTMENT OF HEALTH SERVICES EMERGENCY MEDICAL SERVICES

[R06-265]

PREAMBLE

1. Sections Affected — **Rulemaking Action**

R9-25-101	Amend
R9-25-204	Amend
R9-25-210	Amend
R9-25-301	Amend
R9-25-304	Amend
R9-25-305	Amend
R9-25-306	Amend
R9-25-307	Amend
R9-25-308	Amend
R9-25-309	Amend
R9-25-310	Amend
R9-25-311	Amend
R9-25-312	Amend
R9-25-314	Amend
R9-25-315	Amend
R9-25-316	Amend
R9-25-318	Repeal
R9-25-318	New Section
Exhibit A	Amend
Exhibit B	Amend
Exhibit C	New Exhibit
R9-25-404	Amend
R9-25-406	Amend
R9-25-408	Amend
R9-25-412	Amend
R9-25-1003	Amend

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. §§ 36-2202(A)(4) and 36-2209(A)(2)

Implementing statutes: A.R.S. §§ 36-2201; 36-2202(A)(2),(3), (5), and (6) and (G); 36-2204(1) and (3) through (8); and 36-2208(A)

3. A list of all previous notices appearing in the *Register* addressing the proposed rule:

Notice of Rulemaking Docket Opening: 12 A.A.R. 1788, May 26, 2006

Notice of Rulemaking Docket Opening: 12 A.A.R. 1099, April 7, 2006

Notice of Rulemaking Docket Opening: 11 A.A.R. 5217, December 9, 2005

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

Name: Terry Mullins, Bureau Chief

Address: Arizona Department of Health Services
Bureau of Emergency Medical Services
150 N. 18th Ave., Suite 540
Phoenix, AZ 85007

Telephone: (602) 364-3150

Fax: (602) 364-3568

E-mail: mullint@azdhs.gov

or

Name: Kathleen Phillips, Rules Administrator

Address: Arizona Department of Health Services
Office of Administrative Rules
1740 W. Adams St., Suite 202
Phoenix, AZ 85007

Telephone: (602) 542-1264

Fax: (602) 364-1150

E-mail: phillik@azdhs.gov

5. An explanation of the rule, including the agency's reasons for initiating the rule:

a. Statutory Authority for the Rulemaking

A.R.S. § 36-2208(A) makes the Arizona Department of Health Services (ADHS) responsible for coordinating, establishing, and administering a statewide system of emergency medical services (EMS).

A.R.S. § 36-2202 requires the ADHS Director, among other things, to:

- Adopt standards and criteria for the denial or granting of certification and recertification of emergency medical technicians (EMTs) and certify, recertify, and deny certification of EMTs;
- Adopt standards and criteria that pertain to the quality of emergency care pursuant to A.R.S. § 36-2204;
- Adopt reasonable medical equipment, supply, staffing and safety standards, criteria and procedures for issuance of a certificate of registration to operate an ambulance; and
- Maintain a state system for recertifying EMTs that is independent from any national registry of EMTs recertification process and that allows EMTs to choose to be recertified under the state or the national registry of EMTs recertification system, subject to A.R.S. § 36-2202(G).

A.R.S. § 36-2202(G) requires applicants for certification to apply to the Director for certification and that EMTs apply to the Director for recertification every two years.

A.R.S. § 36-2204 identifies the following standards and criteria, among others, as pertaining to the quality of emergency patient care:

- Statewide standardized training, certification, and recertification standards for all classifications of EMTs;
- Medical standards for certification and recertification of training programs for all classifications of EMTs;
- Standardized continuing education criteria for all classifications of EMTs;
- Medical standards for certification and recertification of advanced life support (ALS) base hospitals and approval of physicians providing medical control or medical direction for any level of EMT required to be under medical control or medical direction;
- Standards and mechanisms for monitoring and ongoing evaluation of performance levels of all classifications of EMTs and ALS base hospitals and approval of physicians providing medical control or medical direction for any level of EMT who is required to be under medical control or medical direction;
- Objective criteria and mechanisms for decertification of all classifications of EMTs and ALS base hospitals and for disapproval of physicians providing medical control or medical direction for any level of EMT who is required to be under medical control or medical direction; and
- Medical standards for nonphysician prehospital treatment and prehospital triage of patients requiring EMS.

b. Purpose of the Rulemaking

Through this rulemaking, ADHS intends to enhance the statewide system of EMS and the quality of emergency patient care in Arizona by:

- Clarifying existing definitions and adding new definitions to make the rules in 9 A.A.C. 25 clearer and easier to use;
- Generally requiring an EMS provider's administrative medical director to oversee the use and control of pre-

hospital drugs (referred to as "agents" in the rules);
- Requiring an ALS base hospital pharmacist-in-charge to oversee the control of agents if an EMS provider obtains all of its agents from the ALS base hospital, which retains ownership of the agents;
- Introducing the concept of a course session to make training program requirements clearer;
- Allowing combination of students from multiple course sessions for didactic instruction;
- Requiring that all written examinations for a course be closed book;
- Prohibiting cheating and specified unethical conduct by students, training program directors, and instructors;
- Revising the minimum equipment standards for courses in Exhibit A to Article 3;
- Requiring that all examinations for a course be completed onsite at a training program or at a facility used for course instruction;
- Requiring that all final examinations for a course be proctored and administered by persons other than the training program director and instructors;
- Adopting an EMT-I(99)-to-EMT-P transition course;
- Enabling an individual who has completed the EMT-I(99)-to-EMT-P transition course to become certified as an EMT-P;
- Clarifying the status of EMT-I(85)s;
- Moving provisions currently in R9-25-318 and R9-25-412 into the other Sections to which they pertain;
- Clarifying admission requirements for the Arizona EMT-I Transition Course and eliminating its self-expiration provision;
- Clarifying requirements for EMT certification, recertification, and downgrading;
- Revising the minimum equipment and supplies for a ground ambulance to require, among other things, that a ground ambulance equipped to provide basic life support (BLS) services contain the minimum supply of agents prescribed for an EMT-B in Table 1 in R9-25-503 (to be adopted in a companion exempt rulemaking); and
- Making conforming and technical changes to the rules to make them more clear, concise, and understandable.

c. Process for the Rulemaking

The revisions in 9 A.A.C. 25, Articles 2 and 10 and most of the revisions in Article 1 were created by ADHS with input from the Prehospital Drugs Rulemaking Task Force (Task Force), a group whose membership drew from each EMS region in the state and represented EMT-Paramedics (EMT-Ps); EMT-Basics (EMT-Bs); EMT-Intermediates (EMT-Is); administrative medical directors; on-line medical directors; ALS base hospitals; the air ambulance industry; the ground ambulance industry; the Arizona Fire District Association; the Arizona Hospital and Healthcare Association; the Protocols, Medications, and Devices Committee; and an ALS base hospital pharmacy. Although not all members of the Task Force attended meetings, ADHS kept the entire Task Force membership informed of the meetings and the revisions to the draft rules through e-mails. The Task Force met four times in January through March 2006 and considered four different versions of rule changes for Articles 1, 2, and 10 and a companion exempt rulemaking that revises 9 A.A.C. 25, Article 5. Through the Task Force meetings, ADHS and the Task Force were able to reach consensus on the contents of both draft rulemakings, with the exception of one provision. That provision would have required an administrative medical director or ALS base hospital pharmacist-in-charge to ensure that an EMS provider maintains each agent within a stable temperature range as provided by the official compendium or the manufacturer's or distributor's labeling.

After reaching consensus with the Task Force except as to the temperature control provision, ADHS presented both draft rulemakings to the Emergency Medical Services Council (EMS Council) and the Medical Direction Commission (MDC) for discussion and action at their April 2006 meetings. The EMS Council and MDC both recommended that ADHS go forward with all of the rulemaking provisions in the drafts except the temperature control provision. As a result, ADHS eliminated the temperature control provision from this rulemaking.

After the temperature control provision was eliminated, ADHS combined the changes in Articles 1, 2, and 10 with another draft rulemaking for Articles 3 and 4. Most of the changes in Articles 3 and 4 were also considered and recommended by the EMS Council at its April 2006 meeting and are consistent with the recommendations made by EMS Council at that meeting. Many of the changes in Articles 3 and 4 were made with input from the Education Committee, a standing committee of EMS Council, and a work group formed by the Education Committee.

After ADHS combined the two draft rulemakings, ADHS posted a draft Notice of Proposed Rulemaking and Draft Economic Impact Statement on the ADHS web site and solicited stakeholder input on the Draft Economic Impact Statement from mid-May to mid-June. As a result of comments received on the Draft Economic Impact Statement and Draft Notice of Proposed Rulemaking, and resulting further internal review, ADHS identified additional revisions that needed to be made in the rules. The additional revisions are necessary to clarify the rules and to effectuate the rule revisions recommended by the Prehospital Drugs Rulemaking Task Force and EMS Council. ADHS believes that they are all consistent with the recommendations made by the Task Force, the Edu-

cation Committee, and EMS Council.

d. Companion Exempt Rulemaking

Along with this rulemaking, ADHS is completing a companion exempt rulemaking under the authority of A.R.S. § 36-2205(C). In the companion exempt rulemaking, ADHS:

- Clarifies EMT authorization to administer, monitor, and assist in patient self-administration of agents;
- Reduces the scope of practice of an EMT-I(99) to be more consistent with the NHTSA EMT-I(99) National Standard Curriculum, with a two-year grandfather clause for those EMT-I(99)s certified before the effective date of the rules; and
- Consolidates all of the current drug lists into one table in R9-25-503.

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or 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:

Although ADHS reviewed a number of studies in relation to the issue of temperature control, none of the studies are now relevant to the subject matter of this rulemaking, as the temperature control provision is not included in this rulemaking.

7. 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

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

As used in this summary, "minimal" means less than $1,000; "moderate" means $1,000 to $9,999; "substantial" means $10,000 or more; and "significant" means meaningful or important, but not readily subject to quantification.

ADHS believes that the costs of this rulemaking will be borne by ADHS, Prehospital Drugs Rulemaking Task Force (Task Force) members, EMS providers (used in this summary to mean ground ambulance services, air ambulance services, and firefighting agencies that provide EMS), ALS base hospitals, ALS base hospital pharmacists-in-charge, administrative medical directors, centralized medical direction communications centers, course providers (used in this summary to mean certified training programs and ALS base hospitals acting as training programs as authorized under R9-25-210), EMT-I(85)s, and EMT-I(99)s.

ADHS believes that the benefits of this rulemaking will be enjoyed by ADHS, Task Force members, EMS providers, ALS base hospitals, ALS base hospital pharmacists-in-charge, administrative medical directors, centralized medical direction communications centers, course providers, EMT-I(99)s, and actual and potential EMS provider patients and their loved ones (patients and their loved ones).

This summary describes only the most notable costs and benefits that ADHS expects to result from this rulemaking.

ADHS has incurred moderate-to-substantial costs, and each participating Task Force member has incurred minimal-to-moderate costs, from the rulemaking process. Each Task Force member has also received a significant benefit because ADHS was receptive to most suggestions and ultimately created rules that are consistent with the consensus recommendations of the Task Force.

In Article 2, this rulemaking adopts requirements for overseeing the use and control of prehospital agents. These requirements are generally made the responsibility of an EMS provider's administrative medical director. However, when an EMS provider obtains all of its drugs from an ALS base hospital, which retains ownership of the drugs, the requirements for control of prehospital agents are made the responsibility of the ALS base hospital certificate holder and are to be performed by the ALS base hospital pharmacist-in-charge. ADHS believes that most of these requirements will result in only a minimal-to-moderate cost to an administrative medical director/ALS base hospital pharmacist-in-charge and EMS provider, from the time spent creating the standard operating procedure (SOP) required by the rule and providing training to EMTs to ensure that they are aware of and comply with the rule and SOP requirements. The actual costs incurred will depend on each EMS provider's current practices and how much those practices now diverge from the rule requirements. ADHS believes that administrative medical directors/ALS base hospital pharmacists-in-charge and EMS providers may receive a significant benefit from these requirements because they will help to ensure that required minimum supplies of agents are maintained, may help to prevent diversion of controlled substances or other agents, may result in early detection of diversion if it does occur, and may result in increased EMT awareness of and compliance with EMS providers' policies. Patients and their loved ones will also receive a significant benefit because the requirements will help to ensure that EMTs have the agents necessary to treat a patient when they respond and that patient records reflect all agents administered, which should result in enhanced patient care and enhanced public health. ADHS and patients and their loved ones will also receive a significant benefit from these changes because the administrative medical director's oversight of use of prehospital agents will help to ensure that an EMT only administers and monitors those agents for which the EMT has received adequate training and that an EMT only assists in patient self-administration of an agent if the agent is prescribed for the patient's symptoms, is what it is asserted to be, and is not expired. Both of these provisions should enhance patient safety and thereby protect the public health. EMS providers may also receive a significant benefit from these provisions because

they may help prevent complaints, or even bad patient outcomes, resulting from inappropriate administration, monitoring, or assistance with patient self-administration of agents.

One provision in Article 2 may have a greater impact—the requirement for an EMS provider's SOP to require that each EMT on duty for the EMS provider have access to at least the minimum supply of agents required for the highest level of service to be provided by the EMT. This requirement will result in a minimal-to-substantial cost to each EMS provider that has administrative medical direction for its EMT-Bs but that does not currently equip its BLS units or supply its EMT-Bs with the agents listed in the EMT-B drug list. (The requirement is inapplicable to an EMT-B who does not have administrative medical direction.) The cost will be approximately $259.24 to $306.76 per ambulance or non-ambulance EMT-B team, although Table 1 in R9-25-503 (to be adopted in the companion exempt rulemaking) provides an exception to the requirement for epinephrine auto-injectors for a ground ambulance that is not primarily serving as the first EMS provider arriving on scene in response to an emergency dispatch, which would reduce this cost by approximately $200 per ambulance. The cost will be incurred approximately every 15 months or as the agents are used and need to be replenished. The actual cost will depend upon what an EMS provider is currently stocking on its BLS ambulances or providing to its EMT-Bs and how many such ambulances or EMT-B teams the EMS provider has. ADHS is aware of two ambulance services that provide only BLS services and do not have administrative medical direction and has been informed that there are at least 13 additional EMS providers that do not currently provide administrative medical direction to their EMT-Bs. ADHS believes that ADHS and patients and their loved ones may receive a significant benefit from this requirement because it may help to ensure that a patient suffering a heart attack or anaphylaxis can receive life-saving treatment even if the first EMS provider vehicle on scene is manned at the BLS level. Especially because of the requirement for epinephrine auto-injectors, this provision could save lives.

In Article 3, this rulemaking creates an EMT-I(99)-to-EMT-P transition course. For those course providers who choose to provide the course, ADHS estimates the cost per course offered to be moderate, at approximately $6,000 to $7,000, some or all of which may be offset by student tuition payments. Creation of the new course may result in a significant (possibly substantial for some) benefit to ADHS, EMS providers, EMT-I(99)s who desire to become EMT-Ps, course providers, and patients and their loved ones. ADHS and patients and their loved ones will benefit if the new course results in an increased skill level among the EMTs providing EMS in Arizona. EMS providers will benefit if there are additional EMT-Ps available for hiring, particularly in rural areas where there are now relatively few EMT-Ps available for hire. Course providers that choose to offer the course and that operate for profit will benefit from student tuition payments received. EMT-I(99)s who desire to become EMT-Ps will benefit because they will be able to take the new 600-hour course to become eligible to obtain EMT-P certification, rather than the existing 1000-hour Arizona EMT-P course, and should enjoy a moderate increase in annual income if they obtain EMT-P certification.

In Article 3, this rulemaking also adopts prohibitions on prescribed student, instructor, and training program director conduct considered to be unethical and requirements to prevent cheating and to prohibit a student violator from receiving a certificate of completion and an instructor violator from further serving as an instructor. These provisions should result in no cost to minimal costs for most course providers, EMT students, and instructors, but may result in minimal-to-substantial costs to student violators and instructor violators. These provisions may result in a significant benefit to ADHS, course providers, EMS providers, EMT students, and patients and their loved ones because they will help to ensure that EMT students receive effective training and have their skills evaluated effectively, which should enhance quality of care and thus public health.

In Article 4, this rulemaking enables an individual to obtain EMT-P certification after completing the Arizona EMT-I(99)-to-EMT-P transition course. This should result in no costs, but will result in a substantial benefit to individuals who complete the new transition course. Without this change, an individual would not have been eligible for EMT-P certification even after completing the transition course.

In Article 10, this rulemaking revises the minimum equipment and supplies for a ground ambulance to require, among other things, that a ground ambulance equipped to provide BLS services contain the minimum supply of agents prescribed for an EMT-B in Table 1 in R9-25-503 and that each ambulance have a wheeled, multi-level stretcher that meets prescribed criteria. As described previously, the requirement for a ground ambulance equipped to provide BLS to carry the EMT-B agents will result in a minimal cost per ambulance, estimated to be approximately $259.24 to $306.76, if a ground ambulance service is not currently equipping its BLS ambulances with those agents and if the ground ambulance is used as the first EMS provider to respond to emergency dispatches. The requirement may also result in a significant benefit to ADHS and to patients and their loved ones because it may save lives. Because ADHS is aware that some ground ambulance services do not provide administrative medical direction to their EMT-Bs and thus may have a practical problem in acquiring epinephrine auto-injectors, which are available only with a prescription, ADHS has agreed to allow the ADHS Bureau of Emergency Medical Services Medical Director to write orders for epinephrine auto-injectors for EMS providers who do not provide administrative medical direction to their EMT-Bs. This should alleviate any costs associated with that practical problem. ADHS believes that the requirement for a stretcher will result in no costs to ground ambulance services because carrying a stretcher that meets the prescribed criteria is consistent with current practices in the industry. However, if a ground ambulance service needs to purchase stretchers to comply with the rule, the per ambulance cost would be minimal to moderate, at

approximately $900 to $3,800, depending on the features selected and whether each stretcher is purchased new or used.

ADHS believes that each of the remaining provisions in this rulemaking will result in either no cost or minimal costs and that the overall benefits of this rulemaking outweigh its costs because the rulemaking should enhance the statewide system of EMS and the quality of emergency patient care in Arizona.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name:	Terry Mullins, Bureau Chief
Address:	Arizona Department of Health Services Bureau of Emergency Medical Services 150 N. 18th Ave., Suite 540 Phoenix, AZ 85007
Telephone:	(602) 364-3150
Fax:	(602) 364-3568
E-mail:	mullint@azdhs.gov
	or
Name:	Kathleen Phillips, Rules Administrator
Address:	Arizona Department of Health Services Office of Administrative Rules 1740 W. Adams St., Suite 202 Phoenix, AZ 85007
Telephone:	(602) 542-1264
Fax:	(602) 364-1150
E-mail:	phillik@azdhs.gov

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

ADHS has scheduled the following oral proceeding:

Date:	September 5, 2006
Time:	10:00 a.m.
Location:	Arizona Department of Health Services 1740 W. Adams St., Room 411A Phoenix, AZ 85007
Nature:	Oral proceeding

Individuals with a disability may request a reasonable accommodation by contacting Sarah Harpring at harpris@azdhs.gov or (602) 542-1513. A request should be made as early as possible to allow sufficient time to arrange for the accommodation.

Written comments on the proposed rulemaking or the preliminary economic, small business, and consumer impact summary may be submitted to either individual listed in items #4 and #9 until the close of record at 5:00 p.m. on September 5, 2006.

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

Not applicable

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

The rulemaking includes new references to existing incorporations by reference, but does not include any new incorporations by reference.

13. The full text of the rules follows:

TITLE 9. HEALTH SERVICES

CHAPTER 25. DEPARTMENT OF HEALTH SERVICES
EMERGENCY MEDICAL SERVICES

ARTICLE 1. DEFINITIONS

Section
R9-25-101. Definitions (Authorized by A.R.S. §§ 36-2201, 36-2202, 36-2204, and 36-2205)

ARTICLE 2. MEDICAL DIRECTION; ALS BASE HOSPITAL CERTIFICATION

Section
R9-25-204. Administrative Medical Director Qualifications and Responsibilities (Authorized by A.R.S. §§ 36-2201~~,~~; 36-2202(A)(3) and (A)(4)~~,~~; 36-2204(5), (6), and (7)~~,~~; ~~and~~ 36-2204.01; 36-2208(A); and 36-2209(A)(2))
R9-25-210. ALS Base Hospital Authority and Responsibilities (Authorized by A.R.S. §§ 36-2201, 36-2202(A)(3) and (A)(4), ~~and~~ 36-2204(5) and (6), 36-2208(A), and 36-2209(A)(2))

ARTICLE 3. TRAINING PROGRAMS

Section
R9-25-301. Definitions; Training Program General Requirements (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-304. Course and Examination Requirements (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-305. Arizona EMT-B Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-306. Arizona EMT-B Refresher, Arizona EMT-B Refresher Challenge Examination (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-307. Arizona EMT-I Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-308. Arizona EMT-P Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-309. Arizona ALS Refresher; Arizona ALS Refresher Challenge Examination (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-310. Training Program Medical Director (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-311. Training Program Director (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-312. Lead Instructor; Preceptor (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-314. Training Program Disclosure Statements (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-315. Training Program Student Records (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-316. Training Program Notification and Recordkeeping (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
R9-25-318. ~~Arizona EMT-I Transition Course Definition; Clarification of EMT-I References (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))~~ Arizona EMT-I(99)-to-EMT-P Transition Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))
Exhibit A. Equipment Minimum Standards for the Arizona EMT-I Course, EMT-P Course, ALS Refresher, and EMT-I(99)-to-EMT-P Transition Course ~~Equipment Minimum Standards~~
Exhibit B. Arizona EMT-Intermediate Transition Course
Exhibit C. Arizona EMT-I(99)-to-EMT-P Transition Course Clinical Training and Field Training Competencies

ARTICLE 4. EMT CERTIFICATION

Section
R9-25-404. Application Requirements for EMT Certification (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), ~~and~~ (A)(4), ~~36-2202(G),~~ and (G) and 36-2204(1) and (6))

R9-25-406. Application Requirements for EMT Recertification (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), (A)(4), ~~and~~ (A)(6), ~~36-2202(G),~~ and (G) and 36-2204(1), (4), and (6))
R9-25-408. Requirements for Downgrading of Certification (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), ~~and~~ (A)(4), ~~36-2202(G),~~ and (G) and 36-2204(1) and (6))
R9-25-412. Special EMT-I Certification and Recertification Conditions (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), (A)(4), ~~and~~ (A)(6), ~~36-2202(G),~~ and (G) and 36-2204(1), (4), and (6))

ARTICLE 10. GROUND AMBULANCE VEHICLE REGISTRATION

Section
R9-25-1003. Minimum Equipment and Supplies for Ground Ambulance Vehicles (Authorized by A.R.S. § 36-2202(A)(5))

ARTICLE 1. DEFINITIONS

R9-25-101. Definitions (Authorized by A.R.S. §§ 36-2201, 36-2202, 36-2204, and 36-2205)

~~In Articles 1 through 4 and Article 5 of~~ The following definitions apply in this Chapter, unless ~~the context~~ otherwise ~~requires~~ specified:

1. "Administer" or "administration" means to directly apply or the direct application of an agent to the body of a patient by injection, inhalation, ingestion, or any other means and includes adjusting the administration rate of an agent.
~~1.~~2. "Administrative medical direction" has the same meaning as in A.R.S. § 36-2201.
~~2.~~3. "Administrative medical director" means an individual qualified under R9-25-204 who provides administrative medical direction as required under R9-25-204.
~~3.~~4. "Advanced procedure" means an emergency medical service provided by an EMT that:
   a. Requires skill or training beyond the basic skills or training prescribed in the Arizona EMT-B course as defined in R9-25-305; or
   b. Is designated in A.R.S. Title 36, Chapter 21.1 or this Chapter as requiring medical direction.
5. "Agent" means a chemical or biological substance that is administered to a patient to treat or prevent a medical condition.
~~4.~~6. "ALS base hospital" ~~means~~ has the same meaning as "advanced life support base hospital" in A.R.S. § 36-2201.
~~5.~~7. "Ambulance service" has the same meaning as in A.R.S. § 36-2201.
~~6.~~8. "Centralized medical direction communications center" has the same meaning as in A.R.S. § 36-2201.
~~7.~~9. "Chief administrative officer" means an individual assigned to act on behalf of an ALS base hospital or a training program certified under Article 3 of this Chapter by the body organized to govern and manage the ALS base hospital or the training program.
~~8.~~10. "Clinical training" means to provide an individual with experience and instruction in providing direct patient care in a health care institution.
~~9.~~11. "Communication protocol" means a written guideline prescribing:
   a. How an EMT shall:
      i. Request and receive on-line medical direction;
      ii. Notify an on-line physician before arrival of an EMT's intent to transport a patient to a health care institution; and
      iii. Notify a health care institution before arrival of an EMT's intent to transport a patient to the health care institution; and
   b. What procedures an EMT shall follow in a communications equipment failure.
~~10.~~12. "Conspicuously post" means to make visible to patients and other individuals by displaying on an object, such as a wall or bulletin board.
13. "Controlled substance" has the same meaning as in A.R.S. § 32-1901.
~~11.~~14. "Course content outline" means a sequential listing of subject matter, objectives, skills, and competencies to be taught or tested.
15. "Custody" means physical control and may include constructive physical control, such as where a supply of agents is stored in a receptacle that is locked and sealed with an individually identifiable tamper-proof seal that would be broken if the receptacle were opened.
~~12.~~16. "Dangerous drug" has the same meaning as in A.R.S. § 13-3401.
~~13.~~17. "Day" means a calendar day.
~~14.~~18. "Department" means the Arizona Department of Health Services.
19. "Document" or "documentation" means signed and dated information in written, photographic, electronic, or other permanent form.

~~15.~~20. "Drug" has the same meaning as in A.R.S. § 32-1901.
21. "Drug distributor" means a person with a current and valid pharmacy permit or wholesaler permit, issued by the Arizona State Board of Pharmacy, that allows the person to distribute drugs in Arizona.
~~16. "Document" or "documentation" means signed and dated information in written, photographic, electronic, or other permanent form.~~
~~17.~~22. "Electronic signature" has the same meaning as in A.R.S. § 41-351.
23. "Emergency medical services" has the same meaning as in A.R.S. § 36-2201.
24. "Emergency medical services provider" has the same meaning as in A.R.S. § 36-2201.
~~18.~~25. "EMT" ~~means~~ has the same meaning as "certified emergency medical technician" in A.R.S. § 36-2201.
~~19.~~26. "EMT-B" ~~means~~ has the same meaning as "basic emergency medical technician" in A.R.S. § 36-2201.
~~20.~~27. "EMT-I" ~~means~~ has the same meaning as "intermediate emergency medical technician" in A.R.S. § 36-2201.
28. "EMT-I(85)" means an individual certified as an EMT-I who does not hold current NREMT-Intermediate registration, as defined in this Section, and who has not completed the Arizona EMT-I course, as defined in R9-25-307, or the Arizona EMT-Intermediate transition course, as defined in R9-25-301.
29. "EMT-I(99)" means an individual certified as an EMT-I who has completed:
    a. The Arizona EMT-I course, as defined in R9-25-307; or
    b. The Arizona EMT-Intermediate transition course, as defined in R9-25-301.
~~21.~~30. "EMT-P" ~~means~~ has the same meaning as "emergency paramedic" in A.R.S. § 36-2201.
~~22. "Emergency medical services" has the meaning in A.R.S. § 36-2201.~~
~~23. "Emergency medical services provider" has the meaning in A.R.S. § 36-2201.~~
31. "FDA" means U.S. Food and Drug Administration.
~~24.~~32. "Field training" means to provide an individual with emergency medical services experience and training outside of a health care institution or a training program facility.
~~25.~~33. "General hospital" has the same meaning as in A.A.C. R9-10-201.
34. "Health care decision maker" has the same meaning as in A.R.S. § 12-2291.
~~26.~~35. "Health care institution" has the same meaning as in A.R.S. § 36-401.
36. "In use" means in the immediate physical possession of an EMT and readily accessible for potential imminent administration to a patient.
37. "Incapacitated adult" means an individual older than 18 years of age for whom a guardian, as defined in A.R.S. § 14-1201, has been appointed.
38. "Infusion pump" means an FDA-approved device, operated mechanically, electrically, or osmotically, that releases a measured amount of an agent into a patient's circulatory system in a specific period of time.
39. "Interfacility transport" means an ambulance transport of a patient from one health care institution to another health care institution.
40. "Intermediate emergency medical technician level" means completion of training that meets or exceeds the training provided in the U.S. Department of Transportation, National Highway Traffic Safety Administration, EMT-Intermediate: National Standard Curriculum (1999), incorporated by reference in R9-25-307(A)(1).
41. "IV" means intravenous.
42. "Locked" means secured with a key, including a magnetic, electronic, or remote key, or combination so that opening is not possible except by using the key or entering the combination.
~~27.~~43. "Medical direction" means administrative medical direction or on-line medical direction.
~~28.~~44. "Medical record" has the same meaning as in A.R.S. § 36-2201.
45. "Minor" means an individual younger than 18 years of age who is not emancipated.
46. "Monitor" means to observe the administration rate of an agent and the patient response to the agent and may include discontinuing administration of the agent.
~~29.~~47. "Narcotic drug" has the same meaning as "narcotic drugs" in A.R.S. § 13-3401.
~~30.~~48. "NREMT" means the National Registry of Emergency Medical Technicians.
49. "NREMT-Intermediate registration" means EMT-Intermediate/99 registration granted by NREMT.
~~31.~~50. "On-line medical direction" means emergency medical services guidance or information provided to an EMT by an on-line physician through two-way voice communication.
~~32.~~51. "On-line physician" means an individual qualified under R9-25-205 who provides on-line medical direction as required under R9-25-205.
~~33.~~52. "Patient" means an individual who is sick, injured, or wounded and who requires medical monitoring, medical treatment, or transport.
~~34.~~53. "Person" ~~has the meaning in A.R.S. § 1-215~~means:
    a. An individual;
    b. A business organization such as an association, cooperative, corporation, limited liability company, or partnership; or
    c. An administrative unit of the U.S. government, state government, or a political subdivision of the state.

~~35.~~54. "Physician" has the same meaning as in A.R.S. § 36-2201.
55. "Physician assistant" has the same meaning as in A.R.S. § 32-2501.
56. "Practical nurse" has the same meaning as in A.R.S. § 32-1601.
57. "Practicing emergency medicine" means acting as an emergency medicine physician in a hospital emergency department.
~~36.~~58. "Prehospital incident history report" has the same meaning as in A.R.S. § ~~36-2220(E)~~ 36-2220.
~~37.~~59. "Proficiency in advanced emergency cardiac life support" means:
a. Completion of 16 clock hours of organized training covering:
i. Electrocardiographic rhythm interpretation;
ii. Oral, tracheal, and nasal airway management;
iii. Nasotracheal intubation and surgical cricothyrotomy;
iv. Peripheral and central intravenous lines; and
v. Pharmacologic, mechanical, and electrical arrhythmia interventions; and
b. Every 24 months after meeting the requirement in subsection ~~(37)~~(a), completion of additional training as determined by the training provider covering the subject matter listed in subsection ~~(37)~~(a).
~~38.~~60. "Proficiency in advanced trauma life support" means:
a. Completion of 16 clock hours of organized training covering:
i. Rapid and accurate patient assessment,
ii. Patient resuscitation and stabilization,
iii. Patient transport or transfer, and
iv. Patient treatment and care; and
b. Every 48 months after meeting the requirement in subsection ~~(38)~~(a), completion of additional training as determined by the training provider covering the subject matter listed in subsection ~~(38)~~(a).
~~39.~~61. "Proficiency in cardiopulmonary resuscitation" means:
a. Completion of eight clock hours of organized training covering:
i. Adult and pediatric resuscitation,
ii. Rescuer scenarios and use of a bag-valve mask,
iii. Adult and child foreign-body airway obstruction in conscious and unconscious patients,
iv. Automated external defibrillation,
v. Special resuscitation situations, and
vi. Common cardiopulmonary emergencies; and
b. Every 24 months after meeting the requirement in subsection ~~(39)~~(a), completion of additional training as determined by the training provider covering the subject matter listed in subsection ~~(39)~~(a).
~~40.~~62. "Proficiency in pediatric emergency care" means:
a. Completion of 16 clock hours of organized training covering:
i. Pediatric rhythm interpretation;
ii. Oral, tracheal, and nasal airway management;
iii. Nasotracheal intubation and surgical cricothyrotomy;
iv. Peripheral and central intravenous lines;
v. Intraosseous infusion;
vi. Needle thoracostomy; and
vii. Pharmacologic, mechanical, and electrical arrhythmia interventions; and
b. Every 24 months after meeting the requirement in subsection ~~(40)~~(a), completion of additional training as determined by the training provider covering the subject matter listed in subsection ~~(40)~~(a).
63. "Registered nurse" has the same meaning as in A.R.S. § 32-1601.
64. "Registered nurse practitioner" has the same meaning as in A.R.S. § 32-1601.
65. "Session" means an offering of a course, during a period of time designated by a training program certificate holder, for a specific group of students.
~~41.~~66. "Standing order" means a treatment protocol or triage protocol that authorizes an EMT to act without on-line medical direction.
67. "Substantially constructed cabinet" means a hard-shelled container that is difficult to breach without the use of a power cutting tool.
~~42.~~68. "Supervise" or "supervision" ~~means~~ has the same meaning as "supervision" in A.R.S. § 36-401.
69. "Transport agent" means an agent that an EMT at a specified level of certification is authorized to administer only during interfacility transport of a patient for whom the agent's IV administration was started at the sending health care institution.
~~43.~~70. "Treatment protocol" means a written guideline that prescribes:
a. How an EMT shall perform a medical treatment on a patient or administer ~~a drug~~ an agent to a patient; and
b. When on-line medical direction is required, if the protocol is not a standing order.

~~44.~~71. "Triage protocol" means a written guideline that prescribes:
a. How an EMT shall:
i. Assess and prioritize the medical condition of a patient,
ii. Select a health care institution to which a patient may be transported, and
iii. Transport a patient to a health care institution; and
b. When on-line medical direction is required, if the protocol is not a standing order.
72. "Unauthorized individual" means an individual who is not:
a. A certified EMT obtaining access to an agent to provide emergency medical services within the EMT's scope of practice,
b. A licensed health care provider obtaining access to an agent to provide emergency medical services within the scope of practice of the health care provider's license, or
c. An individual working for an emergency medical services provider whose job duties result in the individual's having access to an agent.

ARTICLE 2. MEDICAL DIRECTION; ALS BASE HOSPITAL CERTIFICATION

R9-25-204. Administrative Medical Director Qualifications and Responsibilities (Authorized by A.R.S. §§ 36-2201~~,~~; 36-2202(A)(3) and (A)(4)~~,~~; 36-2204(5), (6), and (7)~~,~~; ~~and~~ 36-2204.01; 36-2208(A); and 36-2209(A)(2))

A. No change
1. No change
2. No change
a. No change
b. No change
c. No change
i. No change
ii. No change
iii. No change

B. No change
1. No change
2. No change
3. No change
4. No change
5. The Department ~~pursuant to~~, as provided in A.R.S. § 36-2202(J).

C. An administrative medical director:
1. Shall coordinate the provision of administrative medical direction to EMTs~~,~~; and
2. May delegate responsibilities to an individual as necessary to fulfill the requirements in this Section, if the individual is:
a. A physician~~,~~,
b. ~~Licensed under A.R.S. Title 32, Chapter 15 or Chapter 25;~~A physician assistant,
c. A registered nurse practitioner,
d. A registered nurse,
e. A practical nurse, or
~~c.~~f. An EMT-I or EMT-P.

D. An administrative medical director shall:
1. Ensure that an EMT receives administrative medical direction as required under A.R.S. Title 36, Chapter 21.1 and ~~9 A.A.C. 25~~this Chapter;
2. No change
a. A.R.S. Title 36, Chapter 21.1 and ~~9 A.A.C. 25~~this Chapter; and
b. No change
3. No change
a. A.R.S. Title 36, Chapter 21.1 and ~~9 A.A.C. 25~~this Chapter; and
b. No change
4. No change
a. No change
b. No change
c. No change
d. No change
e. No change

f. No change
5. No change

E. An administrative medical director shall:
1. Annually document that the administrative medical director has reviewed A.R.S. Title 36, Chapter 21.1 and ~~9 A.A.C. 25~~this Chapter; and
2. Ensure that an individual to whom the administrative medical director delegates authority to fulfill the requirements in this Section annually documents that the individual has reviewed A.R.S. Title 36, Chapter 21.1 and ~~9 A.A.C. 25~~this Chapter.

F. An administrative medical director for an emergency medical services provider shall ensure that:
1. Each EMT for whom the administrative medical director provides administrative medical direction administers an agent only if the EMT is authorized to administer the agent under Article 5 of this Chapter;
2. Each EMT for whom the administrative medical director provides administrative medical direction monitors an agent only if the EMT is authorized to monitor or administer the agent under Article 5 of this Chapter;
3. Each EMT for whom the administrative medical director provides administrative medical direction assists in patient self-administration of an agent only if:
   a. The EMT is authorized either to assist in patient self-administration of the agent or to administer the agent under Article 5 of this Chapter;
   b. The agent is supplied by the patient;
   c. The patient or, if the patient is a minor or incapacitated adult, the patient's health care decision maker indicates that the agent is currently prescribed for the patient's symptoms; and
   d. The agent is in its original container and not expired;
4. Each agent to which an EMT has access while on duty for the emergency medical services provider is obtained only from a person authorized by law to prescribe the agent or with a current and valid permit, issued by the Arizona State Board of Pharmacy, authorizing the person to operate a drug wholesaler or a pharmacy;
5. Each transfer of an agent between the emergency medical services provider and another emergency medical services provider is documented as required by the Arizona State Board of Pharmacy and the U.S. Drug Enforcement Administration;
6. The emergency medical services provider establishes, implements, and complies with a written standard operating procedure, applicable to each EMT for whom the administrative medical director provides administrative medical direction, that requires:
   a. A written chain of custody for each supply of agents, including at least the following:
      i. The name, EMT certification number, or employee identification number of each individual who takes custody of the supply of agents; and
      ii. The time and date that each individual takes custody of the supply of agents;
   b. Each individual who takes custody of a supply of agents to do the following:
      i. Upon initially taking custody of the supply of agents, inspect the supply of agents for expired agents, deteriorated agents, damaged or altered agent containers or labels, and depleted or missing agents;
      ii. Upon determining that any of the conditions described in subsection (F)(6)(b)(i) exists, document the condition, notify the administrative medical director if a controlled substance is depleted or missing, and obtain a replacement for each affected agent for which the minimum supply is not present; and
      iii. Record each administration of an agent on a prehospital incident history report, as defined in A.R.S. § 36-2220;
   c. Each EMT on duty for the emergency medical services provider to have access to at least the minimum supply of agents required for the highest level of service to be provided by the EMT;
   d. That, except while in use, each agent to which an EMT has access while on duty for the emergency medical services provider is:
      i. Secured in a dry, clean, washable receptacle;
      ii. While on a motor vehicle or aircraft, secured in a manner that restricts movement of the agent and its receptacle; and
      iii. If a controlled substance, locked in a substantially constructed cabinet; and
   e. That each agent to which an EMT has access while on duty for the emergency medical services provider is kept inaccessible to unauthorized individuals at all times;
7. Each EMT for whom the administrative medical director provides administrative medical direction has access to a copy of the emergency medical services provider's written standard operating procedure required under subsection (F)(6) while on duty for the emergency medical services provider;
8. The administrative medical director notifies the Department in writing within 10 days after the administrative medical director receives notice, as required under subsection (F)(6)(b)(ii), that any quantity of a controlled substance is missing; and
9. The administrative medical director complies with all Arizona State Board of Pharmacy and U.S. Drug Enforcement

Administration requirements related to the control of agents.

G. Subsections (F)(4)-(9) do not apply to an administrative medical director for an emergency medical services provider if:
1. The emergency medical services provider obtains all of its agents from an ALS base hospital pharmacy, and
2. The agents provided to the emergency medical services provider are owned by the ALS base hospital that provides them.

R9-25-210. ALS Base Hospital Authority and Responsibilities (Authorized by A.R.S. §§ 36-2201, 36-2202(A)(3) and (A)(4), ~~and~~ 36-2204(5) and (6), 36-2208(A), and 36-2209(A)(2))

A. No change
1. No change
2. No change
3. No change
   a. No change
   b. No change
4. No change

B. No change
1. No change
2. No change

C. An ALS base hospital may act as a training program without training program certification from the Department, if the ALS base hospital:
1. Is eligible for training program certification ~~pursuant to~~ as provided in R9-25-301(C); and
2. Complies with the requirements in R9-25-301(I) and R9-25-304 through R9-25-318 and the Exhibits to Article 3 of this Chapter.

D. If an ALS base hospital's pharmacy supplies agents owned by the ALS base hospital to an emergency medical services provider, the ALS base hospital's certificate holder shall ensure, through the ALS base hospital's pharmacist-in-charge, that:
1. Each agent to which an EMT has access while on duty for the emergency medical services provider is obtained only from a person authorized by law to prescribe the agent or with a current and valid permit, issued by the Arizona State Board of Pharmacy, authorizing the person to operate a drug wholesaler or a pharmacy;
2. Each transfer of an agent between the emergency medical services provider and another emergency medical services provider is documented as required by the Arizona State Board of Pharmacy and the U.S. Drug Enforcement Administration;
3. The emergency medical services provider establishes, implements, and complies with a written standard operating procedure, applicable to each EMT for whom the ALS base hospital supplies agents or provides administrative medical direction, that requires:
   a. A written chain of custody for each supply of agents, including at least the following:
      i. The name, EMT certification number, or employee identification number of each individual who takes custody of the supply of agents; and
      ii. The time and date that each individual takes custody of the supply of agents;
   b. Each individual who takes custody of a supply of agents to do the following:
      i. Upon initially taking custody of the supply of agents, inspect the supply of agents for expired agents, deteriorated agents, damaged or altered agent containers or labels, and depleted or missing agents;
      ii. Upon determining that any of the conditions described in subsection (D)(3)(b)(i) exists, document the condition, notify the ALS base hospital's pharmacist-in-charge if a controlled substance is depleted or missing, and obtain a replacement for each affected agent for which the minimum supply is not present; and
      iii. Record each administration of an agent on a prehospital incident history report, as defined in A.R.S. § 36-2220;
   c. Each EMT on duty for the emergency medical services provider to have access to at least the minimum supply of agents required for the highest level of service to be provided by the EMT;
   d. That, except while in use, each agent to which an EMT has access while on duty for the emergency medical services provider is:
      i. Secured in a dry, clean, washable receptacle;
      ii. While on a motor vehicle or aircraft, secured in a manner that restricts movement of the agent and its receptacle; and
      iii. If a controlled substance, locked in a substantially constructed cabinet; and
   e. That each agent to which an EMT has access while on duty for the emergency medical services provider is kept inaccessible to unauthorized individuals at all times;
4. Each EMT for whom the ALS base hospital supplies agents or provides administrative medical direction has access to a copy of the emergency medical services provider's written standard operating procedure required under subsec-

tion (D)(3) while on duty for the emergency medical services provider;

5. The ALS base hospital's pharmacist-in-charge notifies the Department in writing within 10 days after the pharmacist-in-charge receives notice, as required under subsection (D)(3)(b)(ii), that any quantity of a controlled substance is missing; and
6. The ALS base hospital's pharmacist-in-charge complies with all Arizona State Board of Pharmacy and U.S. Drug Enforcement Administration requirements related to the control of agents.

ARTICLE 3. TRAINING PROGRAMS

R9-25-301. Definitions; Training Program General Requirements (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. In this Article:
1. "Arizona EMT-Intermediate transition course" means the instruction prescribed in Exhibit B to this Article provided by a training program certified under this Article or by an ALS base hospital authorized under R9-25-210(C);
~~1.~~2. "Course" means the:
   a. Arizona EMT-B course, defined in R9-25-305;
   b. Arizona EMT-B refresher, defined in R9-25-306;
   c. Arizona EMT-I course, defined in R9-25-307;
   d. Arizona EMT-P course, defined in R9-25-308; ~~or~~
   e. Arizona ALS refresher, defined in R9-25-309; ~~and~~
   f. Arizona EMT-Intermediate transition course, defined in subsection(A)(1); or
   g. Arizona EMT-I(99)-to-EMT-P transition course, defined in R9-25-318;
3. "NREMT-Intermediate practical examination" means the NREMT-Intermediate practical examination required for NREMT-Intermediate registration; and
~~2.~~4. "Refresher challenge examination" means the:
   a. Arizona EMT-B refresher challenge examination, defined in R9-25-306; or
   b. Arizona ALS refresher challenge examination, defined in R9-25-309.

B. No change
C. No change
1. No change
2. No change

D. No change
1. No change
2. No change

E. No change
F. No change
1. No change
   a. No change
   b. No change
2. No change

G. No change
1. No change
2. No change
3. No change

H. No change
I. No change
1. No change
2. No change

J. No change

R9-25-304. Course and Examination Requirements (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. For each session of a course provided, a training program certificate holder shall:
1. No change
2. No change
3. No change
4. No change
5. No change

6. No change
7. No change
8. Not allow a student more than six months from the official ~~course~~ session completion date to complete all course requirements.

B. No change
1. No change
2. No change

C. No change

D. No change

E. A training program certificate holder shall ensure that:
1. The training program director for a specific session of a course does not:
   a. Enroll in that session of the course as a student or allow an instructor for that session of the course to enroll in that session of the course as a student,
   b. Issue to himself or herself or to an instructor for that session of the course a certificate of completion for that session of the course,
   c. Administer to himself or herself or to an instructor for that session of the course a refresher challenge examination,
   d. Allow an instructor for that session of the course to administer to himself or herself a refresher challenge examination, or
   e. Issue to himself or herself or to an instructor for that session of the course a certificate of completion for a refresher challenge examination;
2. During a final examination or refresher challenge examination, a student does not receive verbal or written assistance from any other individual or use notes, books, or documents of any kind as an aid in taking the examination;
3. The identity of each student taking a final examination or refresher challenge examination is verified through photo identification before the student is permitted to take the examination;
4. A student who violates subsection (E)(2) is not permitted to complete the examination or to receive a certificate of completion for the course or refresher challenge examination;
5. An instructor who allows a student to violate subsection (E)(2) or assists a student in violating subsection (E)(2) is no longer permitted to serve as an instructor;
6. Each examination for a course is completed onsite at the training program or at a facility used for course instruction;
7. Each final examination for a course is proctored; and
8. Each individual who proctors or administers a final examination for a course is neither the training program director nor an instructor for the course.

R9-25-305. Arizona EMT-B Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. No change
1. No change
2. No change
3. No change

B. The Arizona EMT-B course is modified as follows:
1. No more than 24 students shall be enrolled in each session of the course;
2. No change
   a. No change
   b. No change
3. No change
4. No change
5. No change
6. EMS equipment listed for lessons 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 2-1, 2-2, 2-3, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-8, 3-9, 3-10, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 6-1, 6-2, 6-3, 7-1, 7-2, 7-3, and 7-4 is required and shall be available before the start of ~~the~~ each course session and during the course session as needed to meet the needs of each student enrolled in the course session;
7. No change
8. No change
   a. No change
   b. No change
9. A final closed book written course examination is required and shall:
   a. No change
   b. No change
   c. No change

10. No change
    a. No change
    b. No change

C. A training program certified under this Article or an ALS base hospital providing a course as authorized under R9-25-210(C) may combine the students from more than one Arizona EMT-B course session for didactic instruction.

R9-25-306. Arizona EMT-B Refresher, Arizona EMT-B Refresher Challenge Examination (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. No change
1. No change
2. No change
3. No change

B. The Arizona EMT-B refresher is modified as follows:
1. No more than 32 students shall be enrolled in each session of the course;
2. No change
    a. No change
        i. No change
        ii. No change
        iii. No change
    b. No change
3. No change
4. No change
5. EMS equipment listed for Modules II, III, IV, V, and VI is required and shall be available before the start of ~~the~~ each course session and during the course session as needed to meet the needs of each student enrolled in the course session;
6. No change
7. No change
    a. No change
    b. No change
8. A final closed book written course examination is required and shall:
    a. No change
    b. No change
    c. No change
9. No change
    a. No change
    b. No change

C. No change

D. No change
1. No change
2. No change

E. A training program certified under this Article or an ALS base hospital providing a course as authorized under R9-25-210(C) may combine the students from more than one Arizona EMT-B refresher session for didactic instruction.

R9-25-307. Arizona EMT-I Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. No change
1. No change
2. No change
3. No change

B. The Arizona EMT-I course is modified as follows:
1. No more than 24 students shall be enrolled in each session of the course;
2. No change
3. No change
    a. No change
    b. No change
4. No change
5. EMS equipment required for the course is listed in Exhibit A of this Article and shall be available before the start of ~~the~~ each course session and during the course session as needed to meet the needs of each student enrolled in the course session;
6. No change

7. A final closed book written course examination is required and shall:
   a. No change
   b. No change
   c. No change
8. No change
   a. No change
   b. No change

C. A training program certified under this Article or an ALS base hospital providing a course as authorized under R9-25-210(C) may combine the students from more than one Arizona EMT-I course session for didactic instruction.

R9-25-308. Arizona EMT-P Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. No change
1. No change
2. No change
3. No change

B. The Arizona EMT-P course is modified as follows:
1. No more than 24 students shall be enrolled in each session of the course;
2. No change
   a. No change
   b. No change
3. No change
   a. No change
   b. No change
4. No change
5. Equipment required for the course is listed in Exhibit A and shall be available before the start of ~~the~~ each course session and during the course session as needed to meet the needs of each student enrolled in the course session;
6. No change
7. A final closed book written course examination is required and shall:
   a. No change
   b. No change
   c. No change
8. No change
   a. No change
   b. No change

C. A training program certified under this Article or an ALS base hospital providing a course as authorized under R9-25-210(C) may combine the students from more than one Arizona EMT-P course session for didactic instruction.

R9-25-309. Arizona ALS Refresher; Arizona ALS Refresher Challenge Examination (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. "Arizona ALS refresher" means the ~~means the United States~~ U.S. Department of Transportation, National Highway Traffic Safety Administration, EMT-Paramedic: NSC Refresher Curriculum (2001)~~.~~;
1. No change
2. No change
3. No change

B. The Arizona ALS refresher is modified as follows:
1. No more than 32 students shall be enrolled in each session of the course;
2. The minimum admission requirements are:
   a. One of the following:
      i. Current ~~EMT-I or EMT-P~~ certification as an EMT-I(99) or EMT-P in this state or certification, recertification, or licensure at the intermediate emergency medical technician level or paramedic level in any other state or jurisdiction;
      ii. No change
      iii. No change
   b. No change
3. No change
4. No change
5. No change
6. Equipment required for the course is listed in Exhibit A and shall be available before the start of ~~the~~ each course session and during the course session as needed to meet the needs of each student enrolled in the course session;

7. No change
8. A final closed book written course examination is required and shall:
   a. No change
   b. No change
   c. No change
9. No change
   a. No change
   b. No change

C. No change

D. No change
1. No change
2. No change

E. A training program certified under this Article or an ALS base hospital providing a course as authorized under R9-25-210(C) may combine the students from more than one Arizona ALS refresher session for didactic instruction.

R9-25-310. Training Program Medical Director (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. No change
1. No change
2. No change
   a. No change
   b. No change
   c. No change
      i. No change
      ii. No change
      iii. No change

B. A training program medical director designated for a course session shall:
1. Before the start date of the course session, ensure that the course has a course content outline and final examinations that are consistent with:
   a. Requirements established in the course; and
   b. The scope of practice of the EMT level to which the course corresponds; and
2. During the course session, ensure that the course content outline is followed and that the final examinations are given.

R9-25-311. Training Program Director (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. A training program certificate holder shall ensure that a training program director is:
1. No change
2. No change
3. No change
4. No change
5. No change
6. An ~~EMT I~~ EMT-I(99) with at least two years experience as an ~~EMT I~~ EMT-I(99), only if acting as a training program director for the Arizona EMT-I course, EMT-I Arizona ALS refresher, Arizona EMT-Intermediate transition course, Arizona EMT-B course, or Arizona EMT-B refresher; or
7. No change

B. A training program director designated for a course session shall:
1. Supervise the day-to-day operation of ~~a~~ the course session;
2. Supervise and evaluate the course session lead instructor and all preceptors providing clinical training or field training;
3. Ensure that policies and procedures established for ~~a~~ the course pursuant to R9-25-313 are followed;
4. Ensure that true and accurate records for each student enrolled in ~~a~~ the course session are kept pursuant to R9-25-315;
5. Ensure that ~~an Arizona EMT-B~~ a refresher challenge examination ~~or an Arizona ALS refresher challenge examination~~ is administered and graded pursuant to the requirements established in ~~the Arizona EMT-B refresher or the Arizona ALS refresher~~R9-25-306 or R9-25-309;
6. No change
7. No change
8. No change
9. No change
10. No change
    a. No change

b. No change
c. No change
d. No change
e. No change
f. No change

11. For an EMT who passes ~~the Arizona EMT-B~~ a refresher challenge examination ~~or the Arizona ALS refresher challenge examination~~, issue a certificate of completion containing:
    a. No change
    b. No change
    c. No change
    d. No change
    e. No change
    f. No change

R9-25-312. Lead Instructor; Preceptor (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. A training program certificate holder shall ensure that a lead instructor is:
1. No change
2. No change
3. No change
4. No change
5. No change
6. An ~~EMT-I~~ EMT-I(99) with at least two years experience as an ~~EMT-I~~ EMT-I(99), only if acting as a lead instructor for the Arizona EMT-I course, EMT-I Arizona ALS refresher, Arizona EMT-Intermediate transition course, Arizona EMT-B course, or Arizona EMT-B refresher; or
7. No change

B. No change
1. No change
2. No change
3. No change
4. No change
5. No change
6. No change
7. No change

C. A lead instructor assigned to a course session shall:
1. Be present or have a substitute lead instructor present during all course hours established for the course session; and
2. No change

D. No change
1. No change
2. No change
3. No change
4. No change
5. An ~~EMT-I~~ EMT-I(99) with at least two years experience as an ~~EMT-I~~ EMT-I(99), only if acting as a preceptor for the Arizona EMT-I course, ~~the~~ EMT-I Arizona ALS refresher, ~~the~~ Arizona EMT-B course, or ~~the~~ Arizona EMT-B refresher; or
6. No change

E. No change

R9-25-314. Training Program Disclosure Statements (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A training program certificate holder shall provide all course applicants with the following documentation before the start date of a course session:
1. No change
2. No change
3. No change
4. No change
5. No change
6. No change
    a. No change
    b. No change

R9-25-315. Training Program Student Records (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. A training program certificate holder shall keep the following records for each student enrolled in a course session:
1. No change
2. No change
3. No change
4. No change
5. No change
6. No change
7. No change
8. No change
9. No change

B. A training program certificate holder shall retain student records required under subsection (A) for three years from the start date of a student's course session.

C. No change
1. No change
2. No change
3. No change
4. No change
5. No change

D. No change

R9-25-316. Training Program Notification and Recordkeeping (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

A. At least 10 days before the start date of a course session, a training program certificate holder shall submit to the Department a completed form provided by the Department containing:
1. No change
2. No change
3. The name of the course session's training program medical director and attestation that the ~~course~~ training program medical director is qualified under R9-25-310,
4. The name of the course session's training program director and attestation that the ~~course~~ training program director is qualified under R9-25-311,
5. The name of the course session's lead instructor and attestation that the lead instructor is qualified under R9-25-312,
6. The course session start date and end date, and
7. The main location at which instruction for the course session will be ~~taught~~ provided.

B. No later than 10 days after the date a student completes all course requirements, a training program certificate holder shall submit to the Department, the following information on a completed form provided by the Department:
1. ~~Name,~~ The course name and the start date~~,~~ and end date of the course session completed;
2. No change
3. No change
4. Signed and dated attestation of the training program director designated for ~~a~~ the course session that the student has met all course requirements.

C. No later than 10 days after the date a certified training program administers a refresher challenge examination, the training program certificate holder shall submit to the Department a completed form provided by the Department containing:
1. No change
2. No change
3. No change
4. Signed and dated attestation of the training program director designated for ~~a~~ the course session that the EMT has passed the refresher challenge examination.

D. No change

R9-25-318. ~~Arizona EMT-I Transition Course Definition; Clarification of EMT-I References (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))~~ Arizona EMT-I(99)-to-EMT-P Transition Course (Authorized by A.R.S. §§ 36-2202(A)(3) and (A)(4) and 36-2204(1) and (3))

~~**A.** In addition to the definitions of "course" in R9-25-301(A), course also means the Arizona EMT- Intermediate Transition Course:~~
~~1. Prescribed in Exhibit B; and~~
~~2. Provided by a training program certified under this Article 3 or by an ALS base hospital authorized under R9-25-210(C).~~

~~**B.** Under R9-25-309(B):~~
~~1. "Intermediate emergency medical technician level or higher level" means completion of training that meets or exceeds the training provided in the United States Department of Transportation, National Highway Traffic Safety Administration, EMT-Intermediate: National Standard Curriculum (1999), incorporated by reference in R9-25-307(A)(1); and~~
~~2. "EMT Intermediate registration" means EMT Intermediate/99 registration granted by NREMT.~~
~~**C.** Under R9-25-309(B), R9-25-311(A)(6), and R9-25-312(A)(6), "EMT-I" means an EMT-I who has completed training that meets or exceeds the training provided in the United States Department of Transportation, National Highway Traffic Safety Administration, EMT-Intermediate: National Standard Curriculum (1999), incorporated by reference in R9-25-307(A)(1).~~
~~**D.** Under R9-25-311(A)(6) and R9-25-312(A)(6), an EMT-I may also act as a training program director or lead instructor for the Arizona EMT-Intermediate Transition Course, prescribed in Exhibit B.~~
~~**E.** In this Article "NREMT-Intermediate Practical Examination" means the NREMT-Intermediate Practical Examination required for EMT-Intermediate/99 registration granted by NREMT.~~
~~**F.** This Section expires December 31, 2007.~~

A. "Arizona EMT-I(99)-to-EMT-P transition course" means the U.S. Department of Transportation, National Highway Traffic Safety Administration, EMT-Paramedic: National Standard Curriculum (1998):
1. Incorporated by reference in R9-25-308,
2. As modified in subsection (B), and
3. Provided by a training program certified under this Article or by an ALS base hospital authorized under R9-25-210(C).

B. The Arizona EMT-I(99)-to-EMT-P transition course is modified as follows:
1. No more than 24 students shall be enrolled in each session of the course;
2. Each student enrolled shall have current certification as an EMT-I(99);
3. The following course prerequisites are required:
   a. Completion of a minimum of 24 clock hours of hazardous materials training that meets the requirements of the National Fire Protection Association's NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents, 2002 Edition; Competencies for First Responders at the Operational Level, incorporated by reference in R9-25-308; and
   b. Evidence of proficiency in cardiopulmonary resuscitation and proficiency in advanced emergency cardiac life support;
4. In addition to the minimum contact hours of didactic instruction required under subsection (B)(5), each student shall complete at least 60 hours of training in anatomy and physiology that:
   a. Is completed either:
      i. As a prerequisite to the course,
      ii. As preliminary instruction completed at the beginning of the course session before the units of instruction required under subsection (B)(6), or
      iii. Through integration of the anatomy and physiology material with the units of instruction required under subsection (B)(6); and
   b. Covers the anatomy and physiology prerequisite objectives listed in Appendix E to the course materials;
5. The minimum course length is 600 contact hours, including:
   a. A minimum of 220 contact hours of didactic instruction and practical laboratory, and
   b. A minimum of 380 contact hours of clinical training and field training;
6. The following units of instruction are required:
   a. In Module 1, units 1-2, 1-3, 1-4, 1-5, 1-6, 1-9, and 1-10;
   b. In Module 3, units 3-1, 3-2, 3-3, 3-4, and 3-5;
   c. In Module 4, units 4-3, 4-4, 4-5, 4-8, and 4-9;
   d. In Module 5, units 5-1, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 5-10, 5-11, 5-12, 5-13, and 5-14;
   e. In Module 6, units 6-1, 6-3, 6-4, 6-5, and 6-6;
   f. In Module 7, unit 7-1; and
   g. In Module 8, units 8-2, 8-3, 8-4, and 8-5;
7. Equipment required for the course is listed in Exhibit A and shall be available before the start of each course session and during the course session as needed to meet the needs of each student enrolled in the course session;
8. Facility recommendations on page 32 of the introductory material are requirements;
9. Each student shall complete the competencies in Exhibit C during clinical training and field training;
10. A final closed book written course examination is required and shall:
    a. Include 150 multiple-choice questions with one absolutely correct answer, one incorrect answer, and two distractors, neither of which is "all of the above" or "none of the above";
    b. Cover the learning objectives of the course with representation from each of the required units of instruction; and

c. Require a passing score of 75% or better in no more than three attempts; and

11. A final comprehensive practical skills examination is required and shall:
    a. Evaluate a student's technical proficiency in skills identified as psychomotor objectives in the units of instruction required under subsection (B)(6), and
    b. Enable a student to meet NREMT-Paramedic registration requirements.

C. A training program certified under this Article or an ALS base hospital providing a course as authorized under R9-25-210(C) may combine the students from more than one Arizona EMT-I(99)-to-EMT-P transition course session for didactic instruction.

Exhibit A. Equipment Minimum Standards for the Arizona EMT-I Course, EMT-P Course, ALS Refresher, and EMT-I(99)-to-EMT-P Transition Course ~~Equipment Minimum Standards~~

Quantity	Equipment
1	Moulage or Casualty Simulation Equipment
~~12~~6	Trauma Dressings
1 per student	Pen Lights (or provided by the student)
1 per student	Scissors (or provided by the student)
4	Stethoscopes (or provided by the student)
4	Blood pressure cuffs - adult sizes
4	Blood pressure cuffs - child size
4	Bag-valve-mask devices - adult size
4	Bag-valve-mask devices - pediatric size
2	Oxygen tank with regulator and key (Must be operational and maintain a minimum of 500psi.)
~~6~~4	Oxygen masks non-rebreather - adult
~~6~~4	Oxygen masks non-rebreather - child
~~6~~4	Nasal cannulas
2 boxes	Alcohol preps
One box per student	Gloves - (small, medium, large, and extra large, non-latex) (each student has one box of an appropriate size available during the course)
6 packages	4x4 sponges (non sterile)
~~10~~5 boxes	5x9 sponges (non sterile)
36 rolls	Rolled gauze (non sterile)
~~1 box~~ 5	~~Vaseline gauze or occlusive~~ Occlusive dressings
2	Traction splint devices
2	~~Vest type immobilization devices~~ Cervical-thoracic spinal immobilization device for extrication, with straps
2	Long spine boards with securing devices

3 of each size	Cervical collars (small, regular, medium, large, and extra large) NOTE: may substitute 6 adjustable devices NOTE: Soft collars and foam types are not acceptable
2	Head immobilization materials/devices
1	Ambulance stretcher
~~1~~	~~Bottle of activated charcoal~~
~~1~~	~~Oral glucose tube~~
2	Blood glucose monitoring devices
~~2~~	~~IV solution, tubing: macro and microdrip, blood tubing~~
2	Portable suction devices
3	Rigid suction catheters
3	Flexible suction catheters
2 of each size	Oropharyngeal airways
2 of each size	Nasopharyngeal airways
2 of each size	Rigid splints (6 inch, 12 inch, 18 inch, 24 inch, and 36 inch)
2	Burn sheets
2	OB kits
~~8 bottles~~	~~Sterile water~~
2	CPR Manikins – adult
2	CPR Manikins – child
2	CPR Manikins – infant
1 per student	CPR face shields or similar barrier device (or provided by the student)
1 per student	Pocket mask (or provided by the student)
1	Semi-Automatic Defibrillator or AED training device
1 box	IV Catheter – Butterfly
1 box	IV Catheter – 24 Gauge
1 box	IV Catheter – 22 Gauge
1 box	IV Catheter – 20 Gauge
1 box	IV Catheter – 18 Gauge
1 box	IV Catheter – 16 Gauge
1 box	IV Catheters central line catheter or intra-cath
1 unit	Monitor/Defibrillator
1 unit	Arrhythmia Simulator
1 box	Electrodes
2 unit	Intubation Manikin-adult

2 unit	Intubation Manikin – pediatrics
~~2 sets~~ 1 set each type	Laryngoscope Handle and Blades - one complete set ~~MAC~~ curved ~~or~~ and ~~Miller~~ straight, sizes 0 through 4
1 set	Endotracheal Tubes – 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, ~~and~~ 8.5, and 9.0
1	~~Dual Lumen Airway~~ Esophageal Tracheal Double Lumen Airway Device
2 each	Stylet - adult and pediatric
1 box	1 cc Syringes
1 box	3 cc Syringes
1 box	5 cc Syringes
1 box	10-12 cc Syringes
1 box	20 cc Syringes
2	IV Infusion Arm
~~10~~ 5 bags each	IV Fluids: ~~50cc,~~ 100cc, 250cc, 500cc, 1000cc
~~10~~ 5 sets each	IV Tubing - ~~10/15gtt,~~ 10gtt and 60gtt
~~10~~ 5 sets ~~each~~	Blood tubing
2	Sharps containers
1 for each skill	Invasive Skills Manikin – Cricothyrotomy, Central Line, Tension Pneumothorax ~~cricothyrotomy, central Lines and intraosseous and sternal IO training devices~~ NOTE: A single manikin equipped for all skills, or a combination of manikins to cover all skills, is acceptable.
1 for each skill	Training Devices for intraosseous and sternal intraosseous, adult and pediatric NOTE: A single device equipped for all skills, or a combination of devices to cover all skills, is acceptable.
~~1~~ 2	Magill forceps
~~1~~ 2	Hemostat forceps
3	IV tourniquets
3	Scalpels
1	Simulated Drug Box

Exhibit B. Arizona EMT-Intermediate Transition Course

Admission Requirements:

1. ~~EMT-I~~ Current and valid certification in Arizona as an EMT-I(85) ~~during the two years before the course start date~~, and
2. Evidence of proficiency in cardiopulmonary resuscitation.

Course Hours:

The minimum course length is 80 contact hours. In addition, sufficient time shall be provided to administer the final written examination and the final practical examination.

Equipment and Facilities:

Equipment required for the course is listed in Exhibit A and shall be available before the start of ~~the~~ each course session and during the course session as needed to meet the needs of each student enrolled in the course session. Facility recommendations identified for the Arizona EMT-P course are requirements for the Arizona EMT-Intermediate Transition Course.

Examinations:
1. A final written course examination is required and shall:
   a. Include 150 multiple-choice questions with one absolutely correct answer, one incorrect answer, and two distractors, neither of which is "all of the above" or "none of the above";
   b. Cover the learning objectives of the course with representation from each of the course modules; and
   c. Require a passing score of 75% or better in no more than three attempts.
2. A final comprehensive practical skills examination is required and shall enable a student to meet NREMT-Intermediate/99 registration or reregistration requirements.

Competencies:
1. Describe the scope of the duties of the advanced emergency medical technician (Intermediate and Paramedic).
2. Identify signs and symptoms of patients with a communicable disease and list the appropriate body substance isolation procedures.
3. Identify the initial, focused, and continuing processes of assessment, medical history, vital signs, communications, and documentation.
4. Apply the procedures of identifying and treating hypoperfusion states including intravenous (IV) and intraosseous (IO) fluid therapy.
5. Describe the actions, indications, contraindications, precautions, side effects, and dosages of the ~~drugs~~ agents included in ~~the current Arizona Department of Health Services, Bureau of Emergency Medical Services approved drug box~~ Table 1 in R9-25-503.
6. Given a patient scenario, identify and treat emergencies and relate proposed field interventions for each of the body systems.
7. Given a patient scenario, identify and relate proposed field interventions for patient with obstetrical emergencies.
8. Given a patient scenario, identify and relate proposed field interventions for patient with neonatal and pediatric emergencies.
9. Given a patient scenario, identify and relate proposed field interventions for patient with behavioral emergencies, preserving personal safety and well being.
10. Demonstrate trauma victim assessment, airway management, control of hemorrhage and hypoperfusion states.
11. Demonstrate 80 percent proficiency on a written examination and 80 percent accuracy of practical skills in selected EMS scenarios.

Course Outline:
I. Advanced Emergency Medical Technician
   A. Roles and responsibilities
   B. Rules, regulations, and EMS systems
II. Human Systems and Patient Assessment
   A. Scene management and body substance isolation
   B. Human systems in health and disease
   C. Initial, focused, and ongoing processes of assessment
      1. Vital signs
      2. History taking, interviewing, and communications
      3. Terminology
   D. Documentation
III. Hypoperfusion States
   A. Shock/Disorders of hydration
   B. Devices and techniques
   C. Trauma
   D. Thermal injuries
   E. Communications and documentation
IV. Pharmacology
   A. Basic and advanced pharmacokinetics
   B. Updated ~~drug~~ agent information
   C. Action of ~~drugs~~ agents
   D. Techniques of administration
      1. Oral
      2. Rectal
      3. Parenteral
      4. Intraosseous
      5. Intralingual
   E. ~~Drug box~~ Table 1 in R9-25-503
V. Illness, Injury, and the Body's Systems

A. Respiratory
   1. LMA
   2. Combitube
   3. Endotracheal and nasal tracheal intubation
   4. Surgical cricothyrotomy
   5. Needle thoracostomy
B. Cardiovascular
   1. Ecg rhythm identification
   2. Pacemaker rhythm identification
   3. 12-lead ecg application and analysis
   4. Defibrillation and cardioversion procedures
C. Central nervous system
D. Endocrine
E. Musculoskeletal emergencies
F. Soft tissue emergencies
G. Acute abdominal emergencies
H. Genito-urinary emergencies
I. Gynecological emergencies
J. Anaphylactic reactions
K. Toxicology, alcoholism, and substance abuse
L. Poisoning and overdose
M. Submersion incidents
N. Emergencies in the geriatric patient
O. Techniques of management
P. Communications and documentation

VI. Obstetrical Emergencies
   A. Maternal assessment
   B. Delivery techniques
   C. Care of the newborn
   D. Ectopic pregnancy
   E. Infectious diseases
   F. Rape and abuse
   G. Communications and documentation

VII. Neonatal and Pediatric Emergencies
   A. Approach to the pediatric patient
   B. Related pathologies
   C. Techniques of management
   D. Communications and documentation

VIII. Behavioral Emergencies
   A. Behavioral disorders
   B. Hostile environments
   C. Therapeutic communications
   D. Restraint

IX. Trauma and Disaster
   A. START Triage
   B. Incident command
   C. Age considerations
      1. Infant
      2. Pediatric
      3. Adult
      4. Geriatric

X. Evaluation
   A. Written
   B. Skills

~~This Exhibit expires December 31, 2007.~~

Exhibit C. Arizona EMT-I(99)-to-EMT-P Transition Course Clinical Training and Field Training Competencies

A. PSYCHOMOTOR SKILLS

1. **The student shall demonstrate the ability to safely administer agents:** The student shall safely, and while performing all steps of each procedure, properly administer agents at least 10 times to live patients.
2. **The student shall demonstrate the ability to safely perform endotracheal intubation:** The student shall safely, and while performing all steps of each procedure, successfully intubate at least one live patient or cadaver.
3. **The student shall demonstrate the ability to safely gain venous access in all age group patients:** The student shall safely, and while performing all steps of each procedure, successfully access the venous circulation at least 17 times on live patients of various age groups.
4. **The student shall demonstrate the ability to effectively ventilate unintubated patients of all age groups:** The student shall effectively, and while performing all steps of each procedure, ventilate at least 12 unintubated live patients.

B. AGES

1. **The student shall demonstrate the ability to perform a comprehensive assessment on pediatric patients:** The student shall perform a comprehensive patient assessment on at least 20 pediatric patients, including newborns, infants, toddlers, and school-age.
2. **The student shall demonstrate the ability to perform a comprehensive assessment on adult patients:** The student shall perform a comprehensive patient assessment on at least 20 adult patients of various age groups, including young, middle, and older patients.

C. PATHOLOGIES

1. **The student shall demonstrate the ability to perform a comprehensive assessment on obstetric patients:** The student shall perform a comprehensive patient assessment on at least five obstetric patients.
2. **The student shall demonstrate the ability to perform a comprehensive assessment on trauma patients:** The student shall perform a comprehensive patient assessment on at least 20 trauma patients.
3. **The student shall demonstrate the ability to perform a comprehensive assessment on behavioral patients:** The student shall perform a comprehensive patient assessment on at least 10 behavioral patients.

D. CHIEF COMPLAINTS

1. **The student shall demonstrate the ability to perform a comprehensive assessment on and formulate and implement a treatment plan for patients with chest pain:** The student shall perform a comprehensive patient assessment on and formulate and implement a treatment plan for at least 20 patients with chest pain.
2. **The student shall demonstrate the ability to perform a comprehensive assessment on and formulate and implement a treatment plan for patients with dyspnea/respiratory distress:**
   a. The student shall perform a comprehensive patient assessment on and formulate and implement a treatment plan for at least 15 adult patients with dyspnea/respiratory distress; and
   b. The student shall perform a comprehensive patient assessment on and formulate and implement a treatment plan for at least five pediatric patients, including infants, toddlers, and school-age, with dyspnea/respiratory distress.
3. **The student shall demonstrate the ability to perform a comprehensive assessment on and formulate and implement a treatment plan for patients with abdominal complaints:** The student shall perform a comprehensive patient assessment on and formulate and implement a treatment plan for at least 15 patients with abdominal complaints such as abdominal pain, nausea/vomiting, gastrointestinal bleeding, and gynecological complaints.
4. **The student shall demonstrate the ability to perform a comprehensive assessment on and formulate and implement a treatment plan for patients with altered mental status:** The student shall perform a comprehensive patient assessment on and formulate and implement a treatment plan for at least 15 patients with altered mental status.

E. TEAM LEADER SKILLS

The student shall demonstrate the ability to serve as a team leader in a variety of prehospital emergency situations: The student shall serve as the team leader for at least 25 prehospital emergency responses.

ARTICLE 4. EMT CERTIFICATION

R9-25-404. Application Requirements for EMT Certification (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), ~~and~~ (A)(4), ~~36-2202(G),~~ and (G) and 36-2204(1) and (6))

A. No change
1. No change
   a. No change
   b. No change
   c. No change
   d. No change
2. No change

3. No change

B. In addition to the application, the following are required:
1. For EMT-B certification, both:
   a. A certificate of course completion signed by the training program director designated for the course session for either the:
      i. Arizona EMT-B course, as defined in R9-25-305; or
      ii. Arizona EMT-B refresher, as defined in R9-25-306, if the applicant has current certification, licensure, NREMT registration, or NREMT reregistration eligibility at the basic emergency medical technician level or higher level; and
   b. Evidence of current NREMT-Basic registration;
2. For ~~EMT-I~~ EMT-I(99) certification, both:
   a. A certificate of course completion signed by the training program director designated for the course session for either the:
      i. Arizona EMT-I course, as defined in R9-25-307; or
      ii. Arizona ALS refresher, as defined in R9-25-309, if the applicant has current certification, licensure, NREMT registration, or NREMT reregistration eligibility at the intermediate emergency medical technician level or higher level; and
   b. Evidence of current NREMT-Intermediate registration; or
3. For EMT-P certification, both:
   a. A certificate of course completion signed by the training program director designated for the course session for ~~either~~ the:
      i. Arizona EMT-P course, as defined in R9-25-308; ~~or~~
      ii. Arizona ALS refresher, as defined in R9-25-309, if the applicant has current certification, licensure, NREMT registration, or NREMT reregistration eligibility at the paramedic emergency medical technician level; ~~and~~ or
      iii. Arizona EMT-I(99)-to-EMT-P transition course; and
   b. Evidence of current NREMT-Paramedic registration.

R9-25-406. Application Requirements for EMT Recertification (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), (A)(4), ~~and~~ (A)(6), ~~36-2202(G),~~ and (G) and 36-2204(1), (4), and (6))

A. An individual who holds current and valid certification as an EMT in Arizona may, before the expiration date of the individual's current EMT certification, apply for recertification at the same level of EMT certification currently held or at a lower level of EMT certification.

~~**A.**~~**B.** ~~Before the expiration of the applicant's current certificate~~ To apply for recertification, an applicant ~~for EMT recertification~~ shall submit to the Department an application including:
1. An application form provided by the Department containing:
   a. No change
   b. No change
   c. An indication of the level of EMT certification currently held and of the level of EMT certification for which recertification is requested;
   ~~c.~~d. No change
   ~~d.~~e. No change
2. No change
3. No change

~~**B.**~~**C.** In addition to the application, ~~the following are required~~ an applicant shall submit the following to the Department:
1. For EMT-B recertification, either:
   a. A certificate of course completion signed by the training program director designated for the course session showing that within two years before the expiration date of ~~an~~ the applicant's current ~~EMT-B~~ certificate, the applicant completed either the:
      i. Arizona EMT-B refresher, as defined in R9-25-306; or
      ii. Arizona EMT-B refresher challenge examination, as defined in R9-25-306; or
   b. Evidence of current NREMT-Basic registration;
2. For ~~EMT-I~~ EMT-I(99) recertification, either:
   a. Attestation that the applicant:
      i. Has completed continuing education as required under subsection (~~C~~D), and
      ii. Has and will maintain for Department review documentation verifying completion of continuing education as required under subsection (~~C~~D); or
   b. Evidence of current NREMT-Intermediate registration; or
3. For EMT-P recertification, either:

a. Attestation that the applicant:
   i. Has completed continuing education as required under subsection (~~C~~D), and
   ii. Has and will maintain for Department review documentation verifying completion of continuing education as required under subsection (~~C~~D); or
b. Evidence of current NREMT-Paramedic registration.

~~C.~~**D.** An ~~EMT-I or EMT-P~~ EMT required to ~~complete~~ attest to completion of continuing education ~~requirements~~ under ~~subsections~~ subsection (~~B~~C)(2)(a) or (~~B~~C)(3)(a) shall complete 60 clock hours of continuing education in the two years before the expiration date of the EMT's current certification or, if applicable, before the end of an extension period granted under R9-25-407, as follows:

1. No change
2. No change
3. No change
4. No change
5. No change
6. No change
7. No change
8. No change
9. No change
10. No change
11. No change
12. If the individual is certified as an EMT-I(85) and desires to apply for recertification as an EMT-I(99) as provided under R9-25-412, by completing the Arizona EMT-Intermediate transition course, defined in R9-25-301.

E. The Department shall not issue recertification as an EMT-I(85).

R9-25-408. Requirements for Downgrading of Certification (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), ~~and~~ (A)(4), ~~36-2202(G),~~ and (G) and 36-2204(1) and (6))

A. ~~A certified EMT-I or EMT-P~~ An individual who holds current and valid EMT certification at a level higher than EMT-B and who is not under investigation pursuant to A.R.S. § 36-2211 may apply for continued certification at a lower EMT level for the remainder of the certification period by submitting to the Department:

1. No change
   a. No change
   b. No change
   c. No change
   d. No change
   e. No change
2. Either:
   a. A written statement from the ~~EMT-I's or EMT-P's~~ EMT's administrative medical director attesting that the EMT is able to perform at the lower level of certification requested; or
   b. ~~For an EMT-I or EMT-P~~ If applying for continued certification as an EMT-B, an Arizona EMT-B refresher certificate of completion or an Arizona EMT-B refresher challenge examination certificate of completion signed by the training program director ~~assigned to~~ designated for the Arizona EMT-B refresher session.

B. ~~A certified EMT-I or EMT-P~~ An individual who holds current and valid EMT certification at a level higher than EMT-B and who is not under investigation pursuant to A.R.S. § 36-2211 may apply for recertification at a lower level pursuant to R9-25-406.

R9-25-412. Special EMT-I Certification and Recertification Conditions (Authorized by A.R.S. §§ 36-2202(A)(2), (A)(3), (A)(4), ~~and~~ (A)(6), ~~36-2202(G),~~ and (G) and 36-2204(1), (4), and (6))

~~**A.** Under R9-25-404(B)(2)(a)(ii), "intermediate emergency medical technician level" means completion of training that meets or exceeds the training provided in the United States Department of Transportation, National Highway Traffic Safety Administration, EMT-Intermediate: National Standard Curriculum (1999), incorporated by reference in R9-25-307(A)(1).~~

~~**B.** In this Article, "NREMT-Intermediate registration" means EMT-Intermediate/99 registration granted by NREMT.~~

~~**C.** For EMT-I recertification under R9-25-406, an applicant who does not hold current NREMT-Intermediate registration and who has not completed the Arizona EMT-I course or Arizona EMT-Intermediate Transition Course defined in Article 3 of this Chapter, shall satisfy the continuing education requirement in R9-25-406(C) by completing the Arizona EMT-Intermediate Transition Course.~~

~~**D.** This Section expires December 31, 2007.~~

A. Before December 31, 2007, an individual certified as an EMT-I(85) shall do one of the following:

1. Complete the Arizona EMT-Intermediate transition course, defined in R9-25-301, and apply for recertification as an

EMT-I(99) under subsection R9-25-406(B) and (C)(2);
2. Apply for recertification as an EMT-B, as provided under R9-25-408(B) and R9-25-406(A);
3. Apply for downgrading of certification to become an EMT-B, as provided under R9-25-408(A); or
4. Allow the individual's EMT-I(85) certification to expire and cease to be a certified EMT.

B. Each EMT-I(85) certification expires on the expiration date shown on the certificate issued by the Department or on December 31, 2007, whichever comes sooner.

ARTICLE 10. GROUND AMBULANCE VEHICLE REGISTRATION

R9-25-1003. Minimum Equipment and Supplies ~~For~~ for Ground Ambulance Vehicles (Authorized by A.R.S. § 36-2202(A)(5))

A. A ground ambulance vehicle shall contain the following operational equipment and supplies:
1. No change
2. No change
3. One fixed ~~and one portable~~ oxygen cylinder~~, each~~ or equivalent with a minimum capacity of 106 cubic feet, a minimum pressure of 500 p.s.i., and a variable flow regulator;
4. One portable oxygen cylinder with a minimum capacity of 13 cubic feet, a minimum pressure of 500 p.s.i., and a variable flow regulator;

~~4.~~5. No change
~~5.~~6. No change
~~6.~~7. No change
~~7.~~8. No change
~~8.~~9. No change
~~9.~~10. No change
~~10.~~11. No change
~~11.~~12. No change
~~12.~~13. No change
~~13.~~14. No change
~~14.~~15. No change
~~15.~~16. No change
~~16.~~17. No change
~~17.~~18. No change
~~18.~~19. No change
~~19.~~20. ~~Four~~ Two non-sterile elastic roller bandages or self-adherent wrap bandages, ~~4"~~ 3" or larger;
~~20.~~21. No change
~~21.~~22. No change
~~22.~~23. No change
~~23.~~24. No change
~~24.~~25. No change
~~25.~~26. No change
~~26.~~27. No change
~~27.~~28. No change
~~28.~~29. ~~Infection control materials~~ Body substance isolation equipment, including:
   a. ~~two~~ Two pairs of ~~protective~~ non-sterile disposable gloves~~,~~;
   b. ~~two~~ Two gowns~~,~~;
   c. ~~two~~ Two masks that are at least as protective as a National Institute for Occupational Safety and Health-approved N-95 respirator, which may be of universal size~~,~~;
   d. ~~two~~ Two pairs of shoe coverings~~, two filtration masks,~~; and
   e. ~~two~~ Two sets of protective eye wear; ~~and~~

~~29.~~30. At least three pairs of non-latex gloves~~.~~; and
31. A wheeled, multi-level stretcher that is:
   a. Suitable for supporting a patient at each level;
   b. At least 69 inches long and 20 inches wide;
   c. Rated for use with a patient weighing up to or more than 350 pounds;
   d. Adjustable to allow a patient to recline and to elevate the patient's head and upper torso to an angle at least 70° from the horizontal plane;
   e. Equipped with a mattress that has a protective cover;
   f. Equipped with at least two attached straps to secure a patient during transport; and

g. Equipped to secure the stretcher to the interior of the vehicle during transport using the fastener required under R9-25-1002(36).

B. In addition to the equipment and supplies in subsection (A), a ground ambulance vehicle equipped to provide BLS shall contain at least:
1. The minimum supply of agents required in Table 1 in R9-25-503 for an EMT-B,
2. Two 3 mL syringes, and
3. Two 10-12 mL syringes.

~~B.~~C. In addition to the equipment and supplies in subsection (A), a ground ambulance vehicle equipped to provide ALS shall contain at least the ~~drug box~~ minimum supply of agents required in Table 1 in R9-25-503 for the highest level of service to be provided by the ambulance's crew and at least the following:
1. ~~One of each of the following types of~~ Four intravenous solution administration sets~~;~~
   ~~a. A set with blood tubing~~ capable of delivering 10 drops per cc;
~~b.~~2. ~~A set~~ Four intravenous solution administration sets capable of delivering 60 drops per cc; ~~and~~
   ~~c. A set capable of delivering 10 or 15 drops per cc;~~
~~2.~~3. No change
~~3.~~4. No change
~~4.~~5. No change
~~5.~~6. One laryngoscope with ~~one adult and one child blade~~ blades in sizes 0-4, straight or curved or both;
~~6.~~7. ~~One McGill~~ One adult Magill forceps;
~~7.~~8. No change
~~8.~~9. One portable, battery-operated cardiac monitor-defibrillator with ~~paper~~ strip chart recorder and adult and pediatric EKG electrodes and defibrillation capabilities;
~~9. Defibrillator pads or paddles, adult and pediatric;~~
10. No change
~~11. Electrodes; and~~
~~12.~~11. One blood glucose testing kit~~.~~;
12. The following syringes:
   a. Two 1 mL tuberculin,
   b. Four 3 mL,
   c. Four 10-12 mL,
   d. Two 20 mL, and
   e. Two 50-60 mL;
13. Three 5 micron filter needles; and
14. Assorted sizes of non-filter needles.

~~C.~~D. A ground ambulance vehicle shall be equipped to provide, and capable of providing, voice communication between:
1. The ambulance attendant and the dispatch center~~.~~;
2. The ambulance attendant and the ground ambulance service's assigned medical direction authority, if any; and
3. The ambulance attendant in the patient compartment and the ground ambulance service's assigned medical direction authority, if any.

NOTICE OF PROPOSED RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY AIR POLLUTION CONTROL

[R06-262]

PREAMBLE

1.	**Sections Affected**	**Rulemaking Action**
	R18-2-401	Amend

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. §§ 49-401.01, 49-425

Implementing Statutes: A.R.S. § 49-426(C)

3. A list of all previous notices appearing in the *Register* addressing the proposed rule:

Notice of Rulemaking Docket Opening: 12 A.A.R. 1711, May 19, 2006

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

Name: Kevin Force

Address: Arizona Department of Environmental Quality
1110 W. Washington Ave.
Phoenix, AZ 85007

Telephone: (602) 771-4480 (This number may be reached in-state by dialing (800) 234-5677 and requesting the seven-digit number.)

Fax: (602) 771-2366

5. An explanation of the rule, including the agency's reasons for initiating the rule:

Summary. The Arizona Department of Environmental Quality is proposing to amend R18-2-401 so that the definition of "dispersion technique," at R18-2-401(4) reflects the definition of "dispersion technique" at R18-2-301(6). In addition, ADEQ will be making minor language changes to other definitions to improve the rule's clarity, conciseness and understandability.

Background. The two definitions are inconsistent with one another. The definition of "dispersion technique" at R18-2-301(6) includes language that clarifies, by date, what sort of merging of gas streams should properly be excluded from the listed dispersion technique of increasing final exhaust gas plume rise. ADEQ believes that definition of "dispersion technique" at R18-2-301(6) is the more appropriate and recent definition, and is therefore amending the definition at R18-2-401(4) to mirror that of the definition in R18-2-301(6).

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or 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:

Not applicable

7. 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

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

Rule Identification.

Title 18, Chapter 2, Article 4, "Permit Requirements for New Major Sources and Major Modifications to Existing Major Sources," Section 401, "Definitions," (R18-2-401).

Economic Impact.

Because this rulemaking merely amends the definition of "dispersion technique" to match the definition found in R18-2-301(6), no negative impacts are expected to accrue to any entity. Potentially, benefits could accrue to sources and ADEQ by making the two definitions equivalent. As a result of this amendment, ADEQ does not believe that this change will directly impact other state agencies, political subdivisions of the state, or other entities. Therefore, public and private employment and revenues are not expected to be impacted.

Rule impact reduction on small businesses.

Because this amendment represents a minor change, no negative impacts to small business are expected to accrue. Nonetheless, ADEQ has analyzed the impact upon small businesses and concluded that the five methods set forth below are neither legal nor necessary for this proposed rulemaking.

A.R.S. § 41-1035 requires ADEQ 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 (see below) for the rulemaking. The five listed methods are:

1. Establish less stringent compliance or reporting requirements in the rule for small businesses.
2. Establish less stringent schedules or deadlines in the rule for compliance or reporting requirements for small businesses.
3. Consolidate or simplify the rule's compliance or reporting requirements for small businesses.
4. Establish performance standards for small businesses to replace design or operational standards in the rule.
5. Exempt small businesses from any or all requirements of the rule.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: David Lillie

Address: ADEQ, Air Quality Planning Section
1110 W. Washington
Phoenix, AZ 85007

Telephone: (602) 771-4461 (Any extension may be reached in-state by dialing (800) 234-5677 and asking for a specific number.)

Fax: (602) 771-2366

E-mail: Lillie.David@ev.state.az.us

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

2:00 p.m., September 6, 2006
Conference Room 145
1110 W. Washington St.
Phoenix, AZ 85007

Close of Comment: September 13, 2006

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

Not applicable

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

Not applicable

13. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY AIR POLLUTION CONTROL

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

Section
R18-2-401. Definitions

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

R18-2-401. Definitions

In addition to the definitions contained in Article 1 of this Chapter and A.R.S. § 49-401.01, the following definitions apply to this Article:

1. "Adverse impact on visibility" means visibility impairment that interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of a Class I area, as determined according to R18-2-410.
2. "Categorical sources" means the following classes of sources:
   a. Coal cleaning plants with thermal dryers;
   b. Kraft pulp mills;
   c. Portland cement plants;
   d. Primary zinc smelters;
   e. Iron and steel mills;
   f. Primary aluminum ore reduction plants;
   g. Primary copper smelters;
   h. Municipal incinerators capable of charging more than 50 tons of refuse per day;
   i. Hydrofluoric, sulfuric, or nitric acid plants;

j. Petroleum refineries;
k. Lime plants;
l. Phosphate rock processing plants;
m. Coke oven batteries;
n. Sulfur recovery plants;
o. Carbon black plants using the furnace process;
p. Primary lead smelters;
q. Fuel conversion plants;
r. Sintering plants;
s. Secondary metal production plants;
t. Chemical process plants;
u. Fossil-fuel boilers, combinations thereof, totaling more than 250 million Btu's per hour heat input;
v. Petroleum storage and transfer units with a total storage capacity more than 300,000 barrels;
w. Taconite preprocessing plants;
x. Glass fiber processing plants;
y. Charcoal production plants;
z. Fossil-fuel-fired steam electric plants and combined cycle gas turbines of more than 250 million Btu's per hour heat input.

3. "Complete" means, in reference to an application for a permit or permit revision, that the application contains all the information necessary for processing the application.
4. "Dispersion technique" means any technique that attempts to affect the concentration of a pollutant in the ambient air by any of the following:
   a. Using that portion of a stack that exceeds good engineering practice stack height;
   b. Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or
   c. Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams ~~so as to increase~~ that increases the exhaust gas plume rise. This shall not include any of the following:
      i. The reheating of a gas stream, following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream.
      ii. The merging of exhaust gas streams under any of the following conditions:
         (1) The source owner or operator demonstrates that the facility was originally designed and constructed with the merged gas streams;
         (2) After July 18, 1985, the merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant, applying only to the emission limitation for that pollutant; or
         (3) Before July 8, 1985, the merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the Department shall presume that merging was significantly motivated by an intent to gain emissions credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the Department shall deny credit for the effects of the merging in calculating the allowable emissions for the source.
      iii. Smoke management in agricultural or silvicultural prescribed burning programs.
      iv. Episodic restrictions on residential wood burning and open burning.
      v. Techniques that increase final exhaust gas plume rise if the resulting allowable emissions of sulfur dioxide from the facility do not exceed 5,000 tons per year.
5. "High terrain" means any area having an elevation of 900 feet or more above the base of the stack of a source.
6. "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice, or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.
7. "Low terrain" means any area other than high terrain.
8. "Lowest achievable emission rate" (LAER) means, for any source, the more stringent rate of emissions based on one of the following:
   a. The most stringent emissions limitation that is contained in the SIP of any state for the class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that the limitations

are not achievable; or,

b. The most stringent emissions limitation that is achieved in practice by the class or category of stationary source. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. ~~In no event shall~~ The application of this term shall not permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under applicable standards of performance in Articles 9 and 11 of this Chapter.

9. "Major source" means:
   a. Any stationary source located in a nonattainment area that emits, or has the potential to emit, 100 tons per year or more of any conventional air pollutant, except as follows:

Pollutant Emitted	Nonattainment Pollutant and Classification	Quantity Threshold tons/year or more
Carbon Monoxide (CO)	CO, Serious, with stationary sources as more than 25% of source inventory	50
Volatile Organic Compounds (VOC) VOC PM_{10} NOx NOx or	 Ozone, Serious Ozone, Severe PM_{10}, Serious Ozone, Serious Ozone, Severe	 50 25 70 50 25

   b. Any stationary source located in an attainment or unclassifiable area that emits, or has the potential to emit, 100 tons per year or more of any conventional air pollutant if the source is classified as a Categorical Source, or 250 tons per year or more of any pollutant subject to regulation under the Act if the source is not classified as a Categorical Source;
   c. Any change to a minor source, except for VOC or NOx emission increases at minor sources in serious or severe ozone nonattainment areas, that would increase its emissions to the qualifying levels in subsections (a) or (b);
   d. Any change in VOC or NOx at a minor source in serious or severe ozone nonattainment areas that would be "significant" under R18-2-405(B) and that would increase its emissions to the qualifying levels in subsection (a);
   e. Any stationary source that emits, or has the potential to emit, five or more tons of lead per year;
   f. Any source classified as major undergoing modification that meets the definition of reconstruction;
   g. A major source that is major for VOC shall be considered major for ozone; or
   h. A major source that is major for oxides of nitrogen shall be ~~considered~~ major for ozone in nonattainment areas classified as marginal, moderate, serious, or severe.

10. "Reconstruction" of sources located in nonattainment areas shall ~~be presumed to~~ have taken place if the fixed capital cost of the new components exceeds 50% of the fixed capital cost of a comparable entirely new stationary source, as determined in accordance with the provisions of 40 CFR 60.15(f)(1) through (3).
11. "Resource recovery project" means any facility at which solid waste is processed for the purpose of extracting, converting to energy, or otherwise separating and preparing solid waste for reuse. Only energy conversion facilities that utilize solid waste that provides more than 50% of the heat input ~~shall be considered~~ are a resource recovery project under this Article.
12. "Significance levels" means the following ambient concentrations for the enumerated pollutants:

Averaging Time					
Pollutant	**Annual**	**24-Hour**	**8-Hour**	**3-Hour**	**1-Hour**
SO_2	1 $\mu g/m^3$	5 $\mu g/m^3$		25 $\mu g/m^3$	
NO_2	1 $\mu g/m^3$				
CO			0.5 mg/m^3		2 $\mu g/m^3$

PM_{10}	1 $\mu g/m^3$	5 $\mu g/m^3$			
Except for the annual pollutant concentrations, the Department shall deem that exceedance of significance levels ~~shall be deemed to occur~~ has occurred when the ambient concentration of the above pollutant is exceeded more than once per year at any one location. If the concentration occurs at a specific location and at a time when Arizona ambient air quality standards for the pollutant are not violated, the significance level does not apply.					

NOTICE OF PROPOSED RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 7. DEPARTMENT OF ENVIRONMENTAL QUALITY REMEDIAL ACTION

[R06-264]

PREAMBLE

1. Sections Affected — **Rulemaking Action**

R18-7-201	Amend
R18-7-202	Amend
R18-7-203	Amend
R18-7-204	Amend
R18-7-205	Amend
R18-7-206	Amend
R18-7-207	Renumber
R18-7-207	New Section
R18-7-208	Renumber
R18-7-208	Repeal
R18-7-208	New Section
R18-7-209	Renumber
R18-7-209	Amend
R18-7-210	Renumber
R18-7-210	Amend
Appendix A	Renumber
Appendix A	New Appendix
Appendix B	Renumber
Appendix B	Amend
Appendix C	Repeal

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(B)(4), 49-104(B)(16), 49-152, and Laws 1996, Ch. 151, § 9

Implementing statutes: A.R.S. §§ 49-151, 49-152

3. A list of all previous notices appearing in the *Register* addressing the proposed rule:

Notice of Rulemaking Docket Opening: 11 A.A.R. 1287, April 1, 2005

Notice of Rulemaking Docket Opening: 12 A.A.R. 1034, March 31, 2006

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

Name: Philip McNeely
Tank Programs Division

Telephone: (602) 771-7645 or (800) 234-5677, enter 771-7645 (Arizona only)

E-mail: McNeely.Philip@azdeq.gov

Name:	Amanda Stone Waste Programs Division
Telephone:	(602) 771-4567; or (800) 234-5677, enter 771-4567 (Arizona only)
E-mail:	Stone.Amanda@azdeq.gov
Fax:	(602) 771-2302
TTD:	(602) 771-4829
Address:	Arizona Department of Environmental Quality 1110 W. Washington St. Phoenix, AZ 85007

5. An explanation of the rule, including the agency's reasons for initiating the rule:

Summary of the Rule

ADEQ is proposing rules that will update and revise Chapter 7, Article 2, last amended on December 4, 1997, to be consistent with current scientific data and statute. Changes in the rule will: 1) revise and update the existing predetermined Soil Remediation Levels (SRL); 2) replace the Voluntary Environmental Mitigation Use Restriction (VEMUR) requirement with the Declaration of Environmental Use Restriction (DEUR) requirements consistent with A.R.S. § 49-152; 3) expand the determination of compliance with SRLs to include the use of soil gas analyses; 4) revise language regarding the letter of completion to add alternative closure documents consistent with current statute; and 5) require the use of 1x 10^{-6} excess lifetime cancer risk level for remediation at sites if the current or currently intended future use is a school or child care facility where children are reasonably expected to be in frequent and repeated contact with the soil.

Overview of the Rule

Introduction. Article 2, Chapter 7 provides the basis for conducting remediation of soil in accordance with A.R.S. §§ 49-151 and 152, A.R.S. § 33-434.01, and other applicable environmental statutes. The last amendment of the rule established predetermined SRLs to protect human health and the environment which were consistent with the methodology used by U.S. EPA and Region 9 EPA guidance for calculation of risk-based screening levels, but deviated from the soil saturation calculation method by allowing an additional one percent saturation of the organic chemical in volumetric soil pore space (see Preamble of December 4, 1997 amendment of Article 2, Chapter 7). This proposed rule retains the practice of utilizing the most current U.S. EPA Region 9 risk assessment practices and methodologies [see "User's Guide and Background Technical Document for U.S. EPA Region 9's Preliminary Remediation Goals (PRG) Table", October 2004, available from http://www.epa.gov/region09/waste/sfund/prg/index.html], and updates toxicity data as determined by U.S. EPA and other sources (see OSWER Directive 9285.7-53, December 5, 2004). This section describes how the proposed SRLs have changed as a result of current EPA methodology and data. Any changes from U.S. EPA Region 9 methodology and/or the current soil rule amendment are noted in this section, with rationale provided. Modifications to the proposed rule are also described. Many of these are the result of comments received from the numerous stakeholder meetings held in 2004 and 2005. Stakeholders included members of the business community, the interested public, and regulators, many of whom were involved in the original 1997 rulemaking, and included discussion of administrative and technical issues.

Overall, the proposed predetermined SRLs have been modified with regard to two basic aspects, which are consistent with Region 9 and U.S. EPA. First, during the period since the last rule amendment, toxicity data have been determined to be inappropriate for use, have been newly established, or have been revised based on additional studies conducted. Secondly, the equations for calculating the SRL have been revised to include: greater skin surface contact area with contaminated soils for resident adults and children; less skin surface contact area with contaminated soils for workers; elimination of skin absorption for inorganic chemicals and volatile organic chemicals (semi-volatile organic chemicals remain unchanged); and decreased adherence of soil to the skin of resident adults. ADEQ has elected to deviate from EPA only in the soil ingestion rate for resident adults. EPA based their soil ingestion rate of 100 milligrams per kilogram (mg/kg) on an adult outdoor exposure scenario. ADEQ chose the ingestion rate of 50 mg/kg because this rate is based on an adult indoor exposure scenario, which is more accurate for adults in residential settings.

The proposed predetermined SRLs have been calculated using updated toxicity information as recommended by EPA. In December 2004, EPA established a hierarchy of toxicity data to be used from various available sources. The following hierarchy of sources is recommended in evaluating chemical toxicity for Superfund sites: 1) Integrated Risk Information System (IRIS) and cited references; 2) Provisional Peer Reviewed Toxicity Values (PPRTV) and cited references developed for the EPA OSWER Office of Superfund Remediation and Technology Innovation (OSRTI) programs; and 3) Other toxicity values which include California Environmental Protection Agency (Cal EPA), the Agency for Toxic Substances and Disease Registry (ATSDR) published Minimum Risk Levels (MRLs) for noncancer effects only, the EPA Superfund Health Effects Assessment Summary Tables (HEAST) database and cited references and others as appropriate. All of the studies cited in these toxicity databases have been subjected to scien-

tific peer-review prior to publication. These toxicity databases undergo periodic updates that result in data that is withdrawn or modified. Data withdrawn from a toxicity source are not adequate for use in calculations of SRLs.

The proposed predetermined SRLs remain consistent with existing SRL methodology for determining saturation ceiling limits (100 percent) for chemicals that are not volatile organics, though this deviates from Region 9 EPA application of a saturation ceiling of 10 percent for these chemicals. ADEQ has retained the 100% saturation ceiling for these chemicals when the risk-based standard exceeds a concentration that represents "pure product". For volatile organic chemicals, however, the proposed SRLs have been revised to be consistent with Region 9 and U.S. EPA methodology for determination of saturation. This is revised from the previous SRL determination for saturation which provided for an additional one percent saturation of the chemical in soil.

The definitions for soil and soil remediation level have been revised (R18-7-201), and the provision of R18-7-203(C) has been added to allow the use of soil vapor in calculating the concentration of volatile chemicals in soil. These revisions will keep the proposed rule consistent with the advances in technology and modeling which EPA utilizes in determining site-specific and risk-based cleanup levels. The proposed rule allows the use of soil properties and the vapor state of chemicals in soil for resolving difficult and complex contamination issues, such as subsurface plume distribution and verification of remediation goals.

The proposed predetermined SRLs have been modified to include additional consideration for cleanup of contaminants that are carcinogenic at schools and child care facilities where children are reasonably expected to be in frequent and repeated contact with the contaminated soil. Previously, both residential and non-residential SRLs were calculated to achieve the same target risk for any given carcinogenic chemical. This target risk was set at 1 in 1,000,000 (or 1×10^{-6}) excess lifetime cancer risk level when sufficient evidence supports classification of the chemical as a known human carcinogen (formerly Classification A). All other carcinogens with less adequate weight of evidence (formerly probable B1 or B2, or possible C human carcinogens) were assigned a target risk of 1 in 100,000 (or 1×10^{-5}). The proposed rule does not change this aspect of target risk, except for those sites where property use is currently or is currently intended to be a child care facility or school. For these sites, the applicable residential SRL is set at the 1×10^{-6} excess lifetime cancer risk level [see proposed R18-7-205 (D) and (E)]. Proposed Appendix A now shows residential SRLs at both excess lifetime cancer risk levels, and the known human carcinogens in bold. For instance, a residential property may cleanup carcinogens present in soil to the SRL noted in the 1×10^{-5} risk column, except if the carcinogen appears in bold in Appendix A at which time the SRL in the 1×10^{-6} risk column must be used for this particular chemical. If conditions at this residential site are such that a child care facility or school is intended for development, regardless of the respective concentrations, all carcinogens must be cleaned up to the SRL listed in the 1×10^{-6} risk column. This change reflects the nationwide initiative undertaken by EPA and the National Academy of Science for protection of children's health. Many of the exposures to chemicals which have been evaluated to be protective of human health have not taken into account that childhood behavior and physiology is vastly different from adults, resulting in higher exposures and heightened toxicological susceptibility to their developing systems. The magnitude of these combined impacts is not well understood. Therefore, the objective of the proposed rule is to establish SRLs that serve as adequate safeguards for children due to exposures from a release of chemicals to the environment of schools and child care facilities.

The agency chose the use of 1×10^{-6} risk level for all carcinogenic chemicals for schools and child care facilities. It should be clarified that the weight of evidence for carcinogenic classification is not related to the robustness of studies available for quantifying toxicity. In fact, it is more appropriate to link the degree of confidence in the quantitative toxicity value to the level of target risk. However, this would be nearly impossible to do for nearly 600 chemicals as it would require a chemical-by-chemical review of the toxicity database. As it stands, when a chemical has adequate human and animal data to support a determination that cancer is known to result from chronic exposures, it is also reasonable to minimize the incidence of this known cancer result by selecting the lower of the two target risks for the SRL. The proposed rule did not change the target health hazard quotient for non-carcinogenic exposure estimations in the 1997 SRLs and it remains at one.

Because U.S. EPA no longer continues the alpha-numeric convention of chemical classification for evidence of carcinogenicity, proposed Appendix A reflects only the status of "carcinogen" and "non-carcinogen" for each chemical. Some chemicals can have both carcinogenic and non-carcinogenic effects. It is the weight of toxicological evidence which determines this. As such, the definitions for carcinogenic and non-carcinogenic chemicals have been proposed in lieu of the "cancer group" definition in order to be consistent with U.S. and Region 9 EPA current practices (see proposed R18-7-201). When a chemical has both carcinogenic and non-carcinogenic characteristics, the lower of the SRLs listed under the non-carcinogenic column and under the appropriate carcinogenic risk column is the applicable cleanup level for that chemical [see proposed R18-7-205(F)].

The proposed rule still authorizes the use and determination of site-specific SRLs. These remain as naturally occurring background levels, and levels determined using a site-specific risk assessment methodology meeting the requirements of the Department and has general consensus within the scientific community. The proposed rule does not change the options for selection of residential and non-residential remediation levels, nor increase the reliance upon site-specific risk assessments to determine alternative remediation levels. For instance, industrial properties are not required to remediate to levels that would be protective of children living on the site. The party conducting the remediation can decide to remediate to the more protective residential standards or the less protective non-residential stan-

dards, depending on the property's intended use. However, the property must be remediated to residential standards if the land use at the time remediation is complete is residential.

The proposed rule continues to require the use of institutional or engineering controls when site concentrations exceed residential SRLs but meet non-residential pre-determined SRLs. Also, the rule allows the use of an institutional or engineering control to achieve an alternative site-specific SRL. However, due to A.R.S. §§ 49-152 and 49-158 enacted in 2000, the VEMUR is no longer a valid legal mechanism to administer these controls. This legislation clarified available options for property owners who clean up contaminated property for which the remediation is subject to Department approval. Institutional and engineering controls now require a DEUR to be implemented and maintained for sites meeting these criteria, thus replacing the VEMUR (see proposed R18-7-202).

Regardless of the choice to remediate to the pre-determined or site-specific standards, the conditions required for showing compliance with the selected standard have not changed. As before, any contaminants in the soil remaining after remediation cannot: 1) contaminate or threaten to contaminate groundwater or surface water in excess of water quality standards; 2) exhibit a hazardous waste characteristic of ignitability, corrosivity or reactivity; or 3) cause or threaten to cause an adverse impact to ecological receptors.

Applicability and Transition to New Standards

Neither the existing rule nor the proposed amendment requires soil remediation; they only provide standards which must be met in order to successfully complete remediation under Title 49. The requirement to perform soil remediation is found in the specific Title 49 statutes (e.g., the Water Quality Assurance Revolving Fund (WQARF) Program; the Underground Storage Tank (UST) Program; the Hazardous Waste Management Program; the Solid Waste Management Program; the Special Waste Management Program; the Aquifer Protection Permit Program. Additionally, the remediation standards apply to parties who voluntarily conduct soil remediation for the Greenfields Pilot Program and the Voluntary Remediation Program. The appropriate regulatory program, not the soil remediation rule, determines which contaminants require remediation. Once the contaminant has been identified, the soil remediation rule establishes the remediation level for the contaminant.

There are two categories of persons who undertake remediation activities. The first category includes persons who have a legal duty to remediate under the Department's statutory authority (Title 49). Persons required to remediate contaminated soils under Title 49 authorities may be eligible to conduct their remediation under one of the Department's voluntary program, unless the actions are required pursuant to an enforcement action, or other limiting factors identified in § 49-172.

The second category includes those who voluntarily conduct remediation. The Department recognizes that it has no regulatory authority over a person who is either remediating a site which has been contaminated by means not regulated under Title 49, or a person who is not legally responsible for remediating the contamination under Title 49. A person in this category is a "volunteer." Even though there is no legal obligation to remediate, a person may request a letter from the Department indicating that the property has met the soil remediation standards. If these persons perform soil remediation activities under the Department's voluntary program, the requirements of this Article must be met.

The Department is aware of many instances where a person who is not a responsible party decides to conduct remediation outside the Department's jurisdiction. If a person is outside the Department's regulatory jurisdiction and no closure document from the Department is requested, remediation may be conducted without the Department's involvement or knowledge. In such a case, the soil remediation rule can be used as guidance.

This proposed amendment would end the applicability of the SRLs as published under the December 4, 1997, amendment after three years, and end applicability of the HBGLs (Health-based Guidance Levels) promulgated under the March 1996 Interim Emergency Soil Rule, immediately. Characterized sites which have initiated remediation or a risk assessment before the effective date of the proposed rule would have three years to meet the current 1997 SRLs, and the closure requirements of the applicable program. Appendix A of the current soil rule contains the 1997 SRLs and is reproduced in the proposed rule as Appendix B. Proposed Appendix B has only been revised by technical correction of certain Chemical Abstract System (CAS) numbers. The proposed SRLs (listed as Appendix A of this proposed amendment) would apply to all sites not conducting remediation or a risk assessment at the time the rule becomes effective (see proposed R18-7-202). The soil cleanup levels do not extend to activities conducted pursuant to orders or other binding agreements that identify a cleanup standard entered into before the effective date of the rule. These orders and agreements are listed in the proposed rule, and been expanded from the original rule.

Specific Detailed Discussion of Proposed Rule Changes

Chemicals Renamed. For ease of identifying a chemical with related compounds and of recognition with the more commonly used names for chemicals, the following contaminants listed in the current rule are retained in the proposed SRL list under other names as noted: ethyl chloride is listed under the more commonly recognized name, chloroethane; hydrogen cyanide is listed under "cyanide, hydrogen" for ease of comparison to "cyanide, free"; chloral (CAS # 302-17-0) is present in the current SRL list but absent from the PRG list. Because the IRIS database specifically contains non-carcinogenic oral toxicity information for this compound under chloral hydrate, and there is suggestive evidence of human carcinogenicity when oral exposures occur, this chemical is retained in the proposed SRLs

as chloral hydrate, rather than the anhydrous form currently listed; the 1,1- and 1,2- isomers of dimethyl hydrazine are listed under "hydrazine, dimethyl" due to indiscernible segregate toxicities, and methyl hydrazine is listed as "hydrazine, monomethyl" for comparative purposes to the dimethyl form.

Chemicals Revised Due to Consolidation of Similar Salts or Isomers. Certain chemicals have their toxicity associated with the form which is available upon exposure to an individual. In the environment, these chemicals may be present as one or more very similar parent compounds with slight variations. An example of this is the variety of chemical forms for cyanides. The current SRLs include nine elemental forms of cyanide that would be consolidated by this proposed rule to a single proposed free cyanide SRL. This change is more practical as it is consistent with the reportable results provided by the laboratory method. The following SRLs are affected as follows: antimony and compounds is proposed to replace the pentoxide, potassium tartrate, tetroxide, and trioxide forms of antimony; free cyanide is proposed to replace the barium, calcium, chlorine, copper, potassium, potassium silver, silver, sodium, and zinc elemental forms of cyanide; thallium and compounds replace the oxide, acetate, carbonate, chloride, nitrate, selenite, and sulfate forms of thallium; and vanadium and compounds replaces vanadium pentoxide and sulfate.

PCBs. In order to be consistent with the latest toxicity studies, the proposed SRLs include PCBs under two categorical groups, for low-risk and for high-risk unspeciated mixtures. Previously, PCBs were lumped under a single SRL, and assigned a single toxicity, for all varieties of PCB mixtures, typically referred to as Aroclors. An example of an unspeciated, low-risk mixture is Aroclor 1016. Low-risk mixtures are those PCB formulations with low percentage chlorine content, and little to no polychlorinated dibenzofurans. High-risk mixtures are those PCB formulations with high percentage chlorine content, and the presence of polychlorinated dibenzofurans. For releases of multiple Aroclors, or PCBs of varying age subjected to weathering, speciation is an option for evaluating an alternative SRL.

Chemicals Not Listed Due to Impacts Limited to Air and/or Groundwater. ADEQ has determined that ammonia, hydrogen chloride, nitrate, and nitrite, which have a 1997 SRL, do not warrant listing in the soil rule or do not warrant the determination of a single numeric soil cleanup value because they do not pose a risk in soil. For example ammonia is listed in the current 1997 SRLs, but only listed in Region 9 PRGs for ambient air concentrations. Ammonia is highly transient in soil, as it rapidly volatiles into air in surficial soils, and quickly oxidizes to nitrite and nitrate. Accordingly, ammonia is not listed as a chemical in the proposed rule; however, nitrite and nitrate are regulated under the proposed Section R18-7-207 for ground water protection. Nitrite and nitrate in water are extremely toxic to newborns and children, and have significant impacts to aquatic organisms, but are not a risk in soil.

Chemicals Deleted Due to Updated Toxicity Information. Since the last rule, toxicity data has been evaluated further or new information made available for some chemicals which do not provide an adequate basis for the quantitation of toxicity and/or the determination of a definitive adverse impact. For these chemicals, the toxicity factors formerly provided have been withdrawn from sources which are currently relied upon for toxicity determination, per U.S. EPA guidance. As a result, retaining these chemicals in the SRLs is not supportable. The following SRLs are no longer listed in Appendix A: acetophenone, acifluorfen, 1,2-dichloroethylene mixture, methyl chlorocarbonate, cacodylic acid, and nitrapyrin. Only cacodylic acid, also known as dimethyl arsenate, has older toxicity data from NCEA still remaining. However, until the toxicity of organic forms of arsenic has been studied more fully, ADEQ will rely upon the arsenic SRL to address protection of human health.

Chemicals Added Due to New Toxicity Information. Since the last rule, additional toxicity studies have been conducted which warranted their use in the development of a toxicity factor, which is integral to the calculation of SRLs. The following new SRLs have been added to the list in Appendix A: aminodinitrotoluene, bromate, bromobenzene, butyl benzene (n-, sec-, and tert-), cyclohexane, 4,4'-dichlorobenzophenone, 1,3-dichloropropane, dicyclopentadiene, diisononyl phthalate, dimethylphenethylamine, *N,N*-diphenyl-1,4-benzenediamine, diphenyl sulfone, dysprosium, 1,6-hexamethylene diisocyanate, 2-mercaptobenzothiazole, 4,4'- methylenediphenyl diisocyanate, methyl mercaptan, methyl phosphonic acid, 3- and 4- nitroaniline, nitroglycerin, 2-nitropropane, o-nitrotoluene, perchlorate, phenothiazine, o-phenylenediamine, p-phthalic acid, polychlorinated terphenyls, n-propyl benzene, 1,1'- sulfonylbis-(4-chlorobenzene), tetrahydrofuran, thiocyanate, titanium, tributyl phosphate, trimellitic anhydride, 1,2,4- and 1,3,5-trimethyl benzene, triphenylphosphine oxide, tris(2-chloroethyl) phosphate, tris(2-ethylhexyl) phosphate, and uranium.

Petroleum hydrocarbons. The proposed rule has eliminated the SRL listing for petroleum hydrocarbon mixtures, range $C_{10} - C_{32}$. In the current rule, diesel No. 2 was used as the standard of toxicity for which all types of petroleum products are applied. This is not appropriate for sites other than diesel releases, and even for a diesel release is technically inaccurate once the release has occurred because the hundreds of chemical compounds which make up diesel are significantly altered throughout their migration in soil. Therefore, the proposed rule does not set a single numeric SRL value for the large spectrum of constituent variability encountered at all petroleum product release sites. Rather, the proposed rule provides for the cleanup of petroleum hydrocarbons by requiring cleanup of all the individual petroleum constituents detected in soil which have a proposed SRL. For example, depending on the type of product released, this may include PAHs, trimethyl benzenes, and MTBE. However, not all of the hundreds of chemical constituents have adequate toxicity data to establish an SRL. The agency believes that an adequate number of these petroleum compounds representing the significant portion of attributable toxicity do have proposed SRLs, and this approach is adequately protective of human health and the environment.

Lead. In the proposed rule, the residential SRL remains unchanged at 400 mg/kg. However, the non-residential SRL has been lowered from 2,000 mg/kg to 800 mg/kg. Consistent with the methodology of the current rule and U.S. EPA,

the proposed SRL for lead is determined differently than other SRLs using U.S. EPA biokinetic modeling which estimates the blood lead level resulting from repeated exposures to lead. The Integrated Exposure Uptake Biokinetic (IEUBK) model for childhood exposures is still utilized to determine the appropriate residential SRL, which remains as 400 mg/kg. However, U.S. EPA has issued a version of the biokinetic modeling which more accurately assesses the blood level in adults exposed in the working environment. Using the most recent national census and health survey results of blood levels in adult women in the Adult Lead Model (ALM), the level in soil for non-residential uses of property has been revised from 2,000 mg/kg to 800 mg/kg. This change is based on protecting women of child-bearing age in the work environment, since fetuses and newborns are highly sensitive to the effects of lead. This is particularly important because more evidence indicates that early life exposures, even if discontinued, result in later life manifestations of health impacts such as neurological problems. If a site-specific remediation level is desired, the U.S. EPA biokinetic model may be used in conjunction with the data from the national health survey for both racial/ethic groups and the southwest regional quadrant of the nation, or the ALM adjusted for DEUR restricted exposure groups which do not include pregnant working adults. Alternatively, other biokinetic models may be used for shorter duration or highly variable exposures with supporting high quality site-specific data.

Chromium. Based on the lack of sufficient supporting evidence for total chromium to persist in the environment in the assumed 1:6 ratio of the hexavalent and trivalent forms (though it has been demonstrated to occur as such in the fumes and mists generated in the industrial chromium processing workplace), the current SRL for total chromium is proposed to be deleted. The agency believes that chromium toxicity should be based on the known and published toxicity factors determined for each form, rather than an assumed ratio for total chromium. Therefore, retaining the more technically supportable and protective SRLs for trivalent and hexavalent chromium is proposed. For hexavalent chromium, the agency is relying on the IRIS published toxicity for chromium particulates, rather than toxicity determined by aerosols and acid mists of chromium. The former more closely fits the exposures that occur with releases to soil.

Iron. Though Region 9 EPA has listed iron in the PRG list and it is ADEQ's goal to be consistent with Region 9 EPA practices, the agency believes that development of an SRL for iron is not warranted at this time. Available studies and information indicates limited toxicity, such that risk-based levels are approximately equivalent to levels of saturation in soil and/or naturally occurring background.

Mercury. ADEQ has limited the SRLs for mercury to those for methyl mercury and "mercury and compounds". The 1997 SRL lists mercury under mercuric chloride, elemental mercury, and methyl mercury. However, because elemental mercury exists as a liquid/vapor state, Region 9 EPA does not include it for soil. To simplify, all inorganic mercury compounds, regardless of solubility in soil/water environments, are listed under the proposed SRL for "mercury and compounds". This does not deviate from the manner in which proposed SRLs for other metals are treated. If conditions at a site indicate that the more insoluble forms of inorganic mercury are present, a simple chemical speciation in conjunction with published bioavailability studies for the species present is adequate for demonstrating the protection of human health.

Manganese. Based on ADEQ's evaluation of the available manganese toxicity information, ADEQ has elected to use the toxicity factor provided by the EPA IRIS database without adjustment for intake from other sources such as diet. Region 9 EPA uses an approach that does adjust for intake from other sources.

Perchlorate. ADEQ has selected the most recently available peer reviewed toxicity factor for use in calculating the SRL. At the time of publication of the October 2004 Region 9 PRGs, toxicity information was available only from EPA's National Center for Exposure Assessment (NCEA) based on a health risk assessment conducted in 2002. Because of the widespread presence of perchlorate, previously unknown due to limits in laboratory method technology, and because of potential developmental impacts to the human fetus and newborns by inhibiting thyroid function, EPA requested the National Academy of Science (NAS) to develop a separate risk assessment for perchlorate. NAS issued this risk assessment in January 2002, and the toxicity factor resulting from the NAS evaluation was adopted by EPA and incorporated into the IRIS database of toxicity. The SRL for perchlorate also applies to perchlorate salts, such as ammonium, lithium, potassium and sodium perchlorates.

Trichloroethylene (TCE). The agency has elected to be moderate by choosing neither the most or least stringent of the published TCE slope factors for use in calculating the SRL. A selection is required because EPA has not finalized the TCE toxicity factors. The toxicity factors available include the withdrawn "old" IRIS EPA value (1989), the lower range "provisional" EPA value (2001), the upper range "provisional" EPA value (2001), and the California EPA value (2002). ADEQ has selected California EPA's toxicity value which is closest to that of the old IRIS value, but not as stringent as either EPA provisional value. The agency has made this determination based on the available science, as well as the necessity of proceeding with a determination as the outcome of the current review process does not guarantee a final EPA value without further studies.

Definitions (R18-7-201). The proposed amendment to this Section would remove the definitions for "Cancer Group," "Greenfields Pilot Program," "Voluntary Environmental Mitigation Use Restriction," "Voluntary Remediation Program," and "WQARF Voluntary Program." The proposed amendment would modify the definitions for "Aquifer Protection Program," "carcinogen," "contaminant," "engineering control," "hazard quotient," "nuisance," "repository," "site-specific human health risk assessment," "soil," "soil remediation level," "solid waste management program," "special waste management program," and "water quality assurance revolving fund." In addition, the proposed amendment would add new definitions for "child care facility," "Declaration of Environmental Use Restric-

tion," "non-carcinogen," and "school." Many of the proposed deletions, modifications and additions are clarifications and corrections. Others are discussed earlier in this preamble.

Closure documents (R18-7-209). The proposed amendments to this Section clarify that in addition to a "Letter of Completion," alternative closure documents provided for by statute or rule can be used to document that the soil standards have been achieved. No further action and LUST closure letters are examples of program-specific closure documents authorized by statute.

Notice of remediation and repository (R18-7-210). The proposed amendment to this Section would clarify that a notice of remediation need not be submitted prior to a remediation that addresses a substantial and immediate endangerment to public health or the environment.

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or 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:

a. OSWER Directive 9285.7-53; "Human Health Toxicity Values in Superfund Risk Assessments"; USEPA; December 5, 2003; available from ADEQ and at http://www.epa.gov/swerrims/riskassessment/pdf/hhmemo.pdf
b. "Region 9 Preliminary Remediation Goals (PRG) Table"; USEPA; December 28, 2004; available from ADEQ and at http://www.epa.gov/region09/waste/sfund/prg/index.html
c. "PRG User's Guide and Background Technical Document"; USEPA; October 27, 2004; available from ADEQ and at http://www.epa.gov/region09/waste/sfund/prg/index.html
d. U.S. EPA. 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Final. EPA/540/R-99/005. Office of Solid Waste and Emergency Response, Washington, D.C.; available from ADEQ and EPA.
e. U.S. EPA. 2001. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Interim Guidance. Office of Solid Waste and Emergency Response, Washington, D.C.; available from ADEQ and EPA.
f. U.S. EPA. 1996. Soil Screening Guidance: Technical Background Document. EPA/540/R-95/128. Office of Solid Waste and Emergency Response, Washington, D.C.; available from ADEQ and EPA.
g. U.S. EPA. 2002. Blood Lead Concentrations of U.S. Adult Females: Summary Statistics From Phases 1 and 2 of the National Health and Nutrition Evaluation Survey (NHANES III). Office of Solid Waste and Emergency Response, Washington, D.C.; available from ADEQ and EPA.
h. U.S. EPA. 2003. Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposure to Lead in Soil. EPA/540/R-03/001. Office of Solid Waste and Emergency Response, Washington, D.C.; available from ADEQ and EPA.

7. 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

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

Costs and Benefits Not Fully Quantifiable. The Department believes that this rule amendment's benefits would outweigh its costs. This EIS is intended to fulfill the legal requirement for the current rulemaking. It is not possible to quantitatively estimate the costs and benefits of this amendment. This EIS qualitatively describes the costs and benefits of the amendment and attempts to weigh their relative value to determine whether the benefits are likely to outweigh the costs.

Effect of the Proposed Amendments.

The proposed rule uses the same formulas used to calculate the current SRLs, and keeps the same allowable risk with one exception. A more stringent risk level is required for remediation of contaminated sites used or currently intended to be used as a school or child care facility where children are likely to be in frequent and repeated contact with the contaminated soil.

The proposed rule updates contaminant SRLs with some contaminant levels increasing, and others decreasing. Approximately 65% of the chemicals have a proposed residential predetermined SRL within 20 percent of its current level, and approximately 75 percent of chemicals have a proposed non-residential predetermined SRL within 20 percent of its current level. Only 4 percent (20 out of 520 chemicals) of the proposed residential predetermined SRLs are an order of magnitude lower than their current level. Some contaminants were deleted and others added to the list. The overall impact on the cost and frequency of cleanup is difficult to estimate.

Data Limitations. The ability to conduct a traditional cost-benefit analysis that quantifies and monetizes the impacts of this rule is rendered difficult, if not impossible, by the fact that there is no such thing as a "typical" remediation site from which to draw inferences about the entire universe of existing remediation sites in Arizona. Contaminated sites are highly variable in size, physical and geological characteristics, contaminants, extent and concentration of contamination, the presence or absence of groundwater contamination, planned land use and many other variables that influence the cost of remediation. The availability of options under the rule makes it difficult to predict the standard a party will choose for a particular site, which also could significantly influence the cost of remediation.

Even the impact of different cleanup methods is difficult to predict. For instance, if the remediation approach selected is to excavate and dispose of contaminated soil, it is the mass of contaminated soil, more than the level of contamination that has the greatest influence on cost. Soil disposal usually is based on the tons of soil disposed.

Rather than employ speculative data that cannot be used meaningfully, the Department argues that the most crucial cost determinant is the cleanup standard that is chosen by the remediating party. Even if we assume that, as a rule, remediation to the more stringent standards will be more costly to achieve, it is difficult to estimate how many sites might be impacted. Many sites have more than one contaminant that exceeds the SRLs. The contaminant for which the SRL is most difficult to achieve is referred to as the "driver." The driver determines the remediation decisions, and the other contaminants are cleaned up incidental to the driver. So, while it might be possible to identify how many sites were contaminated with a given chemical, it would require detailed case-by-case analysis to determine if a new SRL changes the driver, thereby influencing remediation costs.

In addition, it is impossible to identify how the addition of an SRL for a chemical that does not currently have an SRL might impact cleanup costs. The Department has no standard procedure to track these contaminants.

In implementing this rule, ADEQ does not prescribe a particular cleanup standard for a site, unless the site is currently used for residential, but leaves the choice to the remediating party. The remediating party is given five choices to pursue: pre-determined residential or non-residential; site-specific residential or non-residential (through performing a risk assessment); or background. This allows regulated entities to control remediation decisions, considering remediation cost and other factors. Given the variability of site characteristics and the remediation choices available, it is impossible to predict the remediation costs. In the case of a site that is in residential use at the time of closure, the site must be remediated to a residential standard (predetermined or site specific) or to background.

Finally, it is not possible to quantify the impacts to human health or the environment. This rule is intended to result in better protection of human health and the environment. Basing the cleanup standards on updated information should achieve this end by reducing the uncertainty associated with determining risk, and by providing more scientifically accurate screening levels on which the Department can focus on the sites with the greater potential to adversely affect human health or the environment.

However, while the degree of protection provided is indicated by the risk level, the actual reduction in manifestation of health problems depends upon knowledge of the people exposed, the duration and means of exposure, and the concentration of a contaminant at a site. Further, it is difficult to assign monetary value to many of the benefits of this amendment, such as reduced incidence of disease, reduced liability, improved quality of life, and improved community appearance.

The Department believes this rule meets the requirements of statute and that its benefits outweigh its costs.

A.R.S. § 41-1055(B) REQUIREMENTS FOR AN EIS

B (2) PERSONS DIRECTLY AFFECTED BY THE RULE

Persons directly affected by the rule are:

1. Parties who remediate contaminated sites under A.R.S. Title 49;
2. Private businesses;
3. Landowners, lenders, and prospective purchasers of remediated sites;
4. State agencies involved in administering cleanup programs;
5. Political subdivisions of the State; and
6. Consumers, taxpayers; and the general public.

1. Parties Remediating Sites Under A.R.S Title 49

Responsible parties are persons or entities required to conduct soil remediation under Arizona law. A volunteer is any person who is not required by state law to remediate contaminated property, but wishes to do so voluntarily. Responsible parties and volunteers can be private citizens, businesses, state agencies or political subdivisions of the state. This may include anyone who owns contaminated property or was responsible for the contamination of the property, or anyone selling, buying or developing contaminated property. Some of the same considerations drive cleanup for volunteers and responsible parties; although, responsible parties may be compelled to cleanup as required by law and may be more concerned with liability associated with property they have contaminated.

As described above, because some SRLs are increasing and some decreasing, some chemicals added to the SRL list and others dropped, and because the link between SRL and cleanup cost varies with site characteristics, it is impossible for the Department to estimate the impact of different SRLs on cleanup cost.

Some standards would increase, and others decrease under this propose rule. It is impossible to determine how many site cleanups might be "driven" by a chemical whose standard has increased or decreased. For this reason, it is impossible to predict the increase or decrease in risk assessments that might result from this amendment. Risk assessments are one option that a party might choose in developing cleanup levels. This choice is based on business considerations, to minimize remediation costs.

Setting more stringent allowable risk levels for remediating school and child care facility sites would likely increase the costs of, and frequency of, cleanups. However, the number of such sites is expected to be very small. As such, the aggregate cost of this change is expected to be small. Its magnitude is impossible to predict, for the reasons described above.

Using cleanup standards that are based on the most recent scientific knowledge will help reduce liability for damages associated with any contamination that may remain on a site after remediation. The Department cannot predict whether this reduced liability will have a significant economic impact on property value, insurance coverage costs or legal costs.

2. Private Businesses

Two types of businesses will be most impacted by this rule: 1) private businesses that are remediating sites under Title 49; and 2) private businesses, such as environmental consulting firms and attorneys, providing remediation services. Private businesses remediating sites under Title 49 will incur the same costs and benefits described in the preceding section. The rule does not affect a remediation party's eligibility to receive reimbursement of remediation costs either from other responsible parties under WQARF or from the State Assurance Fund (SAF).

3. Landowners, Lenders, and Prospective Purchasers of Remediated Sites

Landowners, lenders, and prospective purchasers of remediated sites will be directly affected if they are remediating a site under Title 49 as described above. Landowners, lenders, and prospective purchasers may be impacted by reduced liability. Any increase in remediation cost is likely to be added to the purchase price of the property. Selling or purchasing property is a business decision, which the purchaser or seller judges will benefit them economically.

Using cleanup standards based on the most recent scientific knowledge will help reduce liability for damages associated with any contamination that may remain on the site after remediation. The Department cannot predict whether this reduced liability will have a significant economic impact on property value, insurance coverage costs or legal costs.

4. State Agencies

The Arizona Department of Environmental Quality is the agency responsible for implementation of this rule. The Arizona Department of Health Services (ADHS) provides consulting services on risk assessments under contract to the Department. Other state agencies will be affected if they remediate sites under Title 49 as described below.

The Department has contracted with ADHS to conduct risk assessments for the Department and to review the risk assessments submitted to Departmental programs. No incremental costs and benefits to ADHS are anticipated. The choice of whether to perform a risk assessment is a business decision, which is judged to economically benefit the remediating party. It is impossible to determine whether responsible parties would choose the risk assessment option more frequently or less frequently as a result of the updated SRLs. Both instances are considered in the cost-benefit analyses below.

The Departmental programs that will implement this rule are: the UST Program; the Solid Waste and Special Waste Management Programs; the Hazardous Waste Management Program; the WQARF Program; the Aquifer Protection Permit Program; the Voluntary Remediation Program; the Greenfields Pilot Program; and any other program under Title 49 that regulates soil remediation. The staff in these programs already oversees current remediation efforts in the state. The Department expects that no new program staff will be hired and no new revenues generated as a result of this rulemaking.

However, there are costs to the Department associated with the rule, in informing the regulated community and training Departmental staff.

There are significant benefits associated with the rule. Because the proposed pre-determined SRLs are based on the best scientific evidence available to date, implementation of this rule will enable the Department to accomplish its mission of protecting public health and the environment more effectively. Risk-based standards, based on the best scientific information currently available, enables the Department to focus its efforts and those of the regulated community on remediating sites posing the greatest risk.

5. Political Subdivisions of the State

Political subdivisions will be affected if they remediate or compel remediation of sites under Title 49 as described below. In addition, remediated property will enhance development plans and will add value to the tax base.

Whenever soil contamination is remediated to non-residential standards, or an institutional or engineering control is used to meet cleanup standards, the property owner is required to file a DEUR with the relevant County Recorder's Office. County Recorder Offices throughout the state record DEURs. A nominal filing fee, determined by the County under its authority, is charged to the landowner. It is impossible to predict whether the number of DEURs filed will increase or decrease as a result of this proposed rule. In either case, the incremental impacts on County revenue and workload are expected to be small.

6. Consumers, Taxpayers and the General Public

Consumers, taxpayers, and the general public may be indirectly impacted by the rule. Any change in the cost of soil remediation resulting from changes to the remediation standards may be passed along to consumers of products pro-

duced by companies that are responsible parties or volunteers. Also there may be an incremental increase in overall property costs, but this is expected to be a minor factor when compared to inflation and other real estate market trends.

Taxes will not increase as a result of this amendment. Everyone benefits from using updated risk-based soil remediation standards based on recent scientific knowledge. The proposed SRLs would help ensure protection of human health and the environment and prioritize cleanups. It is difficult to assign a dollar value to such health, environmental and public policy benefits.

B(3) COST-BENEFIT ANALYSIS

COSTS TO THE IMPLEMENTING AGENCY – One-time costs to the Department for this amendment include the cost of the rulemaking process and the cost of informing staff and stakeholders about the amendment. The Department does not track the time spent on individual rulemakings. The Department estimates that the cost for staff time to promulgate a typical rule could range from $4,001 to $15,672. This range does not include non-staff costs such as copies, supplies, postage, transportation to meetings, or phone calls, nor does it include non-Department costs, such as the costs to the Governor's Regulatory Review Council and the Secretary of State. A typical rule is non-controversial, of average complexity, and follows the standard rulemaking process. This rulemaking is more controversial and complex than a typical rulemaking, and as such, is expected to cost the Department more than a typical rulemaking.

After the rulemaking, the Department anticipates additional costs associated with increased questions from the public regarding the SRLs. The Department cannot predict the number of inquiries that may be received, or the staff resources that might be required to answer the questions. Therefore, the Department cannot estimate the potential costs of such inquiries. The Department may use its web site, fact sheets and other outreach tools to inform the public about the amendments as needed.

BENEFITS TO THE IMPLEMENTING AGENCY - The Department has no incremental economic benefit as a result of this rule. Non-economic benefits to the Department result because SRLs based on recent scientific information supports the Department's mission.

COSTS TO THE ADHS - The ADHS, under an Inter-agency Service Agreement (ISA), sometimes reviews risk assessments. Whether the proposed rule results in increased or decreased risk assessments, there are no incremental costs to the ADHS as a result of this amendment, because, under the ISA, the Department must reimburse the ADHS at the rate in the ISA, for all risk assessment reviews.

BENEFITS TO THE ADHS - There are no incremental economic benefits to the ADHS, because the rate used by the ADHS, as agreed to in the ISA, does not include a profit margin. The ADHS realizes non-economic benefits by fulfilling its mission.

COSTS TO POLITICAL SUBDIVISIONS - It is not possible to quantitatively estimate the costs and benefits of this amendment for subdivisions of the state. Costs or savings to political subdivisions will be incurred if those political subdivisions are responsible parties or volunteers, as described above.

BENEFITS TO POLITICAL SUBDIVISIONS – Benefits for taxing subdivisions of the state are an expected and intended result of this amendment. Benefits are likely to include public health benefits, reduced liability and reduced legal costs. The Department cannot predict the magnitude or value of these benefits.

COSTS TO PARTIES REMEDIATING SITES UNDER TITLE 49 - The economic benefits of this rulemaking may outweigh the costs for some sites, but for others, the costs may exceed the benefits. Many variables could impact this balance, including the property's characteristics, location, and proposed use and the business acumen of the developer. Projecting the costs and benefits for even one cleanup is very difficult, because many of these features are beyond the Department's control and ability to predict. Projecting the aggregate costs and benefits of incremental impacts on future cleanups is impracticable.

BENEFITS TO PARTIES REMEDIATING SITES UNDER TITLE 49 – The Department believes that, in the aggregate, benefits of this amendment outweigh the costs. Cleaning up contaminated sites is typically very expensive, several millions of dollars in some cases. The cost of developing property is likewise relatively expensive. The incremental increases in costs associated with the more restrictive SRLs in this amendment are expected to be small when compared to the overall project budget.

One major benefit of a cleanup that meets the SRLs is the reduced liability for future pollution claims. Benefits might also include increased property market value.

IMPACTS ON PUBLIC AND PRIVATE EMPLOYMENT

No incremental changes in public or private employment are foreseen as a result of this rule. The proposed rule itself will not create new jobs or destroy existing ones. Existing Department staff will continue to review and oversee site remediations; therefore, no new public sector employment positions are anticipated as a direct result of this amendment. If the number of risk assessments or DEURs changes as a result of the rule, some consulting companies may adjust their staffing levels. Such changes are difficult to estimate.

Any new jobs created by businesses that may be established, expanded or relocated will be the result of private business decisions. Aside from the employment benefits, other benefits in the form of income taxes paid by the employees, property taxes, sales, and unemployment and other taxes to be paid by the employer will accrue to various levels of government.

IMPACTS ON SMALL BUSINESSES

SMALL BUSINESSES SUBJECT TO THE RULE -- Some of the responsible parties and volunteers could be small business owners. The statute provides no basis for requiring cleanup to a certain level for some parties, and a different level for others. Because of this, the Department has not tried to isolate the impact on small businesses or to determine the number of responsible parties or volunteers that might be small businesses.

Some of the lenders, landowners and prospective purchasers could be small business owners. Likewise, some of the consulting firms could be small business owners. The Department believes these businesses would be impacted in the same way as large businesses, and that there would be no disproportionate impact on small businesses. The Department could find no rationale or generate any alternatives for reducing impact on small businesses.

The Department does not expect the incremental changes in cleanup costs due to the changes in the SRLs will be a determining factor in the decision of whether to develop or purchase a site. In general, if a business (small or otherwise) can afford to remediate a contaminated site, it can afford the incremental increase in costs that may occur as a result of this proposed rule.

ADMINISTRATIVE COSTS TO SMALL BUSINESSES -- There are no new administrative costs to small and other businesses imposed by this amendment. There are minimal administrative costs to any business subject to this rule, including small business. The administrative costs associated with remediating a contaminated site are not expected to change as a result of this amendment.

REDUCTION OF IMPACT ON SMALL BUSINESSES – A.R.S. § 41-1035 requires the Department to reduce the impact of a rule on the class of small businesses, if possible.

The Department has determined that the statutes require the rule to apply to all entities performing remediation whether or not they are small businesses because cleanup levels are set based on adverse health effects from contamination regardless of the size of the responsible party. The Department exercised its discretion to reduce adverse impacts to all businesses, including small businesses by allowing the remediating party the option of selecting a predetermined standard, a site specific standard, or a background level.

The authorizing statute for this amendment does not provide a basis for promulgating a SRL for small businesses that is different from other entities. The statutory objectives, which are the basis of the rule, require the Department to establish cleanup standards that are protective of human health and the environment. The Department also is required to establish these standards based on the differing potential for occupants of the land to be exposed to contaminated soil at two types of property, residential and non-residential.

The Department is proposing requirements in the rule that are no greater than those identified in the statute.

Individual businesses, including small businesses, may experience differing costs when complying with the rule. These differing costs will result from site-specific remediation characteristics (e.g., type of contaminant, land use). The rule allows all entities, including small businesses, to determine for themselves which standard and which method identified in the rule is the most cost effective to best meet their needs, and requirements given the site-specific remediation characteristics.

COSTS AND BENEFITS TO PRIVATE PERSONS

It is not possible to quantitatively estimate the costs and benefits of this amendment for the general public. This EIS qualitatively describes the costs and benefits to the general public, and attempts to weigh their relative value to determine whether the benefits are likely to outweigh the costs. The costs of remediation borne by responsible parties and volunteers will usually be passed on to their customers and consumers in general. On the other hand, the potential benefits to consumers are evident. Protective remediation, as is promoted by this rule, carries many public health benefits to people who live and work in the vicinity of contaminated sites. The health risks to exposed populations would be expected to diminish. The integrity of the environment would be maintained and, as such, the economic values of real properties, including those of adjacent property owners and homeowners, would be supported or restored.

PROBABLE EFFECTS ON STATE REVENUES

No new state revenues are projected. The proposed amendment is anticipated to have no effect on state revenues. Most, if not all, of the cash flow for remediation will occur between responsible parties and volunteers and remediation consulting companies. In the case of ADHS, revenue received for risk assessment services will merely reimburse the agency for costs incurred. No new net revenues are anticipated.

LESS INTRUSIVE OR LESS COSTLY ALTERNATIVES

No less intrusive or less costly alternatives were authorized by the legislature or contemplated by the Department. The SRL standards are based on principles accepted by the scientific community and EPA. Under the applicable stat-

utory objectives discussed in this preamble and elsewhere, uniform standards must apply to all entities, whether they are public or private, small or large businesses. The question of costs revolves around contamination in site-specific cases, and what it costs to remediate the contamination. The Department has provided alternatives for selecting remediation standards. This flexibility allows parties to choose the option that is most appropriate and cost effective for their individual purposes.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name:	Philip McNeely Tank Programs Division
Telephone:	(602) 771-7645 or (800) 234-5677, enter 771-7645 (Arizona only)
E-mail:	McNeely.Philip@azdeq.gov
Name:	Amanda Stone Waste Programs Division
Telephone:	(602) 771-4567; or (800) 234-5677, enter 771-4567 (Arizona only)
E-mail:	Stone.Amanda@azdeq.gov
Fax:	(602) 771-2302
TTD:	(602) 771-4829
Address:	Arizona Department of Environmental Quality 1110 W. Washington St. Phoenix, AZ 85007

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

Date:	August 30, 2006
Time:	1:30 p.m.
Location:	Industrial Commission 800 W. Washington St, 1st Floor Auditorium Phoenix, AZ 85007
Date:	August 31, 2006
Time:	1:30 p.m.
Location:	Arizona Department of Environmental Quality 400 W. Congress, Room 222 Tucson, AZ 85701
Nature:	Public hearings on the proposed rules, with opportunity for formal comments on the record. Please call (602) 771-4795 for special accommodations pursuant to the Americans with Disabilities Act.

The close of the written comment period will be at 5:00 p.m., Sept. 5, 2006. Submit comments to one of the individuals identified in item #4 of this proposed rule.

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

Not applicable

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

Incorporated Material	Location
"Guidelines for Cancer Risk Assessment"	R18-7-201

13. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 7. DEPARTMENT OF ENVIRONMENTAL QUALITY
REMEDIAL ACTION

ARTICLE 2. SOIL REMEDIATION STANDARDS

Section
R18-7-201. Definitions
R18-7-202. Applicability
R18-7-203. Remediation Standards
R18-7-204. Background Remediation Standards
R18-7-205. Pre-Determined Remediation Standards
R18-7-206. Site-Specific Remediation Standards
R18-7-207. Site-specific Remediation Standards for Nitrates and Nitrites
~~R18-7-207.~~ R18-7-208.~~Voluntary Environmental Mitigation Use Restriction (VEMUR)~~ Declaration of Environmental Use Restriction (DEUR)
~~R18-7-208.~~ R18-7-209.Letter of Completion or Alternative Closure Document
~~R18-7-209.~~ R18-7-210.Notice of Remediation and Repository
Appendix A. 2006 Soil Remediation Levels (SRLs)
Appendix ~~A.~~B.1997 Soil Remediation Levels (SRLs)
~~Appendix B. Notice of Voluntary Environmental Mitigation Use Restriction by Owner or Owners~~
Appendix C. ~~Cancellation of Voluntary Environmental Mitigation Use Restriction by Owner or Owners~~ Repealed

ARTICLE 2. SOIL REMEDIATION STANDARDS

R18-7-201. Definitions
In addition to the definitions provided in A.R.S. §§ 49-151 and 49-152, the following definitions apply in this Article:

1. "Aquifer Protection Permit Program" means the system of requirements prescribed in A.R.S. Title 49, Chapter 2, Article 3 and A.A.C. Title 18, Chapter 9, ~~Article 1~~ Articles 1 through 7.
2. "Background" means a concentration of a naturally occurring contaminant in soils.
3. ~~"Cancer Group" means a category of chemicals listed by a weight-of-evidence assessment by the United States Environmental Protection Agency to evaluate human carcinogenicity. Based on this evaluation, chemicals are placed in 1 of the following categories: A - known human carcinogen; B1 or B2 - probable human carcinogen; C - possible human carcinogen; D - not classified as to human carcinogenicity; and E - evidence of non-carcinogenicity in humans.~~
4.3. "Carcinogen" or "carcinogenic" means ~~a contaminant which~~ the potential of a chemical to cause cancer in humans as determined by lines of evidence in accordance with a narrative classification in "Guidelines for Cancer Risk Assessment", EPA/630/P-03/001F, March 2005, (and no future editions) which is incorporated by reference. "Guidelines for Cancer Risk Assessment" is available from ADEQ and at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=116283. ~~has a cancer group designation of Class A, B1, B2, or C, but does not include a substance having cancer group designations D or E. The cancer group designation is found in Appendix A to the rule.~~
4. "Child Care Facility" means any permanent facility on a property or portion of property in which care or supervision is provided for children below the age of 18, unaccompanied by a parent or guardian, for periods of less than 24 hours per day. Child care facility does not include private homes or facilities that care for less than five children.
5. "Contact" means exposure to a contaminant through ingestion, inhalation, or dermal absorption.
6. "Contaminant" means a substance regulated by the programs listed in R18-7-202(A) or R18-7-202(B) and A.R.S. § 49-171(2).
7. "Department" means the Arizona Department of Environmental Quality.
8. "Deterministic Risk Assessment Methodology" means a site-specific human health risk assessment, performed using a specific set of input variables, exposure assumptions, and toxicity criteria, represented by point estimates for each receptor evaluated, which results in a point estimate of risk.
9. "Declaration of Environmental Use Restriction" or "DEUR" means a restrictive covenant as described in A.R.S. § 49-152.
9.10."Ecological Community" means an assemblage of populations of different species within a specified location in

space and time.

~~10.~~11. "Ecological Receptor" means a specific ecological community, population, or individual organism, protected by federal or state laws and regulations, or a local population which provides an important natural or economic resource, function, and value.

~~11.~~12. "Ecological Risk Assessment" is a scientific evaluation of the probability of an adverse effect to ecological receptors from exposure to specific types and concentrations of contaminants. An ecological risk assessment contains 4 components: identification of potential contaminants; an exposure assessment; a toxicity assessment; and a risk characterization.

~~12.~~13. "Engineering Control" means a remediation method such as a barrier or cap that is used to prevent or minimize exposure to contaminants, and includes technologies that reduce the mobility or migration of contaminants.

~~13.~~14. "Excess Lifetime Cancer Risk" means the increased risk of developing cancer above the background cancer occurrence levels due to exposure to contaminants.

~~14.~~15. "Exposure" means contact between contaminants and organisms.

~~15.~~16. "Exposure Pathway" means the course a contaminant takes from a source to an exposed organism. Each exposure pathway includes a source or release from a source, an exposure point, and an exposure route. If the exposure point differs from the source, transport/exposure media (that is, air, water) are also included.

~~16.~~17. "Exposure Point" means a location of potential contact between a contaminant and an organism.

~~17.~~18. "Exposure Route" means the way a contaminant comes into contact with an organism (that is, by ingestion, inhalation, or dermal contact).

~~18. "Greenfields Pilot Program" means the system of requirements prescribed in Laws 1997, Ch. 296, § 11.~~

19. **"**Groundwater" means water in an aquifer as defined in A.R.S. § 49-201(2).

20. "Hazard Index" means the sum of hazard quotients for multiple substances and/or multiple exposure pathways, or the sum of hazard quotients for chemicals acting by a similar mechanism and/or having the same target organ.

21. "Hazardous Waste Management Program" means the system of requirements prescribed in A.R.S. Title 49, Ch. 5, Article 2 and 18 A.A.C. 8, Article 2.

22. "Hazard Quotient" means the value which quantifies non-carcinogenic risk for ~~a~~ one chemical for ~~a~~ one receptor population for ~~a~~ one exposure pathway over a specified exposure period. The hazard quotient is equal to the ratio of a chemical-specific intake to the reference dose.

23. "Imminent and substantial endangerment to the public health or the environment" has the meaning found in A.R.S. § 49-282.02(C)(1).

24. "Institutional control" means a legal or administrative tool or action taken to reduce the potential for exposure to contaminants.

25. "Letter of Completion" means a Departmental statement which indicates whether the property in question has met the soil remediation standards set forth in this Article.

26. "Migrate" or "Migration" means the movement of contaminants from the point of release, emission, discharge, or spillage: through the soil profile; by volatilization from soil to air and subsequent dispersion to air; and by water, wind, or other mechanisms.

27. "Non-carcinogen" means a chemical that has the potential upon exposure to an individual to cause adverse health effects other than cancer.

~~27.~~28. "Non-Residential Site-Specific Remediation Level" means a level of contaminants remaining in soil after remediation which results in a cumulative excess lifetime cancer risk between 1×10^{-6} and 1×10^{-4} and a Hazard Index no greater than 1 based on non-residential exposure assumptions.

~~28.~~29. "Nuisance" means the activities or conditions which may be subject to A.R.S. §§ 49-141 ~~and 49-104(A)(11)~~.

~~29.~~30. "Person" means any public or private corporation, company, partnership, firm, association or society of persons, the federal government and any of its departments or agencies, this state or any of its agencies, departments, political subdivisions, counties, towns, municipal corporations, as well as a natural person.

~~30.~~31. "Population" means an aggregate of individuals of a species within a specified location in space and time.

~~31.~~32. "Probabilistic Risk Assessment Methodology" means a site-specific human health risk assessment, performed using probability distributions of input variables and exposure assumptions which take into account the variability and uncertainty of these values, which results in a range or distribution of possible risk estimates.

~~32.~~33. "Reasonable Maximum Exposure" or "RME" means the highest human exposure case that is greater than the average, but is still within the range of possible exposures to humans at a site.

~~33.~~34. "Remediate" or "remediation" has the meaning found in A.R.S. § 49-151~~(2)~~.

35. "Reference dose" means the toxicity factor expressed as a threshold level in units of (mg/kg-day) at which noncancer effects are not expected to occur.

~~34.~~36. "Repository" means the Department's database, established under A.R.S. § 49-152~~(D)~~ (E), from which the public may view information pertaining to remediation projects ~~for which a Notice of Remediation has been submitted or a Letter of Completion has been issued~~.

~~35.~~37. "Residential Site-Specific Remediation Level" means a level of contaminants remaining in the soil after remedia-

tion which results in a cumulative excess lifetime cancer risk between 1 x 10^{-6} and 1 x 10^{-4} and a Hazard Index no greater than 1 based on residential exposure assumptions.

~~36.~~38. "Residential Use" has the meaning found in A.R.S. § 49-151~~(3)~~.

39. "School" means any public or non-public institution under the jurisdiction of the Arizona State Board of Education and established for the purposes of offering instruction to children attending any grade from preschool through grade twelve.

~~37.~~40. "Site-Specific Human Health Risk Assessment" is a scientific evaluation of the probability of an adverse effect to human health from exposure to specific types and concentrations of contaminants. A site-specific human health risk assessment contains ~~4~~ four components: identification of potential contaminants; an exposure assessment; a toxicity assessment; and a risk characterization.

~~38.~~41. "Soil" means all earthen materials including moisture and pore space contained within earthen material, located between the land surface and groundwater including sediments and unconsolidated accumulations produced by the physical and chemical disintegration of rocks.

~~39.~~42. "Soil Remediation Level" or "SRL" means a pre-determined risk-based standard based upon the total contaminant concentration in soil, developed ~~by the Arizona Department of Health Services~~ pursuant to A.R.S. § 49-152(A)(1)~~(a)~~ and listed in Appendix A or, as applicable, in Appendix B.

~~40.~~43. "Solid Waste Management program" means the system of requirements prescribed in A.R.S. Title 49, Ch. 4, ~~Article~~ 4 and the rules adopted under those statutes.

~~41.~~44. "Special Waste Management program" means the system of requirements prescribed in A.R.S. Title 49, Ch. 4, Article 9 and 18 A.A.C. ~~8~~ 13, ~~Article 3~~ Articles 13 and 16.

~~42.~~45. "Underground Storage Tank program" or "UST program" means the system of requirements prescribed in A.R.S. Title 49, Ch. 6, Article 1 and 18 A.A.C. 12.

~~43. "Voluntary Environmental Mitigation Use Restriction" or "VEMUR" means, pursuant to A.R.S. § 49-152(B), a written document, signed by the real property owner and the Department, and recorded with the county recorder on the chain of title for a particular parcel of real property, which indicates that a remediation to a level less protective than residential standards has been completed and, unless subsequently canceled, that the owner agrees to restrict the property to non-residential uses.~~

~~44. "Voluntary Remediation Program" means the system of requirements prescribed in A.R.S. § 49-104(A)(17).~~

~~45.~~46. "Water Quality Assurance Revolving Fund" or "WQARF" means the system of requirements prescribed in A.R.S. Title 49, Ch. 2, Article 5 and 18 A.A.C. ~~7, Article 1~~ 16.

~~46. "WQARF Voluntary Program" means the system of requirements prescribed in A.R.S. §§ 49-282.05 and 49-285(B).~~

R18-7-202. Applicability

A. This Article applies to a person legally required to conduct soil remediation by any of the following regulatory programs administered by the Department:
1. The Aquifer Protection Permit Program.
2. The Hazardous Waste Management Program.
3. The Solid Waste Management Program.
4. The Special Waste Management Program.
5. The Underground Storage Tank Program.
6. The Water Quality Assurance Revolving Fund.
7. Any other program under A.R.S. Title 49 that regulates soil remediation.

B. This Article also applies to a person who is not legally required to conduct soil remediation, but who chooses to do so under any ~~of the following programs~~ program administered by the Department~~:~~
~~1. The Greenfields Pilot Program.~~
~~2. The Voluntary Remediation Program.~~
~~3. The WQARF Voluntary Program~~.

C. The requirements of this Article apply in addition to any specific requirements of the programs described in subsections (A) or (B).

D. This Article is limited to soil remediation.

E. ~~A person who is remediating soil at a site which was characterized before the effective date of this Article shall comply with either the Soil Remediation Standards adopted as an interim rule on March 29, 1996, or the Soil Remediation Standards adopted in this Article.~~ A person who is remediating a site shall comply with the numeric soil remediation standards identified in either Appendix A or Appendix B if both of the following conditions are met:
1. The site has been characterized before the effective date of this rule.
2. The site is remediated or a risk assessment has been completed within three years after the effective date of this rule.

A site is considered characterized when the laboratory analytical results of the soil samples delineating the nature, degree, and extent of soil contamination have been received by the person conducting the remediation. A risk assessment or remediation is considered completed when site closure, that meets the conditions set forth in R18-7-209, has

been requested. If either subsection (1) or subsection (2) is not met, a person who is remediating a site shall comply with the numeric soil remediation standards identified in Appendix A.

F. Nothing in this Article limits the Department's authority to establish more stringent soil remediation levels in response to:
1. A nuisance.
2. An imminent and substantial endangerment to the public health or the environment.

G. This Article does not apply to persons remediating soil to numeric soil remediation levels specified in ~~orders of the Director or orders of any Court that have been entered~~ the following documents and entered into, issued or approved before the effective date of this ~~Article.~~ rule:
1. Orders of the Director;
2. Orders of any Court;
3. Work agreements approved by the Director pursuant to A.R.S. § 49-282.05;
4. Closure plans approved by the Director pursuant to R18-8-265;
5. Post-closure permits approved by the Director pursuant to R18-8-270;
6. Records of Decision approved by the Director pursuant to R18-16-410;
7. Records of Decision approved by the Director pursuant to R18-16-413; and
8. Records of Decision approved by the Director pursuant to 40 CFR 300.430(f)(5).

R18-7-203. Remediation Standards

A. A person subject to this Article shall remediate soil so that any concentration of contaminants remaining in the soil after remediation is less than or equal to ~~I~~ one of the following:
1. The background remediation standards prescribed in R18-7-204.
2. The pre-determined remediation standards prescribed in R18-7-205.
3. The site-specific remediation standards prescribed in R18-7-206.

B. A person who conducts a soil remediation based on the standards set forth in R18-7-205, ~~or~~ R18-7-206, or R18-7-207 shall remediate soil so that any concentration of contaminants remaining in the soil after remediation does not:
1. Cause or threaten to cause a violation of Water Quality Standards prescribed in A.A.C. Title18, Chapter 11. If the remediation level for a contaminant in the soil is not protective of aquifer water quality and surface water quality, the person shall remediate soil to an alternative soil remediation level that is protective of aquifer water quality and surface water quality.
2. Exhibit a hazardous waste characteristic of ignitability, corrosivity, or reactivity as defined in A.A.C. R18-8-261(A). If the remediation level for a contaminant in the soil results in leaving soils that exhibit a hazardous waste characteristic other than toxicity, the person shall remediate soil to an alternative soil remediation level such that the soil does not exhibit a hazardous waste characteristic other than toxicity.
3. Cause or threaten to cause an adverse impact to ecological receptors. If the Department determines that the remediation level for a contaminant in soil may impact ecological receptors based on the existence of ecological receptors and complete exposure pathways, the person shall conduct an ecological risk assessment. If the ecological risk assessment indicates that any concentration of contaminants remaining in the soil after remediation causes or threatens to cause an adverse impact to ecological receptors, the person shall remediate soil to an alternative soil remediation level, derived from the ecological risk assessment, that is protective of ecological receptors.

C. The Department may estimate total contaminant concentration in soil using soil vapor concentrations.

R18-7-204. Background Remediation Standards

A. A person may elect to remediate to a background concentration for a contaminant.

B. A person who conducts a remediation to a background concentration for a contaminant shall establish the background concentration using all of the following factors:
1. Site-specific historical information concerning land use.
2. Site-specific sampling of soils unaffected by a release, but having characteristics similar to those of the soils affected by the release.
3. ~~A statistical~~ Statistical analysis of ~~the~~ background concentrations using the 95th percentile upper confidence limit.

R18-7-205. Pre-Determined Remediation Standards

A. A person may elect to remediate to the residential or non-residential Soil Remediation Levels (SRLs) set forth in Appendix A. If allowed under R18-7-202(E), a person may also elect to remediate to the residential or non-residential SRLs in Appendix B.

B. A person who conducts ~~an SRL-based~~ remediation pursuant to this Article shall remediate to the residential SRL on any property where there is residential use at the time remediation is completed.

C. A pre-determined contaminant standard established by federal law or regulation may be used for polychlorinated biphenyl cleanups regulated pursuant to the Toxic Substances Control Act (TSCA) at 40 CFR 761.120 et seq., however, the Department has no regulatory authority to issue a Letter of Completion in TSCA-regulated cleanups.

D. A person who elects to utilize a residential or nonresidential SRL for the following known human carcinogens shall reme-

diate to a 1 x 10^{-6} excess lifetime cancer risk: benzene, benzidine, bis (chloromethyl) ether, chromium VI, diethylstilbestrol, direct black 38, direct blue 6, direct brown 95, nickel subsulfide and vinyl chloride.

E. Except as provided below, a person who elects to remediate to a residential SRL, may utilize a 1 x 10^{-5} excess lifetime cancer risk for any human carcinogen other than a known human carcinogen. If the current or currently intended future use of the contaminated site is a child care facility or school where children below the age of 18 are reasonably expected to be in frequent, repeated contact with the soil, the person conducting remediation shall remediate to a 1 x 10^{-6} excess lifetime cancer risk.

F. For contaminants that exhibit both carcinogenic and non-carcinogenic effects, the numeric standard that is lower shall apply.

R18-7-206. Site-Specific Remediation Standards

A. A person may elect to remediate to a residential or a non-residential site-specific remediation level derived from a site-specific human health risk assessment.

B. A person who conducts a remediation to a residential or a non-residential site-specific remediation level shall use ~~a~~ one of the following site-specific human health risk assessment methodologies:

1. A deterministic methodology. If a deterministic methodology is used, reasonable maximum exposures shall be evaluated for future use scenarios.
2. A probabilistic methodology. If a probabilistic methodology is used, it shall be no less protective than the 95th percentile upper bound estimate of the distribution.
3. An alternative methodology commonly accepted in the scientific community. An alternative methodology is considered accepted in the scientific community if it is published in peer-reviewed literature, such as a professional journal or publication of standards of general circulation, and there is general consensus within the scientific community ~~about~~ that the methodology is sound.

C. A person who conducts a remediation to a site-specific remediation level shall remediate to the residential site-specific remediation level on any property where there is residential use at the time remediation is completed.

~~**D.** With prior approval of the Department, a person may achieve the site-specific remediation levels based on the use of institutional and engineering controls. The approval shall be based, in part, on the demonstration that the institutional and engineering controls will be maintained.~~

~~**E.**~~**D.** A person conducting a remediation to a residential or a non-residential site-specific remediation level shall remediate the contaminants in soil to a Hazard Index no greater than 1 ~~to~~ and a cumulative excess lifetime cancer risk between 1 x 10^{-6} and 1 x 10^{-4} ~~and a Hazard Index of no greater than one taking into account the factors enumerated in this subsection. The person conducting a remediation, and the Department prior to issuing a Letter of Completion, shall select the excess lifetime cancer risk between 1 x 10-6 and 1 x 10-4 based upon the following site-specific factors:~~ The following site-specific factors shall be evaluated when determining the cumulative excess lifetime cancer risk:

1. The presence of multiple contaminants.
2. The existence of multiple pathways of exposure.
3. The uncertainty of exposure.
4. The sensitivity of the exposed population.
5. Other program-related laws and regulations that may apply.

R18-7-207. Site-specific Remediation Standards for Nitrates and Nitrites

A person who conducts remediation of nitrates or nitrites shall remediate to a site specific remediation level pursuant to R18-7-203(B)(1), (2) and (3).

~~**R18-7-207.**~~**R18-7-208.** ~~**Voluntary Environmental Mitigation Use Restriction (VEMUR)**~~ **Declaration of Environmental Use Restriction (DEUR)**

~~**A.** A person who remediates to the non-residential SRL, or to the non-residential site-specific remediation level shall submit the information listed in R18-7-208(A)(1) through (5) and a VEMUR signed by the real property owner, as set forth in Appendix B, to the applicable Departmental program listed in R18-7-202(A) or R18-7-202(B). The VEMUR shall be formatted in accordance with A.R.S. § 11-480 and any other specific requirements of the County Recorder of the jurisdiction.~~ A property owner who elects to leave contamination on a property that exceeds the applicable residential standard for the property under R18-7-205 or R18-7-206, or elects to use an institutional control or an engineering control to meet the requirements of R18-7-205, R18-7-206 or R18-7-207, shall record a DEUR pursuant to A.R.S. § 49-152 and comply with the related provisions of that statute, and the rules promulgated thereunder.

~~**B.** The applicable Departmental program listed in R18-7-202(A) or R18-7-202(B) shall evaluate the complete information described in R18-7-207(A) and verify whether the non-residential SRL or the non-residential site-specific remediation level has been achieved. An authorized Departmental representative shall either sign the VEMUR submitted pursuant to subsection (A) of this Section and return the signed VEMUR by certified mail, or request additional information to make the verification.~~

~~**C.** A person described in R18-7-207(A) shall record a VEMUR described in R18-7-207(B) with the County Recorder's~~

~~office where the property is located within 30 calendar days of receipt of the VEMUR signed by the authorized Departmental representative, as evidenced by the return receipt.~~

~~**D.** A real property owner who remediates to the background concentration of a contaminant, to the residential SRL, or to the residential site-specific remediation level and who wishes to cancel a recorded VEMUR shall submit the information required in R18-7-208(A)(1) through (5) and a signed VEMUR Cancellation, as set forth in Appendix C, to the applicable Departmental program listed in R18-7-202(A) or R18-7-202(B). The VEMUR Cancellation shall be formatted in accordance with A.R.S. § 11-480 and any other specific requirements of the County Recorder of the jurisdiction.~~

~~**E.** The applicable Departmental program listed in R18-7-202(A) or R18-7-202(B) shall evaluate the complete information described in R18-7-207(D) and verify whether the background concentration, the residential SRL, or the residential site-specific remediation level has been achieved. An authorized Departmental representative shall either sign the VEMUR Cancellation submitted pursuant to R18-7-207(D) and return the VEMUR Cancellation via certified mail, or request additional information to make the verification.~~

~~**F.** A person who records a document described in R18-7-207 shall provide a copy of the recorded document to the applicable Departmental program described in R18-7-202(A) or R18-7-202(B) within 30 calendar days of the date of recording.~~

~~R18-7-208.~~R18-7-209.Letter of Completion or Alternative Closure Document

A. If a person requests a Letter of Completion or an alternative closure document, a person shall submit, at a minimum, the following information to the applicable Departmental program listed in R18-7-202(A) or described in R18-7-202(B):
1. A description of the actual activities, techniques, and technologies used to remediate soil at the site, including the legal mechanism in place to ensure that any institutional and engineering controls are maintained.
2. Documentation that requirements prescribed in R18-7-203(A) and R18-7-203(B)(1) and (2) have been satisfied.
3. If the Department determines pursuant to R18-7-203(B)(3) that an ecological risk assessment is required, documentation that the requirements prescribed in R18-7-203(B)(3) have been satisfied.
4. Soil sampling analytical results which are representative of the area which has been remediated, including documentation that the laboratory analysis of samples has been performed by a laboratory licensed by the Arizona Department of Health Services under A.R.S. § 36-495 et seq. and 9 A.A.C. 14, Article 6.
5. A statement signed by the person conducting the remediation certifying the following: I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

B. The applicable Departmental program described in R18-7-202(A) or R18-7-202(B) ~~shall~~ may evaluate the information described in ~~R18-7-208(A)~~ R18-7-209(A). ~~and R18-7-207(F) to verify~~ The Department may request additional information, or if the Department verifies compliance with the soil remediation standards set forth under this Article and closure requirements of the applicable program or programs identified in R18-7-202(A) or described in R18-7-202(B), the Department shall issue a Letter of Completion ~~or request additional information~~, or an alternative closure document provided for by statute or rule that certifies the soil standards of this rule have been achieved.

C. The applicable Departmental program ~~listed in~~ described in R18-7-202(A) or R18-7-202(B) may revoke or amend any Letter of Completion or alternative closure document described in R18-7-209(B) if any of the information submitted pursuant to R18-7-208~~(A)~~ and R18-7-209(A) ~~and R18-7-207(F)~~ is inaccurate or if any condition was unknown to the Department when the Department issued the Letter of Completion or alternative closure document.

~~R18-7-209.~~R18-7-210.Notice of Remediation and Repository

A. A person conducting soil remediation shall submit a Notice of Remediation to the applicable Departmental program listed in R18-7-202(A) or R18-7-202(B) prior to beginning remediation. A person conducting a soil remediation to address an immediate and substantial endangerment to public health or the environment and ~~during an emergency~~ who has notified the Department in accordance with ~~emergency~~ notification requirements prescribed in A.R.S. § 49-284 is not required to submit a Notice of Remediation prior to beginning remediation. Any person who continues ~~or initiates a~~ soil remediation after the immediate and substantial endangerment has been abated ~~initial emergency response~~ shall submit a Notice of Remediation. A Notice of Remediation shall include all of the following information:
1. The name and address of the real property owner;
2. The name and address of the remediating party;
3. A legal description and street address of the property;
4. A list of each contaminant to be remediated;
5. The background concentration, SRL, or site-specific remediation level selected to meet the remediation standards;
6. A description of the current and post-remediation property use as either residential or non- residential;
7. The rationale for the selection of residential or non-residential remediation; and
8. The proposed technologies for remediating the site.

B. The Department shall ~~establish and~~ maintain a repository available to the public for information regarding sites where soil is remediated. The Repository shall include a listing of sites for which a Notice of Remediation has been submitted or a

Letter of Completion or alternative closure document has been issued.

1. For sites where a Notice of Remediation has been filed, the Repository shall contain the date the notice was filed and the information submitted as described in ~~R18-7-209(A)~~ R18-7-210(A).
2. For sites where a Letter of Completion or alternative closure document has been issued, the Repository shall contain the following:
   a. The name and address of the real property owner;
   b. The name and address of the remediating party.
   c. A legal description and street address of the property;
   d. A listing of each contaminant that was remediated;
   e. The background concentration, SRL, or site-specific remediation level selected to meet the remediation standard;
   f. A description whether the residential or non-residential standard was achieved;
   g. A description of any engineering or institutional control used to remediate the site; and
   h. The date when the Letter of Completion or alternative closure document was issued.
3. ~~The Repository will be available for public review during the Department's normal business hours. A person who wishes to obtain copies of the Repository shall pay a copying fee established by the Department.~~

Appendix A. 2006 Soil Remediation Levels (SRLs)

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Acephate	30560-19-1	ca, nc	63	630	240	2,000
Acetaldehyde	75-07-0	ca, nc	11	110	50	160
Acetochlor	34256-82-1	nc			1,200	12,000
Acetone	67-64-1	nc			14,000	54,000
Acetone cyanohydrin	75-86-5	nc			49	490
Acetonitrile	75-05-8	nc			420	1,800
Acrolein	107-02-8	nc			0.10	0.34
Acrylamide	79-06-1	ca, nc	0.12	1.2		3.8
Acrylic acid	79-10-7	nc			29,000	270,000
Acrylonitrile	107-13-1	ca, nc	0.21	2.1		4.9
Alachlor	15972-60-8	ca, nc	6.8	68		210
Alar	1596-84-5	nc			9,200	92,000
Aldicarb	116-06-3	nc			61	620
Aldicarb sulfone	1646-88-4	nc			61	620
Aldrin	309-00-2	ca, nc	0.032	0.32		1.0
Ally	74223-64-6	nc			15,000	150,000
Allyl alcohol	107-18-6	nc			306	3,100
Allyl chloride	107-05-1	nc			18	180
Aluminum	7429-90-5	nc			76,000	920,000
Aluminum phosphide	20859-73-8	nc			31	409
Amdro	67485-29-4	nc			18	180
Ametryn	834-12-8	nc			550	5,500
Aminodinitrotoluene	1321-12-6	nc			12	120
m-Aminophenol	591-27-5	nc			4,300	43,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
4-Aminopyridine	504-24-5	nc			1.2	12
Amitraz	33089-61-1	nc			150	1,500
Ammonium sulfamate	7773-06-0	nc			12,000	120,000
Aniline	62-53-3	ca, nc	96	960		3,020
Antimony and compounds	7440-36-0	nc			31	409
Apollo	74115-24-5	nc			790	8,003
Aramite	140-57-8	ca, nc	22	220		690
Arsenic	7440-38-2	ca, nc	10	10	10	10
Assure	76578-12-6	nc			550	5,500
Asulam	3337-71-1	nc			3,060	31,000
Atrazine	1912-24-9	ca, nc	2.5	25		78
Avermectin B1	71751-41-2	nc			24	250
Azobenzene	103-33-3	ca	5.0	50		160
Barium and compounds	7440-39-3	nc			5,400	67,000
Baygon	114-26-1	nc			240	2,500
Bayleton	43121-43-3	nc			1,800	18,000
Baythroid	68359-37-5	nc			1,500	15,000
Benefin	1861-40-1	nc			18,000	180,000
Benomyl	17804-35-2	nc			3,060	30,800
Bentazon	25057-89-0	nc			1,800	18,000
Benzaldehyde	100-52-7	nc			6,100	62,000
Benzene	71-43-2	ca, nc	0.65	NA		1.4
Benzidine	92-87-5	ca, nc	0.0024	NA		0.0075
Benzoic acid	65-85-0	nc			240,000	1,000,000
Benzotrichloride	98-07-7	ca	0.042	0.42		1.3
Benzyl alcohol	100-51-6	nc			18,000	180,000
Benzyl chloride	100-44-7	ca, nc	0.92	9.2		22
Beryllium and compounds	7440-41-7	ca, nc			150	1,900
Bidrin	141-66-2	nc			6.1	62
Biphenthrin (Talstar)	82657-04-3	nc			920	9,200
1,1-Biphenyl	92-52-4	nc			350 *	350 *
Bis(2-chloroethyl)ether	111-44-4	ca	0.23	2.3		5.8
Bis(2-chloroisopropyl)ether	39638-32-9	nc			790 *	790 *
Bis(chloromethyl)ether	542-88-1	ca	0.00020	NA		0.00043
Bis(2-chloro-1-methylethyl)ether	108-60-1	ca, nc	3.0	30		74

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	ca, nc	39	390		1200
Bisphenol A	80-05-7	nc			3,060	31,000
Boron	7440-42-8	nc			16,000	203,000
Bromate	15541-45-4	ca, nc	0.78	7.8		25
Bromobenzene	108-86-1	nc			28	92
Bromodichloromethane	75-27-4	ca, nc	0.83	8.3		18
Bromoform (tribromomethane)	75-25-2	ca, nc	69	690		2,200
Bromomethane (methyl bromide)	74-83-9	nc			3.9	13
Bromophos	2104-96-3	nc			306	3,080
Bromoxynil	1689-84-5	nc			1,200	12,000
Bromoxynil octanoate	1689-99-2	nc			1,200	12,000
1,3-Butadiene	106-99-0	ca, nc	0.058	0.58		1.2
1-Butanol	71-36-3	nc			6,100	61,000
Butylate	2008-41-5	nc			3,060	30,800
n-Butylbenzene	104-51-8	nc			240 *	240 *
sec-Butylbenzene	135-98-8	nc			220 *	220 *
tert-Butylbenzene	98-06-6	nc			390 *	390 *
Butyl benzyl phthalate	85-68-7	nc			12,000	120,000
Butylphthalyl butylglycolate	85-70-1	nc			61,000	620,000
Cadmium and compounds	7440-43-9	ca, nc			39	508
Caprolactam	105-60-2	nc			30,600	308,000
Captafol	2425-06-1	ca, nc	64	640	120	1,200
Captan	133-06-2	ca, nc	160	1,600		4,900
Carbaryl	63-25-2	nc			6,100	62,000
Carbazole	86-74-8	ca	27	270		860
Carbofuran	1563-66-2	nc			306	3,080
Carbon disulfide	75-15-0	nc			360	720 *
Carbon tetrachloride	56-23-5	ca, nc	0.25	2.5	2.2	5.5
Carbosulfan	55285-14-8	nc			610	6,200
Carboxin	5234-68-4	nc			6,100	62,000
Chloral hydrate	302-17-0	nc			6,100	62,000
Chloramben	133-90-4	nc			920	9,200
Chloranil	118-75-2	ca	1.4	14		43
Chlordane	12789-03-6	ca, nc	1.9	19		65
Chlorimuron-ethyl	90982-32-4	nc			1,200	12,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Chloroacetic acid	79-11-8	nc			120	1,200
2-Chloroacetophenone	532-27-4	nc			0.033	0.11
4-Chloroaniline	106-47-8	nc			240	2,500
Chlorobenzene	108-90-7	nc			150	530
Chlorobenzilate	510-15-6	ca, nc	2.03	20.3		64
p-Chlorobenzoic acid	74-11-3	nc			12,000	120,000
4-Chlorobenzotrifluoride	98-56-6	nc			1,200	12,000
2-Chloro-1,3-butadiene	126-99-8	nc			3.6	12
1-Chlorobutane	109-69-3	nc			480 *	480 *
1-Chloro-1,1-difluoroethane	75-68-3	nc			340 *	340 *
Chlorodifluoromethane	75-45-6	nc			340 *	340 *
Chloroethane	75-00-3	ca, nc	3.03	30.3		65
Chloroform	67-66-3	nc			54	190
Chloromethane	74-87-3	nc			48	160
4-Chloro-2-methylaniline	95-69-2	ca	0.94	9.4		30
4-Chloro-2-methylaniline hydrochloride	3165-93-3	ca	1.2	12		37
beta-Chloronaphthalene	91-58-7	nc			110 *	110 *
o-Chloronitrobenzene	88-73-3	ca, nc			1.4	4.5
p-Chloronitrobenzene	100-00-5	ca, nc			10.2	37
2-Chlorophenol	95-57-8	nc			63	240
2-Chloropropane	75-29-6	nc			170	590
Chlorothalonil	1897-45-6	ca, nc	50	500		1600
o-Chlorotoluene	95-49-8	nc			160	510 *
Chlorpropham	101-21-3	nc			12,000	120,000
Chlorpyrifos	2921-88-2	nc			180	1,800
Chlorpyrifos-methyl	5598-13-0	nc			610	6,200
Chlorsulfuron	64902-72-3	nc			3,060	30,800
Chlorthiophos	60238-56-4	nc			49	490
Chromium III	16065-83-1	nc			120,000	1,000,000 **
Chromium VI	18540-29-9	ca, nc	21	210		448
Cobalt	7440-48-4	ca, nc	903	9,030	1,400	13,000
Copper and compounds	7440-50-8	nc			3,200	40,900
Crotonaldehyde	123-73-9	ca	0.0053	0.053		0.11
Cumene (isopropylbenzene)	98-82-8	nc			92 *	92 *
Cyanazine	21725-46-2	ca, nc	0.65	6.5		20.5

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Cyanide (free)	57-12-5	nc			1,200	12,000
Cyanide (hydrogen)	74-90-8	nc			11	35
Cyanogen	460-19-5	nc			130	430
Cyanogen bromide	506-68-3	nc			290	970
Cyanogen chloride	506-77-4	nc			160	540
Cyclohexane	110-82-7	nc			140 *	140 *
Cyclohexanone	108-94-1	nc			306,000	1,000,000 **
Cyclohexylamine	108-91-8	nc			12,000	123,000
Cyhalothrin/Karate	68085-85-8	nc			306	3,080
Cypermethrin	52315-07-8	nc			610	6,200
Cyromazine	66215-27-8	nc			460	4,600
Dacthal	1861-32-1	nc			610	6,200
Dalapon	75-99-0	nc			1,800	18,000
Danitol	39515-41-8	nc			1,500	15,000
DDD	72-54-8	ca	2.8	28		100
DDE	72-55-9	ca	2.0	20		70.2
DDT	50-29-3	ca, nc	2.0	20		70.2
Decabromodiphenyl ether	1163-19-5	nc			610	6,200
Demeton	8065-48-3	nc			2.4	25
Diallate	2303-16-4	ca	9.0	90		280
Diazinon	333-41-5	nc			55	550
Dibenzofuran	132-64-9	nc			140 *	140 *
1,4-Dibromobenzene	106-37-6	nc			610	6,200
Dibromochloromethane	124-48-1	ca, nc	1.1	11		26
1,2-Dibromo-3-chloropropane	96-12-8	ca, nc	0.53	5.3	1.5	6.5
1,2-Dibromoethane	106-93-4	ca, nc	0.029	0.29		0.63
Dibutyl phthalate	84-74-2	nc			6,100	62,000
Dicamba	1918-00-9	nc			1,800	18,000
1,2-Dichlorobenzene	95-50-1	nc			600 *	600 *
1,3-Dichlorobenzene	541-73-1	nc			530	600 *
1,4-Dichlorobenzene	106-46-7	ca	3.5	35		79
3,3-Dichlorobenzidine	91-94-1	ca	1.2	12		38
4,4'-Dichlorobenzophenone	90-98-2	nc			1,800	18,000
1,4-Dichloro-2-butene	764-41-0	ca	0.0080	0.080		0.18
Dichlorodifluoromethane	75-71-8	nc			94	308

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
1,1-Dichloroethane	75-34-3	nc			506	1,700 *
1,2-Dichloroethane (DCA)	107-06-2	ca, nc	0.28	2.8		6.0
1,1-Dichloroethylene (DCE)	75-35-4	nc			124	410
1,2-Dichloroethylene (cis)	156-59-2	nc			43	150
1,2-Dichloroethylene (trans)	156-60-5	nc			69	230
2,4-Dichlorophenol	120-83-2	nc			180	1,800
4-(2,4-Dichlorophenoxy)butyric acid	94-82-6	nc			490	4,900
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	nc			690	7,700
1,2-Dichloropropane	78-87-5	ca, nc	0.34	3.4		7.4
1,3-Dichloropropane	142-28-9	nc			56	190
1,3-Dichloropropene	542-75-6	ca, nc	0.79	7.9		18
2,3-Dichloropropanol	616-23-9	nc			180	1,800
Dichlorvos	62-73-7	ca, nc	1.9	19		59.44
Dicofol	115-32-2	ca	1.2	12		39.17
Dicyclopentadiene	77-73-6	nc			0.54	1.8
Dieldrin	60-57-1	ca, nc	0.034	0.34		1.08
Diethylene glycol, monobutyl ether	112-34-5	nc			610	6,200
Diethylene glycol, monomethyl ether	111-90-0	nc			3,700	37,000
Diethylformamide	617-84-5	nc			24	250
Di(2-ethylhexyl)adipate	103-23-1	ca, nc	460	4,600		14,000
Diethyl phthalate	84-66-2	nc			49,000	490,000
Diethylstilbestrol	56-53-1	ca	0.000117	NA		0.0037
Difenzoquat (Avenge)	43222-48-6	nc			4,900	49,000
Diflubenzuron	35367-38-5	nc			1,200	12,000
Diisononyl phthalate	28553-12-0	nc			1,200	12,000
Diisopropyl methylphosphonate	1445-75-6	nc			4,900	49,000
Dimethipin	55290-64-7	nc			1,200	12,000
Dimethoate	60-51-5	nc			12	120
3,3'-Dimethoxybenzidine	119-90-4	ca	39	390		1,200
Dimethylamine	124-40-3	nc			0.067	0.25
N-N-Dimethylaniline	121-69-7	nc			120	1,200
2,4-Dimethylaniline	95-68-1	ca	0.73	7.3		23
2,4-Dimethylaniline hydrochloride	21436-96-4	ca	0.94	9.4		30
3,3'-Dimethylbenzidine	119-93-7	ca	0.24	2.4		7.5
N,N-Dimethylformamide	68-12-2	nc			6,100	62,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Dimethylphenethylamine	122-09-8	nc			61	620
2,4-Dimethylphenol	105-67-9	nc			1,200	12,000
2,6-Dimethylphenol	576-26-1	nc			37	370
3,4-Dimethylphenol	95-65-8	nc			61	620
Dimethyl phthalate	131-11-3	nc			611,031	1,000,000 **
Dimethyl terephthalate	120-61-6	nc			6,100	62,000
4,6-Dinitro-o-cyclohexyl phenol	131-89-5	nc			120	1,200
1,2-Dinitrobenzene	528-29-0	nc			6.1	62
1,3-Dinitrobenzene	99-65-0	nc			6.1	62
1,4-Dinitrobenzene	100-25-4	nc			6.1	62
2,4-Dinitrophenol	51-28-5	nc			120	1,200
Dinitrotoluene mixture	25321-14-6	ca	0.805765	8.05765		25
2,4-Dinitrotoluene	121-14-2	nc			120	1,200
2,6-Dinitrotoluene	606-20-2	nc			61	620
Dinoseb	88-85-7	nc			61	620
di-n-Octyl phthalate	117-84-0	nc			2,400	25,000
1,4-Dioxane	123-91-1	ca	50	500		1,600
Dioxin (2,3,7,8-TCDD)	1746-01-6	ca	0.0000045	0.000045		0.00016
Diphenamid	957-51-7	nc			1,800	18,000
Diphenylamine	122-39-4	nc			1,500	15,000
N,N-Diphenyl-1,4 benzenediamine (DPPD)	74-31-7	nc			18	180
1,2-Diphenylhydrazine	122-66-7	ca	0.68	6.8		22
Diphenyl sulfone	127-63-9	nc			180	1,800
Diquat	85-00-7	nc			130	1,400
Direct black 38	1937-37-7	ca	0.064	NA		0.20
Direct blue 6	2602-46-2	ca	0.068	NA		0.21
Direct brown 95	16071-86-6	ca	0.059	NA		0.19
Disulfoton	298-04-4	nc			2.4	25
1,4-Dithiane	505-29-3	nc			610	6,200
Diuron	330-54-1	nc			120	1,200
Dodine	2439-10-3	nc			240	2,500
Dysprosium	7429-91-6	nc			7,800	102,000
Endosulfan	115-29-7	nc			370	3,700
Endothall	145-73-3	nc			1,200	12,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Endrin	72-20-8	nc			18	180
Epichlorohydrin	106-89-8	ca, nc			7.6	26
1,2-Epoxybutane	106-88-7	nc			350	3,500
EPTC (S-Ethyl dipropylthiocarbamate)	759-94-4	nc			1,500	15,000
Ethephon (2-chloroethyl phosphonic acid)	16672-87-0	nc			306	3,080
Ethion	563-12-2	nc			31	308
2-Ethoxyethanol	110-80-5	nc			24,000	250,000
2-Ethoxyethanol acetate	111-15-9	nc			18,000	180,000
Ethyl acetate	141-78-6	nc			19,000	37,000 *
Ethyl acrylate	140-88-5	ca	0.21	2.1		4.5
Ethylbenzene	100-41-4	nc			400 *	400 *
Ethyl chloride	75-00-3	ca, nc	3.0	30		65
Ethylene cyanohydrin	109-78-4	nc			18,000	180,000
Ethylene diamine	107-15-3	nc			5,500	55,000
Ethylene glycol	107-21-1	nc			120,000	1,000,000 **
Ethylene glycol, monobutyl ether	111-76-2	nc			30,600	308,000
Ethylene oxide	75-21-8	ca	0.14	1.4		3.4
Ethylene thiourea (ETU)	96-45-7	ca, nc			4.9	49
Ethyl ether	60-29-7	nc			1,800 *	1,800 *
Ethyl methacrylate	97-63-2	nc			140 *	140 *
Ethyl p-nitrophenyl phenylphosphorothioate	2104-64-5	nc			0.61	6.2
Ethylphthalyl ethyl glycolate	84-72-0	nc			180,000	1,000,000 **
Express	101200-48-0	nc			490	4,900
Fenamiphos	22224-92-6	nc			15	150
Fluometuron	2164-17-2	nc			790	8,003
Fluoride	16984-48-8	nc			3,700	37,000
Fluoridone	59756-60-4	nc			4,900	49,000
Flurprimidol	56425-91-3	nc			1,200	12,000
Flutolanil	66332-96-5	nc			3,700	37,000
Fluvalinate	69409-94-5	nc			610	6,200
Folpet	133-07-3	ca, nc	160	1,600		4,900
Fomesafen	72178-02-0	ca	2.9	29		91
Fonofos	944-22-9	nc			120	1,200
Formaldehyde	50-00-0	ca, nc			9,200	92,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Formic Acid	64-18-6	nc			114,318	1,000,000 **
Fosetyl-al	39148-24-8	nc			183,309	1,000,000 **
Furan	110-00-9	nc			2.5	8.5
Furazolidone	67-45-8	ca	0.14	1.4		4.5
Furfural	98-01-1	nc			180	1,800
Furium	531-82-8	ca	0.011	0.11		0.34
Furmecyclox	60568-05-0	ca	18	180		570
Glufosinate-ammonium	77182-82-2	nc			24	250
Glycidaldehyde	765-34-4	nc			24	250
Glyphosate	1071-83-6	nc			6,100	62,000
Haloxyfop-methyl	69806-40-2	nc			3.1	31
Harmony	79277-27-3	nc			790	8,003
Heptachlor	76-44-8	ca, nc	0.12	1.2		3.8
Heptachlor epoxide	1024-57-3	ca, nc	0.060	0.60		1.9
Hexabromobenzene	87-82-1	nc			120	1,200
Hexachlorobenzene	118-74-1	ca, nc	0.34	3.4		11
Hexachlorobutadiene	87-68-3	ca, nc	7.0	70	18	180
HCH (alpha)	319-84-6	ca, nc	0.10	1.0		3.6
HCH (beta)	319-85-7	ca, nc	0.36	3.6		13
HCH (gamma) Lindane	58-89-9	ca, nc	0.50	5.0		17
HCH-technical	608-73-1	ca	0.36	3.6		13
Hexachlorocyclopentadiene	77-47-4	nc			370	3,700
Hexachloroethane	67-72-1	ca, nc	39	390	61	620
Hexachlorophene	70-30-4	nc			18	180
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121-82-4	ca, nc	5.0	50		160
1,6-Hexamethylene diisocyanate	822-06-0	nc			0.17	1.8
n-Hexane	110-54-3	nc			110 *	110 *
Hexazinone	51235-04-2	nc			2,020	20,000
Hydrazine, hydrazine sulfate	302-01-2	ca	0.18	1.8		5.7
Hydrazine, monomethyl	60-34-4	ca	0.18	1.8		5.7
Hydrazine, dimethyl	57-14-7	ca	0.18	1.8		5.7
p-Hydroquinone	123-31-9	ca, nc	9.8	98		308
Imazalil	35554-44-0	nc			790	8,003
Imazaquin	81335-37-7	nc			15,000	153,902
Iprodione	36734-19-7	nc			2,400	25,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Isobutanol	78-83-1	nc			13,000	40,000 *
Isophorone	78-59-1	ca, nc	580	5,800		18,000
Isopropalin	33820-53-0	nc			920	9,200
Isopropyl methyl phosphonic acid	1832-54-8	nc			6,100	62,000
Isoxaben	82558-50-7	nc			3,060	30,800
Kepone	143-50-0	ca, nc	0.068	0.68		2.2
Lactofen	77501-63-4	nc			120	1,200
Lead	7439-92-1	ca, nc			400	800
Lead (tetraethyl)	78-00-2	nc			0.0061	0.062
Linuron	330-55-2	nc			120	1,200
Lithium	7439-93-2	nc			1,600	20,400
Londax	83055-99-6	nc			12,000	120,000
Malathion	121-75-5	nc			1,200	12,000
Maleic anhydride	108-31-6	nc			6,100	62,000
Maleic hydrazide	123-33-1	nc			1,700	2,400 *
Malononitrile	109-77-3	nc			6.1	62
Mancozeb	8018-01-7	nc			1,800	18,000
Maneb	12427-38-2	ca, nc	9.1	91		290
Manganese	7439-96-5	nc			1,800	19,000
Mephosfolan	950-10-7	nc			5.5	55
Mepiquat	24307-26-4	nc			1,800	18,000
2-Mercaptobenzothiazole	149-30-4	ca, nc	19	190		590
Mercury and compounds	7487-94-7	nc			23	307
Mercury (methyl)	22967-92-6	nc			6.1	62
Merphos	150-50-5	nc			1.8	18
Merphos oxide	78-48-8	nc			1.8	18
Metalaxyl	57837-19-1	nc			3,700	37,000
Methacrylonitrile	126-98-7	nc			2.1	8.4
Methamidophos	10265-92-6	nc			3.1	31
Methanol	67-56-1	nc			30,600	308,000
Methidathion	950-37-8	nc			61	620
Methomyl	16752-77-5	nc			44	150
Methoxychlor	72-43-5	nc			306	3,080
2-Methoxyethanol	109-86-4	nc			61	620
2-Methoxyethanol acetate	110-49-6	nc			120	1,200

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
2-Methoxy-5-nitroaniline	99-59-2	ca	12	120		370
Methyl acetate	79-20-9	nc			22,000	92,000
Methyl acrylate	96-33-3	nc			70	230
2-Methylaniline (o-toluidine)	95-53-4	ca	2.3	23		72
2-Methylaniline hydrochloride	636-21-5	ca	3.0	30		96
2-Methyl-4-chlorophenoxyacetic acid	94-74-6	nc			31	308
4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)	94-81-5	nc			610	6,200
2-(2-Methyl-4-chlorophenoxy) propionic acid	93-65-2	nc			61	620
2-(2-Methyl-1,4-chlorophenoxy) propionic acid (MCPP)	16484-77-8	nc			61	620
Methylcyclohexane	108-87-2	nc			230 *	230 *
4,4'-Methylenebisbenzeneamine	101-77-9	ca	2.2	22		69
4,4'-Methylene bis(2-chloroaniline)	101-14-4	ca, nc	4.2	42		130
4,4'-Methylene bis(N,N'-dimethyl) aniline	101-61-1	ca	12	120		370
Methylene bromide	74-95-3	nc			67	230
Methylene chloride	75-09-2	ca, nc	9.3	93		205
4,4'-Methylenediphenyl isocyanate	101-68-8	nc			10	105
Methyl ethyl ketone (MEK)	78-93-3	nc			23,000	34,000 *
Methyl isobutyl ketone (MIBK)	108-10-1	nc			5,300	17,000 *
Methyl mercaptan	74-93-1	nc			35	350
Methyl methacrylate	80-62-6	nc			2,200	2700 *
2-Methyl-5-nitroaniline	99-55-8	ca	17	170		520
Methyl parathion	298-00-0	nc			15	154
2-Methylphenol	95-48-7	nc			3,060	30,800
3-Methylphenol	108-39-4	nc			3,060	30,800
4-Methylphenol	106-44-5	nc			306	3,080
Methyl phosphonic acid	993-13-5	nc			1,200	12,000
Methyl styrene (mixture)	25013-15-4	nc			130	540
Methyl styrene (alpha)	98-83-9	nc			680 *	680 *
Methyl tertbutyl ether (MTBE)	1634-04-4	ca, nc	32	320		705
Metolaclor (Dual)	51218-45-2	nc			9,200	92,000
Metribuzin	21087-64-9	nc			1,500	15,000
Mirex	2385-85-5	ca, nc	0.30	3.0		9.6
Molinate	2212-67-1	nc			120	1,200

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Molybdenum	7439-98-7	nc			390	5,100
Monochloramine	10599-90-3	nc			6,100	62,000
Naled	300-76-5	nc			120	1,200
Napropamide	15299-99-7	nc			6,100	62,000
Nickel and compounds	7440-02-0	nc			1,600	20,400
Nickel subsulfide	12035-72-2	ca	5,200	NA		11,000
2-Nitroaniline	88-74-4	nc			180	1,800
3-Nitroaniline	99-09-2	ca, nc			18	180
4-Nitroaniline	100-01-6	ca, nc	26	260	180	820
Nitrobenzene	98-95-3	nc			20	103
Nitrofurantoin	67-20-9	nc			4,300	43,000
Nitrofurazone	59-87-0	ca	0.37	3.7		11
Nitroglycerin	55-63-0	ca	39	390		1,200
Nitroguanidine	556-88-7	nc			6,100	62,000
2-Nitropropane	79-46-9	ca, nc	0.0028	0.028		0.061
N-Nitrosodi-n-butylamine	924-16-3	ca	0.025	0.25		0.58
N-Nitrosodiethanolamine	1116-54-7	ca	0.195686	2.0		6.2
N-Nitrosodiethylamine	55-18-5	ca	0.0037	0.037		0.11
N-Nitrosodimethylamine	62-75-9	ca, nc	0.011	0.11		0.34
N-Nitrosodiphenylamine	86-30-6	ca, nc	110	1,100		3,500
N-Nitroso di-n-propylamine	621-64-7	ca	0.078	0.78		2.5
N-Nitroso-N-methylethylamine	10595-95-6	ca	0.025	0.25		0.78
N-Nitrosopyrrolidine	930-55-2	ca	0.26	2.6		8.2
m-Nitrotoluene	99-08-1	nc			730	1,020 *
o-Nitrotoluene	99-08-1	ca, nc	3.3	33		120
p-Nitrotoluene	99-99-0	ca, nc	44	440	370	1,020 *
Norflurazon	27314-13-2	nc			2,400	25,000
NuStar	85509-19-9	nc			43	430
Octabromodiphenyl ether	32536-52-0	nc			180	1,800
Octahydro-1357-tetranitro-1357-tetrazocine (HMX)	2691-41-0	nc			3,060	30,800
Octamethylpyrophosphoramide	152-16-9	nc			120	1,200
Oryzalin	19044-88-3	nc			3,060	30,800
Oxadiazon	19666-30-9	nc			306	3,080
Oxamyl	23135-22-0	nc			1,500	15,000

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Oxyfluorfen	42874-03-3	nc			180	1,800
Paclobutrazol	76738-62-0	nc			790	8,003
Paraquat	4685-14-7	nc			270	2,800
Parathion	56-38-2	nc			370	3,700
Pebulate	1114-71-2	nc			3,060	30,800
Pendimethalin	40487-42-1	nc			2,400	25,000
Pentabromo-6-chloro cyclohexane	87-84-3	ca	24	240		750
Pentabromodiphenyl ether	32534-81-9	nc			120	1,200
Pentachlorobenzene	608-93-5	nc			49	490
Pentachloronitrobenzene	82-68-8	ca, nc	2.1	21		66
Pentachlorophenol	87-86-5	ca, nc	3.2	32		90
Perchlorate	7601-90-3	nc			55	720
Permethrin	52645-53-1	nc			3,060	30,800
Phenmedipham	13684-63-4	nc			15,000	150,000
Phenol	108-95-2	nc			18,000	180,000
Phenothiazine	92-84-2	nc			120	1,200
m-Phenylenediamine	108-45-2	nc			370	3,700
o-Phenylenediamine	95-54-5	ca	12	120		370
p-Phenylenediamine	106-50-3	nc			12,000	120,000
Phenylmercuric acetate	62-38-4	nc			4.9	49
2-Phenylphenol	90-43-7	ca	280	2,800		8,900
Phorate	298-02-2	nc			12	120
Phosmet	732-11-6	nc			1,200	12,000
Phosphine	7803-51-2	nc			18	180
Phosphorus (white)	7723-14-0	nc			1.6	20
p-Phthalic acid	100-21-0	nc			61,000	620,000
Phthalic anhydride	85-44-9	nc			120,000	1,000,000 **
Picloram	1918-02-1	nc			4,300	43,000
Pirimiphos-methyl	29232-93-7	nc			610	6,200
Polybrominated biphenyls (PBBs)	NA	ca, nc	0.062	0.62	0.43	1.9
Polychlorinated biphenyls (PCBs), low-risk mixture	12674-11-2	ca, nc			3.9	37
Polychlorinated biphenyls (PCBs), high-risk mixture	11097-69-1	ca, nc	0.25	2.5	1.1	7.4
Polychlorinated terphenyls	61788-33-8	ca	0.12	1.2		3.8

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Polynuclear aromatic hydrocarbons						
Acenaphthene	83-32-9	nc			3,700	29,000
Anthracene	120-12-7	nc			22,000	240,000
Benz[a]anthracene	56-55-3	ca	0.69	6.9		21
Benzo[b]fluoranthene	205-99-2	ca	0.69	6.9		21
Benzo[k]fluoranthene	207-08-9	ca	6.9	69		210
Benzo[a]pyrene	50-32-8	ca	0.069	0.69		2.1
Chrysene	218-01-9	ca	68	680		2,030
Dibenz[ah]anthracene	53-70-3	ca	0.069	0.69		2.1
Fluoranthene	206-44-0	nc			2,300	22,000
Fluorene	86-73-7	nc			2,700	26,000
Indeno[1,2,3-cd]pyrene	193-39-5	ca	0.69	6.9		21
Naphthalene	91-20-3	nc			56	190
Pyrene	129-00-0	nc			2,300	29,000
Prochloraz	67747-09-5	ca, nc	3.7	37		110
Profluralin	26399-36-0	nc			370	3,700
Prometon	1610-18-0	nc			920	9,200
Prometryn	7287-19-6	nc			240	2,500
Pronamide	23950-58-5	nc			4,600	46,000
Propachlor	1918-16-7	nc			790	8,003
Propanil	709-98-8	nc			306	3,080
Propargite	2312-35-8	nc			1,200	12,000
Propargyl alcohol	107-19-7	nc			120	1,200
Propazine	139-40-2	nc			1,200	12,000
Propham	122-42-9	nc			1,200	12,000
Propiconazole	60207-90-1	nc			790	8,003
n-Propylbenzene	103-65-1	nc			240 *	240 *
Propylene glycol	57-55-6	nc			30,030	290,000
Propylene glycol, monoethyl ether	52125-53-8	nc			43,000	430,000
Propylene glycol, monomethyl ether	107-98-2	nc			43,000	430,000
Propylene oxide	75-56-9	ca, nc	2.2	22		66
Pursuit	81335-77-5	nc			16,000	150,000
Pydrin	51630-58-1	nc			1,500	15,000
Pyridine	110-86-1	nc			61	620
Quinalphos	13593-03-8	nc			31	308

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Quinoline	91-22-5	ca	0.18	1.8		5.7
RDX (Cyclonite)	121-82-4	ca, nc	5.0	50		157
Resmethrin	10453-86-8	nc			1,800	18,000
Ronnel	299-84-3	nc			3,060	30,800
Rotenone	83-79-4	nc			240	2,500
Savey	78587-05-0	nc			1,500	15,000
Selenious Acid	7783-00-8	nc			306	3,080
Selenium	7782-49-2	nc			390	5,100
Selenourea	630-10-4	nc			306	3,080
Sethoxydim	74051-80-2	nc			5,500	55,000
Silver and compounds	7440-22-4	nc			390	5,100
Simazine	122-34-9	ca, nc	4.6	46		140
Sodium azide	26628-22-8	nc			310	4,090
Sodium diethyldithiocarbamate	148-18-5	ca, nc	2.0	20		64
Sodium fluoroacetate	62-74-8	nc			1.2	12
Sodium metavanadate	13718-26-8	nc			61	620
Strontium, stable	7440-24-6	nc			47,000	610,000
Strychnine	57-24-9	nc			18	180
Styrene	100-42-5	nc			1,500 *	1,500 *
1,1'-Sulfonylbis-(4-chlorobenzene)	80-07-9	nc			306	3,080
Systhane	88671-89-0	nc			1,500	15,000
Tebuthiuron	34014-18-1	nc			4,300	43,000
Temephos	3383-96-8	nc			1,200	12,000
Terbacil	5902-51-2	nc			790	8,003
Terbufos	13071-79-9	nc			1.5	15
Terbutryn	886-50-0	nc			61	620
1,2,4,5-Tetrachlorobenzene	95-94-3	nc			18	180
1,1,1,2-Tetrachloroethane	630-20-6	ca, nc	3.2	32		73
1,1,2,2-Tetrachloroethane	79-34-5	ca, nc	0.42	4.2		9.3
Tetrachloroethylene (PCE)	127-18-4	ca, nc	5.4	54		140
2,3,4,6-Tetrachlorophenol	58-90-2	nc			1,800	18,000
p,a,a,a-Tetrachlorotoluene	5216-25-1	ca	0.027	0.27		0.86
Tetrachlorovinphos	961-11-5	ca, nc	23	230	1,800	720
Tetraethyldithiopyrophosphate	3689-24-5	nc			31	308
Tetrahydrofuran	109-99-9	ca, nc	9.5	95		210

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
Thallium and compounds	7440-28-0	nc			5.2	67
Thiobencarb	28249-77-6	nc			610	6,200
Thiocyanate	NA	nc			3,060	30,800
Thiofanox	39196-18-4	nc			18	180
Thiophanate-methyl	23564-05-8	nc			4,900	49,000
Thiram	137-26-8	nc			306	3,080
Tin	7440-31-5	nc			47,000	610,000
Titanium	7440-32-6	nc			310,000	1,000,000 **
Toluene	108-88-3	nc			650 *	650 *
Toluene-2,4-diamine	95-80-7	ca	0.17	1.7		5.4
Toluene-2,5-diamine	95-70-5	nc			37,000	370,000
Toluene-2,6-diamine	823-40-5	nc			12,000	120,000
p-Toluidine	106-49-0	ca	2.9	29		91
Toxaphene	8001-35-2	ca	0.50	5.0		16
Tralomethrin	66841-25-6	nc			460	4,600
Triallate	2303-17-5	nc			790	8,003
Triasulfuron	82097-50-5	nc			610	6,200
1,2,4-Tribromobenzene	615-54-3	nc			306	3,080
Tributyl phosphate	126-73-8	ca, nc	60	600		1,900
Tributyltin oxide (TBTO)	56-35-9	nc			18	180
2,4,6-Trichloroaniline	634-93-5	ca	16	160		507
2,4,6-Trichloroaniline hydrochloride	33663-50-2	ca	19	190		590
1,2,4-Trichlorobenzene	120-82-1	nc			62	220
1,1,1-Trichloroethane	71-55-6	nc			1,200 *	1,200 *
1,1,2-Trichloroethane	79-00-5	ca, nc	0.74	7.4		16
Trichloroethylene (TCE)	79-01-6	ca, nc	3.0	30	17	65
Trichlorofluoromethane	75-69-4	nc			390	1,300
2,4,5-Trichlorophenol	95-95-4	nc			6,100	62,000
2,4,6-Trichlorophenol	88-06-2	ca, nc			6.1	62
2,4,5-Trichlorophenoxyacetic Acid	93-76-5	nc			610	6,200
2-(2,4,5-Trichlorophenoxy) propionic acid	93-72-1	nc			490	4,900
1,1,2-Trichloropropane	598-77-6	nc			15	51
1,2,3-Trichloropropane	96-18-4	ca, nc	0.0050	0.050		0.11
1,2,3-Trichloropropene	96-19-5	nc			0.71	2.3

CONTAMINANT	CASRN	Class	Residential (mg/kg)			Non-residential (mg/kg)
			Carcinogen		Non-carcinogen	
			10^{-6} Risk	10^{-5} Risk		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	nc			5,600 *	5,600 *
Tridiphane	58138-08-2	nc			180	1,800
Triethylamine	121-44-8	nc			23	86
Trifluralin	1582-09-8	ca, nc	71	710		2,200
Trimellitic Anhydride (TMAN)	552-30-7	nc			8.6	86
1,2,4-Trimethylbenzene	95-63-6	nc			52	170
1,3,5-Trimethylbenzene	108-67-8	nc			21	70
Trimethyl phosphate	512-56-1	ca	15	150		470
1,3,5-Trinitrobenzene	99-35-4	nc			1,800	18,000
Trinitrophenylmethylnitramine	479-45-8	nc			610	6,200
2,4,6-Trinitrotoluene	118-96-7	ca, nc	18	180	31	308
Triphenylphosphine oxide	791-28-6	nc			1,200	12,000
Tris(2-chloroethyl) phosphate	115-96-8	ca, nc	39	390		1,200
Tris(2-ethylhexyl) phosphate	78-42-2	ca, nc	170	1,700		5,400
Uranium (chemical toxicity only)	7440-61-0	nc			16	204
Vanadium and compounds	7440-62-2	nc			78	1,020
Vernam	1929-77-7	nc			61	616
Vinclozolin	50471-44-8	nc			1,500	15,000
Vinyl acetate	108-05-4	nc			430	1,400
Vinyl bromide	593-60-2	ca, nc	0.19	1.9		4.2
Vinyl chloride	75-01-4	ca, nc	0.085	NA		0.75
Warfarin	81-81-2	nc			18	180
Xylenes	1330-20-7	nc			270	420 *
Zinc	7440-66-6	nc			23,000	307,000
Zinc phosphide	1314-84-7	nc			23	307
Zineb	12122-67-7	nc			3,060	30,800
NA indicates not applicable.						
Class is the classification of the chemical. “ca” indicates carcinogen; “nc” indicates non-carcinogen. Chemicals may be either or both, as indicated.						
* Indicates SRL is based on the chemical-specific saturation level in soil for volatile organic chemicals only.						
** Indicates SRL is based on a 100% saturation ceiling limit for non-volatile organic chemicals.						
Bold indicates adequate evidence to classify the chemical as a known human carcinogen.						
CASRN is the Chemical Abstract System Registry Number.						

Appendix ~~A~~ B. 1997 Soil Remediation Levels (SRLs)

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
	A				
1	Acenaphthene	83-32-9	D	3900.0	41000.0
2	Acephate	30560-19-1	C	260.0	2200.0
3	Acetaldehyde	75-07-0	B2	39.0	150.0
4	Acetochlor	34256-82-1	D	1300.0	14000.0
5	Acetone	67-64-1	D	2100.0	8800.0
6	Acetone cyanohydrin	75-86-5	D	52.0	550.0
7	Acetonitrile	75-05-8	D	220.0	1200.0
8	Acetophenone	98-86-2	D	0.49	1.6
9	Acifluorfen	62476-59-9	D	850.0	8900.0
10	Acrolein	107-02-8	C	0.10	0.34
11	Acrylamide	79-06-1	B2	0.98	4.2
12	Acrylic acid	79-10-7	D	31000.0	290000.0
13	Acrylonitrile	107-13-1	B1	1.9	4.7
14	Alachlor	15972-60-8	B2	55.0	240.0
15	Alar	1596-84-5	D	9800.0	100000.0
16	Aldicarb	116-06-3	D	65.0	680.0
17	Aldicarb sulfone	1646-88-4	D	65.0	680.0
18	Aldrin	309-00-2	B2	0.26	1.1
19	Ally	5585-64-8	D	16000.0	170000.0
		74223-64-6			
20	Allyl alcohol	107-18-6	D	330.0	3400.0
21	Allyl chloride	107-05-1	C	3200.0	33000.0
22	Aluminum	7429-90-5	D	77000.0	1000000.0
23	Aluminum phosphide	20859-73-8	D	31.0	680.0
24	Amdro	67485-29-4	D	20.0	200.0
25	Ametryn	834-12-8	D	590.0	6100.0
26	m-Aminophenol	591-27-5	D	4600.0	48000.0
27	4-Aminopyridine	504-24-5	D	1.3	14.0
28	Amitraz	33089-61-1	D	160.0	1700.0
29	Ammonia	7664-41-7	D	2200.0	58000.0
30	Ammonium sulfamate	7773-06-0	D	13000.0	140000.0
31	Aniline	62-53-3	B2	19.0	200.0
32	Anthracene	120-12-7	D	20000.0	200000.0
33	Antimony and compounds	7440-36-0	D	31.0	680.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
34	Antimony pentoxide	1314-60-9	D	38.0	850.0
35	Antimony potassium tartrate	28300-74-5	D	69.0	1500.0
36	Antimony tetroxide	1332-81-6	D	31.0	680.0
37	Antimony trioxide	1309-64-4	D	31.0	680.0
38	Apollo	74115-24-5	C	850.0	8900.0
39	Aramite	140-57-8	B2	180.0	760.0
40	~Arsenic	7440-38-2	A	10.0	10.0
41	Assure	76578-12-6	D	590.0	6100.0
		76578-14-8			
42	Asulam	3337-71-1	D	3300.0	34000.0
43	Atrazine	1912-24-9	C	20.0	86.0
44	Avermectin B1	65195-55-3	D	26.0	270.0
		71751-41-2			
45	Azobenzene	103-33-3	B2	40.0	170.0
	B				
46	Barium and compounds	7440-39-3	D	5300.0	110000.0
47	Barium cyanide	542-62-1	D	7700.0	170000.0
48	Baygon	114-26-1	D	260.0	2700.0
49	Bayleton	43121-43-3	D	2000.0	20000.0
50	Baythroid	68359-37-5	D	1600.0	17000.0
51	Benefin	1861-40-1	D	20000.0	200000.0
52	Benomyl	17804-35-2	D	3300.0	34000.0
53	Bentazon	25057-89-0	D	160.0	1700.0
54	Benzaldehyde	100-52-7	D	6500.0	68000.0
55	Benz[a]anthracene	56-55-3	B2	6.1	26.0
56	Benzene	71-43-2	A	0.62	1.4
57	Benzidine	92-87-5	A	0.0019	0.0083
58	Benzo[a]pyrene	50-32-8	B2	0.61	2.6
59	Benzo[b]fluoranthene	205-99-2	B2	6.1	26.0
60	Benzoic acid	65-85-0	D	260000.0	1000000.0
61	Benzo[k]fluoranthene	207-08-9	B2	61.0	260.0
62	Benzotrichloride	98-07-7	B2	0.34	1.5
63	Benzyl alcohol	100-51-6	D	20000.0	200000.0
64	Benzyl chloride	100-44-7	B2	8.0	20.0
65	Beryllium and compounds	7440-41-7	B2	1.4	11.0
66	Bidrin	141-66-2	D	6.5	68.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
67	Biphenthrin (Talstar)	82657-04-3	D	980.0	10000.0
68	1,1-Biphenyl	92-52-4	D	3300.0	34000.0
69	Bis(2-chloroethyl)ether	111-44-4	B2	0.43	0.97
70	Bis(2-chloroisopropyl)ether	39638-32-9	C	25.0	67.0
71	Bis(chloromethyl)ether	542-88-1	A	0.0002	0.0004
72	Bis(2-chloro-1-methylethyl)ether	108-60-1	C	63.0	270.0
73	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	B2	320.0	1400.0
74	Bisphenol A	80-05-7	D	3300.0	34000.0
75	Boron	7440-42-8	D	5900.0	61000.0
76	Bromodichloromethane	75-27-4	B2	6.3	14.0
77	Bromoform (tribromomethane)	75-25-2	B2	560.0	2400.0
78	Bromomethane	74-83-9	D	6.8	23.0
79	Bromophos	2104-96-3	D	330.0	3400.0
80	Bromoxynil	1689-84-5	D	1300.0	14000.0
81	Bromoxynil octanoate	1689-99-2	D	1300.0	14000.0
82	1,3-Butadiene	106-99-0	B2	0.064	0.14
83	1-Butanol	71-36-3	D	6500.0	68000.0
84	Butylate	2008-41-5	D	3300.0	34000.0
85	Butyl benzyl phthalate	85-68-7	C	13000.00	140000.00
86	Butylphthalyl butylglycolate	85-70-1	D	65000.0	680000.0
	C				
87	Cacodylic acid	75-60-5	D	200.0	2000.0
88	Cadmium and compounds	7440-43-9	B1	38.0	850.0
89	Calcium cyanide	592-01-8	D	3100.0	68000.0
90	Caprolactam	105-60-2	D	33000.0	340000.0
91	Captafol	2425-06-1	C	130.0	1400.0
92	Captan	133-06-2	D	1300.0	5500.0
93	Carbaryl	63-25-2	D	6500.0	68000.0
94	Carbazole	86-74-8	B2	220.0	950.0
95	Carbofuran	1563-66-2	E	330.0	3400.0
96	Carbon disulfide	75-15-0	D	7.5	24.0
97	Carbon tetrachloride	56-23-5	B2	1.6	5.0
98	Carbosulfan	55285-14-8	D	650.0	6800.0
99	Carboxin	5234-68-4	D	6500.0	68000.0
100	Chloral (hydrate)	302-17-0	D	130.0	1400.0
101	Chloramben	133-90-4	D	980.0	10000.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
102	Chloranil	118-75-2	C	11.0	47.0
103	Chlordane	57-74-9	B2	3.4	15.0
		12789-03-6			
104	Chlorimuron-ethyl	90982-32-4	D	1300.0	14000.0
105	Chlorine cyanide	506-77-4	D	3800.0	85000.0
106	Chloroacetic acid	79-11-8	D	130.0	1400.0
107	2-Chloroacetophenone	532-27-4	D	0.56	5.9
108	4-Chloroaniline	106-47-8	D	260.0	2700.0
109	Chlorobenzene	108-90-7	D	65.0	220.0
110	Chlorobenzilate	510-15-6	B2	16.0	71.0
111	p-Chlorobenzoic acid	74-11-3	D	13000.0	140000.0
112	4-Chlorobenzotrifluoride	98-56-6	D	1300.0	14000.0
113	2-Chloro-1,3-butadiene	126-99-8	D	3.6	12.0
114	1-Chlorobutane	109-69-3	D	710.0	2400.0
115	* 1-Chloro-1,1-difluoroethane	75-68-3	D	2800.0	2800.0
116	* Chlorodifluoromethane	75-45-6	D	2800.0	2800.0
117	Chloroform	67-66-3	B2	2.5	5.3
118	Chloromethane	74-87-3	C	12.0	26.0
119	4-Chloro-2-methylaniline	95-69-2	B2	7.7	33.0
120	4-Chloro-2-methylaniline hydrochloride	3165-93-3	B2	9.7	41.0
121	beta-Chloronaphthalene	91-58-7	D	5200.0	55000.0
122	o-Chloronitrobenzene	88-73-3	B2	180.0	760.0
123	p-Chloronitrobenzene	100-00-5	B2	250.0	1100.0
124	2-Chlorophenol	95-57-8	D	91.0	370.0
125	2-Chloropropane	75-29-6	D	170.0	580.0
126	Chlorothalonil	1897-45-6	B2	400.0	1700.0
127	* o-Chlorotoluene	95-49-8	D	160.0	550.0
128	Chlorpropham	101-21-3	D	13000.0	140000.0
129	Chlorpyrifos	2921-88-2	D	200.0	2000.0
130	Chlorpyrifos-methyl	5598-13-0	D	650.0	6800.0
131	Chlorsulfuron	64902-72-3	D	3300.0	34000.0
132	Chlorthiophos	602-38-56-4	D	52.0	550.0
133	Chromium, Total (1/6 ratio Cr VI/Cr III)	N/A	D	2100.0	4500.0
134	Chromium III	16065-83-1	D	77000.0	1000000.0
135	Chromium VI	7440-47-3	A	30.0	64.0
136	Chrysene	218-01-9	B2	610.0	2600.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
137	Cobalt	7440-48-4	D	4600.0	97000.0
138	Copper and compounds	7440-50-8	D	2800.0	63000.0
139	Copper cyanide	544-92-3	D	380.0	8500.0
140	Crotonaldehyde	123-73-9	C	0.052	0.11
141	Cumene	98-82-8	D	19.0	62.0
142	Cyanazine	21725-46-2	D	5.3	23.0
143	Cyanide, Free	57-12-5	D	1300.0	14000.0
144	Cyanogen	460-19-5	D	2600.0	27000.0
145	Cyanogen bromide	506-68-3	D	5900.0	61000.0
146	Cyanogen chloride	506-77-4	D	3300.0	34000.0
147	Cyclohexanone	108-94-1	D	330000.0	1000000.0
148	Cyclohexylamine	108-91-8	D	13000.0	140000.0
149	Cyhalothrin/Karate	68085-85-8	D	330.0	3400.0
150	Cypermethrin	52315-07-8	D	650.0	6800.0
151	Cyromazine	66215-27-8	D	490.0	5100.0
	D				
152	Dacthal	1861-32-1	D	650.0	6800.0
153	Dalapon	75-99-0	D	2000.0	20000.0
154	Danitol	39515-41-8	D	1600.0	17000.0
155	DDD	72-54-8	B2	19.0	80.0
156	DDE	72-55-9	B2	13.0	56.0
157	DDT	50-29-3	B2	13.0	56.0
158	Decabromodiphenyl ether	1163-19-5	C	650.0	6800.0
159	Demeton	8065-48-3	D	2.6	27.0
160	Diallate	2303-16-4	B2	73.0	310.0
161	Diazinon	333-41-5	E	59.0	610.0
162	Dibenz[ah]anthracene	53-70-3	B2	0.61	2.6
163	Dibenzofuran	132-64-9	D	260.0	2700.0
164	1,4-Dibromobenzene	106-37-6	D	650.0	6800.0
165	Dibromochloromethane	124-48-1	C	53.0	230.0
166	1,2-Dibromo-3-chloropropane	96-12-8	B2	3.2	14.0
167	1,2-Dibromoethane	106-93-4	B2	0.049	0.2
168	Dibutyl phthalate	84-74-2	D	6500.0	68000.0
169	Dicamba	1918-00-9	D	2000.0	20000.0
170	* 1,2-Dichlorobenzene	95-50-1	D	1100.0	3900.0
171	* 1,3-Dichlorobenzene	541-73-1	D	500.0	2000.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
172	1,4-Dichlorobenzene	106-46-7	C	190.0	790.0
173	3,3-Dichlorobenzidine	91-94-1	B2	9.9	42.0
174	1,4-Dichloro-2-butene	764-41-0	B2	0.074	0.17
175	Dichlorodifluoromethane	75-71-8	D	94.0	310.0
176	1,1-Dichloroethane	75-34-3	C	500.0	1700.0
177	1,2-Dichloroethane (EDC)	107-06-2	B2	2.5	5.5
178	1,1-Dichloroethylene	75-35-4	C	0.36	0.8
179	1,2-Dichloroethylene (cis)	156-59-2	D	31.0	100.0
180	1,2-Dichloroethylene (trans)	156-60-5	D	78.0	270.0
181	1,2-Dichloroethylene (mixture)	540-59-0	D	35.0	120.0
182	2,4-Dichlorophenol	120-83-2	D	200.0	2000.0
183	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	94-82-6	D	520.0	5500.0
184	2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	D	650.0	6800.0
185	1,2-Dichloropropane	78-87-5	B2	3.1	6.8
186	1,3-Dichloropropene	542-75-6	B2	2.4	5.5
187	2,3-Dichloropropanol	616-23-9	D	200.0	2000.0
188	Dichlorvos	62-73-7	B2	15.0	66.0
189	Dicofol	115-32-2	C	10.0	43.0
190	Dieldrin	60-57-1	B2	0.28	1.2
191	Diethylene glycol, monobutyl ether	112-34-5	D	370.0	3900.0
192	Diethylene glycol, monoethyl ether	111-90-0	D	130000.0	1000000.0
193	Diethylformamide	617-84-5	D	720.0	7500.0
194	Di(2-ethylhexyl)adipate	103-23-1	C	3700.0	16000.0
195	Diethyl phthalate	84-66-2	D	52000.0	550000.0
196	Diethylstilbestrol	56-53-1	A	0.0001	0.0004
197	Difenzoquat (Avenge)	43222-48-6	D	5200.0	55000.0
198	Diflubenzuron	35367-38-5	D	1300.0	14000.0
199	Diisopropyl methylphosphonate	1445-75-6	D	5200.0	55000.0
200	Dimethipin	55290-64-7	C	1300.0	14000.0
201	Dimethoate	60-51-5	D	13.0	140.0
202	3,3'-Dimethoxybenzidine	119-90-4	B2	320.0	1400.0
203	Dimethylamine	124-40-3	D	0.07	0.24
204	N-N-Dimethylaniline	121-69-7	D	130.0	1400.0
205	2,4-Dimethylaniline	95-68-1	C	5.9	25.0
206	2,4-Dimethylaniline hydrochloride	21436-96-4	C	7.7	33.0
207	3,3'-Dimethylbenzidine	119-93-7	B2	0.48	2.1

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
208	1,1-Dimethylhydrazine (Hydrazine, dimethyl)	57-14-7	B, C	1.7	7.3
209	1,2-Dimethylhydrazine	540-73-8	B2	0.12	0.52
210	N,N-Dimethylformamide	68-12-2	D	6500.0	68000.0
211	2,4-Dimethylphenol	105-67-9	D	1300.0	14000.0
212	2,6-Dimethylphenol	576-26-1	D	39.0	410.0
213	3,4-Dimethylphenol	95-65-8	D	65.0	680.0
214	Dimethyl phthalate	131-11-3	D	650000.0	1000000.0
215	Dimethyl terephthalate	120-61-6	D	6500.0	68000.0
216	4,6-Dinitro-o-cyclohexyl phenol	131-89-5	D	130.0	1400.0
217	1,3-Dinitrobenzene	99-65-0	D	6.5	68.0
218	1,2-Dinitrobenzene	528-29-0	D	26.0	270.0
219	1,4-Dinitrobenzene	100-25-4	D	26.0	270.0
220	2,4-Dinitrophenol	51-28-5	D	130.0	1400.0
221	Dinitrotoluene mixture	25321-14-6	B2	6.5	28.0
222	2,4-Dinitrotoluene	121-14-2	B2	130.0	1400.0
223	2,6-Dinitrotoluene	606-20-2	D	65.0	680.0
224	Dinoseb	88-85-7	D	65.0	680.0
225	di-n-Octyl phthalate	117-84-0	D	1300.0	14000.0
226	1,4-Dioxane	123-91-1	B2	400.0	1700.0
227	Diphenamid	957-51-7	D	2000.0	20000.0
228	Diphenylamine	122-39-4	D	1600.0	17000.0
229	1,2-Diphenylhydrazine	122-66-7	B2	5.6	24.0
230	Diquat	85-00-7	D	140.0	1500.0
231	Direct black 38	1937-37-7	A	0.052	0.22
232	Direct blue 6	2602-46-2	A	0.055	0.24
233	Direct brown 95	16071-86-6	A	0.048	0.21
234	Disulfoton	298-04-4	E	2.6	27.0
235	1,4-Dithiane	505-29-3	D	650.0	6800.0
236	Diuron	330-54-1	D	130.0	1400.0
237	Dodine	2439-10-3	D	260.0	2700.0
	E				
238	Endosulfan	115-29-7	D	390.0	4100.0
239	Endothall	145-73-3	D	1300.0	14000.0
240	Endrin	72-20-8	D	20.0	200.0
241	Epichlorohydrin	106-89-8	B2	7.5	25.0
242	1,2-Epoxybutane	106-88-7	D	370.0	3900.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
243	EPTC (S-Ethyl dipropylthiocarbamate)	759-94-4	D	1600.0	17000.0
244	Ethephon (2-chloroethyl phosphonic acid)	16672-87-0	D	330.0	3400.0
245	Ethion	563-12-2	D	33.0	340.0
246	2-Ethoxyethanol	110-80-5	D	26000.0	270000.0
247	2-Ethoxyethanol acetate	111-15-9	D	20000.0	200000.0
248	* Ethyl acetate	141-78-6	D	18000.0	39000.0
249	Ethyl acrylate	140-88-5	B2	2.1	4.5
250	* Ethylbenzene	100-41-4	D	1500.0	2700.0
251	Ethylene cyanohydrin	109-78-4	D	20000.0	200000.0
252	Ethylene diamine	107-15-3	D	1300.0	14000.0
253	Ethylene glycol	107-21-1	D	130000.0	1000000.0
254	Ethylene glycol, monobutyl ether	111-76-2	D	370.0	3900.0
255	Ethylene oxide	75-21-8	B1	1.3	3.2
256	Ethylene thiourea (ETU)	96-45-7	B2	5.2	55.0
257	* Ethyl chloride	75-00-3	D	1100.0	4200.0
258	* Ethyl ether	60-29-7	D	3800.0	3800.0
259	* Ethyl methacrylate	97-63-2	D	210.0	690.0
260	Ethyl p-nitrophenyl phenylphosphorothioate	2104-64-5	D	0.65	6.8
261	Ethylphthalyl ethyl glycolate	84-72-0	D	200000.0	1000000.0
262	Express	101200-48-0	D	520.0	5500.0
	F				
263	Fenamiphos	22224-92-6	D	16.0	170.0
264	Fluometuron	2164-17-2	D	850.0	8900.0
265	Fluoranthene	206-44-0	D	2600.0	27000.0
266	Fluorene	86-73-7	D	2600.0	27000.0
267	Fluorine (soluble fluoride)	7782-41-4	D	3900.0	41000.0
268	Fluoridone	59756-60-4	D	5200.0	55000.0
269	Flurprimidol	56425-91-3	D	1300.0	14000.0
270	Flutolanil	66332-96-5	D	3900.0	41000.0
271	Fluvalinate	69409-94-5	D	650.0	6800.0
272	Folpet	133-07-3	B2	1300.0	5500.0
273	Fomesafen	72178-02-0	C	23.0	100.0
274	Fonofos	944-22-9	D	130.0	1400.0
275	Formaldehyde	50-00-0	B1	9800.0	100000.0
276	Formic Acid	64-18-6	D	130000.0	1000000.0
277	Fosetyl-al	39148-24-8	C	200000.0	1000000.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
278	Furan	110-00-9	D	2.5	8.5
279	Furazolidone	67-45-8	B2	1.2	5.0
280	Furfural	98-01-1	D	200.0	2000.0
281	Furium	531-82-8	B2	0.089	0.38
282	Furmecyclox	60568-05-0	B2	150.0	640.0
	G				
283	Glufosinate-ammonium	77182-82-2	D	26.0	270.0
284	Glycidaldehyde	765-34-4	B2	26.0	270.0
285	Glyphosate	1071-83-6	D	6500.0	68000.0
	H				
286	Haloxyfop-methyl	69806-40-2	D	3.3	34.0
287	Harmony	79277-27-3	D	850.0	8900.0
288	Heptachlor	76-44-8	B2	0.99	4.2
289	Heptachlor epoxide	1024-57-3	B2	0.49	2.1
290	Hexabromobenzene	87-82-1	D	130.0	1400.0
291	Hexachlorobenzene	118-74-1	B2	2.8	12.0
292	Hexachlorobutadiene	87-68-3	C	13.0	140.0
293	HCH (alpha)	319-84-6	B2	0.71	3.0
294	HCH (beta)	319-85-7	C	2.5	11.0
295	HCH (gamma) Lindane	58-89-9	B2-C	3.4	15.0
296	HCH-technical	608-73-1	B2	2.5	11.0
297	Hexachlorocyclopentadiene	77-47-4	D	450.0	4600.0
298	Hexachlorodibenzo-p-dioxin mixture (HxCDD)	19408-74-3	B2	0.00072	0.0031
299	Hexachloroethane	67-72-1	C	65.0	680.0
300	Hexachlorophene	70-30-4	D	20.0	200.0
301	Hexahydro-1,3,5-trinitro-1,3,5-triazine	121-82-4	C	40.0	170.0
302	* n-Hexane	110-54-3	D	120.0	400.0
303	Hexazinone	51235-04-2	D	2200.0	22000.0
304	Hydrazine, hydrazine sulfate	302-01-2	B2	1.5	6.4
305	Hydrocarbons (C_{10} to C_{32})	N/A	N/A	4100.0	18000.0
306	Hydrogen chloride	7647-01-0	D	370.0	3900.0
307	Hydrogen cyanide	74-90-8	D	11.0	35.0
308	p-Hydroquinone	123-31-9	D	2600.0	27000.0
	I				
309	Imazalil	35554-44-0	D	850.0	8900.0
310	Imazaquin	81335-37-7	D	16000.0	170000.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
311	Indeno[1,2,3-cd]pyrene	193-39-5	B2	6.1	26.0
312	Iprodione	36734-19-7	D	2600.0	27000.0
313	* Isobutanol	78-83-1	D	11000.0	42000.0
314	Isophorone	78-59-1	C	4700.0	20000.0
315	Isopropalin	33820-53-0	D	980.0	10000.0
316	Isopropyl methyl phosphonic acid	1832-54-8	D	6500.0	68000.0
317	Isoxaben	82558-50-7	C	3300.0	34000.0
	K				
318	Kepone	143-50-0	B, C	0.25	1.1
	L				
319	Lactofen	77501-63-4	D	130.0	1400.0
320	#Lead	7439-92-1	B2	400.0	2000.0
321	Lead (tetraethyl)	78-00-2	D	0.0065	0.068
322	Linuron	330-55-2	C	130.0	1400.0
323	Lithium	7439-93-2	D	1500.0	34000.0
324	Londax	83055-99-6	D	13000.0	140000.0
	M				
325	Malathion	121-75-5	D	1300.0	14000.0
326	Maleic anhydride	108-31-6	D	6500.0	68000.0
327	Maleic hydrazide	123-33-1	D	33000.0	340000.0
328	Malononitrile	109-77-3	D	1.3	14.0
329	Mancozeb	8018-01-7	D	2000.0	20000.0
330	Maneb	12427-38-2	D	330.0	3400.0
331	Manganese and compounds	7439-96-5	D	3200.0	43000.0
332	Mephosfolan	950-10-7	D	5.9	61.0
333	Mepiquat	24307-26-4	D	2000.0	20000.0
334	Mercuric chloride	7487-94-7	C	23.0	510.0
335	Mercury (elemental)	7439-97-6	D	6.7	180.0
336	Mercury (methyl)	22967-92-6	D	6.5	68.0
337	Merphos	150-50-5	D	2.0	20.0
338	Merphos oxide	78-48-8	D	2.0	20.0
339	Metalaxyl	57837-19-1	D	3900.0	41000.0
340	Methacrylonitrile	126-98-7	D	2.0	8.1
341	Methamidophos	10265-92-6	D	3.3	34.0
342	Methanol	67-56-1	D	33000.0	340000.0
343	Methidathion	950-37-8	C	65.0	680.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
344	Methomyl	16752-77-5	D	1600.0	17000.0
345	Methoxychlor	72-43-5	D	330.0	3400.0
346	2-Methoxyethanol	109-86-4	D	65.0	680.0
347	2-Methoxyethanol acetate	110-49-6	D	130.0	1400.0
348	2-Methoxy-5-nitroaniline	99-59-2	C	97.0	410.0
349	Methyl acetate	79-20-9	D	21000.0	88000.0
350	Methyl acrylate	96-33-3	D	69.0	230.0
351	2-Methylaniline (o-toluidine)	~~100-61-8~~ 95-53-4	B2	19.0	79.0
352	2-Methylaniline hydrochloride	636-21-5	B2	25.0	110.0
353	Methyl chlorocarbonate	79-22-1	D	65000.0	680000.0
354	2-Methyl-4-chlorophenoxyacetic acid	94-74-6	D	33.0	340.0
355	4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)	94-81-5	D	650.0	6800.0
356	2-(2-Methyl-4-chlorophenoxy) propionic acid	93-65-2	D	65.0	680.0
357	2-(2-Methyl-1,4-chlorophenoxy) propionic acid (MCPP)	16484-77-8	D	65.0	680.0
358	Methylcyclohexane	108-87-2	D	56000.0	590000.0
359	4,4'-Methylenebisbenzeneamine	101-77-9	D	18.0	76.0
360	4,4'-Methylene bis(2-chloroaniline)	101-14-4	B2	34.0	150.0
361	4,4'-Methylene bis(N,N'-dimethyl)aniline	101-61-1	B2	97.0	410.0
362	Methylene bromide	74-95-3	D	650.0	6800.0
363	Methylene chloride	75-09-2	B2	77.0	180.0
364	Methyl ethyl ketone	78-93-3	D	7100.0	27000.0
365	Methyl hydrazine	60-34-4	B, C	4.0	17.0
366	Methyl isobutyl ketone	108-10-1	D	770.0	2800.0
367	* Methyl methacrylate	80-62-6	D	760.0	2800.0
368	2-Methyl-5-nitroaniline	99-55-8	C	130.0	580.0
369	Methyl parathion	298-00-0	D	16.0	170.0
370	2-Methylphenol	95-48-7	C	3300.0	34000.0
371	3-Methylphenol	108-39-4	C	3300.0	34000.0
372	4-Methylphenol	106-44-5	C	330.0	3400.0
373	Methyl styrene (mixture)	25013-15-4	D	120.0	520.0
374	* Methyl styrene (alpha)	98-83-9	D	890.0	3100.0
375	Methyl tertbutyl ether (MTBE)	1634-04-4	D	320.0	3300.0
376	Metolaclor (Dual)	51218-45-2	D	9800.0	100000.0
377	Metribuzin	21087-64-9	D	1600.0	17000.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
378	Mirex	2385-85-5	B2	2.5	11.0
379	Molinate	2212-67-1	D	130.0	1400.0
380	Molybdenum	7439-98-7	D	380.0	8500.0
381	Monochloramine	10599-90-3	D	6500.0	68000.0
	N				
382	Naled	300-76-5	D	130.0	1400.0
383	Naphthalene	91-20-3	D	2600.0	27000.0
384	Napropamide	15299-99-7	D	6500.0	68000.0
385	Nickel and compounds	7440-02-0	D	1500.0	34000.0
386	Nickel subsulfide	12035-72-2	A	5100.0	11000.0
387	Nitrapyrin	1929-82-4	D	98.0	1000.0
388	Nitrate	14797-55-8	D	100000.0	1000000.0
389	Nitrite	14797-65-0	D	6500.0	68000.0
390	2-Nitroaniline	88-74-4	D	3.9	41.0
391	Nitrobenzene	98-95-3	D	18.0	94.0
392	Nitrofurantoin	67-20-9	D	4600.0	48000.0
393	Nitrofurazone	59-87-0	B2	3.0	13.0
394	Nitroguanidine	556-88-7	D	6500.0	68000.0
395	N-Nitrosodi-n-butylamine	924-16-3	B2	0.22	0.55
396	N-Nitrosodiethanolamine	1116-54-7	B2	1.6	6.8
397	N-Nitrosodiethylamine	55-18-5	B2	0.03	0.13
398	N-Nitrosodimethylamine	62-75-9	B2	0.087	0.37
399	N-Nitrosodiphenylamine	86-30-6	B2	910.0	3900.0
400	N-Nitroso di-n-propylamine	621-64-7	B2	0.63	2.7
401	N-Nitroso-N-methylethylamine	10595-95-6	B2	0.20	0.87
402	N-Nitrosopyrrolidine	930-55-2	B2	2.1	9.1
403	m-Nitrotoluene	99-08-1	D	650.0	6800.0
404	p-Nitrotoluene	99-99-0	D	650.0	6800.0
405	Norflurazon	27314-13-2	D	2600.0	27000.0
406	NuStar	85509-19-9	D	46.0	480.0
	O				
407	Octabromodiphenyl ether	32536-52-0	D	200.0	2000.0
408	Octahydro-1357-tetranitro-1357- tetrazocine (HMX)	2691-41-0	D	3300.0	34000.0
409	Octamethylpyrophosphoramide	152-16-9	D	130.0	1400.0
410	Oryzalin	19044-88-3	C	3300.0	34000.0
411	Oxadiazon	19666-30-9	D	330.0	3400.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
412	Oxamyl	23135-22-0	E	1600.0	17000.0
413	Oxyfluorfen	42874-03-3	D	200.0	2000.0
	P				
414	Paclobutrazol	76738-62-0	D	850.0	8900.0
415	Paraquat	4685-14-7	C	290.0	3100.0
416	Parathion	56-38-2	C	390.0	4100.0
417	Pebulate	1114-71-2	D	3300.0	34000.0
418	Pendimethalin	40487-42-1	D	2600.0	27000.0
419	Pentabromo-6-chloro cyclohexane	87-84-3	C	190.0	830.0
420	Pentabromodiphenyl ether	32534-81-9	D	130.0	1400.0
421	Pentachlorobenzene	608-93-5	D	52.0	550.0
422	Pentachloronitrobenzene	82-68-8	C	17.0	73.0
423	Pentachlorophenol	87-86-5	B2	25.0	79.0
424	Permethrin	52645-53-1	D	3300.0	34000.0
425	Phenmedipham	13684-63-4	D	16000.0	170000.0
426	Phenol	108-95-2	D	39000.0	410000.0
427	m-Phenylenediamine	108-45-2	D	390.0	4100.0
428	p-Phenylenediamine	106-50-3	D	12000.0	130000.0
429	Phenylmercuric acetate	62-38-4	D	5.2	55.0
430	2-Phenylphenol	90-43-7	C	2300.0	9800.0
431	Phorate	298-02-2	E	13.0	140.0
432	Phosmet	732-11-6	D	1300.0	14000.0
433	Phosphine	7803-51-2	D	20.0	200.0
434	Phosphorus, white	7723-14-0	D	1.5	34.0
435	Phthalic anhydride	85-44-9	D	130000.0	1000000.0
436	Picloram	1918-02-1	D	4600.0	48000.0
437	Pirimiphos-methyl	23505-41-1	D	650.0	6800.0
438	Polybrominated biphenyls (PBBs)	N/A	B2	0.46	2.1
439	Polychlorinated biphenyls (PCBs)	1336-36-3	B2	0.66	7.0
440	Potassium cyanide	151-50-8	D	3300.0	34000.0
441	Potassium silver cyanide	506-61-6	D	13000.0	140000.0
442	Prochloraz	67747-09-5	C	30.0	130.0
443	Profluralin	26399-36-0	D	390.0	4100.0
444	Prometon	1610-18-0	D	980.0	10000.0
445	Prometryn	7287-19-6	D	260.0	2700.0
446	Pronamide	23950-58-5	C	4900.0	51000.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
447	Propachlor	1918-16-7	D	850.0	8900.0
448	Propanil	709-98-8	D	330.0	3400.0
449	Propargite	2312-35-8	D	1300.0	14000.0
450	Propargyl alcohol	107-19-7	D	130.0	1400.0
451	Propazine	139-40-2	C	1300.0	14000.0
452	Propham	122-42-9	D	1300.0	14000.0
453	Propiconazole	60207-90-1	D	850.0	8900.0
454	Propylene glycol	57-55-6	D	1000000.0	1000000.0
455	Propylene glycol, monoethyl ether	111-35-3	D	46000.0	480000.0
456	Propylene glycol, monomethyl ether	107-98-2	D	46000.0	480000.0
457	Propylene oxide	75-56-9	B2	19.0	79.0
458	Pursuit	81335-77-5	D	16000.0	170000.0
459	Pydrin	51630-58-1	D	1600.0	17000.0
460	Pyrene	129-00-0	D	2000.0	20000.0
461	Pyridine	110-86-1	D	65.0	680.0
	Q				
462	Quinalphos	13593-03-8	D	33.0	340.0
463	Quinoline	91-22-5	C	0.37	1.6
	R				
464	RDX (Cyclonite)	121-82-4	C	40.0	170.0
465	Resmethrin	10453-86-8	D	2000.0	20000.0
466	Ronnel	299-84-3	D	3300.0	34000.0
467	Rotenone	83-79-4	D	260.0	2700.0
	S				
468	Savey	~~78578-05-0~~ 78587-05-0	D	1600.0	17000.0
469	Selenious Acid	7783-00-8	D	330.0	3400.0
470	Selenium	7782-49-2	D	380.0	8500.0
471	Selenourea	630-10-4	D	330.0	3400.0
472	Sethoxydim	74051-80-2	D	5900.0	61000.0
473	Silver and compounds	7440-22-4	D	380.0	8500.0
474	Silver cyanide	506-64-9	D	6500.0	68000.0
475	Simazine	122-34-9	C	37.0	160.0
476	Sodium azide	26628-22-8	D	260.0	2700.0
477	Sodium cyanide	143-33-9	D	2600.0	27000.0
478	Sodium diethyldithiocarbamate	148-18-5	C	16.0	71.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
479	Sodium fluoroacetate	62-74-8	D	1.3	14.0
480	Sodium metavanadate	13718-26-8	D	65.0	680.0
481	Strontium, stable	7440-24-6	D	46000.0	1000000.0
482	Strychnine	57-24-9	D	20.0	200.0
483	* Styrene	100-42-5	C	3300.0	3300.0
484	Systhane	88671-89-0	D	1600.0	17000.0
	T				
485	2,3,7,8-TCDD (dioxin)	1746-01-6	B2	0.000038	0.00024
486	Tebuthiuron	34014-18-1	D	4600.0	48000.0
487	Temephos	3383-96-8	D	1300.0	14000.0
488	Terbacil	5902-51-2	E	850.0	8900.0
489	Terbufos	13071-79-9	D	1.6	17.0
490	Terbutryn	886-50-0	D	65.0	680.0
491	1,2,4,5-Tetrachlorobenzene	95-94-3	D	20.0	200.0
492	1,1,1,2-Tetrachloroethane	630-20-6	C	23.0	54.0
493	1,1,2,2-Tetrachloroethane	79-34-5	C	4.4	11.0
494	Tetrachloroethylene (PCE)	127-18-4	B2	53.0	170.0
495	2,3,4,6-Tetrachlorophenol	58-90-2	D	2000.0	20000.0
496	p,a,a,a-Tetrachlorotoluene	5216-25-1	B2	0.22	0.95
497	Tetrachlorovinphos	961-11-5	C	190.0	790.0
498	Tetraethyldithiopyrophosphate	3689-24-5	D	33.0	340.0
499	Thallic oxide	1314-32-5	D	5.4	120.0
500	Thallium acetate	563-68-8	D	6.9	150.0
501	Thallium carbonate	6533-73-9	D	6.1	140.0
502	Thallium chloride	7791-12-0	D	6.1	140.0
503	Thallium nitrate	10102-45-1	D	6.9	150.0
504	Thallium selenite	12039-52-0	D	6.9	150.0
505	Thallium sulfate	7446-18-6	D	6.1	140.0
506	Thiobencarb	28249-77-6	D	650.0	6800.0
507	2-(Thiocyanomethylthio)- benzothiazole (TCMTB)	3689-24-5	D	2000.0	20000.0
508	Thiofanox	39196-18-4	D	20.0	200.0
509	Thiophanate-methyl	23564-05-8	D	5200.0	55000.0
510	Thiram	137-26-8	D	330.0	3400.0
511	Tin and compounds	7440-31-5	D	46000.0	1000000.0
512	* Toluene	108-88-3	D	790.0	2700.0
513	Toluene-2,4-diamine	95-80-7	B2	1.4	6.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
514	Toluene-2,5-diamine	95-70-5	D	39000.0	410000.0
515	Toluene-2,6-diamine	823-40-5	C	13000.0	140000.0
516	p-Toluidine	106-49-0	C	23.0	100.0
517	Toxaphene	8001-35-2	B2	4.0	17.0
518	Tralomethrin	66841-25-6	D	490.0	5100.0
519	Triallate	2303-17-5	D	850.0	8900.0
520	Triasulfuron	82097-50-5	D	650.0	6800.0
521	1,2,4-Tribromobenzene	615-54-3	D	330.0	3400.0
522	Tributyltin oxide (TBTO)	56-35-9	D	2.0	20.0
523	2,4,6-Trichloroaniline	634-93-5	C	130.0	560.0
524	2,4,6-Trichloroaniline hydrochloride	33663-50-2	C	150.0	660.0
525	* 1,2,4-Trichlorobenzene	120-82-1	D	570.0	4700.0
526	* 1,1,1-Trichloroethane	71-55-6	D	1200.0	4800.0
527	1,1,2-Trichloroethane	79-00-5	C	6.5	15.0
528	Trichloroethylene (TCE)	79-01-6	B2	27.0	70.0
529	Trichlorofluoromethane	75-69-4	D	380.0	1300.0
530	2,4,5-Trichlorophenol	95-95-4	D	6500.0	68000.0
531	2,4,6-Trichlorophenol	88-06-2	B2	400.0	1700.0
532	2,4,5-Trichlorophenoxyacetic Acid	93-76-5	D	650.0	6800.0
533	2-(2,4,5-Trichlorophenoxy) propionic acid	93-72-1	D	520.0	5500.0
534	1,1,2-Trichloropropane	598-77-6	D	15.0	50.0
535	1,2,3-Trichloropropane	96-18-4	B2	0.014	0.03
536	1,2,3-Trichloropropene	96-19-5	D	11.0	38.0
537	* 1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	D	10000.0	10000.0
538	Tridiphane	58138-08-2	D	200.0	2000.0
539	Triethylamine	121-44-8	D	23.0	84.0
540	Trifluralin	1582-09-8	C	490.0	2500.0
541	Trimethyl phosphate	512-56-1	B2	120.0	520.0
542	1,3,5-Trinitrobenzene	99-35-4	D	3.3	34.0
543	Trinitrophenylmethylnitramine	479-45-8	D	650.0	6800.0
544	2,4,6-Trinitrotoluene	118-96-7	C	33.0	340.0
	V				
545	Vanadium	7440-62-2	D	540.0	12000.0
546	Vanadium pentoxide	1314-62-1	D	690.0	15000.0
547	Vanadium sulfate	13701-70-7	D	1500.0	34000.0
548	Vernam	1929-77-7	D	65.0	680.0

	Chemical Name	~~Cas~~ CAS Number	Cancer Group	Residential (mg/kg)	Non-residential (mg/kg)
549	Vinclozolin	50471-44-8	D	1600.0	17000.0
550	Vinyl acetate	108-05-4	D	780.0	2600.0
551	Vinyl bromide	593-60-2	B2	1.9	4.1
552	Vinyl chloride	75-01-4	A	0.016	0.035
	W				
553	Warfarin	81-81-2	D	20.0	200.0
	X				
554	* Xylene (mixed)	1330-20-7	D	2800.0	2800.0
	Z				
555	Zinc	7440-66-6	D	23000.0	510000.0
556	Zinc phosphide	1314-84-7	D	23.0	510.0
557	Zinc cyanide	557-21-1	D	3300.0	34000.0
558	Zineb	12122-67-7	D	3300.0	34000.0

* = 1% free-phase analysis

= Based on IEUBK Model

~ = Based on natural background

N/A = Not Applicable

CARCINOGENICITY CLASSIFICIATIONS:

A = Known human carcinogen

B1 = Probable human carcinogen, with limited data indicating human carcinogenicity.

B2 = Probable human carcinogen, with inadequate or no evidence of carcinogenicity in humans. Sufficient evidence for carcinogenicity in laboratory animals.

C = Possible human carcinogen.

D = Not classifiable as to human carcinogenicity.

E = Evidence of noncarcinogenicity in humans.

Appendix B. Notice of Voluntary Environmental Mitigation Use Restriction By Owner or Owners

When recorded, mail to:

NOTICE OF VOLUNTARY ENVIRONMENTAL MITIGATION USE RESTRICTION BY OWNER OR OWNERS

Pursuant to A.R.S. § 49-152(B), the owner or owners _____ of the following described property:

(Please Print)

(insert legal description of entire parcel)

has (have) remediated a portion of the above-described property, which remediated portion is described as follows:

(insert legal description of remediated portion, the source of the release, and the remaining contaminants)

The date when the remediation was completed is: _____

The undersigned owner voluntarily agrees to limit and restrict the use of the remediated portion of the property to non-residential uses, as defined in A.R.S. § 49-151(A).

_____
Signature of owner

STATE OF ARIZONA
County of _____
On this _____ day of _____, 19____, before me personally appeared _____ (name of signer), whose identity was proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this document, and who acknowledged that he/she signed the above document.

_____
Notary Public

(Notary Seal) My commission expires: _____

_____ (if 2nd owner's signature is required)
Signature of owner

STATE OF ARIZONA
County of _____
On this _____ day of _____, 19____, before me personally appeared _____ (name of signer), whose identity was proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this document, and who acknowledged that he/she signed the above document.

_____
Notary Public

(Notary Seal) My commission expires: _____

~~Approved: _____~~
~~(ADEQ official)~~

~~STATE OF ARIZONA~~

~~County of _____~~

~~On this _____ day of _____, 19____, before me personally appeared _____(name of signer), whose identity was proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this document, and who acknowledged that he/she signed the above document.~~

~~_____~~
~~Notary Public~~

~~(Notary Seal)~~ ~~My commission expires: _____~~

~~Please make no marks below this line~~

Appendix C. ~~Cancellation of Voluntary Environmental Mitigation Use Restriction By Owner or Owners~~ Repealed

~~When recorded, mail to:~~

~~CANCELLATION OF VOLUNTARY ENVIRONMENTAL MITIGATION USE RESTRICTION BY OWNER OR OWNERS~~

~~Pursuant to A.R.S. § 49-152(B), the owner or owners _____~~
~~of the following described property:~~
~~(Please Print)~~

~~*(insert legal description of entire parcel)*~~

~~recorded a Notice of Voluntary Mitigation Use Restriction By Owner or Owners in the Office of the County Recorder of _____ County, Arizona on the _____ day of _____, _____ in Document/Docket _____ at Page _____, affecting the following portion of the above-described property:~~

~~*(insert legal description of remediated portion)*~~

~~Pursuant to A.R.S. § 49-152(C), the undersigned hereby cancel or cancels the above-described notice and declare or declares said notice to be of no further force and effect as of this _____ day of _____, _____.~~

~~_____~~
~~Signature of owner~~

~~STATE OF ARIZONA~~

~~County of _____~~

~~On this _____ day of _____, 19____, before me personally appeared _____(name of signer), whose identity was proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this document, and who acknowledged that he/she signed the above document.~~

~~_____~~
~~Notary Public~~

~~(Notary Seal)~~ ~~My commission expires: _____~~

~~_____~~

~~(ADEQ official)~~

~~STATE OF ARIZONA~~

~~County of _____~~

~~On this _____ day of _____, 19____, before me personally appeared _____(name of signer), whose identity was proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this document, and who acknowledged that he/she signed the above document.~~

~~_____~~
~~Notary Public~~

~~(Notary Seal)~~ ~~My commission expires: _____~~

~~Please make no marks below this line~~